MASTER OF

FINANCE

MASTER´S FINAL WORK

DISSERTATION

EFFECTS OF MIFID II: CORPORATE GOVERNANCE AS A MITIGATING FACTOR FOR SELL-SIDE ANALYSTS COVERAGE

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Glossary

Buy-side	Represents the part of the financial industry consisting of institutional investors that manage assets in various forms.
EEA	European Economic Area
EU	European Union
MiFID II	Directive 2014/65/EU, Markets in Financial Instruments Directive
MiFIR	Markets in Financial Instruments Regulation
RPA	Research Payment Account
Sell-side	Represents the part of the financial industry pitching and promoting stocks and various financial instruments, consisting of investment banks and advisory firms.

Abstract

This paper will investigate if corporate governance has a mitigating effect for Sell-side analysts' decision to follow a firm after the implementation of Markets in Financial Instruments Directive (MiFID II). Previous studies have found that the new legislation decreased the number of analysts following smaller publicly traded firms with lower institutional holdings. This raised concerns from actors on the financial market which argued that the information asymmetry increased as an effect of MiFID II. This study investigates if it is possible to prove this uses a quantitative method with observations ranging before and after the implementation of MiFID II. The hypothesis tested is that analysts tend to follow firms with a higher aggregated level of corporate governance and that his tendency increased after MiFID II. The examination shows that the aggregated level of corporate governance became a less important factor after MiFID II for the number of analysts that follow a firm. Results also show that the aggregated level of corporate governance is positively associated with the decrease of analyst firm coverage after MiFID II. The conclusions drawn is that there might be other factors that became more important than corporate governance after MiFID II when analysts decide to follow a firm. The period used is also relatively short since MiFID II was implemented in 2018 and the full effect might not have been captured.

JEL: H20; G28; G14

Keywords: MiFID II, Sell-side, corporate governance, information asymmetry, analyst coverage

Resumo

Este artigo analisa se a governança corporativa tem um efeito atenuante para a decisão dos analistas sell-side de seguir uma empresa após a implementação da Diretiva de Mercados em Instrumentos Financeiros (MiFID II). Estudos anteriores descobriram que a nova legislação diminuiu o número de analistas que seguem empresas cotadas de menor dimensão com menor participação de investidores institucionais. Este efeito levou a participantes no mercado de capitais argumentarem que a assimetria de informação aumentou como efeito da MiFID II. Este estudo analisa se é possível testar esta hipótese através do recurso a métodos quantitativos, cobrindo observações antes e depois da implementação da MiFID II. A hipótese testada é que os analistas tendem a seguir empresas com maior nível agregado de governança corporativa e que sua tendência aumentou após a implementação da MiFID II. Os resultados mostram que o nível agregado de governança corporativa tornou-se num fator menos importante após a implementação da MiFID II, considerando o número de analistas que seguem uma empresa. Os resultados também mostram que o nível agregado de governança corporativa está positivamente associado à diminuição da cobertura dos analistas após a MiFID II. Este estudo conclui que podem haver outros fatores a serem considerados pelos analistas após a introdução da MiFID II. O período em análise é relativamente curto, uma vez que MiFID II foi implementado em 2018, pelo que o efeito total da introdução da Diretiva pode ainda não ter sido capturado.

JEL: H20; G28; G14

Keywords: MiFID II, Sell-side, governança corporativa, assimetria de informação, cobertura por analistas

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1 Introduction

1.1 Impact of MiFID II in general

In 2007, the first European Union (EU) financial market harmonizing directive, Markets in Financial Instruments Directive (MiFID I) became effective. Since the 3 of January 2018 the (EU) legislation has taken an important step towards a greater harmonization of the financial markets in the EU and the European Economic Area (EEA) through the Markets in Financial Instruments Directive II (MiFID II) together with the regulation Markets in Financial Instruments Regulation (MiFIR). The directive and the regulation cover a wide range of aspects such as rules for authorization, rules of conduct but can be said to focus on the protection of the investors and to offer transparency. The necessity of updating and enlarging the area of harmonization of the financial markets is found in the recital of MiFID II. One important aspect was to strengthen the free competition within EU and to give the firms in EU the same conditions. The financial crisis in 2008 had called for transparency in advice and research and to give investors reinforced confidence. The rules also give adequate powers to the supervisors. It is important to stress that the protection of the investors is the most important goal of this regulation (Directive 2014/65/EU, 2014).

The aim of MiFID II is to strengthen the protection of the investor and enhance the function of the financial market, which should be a favourable goal. A higher aggregated level of corporate governance within financial institutions is also pointed out as a factor which is desirable as the weakness in this field contributed to the financial crisis as well as incorrect conduct of firms providing services to clients (Directive 2014/65/EU, 2014).

Considered that this regulation affect investment firms in all member states, and the important impact it has vis-a-vis the financial market, different aspects of the rules are highly interesting to study more closely. A great deal of articles and academic papers have

been written about different aspects of MiFID II. The implementation offers an opportunity to put a before and after perspective on several issues.

1.2 The effect of unbundling the transaction cost

One new rule which is central in this paper is the rule found in article 24 in MiFID II. Payment of equity research between asset managers and brokers needs to be unbundled from transaction costs. This new rule has changed the way of doing business for analysts resulting in analysts following fewer firms (Fang et al., 2020; se also Pope, Tamayo & Wang, 2019)

It is natural that new regulations effect different actors in the financial market in different ways. Even if the aims of MiFID II and MiFIR could be said to be desirable to everyone in an overall perspective, the new rules can cause problems to different actors on the financial market such as analysts. Non-favourable effects of rules can be studied in short term and in long term. Sometimes a non-wanted side-effect found can evolve into a favourable side-effect. In short, it is important for actors in the financial markets to identify and handle effects of a regulation. It would contribute to a more predictable market and business conditions. Therefor it is important to focus on which consequences a new regulation have on different parts of the financial market.

In 2019 the Charted Financial Association (CFA) published a survey of industry professionals, both for the assets managers (Buy-side) and the investment research providers (Sell-side). The survey asked the industry professionals on their thoughts of what the impact would be from the MiFID II implementation. The responds made it clear that the professionals saw several potential drawbacks with MiFID II. To summarize, the perception was that the quality and quantity of equity research would decrease. This would increase the market information asymmetry and lower the transparency (CFA, 2019).

1.3 The Purpose of this paper

The mentioned survey inspired me to write this paper together with the new business conditions for the analysts after MiFID II. It inspired me to formulate my purpose of this paper. Is corporate governance a mitigating factor for analysts to drop, remain constant or increase their coverage for a firm after MiFID II.

1.4 Disposition

As a background to my topic, this paper will present relevant and recent research about the effects of MiFID II on analysts when it comes to following firms (chapter 2). It will also describe corporate governance with focus on the reasons of why a higher aggregated level of corporate governance is desirable, how to measure it and how corporate governance is linked to information asymmetry (chapter 3). My method of research and examination is pointed out in chapter 4 and the results are analysed and discussed in chapter 5.

The method for this paper consists of a quantitative method where I analyse the collected data by running two regression models. I find that the relationship between the number of analysts following a firm and its corporate governance score is positive from 2016 until 2018 but that the strength of this relationship decreases in 2018 when MiFID II was implemented. The results from my regression are statistically significant. This paper is to the best of my knowledge the first to investigate if the level corporate governance for analyst following have changed as a mitigating factor after MiFID II.

2 Background

2.1 MiFID II Background

The financial crisis in 2008 exploited flaws in the monitoring of the financial markets and consequently the need to improve the regulatory and legislative measurement. The purpose for MiFID II was to limit market abuse, which in the case of MiFID II relates to unlawful behaviour, insider dealing and market manipulation. This kind of behaviour prevents full and proper market transparency, which is a necessity for all actors in an integrated economic market (Directive 2014/65/EU, 2014).

Most notably, MiFID II aims to improve investor protection and shortcomings in transparency of financial markets. One significant impact from MiFID II was the payment unbundling of investment research and transaction costs between asset managers and brokers (Busch, 2017). More specifically, the information that is presented to a client must display all separate costs and charges, related to the information, directly or by third-party payments (Directive 2014/65/EU, 2014).

2.2 The market for equity research before MiFID II

Before MiFID II, asset managers were provided investment research from investment banks or brokers and the charge for the research was a part of the commission paid to the providers (Haslem, 2020). This is called the soft dollar model which reduces the transparency of what the asset managers pay concerning transaction fees and the cost of investment research (Haslem, 2020). Some argue that the soft dollar model increases agency costs and decrease fund operation efficiency. This would result in lower shareholder value for investors in mutual funds (Haslem, 2020).

Following the legislation to unbundle the payment for commission and research, the following argument can be made and has been proven: Buy-side asset managers will reduce their demand for Sell-side research (Fang et al., 2020). The reduced demand meant that the Sell-side needed to restrict their budget on producing equity research and doing so by decreasing the number of firms that the analyst previously covered. The loss of coverage was highest for firms with low institutional holdings (Fang et al., 2020). This makes sense since Sell-side wants to continue to offer their research to the Buy-side, they would only keep covering firms that is of high interest to their clients.

Institutional investors, who are the largest clients for Sell-side investment banks, have been proven to preferer investments in firms that have a higher aggregated level of corporate governance (Ferreira & Matos, 2008). It is based on these facts that this study will further the research of the consequence of the MiFID II implementation.

2.3 Before implementation - Industry perception of MiFID II unbundling

In 2017, the Strategy Consulting company, Oliver Wyman, published an article after surveying business professionals estimating the impact of the equity research business after adopting MiFID II. Most notably, the impact for investment managers is that spending money on research will now be characterized by as marginal cost. From the survey conducted for investment managers, an average reduction of 10-30% in the research expense budget was expected (Wyman, 2020). Investment managers also planned to cut low-quality providers and focusing their spend on a small group of 4-6 high-quality global suppliers along with additional specialists (Wyman, 2020).

One possible side effect is the reduction of quality for small and mid-tier stocks. This would be an effect of mid-tier firms will stop producing research. It could also be one effect from Buy-side firms which needs to demonstrate that the research they pay for is

of high value and therefore to prioritize research for stocks with higher market cap and usually higher institutional ownership (PWC, 2016). Another unwanted side effect is that, as research quality and quantity decrease for small and mid-cap stocks, the liquidity for these sectors will also decrease (Anselmi & Petrella, 2020). Lower market liquidity implies a less efficient market and would contradict the implementation of MiFID II (PWC, 2016).

2.4 After implementation - Industry perception of MiFID II unbundling

In a survey conducted by the CFA institute one year after implementing MiFID II, little evidence was found that investment managers would increase their management fees to cover the research cost absorbed as profit/loss (MiFID II, 2019). Absorbing the cost of research will be unevenly burdensome for investment managers depending on their size.

The survey conducted by the CFA Institute consists of 496 responses, all members of the EU, the United Kingdom, or Switzerland. The responses came from 449 different firms and 25 different countries. The three most represented occupations among the respondents were portfolio managers, investment research, or quantitative analyst and several managerial roles (MiFID II, 2019).

From the survey, the authors could conclude that research budgets have been decreased on average by 6% from asset managers. It also finds that budget reduction increase with firm size. For firms with asset under management (AUM) over €250B, the average decrease is 11% while for firms with AUM less than €1B, the decrease is negligible (MiFID II, 2019).

The survey also asked the respondents whether they believed that the quality of the research output had decreased after MiFID II. Most Buy-side respondents did not believe

that there had been a decrease in the research quality. On the Sell-side however, 44% of the respondents believed that the research quality of small and mid-cap companies had decreased since MiFID II was implemented (MiFID II, 2019).

The conclusion to be drawn from the CFA survey is that MiFID II has several drawbacks for the business of equity research. The more competitive market is favouring the large firms as the research budget decreases. The most observable negative effect from the survey, of the new regulation, is the decrease of research quality amongst Sell-side analysts in the small-and mid-cap sector. A decrease in quality and quantity of investment research could make the market more illiquid and will leave investment managers with a narrower information foundation to make investment decisions (MiFID II, 2019).

The actor on the financial market that has benefited the most from MiFID II is the Buy-side. MiFID II has increased the transparency making the clients more aware of the investments they are making and lower the information asymmetry (Persson & Lassis, 2018). This result is in line with the aim of MiFID II implementation, to ensure fairer and safer markets. Along with higher transparency also comes an increase in analyst forecast precision. It has been proven that since the implementation of MiFID II, analysts' forecasts errors have been decreasing (Guo & Mota, 2021). This decrease could be a result from investment banks having to let go of the analysts with lower historical performance simultaneously as they decreased the number of firms they covered.

3 Previous research

3.1 Evidence on MiFID II consequences

One country that was a pioneer in adopting the MiFID II unbundling was Sweden. Several of Sweden's largest asset managers adopted the unbundling model, before they were legally required to follow MiFID II (Pope, Tamayo & Wang, 2019). MiFID II was implemented in the EU in 2018. However, Sweden's government body comparable to the security exchange commission, Finansinspektionen, strongly expressed their will to make the unbundling transaction before the implantation date, and in 2015 the new rules were enforced in Sweden (Pope, Tamayo & Wang, 2019).

The unbundling of research payments between Sell-side and asset managers in Sweden resulted in a reduction of supply of Sell-side research. It also resulted in a quantity reduction of companies covered by analysts (Pope, Tamayo & Wang, 2019). The reduction was greater for the firms with lower institutional ownership and lower market value of equity. However, the analyst research quality improved, this is backed up from the empirical results of superior earning forecast post the implementation (Pope, Tamayo & Wang, 2019). The way that the industry reacted in Sweden is a good proxy for the rest of the EEA countries after the MiFID implementation in 2018.

The effects for Sell-side and Buy-side from MiFID II unbundling were studied by Fang et al., (2020). The study used data before and after the implementation of MiFID II and consisted of all countries affected by MiFID II within the EEA. The method used is a difference in difference matched-sample design with firm fixed effects (Fang et al., 2020). The study used firms with headquarters in Canada as a control group. The rationale behind this is that Canada was not affected by the MiFID II regulation since the country is not a member of the EEA.

The study by Fang et al. (2020) had similar result with the earlier results from Sweden (Pope, Tamayo & Wang, 2019.). Which were that the number of firms covered by Sell-side analysts of European firms, decreased after MiFID II. The study also shows an improvement in the quality of Sell-side research output. Analyst forecasts also became more accurate after the MiFID II implementation (Fang et al., 2020).

3.2 Purpose of further study

MiFID II has been proved to affect the number of analysts covering listed firms. Pope, Tamayo & Wang (2019), found that the quantity of analyst following decreased most notably for companies with low institutional holding. The worries expressed from the CFA survey emphasized that a lower number of analysts following will lead to higher information asymmetry and lower trading volume, ultimately making the market less efficient.

Previous literature states that a higher quality of a firm's corporate governance will attract more analysts to cover the firm (Mouselli & Hussainey, 2014). There is evidence for that the aggregate level of corporate governance quality to be positively associated with the number of analysts following UK firms (Mouselli & Hussainey, 2014).

If the importance of corporate governance has changed as a mitigating factor when an analyst decides to follow a firm after MiFID II. Then, I can subsequently evaluate if the market information asymmetry has decreased or increased as an effect of the new legislation.

3.3 Literature review of corporate governance

Theory of corporate governance

The theory of corporate governance can be derived from the earlier literature regarding the role of a principal and agent which can be found in the theory of the firm (Jensen & Meckling, 1976). Corporate governance can be defined as a mechanism used by stakeholders to monitor a firm's corporate insiders and management to protect shareholders interests (John and Senbet, 1998).

There exists a conflict of interest between insiders and outsiders, with empathies of those regarding ownership and control of a company's generated wealth. This is the driving argument for a mechanism that can monitor, control, and resolve these conflicts. The type and structure of the governing mechanism is what defines a company's corporate government structure. The monitoring mechanism can be internal or external to the company (Jensen & Meckling, 1976).

An internal monitoring mechanism is represented by board of directors and block holders, who exercise shareholder activism. An external monitoring mechanism consists of takeovers and corporate control. These mechanisms work together as the corporate governance monitoring system. There are two theoretical viewpoints of how the interaction works between the internal and external mechanisms. One is the thought of the two acting like substitutes to each other (Pound, 1992). Gillan, Hartzell, and Starks, (2003) documented that greater board independence is found in firms that are less exposed to takeovers.

In this paper, the internal monitoring role will be of interest. It will be explored further in the method chapter as the variable used to measure a firm's quality of corporate governance. The literature provides empirical evidence that the board of directors play an important role of internal monitoring. There are different ways to measure the

effectiveness of the board in its monitoring. One way is the board's composition, and what is often measured is the number of independent board members. Compared to board members with managerial roles, independent board members are ensured to be unbiased in their judgments. However, the literature has not come to a clear decision of what the optimal ratio between independent and non-independent board member should be (John & Senbet, 1998).

Measures of internal corporate governance

To measure the quality of corporate governance, one can examine the ownership structure, the board, and the board members compensation (Wahab and Hollad, 2012). When measuring the quality of the ownership structure, it is of interest to measure percentage of director holdings and institutional holdings (Wahab and Hollad, 2012). Institutions play an active role in monitoring managerial behaviour and enhancing performance. Institutional investors produce information and when they are buying or selling of a stock it sends signals to the market. Previous empirical work find that pension funds are the most active and aggressive amongst institutional investors (Guercio and Hawkins, 1999). When measuring the quality of the board, it is the size and the number of board directors that is of interest Wahab and Hollad (2012). The percentage of non-executive directors (independent) to total number of directors on the board. And the percentage of directors who serve more than one board to total number of directors (Wahab and Hollad 2012). Finally, to measure executive compensation one can look at total salary paid to executive directors scaled by beginning book value of equity (Wahab and Hollad 2012).

Information asymmetry

Information asymmetry exists when one part has better access to information or more information than the other part of a transaction. Information asymmetry will always lead to goods of lower quality will be sold on a market (Aklof, 1970). This is because sellers and buyers do not have the same information before the transaction. On the financial markets, it is the amount of relevant information that is of interest and creates information asymmetry. Symmetry exists if both parts have equally relevant amount of information to make informed decision.

The relationship between corporate governance and information asymmetry

There are many papers studying how corporate governance effects the information asymmetry between the market and the insiders of a firm. The main conclusion to be drawn is that the better the corporate governance of a firm is, the lowers the information asymmetry will be.

Different measurement of information asymmetry has been used in previous studies. The literature regarding the agency issue of information asymmetry between the company and market have proven that the number of independent board members matters. Board members that also have a managerial roll or in other way is not considered an independent board member have a stronger motive to commit earnings management (Leuz, Nanda & Wysocki, 2003). By managing the earnings report, insiders can hide or manipulate their way to personal gains.

The number of independent board members also positively affects the transparency between the firm and the market. A board that consists mostly of independent members also have more comprising financial disclosure (Chen and Jaggi, 2000). A board with a high level of independent members will also more frequently provide voluntary earnings forecasts (Karamanou and Vafeas, 2005).

By using market liquidity as a proxy for information asymmetry the bid-ask spread has been proven to be negatively correlated to board independence, board activity and percentage of stock holding by directors and officers (Kanagaretnam, Lobo & Whalen, 2007; see also Elbadry, Gounopoulos & Skinner, 2015). To summarize, good quality of corporate governance lowers information asymmetry.

The monitoring role of analysts

The literature has proven a negative correlation between the number of analysts following and the information asymmetry between the corporate management and outsiders (Chang et al, 2004; see also Derrien & Kecskes, 2011). A higher number of analysts following a company increases the transparency and earnings estimates being reflected in the share price and lowers the information asymmetry (Francis and Soffer, 1997; see also Piotroski, and Roulstone, 2004).

There are two main thoughts of why there is a negative correlation between the number of analysts following a firm and the information asymmetry of the firm. One is that analyst themselves can clear up new information and make it available to the public. The other idea is that the firms that analysts follow are more transparent with their financial information and for which information gathering costs are lower (Derrien & Kecskes, 2011).

The monitoring role of analysts following a firm can work as a substitute to a firm's board by making more information available to the public (Knyazeva, 2007). The number of analysts following a firm can also compliment the internal corporate governance monitoring mechanism and improve market efficiency (Knyazeva, 2007). With more rigorous monitoring and information dispersed, the more likely are institutions and external governance to discipline reckless and inconsiderate behaviour towards shareholder best interest.

Preferences of institutional investors

Institutional investors have been proven to direct their investments to firms which they consider to be safe and have stable returns (Chung & Zhang, 2011). Investing in a poorly governed firm means that the risk for the investor is higher. This suggest that institutional investors by nature would prefer to invest in firms with a higher aggregated level of corporate governance (Chung & Zhang, 2011). This idea has also been proven to hold: the proportion of institutions that hold a firm's shares increases with its governance quality (Chung & Zhang, 2011). It has also been proven by Ferreira & Matos (2008) that institutional investors have a clear preference to invest in firms with a higher aggregated level of corporate governance, by looking at the corporate governance on a firm level.

3.4 Measures of internal corporate governance

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As mentioned earlier, a higher number of independent board members will lower information asymmetry between management and shareholders. Finally, Wahab and Hollad (2012) measures executive compensation by looking at total salary paid to executive directors scaled by beginning book value of equity.

3.5 Hypotheses developing

The hypotheses are developed adding several previous literature evidences. First, that the is a positive relationship between the number of analysts following a firm and with the aggregated level of corporate governance (Mouselli & Hussainey 2014). Secondly, that analysts will drop their coverage for less important firms, with lower institutional holdings (Pope, Tamayo & Wang, 2019; Fang et al., 2020). And thirdly, that institutional investors gravitate to invest in firms with a higher aggregated level of corporate governance (Chung & Zhang, 2011).

The purpose of testing the hypotheses is to discover the mitigating factors for whether firms gain or lose coverage before and after the implementation of MiFID II. Adding the findings from the previous literature summarized in the previous paragraph, the aggregated corporate governance level of a firm should be of higher importance as a mitigating factor after the MiFID II implementation.

According to the hypotheses when deciding to drop one of two firms to cover, the analyst should drop the one with the lower corporate governance score. If this is true, MiFID II will unintentionally nudged Sell-side analyst to cover firms with higher governance score. This could also lead to firms focusing more on improving their governance score to be covered by more analysts.

This will be an interesting subject to analyze as it will tell us whether the MiFID II regulation have nudged the market to strive for better governance and by effect, less information asymmetry.

The two hypotheses to be tested are:

1. *The relationship between a firm's corporate governance score and the number of analysts following increased after the implementation of MiFID II.*
2. *The loss of analyst's coverage following MiFID II is lower for firms with better governance score.*

4 Data

4.1 Descriptive data analysis

The sample consists of publicly traded firms with headquarters based in and within the EEA. As Sweden adopted the unbundling system in 2015, all Swedish firms were excluded from the sample. The period studied is from January 2016 to December 2020. If a firm has no analyst following it over the period, it is dropped from the sample. If the firm started to be covered sometime over the period, it is included from that year onwards.

Firm headquarters will be used to identify my sample is because MiFID II only applies to companies within the EEA area. All the data used was extracted from the Refinativ Eikon database and from the World Bank database. Due to data limitations, observation from the original sample had to be dropped to correctly merge all the chosen variables in to one dataset. The final data sample (shown in table 3) consists of firms with headquarters in Austria, Belgium, France, Germany, Luxemburg, and Netherlands. Of the total observations 901, 379 are from before January 2018 and 522 observation are made from after that date. The average yearly GDP growth for the 6 countries is 1.3%. The average firm have 15 analysts following and a governance pillar score of 53. The average return on assets, operating profit margin are respectively 4.2% and 13.8%. The average firm dividend yield is 2.54% and total assets 6,37 billion Euros.

4.2 Variable definition

Dependent variables

Number of analysts following

The dependent variable is the number of Sell-side analysts that is covering a firm. The data is available through I/B/E/S (Institutional Broker Estimate System) (Institutional Brokers Estimate System IBES, 2021). The data measures the number of analysts covering a firm each year from 2016-2020.

Independent variables

Corporate governance score

The Refinitiv Eikon tool to measure a firm's corporate governance score. The Refinativ Eikon database has an ESG (Environmental, Social and Governance) score for firms but also the individual scores for environmental, social and governance. The governance score consists of three categories: management, shareholder, and CSR strategy. The scores are given to the firms and after divided into quintiles (ESG Scores, 2021). The score ranges from 100 (best) to 0 (worst). The management score measures a company's commitment and effectiveness towards following best practice corporate governance principles. The shareholder's score measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices. The CSR strategy score reflects a company's practices to communicate that it integrates economic, financial, social, and environmental dimensions into its day-to-day decision-making processes (ESG Scores, 2021)

Control variables

The control variables that will be used follow previous literature and consist of return on assets, total assets, operating margin, and GDP yearly growth per capita. I have also included dividend yield as a control variable. These variables have been proved to impact the number of analysts following a firm (Fang et al., 2020). As shown by Nguyen & Li (2020), institutional investors prefer to invest in firms paying dividend yield oppose to no-dividend paying firms. I choose not to include the percentage of institutional holdings as a control variable since merging it to my final dataset would require me to shrink my dataset as few observations were available.

4.3 Methodology

Previous methods used to study the effects of MiFID II

The idea is to capture the effect that the chosen independent variables of a firm have for analyst following before and after the implementation of MiFID II. Previous papers have used a difference in difference approach to investigate the effects of MiFID II. The common approach used for example by Pope, Tamayo & Wang, (2019) and Fang et al., (2020), has been to use a control group consisting of countries outside of the EEA and hence are not required to follow EU directives. As this paper aims to study countries that share a similar system for the sale of equity research and avoid large differences in observations between a treated group and a control group, a different approach is used.

The method used in this study

The data used stretches from 2016 until 2020, capturing the two years before MiFID II was implemented and the two following years after. I use the number of analysts covering a firm as my dependant variable and corporate governance score as my independent variable. A new variable was created by interacting a dummy variable with the

governance score to capture the change in corelation after the implementation of MiFID II.

The dependant variable will be the number of analysts covering a firm *NUMCOV*. The independent variables will be the corporate governance score. Two indicator variables are used which define the region and period. To capture the implementation of MiFID II, dummy variables will be used. The dummy variable will take the value 0 for the independent if the observed dependant variable is before January 2018 and 1 if it is after. Another dummy variable will capture if a firms' number of analysts decreased after MiFID II or not. If it decreased the dummy variable will take the value 1, otherwise 0.

Regression setup

To test the first prediction, a linear regression model is designed. The regression will tell the relationship between the number of analysts following a firm and the firm's corporate governance score, before and after the implementation of MiFID II.

$$NUMCOV = \beta_0 + \beta_1 GOVSCORE + \beta_2 POSTGOVSCORE + +Firm\ Controls + FE + \epsilon$$

The two independent variables of interest are *GOVSCORE* and *POSTGOVSCORE*. *GOVSCORE* equals corporate governance score and *POSTGOVSCORE* is an interactive variable between *POST* and *GOVSCORE*. *POST* is a dummy variable taking the value 1 if the observation is after 2018. Hence, *POSTGOVSCORE* represent governance score after 2018 (i.e., post-MiFID II).

The firm controls consist of the control variables. These are *ROA* (return on assets), *log_TA* represents the natural logarithmic value of total assets to capture the change rather then the absolute value of total assets. *GDP* which represents yearly growth per capita, and finally *OP* representing the operating margin. The module includes fixed effects to control for time-invariant effects and standard errors are robust.

To test the second hypotheses, a logistic (logit) regression model will be used. This logit model is suitable when the prediction is categorical.

$$POSTLOSS = \beta_0 + \beta_1 GOVSCORE\ \beta_2 POSTGOVSCORE + Firm\ Controls + FE + \epsilon$$

The dependent variable *POSTLOSS* is an interactive variable between two dummy variables, *POST* and *LOSS*. *LOSS* will take the value 1 the number of analysts decreased after MiFID II otherwise 0. *POST* as stated earlier will take the value 1 is the observation is after 2018 otherwise 0. Hence, *POSTLOSS* will either take the value 1 if the number of analysts decreases for a firm after MiFID II, otherwise 0. Thus, the regression will tell the relationship *GOVSCORE* and *POSTGOVSCORE* has to a decrease of analysts after MiFID II.

5 Analysis of Results

5.1 Results from linear regression

Table 1 Linear regression

VARIABLES	(1) NUMCOV	(2) NUMCOV	(3) NUMCOV	(4) NUMCOV
GOVSCORE	0.159***	0.0852***	0.0789***	
	(0.0102)	(0.0100)	(0.0151)	
POSTGOVSCORE			0.0116	0.0846***
			(0.0175)	(0.0115)
DIV		-0.471***	-0.470***	-0.414***
		(0.120)	(0.121)	(0.122)
GDP		-0.836**	-0.838**	-0.969**
		(0.409)	(0.408)	(0.396)
ROA		0.304***	0.304***	0.303***
		(0.0453)	(0.0454)	(0.0466)
log_TA		2.856***	2.849***	2.984***
		(0.143)	(0.143)	(0.140)
OP		-0.0206***	-0.0206***	-0.0214***
		(0.00301)	(0.00302)	(0.00304)
2017.year	-2.120**	-1.345*	-1.347*	-1.245
	(0.843)	(0.765)	(0.765)	(0.775)
2018.year	-5.508***	-3.554***	-4.164***	-7.819***
	(0.776)	(0.665)	(1.172)	(0.942)
2019.year	-6.356***	-5.441***	-6.058***	-9.712***
	(0.761)	(0.631)	(1.145)	(0.916)
Constant	11.26***	-49.93***	-49.44***	-48.52***
	(0.803)	(3.073)	(3.190)	(3.245)
Observations	901	901	901	901
R-squared	0.242	0.510	0.511	0.493

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1 describes the results after the linear regression. The two independent variables of interest are *GOVSCORE* and *POSTGOVSCORE*. *GOVSCORE* represents the Refinaitv Eikon Governance pillar score and the association to the independent variable *NUMCOV*, which is the number of analysts covering the firm. The coefficient for *GOVESCORE* is as positively correlated with *NUMCOV* without adding the control variables to the regression, with a coefficient of 0.159. By adding the control variables to the regression, the *GOVSCORE* coefficient decreases to 0.0846. This means that in overall, before the implementation of MiFID II, the governance score has a positive impact on the number of analysts that follow a firm. The positive relationship between analyst following and the level of corporate governance is in line with the findings of Piotroski, and Roulstone (2004). The coefficients for *GOVSCORE* and *POSTLOSS* are both statistically significant within the 5% confident interval.

The coefficient for *POSTGOVSCORE* captures the effect that the governance score has on *NUMCOV* after implementing MIFID II. When running the regression with both *GOVSCORE*, *POSTGOVSCORE* and the control variables, the coefficient of *POSTGOVSCORE* is 0.0016, which is lower than for *GOVSCORE* in the same regression 0.0789 (see table 1, regression 3). When running the regression with only *POSTGOVSCORE* and the control variables, the coefficient for *POSTGOVSCORE* is 0.0846, which also is lower than the second regression where *GOVSCORE* has a coefficient of 0.0852 (see table 1, regression 4 & 2). The results are all significant within the within the 5% confident interval. The interpretation of the different coefficients is that after the implementation of MiFID II, the governance score is less important for the analyst when deciding to drop the coverage of a firm or not.

5.2 Results from logit regression

8-C Table 2 Logistic regression

VARIABLES	(5) POSTLOSS	(6) POSTLOSS
GOVSCORE	0.00266***	
	(0.000642)	
POSTGOVSCORE		0.0436***
		(0.00284)
DIV	-0.00807	-0.0757*
	(0.00742)	(0.0458)
GDP	-0.119***	-0.168
	(0.0216)	(0.161)
ROA	0.000370	0.0118
	(0.00236)	(0.0187)
log_TA	0.0283***	0.150***
	(0.00900)	(0.0541)
OP	-6.73e-05	-0.000400
	(0.000169)	(0.00125)
Constant	-0.348*	-5.874***
	(0.191)	(1.249)
Observations	901	901
R-squared	0.070	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This section presents the results of the logistic regression model which focus on the decrease in number of analyst coverage after MiFID II. The variable *POSTLOSS* is an interaction between two dummy variables: *POST* indicating that the observation is after the MiFID implementation and *LOSS* indicating that the over year change of *NUMCOV* for a specific firm, is negative.

In Table 2 the regressions output from the logistic regression is presented. The coefficient for *GOVSCORE* is 0.00226 and significant within the 5% confidence interval (see table

2, regression 5). The interpretation of this result is that a higher governance scores a firm has, increases the chance that the number of analysts will decrees for the specific firm. This result is contradictory to hypotheses 2, which is based on the literature pointing to that higher level of corporate governance attracts more analyst to follow the firm (Piotroski, and Roulstone, 2004). *POSTGOVSCORE* has a coefficient of 0.0346, which is higher than the coefficient for *GOVSCORE*. The interpretation of this result is that after MiFID II, the higher the firm's governance score is, the higher is the likelihood that the firm will lose coverage. And it is even higher than before MiFID II. The coefficients are both significant within the 5% confident interval.

Going back to the purpose of my paper, I wanted to understand if the corporate governance of a firm changed in its importance as a mitigating factor for analyst after the implementation of MiFID II. The hypothesis of this paper was that the importance of a higher aggregated level of corporate governance would increase as a factor after MiFID II. I based this hypothesis on that analyst would focus more on firms with higher interest to their clients as found in the research from Fang et al. (2020) and Pope, Tamayo & Wang, (2019). And the investor preference of investing in firms with a higher aggregated level of corporate governance (Chung & Zhang, 2011) and (Ferreira & Matos, 2008). These hypotheses proved to be wrong looking at my regression results. The reason for this could be that the reduction of resources for Sell-side analysts after MiFID II lead them to exchange the corporate governance score as an important variable to other firm level variables.

5.3 Analysis or results from linear and logit regression

Summarizing my findings, the consequences in the short term of MiFID II could be that less investments from institutional investors are directed to firms with a higher aggregated level of corporate governance as Sell-side analysts are less eager to promote these firms

to the Buy-side asset managers. If firms notice that Sell-side analysts care less about their corporate governance score, firms could start to be reluctant to improve their governance to gain coverage and investments from institutional investors. And referring to the literature regarding the relationship between corporate governance and information asymmetry, this would then increase the information asymmetry on the financial markets. The standard errors of the regressions are robust.

6 Conclusions

This study aimed to understand if corporate governance has a mitigating effect for Sell-side analysts' decision to follow a firm after MiFID II. Contrary to the hypothesis of this paper, the results are that the importance of corporate governance decreases. This result would follow the literature stating that corporate governance and the analysts monitoring role works like and substitute to each other (Knyazeva, 2007). If there is a good information spread by the board, there could be less of a need for more analysts to cover the firm.

The hypotheses were constructed by adding the literature on institutional preferences of a higher aggregated level of corporate governance (Ferreira & Matos, 2008) and that analysts after MiFID II will follow firms with high interest to their clients (Fang et al., 2020; Pope, Tamayo & Wang, 2019). This turned out not to be the case looking at the results. Going back to the idea that information asymmetry would decrease after MiFID II and looking at the results, one can argue the opposite. These results would be in line with the critique from the CFA survey, that information asymmetry would increase after MiFID II (MiFID II). As seen in the logit regression results, dividend yield is negatively associated with the decrease of analyst following. Hence, the following argument can be

made. After MiFID II, analysts' prefer other factors when deciding to follow a firm and are less interested in the quality of corporate governance. Furthermore, the period used in this study is relatively short and might not capture the full effects from MiFID II.

However, as this study focused on aspects of corporate governance and the relationship to analysts following firms, this is just one way of many to measure the effects that MiFID II had on information asymmetry overall. The findings of this study could be significant in the short term. But I believe that in the long term, firms that loses analysts following might improve their internal corporate governance to enhance their own transparency and by doing so lower the information asymmetry that arise in the short term. It is important to remember that the purpose of MiIFD II was to improve transparency on the financial markets and that the findings of this study was only a side effect from the payment unbundling. The payment unbundling has in itself improved the transparency on the financial markets as customers can now be sure on what they pay for, and the market of equity research is now more signified as a market of free competition than before.

This study has contributed to the debate of the potential increase of information asymmetry on the financial markets because of MiFID II. It has done so by using previous research of the impacts from MiFID II, adding new empirical results regarding corporate governance as a mitigating factor for the decrease in the number of analysts covering publicly traded firms.

MiFID II enabled a before and after perspective. It made it possible to investigate if the effects of the new regulations could be seen in practice. Further research within the area is needed. It would be interesting to look at other various possible mitigating factors for analysts following and if changes can be seen after MiFID II compared to before. Time is also an interesting factor to considerate. When MiFID II has been enforced over a

longer time, actors on the market might change their behaviour and the corporate governance of a firm might become a more significant factor for analysts.

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8 Appendix

8-A List of all variable's definitions

Variable	Definition	Source
Number of analysts	"The number of analysts covering a security"	Eikon: Refinativ
Dividend Yield	Annual dividends paid per share divided by the price per share	Eikon: Refinativ
Operating profit margin %	Annual Operating income divided by Sales Revenue	Eikon: Refinativ
GDP Growth per capita (% annual)	GDP per capita is gross domestic product divided by midyear population.	World Bank national accounts data, and OECD National Accounts data files
Return on Assets	Income before extraordinary items divided by total assets at reporting period-end.	Eikon: Refinativ
Corporate Governance Pillar Score	The governance score based on management, shareholder, and CSR strategy	Eikon: Refinativ
Total assets	The total assets of a firm	Eikon: Refinativ

8-B Table 3 Summery statistics Panel: Distribution of sample firm-year observations by country

Country	Freq.	Percent	Cum.
Austria	50	5.55	5.55
Belgium	78	8.66	14.21
France	308	34.18	48.39
Germany	303	33.63	82.02
Luxembourg	47	5.22	87.24
The Netherlands	115	12.76	100.00
Total	901	100.0	

8-C Table 4 Descriptive statistics of all variables

Variable	Obs	Mean	Std. Dev.	Min	Max
NUMCOV	901	15.77248	8.755085	1	41
GOVSCORE	901	52.83846	23.11716	1.670283	97.66108
POSTGOVSCORE	901	31.36053	31.86132	0	97.66109
DIV	901	2.540614	2.031949	0	14.19214
GDP	901	1.316272	.6186491	-.6437436	2.344808
ROA	901	4.267471	6.33057	-73.6652	49.55737
TA in € billion	901	6.37	2.23	0.00829	21.6
log_TA	901	22.896	1.850686	18.2334	28.40331
OP	901	13.79777	65.59972	-1158.193	453.0337