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Short-term stock returns following rating agencies announcements in large European firms

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Abstract

Thesis title: Short-term stock returns following rating agencies announcements in large European firms.

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Using Moody's and S&P's bond and credit watch announcements between 2007 and 2016, I have found inconsistent results comparing to prior literatures. Conducting an event study to analyse the stock market, no reliable abnormal returns following downgrades were found while significant returns were observed following upgrades. Nevertheless, for changes within speculative grade both downgrades and upgrades had reliable abnormal returns. An analysis over the global financial crisis shows that the market can anticipate the rating changes and further reacts after downgrade announcements. After the crisis period very significant abnormal returns are observed only for upgrade announcements. For changes in Outlook, the market also seems have had anticipated, but after positive announcements the market reacts in the opposite expected direction. The same occurs for negative outlook announcements after the crisis period.

The main explanation for my results being inconsistent with prior studies relies on the global financial crisis started in 2007 when markets went down drastically. During the recovery from the global financial crisis, many stocks were underpriced making rating downgrades ineffective to stock prices changes and upgrade a set of good news to increase stock prices.

Resumo

Título da tese: Short-term stock returns following rating agencies announcements in European large firms.

Autor: Jerson Li Lin

Usando publicações de rating de crédito e revisão de crédito das principais agências de rating Moody's e S&P, foram encontrados algumas inconsistências nos resultados em relação à literatura existente. Levando a cabo um estudo de evento para analisar o mercado de acções, não foram encontrados retornos anormais significativos após reduções de ratings enquanto que após melhoria de ratings apresentam resultados anormais significativos. Contudo, numa análise somente com ratings especulativos, existem resultados anormais significativos tanto para reduções como para melhorias de rating. Durante a crise financeira global, os resultados mostram que os mercados antecipam as mudanças de rating e no caso das reduções, o mercado reage negativamente com resultados significativos. Após o período de crise, resultados significativos só são observados em melhorias de rating. Para mudanças de revisão de crédito, o mercado também mostrou antecipar-se às publicações, sendo que posteriormente às revisões positivas, o mercado reage de forma oposta às expectativas. O mesmo acontece para revisões negativas após o período de crise.

A principal explicação para os meus resultados serem inconsistentes com estudos anteriores reside na crise financeira global onde os mercados caíram de forma drástica. Durante o período de recuperação, muitos mercados de acções encontravam-se subvalorizados tornando as publicações de redução de rating inefectivas aos preços das acções e as publicações de melhoria de rating um conjunto de boas notícias para o aumento do valor das acções.

Preface – Acknowledgements

Since my early student years when I understood the concept of Master thesis, I knew it would not be an easy task and due to that reason, it pushed my ambitions forward to complete a Master program. As it was not enough, I decided to challenge myself with an additional full-time work while writing my dissertation. I definitely do not regret my decision since it provided me deeper knowledge to write my thesis and allowed me to meet several people who helped me to finish my goal.

First, I would like to thank my friends and family who have always supported me during every stage of my dissertation and gave me the motivation to keep going even when I was confused and lost.

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1. Introduction

Almost every investor or financial institution relies on Moody's and S&P's credit ratings whenever these two main rating agencies provide ratings. These agencies provide information about the creditworthiness of an issuer or issue within a grade scale. They might provide different ratings for the same issue or issuer, as the models and tools used to determine the grades are different. Investors and financial institutions can have access to the information explaining the reasoning behind the rating attribution.

Rating agencies regularly revise the ratings of issues and issuers. They change the rating whenever they find there is a change in the creditworthiness of an issuer or issue which they are following. They also announce a Credit Watch when a rating is under review and until further news are obtained by the rating agencies to determine the measures that should be applied for the issuer or issue. According to S&P and Moody's, credit watch is applied when they believe that an opinion will likely be released within 90 days.

Some investors believe that rating agencies bring new information while others do not. On one hand, Moody's and S&P have private meetings with the management team to have a deeper understanding over the company's financial situation and make projections for the future performance. On the other hand, rating changes are not attributed immediately after the considered key factors reach a different rating. There is usually a lag between the moment that financial ratios and qualitative factors score a different rating and the moment the rating change is announced. According to Altman and Rijken (2006), rating agencies are many times criticized for delaying downgrades or upgrades in relation to financial markets. Investors do not like big volatility or ratings reflecting small changes on financial ratios. Therefore, rating agencies focus more on long term factors avoiding excessive reversals of rating changes.

In the middle of 2007, the global financial crisis started to show its effects. Stock markets have fallen and large institutions all around the world considered to be financially stable have collapsed or have been bought by other institutions, and even wealthiest countries have had to find rescue solutions to protect their financial system. According to Dodd-Frank Wall Street Reform and Consumer Protection act, rating agencies were one of the triggers of the crisis as they did not do a good job in evaluating bonds and instead, their poor performance led investors misunderstand the real financial structure and creditworthiness of the various debt instruments. The Council on Foreign Relations stated that the "Big Three" rating agencies faced

some intense legal scrutiny over their business practices, where they issued overly favourable ratings to increase the demand of its services and not losing it to its competitors (in that time the competition was mainly between Moody's, S&P and Fitch). Hence, it is clear that rating agencies do have impact on financial markets and investors sentiment.

Having said this, the purpose of this thesis is to understand the importance that the two largest rating agencies have on the European markets. While information efficiency has been extensively studied in the U.S. market, there is little evidence on the European markets. In this sense, the assessment of the price movements over rating actions for companies that belong to Euronext 100 index could be a useful sensitivity test for previous studies that are mainly based on U.S. companies. Euronext 100 is composed by the one hundred largest and most liquid companies that are traded in Euronext indexes, meaning that there is more information reflected on the stock prices, more secured investments and higher level of speculation compared to other stocks traded in Euronext.

This thesis assesses the impact of rating changes and credit watch announcements on stock prices for companies that form the Euronext 100 index from the 1st January of 2007 until 31st May of 2016. The sample is composed with downgrades, upgrades, positive and negative outlook announcements from Moody's and S&P. Consistently with the previous literature, negative abnormal returns are associated with downgrades and positive abnormal returns are associated with upgrades (Dichev and Piotroski (2001) and Pinches and Singleton (1978)). On the other hand, and inconsistently with previous literature, my results demonstrate that downgrade abnormal returns are not significant neither before nor after the announcement, while upgrade abnormal returns present significant results before and after the announcement. Negative credit watch announcements present immediate significant negative results, while positive credit watch signals a delay in the market reaction to the positive news.

Investment and speculative grades were separately analysed. Investment grade did not present significant results while speculative showed high significant abnormal results both for downgrades and upgrades, indicating that the market is much more sensitive to rating changes when the companies have higher probability of default.

The global financial crisis had impact on my results. During the crisis period most markets were covered in an extreme bearish sentiment, making upgrade announcements useless to cheer the markets up and downgrade announcements a new argument to bring the market down. Therefore after the crisis period, downgrades did not demonstrate any significant impact on stock prices since all the possible risks were already priced in while upgrades gave investor

significant reasons to invest. Surprisingly, my results show that announcements of positive and negative credit watches had significant opposite expected market reactions.

The structure is organized as follows. Section 2 reviews previous literatures that were taken into consideration in order to make this study; Section 3 presents the data used and methodology applied to obtain the results; Section 4 describes and comments the results obtained and finally; Section 5 is completed with summary and conclusion.

2. Literature Review

There are many studies analysing the effects of credit rating changes on stock prices, and the results are not consistent finding both mixed effects or no impact on common stocks. Earlier studies on the effect of rating changes such as Pinches and Singleton (1978) using a monthly data, determined that when bond rating increases, high abnormal returns occur before the announcement of the change and after the announcement normal returns are expected. The same time, Weinstein (1977) and Wakeman (1978) also using monthly data did not find any impact after the announcement of credit changes whereas Katz (1974) concluded that bond investors cannot predict rating changes with the price variations and usually announcements of such changes are followed by a delayed reaction. These results reflected that investors are confident that most of the rating agencies use only the information that are public to assess the credit rating, which is available for every investor. However, studies using daily data have been more successful capturing impacts than using monthly data. Hand et al. (1992) define the average excess returns after rating changes from the periods +61 to +361 days. They implied that for downgrades, bond and stock prices react with significant negative average excess return and not significant positive average returns for upgrades. They also divide the sample into contaminated and non-contaminated samples by observing whether or not news, which could indicate a rating change, appeared before the announcement. Non contaminated presented even more significant reactions. Although rating upgrades do not have the same impact on average excess returns as rating downgrades, the overall takeaway in their study is that announcements of credit rating changes do affect stock prices.

Some other studies conclude that only downgrades affect the stock price while upgrades do not. Griffin and Sanvicente (1982) examined the adjustments in a firm's common stock price during the eleven months before the announcement and one month after. They conclude generally there is a significant negative market reaction to bond downgrades, but not to bond

upgrades. Notwithstanding, upgraded firms exhibited positive abnormal returns in the preceding eleven months. These findings are consistent with the rationale that downgrades provide new information that is not public yet to the equity markets. Steiner and Heinke (2001) found that downgrades have a strong negative impact on prices while upgrades do not cause announcement effects. Moreover, Ammer and Clinton (2004) used a sample of more than 1300 changes from the world's two greatest rating agencies (Moody's and S&P) and also found the impact of credit rating changes on asset-backed securities have significant negative reactions to downgrades.

Kliger and Sarig (2000) tested whether the credit rating agencies have any price relevant information that are not public by examining stock price reaction to Moody's rating changes. In the study it was not considered contaminated rating changes which is represented by fundamental changes in risk and announcements prior to the rating change. Hereupon, they concluded that firm value is not affected by the rating information or changes, but the value of debt increases (decreases) while the value of equity decreases (increases) when the rating agencies announce better (worse) expected ratings. Plus, Schweitzer et al. (1992) also examined whether debt rating changes have inside information that impacts stock prices for the banking sector. If rating actions have less impact on banks than corporates, the logic behind that would be financial entities are highly regulated, hence the information available is much higher than other entities leading to a lower impact on equity value. On the other hand, if rating actions have a higher impact on banks than corporates, it would be based on the idea that regulators allow financial institutions to withhold some important information from the public in order to preserve the stability of the financial system and therefore lead to worsen negative abnormal returns associated with banking rating deterioration. In fact, the empirical results obtained support the second hypothesis showing that downgrades in the banking sector conducts to a stronger effect on the stock price.

Dichev and Piotroski (2001) also analyses the impact after the rating announcement in a three year horizon. They divide the sample into two subgroups whether they relate to the parent company or subsidiary. The results do not differ from the previous literatures where the downgrades show relevant numbers in all the three years with negative abnormal returns up to 14% in the first year following the announcement and even though analysing all Moody's bond rating changes between 1970 and 1997, there is still no significant abnormal returns were followed by upgrades. These results are more pronounced for parent companies, small firms and lower rated firms.

Goh and Ederington (1993) argue that not every downgrade represents bad news for shareholders depending on the reasons that led the firm to increase its risk, particularly whether such increase was a wealth transfer from the bondholder to the stockholder. The authors found that for downgrades due to the deterioration of the financial situation there is a significant negative market reaction, while downgrades due to change in leverage do not. The same for Gropp and Richards (2001) who focused on a sample of European banks. These authors found strong evidence on unexpected rating changes downgrades, but the stock price may vary very differently according to the underlying reason.

More recent literature, Jorion and Zhang (2007) show that studies about rating changes announcements should take into consideration the previous and the new ratings. Firms with higher ratings have lower credit default probability while firms with lower credit rating have higher credit default probability. For example, a downgrade from Aaa to Aa1 should not have as much information as a downgrade from Baa3 to Ba1. In the former case, the credit default stays at a very low risk while in the latter case becomes a substantial credit risk. Hence in this study the authors took in consideration the Investment Grade and Speculative Grade and reached the same findings as the previous studies where downgrades involve a much bigger change in stock prices than upgrades. Nevertheless, this change is correlated with the previous rating in which lower ratings have higher changes due to higher information that affect the capital markets. Therefore, asymmetries between downgrade and upgrade information can be explained by the prior rating.

It is clear that earlier studies results differ from the more recent studies results, but every study focuses on the information provided by the rating agencies whether they use or not inside information to attribute ratings. According to Moody's Research and Ratings, the methodology used for rating differs from industry and company. For each industry, the methodology applied has changed over time and nowadays, Moody's uses quantitative analysis such as liquidity, profitability, size and leverage; and qualitative analysis such as business position, financial policy, management strategy, corporate governance, financial controls and event risk to provide corporate ratings. Moreover, Moody's states that it uses confidential non-public information those issuers provide to Moody's only for the purpose of assigning ratings. Moody's does not, without the permission of the issuer, disclose the information in the press release or other research reports published in connection with the rating, or in discussions between Moody's analysts and investors, or other issuers. The same applies for S&P (in S&P Global Ratings) as it uses a specific rating framework covering country

risk, industry risk, competitive position and financial risk. After determining a preliminary rating "anchor" with the previous risks, it will suffer (or not) changes through the "modifiers" which include information such as diversification, capital structure, financial policy, liquidity and management / governance. To assess issue ratings (more related to bonds), S&P takes into consideration the issuer rating, whether it is investment grade or speculative grade, and applies an evaluation according to the issue's priority, company's asset valuation, jurisdictions and recovery percentage in case of default. This information according to S&P, is also obtained by the rated company, which might not be available to the public investors yet. Although these two rating agencies are the market leaders, sometimes they do not provide the same ratings for the same bond or corporation. Having said this, there is no study that is more correct than other. It all depends on the sample, time, rating agency's methodology used and other factors.

3. Data, Sample and Methodology

I used the stocks that currently compose the Euronext 100 to analyse if credit rating and watch list changes affect stock prices. Thereunto, Bloomberg was an essential tool used to collect all the data necessary for this study. It is a highly well-known financial database which possesses all the information needed such as the changes in credit rating and, Credit Watch and Watch List from S&P and Moody's respectively, the credit rating announcement dates and the returns of the stocks and country stocks. This analysis focuses on long term issuer and issue ratings, which are the rating agencies opinions over an obligator's capacity to pay its debt within the agreed time. Plus, this study focuses more on stock prices rather than bond prices since there is much more information available for stock prices while bond prices may vary according to the liquidity and maturity of each issuance.

3.1 Data and Sample

Currently Euronext 100 stocks composition is of 100 companies, which are the top 100 largest and most liquid stocks traded in all Euronext indexes, from four different countries: Belgium (11 firms), France (65 firms), Netherlands (21 firms) and Portugal (3 firms). The rating agencies that I took into consideration are the two largest in the rating industry owning together about 80% of the global market share. According to IMF research[1], Moody's has 40% and Standard & Poor's has also 40%. The period considered is from 2007 until 2016. During this period there were 68 companies that suffered a change in their credit ratings, while 29 were either not

[1] http://www.imf.org/external/pubs/ft/fandd/2012/03/gavras.htm

rated by Moody's or S&P or stopped being rated before 2007 and 3 did not have any change during the considered period.

Table 1 presents an overview about the data selected to be studied. It comprises 361 rating announcements and clearly shows a down period as downgrades and provisions of downgrading are much higher than upgrades and provisions of upgrade. It seems that the global financial crisis in 2008 had a big impact on European firms as the ratio of upgrades to downgrades in 2009 following the crisis was 4:35. The sovereign debt crisis in the euro zone between 2011 and 2012 had also clearly strong impact on the rating attribution. Nevertheless, in the recent years European companies are showing some stability as rating announcements are lower and the number of upgrades is almost matching the number of downgrades.

Table 1. Credit Rating and Watch list Changes, 2007 – 2016

Moody's and S&P have long term issuer ratings, long term issue rating, short term issuer rating, short term issue rating and a watch list which includes positive, negative or stable outlooks. In the following table upgrades or downgrades are related only to long term ratings. The division between issue rating and issuer rating is not illustrated as Moody's has just started rating long term issuers in 2007 and does not have for many issuer ratings for this sample.

Year	Number of Upgrades	Number of Downgrades	Positive Watch	Negative Watch	Total	Percentage of announcements
2007	11	4	1	1	17	4,71%
2008	13	11	6	6	36	9,97%
2009	4	35	1	12	52	14,40%
2010	7	10	6	8	31	8,59%
2011	8	24	4	15	51	14,13%
2012	11	26	3	10	50	13,85%
2013	8	10	8	8	34	9,42%
2014	13	7	3	4	27	7,48%
2015	12	12	4	8	36	9,97%
2016	5	14	0	8	27	7,48%
Total	92	153	36	80	361	100%

In order to avoid any contamination and double counting of the results, it was only considered the announcements that respected the following rule: if there are no rating announcements two months prior or after the particular announcement, unless the prior or after announcements are opposite from the particular announcement (e.g. first a downgrade and after an upgrade). The purpose to set this rule is to avoid impacts on stock prices by previous announcements that are already priced in and any further announcements will not have any abnormal effect on the stock prices. At the same time considering that are considered two different rating agencies, this rule will avoid double considerations as there are some occasions where both ratings are announced at the same day or within two months difference.

With this, the sample was reduced by 70 announcements that do not fulfil the rule mentioned above. Now the sample composition for the studied period was as following: 123 downgrades, 74 upgrades, 25 positive watches and 69 negative watches, totalling 291 announcements.

3.2 Methodology

3.2.1 Definition of event study window

Event studies are a very used analytical tool in financial research (e.g. dividend announcements, merger announcements, stock issue, etc.). The purpose of this methodology is to determine whether there are any abnormal returns on a given security or a portfolio of securities due to a specific event over a period of time.

According to Peterson (1989), there is not a most correct technique to apply in an event study, but many appropriate techniques. I use an event window equal to fifteen trading days (-15) before and thirty trading days (30) after the announcement date of the rating change. The fact that preceding studies using daily data were more successful capturing impacts than monthly data (Hand et al. (1992) and Goh and Ederington (1993)) led me consider a daily window in the event study. The chosen window range is small, because a large range would cover other risks that are not related to the rating announcement and generating biases. However it is not too small in order to capture all the effects of the announcement impact on the stock price (Camargos and Barbosa (2003)).

3.2.2 Cumulative Abnormal Return

Cumulative abnormal Returns (CAR) are used in my study. It is very commonly used in event studies to analyse the effect of external events that might impact on stock prices of a certain company or a portfolio of stocks. Goh and Ederington (1993) used event study with a post event window of thirty days and cumulative abnormal returns to study the effect of bond rating changings on stock prices.

The first step is to define and determine abnormal returns (AR). I adopt the methodology used by Campbell, Lo and Mackinlay (1997) to estimate abnormal returns. The rate of return is calculated for each stock *i* on day *t* with the logarithm of the price on day *t* over price on day *t – 1.*

(1) $$R_{i,\,t} = ln(P_{i,\,t} \,/\, P_{i,\,t-1})$$

And the parameter used to compute the abnormal returns is:

(2) $$AR_{i,\,t} = R_{i,\,t} - R_{Index,\,t}$$

Where $R_{Index,\,t}$ is the market index return on day *t.* The abnormal return will be computed for all the days in my event window from day -15 to day 30. The use of logarithm returns is more effective in order to prevent outliers where the returns are very positive or very negative which could significantly affect the final result of the study. After obtaining the abnormal returns, I used the following equation to calculate the cumulative abnormal returns,

(3) $$CAR_{i,\,T} = \sum_{t=0}^{N} AR_{i,\,t}$$

Hereafter, I determined the cumulative abnormal returns for the entire sample and came with an average cumulative abnormal return which represented the entire sample that suffered a credit rating or watch list change.

(4) $$\overline{\text{CAR}_{i,\,T}} = \frac{\sum_{i=1}^{N} CAR}{N}$$

T – statistics significance

In order to determine whether the results are significant or not it was computed a t-statistics significance. The null hypothesis to determine whether the calculated cumulative abnormal return is significant or not as follows:

- H_0 : No abnormal return was observed in the Euronext100 stocks prices during the event window where credit rating change announcement was made.
- H_1: An abnormal return was observed in the Euronext100 stocks prices during the event window where a credit rating change announcement was made.

The variance of the cumulative abnormal return is:

(5) $$Var(\overline{CAR}) = \sigma^2$$

Where σ is the standard deviation of the samples average abnormal return and T is the sample size used to calculate the cumulative abnormal return. Therefore, the t – stat is computed by the following equation (6):

(6) $$T - stat = \frac{\overline{\text{CAR}_{i,\,T}}}{\sqrt{var(\overline{\text{CAR}})}} * T^{0.5}$$

4. Results

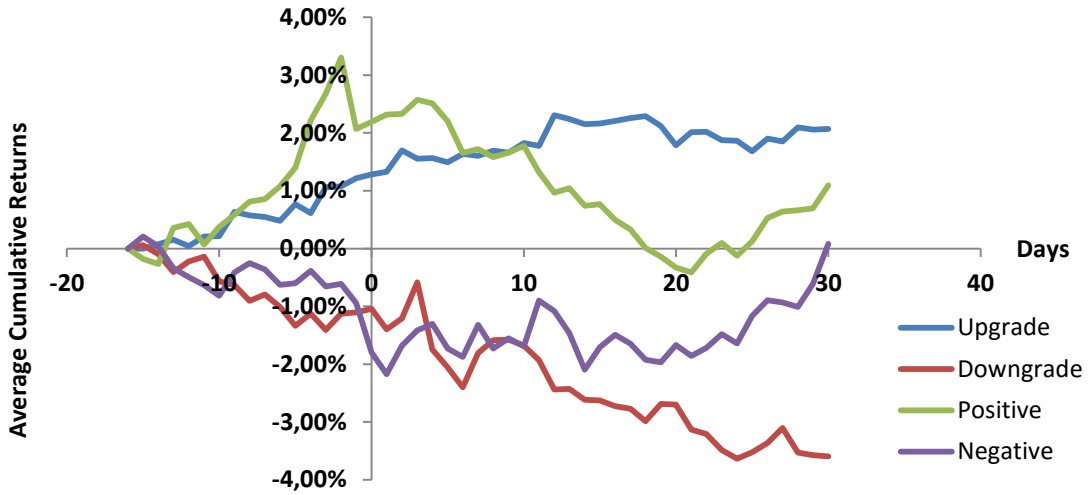
The results of the estimation of abnormal returns for the samples were reported separately. An analysis was made for the subsample of downgrades and upgrades ratings and the subsample of positive and negative watch lists. The sample consists of 197 rating changes, of which 139 are from France, 28 are from Belgium, 27 are from Netherlands and 7 are from Portugal and 94 changes in the watch list with 70 in France, 10 in Belgium, 11 in Netherlands and 3 in Portugal. This sample is mainly composed by French companies, because it has the largest and most liquid stocks traded on Euronext. I did not analyse all the sample together due to the fact that the amount of downgrades and negative credit watch announcements is much larger than upgrades and positive credit watch announcements which could return biased results. This being said, in the first section I will discuss the impact of rating and credit watch changes on stock prices, in the second section I will discuss the same analysis but by separating the analysis over Speculative and Investment Grade and finally make an overview of the world financial crisis period (2007 – 2010).

4.1 Average Cumulative Abnormal Returns (CAR)

Figure 1 shows the cumulative returns from the first day (-15) to the last day (30) of the event study for upgrades, downgrades, positive outlooks and negative outlooks. It presents the evolution of cumulative returns from the beginning until the end of the study window (see table A2 and A3 on the appendix for more accurate values). For big market capitalizations and liquid stocks, the market in average anticipates both rating upgrades and downgrades and continues to react after the announcements. The same applies for credit watch announcements, but after the announcement the market tends to go the opposite direction. Upgrades present linear increases from 15 days before the announcement until 30 days after the announcement while downgrades are not as linear as upgrades. The average CAR's for the credit watch are consistent with Pinches and Singleton (1978) credit rating announcement findings where abnormal returns are expected before the announcements and normal returns are expected after. At the same time, the average CAR's for rating changes announcements before the event (from day -15 to day 0) are also consistent with Pinches and Singleton (1978) findings. However, following the announcement, the CAR's present a continuous increase (or decrease in case of downgrade).

Figure 1

The following figure presents the average Cumulative Abnormal Returns (CAR) evolution during the event window for downgrades, upgrades, positive watches and negative watches. For each day, the presented average CAR is the sum of every average abnormal return from the first day (-15) until that day. The starting point is day -16 which was not considered in the analysis and therefore takes the value of 0.



Surprisingly, the results obtained in terms of significance differ from most of the previous studies meaning that the information provided by the announcement is insufficient to have a significant impact on the average CAR. In this study, downgrades announcements are not significant while upgrade announcements present significant values (see appendix table A2, significant CAR from 2 days before until 30 days after the announcement). It is not given a big importance on these results, since the computation of the CAR takes into account both days prior and post to the announcement, and for this reason it does not directly reflect the effects of the announcements on stock prices. However, it gives some good predictions about the possible outcomes of the further results. It is quite difficult to contradict all the previous studies whose authors are of high renown, but a fact is that the results obtained show exactly the opposite. Prior authors, such as Ederington and Goh (1993), justified that there are different market reactions to upgrades and downgrades where positive news for the companies are turned public more quickly than negative news and therefore, the impact of the good news are priced in earlier. However, these results show exactly the opposite even using the same methodology from previous studies. The only difference between my study and theirs relies on the different period and sample used. For changes in credit watch the same rationale is applied. Negative credit watches do not have significant abnormal returns while positive announcements present significant abnormal returns around the announcement day (see appendix table A3, 4 days before and after the announcement), showing that positive announcements over future previsions of the company (Positive outlook announcement) have

less impact than positive announcements over the current stage of the company (Upgrade announcement).

Table 2 presents the effects of the rating announcements on stock prices as well as stock prices movement before the announcement. Cumulative returns were estimated from 15 days before the announcement until the announcement and cumulative return from the announcement day until 30 days after. For the period studied, downgrades do not provide any negative abnormal returns neither before nor after, while for upgrades the market seems to anticipate the announcement fifteen days before the announcement and the announcement will have most positive impact on stocks after 2, 13 and 14 days with abnormal results up to 1%. A possible explanation for this could be that for large companies with liquid stocks, the information available is much more abundant than small companies with less liquid stocks, where investors can very easily access to it and all the new information that turns public reaches the investors in a rapid way and hence, any change in rating would not have a big impact on stock prices. Furthermore, during the studied period, investors of large companies could have been more optimistic than pessimistic, which justifies the small abnormal return of 1% for upgrade announcements.

On table 3, it is presented the results of the event study, with the same methodology applied in table 2, over the effects of credit watch announcements on the stock prices. It shows that the market clearly anticipates the outlook announcement with positive abnormal returns of 3.30% significant at level 99% for positive changes and negative abnormal returns of 1.80% significant at level 90% for negative changes. The announcement for the outlook change, will also further impact the stock prices in different ways. Negative changes will have further abnormal returns at the announcement day and one day after with values down to -1.23% with 95% significance, while positive changes will not have any impact in the early days but negative abnormal returns after 17 to 25 days with more significant values (at 99%) 21 days after the announcement (-2.48%). This indicates that the market reacts shortly to negative changes in the outlook, believing that rating agencies bring additional information that is not public and companies financial ratios will get worsen in the future and directly hit the stock price. On the other hand, the market will react negatively believing that positive future forecasts do not represent the current stage of the company.

Table 2. Upgrades and Downgrades CAR's

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades. It is composed into two CAR's groups. One is from day -15 to the announcement day and the other one is from the announcement day to the day +30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Downgrade				Upgrade				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**	**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,20190	-1,12%	123	-0,6132	0,06739	0,78%	74	0,9976	
29	0,19440	-1,19%	123	-0,6771	0,06655	0,75%	74	0,9676	
28	0,18610	-1,35%	123	-0,8017	0,06794	0,81%	74	1,0246	
27	0,17771	-1,00%	123	-0,6271	0,06816	0,55%	74	0,7001	
26	0,18152	-1,23%	123	-0,7545	0,07090	0,59%	74	0,7101	
25	0,18173	-1,33%	123	-0,8108	0,06927	0,37%	74	0,4581	
24	0,17294	-1,60%	123	-1,0256	0,06859	0,54%	74	0,6784	
23	0,16405	-1,44%	123	-0,9743	0,06646	0,59%	74	0,7641	
22	0,16094	-1,22%	123	-0,8429	0,06266	0,73%	74	0,9966	
21	0,16045	-1,05%	123	-0,7252	0,05905	0,72%	74	1,0492	
20	0,15453	-0,69%	123	-0,4976	0,05805	0,49%	74	0,7215	
19	0,15204	-0,65%	123	-0,4750	0,04849	0,86%	74	1,5181	
18	0,15321	-0,85%	123	-0,6154	0,04906	1,01%	74	1,7671	*
17	0,16182	-0,50%	123	-0,3453	0,05073	0,99%	74	1,6712	*
16	0,16135	-0,36%	123	-0,2440	0,04884	0,93%	74	1,6318	
15	0,15852	-0,26%	123	-0,1787	0,04639	0,89%	74	1,6501	
14	0,16726	-0,05%	123	-0,0323	0,04248	0,89%	74	1,8009	*
13	0,15976	0,00%	123	-0,0019	0,03991	0,98%	74	2,1016	**
12	0,15225	-0,07%	123	-0,0489	0,04035	1,01%	74	2,1517	**
11	0,14684	0,34%	123	0,2534	0,03804	0,49%	74	1,1027	
10	0,14471	0,61%	123	0,4693	0,03920	0,52%	74	1,1416	
9	0,14067	0,70%	123	0,5502	0,03811	0,38%	74	0,8500	
8	0,13276	0,53%	123	0,4412	0,03604	0,40%	74	0,9451	
7	0,14720	0,41%	123	0,3085	0,03641	0,28%	74	0,6669	
6	0,14864	-0,04%	123	-0,0282	0,03742	0,33%	74	0,7555	
5	0,12429	0,10%	123	0,0860	0,03187	0,16%	74	0,4270	
4	0,12421	0,35%	123	0,3082	0,02914	0,35%	74	1,0336	
3	0,06718	0,32%	123	0,5238	0,02356	0,34%	74	1,2400	
2	0,06283	-0,32%	123	-0,5717	0,02238	0,48%	74	1,8593	*
1	0,05205	-0,38%	123	-0,8155	0,02065	0,11%	74	0,4708	
0	0,03368	0,07%	123	0,2294	0,01513	0,07%	74	0,3977	
-	-	-	-	-	-	-	-	-	
0	0,13007	-1,05%	123	-0,8912	0,05739	1,29%	74	1,9262	*
-1	0,12204	-1,11%	123	-1,0048	0,05481	1,22%	74	1,9072	*
-2	0,11757	-1,13%	123	-1,0647	0,04981	1,08%	74	1,8582	*
-3	0,12738	-1,41%	123	-1,2246	0,05198	1,06%	74	1,7527	*
-4	0,11099	-1,13%	123	-1,1259	0,05140	0,61%	74	1,0280	
-5	0,09916	-1,34%	123	-1,4971	0,04851	0,77%	74	1,3653	
-6	0,09631	-1,01%	123	-1,1656	0,04783	0,48%	74	0,8629	
-7	0,08418	-0,79%	123	-1,0454	0,04130	0,55%	74	1,1419	
-8	0,07973	-0,91%	123	-1,2596	0,03916	0,57%	74	1,2593	
-9	0,08175	-0,64%	123	-0,8634	0,04173	0,64%	74	1,3113	
-10	0,07362	-0,57%	123	-0,8535	0,03330	0,22%	74	0,5579	
-11	0,06640	-0,14%	123	-0,2322	0,02749	0,21%	74	0,6470	
-12	0,05268	-0,22%	123	-0,4660	0,02494	0,04%	74	0,1521	
-13	0,04844	-0,41%	123	-0,9293	0,02382	0,15%	74	0,5552	
-14	0,03561	-0,10%	123	-0,2990	0,01957	0,07%	74	0,3292	
-15	0,02573	0,06%	123	0,2593	0,01268	0,00%	74	-0,0201	

Table 3. Positive and Negative Credit Watches CAR's

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for positive and negative credit watch announcements. It is composed into two CAR's groups. One is from day -15 to the announcement day and the other one is from the announcement day to the day +30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

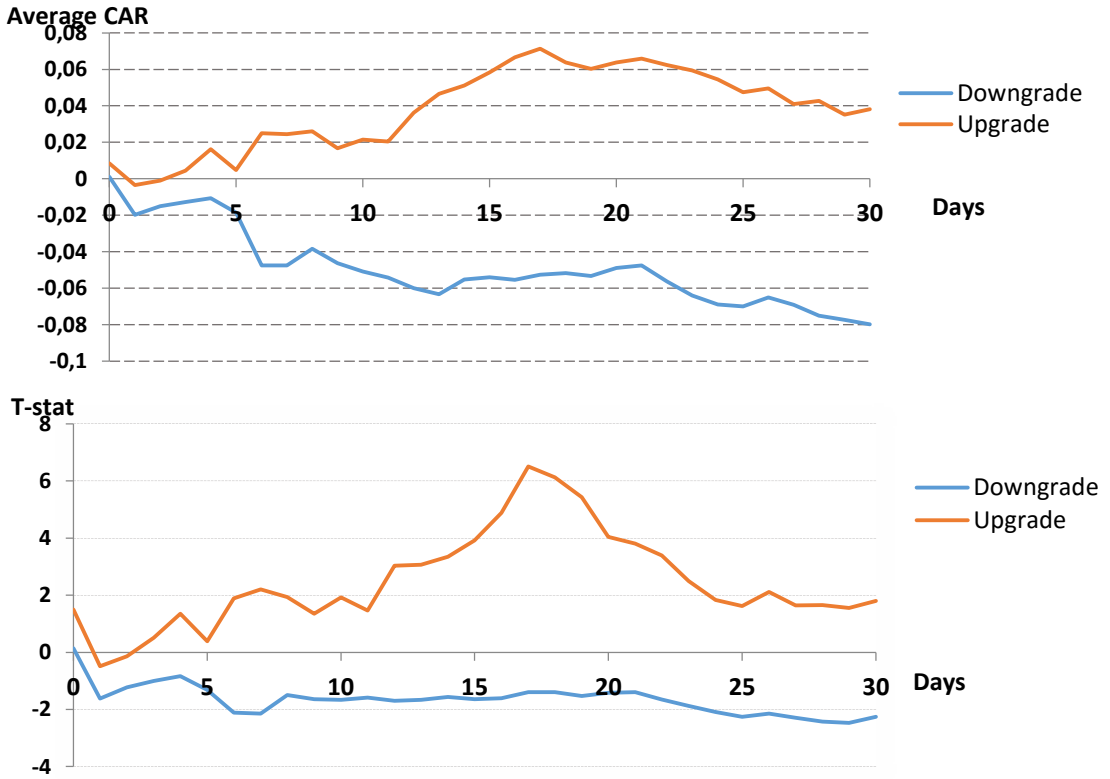
	Negative					Positive				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**		**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,12762	1,02%	69	0,6648		0,04613	-0,97%	25	-1,0533	
29	0,12433	0,33%	69	0,2224		0,04739	-1,37%	25	-1,4450	
28	0,13074	-0,07%	69	-0,0438		0,04814	-1,40%	25	-1,4582	
27	0,13602	0,01%	69	0,0061		0,04801	-1,43%	25	-1,4879	
26	0,13936	0,05%	69	0,0279		0,04647	-1,54%	25	-1,6566	
25	0,13963	-0,22%	69	-0,1319		0,05107	-1,94%	25	-1,8994	*
24	0,13847	-0,70%	69	-0,4206		0,04982	-2,19%	25	-2,1979	**
23	0,12990	-0,54%	69	-0,3437		0,04609	-1,97%	25	-2,1341	**
22	0,12950	-0,78%	69	-0,4977		0,04668	-2,16%	25	-2,3104	**
21	0,12612	-0,91%	69	-0,6019		0,04546	-2,48%	25	-2,7262	***
20	0,11055	-0,73%	69	-0,5459		0,04936	-2,39%	25	-2,4260	**
19	0,10001	-1,03%	69	-0,8529		0,04804	-2,21%	25	-2,2985	**
18	0,09572	-0,98%	69	-0,8523		0,04985	-2,06%	25	-2,0629	**
17	0,09525	-0,70%	69	-0,6145		0,04883	-1,74%	25	-1,7780	*
16	0,09177	-0,55%	69	-0,4973		0,04635	-1,57%	25	-1,6967	
15	0,08847	-0,77%	69	-0,7197		0,04321	-1,30%	25	-1,5035	
14	0,08531	-1,16%	69	-1,1261		0,04119	-1,33%	25	-1,6131	
13	0,07901	-0,52%	69	-0,5484		0,04350	-1,02%	25	-1,1730	
12	0,07611	-0,14%	69	-0,1532		0,04774	-1,10%	25	-1,1545	
11	0,08159	0,04%	69	0,0413		0,04508	-0,75%	25	-0,8296	
10	0,09726	-0,75%	69	-0,6388		0,04251	-0,29%	25	-0,3422	
9	0,09700	-0,61%	69	-0,5254		0,04094	-0,41%	25	-0,4996	
8	0,09083	-0,79%	69	-0,7210		0,04023	-0,49%	25	-0,6060	
7	0,08884	-0,38%	69	-0,3541		0,03741	-0,35%	25	-0,4653	
6	0,08055	-0,93%	69	-0,9607		0,03369	-0,41%	25	-0,6127	
5	0,07333	-0,79%	69	-0,8901		0,03199	0,13%	25	0,2107	
4	0,06973	-0,36%	69	-0,4328		0,02959	0,45%	25	0,7524	
3	0,05737	-0,47%	69	-0,6811		0,02630	0,51%	25	0,9608	
2	0,05394	-0,74%	69	-1,1337		0,01987	0,26%	25	0,6569	
1	0,04734	-1,23%	69	-2,1640	**	0,02039	0,25%	25	0,6209	
0	0,03701	-0,85%	69	-1,9170	*	0,01991	0,12%	25	0,3069	
-	-	-	-	-	-	-	-	-	-	-
0	0,08743	-1,80%	69	-1,7063	*	0,06220	2,19%	25	1,7597	*
-1	0,08219	-0,94%	69	-0,9520		0,06272	2,07%	25	1,6477	
-2	0,08408	-0,61%	69	-0,6018		0,06284	3,30%	25	2,6283	***
-3	0,08053	-0,65%	69	-0,6742		0,06193	2,68%	25	2,1624	**
-4	0,06902	-0,38%	69	-0,4602		0,06094	2,22%	25	1,8216	*
-5	0,06750	-0,60%	69	-0,7393		0,04979	1,40%	25	1,4071	
-6	0,06690	-0,63%	69	-0,7834		0,04628	1,08%	25	1,1634	
-7	0,06968	-0,36%	69	-0,4315		0,03619	0,86%	25	1,1843	
-8	0,07527	-0,25%	69	-0,2755		0,03382	0,81%	25	1,1992	
-9	0,06206	-0,41%	69	-0,5544		0,03342	0,59%	25	0,8767	
-10	0,06259	-0,81%	69	-1,0811		0,02917	0,38%	25	0,6447	
-11	0,05091	-0,64%	69	-1,0377		0,02246	0,07%	25	0,1497	
-12	0,05087	-0,50%	69	-0,8097		0,02424	0,43%	25	0,8791	
-13	0,04419	-0,34%	69	-0,6378		0,01700	0,36%	25	1,0474	
-14	0,03853	0,04%	69	0,0778		0,01497	-0,27%	25	-0,8983	
-15	0,03047	0,21%	69	0,5698		0,00930	-0,18%	25	-0,9560	

4.2 Investment and Speculative Grade

Most of the credit rating announcements in this sample are from companies rated as investment grade (89%). Nevertheless, the announcement of rating changes for speculative grades is also interesting to be analysed comprising 18 downgrades and 7 upgrades. For speculative grades were considered all the rating changes between speculative grades and changes from investment grade to speculative grade. However, in this case, it was not considered changes in credit watch due to the small size of the sample. Investment grade rating changes are composed by 105 downgrades and 67 upgrades. Interestingly, the market does not anticipate and also does not react right after the announcement. However (figure 2) from day 23 to day 30 of the event, significant (at level 95%) negative cumulative abnormal returns different from zero are observed in downgrades (down to -8.0%) and from day 13 until day 23 of the event, significant (at between level 95 – 99.9%) positive abnormal returns (up to 7.13%) different from zero. The average CAR trend for upgrades is quite similar to downgrades, but the results are much more significant. In these figures it was not taken into consideration the average CAR's before the announcement as the purpose is to understand the effects after the announcements.

Figure 2

The following figure presents the average Cumulative Abnormal Returns (CAR) evolution after the rating announcement for speculative downgrades, upgrades. It also presents in the figure below the significance of each average cumulative abnormal return on each day.



This shows that rating announcements do have impacts on stock prices, but these impacts are not immediate, instead it is a progressive deterioration on the investor's sentiment about the company's financial position and current market value over time. On the other hand, investment grade announcements did not present any significant values neither for upgrades nor for downgrades. This means that, for large liquid stocks, the announcements of rating changes do not bring any news about companies' financials since the companies are highly secured and rating agencies use available data and future projections to determine credit ratings. However, for speculative grade companies, markets are more volatile and investors believe that rating agencies have privileged information from the companies' management which is not public yet. Another possibility is as described by Jorion and Zhang (2007), many investors tend to divest speculative grade stocks and invest investment grade stocks, because pension funds and institutional investors often have policies of investing only in investment grade companies and when companies turn to speculative grade they have to sell these stocks and buy other investment grade equities.

4.3 Global financial crisis 2007-2010 influence

Comparing the results above with previous studies, the findings are partially in accordance with Jorion and Zhang (2007) where riskier companies have higher and more significant abnormal returns, mainly for downgrades, than companies with low risk profile. At the same time, it is also interesting the fact that previous related studies such as Dichev and Piotroski (2001), Steiner and Heinke (2001), Griffin and Sanvicente (1982) and others, consider downgrade announcements as significant modifiers of the stock price and upgrades announcements as not significant while the results above, table 2, demonstrates exactly the opposite. Therefore, another hypothesis was considered as a justification for this situation: The world financial crisis started in 2007. The crisis had most impact during the following three years and capital markets tumbled dramatically as investors' sentiment became highly pessimistic. Hence, it is possible that after the crisis, downgrades did not have a significant impact since stock prices were mostly underpriced and all the risks were already priced in while upgrades gave good news to investors and more confidence about the company financials.

The following analysis, Figure 3, will focus on every rating and outlook announcements during the global financial crisis period. In a general overview, all the announcements are quite similar to figure 1. During the crisis period, the negative average cumulative return for downgrades intensified reaching -9.5% on day 30, upgrades reached 2.06%, positive changes -0.49% and

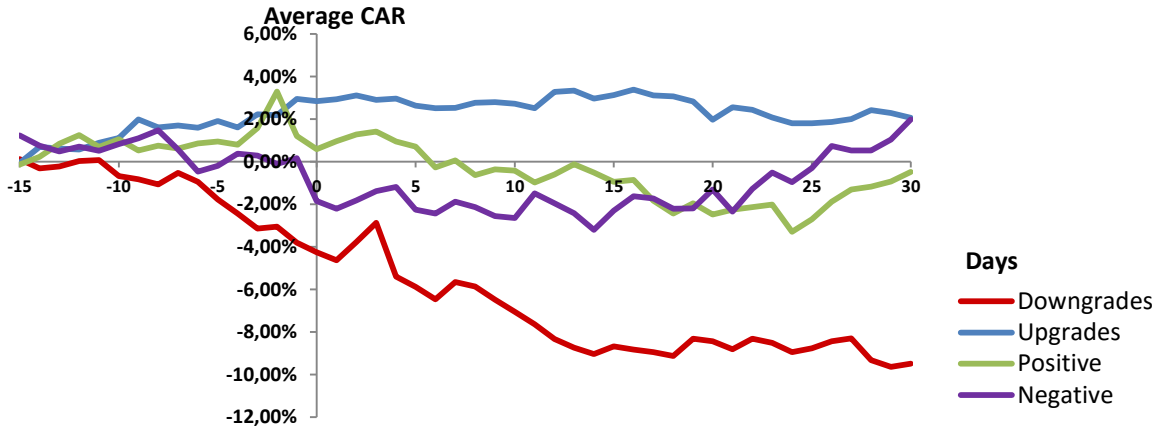
negative changes 1.98%. Nevertheless, like Figure 1 results, these results are also not significant at day 30.

Only downgrades and upgrade ratings announcements had significant results in some days. Downgrades had negative CAR's down to -9.13% 18 days after the announcements significantly different from zero at 95% significance while upgrades had positive CAR up to 3.34% 13 days after the announcements significantly different from zero at 99% significance (see table A4 in the appendix).

Nevertheless these values can explain the market movements around the announcements and not their effects on the stock price movements. In that sense, tables 4 and 5, provide stock movements during 30 days after the announcement and movements during 15 days before the announcement for upgrades and downgrades, and positive and negative credit watches respectively. Each of these two tables provides divided cumulative returns. Cumulative returns starting on day 0 until day 30, and cumulative returns starting on day 15 before the announcement day until the announcement day are the observed information.

Figure 3

The following table presents the average Cumulative Abnormal Returns (CAR) evolution during the event window for downgrades, upgrades, positive watches and negative watches. For each day, the presented average CAR is the sum of every average abnormal return from the first day (-15) until that day and the last day is day 30.



From table 4, the market seems to anticipate the rating change announcements reaching 2.84% significant positive cumulative abnormal returns at 99% significance for upgrades while downgrades reached -4.26% significant negative cumulative abnormal returns at 95% significance. After the announcement, upgrades did not have any significant impact on the stock prices and its average CAR had been oscillating from negative values to positive and to negative again during the 30 days after the announcement. On the other hand, downgrade

announcements had impact on the equity values after the announcement only at day 18 with negative average CAR of -5.33% significant at 90% significance. At day 30 the results were not significant neither for downgrades nor for upgrades which had average CAR's of respectively -5.69% and -0.89%.

From table 5, it is possible to understand that negative change announcements did not anticipate and did not have any impact on stock movements after the announcement reaching a non-significant positive average CAR of 1.83%, while positive change announcements had impact on stock prices from 17 to 26 days after the announcement with more significant values on day 24 where the average CAR was significantly -4.49% at 95% significance. Nevertheless, it is important to take into account that the size of the sample used on positive credit watch changes was only 9. Surprisingly, and looking only into average values, positive credit watch changes and negative credit watch changes had completely the opposite expected effect as on day 30 negative changes had an average CAR of 1.83% and positive changes had an average CAR of -1.68% (both not significant at 90% significance).

These results are in line with the previous affirmation where the world financial crisis had impact on the expected results. Mainly for rating changes, the market could anticipate the announcements, but due to the crisis situation upgrades announcements could not trigger investors into a bullish mode while downgrades just worsened investor's sentiment. Therefore, after the financial crisis it is probable that downgrades did not affect equity values as stock prices were mostly undervalued and all the risks and bad news were priced in. The opposite thoughts apply to upgrades, where positive news improves investors' sentiment about companies' value.

Table 4. Upgrades and Downgrades CAR's during crisis period

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades during the financial crisis period. It is composed into two CAR's groups. One is from day -15 to the announcement day and the other one is from the announcement day to the day +30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Downgrade					Upgrade				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**		**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,29322	-5,69%	51	-1,3854		0,07633	-0,89%	27	-0,6036	
29	0,28118	-5,83%	51	-1,4809		0,07919	-0,66%	27	-0,4310	
28	0,26685	-5,53%	51	-1,4792		0,08215	-0,53%	27	-0,3328	
27	0,25622	-4,49%	51	-1,2526		0,08027	-0,94%	27	-0,6092	
26	0,26435	-4,63%	51	-1,2506		0,08077	-1,09%	27	-0,6992	
25	0,26608	-4,96%	51	-1,3304		0,07924	-1,14%	27	-0,7508	
24	0,25082	-5,14%	51	-1,4631		0,08079	-1,14%	27	-0,7322	
23	0,23754	-4,71%	51	-1,4150		0,08405	-0,87%	27	-0,5389	
22	0,23366	-4,51%	51	-1,3790		0,07755	-0,51%	27	-0,3433	
21	0,23271	-5,02%	51	-1,5394		0,07475	-0,39%	27	-0,2738	
20	0,22265	-4,63%	51	-1,4865		0,07257	-0,97%	27	-0,6955	
19	0,21857	-4,51%	51	-1,4734		0,05597	-0,12%	27	-0,1115	
18	0,22200	-5,33%	51	-1,7134	*	0,05654	0,12%	27	0,1092	
17	0,23678	-5,14%	51	-1,5500		0,06049	0,17%	27	0,1472	
16	0,23595	-5,02%	51	-1,5192		0,05965	0,44%	27	0,3792	
15	0,23246	-4,88%	51	-1,4985		0,05668	0,18%	27	0,1625	
14	0,24505	-5,23%	51	-1,5252		0,05214	0,01%	27	0,0068	
13	0,23168	-4,94%	51	-1,5213		0,04836	0,40%	27	0,4253	
12	0,22093	-4,52%	51	-1,4618		0,04957	0,33%	27	0,3456	
11	0,21288	-3,84%	51	-1,2878		0,04698	-0,43%	27	-0,4811	
10	0,21208	-3,25%	51	-1,0950		0,04999	-0,22%	27	-0,2314	
9	0,20816	-2,68%	51	-0,9188		0,04805	-0,16%	27	-0,1703	
8	0,19543	-2,07%	51	-0,7553		0,04424	-0,18%	27	-0,2058	
7	0,21976	-1,85%	51	-0,6003		0,04484	-0,42%	27	-0,4813	
6	0,22165	-2,67%	51	-0,8603		0,04571	-0,43%	27	-0,4914	
5	0,18399	-2,08%	51	-0,8081		0,04177	-0,31%	27	-0,3908	
4	0,18436	-1,60%	51	-0,6209		0,03884	0,01%	27	0,0089	
3	0,09149	0,93%	51	0,7274		0,02883	-0,05%	27	-0,0897	
2	0,08461	0,03%	51	0,0238		0,02513	0,17%	27	0,3504	
1	0,06961	-0,83%	51	-0,8556		0,02404	-0,01%	27	-0,0318	
0	0,04165	-0,46%	51	-0,7846		0,01628	-0,10%	27	-0,3310	
-	-	-	-	-	-	-	-	-	-	-
0	0,16828	-4,26%	51	-1,8088	**	0,05833	2,84%	27	2,5341	***
-1	0,16260	-3,80%	51	-1,6710	*	0,05502	2,95%	27	2,7845	***
-2	0,15641	-3,05%	51	-1,3940		0,05078	2,18%	27	2,2292	**
-3	0,18053	-3,14%	51	-1,2431		0,05964	2,23%	27	1,9439	**
-4	0,14981	-2,44%	51	-1,1632		0,05758	1,60%	27	1,4455	*
-5	0,12209	-1,78%	51	-1,0383		0,05440	1,91%	27	1,8211	**
-6	0,11281	-0,95%	51	-0,6034		0,05760	1,59%	27	1,4320	*
-7	0,09453	-0,52%	51	-0,3930		0,04978	1,70%	27	1,7715	**
-8	0,09744	-1,07%	51	-0,7871		0,05140	1,61%	27	1,6251	*
-9	0,09449	-0,83%	51	-0,6310		0,05342	1,99%	27	1,9320	**
-10	0,07359	-0,68%	51	-0,6643		0,04327	1,11%	27	1,3370	*
-11	0,06585	0,08%	51	0,0815		0,03040	0,89%	27	1,5170	*
-12	0,04987	0,02%	51	0,0320		0,02881	0,56%	27	1,0186	
-13	0,04696	-0,23%	51	-0,3546		0,02847	0,62%	27	1,1259	
-14	0,04019	-0,31%	51	-0,5520		0,02247	0,69%	27	1,5959	*
-15	0,03291	0,12%	51	0,2693		0,01533	-0,05%	27	-0,1857	

Table 5. Positive and Negatives Watches CAR's during crisis period

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for positive and negative credit watch announcements during the financial crisis period. It is composed into two CAR's groups. One is from day -15 to the announcement day and the other one is from the announcement day to the day +30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Negative				Positive				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**	**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,18711	1,83%	24	0,4782	0,04541	-1,68%	9	-1,1122	
29	0,17451	0,88%	24	0,2460	0,04250	-2,12%	9	-1,4983	
28	0,18440	0,37%	24	0,0974	0,04702	-2,38%	9	-1,5169	
27	0,19780	0,37%	24	0,0920	0,04726	-2,50%	9	-1,5887	
26	0,20661	0,57%	24	0,1359	0,04731	-3,08%	9	-1,9512	*
25	0,20639	-0,46%	24	-0,1084	0,05873	-3,90%	9	-1,9925	*
24	0,19810	-1,12%	24	-0,2760	0,05524	-4,49%	9	-2,4379	**
23	0,18104	-0,68%	24	-0,1830	0,05542	-3,21%	9	-1,7402	
22	0,18147	-1,43%	24	-0,3861	0,05214	-3,34%	9	-1,9214	*
21	0,17543	-2,50%	24	-0,6981	0,04887	-3,45%	9	-2,1182	*
20	0,14942	-1,46%	24	-0,4790	0,05163	-3,68%	9	-2,1364	*
19	0,13442	-2,35%	24	-0,8559	0,04640	-3,15%	9	-2,0400	*
18	0,12263	-2,37%	24	-0,9476	0,04738	-3,64%	9	-2,3029	**
17	0,12347	-1,89%	24	-0,7498	0,04872	-3,02%	9	-1,8628	*
16	0,11746	-1,78%	24	-0,7410	0,04436	-2,05%	9	-1,3885	
15	0,10950	-2,46%	24	-1,1021	0,03486	-2,15%	9	-1,8481	
14	0,10867	-3,37%	24	-1,5187	0,03677	-1,70%	9	-1,3878	
13	0,09986	-2,58%	24	-1,2659	0,03917	-1,31%	9	-1,0060	
12	0,09814	-2,11%	24	-1,0521	0,04499	-1,80%	9	-1,2032	
11	0,11154	-1,64%	24	-0,7217	0,04058	-2,18%	9	-1,6101	
10	0,14201	-2,81%	24	-0,9684	0,03758	-1,62%	9	-1,2966	
9	0,14852	-2,72%	24	-0,8975	0,04313	-1,56%	9	-1,0818	
8	0,13561	-2,29%	24	-0,8285	0,04015	-1,83%	9	-1,3703	
7	0,13307	-2,04%	24	-0,7518	0,03800	-1,13%	9	-0,8931	
6	0,11581	-2,60%	24	-1,0995	0,03680	-1,47%	9	-1,1946	
5	0,10317	-2,41%	24	-1,1441	0,03482	-0,49%	9	-0,4196	
4	0,10166	-1,35%	24	-0,6527	0,02673	-0,24%	9	-0,2746	
3	0,08197	-1,54%	24	-0,9205	0,02732	0,22%	9	0,2409	
2	0,07903	-1,98%	24	-1,2262	0,02195	0,09%	9	0,1176	
1	0,06956	-2,37%	24	-1,6660	0,01831	-0,23%	9	-0,3803	
0	0,05347	-2,01%	24	-1,8412	0,01561	-0,60%	9	-1,1605	
0	0,11739	-1,85%	24	-0,7725	0,05471	0,59%	9	0,3251	
-1	0,10099	0,16%	24	0,0769	0,05582	1,20%	9	0,6430	
-2	0,10895	-0,11%	24	-0,0476	0,05571	3,30%	9	1,7775	
-3	0,10705	0,28%	24	0,1287	0,05839	1,58%	9	0,8127	
-4	0,08571	0,38%	24	0,2156	0,05587	0,79%	9	0,4259	
-5	0,09475	-0,19%	24	-0,0982	0,04972	0,95%	9	0,5703	
-6	0,09021	-0,47%	24	-0,2547	0,04495	0,86%	9	0,5730	
-7	0,08784	0,57%	24	0,3157	0,04056	0,62%	9	0,4567	
-8	0,10076	1,47%	24	0,7167	0,04038	0,75%	9	0,5562	
-9	0,08072	1,10%	24	0,6679	0,03367	0,53%	9	0,4751	
-10	0,08534	0,82%	24	0,4731	0,02917	1,05%	9	1,0800	
-11	0,05885	0,51%	24	0,4229	0,02296	0,70%	9	0,9128	
-12	0,05766	0,71%	24	0,6053	0,02586	1,25%	9	1,4537	
-13	0,03746	0,48%	24	0,6214	0,01741	0,85%	9	1,4621	
-14	0,03593	0,75%	24	1,0168	0,01345	0,22%	9	0,4952	
-15	0,03658	1,24%	24	1,6568	0,00823	-0,13%	9	-0,4730	

Finally, an analysis over the period following the global financial crisis. The results are partially in accordance with the prior hypothesis, where positive news would have had good impact on stocks movement while bad news would not have had much impact on stocks movement.

Table 6. Downgrades and Upgrades CAR after crisis period

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades after the financial crisis period. The average CAR's are from the announcement day to the day +30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Downgrade					Upgrade				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**		**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,09047	-0,11%	72	-0,1053		0,06048	1,74%	47	1,9723	*
29	0,08841	0,03%	72	0,0264		0,05746	1,56%	47	1,8565	
28	0,09017	-0,12%	72	-0,1086		0,05785	1,58%	47	1,8680	*
27	0,08503	-0,13%	72	-0,1308		0,05937	1,41%	47	1,6329	
26	0,08174	-0,47%	72	-0,4919		0,06350	1,55%	47	1,6689	
25	0,07791	-0,53%	72	-0,5797		0,06208	1,24%	47	1,3678	
24	0,07887	-0,60%	72	-0,6407		0,05930	1,51%	47	1,7406	*
23	0,07626	-0,65%	72	-0,7244		0,05310	1,43%	47	1,8464	*
22	0,07294	-0,32%	72	-0,3670		0,05186	1,44%	47	1,8998	*
21	0,07047	0,17%	72	0,2044		0,04754	1,36%	47	1,9615	*
20	0,07044	0,62%	72	0,7517		0,04662	1,32%	47	1,9479	*
19	0,07073	0,56%	72	0,6680		0,04327	1,42%	47	2,2439	**
18	0,06431	0,63%	72	0,8270		0,04405	1,52%	47	2,3634	**
17	0,06325	0,86%	72	1,1583		0,04420	1,45%	47	2,2537	**
16	0,06385	0,85%	72	1,1294		0,04186	1,21%	47	1,9794	*
15	0,06091	0,92%	72	1,2798		0,03939	1,30%	47	2,2609	**
14	0,06396	1,11%	72	1,4775		0,03544	1,40%	47	2,7017	***
13	0,06679	1,23%	72	1,5605		0,03428	1,31%	47	2,6157	***
12	0,06489	0,92%	72	1,2008		0,03394	1,40%	47	2,8272	***
11	0,06345	1,30%	72	1,7354	*	0,03115	1,02%	47	2,2395	**
10	0,05861	1,30%	72	1,8785	**	0,03123	0,95%	47	2,0790	*
9	0,05381	1,08%	72	1,6960		0,03120	0,68%	47	1,5013	
8	0,05555	0,62%	72	0,9542		0,03041	0,72%	47	1,6324	
7	0,05535	0,09%	72	0,1403		0,03036	0,68%	47	1,5422	
6	0,05597	-0,32%	72	-0,4811		0,03142	0,77%	47	1,6710	
5	0,05046	-0,15%	72	-0,2600		0,02460	0,43%	47	1,1969	
4	0,04958	0,04%	72	0,0694		0,02200	0,55%	47	1,7057	*
3	0,04288	0,23%	72	0,4520		0,01993	0,56%	47	1,9378	*
2	0,04169	-0,20%	72	-0,4096		0,02071	0,66%	47	2,1992	**
1	0,03473	0,10%	72	0,2326		0,01866	0,19%	47	0,6846	
0	0,02636	0,43%	72	1,3758		0,01452	0,17%	47	0,8015	

From table 6, which presents the average CAR's after the announcement day until day 30 after the crisis period, it is possible to observe that upgrade announcements have positive impact on stock prices during all the average CAR's days with more significant values on day 14 where the average CAR was 1.4% with 99% significance. At the same time, after downgrade announcements, the average CAR's oscillates positively and negatively only with significant values on day 10 and 11 where the average CAR was 1.3% with 95% and 90% significance respectively.

4.4 Financial and Non-financial Firms

During the global financial crisis, the financial sector was the most affected. In that sense, I also decided to separate my sample between the financial and non-financial companies. Although I had to discard credit watch announcements due to its small sample size, I will consider the time division between financial and non-financial crisis period. Therefore, it is a comparison between the effects of rating agencies on financial and non-financial stocks taking into account the global financial crisis. Previous related studies such as Schweitzer et al. (1992) and Gropp and Richards (2001), find that financial stock prices may vary depending on the underlying reasons. However, they conclude that unexpected rating downgrades have significant negative abnormal returns, which supports the hypothesis that regulators allow financial institutions to withhold some important information to be public in order to preserve the stability of the financial system and therefore, leads to a worse negative abnormal returns associated with banking rating deterioration. Overall the financial companies, although downgrades have high negative average cumulative abnormal returns reaching -8.0% (see table A5 in appendix), they are not significant at 90% significance. On the other hand, upgrades have significant returns but very low average abnormal cumulative returns of 0.91% two days after the rating announcement. Before the announcements, the market behaves naturally without significant abnormal returns. For non-financial firms (see table A6 in appendix) the market follow the same trend as the values from all the sample (see table 2), which can be explained by the disproportional sample of 73% of non-financial firms announcements and only 27% of financial firms announcements.

The tables 7 and 8, which present the CAR's of upgrades and downgrades during and after the world financial crisis for financial and non-financial companies respectively, follow the same pattern as previous tables 2 and 4 where are divided into two groups of cumulative abnormal returns, before and after the announcement, to understand how markets move before the unexpected rating announcement and how markets absorb the new information that rating agencies provide with rating announcements. For financial firms (Table 7) during the crisis period, downgrade announcements led to an average cumulative abnormal return after 30 days of -4.77% with its record high after 13 days of -6.41%. Nonetheless, these results are not significant meaning that most of the financial firms followed the market trends. Before the upgrades announcements, the market seems to be able to absorb new information before the rating announcement reaching 4.10% average abnormal returns 15 days before with significant results at a significance level of 90%, and after the announcement the market still reacts positively until day 2 with positive returns of 1.59% significant at a level of 95%

significance. Thereafter, the price of stocks had negative abnormal returns until day 20 with an average CAR of -2.55% significant at 90% level. Interestingly, after the crisis period, downgrade announcements brought new information to the market as financial stocks suffer significant negative average CAR's, between -1.72% to -2.77%, early after 2 to 5 days and later after 22 to 26 days, between -3.41% to -4.39%, all significant at 95%. Comparing to downgrade results on table 7, table 8 shows that financial firms react differently from non-financial firms when it comes to these announcements. As for upgrade announcements, financial stocks have negative average CAR's since several days before until the event day with high significance levels, but following the announcements, stocks follow the market trends meaning that upgrades were not enough to provide good news and/or all the reasons for rating upgrade were already public and priced in.

Non-financial firms had different behaviour after the crisis period and similar behaviour during the crisis period. Like financial stocks, non-financial equities have non-significant negative average CAR's before and after downgrades with less average abnormal returns observed, and also significant average CAR's few days before the event day of 2.40% significant at 95%. After the critical period, non-financial corporates showed a different reaction to rating changes as downgrades, in table 8, have positive returns after the announcements up to 1.43% at 90% significance and as upgrades, also similar to table 6, have very significant positive average CAR's since the second day after the event until the last day of the window with results ranging from 0.67% to 2.48%.

This shows that the information released by rating agencies impacts more the financial sector rather than non-financial sector. It can be explained by the fact that regulators allow banks to withhold some important information in order to preserve the stability of the market. However, it is interesting to see that for upgrades financial equities have significant negative abnormal returns before and normal returns after the announcement, while for downgrades financial stocks have normal returns before and significant negative abnormal returns after the announcement. Although the effects are similar to previous studies, where the announcements have impact on the stock prices, the market seemed to have had misunderstood the available information (significant negative returns prior to upgrades and no significant abnormal returns prior to downgrades). Nevertheless, it has to be taken into consideration once again the fact that the sample to study the financial firms before and after the crisis period is quite small which can possibly lead to incorrect assumptions.

Table 7. Financial Companies CAR Results

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades of financial companies during and after the financial crisis period. The average CAR's are from the announcement day to the day +30. The table is composed by the day of the t-stat result), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Crisis Period							Non Crisis Period						
	Downgrade			Upgrade				Downgrade				Upgrade			
Days	Average CAR	N	t-stat	Average CAR	N	t-stat		Average CAR	N	t-stat		Average CAR	N	T-STAT	
30	-4,77%	17	-0,721	-1,83%	7	-0,691		-2,14%	19	-1,292		-1,01%	10	-0,550	
29	-5,97%	17	-0,899	-1,27%	7	-0,482		-1,87%	19	-1,189		-0,98%	10	-0,573	
28	-5,46%	17	-0,821	-1,06%	7	-0,398		-2,46%	19	-1,438		-0,56%	10	-0,336	
27	-2,79%	17	-0,450	-1,72%	7	-0,749		-3,02%	19	-1,651		-1,08%	10	-0,717	
26	-3,24%	17	-0,484	-2,12%	7	-0,954		-3,95%	19	-2,203	**	-1,44%	10	-0,968	
25	-2,73%	17	-0,419	-2,23%	7	-1,505		-4,04%	19	-2,788	**	-1,58%	10	-1,071	
24	-3,46%	17	-0,549	-2,17%	7	-1,289		-4,29%	19	-2,667	**	-1,72%	10	-1,201	
23	-3,75%	17	-0,594	-1,18%	7	-0,609		-4,39%	19	-2,688	**	-1,01%	10	-0,705	
22	-3,77%	17	-0,589	-1,21%	7	-0,708		-3,41%	19	-2,135	**	-0,82%	10	-0,576	
21	-4,45%	17	-0,712	-1,37%	7	-1,054		-2,07%	19	-1,263		-0,05%	10	-0,034	
20	-3,71%	17	-0,564	-2,55%	7	-2,207	*	-0,57%	19	-0,345		0,10%	10	0,066	
19	-2,92%	17	-0,475	-2,28%	7	-1,609		-1,12%	19	-0,670		0,68%	10	0,399	
18	-4,97%	17	-0,850	-1,63%	7	-0,919		-1,21%	19	-0,956		1,14%	10	0,658	
17	-5,24%	17	-0,882	-0,56%	7	-0,250		-0,67%	19	-0,499		1,51%	10	0,859	
16	-4,38%	17	-0,780	-0,72%	7	-0,337		-0,17%	19	-0,116		1,29%	10	0,872	
15	-4,24%	17	-0,898	-1,43%	7	-0,857		0,38%	19	0,251		0,91%	10	0,768	
14	-5,86%	17	-1,056	-2,20%	7	-1,862		0,59%	19	0,356		0,60%	10	0,485	
13	-6,41%	17	-1,107	-1,25%	7	-1,123		1,55%	19	0,858		0,11%	10	0,088	
12	-5,53%	17	-1,008	-1,32%	7	-1,132		0,98%	19	0,546		-0,42%	10	-0,394	
11	-3,50%	17	-0,683	-0,92%	7	-1,096		1,58%	19	0,934		-0,76%	10	-0,705	
10	-2,35%	17	-0,491	-0,81%	7	-0,884		1,43%	19	1,191		-0,83%	10	-0,862	
9	-1,11%	17	-0,245	-0,91%	7	-0,860		0,54%	19	0,494		-0,82%	10	-0,707	
8	-0,37%	17	-0,088	-0,70%	7	-0,812		-1,33%	19	-1,196		-0,83%	10	-0,815	
7	0,79%	17	0,199	0,02%	7	0,017		-1,28%	19	-0,978		-1,03%	10	-1,061	
6	-0,68%	17	-0,182	-0,18%	7	-0,169		-2,41%	19	-1,650		-0,61%	10	-0,668	
5	0,27%	17	0,098	0,56%	7	0,554		-2,77%	19	-2,462	**	-0,92%	10	-1,124	
4	1,37%	17	0,485	0,85%	7	1,013		-2,62%	19	-2,435	**	-0,35%	10	-0,458	
3	1,40%	17	0,456	0,74%	7	0,810		-1,72%	19	-2,289	**	0,17%	10	0,242	
2	-0,80%	17	-0,282	1,59%	7	2,418	**	-2,11%	19	-2,847	**	0,42%	10	0,761	
1	-2,25%	17	-0,985	1,18%	7	1,349		-0,82%	19	-1,683		0,02%	10	0,051	
0	-1,77%	17	-1,264	0,82%	7	1,445		0,17%	19	0,255		0,24%	10	0,634	
0	-5,96%	17	-1,166	4,10%	7	2,342	*	3,37%	19	1,199		-2,61%	10	-2,242	**
-1	-4,19%	17	-0,871	3,28%	7	2,020	*	3,20%	19	1,248		-2,85%	10	-2,445	**
-2	-3,23%	17	-0,582	3,54%	7	2,343	*	1,28%	19	0,452		-2,17%	10	-2,465	**
-3	-6,14%	17	-0,847	4,30%	7	2,041	*	0,83%	19	0,366		-2,34%	10	-2,248	**
-4	-4,62%	17	-0,780	3,84%	7	1,836		0,80%	19	0,321		-2,08%	10	-2,231	**
-5	-3,08%	17	-0,643	3,00%	7	1,694		-0,32%	19	-0,110		-1,91%	10	-2,287	**
-6	0,05%	17	0,013	3,80%	7	1,812		-0,17%	19	-0,055		-2,12%	10	-4,056	***
-7	-0,11%	17	-0,031	3,40%	7	1,747		-0,39%	19	-0,143		-1,95%	10	-4,063	***
-8	-1,01%	17	-0,293	3,84%	7	1,616		-0,34%	19	-0,149		-1,19%	10	-2,518	**
-9	-1,23%	17	-0,418	5,15%	7	1,707		-0,25%	19	-0,090		-0,76%	10	-1,142	
-10	-0,08%	17	-0,043	3,90%	7	1,667		-0,55%	19	-0,188		-1,03%	10	-1,574	
-11	1,35%	17	0,806	2,08%	7	1,252		-0,34%	19	-0,132		-0,86%	10	-1,424	
-12	1,25%	17	0,964	1,47%	7	0,900		0,03%	19	0,013		-0,85%	10	-1,902	
-13	0,45%	17	0,323	1,98%	7	1,137		0,28%	19	0,152		-0,45%	10	-1,089	
-14	0,76%	17	0,581	1,90%	7	1,526		0,69%	19	0,642		-0,81%	10	-2,005	
-15	0,72%	17	0,647	-0,96%	7	-1,357		0,34%	19	0,526		-0,47%	10	-2,300	

Table 8. Non-Financial Companies CAR Results

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades of non-financial companies during and after the financial crisis period. The average CAR's are from the announcement day to the day +30. The table is composed by the day of the t-stat result, the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Crisis Period							Non Crisis Period						
	Downgrade			Upgrade				Downgrade				Upgrade			
Days	Avg. CAR	N	t-stat	Avg. CAR	N	t-stat		Avg. CAR	N	t-stat		Avg. CAR	N	t-stat	
30	-1,66%	33	-0,675	-0,56%	20	-0,312		0,68%	54	0,528		2,48%	37	2,532	**
29	-1,52%	33	-0,688	-0,44%	20	-0,236		0,77%	54	0,603		2,24%	37	2,385	**
28	-1,69%	33	-0,760	-0,34%	20	-0,174		0,77%	54	0,601		2,16%	37	2,246	**
27	-1,58%	33	-0,698	-0,67%	20	-0,343		0,95%	54	0,829		2,09%	37	2,083	**
26	-1,53%	33	-0,674	-0,72%	20	-0,367		0,82%	54	0,763		2,35%	37	2,185	**
25	-2,18%	33	-0,929	-0,77%	20	-0,382		0,77%	54	0,720		2,00%	37	1,902	*
24	-2,39%	33	-1,079	-0,78%	20	-0,383		0,77%	54	0,732		2,38%	37	2,405	**
23	-1,99%	33	-0,901	-0,76%	20	-0,364		0,72%	54	0,722		2,09%	37	2,367	**
22	-1,88%	33	-0,833	-0,27%	20	-0,137		0,83%	54	0,857		2,05%	37	2,375	**
21	-2,45%	33	-1,042	-0,05%	20	-0,028		1,06%	54	1,137		1,74%	37	2,203	**
20	-2,67%	33	-1,146	-0,42%	20	-0,228		1,11%	54	1,167		1,66%	37	2,177	**
19	-2,68%	33	-1,189	0,64%	20	0,474		1,19%	54	1,267		1,62%	37	2,419	**
18	-2,63%	33	-1,193	0,73%	20	0,551		1,31%	54	1,457		1,62%	37	2,376	**
17	-1,76%	33	-0,829	0,43%	20	0,307		1,43%	54	1,648	*	1,44%	37	2,107	**
16	-1,79%	33	-0,883	0,84%	20	0,609		1,21%	54	1,418		1,19%	37	1,755	*
15	-1,45%	33	-0,735	0,74%	20	0,546		1,12%	54	1,397		1,40%	37	2,118	**
14	-1,10%	33	-0,578	0,78%	20	0,618		1,31%	54	1,580		1,61%	37	2,830	***
13	-0,79%	33	-0,445	0,97%	20	0,823		1,12%	54	1,324		1,63%	37	3,045	***
12	-0,68%	33	-0,417	0,91%	20	0,750		0,89%	54	1,095		1,89%	37	3,519	***
11	-0,69%	33	-0,440	-0,27%	20	-0,223		1,19%	54	1,471		1,50%	37	3,138	***
10	-0,24%	33	-0,160	-0,02%	20	-0,013		1,25%	54	1,515		1,43%	37	2,890	***
9	0,06%	33	0,046	0,11%	20	0,089		1,26%	54	1,662	*	1,09%	37	2,312	**
8	0,47%	33	0,378	0,01%	20	0,009		1,30%	54	1,702	*	1,15%	37	2,412	**
7	0,82%	33	0,628	-0,57%	20	-0,505		0,62%	54	0,837		1,15%	37	2,413	**
6	0,36%	33	0,285	-0,52%	20	-0,456		0,48%	54	0,694		1,14%	37	2,200	**
5	0,15%	33	0,132	-0,62%	20	-0,602		0,80%	54	1,237		0,79%	37	2,071	**
4	0,37%	33	0,333	-0,29%	20	-0,298		1,01%	54	1,574		0,79%	37	2,282	**
3	-0,02%	33	-0,017	-0,32%	20	-0,478		0,93%	54	1,557		0,67%	37	2,088	**
2	-0,37%	33	-0,428	-0,33%	20	-0,570		0,48%	54	0,829		0,73%	37	2,050	**
1	-0,67%	33	-0,786	-0,43%	20	-0,828		0,41%	54	0,793		0,23%	37	0,713	
0	0,01%	33	0,022	-0,43%	20	-1,206		0,50%	54	1,455		0,15%	37	0,600	
0	-1,77%	33	-0,953	2,40%	20	1,722	*	0,47%	54	0,478		1,20%	37	1,276	
-1	-1,78%	33	-1,075	2,83%	20	2,124	**	-0,03%	54	-0,041		1,05%	37	1,191	
-2	-1,69%	33	-1,203	1,70%	20	1,406		-0,10%	54	-0,141		1,15%	37	1,371	
-3	-1,00%	33	-0,762	1,51%	20	1,111		-0,49%	54	-0,692		1,12%	37	1,449	
-4	-0,86%	33	-0,677	0,82%	20	0,635		-0,53%	54	-0,734		0,62%	37	0,760	
-5	-0,73%	33	-0,661	1,52%	20	1,187		-1,25%	54	-1,628		0,67%	37	0,871	
-6	-1,02%	33	-0,909	0,81%	20	0,631		-1,34%	54	-1,703		0,37%	37	0,524	
-7	-0,29%	33	-0,270	1,10%	20	1,003		-1,18%	54	-1,560		0,38%	37	0,639	
-8	-0,51%	33	-0,464	0,83%	20	0,803		-0,93%	54	-1,409		0,30%	37	0,576	
-9	0,03%	33	0,026	0,88%	20	1,052		-0,57%	54	-0,921		0,03%	37	0,053	
-10	-0,52%	33	-0,434	0,14%	20	0,200		-0,43%	54	-0,744		-0,10%	37	-0,241	
-11	-0,32%	33	-0,284	0,47%	20	0,870		-0,24%	54	-0,426		0,00%	37	-0,004	
-12	-0,47%	33	-0,547	0,25%	20	0,495		-0,54%	54	-1,123		-0,09%	37	-0,240	
-13	-0,52%	33	-0,685	0,14%	20	0,335		-0,80%	54	-1,762		-0,02%	37	-0,057	
-14	-0,85%	33	-1,479	0,27%	20	0,720		-0,15%	54	-0,441		-0,14%	37	-0,463	
-15	-0,22%	33	-0,504	0,26%	20	0,897		-0,05%	54	-0,233		0,16%	37	0,832	

5. Summary and Conclusion

The purpose of this thesis is to investigate the stock market behavior to explain the magnitude of investors' reaction to rating agency news. The announcements of rating and Credit Watch changes were gathered from Moody's and Standard and Poor's during 2007 – 2016 from companies that form the current Euronext 100 index. Using this data, I examined returns using cumulative abnormal returns to measure investor's reaction to news.

The results are not consistent with much of international literature as I did not find significant negative results for downgrades even though the average cumulative abnormal returns were negative. There is no significant reaction neither before nor after the announcement. On the other hand, upgrades had low positive average cumulative abnormal returns but very significant before and after the announcement. These results contradicts previous studies conclusions where good news tend to be released immediately while downgrades bring more information as rating agencies make much more effort in the search for undisclosed information which supports downgrades. Nevertheless, dividing the sample into investment and speculative grade, the results become different as both speculative downgrades and upgrades have significant negative and positive average cumulative returns respectively. Meaning that for speculative grades, rating agencies bring much more unrevealed information to investors, which is quite reasonable since rating agencies have to take a much closer look on the firms where the probability of default is higher. Reaction over investment grade companies takes a similar trend as the overall results.

I also noted that for outlook changes, the results for negative changes are more significant than downgrade announcements. The market anticipates the announcement and continues to react until 2 days after the announcement which might indicate that besides the disclosed bad information, investors trust rating agencies future forecasts leading to a negative reaction. Positive outlook changes are also anticipated by the market but instead of a positive trend after the announcement, the market takes significant negative average cumulative returns. This could be explained that good news released before the announcement were not enough to increase the creditworthiness of the company as the rating agency only attribute a positive outlook making investors believe that market is overvalued.

Analysis at the global financial crisis period and after was considered to see if there is any possible explanation for such different results comparing to most of the international literatures. During the crisis period, the financial market turned extremely bearish with dramatic falls on the stock prices. Downgrades presented significant negative results before

and after the announcement while upgrades only presented significant positive results before and non-relevant average CAR's results after the announcement. After the crisis period, downgrades did not have any impact on stocks while upgrades had significant positive average cumulative abnormal returns after the announcement. This could explain why my results differ from other studies. The financial crisis had huge impact on financial markets where indexes drastically fell and hence after the financial crises downgrades did not make any significant impact since the stock prices were mostly underpriced and all the risk and bad news were already priced in. On the other hand, upgrades were porters of good news providing good reasons for investors to invest.

Finally, I further divided the sample into financial and non-financial firms and found out that financial firms behave differently. Whereas non-financial firms follow the same pattern as the agglomerate sample during and after the global financial crisis, financial firms have similar results as previous studies where downgrades have significant negative abnormal returns while upgrades have no significant abnormal returns after the global financial crisis. Therefore, the information provided is much more effective on financial than non-financial firms.

I conclude that rating agencies do bring new information with its announcements, but the market may not react accordingly. Like John Maynard Keynes said, successful investments require each investor to guess what other investors will do; it is like a beauty contest game in which each contestant tries to predict which model other participants will consider most beautiful. Therefore, stock prices depend on the majority of investors' sentiment in which rating agencies might change or not. From my study, for different times, sectors and credit quality, the rating announcements produce different reactions. Although rating changes do have news that were not disclosed, investors should not only rely on such information and try to go along the market trends.

6. Limitations and Future Research

Like many other papers, this dissertation also faced limitations. Concerning the sample and the data collected from Bloomberg, mainly dates of ratings or credit watches changes, the information was manually copied to the excel sheet which might have some typing mistakes due to the large number of the two agency announcements during the studied period. The reason for doing this manually relies on the fact that Bloomberg does not have a function that provides these dates automatically and hence, there was no other way to get this information besides manually. Regarding the analysis made, I could not find information whether the announcements were expected or not to explain the reason why ratings are anticipated. Therefore, for future research, it would be interesting to analyse a different period with all the large and liquid companies in Europe and take into account ratings that were expected (within 15 days) and ratings that come out unexpectedly. In this sense, it could bring a new different perspective and a different analysis conclusion.

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8. Appendix

Credit Ratings

Rating Agencies use a rating scale to demonstrate the credit quality of a company. For Moody's and Standard & Poor's the rating scale ranges from "Aaa" to "C" and from "AAA" to "D" respectively. The best rating for each scale is "Aaa" and "AAA" while the worse rating is "C" and "D". The credit rating scale is represented below:

Table A1. Moody's and S&P's rating scales

Moody's and S&P use different letters to express their opinions about risk, but one's scale can be comparable to other's scale. These scales are only used for long term ratings as short term ratings are expressed differently. Thus, "Aaa" = "AAA", "Aa1" = "AA+" … and "C"= "D". For each scale, is associated a grade which represents the level of risk so investors can easily understand how risky the issue or issuer is before investing.

Moody's	**S&P**	
Aaa	AAA	Prime
Aa1	AA+	High grade
Aa2	AA	
Aa3	AA-	
A1	A+	Upper medium grade
A2	A	
A3	A-	
Baa1	BBB+	Lower medium grade
Baa2	BBB	
Baa3	BBB-	
Ba1	BB+	Non-investment grade
Ba2	BB	
Ba3	BB-	
B1	B+	High speculative
B2	B	
B3	B-	
Caa1	CCC+	Substantial risks
Caa2	CCC	Extremely speculative
Caa3	CCC-	In default with little prospect of recovery
Ca	CC	
	C	
C	D	Default

A bond becomes speculative grade when the credit rating level is at "Ba1" or "BB+" and issuers or issues below this grade are considered by the rating agencies to have low credit quality and high risk level. According to S&P Global Rating's methodology, for negative issuer ratings it is considered a recovery rating to determine its issue rating. The recovery rating measures the percentage of investment recovery in the event of company's default and takes into

consideration available assets, jurisdictions and liability priorities. These ratings are requested by the companies to help them to raise funds through interested investors and bank loans. As for potential investors and bank loans, ratings are used to analyze whether a company or bond is safe or not to invest, or whether the rate of return is high enough to cover the risks. Hence, credit ratings are helpful tools for companies to demonstrate, through trustworthy means, their creditworthiness to the investors and allowing them to efficiently compare debt among companies.

Table A2. Full sample of the Event Window for upgrades and downgrades

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades of the whole sample. The event study starts on day (-15) and ends on day 30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Downgrade				Upgrade				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**	**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,29147	-3,53%	123	-1,3540	0,08858	2,00%	74	1,9391	*
29	0,28758	-3,51%	123	-1,3635	0,08737	1,96%	74	1,9335	*
28	0,27845	-3,46%	123	-1,3913	0,08809	2,02%	74	1,9769	*
27	0,26845	-3,05%	123	-1,2685	0,08926	1,77%	74	1,7056	*
26	0,27187	-3,30%	123	-1,3581	0,09405	1,80%	74	1,6468	
25	0,27056	-3,47%	123	-1,4350	0,09080	1,58%	74	1,5007	
24	0,26216	-3,58%	123	-1,5289	0,09050	1,76%	74	1,6693	*
23	0,25276	-3,44%	123	-1,5208	0,08765	1,81%	74	1,7719	*
22	0,25124	-3,16%	123	-1,4067	0,08472	1,94%	74	1,9709	*
21	0,25101	-3,09%	123	-1,3747	0,08013	1,94%	74	2,0775	**
20	0,24388	-2,66%	123	-1,2203	0,07715	1,70%	74	1,8977	*
19	0,24016	-2,65%	123	-1,2335	0,07227	2,07%	74	2,4647	***
18	0,24187	-2,95%	123	-1,3624	0,07332	2,22%	74	2,6080	***
17	0,24908	-2,73%	123	-1,2259	0,07710	2,20%	74	2,4552	***
16	0,24692	-2,69%	123	-1,2177	0,07563	2,14%	74	2,4359	***
15	0,24608	-2,59%	123	-1,1769	0,07466	2,10%	74	2,4252	***
14	0,25275	-2,62%	123	-1,1606	0,06842	2,10%	74	2,6461	***
13	0,24241	-2,43%	123	-1,1222	0,06780	2,19%	74	2,7787	***
12	0,23488	-2,44%	123	-1,1630	0,06837	2,22%	74	2,7988	***
11	0,23120	-1,94%	123	-0,9370	0,06377	1,70%	74	2,2968	**
10	0,23144	-1,69%	123	-0,8186	0,06499	1,74%	74	2,2970	**
9	0,22869	-1,59%	123	-0,7757	0,06449	1,59%	74	2,1231	**
8	0,22073	-1,60%	123	-0,8089	0,06433	1,61%	74	2,1545	**
7	0,23331	-1,82%	123	-0,8712	0,06319	1,50%	74	2,0383	**
6	0,23314	-2,40%	123	-1,1503	0,06264	1,54%	74	2,1201	**
5	0,21177	-2,06%	123	-1,0873	0,05885	1,37%	74	2,0073	**
4	0,21204	-1,75%	123	-0,9209	0,05787	1,57%	74	2,3267	**
3	0,13781	-0,59%	123	-0,4751	0,05569	1,55%	74	2,4014	***
2	0,13631	-1,21%	123	-0,9940	0,05653	1,70%	74	2,5852	***
1	0,13685	-1,40%	123	-1,1403	0,05776	1,33%	74	1,9781	**
0	0,13007	-1,05%	123	-0,8985	0,05739	1,29%	74	1,9262	**
-1	0,12204	-1,11%	123	-1,0130	0,05481	1,22%	74	1,9072	**
-2	0,11757	-1,13%	123	-1,0733	0,04981	1,08%	74	1,8582	**
-3	0,12738	-1,41%	123	-1,2345	0,05198	1,06%	74	1,7527	*
-4	0,11099	-1,13%	123	-1,1350	0,05140	0,61%	74	1,0280	
-5	0,09916	-1,34%	123	-1,5092	0,04851	0,77%	74	1,3653	
-6	0,09631	-1,01%	123	-1,1751	0,04783	0,48%	74	0,8629	
-7	0,08418	-0,79%	123	-1,0538	0,04130	0,55%	74	1,1419	
-8	0,07973	-0,91%	123	-1,2698	0,03916	0,57%	74	1,2593	
-9	0,08175	-0,64%	123	-0,8704	0,04173	0,64%	74	1,3113	
-10	0,07362	-0,57%	123	-0,8604	0,03330	0,22%	74	0,5579	
-11	0,06640	-0,14%	123	-0,2341	0,02749	0,21%	74	0,6470	
-12	0,05268	-0,22%	123	-0,4697	0,02494	0,04%	74	0,1521	
-13	0,04844	-0,41%	123	-0,9369	0,02382	0,15%	74	0,5552	
-14	0,03561	-0,10%	123	-0,3015	0,01957	0,07%	74	0,3292	
-15	0,02573	0,06%	123	0,2614	0,01268	0,00%	74	-0,0201	

Table A3. Full sample of the Event Window for positive and negative watches

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for positive and negative credit watch announcements of the whole sample. The event study starts on day (-15) and ends on day 30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Positive					Negative				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**		**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,01454	1,10%	25	0,6506		0,12762	1,02%	69	0,6648	
29	0,01462	0,70%	25	0,4149		0,12433	0,33%	69	0,2224	
28	0,01473	0,66%	25	0,3876		0,13074	-0,07%	69	-0,0438	
27	0,01483	0,64%	25	0,3770		0,13602	0,01%	69	0,0061	
26	0,01473	0,53%	25	0,3096		0,13936	0,05%	69	0,0279	
25	0,01466	0,13%	25	0,0722		0,13963	-0,22%	69	-0,1319	
24	0,01477	-0,12%	25	-0,0694		0,13847	-0,70%	69	-0,4206	
23	0,01484	0,10%	25	0,0591		0,12990	-0,54%	69	-0,3437	
22	0,01498	-0,09%	25	-0,0536		0,12950	-0,78%	69	-0,4977	
21	0,01505	-0,41%	25	-0,2449		0,12612	-0,91%	69	-0,6019	
20	0,01501	-0,33%	25	-0,2019		0,11055	-0,73%	69	-0,5459	
19	0,01509	-0,14%	25	-0,0883		0,10001	-1,03%	69	-0,8529	
18	0,01517	0,01%	25	0,0066		0,09572	-0,98%	69	-0,8523	
17	0,01524	0,33%	25	0,2051		0,09525	-0,70%	69	-0,6145	
16	0,01536	0,49%	25	0,3153		0,09177	-0,55%	69	-0,4973	
15	0,01549	0,77%	25	0,5068		0,08847	-0,77%	69	-0,7197	
14	0,01562	0,74%	25	0,4932		0,08531	-1,16%	69	-1,1261	
13	0,01564	1,05%	25	0,6577		0,07901	-0,52%	69	-0,5484	
12	0,01557	0,96%	25	0,5886		0,07611	-0,14%	69	-0,1532	
11	0,01557	1,32%	25	0,8055		0,08159	0,04%	69	0,0413	
10	0,01565	1,78%	25	1,0994		0,09726	-0,75%	69	-0,6388	
9	0,01578	1,66%	25	0,9736		0,09700	-0,61%	69	-0,5254	
8	0,01599	1,58%	25	0,9261		0,09083	-0,79%	69	-0,7210	
7	0,01602	1,72%	25	1,0231		0,08884	-0,38%	69	-0,3541	
6	0,01615	1,65%	25	1,0128		0,08055	-0,93%	69	-0,9607	
5	0,01629	2,20%	25	1,3832		0,07333	-0,79%	69	-0,8901	
4	0,01646	2,51%	25	1,5919		0,06973	-0,36%	69	-0,4328	
3	0,01661	2,57%	25	1,7634	*	0,05737	-0,47%	69	-0,6811	
2	0,01676	2,33%	25	1,8410	*	0,05394	-0,74%	69	-1,1337	
1	0,01703	2,32%	25	1,9208	*	0,04734	-1,23%	69	-2,1640	**
0	0,01743	2,19%	25	1,7597	*	0,03701	-0,85%	69	-1,9170	*
-1	0,01728	2,07%	25	1,6477		0,05481	1,22%	74	1,9072	**
-2	0,01647	3,30%	25	2,6283	**	0,04981	1,08%	74	1,8582	**
-3	0,01618	2,68%	25	2,1624	**	0,05198	1,06%	74	1,7527	*
-4	0,01632	2,22%	25	1,8216	*	0,05140	0,61%	74	1,0280	
-5	0,01436	1,40%	25	1,4071		0,04851	0,77%	74	1,3653	
-6	0,01449	1,08%	25	1,1634		0,04783	0,48%	74	0,8629	
-7	0,01425	0,86%	25	1,1843		0,04130	0,55%	74	1,1419	
-8	0,01463	0,81%	25	1,1992		0,03916	0,57%	74	1,2593	
-9	0,01466	0,59%	25	0,8767		0,04173	0,64%	74	1,3113	
-10	0,01315	0,38%	25	0,6447		0,03330	0,22%	74	0,5579	
-11	0,01257	0,07%	25	0,1497		0,02749	0,21%	74	0,6470	
-12	0,01270	0,43%	25	0,8791		0,02494	0,04%	74	0,1521	
-13	0,01252	0,36%	25	1,0474		0,02382	0,15%	74	0,5552	
-14	0,00919	-0,27%	25	-0,8983		0,01957	0,07%	74	0,3292	
-15	0,00930	-0,18%	25	-0,9560		0,01268	0,00%	74	-0,0201	

Table A4. Upgrades and downgrades during crisis period

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades during the financial crisis period. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Downgrade					Upgrade				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**		**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,42101	-9,49%	51	-1,6102		0,08786	2,06%	27	1,2193	
29	0,41306	-9,64%	51	-1,6659		0,08773	2,29%	27	1,3573	
28	0,39891	-9,33%	51	-1,6706	*	0,08886	2,42%	27	1,4164	
27	0,38630	-8,30%	51	-1,5342		0,08728	2,01%	27	1,1950	
26	0,39326	-8,43%	51	-1,5316		0,08980	1,86%	27	1,0772	
25	0,39177	-8,76%	51	-1,5971		0,08285	1,80%	27	1,1311	
24	0,37689	-8,94%	51	-1,6946	*	0,08628	1,81%	27	1,0900	
23	0,36278	-8,51%	51	-1,6755	*	0,08856	2,08%	27	1,2184	
22	0,36049	-8,32%	51	-1,6476		0,08319	2,44%	27	1,5215	
21	0,35825	-8,82%	51	-1,7584	*	0,08154	2,55%	27	1,6278	
20	0,34687	-8,44%	51	-1,7374	*	0,07739	1,98%	27	1,3273	
19	0,34007	-8,31%	51	-1,7459	*	0,06653	2,83%	27	2,2088	**
18	0,34433	-9,13%	51	-1,8938	**	0,06838	3,07%	27	2,3309	**
17	0,35779	-8,94%	51	-1,7851	**	0,08070	3,12%	27	2,0086	**
16	0,35570	-8,82%	51	-1,7716	**	0,07694	3,38%	27	2,2853	**
15	0,35403	-8,68%	51	-1,7514	*	0,07354	3,13%	27	2,2084	**
14	0,36222	-9,04%	51	-1,7819	**	0,06402	2,96%	27	2,3988	**
13	0,34551	-8,74%	51	-1,8065	**	0,06147	3,34%	27	2,8271	***
12	0,33695	-8,33%	51	-1,7648	*	0,06011	3,28%	27	2,8336	***
11	0,33098	-7,64%	51	-1,6492		0,05407	2,51%	27	2,4153	**
10	0,33112	-7,06%	51	-1,5219		0,05702	2,73%	27	2,4839	**
9	0,32850	-6,48%	51	-1,4093		0,05396	2,79%	27	2,6874	**
8	0,31716	-5,87%	51	-1,3221		0,05692	2,77%	27	2,5314	**
7	0,33985	-5,65%	51	-1,1877		0,05887	2,53%	27	2,2359	**
6	0,33853	-6,47%	51	-1,3659		0,05764	2,52%	27	2,2683	**
5	0,30511	-5,89%	51	-1,3778		0,05377	2,63%	27	2,5456	**
4	0,30578	-5,41%	51	-1,2629		0,05238	2,96%	27	2,9312	***
3	0,17990	-2,87%	51	-1,1404		0,04936	2,90%	27	3,0514	**
2	0,17585	-3,78%	51	-1,5336		0,05105	3,12%	27	3,1735	**
1	0,17715	-4,64%	51	-1,8700	**	0,05962	2,93%	27	2,5568	**
0	0,16828	-4,26%	51	-1,8088	**	0,05833	2,84%	27	2,5341	**
-1	0,16260	-3,80%	51	-1,6710	*	0,05502	2,95%	27	2,7845	**
-2	0,15641	-3,05%	51	-1,3940		0,05078	2,18%	27	2,2292	**
-3	0,18053	-3,14%	51	-1,2431		0,05964	2,23%	27	1,9439	*
-4	0,14981	-2,44%	51	-1,1632		0,05758	1,60%	27	1,4455	
-5	0,12209	-1,78%	51	-1,0383		0,05440	1,91%	27	1,8211	*
-6	0,11281	-0,95%	51	-0,6034		0,05760	1,59%	27	1,4320	
-7	0,09453	-0,52%	51	-0,3930		0,04978	1,70%	27	1,7715	*
-8	0,09744	-1,07%	51	-0,7871		0,05140	1,61%	27	1,6251	
-9	0,09449	-0,83%	51	-0,6310		0,05342	1,99%	27	1,9320	*
-10	0,07359	-0,68%	51	-0,6643		0,04327	1,11%	27	1,3370	
-11	0,06585	0,08%	51	0,0815		0,03040	0,89%	27	1,5170	
-12	0,04987	0,02%	51	0,0320		0,02881	0,56%	27	1,0186	
-13	0,04696	-0,23%	51	-0,3546		0,02847	0,62%	27	1,1259	
-14	0,04019	-0,31%	51	-0,5520		0,02247	0,69%	27	1,5959	
-15	0,03291	0,12%	51	0,2693		0,01533	-0,05%	27	-0,1857	

Table A5. Upgrades and Downgrades of financial companies

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades of financial companies. It is composed into two CAR's groups. One is from day -15 to the announcement day and the other one is from the announcement day to the day +30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Downgrade				Upgrade				
Days	**STDEV**	**Average CAR**	**N**	**T-STAT**	**STDEV**	**Average CAR**	**N**	**T-STAT**	
30	0,32522	-7,79%	36	-1,43659	0,06129	-1,35%	17	-0,90639	
29	0,31472	-7,96%	36	-1,51825	0,05885	-1,10%	17	-0,76906	
28	0,29694	-7,66%	36	-1,54845	0,05874	-0,77%	17	-0,53895	
27	0,28333	-6,61%	36	-1,39944	0,05156	-1,34%	17	-1,07247	
26	0,29242	-7,34%	36	-1,50553	0,05051	-1,72%	17	-1,40338	
25	0,29177	-7,24%	36	-1,48958	0,04263	-1,85%	17	-1,78861	*
24	0,27598	-7,44%	36	-1,61649	0,04360	-1,90%	17	-1,80067	*
23	0,25877	-7,23%	36	-1,67574	0,04622	-1,08%	17	-0,96171	
22	0,25300	-6,54%	36	-1,5511	0,04377	-0,98%	17	-0,9252	
21	0,25036	-6,11%	36	-1,46537	0,04032	-0,59%	17	-0,6049	
20	0,23966	-4,53%	36	-1,13416	0,04297	-0,99%	17	-0,94965	
19	0,23608	-4,60%	36	-1,16926	0,04877	-0,54%	17	-0,45748	
18	0,23956	-5,84%	36	-1,4634	0,05216	0,00%	17	0,000344	
17	0,26074	-6,09%	36	-1,40167	0,05633	0,66%	17	0,482844	
16	0,26363	-5,59%	36	-1,27213	0,05020	0,46%	17	0,379115	
15	0,26066	-5,41%	36	-1,24622	0,04071	-0,05%	17	-0,05353	
14	0,27857	-6,14%	36	-1,32184	0,03774	-0,55%	17	-0,603	
13	0,26606	-5,49%	36	-1,238	0,03529	-0,45%	17	-0,52668	
12	0,25497	-5,28%	36	-1,24345	0,03194	-0,79%	17	-1,02192	
11	0,24625	-4,00%	36	-0,97411	0,02882	-0,82%	17	-1,17592	
10	0,24343	-3,67%	36	-0,90393	0,02728	-0,82%	17	-1,24389	
9	0,23901	-3,59%	36	-0,90118	0,03257	-0,86%	17	-1,08942	
8	0,22381	-4,06%	36	-1,08857	0,02805	-0,78%	17	-1,14748	
7	0,25367	-4,11%	36	-0,97099	0,02879	-0,60%	17	-0,86141	
6	0,25649	-5,47%	36	-1,27968	0,02767	-0,43%	17	-0,6431	
5	0,21054	-4,60%	36	-1,31101	0,02645	-0,31%	17	-0,48077	
4	0,21236	-4,03%	36	-1,13969	0,02347	0,14%	17	0,252086	
3	0,09692	0,40%	36	0,25045	0,02230	0,40%	17	0,743585	
2	0,09314	-0,74%	36	-0,47668	0,01800	0,91%	17	2,075162	**
1	0,07030	-0,99%	36	-0,84116	0,01921	0,50%	17	1,076606	
0	0,04506	-0,56%	36	-0,745	0,01316	0,48%	17	1,496816	
0	0,19996	-2,65%	36	-0,79631	0,05226	0,15%	17	0,119414	
-1	0,19445	-2,09%	36	-0,64624	0,04930	-0,33%	17	-0,27295	
-2	0,19385	-2,15%	36	-0,667	0,04328	0,18%	17	0,174961	
-3	0,21624	-3,15%	36	-0,87384	0,05394	0,40%	17	0,303542	
-4	0,18334	-2,27%	36	-0,74163	0,05038	0,36%	17	0,293785	
-5	0,16018	-2,03%	36	-0,75909	0,04287	0,11%	17	0,106224	
-6	0,15321	-0,52%	36	-0,20408	0,04698	0,31%	17	0,276335	
-7	0,12851	-0,68%	36	-0,31517	0,04313	0,26%	17	0,244431	
-8	0,12233	-1,24%	36	-0,60615	0,04754	0,88%	17	0,763919	
-9	0,12370	-1,35%	36	-0,65692	0,05954	1,67%	17	1,157636	
-10	0,10875	-0,81%	36	-0,44884	0,04794	1,00%	17	0,86004	
-11	0,09412	0,18%	36	0,116303	0,03393	0,35%	17	0,426516	
-12	0,07450	0,47%	36	0,382107	0,03077	0,10%	17	0,137325	
-13	0,06864	0,29%	36	0,250079	0,03234	0,55%	17	0,702087	
-14	0,04869	0,67%	36	0,830418	0,02615	0,31%	17	0,481578	
-15	0,03631	0,48%	36	0,800179	0,01267	-0,67%	17	-2,1781	

Table A6. Upgrades and Downgrades of non-financial companies

The following table presents the t-stat results of the cumulative abnormal returns during all the days of the event window for downgrades and upgrades of non-financial companies. It is composed into two CAR's groups. One is from day -15 to the announcement day and the other one is from the announcement day to the day +30. The table is composed by the day of the t-stat result, the standard deviation (STDEV), the average cumulative abnormal results (Average CAR), the number of the sample (N) and finally the t-statistics (T-STAT). * means significant at 90%, ** means significant at 95%, *** means significant at 99%.

	Downgrade					Upgrade				
Days	STDEV	Average CAR	N	T-STAT		STDEV	Average CAR	N	T-STAT	
30	0,1207	-0,21%	87	-0,1586		0,0683	1,42%	57	1,5650	
29	0,1157	-0,10%	87	-0,0806		0,0682	1,30%	57	1,4385	
28	0,1076	-0,16%	87	-0,1427		0,0702	1,28%	57	1,3754	
27	0,1041	-0,01%	87	-0,0076		0,0718	1,12%	57	1,1779	
26	0,1019	-0,07%	87	-0,0639		0,0749	1,27%	57	1,2822	
25	0,1039	-0,35%	87	-0,3132		0,0744	1,03%	57	1,0451	
24	0,0999	-0,43%	87	-0,4002		0,0732	1,27%	57	1,3106	
23	0,0975	-0,31%	87	-0,2940		0,0710	1,09%	57	1,1572	
22	0,0975	-0,20%	87	-0,1910		0,0667	1,24%	57	1,3972	
21	0,1000	-0,27%	87	-0,2519		0,0633	1,11%	57	1,3246	
20	0,0999	-0,33%	87	-0,3041		0,0615	0,93%	57	1,1388	
19	0,0978	-0,28%	87	-0,2661		0,0480	1,27%	57	1,9992	*
18	0,0948	-0,19%	87	-0,1828		0,0482	1,31%	57	2,0504	**
17	0,0911	0,22%	87	0,2278		0,0494	1,08%	57	1,6535	
16	0,0877	0,07%	87	0,0786		0,0488	1,07%	57	1,6479	
15	0,0842	0,14%	87	0,1564		0,0479	1,17%	57	1,8448	*
14	0,0827	0,39%	87	0,4435		0,0432	1,32%	57	2,3071	**
13	0,0798	0,39%	87	0,4613		0,0405	1,40%	57	2,6102	**
12	0,0742	0,30%	87	0,3716		0,0413	1,55%	57	2,8289	***
11	0,0729	0,48%	87	0,6116		0,0398	0,88%	57	1,6673	*
10	0,0709	0,69%	87	0,9012		0,0415	0,92%	57	1,6766	*
9	0,0652	0,81%	87	1,1524		0,0391	0,75%	57	1,4390	
8	0,0622	0,99%	87	1,4787		0,0376	0,75%	57	1,4996	
7	0,0622	0,69%	87	1,0372		0,0382	0,55%	57	1,0784	
6	0,0595	0,44%	87	0,6834		0,0398	0,56%	57	1,0536	
5	0,0555	0,56%	87	0,9324		0,0334	0,30%	57	0,6721	
4	0,0534	0,76%	87	1,3331		0,0308	0,41%	57	1,0097	
3	0,0508	0,57%	87	1,0432		0,0241	0,32%	57	1,0051	
2	0,0452	0,16%	87	0,3221		0,0235	0,36%	57	1,1484	
1	0,0425	0,00%	87	-0,0051		0,0211	0,00%	57	-0,0104	
0	0,0276	0,32%	87	1,0723		0,0156	-0,05%	57	-0,2505	
0	0,0870	-0,38%	87	-0,4068		0,0588	1,62%	57	2,0826	**
-1	0,0754	-0,70%	87	-0,8620		0,0559	1,67%	57	2,2610	**
-2	0,0652	-0,70%	87	-1,0069		0,0517	1,34%	57	1,9618	*
-3	0,0617	-0,69%	87	-1,0359		0,0517	1,26%	57	1,8347	*
-4	0,0610	-0,66%	87	-1,0021		0,0521	0,69%	57	1,0001	
-5	0,0590	-1,05%	87	-1,6668		0,0502	0,97%	57	1,4522	
-6	0,0599	-1,22%	87	-1,8917	*	0,0485	0,53%	57	0,8238	
-7	0,0577	-0,84%	87	-1,3617		0,0411	0,64%	57	1,1675	
-8	0,0541	-0,77%	87	-1,3269		0,0367	0,48%	57	0,9897	
-9	0,0568	-0,34%	87	-0,5575		0,0349	0,33%	57	0,7088	
-10	0,0536	-0,46%	87	-0,8083		0,0276	-0,02%	57	-0,0489	
-11	0,0514	-0,27%	87	-0,4935		0,0256	0,16%	57	0,4829	
-12	0,0406	-0,51%	87	-1,1696		0,0232	0,03%	57	0,0866	
-13	0,0372	-0,69%	87	-1,7362		0,0208	0,04%	57	0,1280	
-14	0,0283	-0,41%	87	-1,3677		0,0174	0,01%	57	0,0266	
-15	0,0198	-0,12%	87	-0,5437		0,0121	0,20%	57	1,2229	