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Can Optimism in Press Releases Increase Abnormal Stock Returns?

An Event Study and Text-Analysis of Press Releases Issued by FinTech Companies under IFRS and US GAAP

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Abstract

Purpose

The purpose of our study is to investigate and compare the level of optimism in press releases regarding R&D operations for FinTech companies under US GAAP and IFRS and how it affects abnormal stock returns under these two accounting standards.

Research Design

In order to conduct this study, an event study is used with 3, 5 and 11-days event windows, a 30-days estimation window and a gap of 10 trading days. The market model is assumed. As independent variable, optimism scores are applied, calculated by the text-analysis tool DICTION from each press release. These are then regressed against the cumulative abnormal return from each observation. The sample is divided into two groups; (i) FinTech companies under IFRS and (ii) FinTech companies under US GAAP. The IFRS group has 233 press releases and the US GAAP group has 234 press releases and thus the total sample is 467.

Findings

Our study finds that press releases by IFRS firms experience negative abnormal returns while press releases by US GAAP firms experience positive abnormal returns, when capturing the level of optimism by DICTION. Our results are significant on 10% confidence level for our 3-day event window. Therefore, the opposite reactions are explained by higher stock price informativeness in R&D capitalisation under IFRS relation to an expensing requirement under US GAAP. Additional information from FinTech companies under IFRS could be seen as superfluous as the relevance of financial statements is high, and thus stock market participants will question the underlying reason for the announcement. For FinTech companies under US GAAP, additional information will reduce asymmetric information and thus provide value.

Conclusion and Implications

Optimism in business communication such as press releases has an effect on abnormal stock return in FinTech companies under US GAAP (positive) and IFRS (negative). However, a study with a bigger sample would make results more generalisable.

Key words

Event Study, FinTech, Text-analysis, DICTION, Capitalisation vs Expensing, Press-releases

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1. Introduction

The aim of this study is to investigate how the level of optimism in press releases will affect abnormal stock returns under different accounting standards. Our sample consists of FinTech companies in the EU and in the US under the accounting standards of *International Financial Reporting Standards* (IFRS) and *US Generally Accepted Accounting Principles* (US GAAP) respectively. The respective compared standards are IAS 38 in the IFRS framework and ASC 350 under US GAAP. As we are analysing press releases from companies in the same industry but under different standard, the difference in market reaction will reveal the level of informativeness in a particular accounting standard when we regress optimism in press releases on abnormal returns.

One of the main differences between IFRS and US GAAP are the accounting rules for research and development (R&D) expenditures. While IFRS allows capitalisation if certain criteria are met, US GAAP require all companies to expense all expenditures associated with R&D. This connects to the long-standing debate between relevance and faithful representation where our method is using IFRS and US GAAP respectively to add to this literature. The rationale for using the FinTech industries of EU and US as our sample is based on that these companies offer financial expertise through technological solutions. Thus, FinTech companies require considerable R&D expenditures in order to deliver value to customers.

There is not a generally accepted definition of FinTech but there is a good understanding between different organisations. A majority of all FinTech companies are start-ups and new entrants but since our study concerns stock market behaviour, we need public companies and those are by default not start-ups nor new entrants. Therefore, our paper defines FinTech companies as publicly traded companies that offers financial services through innovative technological solutions.

1.1 Background

"A major shift in the composition of investment and capital formation toward intangibles has occurred over the last 60 years . . . The message is clear: the innovation that has shaped recent economic growth is not an autonomous event that falls like manna from heaven . . . This process affects all sources of growth to one extent or another but is most clearly detected in the growing contribution of intangible capital" (Corrado & Hulten, 2010 p. 103)

The global economy has gradually shifted from traditional industries with high concentration on physical assets to technology-driven companies with intangible assets. This has created a dilemma for standard setters and regulators around the world which is apparent in the contrasting viewpoints on R&D expenditures between IFRS and US GAAP. The rapid expansion and application of technological knowledge in its many forms are key features of US economic growth. However, US GAAP excludes the intangibles component of this knowledge capital and excludes approximately $1 trillion from conventionally measured non-farm business sector output by the late 1990s (Corrado & Hulten, 2010). Thus R&D, as an important driver of modern economic growth is hardly surprising, given the evidence from everyday life and research. However, what is surprising is that these assets have been ignored for so long in the US and that they continue to be ignored under US GAAP at firm level (Corrado, Hulten & Sichel, 2009). In Europe, van Ark, Hao, Corrado and Hulten (2009) suggest that higher rates of investment in intangibles, as a share of GDP, are often associated with higher growth rates of GDP per capita, which might be attributed to a higher propensity to invest in higher-income and productivity countries. In addition, returns to scale in innovation and possibly the tendency for smaller economies to compete in established market niches may also be other factors. But in contrast to US GAAP, if certain criteria are met under IFRS, R&D expenditures can be recognised as an asset and thus end up on the balance sheet as opposed to the requirement to expense and thus be put on the income statement in the US.

Therefore, our research is important since being able to comprehend the informativeness of accounting standards is a fundamental issue for both academics and regulators as well as practitioners. Accounting standards are instrumental for R&D operations as the accounting method allowed will have an effect on the amount of R&D expenditures in a company. If we assume that R&D expenditures are growing, then expensing will result in greater R&D expense than with capitalisation. Thus, growing firms that expense their R&D might reduce their R&D

expenditures to raise their net income, which may hamper innovation and economic growth. Stein (1989) addresses myopic managerial behaviour which explains the short time horizon perspective among managers which results in rejection of long-term investments and focusing on boosting current earnings instead. One might argue that these managers are acting opportunistically as their compensation schemes are often tied to earnings figures. However, it is fundamental to understand that managers are governed by the particular standard in the country of operation. So, the real issue is whether the R&D expenditures ends up on the balance sheet or income statement. We cannot ignore the importance of earnings thus managers under capitalisation can invest more into R&D as it will not affect the income statement and ultimately, not their pay check.

1.2 Problem Discussion

Academia has been interested in the effects of either capitalising or expensing of R&D expenditures since the 1970's. The interest arose when the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards number 2 (SFAS No. 2), requiring US companies to expense R&D expenditures in 1974. Indeed, seven articles (Dukes, Dyckman and Elliott, 1980a; Ball, 1980; Horowitz & Kolodny, 1980a; Wolfson, 1980; Marshall, 1980; Dukes, Dyckman and Elliott, 1980b; Horowitz & Kolodny, 1980b) in the 1980's Journal of Accounting Research Supplement discussed the effect of SFAS No. 2 on R&D expenditures and equity values. However, their work was hampered by scarce and often inadequate disclosures which ultimately rendered small samples which questions whether any reliable conclusions could be drawn. Over four decades have passed since the regulatory change in the US took place in 1974 and due to availability and easy access to data, we can now conduct more robust studies. Recent studies by Chen, Gavious and Lev (2017) and Benston, Bromwich and Wagenhofer (2006) confirm that capitalising R&D expenditures will in fact provide better stock price informativeness and thus create more solid ground for rational investment decisions. With higher degree of stock price informativeness, the book value and market value of a company's R&D, harmonises more.

R&D accounting is one of the main differences between US GAAP and IFRS and it is important for US regulators to see the effects of R&D capitalisation in major capital markets. Accounting rules clearly states that the purpose of operating expenses is to generate income in the current period whereas capital expenditures are recognised to provide benefits over multiple periods.

The current treatment of R&D expenditures under US GAAP clearly violates this critical distinction as a vast majority of R&D will not only be tied to the current period but prolong into future periods. R&D projects require time and are often not possible to evaluate in the first year. But the main reason for this violation is connected to the relevance versus faithful representation debate where, in relation to each other, US GAAP is more governed by faithful representation whereas IFRS is tended more towards relevance. R&D expenditures have low collateral value due to few alternative uses and lacks a liquidation value in the event of a project failure in contrast to collateral value of tangible assets like buildings, plants, and equipments.

Therefore, the agency cost of borrowing against intangible R&D assets is high and the debt capacity of R&D expenditures is low (Kothari, Laguerre & Leone, 2002). So, although research shows that R&D capitalisation will render better stock price informativeness, a change of policy is not taken lightly by regulators in the US. In fact, a change in this issue is not only about allowing firms to capitalise but it also means a shift in the underlying logic that governs the regulatory forces of US GAAP. Although there are proponents of capitalisation in the US, there are no indications that the US will change its status quo to allow capitalisation of R&D expenditures and there is no reason anticipate such a change to occur in the near future either.

Intangible assets create a delicate problem for standard setters and regulators as we do not have a uniform praxis how to account for them. Although IAS 38 provides an attempt to establish a uniform rule for intangible assets, it has strict limits regarding internally generated assets. Under IAS 38, an intangible asset arising from development must be capitalised if an entity can demonstrate all of the following criteria; the technical feasibility of completing the intangible asset, intention to complete and use or sell the asset, ability to use or sell the asset, existence of a market or, if to be used internally, the usefulness of the asset, availability of adequate technical, financial, and other resources to complete the asset and the cost of the asset can be measured reliably. If any of the recognition criteria are not met, then the expenditure must be charged to the income statement as incurred. Expenditures on the contrary, during the research stage, should be written off to the income statement as an expense when incurred, and will never be capitalised as an intangible asset.

Furthermore, Ball and Brown (1968) showed that of all information about a company which becomes available during a year, one-half or more is captured in that year's income number and thus its content is therefore considerable. So, one might question the necessity of reading

additional news when the majority of a firm's performance is captured in financial statements. However, these statements do not rate highly as a timely medium. As the efficiency of capital markets is largely determined by the adequacy of its data sources, investors need to consider additional sources which provides more actual and timely data than annual net income alone.

A lot has indeed happened since 1968 in terms of cost of information and its availability and the annual report may be seen as a mere accounting practise required by the standard, rather than a news source. Vega (2006) show that the more information, private or public, investors have about the true value of an asset, and the more they agree and trade on this information, the smaller the abnormal return drift. Small companies, on average, realise greater post-announcement drift than large ones, which tend to be more transparent but also have a more solid valuation based on its history. One fundamental difference between small and large companies is that the former is more future-dependent than the latter. As future prediction naturally incurs more uncertainty than absolute facts of the past.

Atkins, Niranjan and Gerding (2018) show empirical results that news sources such as press releases can be used in predicting directional changes in market volatility. In particular, changes in volatility are better predicted than the changes in the closing price of an asset or an index of assets. Though the inability to predict closing price movement any better than random contradicts previously published results, information in news influence capital markets via sentiment-driven behaviour which essentially affects second order statistics of the financial system. In fact, volatility tends to increase following most types of announcements and attributed these volatility increases to higher levels of news-induced valuation uncertainty (Neuhierl, Scherbina & Schlusche 2013). This connects back to the famous paper by Akerlof (1976) as there is information asymmetry between the issuers of information and receivers of information. Over 40 years have passed since the paper was published and its implications are still relevant today and information asymmetry remains as one of the most frequently researched topics within finance.

Moreover, although we live in a digital age having a vast amount of information channels on the internet that provide corporate press releases instantaneously to all corners of the world, it would be simplistic to assume that all traders will be notified simultaneously. Thus, we assume that some traders will take advantage as soon as a press release is announced and make a profit by either selling or buying depending on the nature of the news. Therefore, when a company is

making an announcement, there is some lagging effect before the announcement is captured by the whole market. Whether we should measure this in minutes or hours is difficult to determine. Initially, we start with an equilibrium where all traders possess an identical set of information that has been generated and agreed upon by past announcements. Next, we allow a single piece of news to be generated by a company. As each investor receives it, the individual demand curves are shifted according to the content of the information. Finally, when the news announcement has reached the whole market, its investors once again possess an identical set of information as in the initial stage. This leads to a new equilibrium which is established based on the new aggregation of information and agreement of valuation (Copeland, 1976).

Lastly, and a fundamental point which is that information itself must be understandable in order to enable users with adequate knowledge of business activities and accounting, and who study the information with reasonable diligence, to comprehend the real meaning of the information (Brösel & Mindermann, 2009). But it would too simplistic to assume the market to be perfect in terms of every participant understanding all of the information, adequately. There is an issue of whether announcements are actually new information or stale information that overlap old events. The impact of staleness on return reversals is significantly greater in stocks with above-median trading activity. It shows that individual investors increase their tendencies to aggressively trade on stale news. The implication is that individual investors sometimes fail to distinguish between old information and new information in corporate announcements (Tetlock, 2011). This illustrates the fact of bounded rationality as the moment of a press release, some traders will panic and thus make poor decisions. It can also be explained by confirmation bias where investors are significantly more likely to agree with an article that is supportive of their investment rather than an article that opposes it (Cheng, 2018). A way of dealing with ambiguity regarding press releases is to apply text analysis software which provides a scientific approach rather than using subjective judgements.

1.3 Purpose and Research Question

The purpose of our study is to investigate and compare the level of optimism in press releases regarding R&D operations for FinTech companies under US GAAP and IFRS and how it affects abnormal stock returns under these two accounting standards. The level of optimism in press releases is measured with a text analysis tool and the effects on abnormal stock returns between the two accounting standards are compared. This leads to the following research

question: “How will abnormal stock returns be affected by the level of optimism in press releases regarding R&D operations in FinTech companies by either being allowed to capitalise under IFRS or being required to expense under US GAAP?”

1.4 Research Design

In order to investigate stock market reactions to press releases from FinTech companies in the EU and US, we have used the event study methodology (MacKinlay, 1997) with a 30-day estimation window and event windows of 3, 5 and 11-day and with a gap between of 10 trading days. Our sample is divided up in two groups; 1) US firms under US GAAP and 2) EU firms under IFRS and the time period is 2013.01.01 – 2019.03.31. We have collected 467 observations, 234 from the US and 233 from the EU. In order to calculate abnormal return, we use the market model and the benchmark indexes for US and EU firms are S&P 500 and Euro Stoxx 50 respectively. Moreover, DICTION will perform text analysis and analyse level of optimism. Thus, we do not manually analyse the content in press releases and make our own judgement regarding optimism.

1.5 Findings and Conclusion

Our study finds that press releases issued by FinTech companies regulated under IFRS and US GAAP will generate opposite changes in abnormal stock returns despite the score of optimism by DICTION are similar. For IFRS the results show a negative impact and for US GAAP the results show a positive impact on abnormal stock returns. The informativeness of capitalisation leads to high relevance of financial statements under IFRS and thus additional information will be questioned. Under US GAAP however, announcing news via press release will reduce information asymmetry and thus investors feel more confident in investing.

1.6 Contribution

We contribute to accounting literature by addressing the important issue of relevance versus faithful representation, by using IFRS and US GAAP respectively, which has interested researchers for decades. Our results illustrate informativeness of accounting standard on firms’ R&D expenditures; hence, the importance of accounting methods is crucial in this context. Thus, we will add to the literature concerning the notion of better stock price informativeness with capitalisation of R&D costs under IFRS than with expensing under US GAAP. Moreover,

using text analysis is not a new approach as for instance Yekini, Wisniewski and Millo (2016) who investigated the positiveness of annual reports narratives for public companies in the UK and found that the positiveness inherent in qualitative parts of annual reports has a statistically significant association with abnormal returns around disclosure dates. But a study investigating text analysis in press releases regarding R&D in FinTech under IFRS and US GAAP and how the positiveness might affect abnormal returns depending on capitalising or expensing of these expenditures, is yet to be conducted.

1.7 Limitations

The limitation for this study concerns use of event study and DICTION. The main limitation of event studies is the isolation of events and thus not anticipating cofounding effects. Companies in general and events in particular do not operate in isolation and thus are affected by the aggregated amount of information generated through time. Stock market participants base their investment decisions multiple factors and not on a single piece of information. Regarding DICTION and although it is a widely known and frequently used statistical tool, its scores on optimism from press releases need to be taken with caution. We have not made our own judgements on the press releases and thus the scores for optimism used in the regressions are entirely relied on DICTION. Concerning R&D announcements and the respective amounts of either expenditure or capitalisation cannot be followed up in detail and have therefore not been controlled for. Further, we assume all R&D expenditure communicated in the press releases in the EU sample has been capitalised and the requirements of IAS38 were met.

2. Literature Discussion and Hypothesis Development

This section reviews the different viewpoints regulators, academics and practitioners often make in the debate regarding expensing or capitalising R&D expenditures. First, prior research of early and recent studies regarding expensing versus capitalising R&D expenditure is summarised. Second, we present the differences between capitalising and expensing of R&D and its implications. Third, we briefly highlight findings in research with text analysis. Forth and finally, the chapter ends with hypothesis development.

2.1 Prior Research

A large body of early research investigates issues regarding the accounting treatment of R&D expenditures. Early research of SFAS2 in 1974 focuses on the standard's economic consequences as economic consequences are estimated from stock price changes and from the standard's effect on corporate R&D expenditures (Dukes et al, 1980a; Horwitz & Kolodny, 1980a; Elliott, Richardson, Dyckman and Dukes, 1984; and Wasley & Linsmeier, 1992). This research produces mixed evidence due to a lack of possibility to isolate the effects on R&D activity in the presence of confounding economic events like the energy crisis and recession in the mid-1970s (Ball, 1980). Furthermore Lev and Sougiannis (1996) concluded that financial statements that with capitalised R&D investments are more correlated with stock prices than with pure US GAAP accounting numbers based on immediate expensing of R&D. Chambers, Jennings and Thompson II (2002) find in a price level regression that the estimated coefficient on capitalised R&D expenditures is indistinguishable from that on property, plant, and equipment (PP&E). However, we cannot conclude that future benefits from R&D and PP&E are equally uncertain. The reason is that the market's pricing is based on the amount, timing, and systematic uncertainty of future cash flows, whereas our focus is only on the (systematic and unsystematic) uncertainty of future cash flows, which cannot be unambiguously inferred from the price-level regression coefficients. Other research shows that advertising and R&D expenditures have positive impacts on the market value of a firm (Hirschey & Weygandt, 1985; Woolridge, 1988; and Chan, Martin & Kensinger, 1990). Collectively, these studies argue that since R&D investments are correlated with stock prices in particular and value enhancing in general, it is rational to capitalise and amortise rather than immediately expense.

Chen et al (2017) looked at Israeli technology firms and found that R&D capitalisers disclosed voluntarily significantly more than non-capitalisers. This information is value relevant to investors beyond the recognised earnings, book values, and capitalised R&D, and is associated with higher stock price informativeness. They also conclude that the capitalised development costs i.e. an asset, is highly significant in relation to stock prices, thus enhances the relevance of the voluntary disclosures.

A similar study was conducted in Canada and the finding was that the value relevance of voluntary disclosure was actually decreased with IFRS and the value relevance of intangible assets itself was increased. In this context, stock market participants are less in need of information on innovation activities. Managers will therefore have an incentive to better target their communications to ensure a degree of complementarity with financial reporting generated by IFRS (Ledoux & Cormier, 2013). As IFRS is principles-based, as opposed to the rule-based US GAAP, it means that the information regarding R&D include professional judgements rather than merely complying with the standard which may not portray the underlying economics appropriately.

In the UK, capitalisation is an option, as opposed to IAS 38, barring some criteria is met under SPSS 13. Here, it is important to regard the decision as endogenous and associated with factors that affect the relation between current returns and future earnings. Oswald & Zarowin (2007) concluded that capitalisation is associated with greater stock price informativeness as it provides more information to the market about the future. In addition, early life cycle firms are more inclined to capitalise development costs while mature firms tend to expense them. This could explain why traditional banks are not investing money into start-ups as capitalising is more suitable for equity investors than debt holders as discussed by Kothari, Laguerre and Leone (2002). It illustrates the fundamental difference between the future dependent start-up companies compared to the history backed mature incumbents. Assuming mature companies having substantially higher profits than start-ups, there is also a greater tax incentive to expense when you have higher revenues.

Moreover, Cazavan-Jeny, Jeanjean and Joos (2011) showed that R&D accounting in France gives managers flexibility over accounting choices which could potentially enhance the quality of accounting information. However, their findings suggest that for transactions with very uncertain future outcomes, such as R&D, the flexibility does not necessarily result in the

desired outcome of higher earnings quality. One important aspect of having the choice of capitalising or not is the issue of asymmetric information and signalling. Allowing managers to credibly signal their superior information by capitalising successful R&D investment or expensing unsuccessful R&D investment would reduce information asymmetry between managers and the firm's contracting parties. This will enhance the relevance of financial statements, capital markets' efficiency and resource allocation. It assumes no moral hazards by the reporting managers, and the decisions will not be influenced by opportunistic consideration which results in unreliable or misleading information (Ahmed & Falk, 2006).

2.2 Capitalisation versus Expensing of R&D Expenditures

Definition and Regulation of Intangible Assets

What constitutes an intangible asset has changed and evolved in recent years but a general definition by Lev (2001) regards intangible assets as a future benefit that does not have any physical form. OECD breaks down intangible assets into three categories; 1) computerised information such as software and databases; 2) innovative property such as scientific and non-scientific R&D, copyright, design, trademark and 3) economic competencies (Andrews & De Serres, 2012). In essence, intangible assets must meet the two following criteria of IAS 38.21; 1) it is probable that the future economic benefits that are attributable to the asset will flow to the entity; and 2) the cost of the asset can be measured reliably. An important note is that IFRS users do not have the option whether to capitalise or expense development costs. If meeting the criteria outlined by the standard, a firm adopting IFRS is required to capitalise the development costs (Chen et al, 2017).

Rationale for R&D Expensing under US GAAP

Under US GAAP, R&D is expensed in the period incurred, and cash outflows are classified into the operating section of the cash flow statement. FASB dismissed the alternative R&D accounting and reporting practices, including capitalisation, which had been the practise prior 1974. FAS no.2 concluded that all R&D costs should be expensed due to factors as uncertainty of future benefits of individual R&D projects and lack of causal relationship between expenditures and benefits where the main drivers of the regulatory change. In essence, all R&D costs should be charged as expenses as it is difficult to demonstrate if a product or service at the research stage will generate any definite future economic benefits.

However, while the average R&D expenditures might generate future economic benefits, paragraph 39 concludes that an average of less than 2 percent of new product ideas and less than 15 percent of product development projects are commercially successful. Although a product or service has gone through the R&D phase, there is still high risk of failure with a range of 30-90% according to paragraph 40. Thus, the expensing of R&D is consistent with the usefulness of a balance sheet in credit decisions being an important factor in the standard-setting process. The high degree of uncertainty of future benefits and the considerable failure rate from R&D expenditures alongside with the generally negligible collateral value of R&D investments make R&D less attractive for capitalisation.

Rationale for R&D Capitalisation under IFRS

Earnings that reflect the effects of R&D capitalisation and amortisation are significantly more highly associated with stock prices and returns than US GAAP earnings with immediate R&D expensing of expenditures. This is interpreted as the R&D capitalisation process yields value-relevant information to investors and as contradicting FASB's objection to R&D capitalisation in SFAS No. 2 that direct evidence of R&D expenditures and specific future benefits does not exist (Lev & Sougiannis, 1996). The proponents therefore argue that it behoves standard setters to issue a new standard allowing corporations to capitalise R&D expenditures (Kothari et al, 2002).

Differences between US GAAP/ASC350 and IFRS/IAS 38 and its Implications

The recommended treatments for intangibles in general and R&D in particular are one of the prominent differences between US GAAP and IFRS. US GAAP harmonises with the traditional rule of not anticipating any good news and anticipating all bad news (Bliss, 1924) and the practice of reporting the lowest values of assets and revenues and the highest values of liabilities and expenses (Belkaoui, 1985). IFRS on the other hand, is more liberal and management-friendly, assuming that research and development results in tangible economic value and delaying recognition of its costs for an extended future (Bratton & Cunningham, 2009). It is more liberal in the sense that IFRS is more comfortable about extending management discretion to revalue assets, includes a larger extent of fair value treatments,

introducing subjectivity into the determination of balance sheet amounts. In short, under US GAAP, when an asset is written down, the write-down cannot be reversed or changed, while

under IFRS, asset values can go up and down with re-evaluations by management (Bratton & Cunningham, 2009).

Importantly, this divergence reflects the difference in philosophy underlying these accounting standards, with US GAAP offering less flexibility than IFRS (Cazavan-Jeny et al, 2011). A basic policy difference is prevalent where under US GAAP, conservatism is a motivating principle and doubts tend to be resolved by forcing a present deduction on the income statement. However, one needs to be careful as IFRS is still very strict in terms of allowing companies capitalise. Making binary claims, stating US GAAP to be static and IFRS to be dynamic, provides a roughly simplified reality.

Furthermore, until 1974, companies in the US used to capitalise R&D expenditures. Elliot et al (1984) identified significant relative declines in R&D expenditures for capitalisers among both listed firms and over-the-counter firms, following the change. Selto and Clouse (1985) found in their sample that fewer than half of the potentially affected firms adapted by continuing to defer R&D internally or by reorganising the R&D function. Their regression results indicate that these adapted firms had higher mean levels of R&D spending prior the regulatory change and could had greater incentives to adapt. For other firms, the costs of adaptations were higher than the expected benefits. At any rate, many firms were apparently willing to risk evaluation bias against R&D spending or were ignorant of the possible effects.

The central point in the value and relevance debate is that capitalisation enables management to communicate information about the success of projects and their probable future benefits. Allowing companies some flexibility, as long as the choices are accepted by independent public accountants and are clearly disclosed, can offer investors insights on how the managers view their company (Benston et al, 2006). This is not recognised under expensing and thus, capitalisation will lead to more informative stock prices (Oswald & Zarowin, 2007). Capitalisation requires estimates of future benefits and auditor verification of such estimates which increases informativeness (Hughes & Kao, 1991). In addition, the mandatory expensing rule can be costly according to Lev et al (2005) who concluded that such practice may lead to systematic reporting biases of firms' profitability measures and systematic misevaluation of securities. Market participants do in fact struggle with appropriately assessing future profitability and return of R&D expenditures under US GAAP. Even security analysts, experts in the field, seem to be misled by expensing and as a consequence, end up being surprised by

higher income realisations following large increase in R&D spending (Ali, Ciftci & Cready, 2012). Therefore, one needs to consider the possibility of some investors having the access to non-accounting sources of information that will generate less noise than reported under the US GAAP mandate.

Horowitz and Zhao (1997) showed that the nature of the investments made in R&D will in fact generate a better correlation between investments in R&D and security return than US GAAP estimates. Thus, when US GAAP cash flow variables are adjusted by the separation of R&D expense and R&D assets, more value relevant information will be provided. Although it is formally regarded as an expense under US GAAP, investors will still regard some R&D expenditures as investments i.e. as capitalisation which will cause valuation mismatch between book value and market value. Ely and Waymire (1999) studied US firms in the pre-SEC era when capitalisation of internally developed intangibles was allowed and concluded that recognised intangible assets are valued by the market and not by an accounting standard per se. This sheds light on the differences between book value and market value of assets where the former relies on reliability and the latter on relevance. Horowitz and Zhao (1997) stated already more than 20 years ago that as R&D becomes more significant in an increasingly technological economy, a re-examination of the costs and benefits of US GAAP R&D expensing rule and its relation to the relevance/reliability trade-off seems to be warranted. In FinTech and other R&D intensive industries, this finding is instrumental. However, there are no indications that US GAAP regarding R&D will be re-examined in favour of IAS 38. This is also out of the scope for this study.

Furthermore, we cannot rule out risk in R&D expenditures as Chambers et al (2002) provide evidence that market returns are lower when firms report increases in R&D spending. Lev and Sougiannis (1996) found an intertemporal association between R&D capital and subsequent stock returns which suggests either a systematic mispricing of the shares of R&D-intensive companies or a compensation for an extra-market risk factor associated with R&D itself. As it signals risk, the prices of firms experiencing risk increases due to R&D spending increases are properly discounted more often than the prices of firms not experiencing such increases. Future benefits of R&D spending are more uncertain and less reliable than those on capital equipment and it increases the riskiness of bondholders' claims on the company (Shi, 2003). But it is important to have in mind that the uncertainty about R&D investments, which significantly facilitate corporate survival and growth, decrease over time. Bierman and Dukes (1975)

surveyed literature and concluded that FASB overestimated the risk of future benefits from R&D investments when deciding to impose the mandatory expensing rule. They found that when screening a company's R&D investment portfolio, the risks are lower than for an individual project. In addition, it is problematic for firms to halt or substantially reduce a R&D projects since it often takes years to determine whether it is a success or a failure (Dugan, McEldowney, Turner & Wheatley, 2016). Lev and Sougiannis (2006) compared companies' earnings to their investment inputs, including expenditures on R&D. The average duration of R&D benefits varies across industries from five to nine years and the estimated benefits vary from $1.66 to $2.63 per $1 of R&D spent. Therefore, R&D progress conveys ever-increasing risk-relevant information. Xu (2006) suggest that R&D progress, especially at late-stage, plays an important role in explaining the dynamics of stock price volatility and post announcement drifts. We obtain a negative relationship between R&D progress and level of stock price volatility and post announcement drift. This is intuitive as the less asymmetric information the closer to the true and objective value of a stock.

So, the trade-off between relevance and uncertainty of future benefits is a major consideration in accounting standard setting with respect to capitalisation and expensing of R&D expenditures. It suggests balancing the demand for value-relevant information by equity investors with the demand for reliable information about future benefits by debt holders and other contracting parties (Kothari et al, 2002). It is vital to have in mind that every investment incurs some risk and R&D-investments are by no means any exception of that rule. But the question is how we account for this risk and there are no uniform policies as standard setters are either in favour of reliable information (US GAAP/ASC 350) or relevant information (IFRS/IAS 38). At the moment there are no signs of a solution on this issue and as it breaks down into philosophical standpoints, it will indeed be arduous to accomplish a uniform standard. IFRS brings uniformity which makes cross-border comparisons easier but at the expense of sovereignty. Negash, Holt and Hathorn (2017) concludes that IFRS is not inferior to US GAAP but the issue is the divergence of the objectives of financial statements, the independence and public accountability of global standard setters and standards that are connected with the regulation of finance and insurance industries. In addition, the political process of managing change in the standard setting process in the US is influential as well. So, this issue is more complicated than mere economic aspects as one needs to consider the political motives on behalf of the US as well.

2.3 Text Analysis in Business Research

Investigating tone[1] and optimism is of paramount importance for understanding the extent to which qualitative information can incrementally explain market movements, in comparison to quantitative information. Boudt, Thewissen and Torsin (2018) found that tone informativeness substantially differs across firms and that it is driven by the firm's level of information asymmetry. The rationale for analysing press releases lies within the importance for companies to signal valuable information to the market. According to Henry (2008), the tone of press releases, even controlling for financial performance, influences investors, as indicated by market reaction. Abnormal market returns should increase as the score on optimism of the press release increases, up to a certain point. Moreover, the research investigated mainly the use of positive tone to influence or if and how positive tone influences investors and abnormal stock returns.

2.4 Hypothesis

The capitalisation of R&D will increase the information content in accounting figures (Hughes & Kao, 1991; Horowits & Zhao,1997; Oswald & Zarowin, 2007) and therefore decreasing the reliance on alternative sources of information, such as press releases, as book value and market value of R&D expenditures will harmonise to a greater extent. Thus, FinTech companies under US GAAP should be more dependent on announcing optimistic press releases compared to FinTech companies regulated under IFRS. The slope coefficient on tone, i.e. optimism, for the US GAAP group should be larger than for the IFRS group. The larger the slope coefficient, the steeper the curve and ultimately this means stronger reaction on press releases announced by US GAAP FinTech companies compared to FinTech regulated under IFRS. As Henry (2008) concluded, the more positive a press release is, the more abnormal returns a company can realise. So, if two press releases, one from the IFRS group and one from the US GAAP group, have identical scores, we hypothesise that the US GAAP press release should generate more positive abnormal returns than the IFRS press release.

[1] Hereafter tone is associated with optimism, as the DICTION master variable optimism is used, and the two words are used interchangeably.

3. Research Design

This section explains how the study has been conducted. The study investigates how the level of optimism in press releases will affect abnormal stock returns under two different accounting standards. Therefore, in a first phase an event study was carried out in order to measure the impact of a press release on the abnormal stock return and in a second phase a text analysis tool is used to measure the optimism of a press release. This two-phase approach is used in order to take the heterogeneity of each press releases into consideration. First, we present our data sample and explain its selection process. Second, DICTION, the text analysis tool, is explained and the rationale for using it is presented. Third, we present DICTION and the event study methodology alongside with limitation of these. Fourth, the regression model is explained. Fifth and last, we present the restrictions of our study.

3.1 Data Sample and Sample Collection Process

The sample consists of press releases from publicly traded FinTech companies in the US and in EU under US GAAP and IFRS respectively between 2013-01-01 – 2019-03-31. In order to determine whether a company is regarded as a FinTech company in our case, it needs to meet the following criteria; provide financial services and expertise through software and innovative technology. However, one needs to be careful when drawing the distinction as traditional banks do indeed offer highly innovative solutions, as a response to the disruption. FinTech regards digital and innovative ways of conduction financial services based on the World FinTech Report 2018 by Capgemini[2]. In distinction to FinTech, traditional banks are still having core services, such as private and corporate banking and core processes such as physical, local bank offices. Below we list three different definitions:

[2] The characteristics can be summarised into three groups of FinTech firms: 1) technology focus, including data mining, advanced analytics and AI; 2) customer focus, including neo- and challenger banks, which act as distributors of products and services and 3) value-adding focus including online-platforms for e.g. comparisons of products and services.

Table 1: Definitions of FinTech

Organisation	Definition
EY[3]	FinTech: organisations combining innovative business models and technology to enable, enhance and disrupt financial services.
McKinsey & Company[4]	Start-ups and other companies that use technology to conduct the fundamental functions provided by financial services, impacting how consumers store, save, borrow, invest, move, pay, and protect money.
Deloitte[5]	Technology and/or business model based financial innovations. These innovations may be launched by established companies from financial services or other industries as well as start-ups.

As table 1 shows, the definitions agree upon the characteristics of a FinTech in terms of innovativeness and disruptiveness, however as financial data is needed to conduct this study, our sample solely consists of publicly traded FinTech companies. Consequently, start-ups and new entrants are discarded from the sample.

The financial data regarding daily returns was collected from Bloomberg terminals. One of the main challenges when searching for our sample firms was the fact that the vast majority of FinTech companies are in the start-up phase and thus do not met our criteria. This was especially a concern for the EU sample since its FinTech market is considerably smaller than its US counterpart in general but more importantly, in terms of public FinTech companies in particular.

Moreover, it was critical that the announcements were published in English as DICTION only analyses English text. During the process, some companies in our EU sample were discarded since their press releases were non-English. A potential solution to this issue could have been to use a translation program but this would have compromised the legitimacy of our study. The press releases must concern news regarding R&D and operations, such as launches of new

[3] EY (2017)
[4] McKinsey & Company (2016)
[5] Deloitte (2017)

products, product lines or services, also including similar topics, e.g. IP rights. We manually determined whether a particular press release was applicable in our study or not. In addition, we have only used press releases issued by corporations themselves rather than by news agencies which would have affected the output. To summarise, the selection criteria for our sample selection process is as follows:

Table 2: Criteria for Sample Selection Process

Criteria	*Description*
1	A sample company must be a FinTech i.e. they are providing non-traditional financial services and expertise through software and innovative technology.
2	Its stock is publicly traded on stock exchanges in the US or EU.
3	The FinTech company is either complying to US GAAP or IFRS.
4	A press release must be announced in English, must concern R&D news or operations and must be issued between 2013-01-01 – 2019-03-31.

Thus, by selecting sample companies by our criteria, the sample consists of 233 observations regulated under IFRS and 234 observations regulated under US GAAP which sums up the total sample to 467 observations. The table below presents our data sample:

Table 3: Collected Press Releases

Country	*Companies*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*Total*
USA	20	11	17	47	54	44	50	11	234
England	7	0	1	12	16	22	27	2	80
Germany	5	1	3	7	11	15	13	4	54
France	2	0	1	6	5	5	4	3	24
The Netherlands	2	0	0	1	2	3	4	0	10
Sweden	2	1	3	2	5	4	4	0	19
Spain	1	0	1	5	4	3	3	1	17
Norway	1	0	0	0	0	2	4	1	7
Ireland	1	5	2	0	1	3	3	1	15
Luxembourg	1	0	0	0	2	3	2	0	7
Total	42	18	28	80	100	104	114	23	467

As expected, FinTech companies from the US alone stand for half of the sample while in the EU we have more dispersed locations where England has most companies with 7. The number of press releases increase by each year and we see that up until 31 of Marsh 2019 we already have greater amount of press releases than for the whole of 2013. However, we need to take into consideration that the largest FinTech companies in the US have been left out in order to make comparison between our two sample groups more reasonable. If the largest FinTech companies in the US where to be included, then the sample on a whole would be unbalanced in terms of numbers of observations between the two groups. The main challenge was to find press releases from FinTech companies in the EU and thus the confines of the US group has been limited.

Furthermore, outliers on the far left-hand and right-hand side of a bell curve with normal distribution, were managed through the use of Winsorization. This method is similar to truncation and trimming, but instead of eliminating outliers, they are replaced by the two remaining extreme values on both sides of the Winsorized distribution[6] (Malik, 2017). As a result, the extreme values are moved towards the centre of the distribution, which results in lower variance and favourable power (Shete, Beasley, Etzel, Fernandez, Chen, Allison & Amos, 2004). An advantage of Winsorizing is that it preserves the information that a case had among the highest or lowest values in a distribution but protects against some of the harmful effects of outliers (Salkind, 2010 p. 1636). For this study, the outlier window that has been chosen is 95% which means that all data outside the 95th percentile are considered as extreme values and thus replaced by the next extreme values. So, 2.5% of the extreme values on the far left-hand and 2.5% of the far right-hand side of the distribution are replaced.

3.2 Text Analysis and Event Study Methodology

Text Analysis

Loughran and McDonald (2016) present that a commonly used measure within textual analysis of corporate press releases is net tone. Net tone is described as the net between positive and negative words. According to their article, net tone is used to capture sentiment of managers communication. They also mention that researchers commonly used the master variable of

[6] An illustrative and simplified example: if having a sample with the values -100, 10, 50, 100, and 200 Winzorisation will replace the values -100 and 200 with 10 and 100 respectively as these are the two remaining extreme values.

optimism in order to capture tone. Therefore, the aforementioned prior adoption and common acceptance in research led to the use of the master variable optimism as tone, which is defined as:

(1) $Optimism = (Praise + Satisfaction + Inspiration) - (Blame + Hardship + Denial)$

This will make it possible to compare the content on a scale of rather than making own judgements whether its content portrays a positive or negative message. Hence, having absolute numbers will make comparison and regression analysis possible to conduct and render more reliability. What DICTION[7] does is that it standardises each score against its normative database of around 50,000 texts before conducting the calculations that will ultimately render each score. For instance, simply calculating optimism using equation 1 will not generate any scores unless standardisation procedures are used.

Event Study Methodology

To assess the impact of press-release of R&D activities on stock returns, we apply the event study methodology by MacKinlay (1997). The essence of an event study is to study what impact a particular event has on the returns of a security which is denoted as abnormal stock returns. Abnormal returns are the difference between the buy-and-hold return on a sample firm and the buy-and-hold return of a market benchmark. We use S&P 500 and Euro Stoxx 50 indexes for our US and EU groups respectively. A central assumption is to assume the Efficient Market Hypothesis (Fama, 1970) where all market participants are rational, not a single actor can affect a security price and all information is available for everyone and there are no transaction costs.

The market model will be used in order to generate the abnormal returns. The returns from the market model are the expected return for a company in a reality where the particular event did not occur which can be regarded as the normal returns. One can argue that more sophisticated models may be used instead to yield better results. But Campbell, Lo and MacKinlay (1997) recommends applying the market model since the variance of abnormal returns is not reduced

[7] DICTION consists of 31 standard dictionaries and each dictionary consisting of word lists (words are used just once across all dictionaries) representing characteristics of for example praise or blame. Out of these word lists, five master variables are created that can be applied in a text analysis. These variables are; 1) certainty, (2 optimism, (3 activity, (4 realism and (5 commonality and as mentioned, out of these five, optimism is used.

by using more sophisticated methods. In addition, Fama (1998) also concludes that the market model is appropriate for estimating the effect of idiosyncratic effects, such as press releases, since the estimation of abnormal returns does not constrain the cross-section of expected returns. This is possible since expected returns estimated using the market model are in fact conditional as they are given by the market return.

For each firm *i*, the abnormal return on day *t* and security i, AR_{it}, is specified as:

$$(2)\ AR_{it} = R_{it} - \alpha_i - \beta_i R_{m,t} + \varepsilon_{i,t}$$

where $R_{m,t}$ is the day-t return on the market benchmark. The coefficients α_i and β_i are the ordinary least squares estimates from the regression of firm i's daily stock returns on market returns over the 30 trading days prior to the event window which is our estimation window. Between the estimation window and the event window we have created a gap of 10 trading days in order to ensure that no leakage of press release will affect the estimation of the expected returns. $\varepsilon_{i,t}$ is the disturbance term.

After compiling all the abnormal returns, the next step is to calculate the cumulative abnormal return (CAR). Instead of looking at each individual company's average abnormal return, we want to look at all securities in our two groups, the US and EU group. The formula for CAR is as follows:

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

Where $t_1$and t_2 are the start and end date of the event respectively.

Our main event window is 3 days ranging from -1 to +1 surrounding the press release and 0 is the event date. A common practise in event studies is to start the window one day prior the announcement day in order to capture information leakage to the market before the actual press release is announced. We expect that our study will not be an exception of this commonality and we therefore anticipate information leakage in our data. However, the particular event is assumed to be not anticipated. Keeping the event window short is supported by the fact that the longer the day the more noise will interfere with our data and we are our underlying objective is to capture the immediate effects of the press-releases on security returns. In addition, the

longer the event window means more compounding of daily return which ultimately will lead to biased results (Brown and Warner, 1985). Within event windows, there are no confounding effects assumed (MacKinlay, 1997). This means that the captured press release will be the sole driver of the direction of stock returns during the event window. However, it is difficult to disaggregate firm-specific confounding events and thus this needs to be taken with consideration as a limitation.

Furthermore, two additional event windows are added in order to perform a sensitivity analysis. In addition to the main 3-day event window, a 5-day and 11-day event window are used to see if the effect of the event can be captured in a longer time span. But as mentioned earlier, the longer the event the more risk of noise disturbing the data which needs to be taken into consideration.

Lastly, we use trading days which has two implications on our data; 1) press releases announced after trading hours will have the announcement day the day after and 2) as there are no trading on weekends, if day 0 i.e. the announcement day occurs on a Friday, then day +1 will occur on the following Monday. This might create the problem of Weekend Effect where Cross (1973) found an anomaly in low returns on Mondays as compared to preceding Fridays. This is still a debated topic in finance, but we will not treat Mondays differently in our sample. To sum up, our study is based on three underlying assumptions:

Table 4: Underlying Assumptions

Assumption	*Description*
1	We assume the market to be efficient as defined by Fama (1970).
2	A particular event is unanticipated.
3	There are no confounding effects during the event window i.e. events that will impact returns.

Limitations of Event Study and DICTION

Although the event study methodology is one of the frequently used methods in finance and accounting, there are some limitations and we identify three main limitations of event studies. First, for some events, the actual event date may be partially anticipated and thus cannot be identified precisely. Our study anticipated the actual date when the particular company released

the information on their corporate website. However, there may be information leakages that reaches the market before the press release is put on the corporate website. Second, the methodology used to compute the cumulative abnormal returns may result an upward bias, as indicated by MacKinlay (1997). This arises from the observation by observation rebalancing to equal weights implicit in calculating the aggregate cumulative abnormal return combined with the use of transaction prices which can represent both the bid and ask price. Blume and Stambaugh (1983) concluded that by using low market capitalisation firms which have, in percentage terms, wide bid-ask spreads, the bias can be eliminated by considering cumulative abnormal returns which represent buy and hold strategies. We have left out the largest firms in terms of market capitalisation, but we still anticipate the bias to be present to some extent. Third and the most apparent limitation is that Event Studies will isolate one event and draw conclusions on the effect on firm value. This assumes ceteris paribus which in reality is questionable. It is problematic to derive the changes in firm value on a given date from a particular event. As market participants use all of the available information to make investment decisions, one event is just a single piece of the vast amount of accessible information.

Furthermore, using text-analysis tools such as DICTION will provide a scientific approach compare to making your own and subjective judgements regarding a press release and its level of optimism. But, relying completely on software should be taken with caution. Amernic, Craig and Tourish (2010) agrees that DICTION is a solid tool that can capture vast amount of quantitative data and render valuable statistical outputs. But the output can sometimes produce a certainty over objectively uncertain data while failing to yield sufficient contextual information to generate worthwhile insights. Loughran and McDonald (2015) are more critical of DICTION and concludes that it does not harmonise with business communication. Emotional words in political speech used in press releases will in fact have different meaning when used by managers. There are word lists such as Loughran and McDonald (2016) which is more specialised for business writing, but this was not utilised in our study.

3.3 Regression

For the regression of the event study, the statistical software Stata has been used. As inputs the respective data from the aforementioned event study and text analysis are used and applied as follows. First, the CAR is estimated for each event window by using equation 3. Second, the CAR for the event window is inserted as the dependent variable and the scores resulting from

the text analysis and our control variables are inserted as the independent variables. We use robust standard errors in the regression.

The beta value is the slope coefficient of the regression model and representing the correlation between the cumulative abnormal return and text scores. The larger the slope is in our model, the greater the sensitivity to press releases the respective group is. In the context to our hypotheses, if the slope coefficient for FinTech under US GAAP larger than the one for FinTech reporting under IFRS, then the reliance on press release is larger, indicating that the capitalising R&D results in higher degrees of informativeness. We have added to the regression five control variables in order to test the correlation between press releases and market reaction. The first two were used by Deng and Lev (2006) which are firm leverage and firm size. Our proxies for these are debt to common equity and natural logarithm of number of employees respectively. Below we have listed all of our variables:

Table 5: List of Variables

Variable	*Description*
CAR	Aggregation of the abnormal returns for each company.
Optimism	Score of optimism by DICTION.
Size	Natural logarithm of the number of employees. Collected via Bloomberg.
Leverage	Defined as: $\frac{Debt}{Common\ Equity}$ Collected via Bloomberg.
Volatility	Adjusted beta derived from historical data but modified by the assumption that a security's true Beta will move towards the market average, of 1, over time. Collected via Bloomberg.
Profitability	Defined as: $\frac{(Net\ Sales - Expenses)}{Expenses}$ Collected via Bloomberg.
Risk_premium	Risk premium defined as compensation for investors who tolerate extra risk, compared to that of a risk-free asset, in a given investment. Collected via Bloomberg.
Standard	Indicates accounting standard and the variable takes on values 0 and 1 for IFRS and US GAAP respectively.
Dummy_optimism	Our interaction term between the standard and optimism. This dummy variable will take on 0 for IFRS and 1 multiplied the coefficient for US GAAP.

In order to separate the observations from either the US GAAP or IFRS sample, we have added a dummy variable for optimism where the value of 0 indicated IFRS and the value of 1 indicated US GAAP.

Thus, for our study, the specific linear regression model is as follows:

(5) $CAR_{i,t} = \alpha_i + \beta_1 Optimism_{i,t} + \beta_2 Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 Volatility_{i,t} + \beta_5 Profitability_{i,t} + \beta_6 Risk\_premium_{i,t} + \beta_7 Standard_{i,t} + \beta_8 Dummy\_optimism_{i,t} + \varepsilon_{i,t}$

where i and t indicates firm i on date t.

The test statistics and the calculation of the rejection region at the 90% confidence interval are applied. The critical region lies between ±1.645 and if the t-value of the regression lays within the region. The p-value is a probability, a value between 0 and 1. The closer the p-value is to 0 the likelihood is increased that the null hypothesis is not confirmed. In order to be able to validate the significance with the p-value at a 90% confidence level is applied, with $\alpha = 0.10$. Hence, p-values smaller than 0.10 are laying in the rejection region. Therefore, if the p-value is larger than 0.10, the null hypothesis is confirmed (Brooks, 2014).

3.4 Restrictions

We use the time period 2013.01.01 – 2019.03.31 with an estimation window of 30-days and event windows of 3, 5 and 11 days. Moreover, DICTION is only used to investigate optimism in corporate press releases which is a restriction. As the press releases are collected from the original source i.e. the company announcing them, there is some bias that needs to be aware of. In addition, as DICTION only includes English dictionaries, our sample can only consist of companies that are making announcements in English which means that we have left out companies using non-English. Lastly, the number of public FinTech companies in the EU is scarce in comparison to the US, the US GAAP sample has been fitted in order to match the IFRS sample in size. Size has been estimated by sales and number of employees. This has been done with the intention to create a homogenous sample.

4. Results and Analysis

In the following section the results of our statistical research are presented and further on analysed towards the literature and our hypotheses.

4.1. Descriptive Statistics

Table 6: Descriptive Statistics for IFRS and US GAAP Firms with Winsorization

Panel A: IFRS	*N*	*Mean*	*SD*	*Min*	*Max*
Stock return	233	.5942	2.3842	-4.6972	5.0033
Market return	233	.0816	.8475	-2.0331	1.7981
Optimism	233	52.2774	1.8695	48.83	56.93
Size	233	6.6965	1.8695	4.1589	10.2971
Leverage	233	7.1660	13.3643	1.14	53.59
Volatility	233	4.7106	8.9798	-4.52	31.12
Profitability	233	-9.247	47.8361	-143.43	47.8
Risk premium	233	7.2226	3.4642	1.25	12.99
Panel B: US GAAP	*N*	*Mean*	*SD*	*Min*	*Max*
Stock return	234	.7087	2.1065	-4.2534	5.6534
Market return	234	.0739	.7598	-1.3456	1.7981
Optimism	234	52.1473	1.8284	48.73	58.33
Size	234	8.0221	1.3883	6.1654	11.3736
Leverage	234	5.9031	8.6813	1.1866	33.9441
Volatility	234	1.0988	.4910	.1537	3.553
Profitability	234	13.2769	14.36	-10.86	42.4726
Risk premium	234	7.2138	1.8496	4.4169	11.7915

As we can see from the tables above, as Winsorization replaces the extreme values in the far left and far right in a normal distribution, the effect is most notable in the min and max values. For comparison to the data without Winsorization, see appendix A. Statistics such as the mean and standard deviation are indeed sensitive to extreme values. As the tables above show, Winsorization will robust our data reducing the impact of extreme values and the distribution has been given more desirable statistical properties. As we see, the large standardised residuals are replaced by new observations so that the influence of extreme values, can be minimised. The standard deviation is decreased when using Winsorization, see appendix A. Henceforth, our data is more clustered around the mean and therefore more reliable.

Moreover, looking at tone we see that the mean for IFRS of 52.2774 firms are slightly higher than the mean 52.1473 for US GAAP. This result might indicate that the differences between how FinTech companies in EU and US in terms of press releases are almost non-existent.

4.2 Correlation Matrices

Table 7: Correlation Matrix for IFRS Firms

Variable		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Stock return	(1)	1.0000							
Market return	(2)	.1818	1.0000						
Optimism	(3)	-.0070	.0030	1.0000					
Size	(4)	.0262	.0066	.1131	1.0000				
Leverage	(5)	-.0058	.0060	-.1570	-.0300	1.0000			
Volatility	(6)	.0129	.0056	-.0211	.0291	-.0982	1.0000		
Profitability	(7)	.0414	-.0109	-.0335	.4958	.3675	.0611	1.0000	
Risk premium	(8)	.0282	-.0138	-.0135	.2754	.0585	.1554	.4152	1.000

Table 8: Correlation Matrix for US GAAP Firm

Variable		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Stock return	(1)	1.0000							
Market return	(2)	.4146	1.0000						
Optimism	(3)	-.0097	.0015	1.0000					
Size	(4)	.0130	-.0024	-.1929	1.0000				
Leverage	(5)	.0105	-.0027	-.2254	.0082	1.0000			
Volatility	(6)	-.0018	-.0065	.1742	-.1437	-.0066	1.0000		
Profitability	(7)	.036	.0007	-.3051	-.0533	.3545	-.3552	1.0000	
Risk premium	(8)	-.0006	-.0076	.2329	-.1183	.0725	.7567	-.6059	1.000

The presented correlation matrices are used in accordance with Brooks (2014) suggesting using those in order to check for multicollinearity among the control variables and as action to take if an issue becomes visible to drop the respective control variables. We do not obtain any significance. The control variables risk premium and profitability show the strongest correlations to other variables for both samples which will yield the issue of multicollinearity which can cause the result to be numerically unstable. We drop these control variables and thus adjust the regression from equation 5:

(6) $CAR_{i,t} = \alpha_i + \beta_1 Optimism_{i,t} + \beta_2 Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 Volatility_{i,t} + \beta_5 Standard_{i,t} + \beta_6 Dummy\_optimism_{i,t} + \varepsilon_{i,t}$

4.3 Linear Regression

Before conducting the linear regression, we need to determine whether CAR is significantly different from zero. If significant, it means that a press release regarding R&D operations issued by a FinTech company will affect abnormal stock returns. When regressing CAR, we receive the following output:

Table 9: Significance of CAR

Event window	*CAR*
3-day	0.2470 (1.89)*
5-day	0.2533 (1.24)
11-day	0.1434 (0.46)

* $p < 0.10$
Note: robust standard errors have been used

As table 9 indicates, CAR is significantly different from zero at 10% confidence level for our 3-day event window with a coefficient of 0.2470. This indicates that press releases regarding R&D operations issued by FinTech companies will generate a significant market reaction. As new information reaches the market, a new equilibrium will be established based on the new aggregation of information and agreement of valuation (Copeland, 1976). Our 5-day and 11-day event windows are not showing significance at 10%-level so we cannot draw any conclusions. But, we see that for the 11-day window the CAR drops to 0.1434 which could suggest that the post announcement drift is halted. It can also be explained by the fact that we have more noise in the data as we include more trading days around the event date as explained by Brown and Warner (1985).

Table 10: Linear Regression

	Event Window		
Variable	*3-day*	*5-day*	*11-day*
Tone	-0.194 (1.96)*	-0.198 (1.41)	-0.251 (1.15)
Size	-0.090 (0.93)	-0.154 (1.23)	-0.070 (0.37)
Leverage	-0.014 (1.12)	-0.029 (1.79)*	-0.028 (1.12)
Volatility	-0.037 (1.26)	-0.037 (0.88)	-0.131 (2.13)**
Standard	-14.360 (1.66)*	-14.255 (1.36)	-20.978 (1.25)
Standard × Tone	0.267 (1.66)*	0.270 (1.35)	0.394 (1.23)
Constant	11.555 (2.21)**	11.634 (1.59)	13.712 (1.18)
R2	0.02	0.02	0.02
N	467	467	467

*p < 0.10 ** p <0 .05

Note: robust standard errors have been used

The level of optimism in a press release, shows significance for our 3-day event at 10% level with a negative coefficient of -0.194. As the output from DICTION covers optimism , this means that a press release in our sample have a negative impact on an IFRS FinTech company's abnormal returns with -0.194% with a one unit increase in optimism. This negative impact could indicate on a negative perception of press releases within the EU as it reduces abnormal returns. A possible explanation is the fact that when capitalising R&D expenditures, a company's stock price informativeness will increase compared to when forced to expense them (Benston et al, 2007; Oswald & Zarowin, 2007; Chen et al, 2017). The results indicate that as capitalisation already contain higher level of stock price informativeness, additional information from FinTech under IFRS will be perceived as a negative signal by market participants. As Ball and Brown (1968) stated, one-half or more of all available information of a company during a year is in fact captured in that year's income numbers. As a result, investors seem to be suspicious and pessimistic toward additional announcements by IFRS FinTech and thus questions the underlying reason for the announcement. If following Ball and

Brown's (1968) conclusion, investors in FinTech companies regulated under IFRS do not need additional information such as innovative activities. The relevant value of these assets is already captured in the capitalised R&D expenditures. This is supported by Ledoux & Cormier (2013) where the value relevance of voluntary disclosure decreases with IFRS whereas the value relevance of intangible assets itself increases. An important feature of IFRS is the fact that managers use their superior inside information by capitalising successful R&D investments and expensing unsuccessful R&D investments. This will ultimately reduce information asymmetry between managers and the market. According to Ahmed and Falk (2006) this will assume no moral hazards by the reporting managers, and the decisions will in fact not be influenced by opportunistic consideration which results in unreliable or misleading information. So, the relevance of financial statements is enhanced and thus investors can rely on these rather than voluntary press releases. The reliance on these financial statements are backed by the requirement of auditor verification of estimates on future benefits of R&D expenditures as mentioned by Hughes and Kao (1991).

For the US sample, which is the dummy, this variable represents the US sample and the coefficients of the dummy for tone and tone are simply added together. The results show significance on 10% level in the 3-day event window and the coefficient is positive and larger than variable tone. Thus, for a US FinTech company, one unit increase in optimism will generate 0.267% increase in abnormal returns. Our results show a change from negative to positive coefficients for optimism in press releases in the US compared to the EU. This indicates that press releases have a positive effect on abnormal returns for FinTech companies regulated under US GAAP. As Benston et al (2006) points out, capitalisation will enable management to communicate information about the success of their R&D operations which is not possible to the same extent under expensing. The lack of flexibility for US GAAP FinTech therefore needs reduce asymmetric information via press release rather than financial statements. However, Ali, Ciftci and Cready (2012) point out difficulties even among the most skilled analysts to predict future income regarding R&D expenditures so the more positive information they receive from FinTech companies, the more optimistic they tend to be according to our results. This statement is based on the fact that the average tone for IFRS and US GAAP is almost the same, but we have opposite directions of the coefficients. In addition,

the coefficient of variation[8] for both the IFRS and US GAAP samples are far below 1 which indicates a low standard deviation. Thus, the scores from DICTION regarding optimism are throughout all 467 observations are consistent. This consistency indicates a similarity between the groups in communicating with the market. So, whether the score of optimism in our US GAAP sample accurately predicts the actual intent of a press release or if investors in US GAAP FinTech are more gullible than investors in IFRS FinTech is a valid question. As the results do not render significant results, generalisation is not possible.

Furthermore, the coefficient on the variable for the standard shows -14.360, -14.255. and -20.978 for the 3-day, 5-day and 11-day event window respectively. This means that if a press release scores zero in optimism, the abnormal returns will decrease, in percentage, with the above coefficients from the regression. In the context of our study, scoring zero is an extreme value and thus unlikely (see table 6). The probability of generating such a low score of optimism is low since it should be assumed that companies will not make such announcements if not complied by law thus signalling bad news is avoided if possible.

So, the change from negative (IFRS) to positive (US GAAP) could indicate that in the EU sample abnormal returns decreases, whereas in the US abnormal returns increases following a press release. This could be depending on the perception of press releases in general but secondly also on the already existing information in the market of a firm. In the EU sample this could be interpreted as a confirmation of existing information, so that returns are more correlated with the market. In the US sample on the other hand, press releases seem to increase abnormal returns so that this information can be interpreted as new and therefore resulting in a reduced correlation with the market and larger movements of the returns. It could also mean more positive returns compared to the market. Thus, at the moment of a press release issued by a FinTech company regulated under IFRS, the results could indicate that investors are irrational and sell their stocks. Investors in US GAAP FinTech firms will instead embrace the news see it as a possible signal to the market. In accordance with Henry (2008), the tone of press releases also influences investors in FinTech companies but differently under a different standard.

[8] The coefficient of correlation is calculated as: $\frac{Standard\ deviation}{Mean}$. Values > 1 indicates high standard deviation and values < 1 indicates low standard deviation. IFRS sample = 0.0357 US GAAP sample = 0.0351

5. Conclusion and Future Research

5.1 Conclusion

This study has investigated market reactions to the level of optimism in press releases issued by FinTech companies regulated under IFRS and US GAAP. An event study has been conducted and with the help of DICTION, analysis of press releases regarding its tone i.e. its optimism, has been calculated. The study is significant on 10% level for the 3-day event window and the regressions show that press releases issued by FinTech companies regulated under IFRS result in negative abnormal returns while their counterparts regulated under US GAAP result in positive abnormal returns. As the tone of both groups have almost the same mean, the explanation to the opposite reactions is due to the characteristics of IFRS and US GAAP and how it will affect the arrival of new information. For FinTech companies under IFRS, as capitalisation will render in higher stock price informativeness, it means that the relevance of financial reports is high and thus lowers the need for additional announcements. Additional information will make investors suspicious about its underlying reason. FinTech companies regulated under US GAAP on the other hand, depend more on releasing value relevant information via press releases as they cannot capitalise their R&D expenditures and thus have lower stock price informativeness.

5.2 Future Research

We predict that FinTech companies are going to grow in number in terms of publicly listed companies and thus continue to challenge traditional banks. As the US market provides the largest sample of companies, research that compares how traditional banks communicates with stakeholders with how FinTech companies do it will provide useful insights. A larger sample than our is needed in order to be able to make more generalisations. As we only included the FinTech industry, a study comparing two opposite industries and the way they communicate via press releases can give valuable insights. With text analysis, a lot more can be captured than just tone which was the main objective in our study. For instance, the issue of boilerplate and information overload is a well-researched topic which can be captured using text-analysis tool. FinTech disrupts the banking industry so it would be interesting to compare annual reports between FinTech companies and traditional banks in terms of boilerplate and information overload.

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Appendices

Appendix A: Descriptive Statistics before and after Winsorization

Descriptive statistics for IFRS firms

Variable	N	Mean	SD	Min	Max
No Winsorization					
Stock return	11,883	.05285	2.7346	-32.2494	37.3707
Market return	11,883	.0063	.96521	-8.61692	4.7055
Optimism	11,883	52.3094	2.0809	46.72	62.83
Size	11,883	6.6830	1.8320	3.7136	10.2971
Leverage	11,883	8.0120	16.4643	1.1	89.82
Volatility	11,883	5.8114	19.6311	-30.62	138.57
Profitability	11,883	-13.1967	69.7781	-370.18	51.72
Risk premium	11,883	7.1363	3.7494	-4.39	14
Winsorization[a]					
Stock return	11,883	.0516	2.0843	-5.0051	5.6521
Market return	11,883	.0094	.85668	-2.0702	2.0629
Optimism	11,883	52.2760	1.8617	48.83	56.93
Size	11,883	6.6804	1.8227	3.9512	9.7305
Leverage	11,883	7.9550	16.2020	1.12	76.55
Volatility	11,883	4.7322	13.7152	-30.62	54.75
Profitability	11,883	-8.8984	51.2474	-168.17	50.01
Risk premium	11,883	7.1742	3.5964	-.49	13.28

[a] 5% Winsorization

Descriptive statistics for US GAAP firms

Variable	N	Mean	SD	Min	Max
No Winsorization					
Stock return	11,943	.0905	2.4511	-33.7521	56.717
Market return	11,943	.0392	.8387	-4.0979	4.9593
Optimism	11,943	52.1732	1.9524	47.87	58.95
Size	11,943	8.0221	1.3854	6.1654	11.3736
Leverage	11,943	5.9031	8.6631	1.1866	33.9441
Volatility	11,943	1.0988	.4899	.1537	3.5531
Profitability	11,943	13.2769	14.334	-10.8633	42.4726
Risk premium	11,943	7.2138	1.8458	4.4169	11.7915
Winsorization[a]					
Stock return	11,943	.0825	1.8471	-4.4266	4.3849
Market return	11,943	.0419	.7508	-1.9086	1.6627
Optimism	11,943	52.1473	1.8246	48.78	57.85
Size	11,943	8.0221	1.3854	6.1654	11.3736
Leverage	11,943	5.9031	8.6631	1.1866	33.9441
Volatility	11,943	1.0988	.4899	.6438	3.5531
Profitability	11,943	13.2769	14.3341	-10.8633	42.4726
Risk premium	11,943	7.2138	1.8458	4.4169	11.7915

[a] 5% Winzorisation