

# **Tick Tock goes the clock: newspapers temporal focus and stock market reactions.**

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## *Abstract*

Mass media are known to be powerful in directing the public's attention towards specific issues and socially shape individual's opinions. This paper aims to investigate how the *temporal focus of attention* of the press and the *content* influence investors' expectations that, in turn, impact on stock market returns. We perform textual analysis on newspaper articles containing the names of Presidents (P), Vice-presidents (VP) and CEOs<sup>1</sup> of all Italian listed companies (4,361 observations)<sup>2</sup> during the period 1998-2013; secondly, event-study methodology is applied to investigate the direction and the magnitude of the stock market reaction. Results suggest that while news referred to the present are not associated with stock reaction, the future indicator predicts a negative reaction in the days around the news publication. A negative reaction is also detected between news referred to the past and shares prices, and the direction of this effect is driven by the negative content of those news. We also find that the impact of qualitative information on stock prices is asymmetrical, with negative qualitative information having a greater effect than positive. In addition, the analysis indicates that news where P, VP, or CEO are mentioned have a positive and statistically significant impact on stock prices.

**Keywords:** stock market, investor sentiment, news, text analysis, board of directors

**JEL:** G12; G14

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<sup>1</sup> The total number of P, VP, and CEOs for the whole sample period is 11,767 but because of the phenomenon of interlocking directorship the amount of name of directors whose articles are downloaded drops to 2,153. The number raises to 3,123 if each name is associated with the different companies in whose board he sits. Of these directors, 1,108 are P, 994 are VP and 1,021 are CEO.

<sup>2</sup> The number of listed companies varies from a minimum of 238 in 1998 to a maximum of 301 in 2001.

## **1. Introduction**

In a constitutional democracy, power is divided in three branches: legislative, executive, judiciary. “The press” or journalism has been defined the “Fourth Power”. This is due to its important role in influencing public opinion. This expression was probably coined by Edmund Burke in a parliamentary debate in 1787. If Edmund Burke were alive today he would probably use the expression “fourth power” to refer to mass media in general. Investors do not directly observe firms’ production, corporate governance, sales volume and so on, hence media play both the passive role of information broker and the active one of influencing evaluation processes (Carretta et al., 2011). In fact, to estimate assets’ fundamental values investors use the information disseminated through public news announcements and financial media (Griffin et al., 2011). In 1998 the New York Times reports news about the biotech company Entre Med’s new drug for cancer-cure. This information was already known because published in academic and scientific journals, but despite that, the stock market price quadrupled the following day (Huberman and Regev, 2001). This episode reveals that media assume relevance in the financial sector since a discrepancy between normative theory and empirical evidence has been observed with respect to the firms’ evaluation process and the following mechanism of asset prices formation. From a pure theoretical point of view, the company value should coincide with the discounted expected value of future cash flows conditioned to the information set the investor has. On the contrary, many different studies have casted some doubts on the accuracy of the classical approach according to which fluctuation in stock prices are exclusively related to changes in the fundamental values of the firm (Cutler et al., 1989; Shiller, 1981; Roll, 1985).

According to Fama Efficient Market Theory (1970), stock prices wholly reflect available information and every new item of information about firm’s fundamental value is suddenly translated in a change of the stock price. News should be suddenly and completely incorporated in the exact moment they became public and only if related with company’s fundamentals. Evidence suggests that media do matter as they spread information which is not simply redundant information but it is able to express qualitative aspects hard to capture in a quantitative way because of reality complexity (Tetlock et al., 2008).

Among the different types of mass media this paper focuses on newspaper articles. They represent a way to obtain information very easy to understand (with respect to other typologies of information such as reports or financial statements), and at a very low price (or even for free). Directing public’s attention towards specific issues, the press influences investors’ process of expectations formation and the decision making process related with the investment behaviour.

A growing stream of capital market research examines how stock prices reflect qualitative information extracted through applied computational linguistic. Previous research studies the relationship between stock market prices and qualitative information focusing on sentiment (positive or negative) or tone (strong or weak) extracted from major newspapers (Carretta et al., 2011; Tetlock et al., 2008), from corporate annual reports (Li, 2006), and from earning press release (Davis, Piger and Sedor, 2012); during bubbles (Bhattacharya et al., 2009), around earning announcements (Bushee et al., 2007), with respect to the newness of the information (Tetlock, 2008; Huberman and Regev, 2001), and so on. At the same time, temporal research has shown that the extent to which individuals devote their attention to perceptions of *past, present and future* influences decision making and a large set of attitudes and behaviours (Bandura, 2001; Fried & Slowik, 2004). On this premises, the goal of the present study is to observe if temporal focus has to be considered together with news content to measure shares' prices movements.

Following one of Barber and Odean's (2008) definitions of attention-grabbing events, as the mention of the name of the firm in the news of the day, we collect newspaper articles which mention the firms but also the people who run them - President, Vice-President, and Chief Executive Officer (CEO). The choice to select articles which also mention a relevant member of the Board of Directors (BoD) is driven by the presence in the Italian country of a stable group of directors over time which are therefore well known and able to impact on investors' opinions. This paper offers two main contributions: first, it proposes a way to measure the press temporal focus of attention by computing the frequency of verb tenses; second, it provides empirical evidence of the impact of the temporal focus of attention on investors' decisions relying on an automatic computational technique and a large data set which provide relevance to results.

The remainder of the paper is organized as follows. In Section 2 we review the literature and develop the research questions, while Section 3 and Section 4 describe the sample and the methodology, respectively. In section 5 we present and comment empirical results, followed by discussion in Section 6.

## **2. Literature Review**

The press belongs to the category of mass media whose definition follows the concept of mass communication which consists in "any form of communication transmitted through a medium that simultaneously reaches a large number of people" (Wimmer and Dominick, 2006). From the plural of the Latin word *medium*, that can be translated in mean, mass media are any of the means of communication that have the capacity to deliver information to a large number of people. The role

played by information on the financial market has been and still is investigated in behavioural finance (Tetlock, 2007; Tetlock et al., 2008; Fang and Peress, 2009). If according to EMH it is sufficient that only one trader knows the new information for this to be incorporated in the stock price, when a large amount of investors know that information, media coverage should not affect asset prices at all. Behavioural finance is showing instead that media do have a role. This is the consequence of the facts that contrary to classical theory limits to arbitrage exist, so the number or the relative wealth-weighted number of people informed matters and media impact on the number of informed people. Moreover, media provide credibility (Dyck and Zingales, 2003) and also common knowledge (people learn about something and also about the fact that other people learn about something) and these elements influence stock prices (Morris and Shin, 2002). So media determine if a piece of news reaches the investors and how it is perceived by them.

Several recent studies document a relationship between media sentiment and stock market returns. Dyck and Zingales (2003) concentrate on stock prices responses to earning announcements finding that media tends to follow the spin promoted by the company. They also report that when investors have few alternative sources of information and the newspaper is more reputable, the impact of media on asset prices is larger. Antweiler and Frank (2004) classify text messages in internet stock message boards and observe that they successfully help in predicting market volatility both at a daily frequency and within the same trading day. The same authors also analyse Wall Street Journal corporate news, classified by topic, during the period 1997-2001 and document the phenomenon of overreaction. This empirical evidence is extremely important as it documents that the EMH is only partially correct: the process of absorbing new information does not typically end within a day or two after the news has been made public. Two days after the news, in fact, it is possible to observe a drift in the stock prices that has the opposite sign of the initial jump and “it appears to take many days or even weeks, before the NYSE, AMEX, and NASDAQ fully digest the news reported in the Wall Street Journal”. Doukas, Kim, and Pantzalis (2005) explore the depth of analyst coverage showing that when *abnormal* it causes stocks to be traded at a value different from companies’ fundamentals. Tetlock (2007), in his seminal work, elaborates a measure of media pessimism which predicts a downward pressure on market prices in the cases of low investor sentiment. Moreover his results suggest that levels of pessimism too high or too low predict high market trading volume. In a following study the same author (2008) reveals that negative words contained in financial news from the Wall Street Journal and Dow Jones News Service forecast low firm earnings. Referring to a different media, Twitter, an analysis of the *Calm mood* dimension has been found to be Granger causative and so predictive of changes in DIJA for lags ranging from 2 to 6 days with high level of accuracy (87,6%) (Bollen, Pepe, and Mao, 2009). Carretta et al. (2011) reveal that stock returns are

negatively influenced by news related to change in BoD for profitable firms, positively related to ownership news if the firm is not profitable at the moment of the news release, and positively influenced by the tone of the communication for profitable firms; moreover, after the news publications, investors are influenced by both the *tone* and the *content* of the news. Sentiment has also been extracted from Twitter (Bollen, Pepe, and Mao, 2009) using a new psychometric instrument of Profile of Mood States (POMS) that extends the original set of 65 mood adjectives to 793 terms. They find that social, political, cultural and economic events are correlated with significant, even if delayed fluctuations of public mood levels. A following study by Bollen, Mao, and Zeng (2010) investigate if sentiment, always extracted from Twitter posts, can help predict stock market returns. Using two main tools, OpinionFinder which classifies mood in positive vs negative, and GPOMS, which takes into account the six different mood dimensions above mentioned, they the authors find an accuracy of 87.6% in predicting changes in DIJA and a reduction of the Mean Percentage Error by more than 6% from mood time series.

These studies are relevant in brightening some features on the link between financial information disseminated through media and stock market prices. A further step in the analysis has been undertaken by Engelberg and Parsons (2011) who address the causal relationship between this link, looking at extreme weather events that do not allow the normal distribution of newspapers. Results show that trading patterns are strongly related to the patterns of local media coverage and that media coverage stimulates local trading activity. An additional empirical investigation of this causal relationship is provided by Peress (2014) who observes that on the day there is a newspaper strike, shares' turnover and stock volatility are lower. A following research examines the investor perspective (Sprenger and Welppe, 2011) exploring stock-related messages from an online stock forum. The authors show that positive news often leak and are incorporated into stock prices before the announcement of the information, while for negative news the reaction is confined to the event day itself. While distinguishing among different news events the same authors find that there are some categories of news like "Product Development" or "Joint Venture" that do not cause a market reaction while other categories such as "Merging and Acquisitions" or "Earnings" do impact on stock returns. The newness of the information spread through newspapers is analysed by Tetlock (2011) who finds that returns are positively predicted by news events with new information, while, on the contrary, return reversals are much stronger when news contain stale information. Dougal et al. (2012) examine the writing style (bullish vs bearish) of specific journalists and provide evidence of a casual effect on aggregate market outcomes, at least over short-time horizons. Ahern and Sosyura (2014) suggest that active media management in mergers and acquisition- the issue of press releases to increase media coverage- can represent a mechanism to increase stock prices. The same

authors (2015) also study the accuracy of media coverage, in the context of merger rumors, showing that media selectively provides more information – but less accurate- about large, public firms which grab investors’ attention. Cervellati, Ferretti and Pattitoni (2014) take advantage of the attention getting column “The stock of the week”, published in the magazine Plus by the most important financial newspaper, “Il Sole 24 Ore” to examine the stock price and volume reaction to the dissemination of analysts’ recommendations through print media. The authors provide additional evidence that the attention grabbing hypothesis applies also for readers of financial print media, considering that neutral or negative recommendations has a null effect on prices and volumes of trading while the publication of positive recommendations has a positive impact on them.

The relationship between corporate news and stock market reactions has also been explored considering the characteristics or event related with the board of directors. In general, those studies show that shareholders react to corporate news more positively when the board of directors is independent. Cai et al. (2006) report that corporate governance characteristics, such as gender differences and the presence of founding families in the board, influence stock market reaction to firm-specific news. Moreover, they show that a more independent board positively impact on market reaction to good news. Borokhovich et al. (2006) investigate the relationship between stock market returns and CEO death and their results show that the most significant factor able to explain abnormal returns is board independence.

Previous empirical research underlines that mass media and linguistic communication have a significant impact on investor expectations that, in turn, influence stock market returns. Until now studies have explored the content of the news related to stock prices, without exploring the temporal focus of that content. Temporal research proposes different temporal constructs able to impact on individuals’ cognition, affect or behaviour (Shipp et al., 2009): *temporal perspective* - individual’s temporal portfolio of his views of time; *temporal orientation* - cognitive involvement predominantly in the past, the present and the future; *time perspective* - stable individuals’ differences in temporal orientation; *temporal depth* - temporal distance of the past and future from the present; *time attitude* - specific types of thoughts embedded in various time frames. The notion that people shift their attention among different time periods is captured by the concept of *temporal focus*, that according to a tripartite definition, is the extent to which people devote their attention to the past, the present and the future (Bluedorn, 2002). Newspapers articles which mention firms are able to attract investors’ attention (Barber and Odean, 2008); this suggest the articles of our sample are suitable to investigate how the use in the news of verb tenses referred to the present, past and future further influence investors’ behaviour. Given that investors’ decision making is influenced by

the content of the news they process and considering the influence of the time on attitudes and behaviours, in this study we aim to explore to what extent the content and the temporal focus of attention of the press can affect stock prices, so the question we ask is: What are the effects on investors' behaviours of the temporal focus conveyed through the news considered in interaction with their content? In different words, it is important to ask if the temporal focus of attention (past, present and future) should be examined together with the content of the articles (positive and negative) to measure the impact on investors' behaviour. In this sense, the hypothesis we address is: *the effect of print newspapers articles on investors' behaviour, measured by changes in shares' prices, depends on both their temporal focus of attention and their content.*

### **3. Sample**

This study focuses on the information dissemination channel of newspaper articles: the sample consists of all the news related to the members of the boards of directors (BoD) of all Italian listed companies during the period 1998-2013. We select this country for the relevance of retail direct shareholding as in terms of capitalization holding and trading participation individual investors' represent relevant actors in the Italian Stock market, making it a singular case in an international scenario (Coraggio and Franzosi, 2008). Moreover, interlocking directorships is a widely diffused phenomenon in this country and therefore there is a group of really powerful directors, well known from investors and able to impact on their opinions (Santella et al., 2007).

The members of the BoD taken into account are President (P), Vice-president (VP) and Chief executive officer (CEO). The names are obtained from Consob website in the section Emittenti - Società quotate - Organi sociali. The news published on the Italian newspapers are downloaded using LexisNexis™ Academic.

Data about all Italian companies listed on the Milan Stock Exchange (MIB) are collected by Datastream. Table 1 shows the number of observations for year, over different industries classified according to Datastream ICBIN industry code. The total number of observations is 4,361. Table 2 summarizes the total number of listed companies, total directors and average board sizes, during the time period considered. The number of listed companies varies from a minimum of 238 in 1998 to a maximum of 301 in 2001. Table 3 illustrates for each year of the time span considered the total number of P, VP, and CEO, the number of them excluding people who sit on more boards and the number of them who sit on more than one boards. Table 4 exhibit some summary statistics about these variables. The total number of P, VP, and CEOs for the whole sample period is 11,767 but because of the phenomenon of interlocking directorship the amount of name of directors whose articles are downloaded drops to 2,153. The number raises to 3,123 if each name is associated with



the different companies in whose board he sits. Of this directors, 1,108 are P, 994 are VP and 1,021 are CEO. This is in line with previous studies who detect a small group of interlocked directors which are remarkably stable over time (Santella et al., 2007), defined as the *Lord of Italian stock market*. These descriptive statistics contributes to underline that Italian listed companies are connected through a great percentage of directors which are interlocked, but above all that the high number of directors who are interlocked sits on more boards in the roles of P, VP, and CEO.

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Insert Table 1,2,3,4 about here  
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The number of \*.rtf files downloaded which is 2,858. Each file contains a number of articles that varies from 1 to 500. The number of total observations is about 60,000<sup>3</sup>.

#### 4. Methodology

Different methodologies are applied to investigate the theoretical framework according to which after an event occur, the different forms or channels of information dissemination impact on the investors' attention level and produce different effects on the financial market.

First, the text analysis (Stone et al., 1966) is used to classify the content and the temporal focus of attention and it is based on the "bag of words" model according to which a pre-determined list of words (vocabulary - General Inquirer, LIWC, Loughran & McDonald, Harvard IV) is matched with the documents (press news). In this study, the Linguistic Inquiry and Word Count (LIWC) for the Italian language is used. It is a text analysis program which counts word in psychologically meaningful categories (Tausczik and Pennebaker, 2010). The content can be defined as the degree to which news have positive and negative meaning and it is computed by scaling the positive and negative words for the total length of the article, following the formula  $P/Length$  and  $N/Length$ , where P is the number of words considered positive, N the number of words considered negative, and Length is the total number of words, in the single articles. The temporal focus refers to the use in the articles of verbs at the present, past, or future tense. The members of the BoD to whom the news are related taken into account are President, Vice-president and Chief executive officer. Each name of the board's member is associated with the company to be sure the news is economically relevant and no namesakes are considered. If a member sits on more than one board, different companies are separately associated to him. So different analysis are run for the same person which sits on the boards of different companies. To extract all the information and avoid to lose

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<sup>3</sup> The initial number of relevant news extracted was 190,000 but the amount dropped after the merger with companies' performance database because of missing value. In a following version of the study we aim to retrieve missing data and consider all the other news that in this version have not been analysed.

observations, different names (like acronyms or short name) for the same companies are considered<sup>4</sup>. For each news which refers to the person and its company, is then extracted the publication date, the total number of words, positive, negative, present, past, and future categories. The publication date extracted is exactly the date the news has been published and not the “load-date” provided by the database Lexis Nexis. This is because, in some cases, a lag has been found between the actual data of articles’ publishing and the data the news has been uploaded on the database.

This rigorous approach is needed as to investigate if after a piece of news is published there is a stock market reaction, and in a second step, the direction and the magnitude of this reaction, event-study methodology is applied. This commonly used methodology to measure the stock market reaction to the announcement of a particular event (Dodd and Warner, 1983; Brown and Warner; 1985) is based on the Efficient Market Hypothesis (EMH) (Fama et al., 1969; Fama, 1970) that define a market efficient if “prices fully reflect all available information”. The aim is to observe if after the news is published at the announcement time ( $t$ ), Abnormal Return (AR), the difference between the Actual Return on a stock  $i$  and the Expected Return on the stock  $i$ , is displayed over various event windows. The announcement time is considered as exact event date instead of the firm’s communication for different reason: i) investors often base their decision making process of buying, holding and selling stocks, on second hand information rather than observing the actual activity of the company (Tetlock et al., 2008; Antweiler and Frank, 2004; Coval and Shumway, 2001); ii) information considered is also not financial and related to personal behaviour of the member of the BoD and firms do not communicate this type of information.

Next, Cumulative Abnormal Return (CAR) are computed between any two dates T1 and T2 as

$$CAR_i (T1, T2) = \sum_{t=T1}^{T2} AR_{it},$$

where  $i$  is the stock and  $t$  the time.

The last step of the methodology is to specify an econometric model to investigate the link between press news and stock market returns. The dependent variable is CAR while the independent variables includes the variables related to the press news (content, temporal focus, and category of

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<sup>4</sup> For instance the bank Monte dei Paschi di Siena is searched in the articles in the following ways: Monte Paschi, MPS, Monte dei Paschi di Siena.

the board member), variables related to company's performance, and variable related to market's performance.

Among variables related to company's performance there are: return on equity (ROE), financial leverage (LEV\_PER), operating profit margin (OP.PROFIT MARGIN), dividend yield (DY\_PER), earnings per share (EPS), market to book value (MTBV).

The following Table details the variable definition.

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 Insert Table 5 about here  
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Model 1 takes into account the single role relatively to board member (P, VP, CgD, AD, A), while Model 2 consider the double role (CEO\_DUA, P\_A, VP\_AD, VP\_CgD).

1)

$$\begin{aligned}
 ARs_{it} \text{ or } CARS_{it} = & \alpha_0 + \alpha_1 P_{it} + \alpha_2 VP_{it} + \alpha_3 CgD_{it} + \alpha_4 AD_{it} + \alpha_5 A_{it} + \alpha_6 Lenght_{it} + \alpha_7 Past_{ind_{it}} + \alpha_8 Pres_{ind_{it}} \\
 & + \alpha_9 Past_{ind_{it}} + \alpha_{10} Fut_{ind_{it}} + \alpha_{11} Pos_{ind_{it}} + \alpha_{12} Neg_{ind_{it}} + \alpha_{13} ROE_{it} \\
 & + \alpha_{14} OP.PROFIT MARGIN_{it} + \alpha_{15} LEV\_PER_{it} + \alpha_{16} DY\_PER_{it} + \alpha_{17} EPS_{it} + \alpha_{18} MTBV_{it} \\
 & + \alpha_{19} TOP10_{it} + \varepsilon_{it}
 \end{aligned}$$

In Model 2 we take into account *sentiment interaction variables*, to explore the impact on stock market prices of news which have either a positive or negative content but have different temporal focus:

2)

$$\begin{aligned}
 ARs_{it} \text{ or } CARS_{it} = & \alpha_0 + \alpha_1 Lenght_{it} + \alpha_2 ROE_{it} + \alpha_3 OP.PROFIT MARGIN_{it} + \alpha_4 LEV\_PER_{it} + \alpha_5 DY\_PER_{it} \\
 & + \alpha_6 EPS_{it} + \alpha_7 MTBV_{it} + \alpha_8 TOP10_{it} + \alpha_{9,10,11,12,13,14} \text{sentiment interaction variables}_{it} + \varepsilon_{it}
 \end{aligned}$$

## 5. Empirical results

In this section we address the relationship between textual analysis of financial information from newspaper articles, board of directors features, and stock market prices. Results in Table 6 reveal that news expressing a negative sentiment have a permanently negative impact on stock market prices across the different event periods.

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 Insert Table 6 about here  
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The absolute value of the regression coefficients for the indicator of news with negative content ranges from a minimum of .1 for the AR[-1] to a maximum of .438 for the CAR [-4, 4], and the

coefficients are statistically significant for all the event windows considered ( $p < 0.001$ ) except the AR[1]. On the contrary, while negative words in firm-specific newspaper articles containing the name of P,VP, or CEO, predict lower returns on the few previous and following trading days, the impact of positive sentiment is in a positive direction. Anyway, this impact is relevant for less event windows and it is generally lower. In fact, the impact on CAR is not instantaneous – among the short term CARs only [-2; 0] and [-2; 2] event windows exhibit a positive and statistically significant impact- but it is slightly delayed in time. As displayed in Table 6, the coefficients relative to more than seven days around the publication day, are all positive and statistically significant, except for the window [-8; 8]. This asymmetric effective between positive and negative qualitative information is in line with the psychological theory of the *negativity effect* or the *negativity bias* according to which people tend to weight negative information more heavily than positive one (Kanouse and Hanson, 1972) as negative stimuli are supposed to contain greater informational value and to therefore require greater attention (Peeters and Czapinski, 1990). Recent neuroscientific researches confirm these findings (Ito et al., 1998; Smith et al., 2006; Kuhnen and Knutson, 2011; Gollan et al., 2015) and generalize them across different modalities such as auditory and visual stimuli and different types of stimuli as pictures or words (Norris et al., 2011 and Larsen et al., 2009).

With respect to the temporal focus of attention, the most interesting variables is represented by the Past indicator which quantifies the presence in the articles of words referred to the past. Focusing on asymmetric event windows, AR[1] and CARs in [0; 1], [0; 2], [-1; 1] display a positive relationship between this textual analysis variables and stock market returns ( $p < 0.05$  and  $p < 0.1$ ), while CARs exhibit the opposite effect for the [-4; 4], [-5; 5], [-6; 6], [-7; 7], [-8; 8], and [-10; 10] event windows ( $p < 0.05$  and  $p < 0.1$ ). When the temporal focus of the news is on the present time, no significant effect on stock market prices are detected. This can be due to the fact that newspapers reporting news concerning the present situation for the firms do not convey any relevant qualitative information in addition to the standard and available quantitative ones, and stock prices already reflect the information of those news. The same explanation is provided for the independent variable Future Indicator, which refers to the temporal focus of the news for the future time, considering that after few days, the information expressed may be related to the present and therefore included in stocks' value. On the contrary, for AR and CARs [-1; 0], [-2; 0] ( $p < 0.001$ ;  $p < 0.05$ ), this variable is found to negatively impact on stock market prices revealing an investors' negative reactions to prospective news and future evaluations regarding the firms. This evidence finds confirmation in Table 8, which displays the interaction between sentiment variables and temporal focus of attention variables.

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Insert Table 7 about here  
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It is interesting to see that while the positive content of the news drives a positive market reaction only when the focus is in the past, the negative content is correlated with lower stock returns either when it is oriented in the past, in the present and in the future. A negative content with a past temporal focus has a negative impact for the CAR before the news publications (AR[-1], CAR[-1;0], [-2;0]; ( $p < 0.01$  and  $p < 0.001$ )) and for all the other CARs ( $p < 0.001$ ), while when the focus is in the present the negative impact is still relevant and statistically significant but smaller, for almost all the days we consider surrounding the news publication. A greater magnitude of the effect on securities' returns is detected for negative news oriented in the future, but only for the days before and immediately around the news are published, suggesting investors' do not give their attention to negative news projected in the future or that, as already mentioned, information for the future become present information after some days and thus is incorporated in stock prices.

As displayed in Table 7, the negative impact is driven by news focused on the present and the past, revealing that stakeholders might have disliked, not approved or not fully shared past actions or decisions of the companies whose shares they hold. Moreover, these results suggest that news which contains the name of celebrities for the stock market grab investors' attention and turns out in a downward pressure for the prices.

Overall, results document that the content and the temporal focus of attention of articles related to people who run the companies have a statistically significant effect on firms' stock returns.

## **6. Discussion**

The contribution of this paper relies on the exploration of the relationship between information disseminated by newspapers and financial stock markets. In particular, we aimed to shed light on the impact on stock market prices of the content and the temporal focus of the news which refer to Presidents, Vice-Presidents and CEOs.

Our findings reveal, in line with previous researches, that the impact of qualitative information on stock prices is asymmetrical, with negative qualitative information having a greater effect than positive. We find that while news referred to the present are not associated with stock reaction, because probably the information is already incorporated in stock prices, the future indicator from textual analysis predicts a negative reaction for securities prices in the days around the news publication, suggesting that investors negatively process prospective information. A negative

reaction is also detected between news referred to the past and shares prices, and the direction of this effect is driven by the negative content of those news: in fact, interaction variables between past temporal focus and sentiment reveal a positive effect when the content is positive for the past and a negative one in the opposite case, with the latter being stronger than the former. Our findings are relevant in showing that systematically quantifying language can improve our knowledge of asset price formation and that newspapers play a relevant and significant role in shaping investors' opinion and expectation formation process. It also suggests the importance of taking into account qualitative information associated with people – and not only with the companies themselves- who sits on firms' boards. This research has also the potential important implication for researchers testing trading strategies of suggesting the relevance of taking into account not only the content of the news, but also the temporal focus of attention. The present study could be further developed focusing on articles exclusively related to individuals who run the companies, through text analysis of news whose titles contain their names. Moreover, it would be interesting to explore how the impact of media coverage changes according to companies' different economic and financial situations and firms' fundamentals. Finally, a further analysis could investigate a possible “waterfall” or “spill over” effect on stock prices associated with interlocking directorship of board members.

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## Annex

**Table 1.** Distribution of companies' observations over years

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	TOT
<i>Utilities</i>	9	11	12	14	16	18	19	18	17	18	17	17	16	18	17	17	254
<i>Teleco.</i>	4	5	4	4	4	6	6	5	5	5	5	5	4	4	4	4	74
<i>Technology</i>	0	0	14	18	18	18	20	19	21	20	22	21	21	20	19	19	270
<i>Oil &amp; Gas</i>	6	4	5	5	5	4	4	4	5	6	8	8	8	5	5	5	87
<i>Industrials</i>	76	77	78	80	81	75	72	69	74	77	72	69	67	65	63	60	1155
<i>Health Care</i>	5	5	5	6	6	4	4	4	6	8	7	9	8	8	8	8	101
<i>Financials</i>	84	91	94	90	84	73	69	76	72	71	70	65	64	58	59	57	1177
<i>Consumer Services</i>	13	13	29	33	34	35	31	33	31	35	33	34	31	29	30	29	473
<i>Consumer Goods</i>	39	44	48	49	45	43	41	41	46	48	51	48	43	41	39	39	705
<i>Basic Materials</i>	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	43
<i>TOT</i>	238	252	291	301	295	279	269	272	280	291	288	279	265	251	247	241	4339

**Table 2.** Distribution of directors' observation over years.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
N° of companies	238	252	291	301	295	279	269	272	280	291	288	279	265	251	247	241
N° Tot. of directors	2307	2422	2786	2901	2886	2796	2706	2788	2809	2859	2858	2799	2721	2633	2497	2401
Average board size	9.69	9.61	9.57	9.64	9.78	10.02	10.06	10.25	10.03	9.82	9.89	9.96	10.27	10.49	10.11	9.96

**Table 3.** Distributions of total number of P, VP and Ceo over years

<i>Year</i>	<i>Total P, VP, CEO</i>	<i>Except namesakes</i>	<i>Namesakes</i>
1998	617	543	74
1999	640	562	78
2000	728	650	78
2001	784	704	80
2002	763	692	71
2003	749	684	65
2004	726	668	58
2005	719	645	74
2006	751	676	75
2007	810	746	64
2008	816	752	64
2009	780	723	57
2010	769	712	57
2011	734	684	50
2012	695	645	50
2013	665	621	44
<i>TOT</i>	11746		

**Table 4.** Summary Statistics of P, VP, and CEO

	<i>Total P, VP, CEO</i>	<i>Except namesakes</i>	<i>Namesakes</i>
<i>mean</i>	734.13	669.19	64.94
<i>St. deviation</i>	57.05	58.30	11.35
<i>min</i>	617.00	543.00	44.00
<i>max</i>	816.00	752.00	80.00
<i>mediana</i>	741.50	680.00	64.50

**Table 5. Regression variables**

<i>Variable</i>	<i>Variable Type</i>	<i>Description</i>
<i>P<sub>it</sub></i>	Dummy Variable	It is 1 if the board member is the President, 0 otherwise
<i>VP<sub>it</sub></i>	Dummy Variable	It is 1 if the board member is the Vice President, 0 otherwise
<i>CgD<sub>it</sub></i>	Dummy Variable	It is 1 if the board member is the “ <i>Consigliere di Gestione</i> ”, 0 otherwise
<i>AD<sub>it</sub></i>	Dummy Variable	It is 1 if board member is the CEO, 0 otherwise
<i>A<sub>it</sub></i>	Dummy Variable	It is 1 if the board member is a director, 0 otherwise
<i>TOP10<sub>it</sub></i>	Dummy Variable	Indicates the ten directors which recorded more news in the period
<i>ARs<sub>it</sub></i>	Quantitative Variable	Abnormal Returns computed at different time
<i>CARs<sub>it</sub></i>	Quantitative Variable	Cumulative Abnormal Returns computed at different time
<i>Lenght<sub>it</sub></i>	Quantitative Variable	Number of words for article
<i>Past_ind<sub>it</sub></i>	Quantitative Variable	Degree to which an article contains past tense verbs
<i>Pres_ind<sub>it</sub></i>	Quantitative Variable	Degree to which an article contains present tense verbs
<i>Fut_ind<sub>it</sub></i>	Quantitative Variable	Degree to which an article contains future tense verbs
<i>Pos_ind<sub>it</sub></i>	Quantitative Variable	Degree to which an article has a positive meaning
<i>Neg_ind<sub>it</sub></i>	Quantitative Variable	Degree to which an article has a negative meaning
<i>ROE<sub>it</sub></i>	Quantitative Variable	Is the amount of net income returned as a percentage of shareholders' equity
<i>OP. PROFIT MARGIN<sub>it</sub></i>	Quantitative Variable	It is computed as operating income scaled by net sales
<i>LEV_PER<sub>it</sub></i>	Quantitative Variable	It is computed as debt (loans) scaled by common equity
<i>DY_PER<sub>it</sub></i>	Quantitative Variable	Market evaluation of dividend policy
<i>EPS<sub>it</sub></i>	Quantitative Variable	Is the portion of a companies' earnings allocated to each share of common stock
<i>MTBV<sub>it</sub></i>	Quantitative Variable	It is computed as market capitalization scaled by the book value

**Table 6.** Regression Analysis which considers single role without interaction variables. Dependent variables ARs and CARs

	AR	ARI	AR(-1)	CAR (0,1)	CAR (-1, 0)	CAR(0,+2)	CAR (-2,0)	CAR (-1,1)	CAR (-2,2)
<i>P</i>	.0030471*** -0.001	0.0010638 -0.001	0.001237 -0.001	.0041108*** -0.001	.0042841*** -0.001	.0053575*** -0.001	.0053819*** -0.001	.0053478*** -0.001	.0076923*** -0.001
<i>VP</i>	.0024659** -0.001	0.0006457 -0.001	-0.000515 -0.001	.0031116** -0.001	0.0019508 -0.001	.0040716** -0.001	.0036085** -0.001	0.0025965 -0.001	.0052143*** -0.002
<i>CgD</i>	-0.0002754 -0.001	0.00037 -0.001	-.0025367* -0.001	0.0000946 -0.002	-0.002812 -0.002	.0033448* -0.002	-0.0005458 -0.002	-0.002442 -0.002	0.0030744 -0.002
<i>AD</i>	.0029109*** -0.001	0.0010241 -0.001	0.0007592 -0.001	.0039351*** -0.001	.0036701*** -0.001	.0047084*** -0.001	.0049668*** -0.001	.0046942*** -0.001	.0067643*** -0.001
<i>A</i>	.0049521** -0.002	1.03E-03 -0.002	-.0044423** -0.002	.0059836** -0.002	5.10E-04 -0.002	.0062468** -0.002	2.73E-03 -0.002	1.54E-03 -0.002	4.03E-03 -0.003
<i>Lenght</i>	-4.54E-07 0.000	-5.95E-07 0.000	1.39e-06** 0.000	-1.05E-06 0.000	9.40E-07 0.000	-6.54E-07 0.000	1.31E-06 0.000	3.44E-07 0.000	1.11E-06 0.000
<i>Past_ind</i>	0.0273703 -0.017	.0319921* -0.016	0.0003494 -0.016	.0593624** -0.021	0.0277198 -0.021	.0597886** -0.023	0.0034661 -0.023	.0597118* -0.024	0.0358844 -0.027
<i>Pres_ind</i>	0.0034937 -0.01	-0.0026028 -0.009	-0.0132968 -0.009	0.0008909 -0.012	-0.0098031 -0.012	0.0021247 -0.013	-0.0020446 -0.013	-0.0124058 -0.014	-0.0034136 -0.016
<i>Fut_ind</i>	-.1151291*** -0.031	.0730552* -0.03	0.0191641 -0.03	-0.042074 -0.038	-.0959651* -0.038	-0.0657919 -0.043	-1.000447* -0.043	-0.0229099 -0.044	-0.0507075 -0.05
<i>Pos_ind</i>	0.0461364 -0.044	0.0217444 -0.042	0.0187835 -0.042	0.0678807 -0.055	0.0649199 -0.055	0.1051991 -0.061	.1402032* -0.062	0.0866643 -0.064	.1992659** -0.072
<i>Neg_ind</i>	-.1416178*** -0.025	-0.0207113 -0.024	-.1005308*** -0.024	-.1623291*** -0.031	-.2421486*** -0.031	-.1148178*** -0.034	-.3490407*** -0.035	-.2628599*** -0.036	-.3222407*** -0.041
<i>ROE_per</i>	2.38E-08 0.000	7.84e-07** 0.000	-3.07E-07 0.000	8.08e-07* 0.000	-2.84E-07 0.000	9.74e-07* 0.000	-1.35E-07 0.000	5.01E-07 0.000	8.16E-07 0.000
<i>OP. PROFIT MARGIN</i>	-2.10e-06*** 0.000	-4.02e-06*** 0.000	-1.96e-06*** 0.000	-6.12e-06*** 0.000	-4.06e-06*** 0.000	-6.18e-06*** 0.000	-3.90e-06*** 0.000	-8.08e-06*** 0.000	-7.97e-06*** 0.000
<i>LEV_PER</i>	3.63E-07	-2.48E-07	-1.35E-07	1.14E-07	2.27E-07	1.79E-07	-2.28e-06***	-2.12E-08	-2.46e-06***

	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>DY_PER</i>	.0003668***	.0002282***	.000204***	.000595***	.0005707***	.0004886***	.0007127***	.000799***	.0008346***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>EPS</i>	-.000223*	-.0003401***	-0.0001814	-.0005631***	-.0004044**	-.0005365***	-0.0000929	-.0007445***	-.0004064*
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>MTBV</i>	-.0003402**	0.0001073	-0.0001225	-0.0002328	-.0004626***	-.0004662**	-0.0000643	-.0003553*	-0.0001904
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>TOP10</i>	-.0019252***	-.0020544***	-.0023249***	-.0039796***	-.00425***	-.0036843***	-.0049629***	-.0063045***	-.006722***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001
<i>constant</i>	-0.0008401	-0.0012032	0.0005995	-0.0020433	-0.0002406	-.0033171*	-0.0013827	-0.0014438	-.0038598*
	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002
<i>R-sqr</i>	0.005	0.006	0.003	0.011	0.009	0.008	0.01	0.016	0.014
<i>dfres</i>	60786	60786	60786	60786	60786	60786	60786	60786	60786
<i>BIC</i>	-235701.2	-239923.3	-240242.7	-208617.4	-208261.7	-195744.5	-194372.7	-190918.3	-175812.5

	<i>CAR(-3,3)</i>	<i>CAR(-4,4)</i>	<i>CAR(-5,5)</i>	<i>CAR(-6,6)</i>	<i>CAR(-7,7)</i>	<i>CAR(-8,8)</i>	<i>CAR(-9,9)</i>	<i>CAR(-10,10)</i>
<i>P</i>	.0092295***	.0110261***	.010693***	.0110122***	.0109696***	.011657***	.0116627***	.0113714***
	-2.00E-03	-0.002	-0.002	-2.00E-03	-2.00E-03	-0.002	-0.002	-2.00E-03
<i>VP</i>	.0083267***	.0112399***	.0103393***	.0113161***	.0114416***	.0112561***	.0109015***	.0110515***
	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-2.00E-03
<i>CgD</i>	.005841**	.0090958***	.0087445***	.0099154***	.0072086*	.0092155**	.008467**	.0100576**
	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
<i>AD</i>	.0084758***	.0109258***	.0102033***	.010501***	.0105426***	.0117254***	.0120945***	.0113966***
	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
<i>A</i>	.0087733**	.0153709***	.0090799*	.0153537***	.0152841***	.0242144***	.0240887***	.0233434***
	-0.003	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004
<i>Lenght</i>	0.000000388	5.64E-08	0.000000416	-0.00000165	-0.00000186	-0.00000166	-2.45e-06*	-0.00000122
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>Past_ind</i>	-0.0177869	-.1086742**	-.0757524*	-.1199638**	-.0793234*	-.1110674**	-0.0565254	-.097736*



	-0.03	-0.036	-0.036	-0.038	-0.04	-0.042	-0.043	-0.044
<i>Pres_ind</i>	-0.0061655	-0.0141874	-0.0369292	-0.0250705	-0.0412167	-0.0202729	-0.0313039	-0.013372
	-0.017	-0.021	-0.021	-0.022	-0.023	-0.024	-0.025	-0.025
<i>Fut_ind</i>	-2.32E-02	2.86E-02	6.71E-02	3.24E-02	-5.79E-03	-2.19E-02	-3.75E-02	-3.68E-02
	-0.056	-0.067	-0.067	-0.07	-0.074	-0.077	-0.08	-0.082
<i>Pos_ind</i>	.281102***	.3049811**	.3683049***	.3893093***	.3645969***	1.78E-01	.2674699*	.325356**
	-8.00E-02	-0.096	-0.095	-1.01E-01	-0.106	-0.11	-0.115	-1.17E-01
<i>Neg_ind</i>	-.3091142***	-.4388311***	-.367267***	-.3623814***	-.3878531***	-.414329***	-.3598361***	-.3977335***
	-4.50E-02	-5.40E-02	-5.40E-02	-5.70E-02	-6.00E-02	-6.20E-02	-6.50E-02	-6.60E-02
<i>ROE_per</i>	1.91e-06***	2.58e-06***	2.86e-06***	3.52e-06***	3.66e-06***	4.15e-06***	4.01e-06***	4.23e-06***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>OP. PROFIT MARGIN</i>	-8.91e-06***	-.0000148***	-.0000142***	-.000016***	-.0000179***	-.0000187***	-.0000211***	-.0000246***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>LEV_PER</i>	-7.46e-06***	-.0000131***	-.0000119***	-.0000136***	-.0000136***	-.000015***	-.0000158***	-.0000168***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>DY_PER</i>	.0007803***	.0005829***	.0008233***	.000462***	.0005945***	.0004763***	.0007849***	.0008522***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>EPS</i>	-0.0002685	-0.0002313	-0.0002029	0.0001441	0.00000618	0.0002457	0.0000658	0.0000713
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>MTBV</i>	-0.0002749	-0.0001632	-0.0001455	-0.00000307	0.0002089	-0.0002222	-0.0000563	-0.0001993
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>TOP10</i>	-.0085981***	-.0106992***	-.0110746***	-.0116038***	-.0126244***	-.0128279***	-.0141836***	-.0148679***
	-1.00E-03	-1.00E-03	-1.00E-03	-1.00E-03	-1.00E-03	-1.00E-03	-1.00E-03	-1.00E-03
<i>constant</i>	-0.0028759	0.0005425	-0.0006273	0.0015249	0.0014638	0.0019731	0.0009052	0.0018406
	-2.00E-03	-2.00E-03	-2.00E-03	-2.00E-03	-2.00E-03	-2.00E-03	-2.00E-03	-0.003
<i>R-sqr</i>	1.70E-02	2.60E-02	2.50E-02	2.50E-02	2.70E-02	2.70E-02	3.00E-02	3.60E-02
<i>dfres</i>	6.08E+04	6.08E+04	6.08E+04	6.08E+04	6.08E+04	6.08E+04	6.08E+04	60786
<i>BIC</i>	-1.63E+05	-140988.2	-141528.7	-1.35E+05	-128205.6	-124144.6	-119134.4	-1.17E+05

**Table 7.** Regression Analysis with sentiment interaction variables. Dependent variables ARs and CARs

	AR	ARI	AR(-1)	CAR (0,1)	CAR (-1, 0)	CAR(0,+2)	CAR (-2,0)	CAR (-1,1)	CAR (-2,2)
<i>Lenght</i>	-5.22E-07 0.000	-1.07e-06* 0.000	1.42e-06** 0.000	-1.59e-06** 0.000	9.02E-07 0.000	-1.29E-06 0.000	1.27E-06 0.000	-1.70E-07 0.000	4.96E-07 0.000
<i>ROE_per</i>	1.02E-07 0.000	1.03e-06*** 0.000	-2.16E-07 0.000	1.13e-06** 0.000	-1.15E-07 0.000	1.27e-06** 0.000	5.37E-08 0.000	9.17e-07* 0.000	1.23e-06* 0.000
<i>OP. PROFIT MARGIN</i>	9.14E-08 0.000	-1.85e-06*** 0.000	-7.95e-07** 0.000	-1.76e-06*** 0.000	-7.03e-07* 0.000	-1.93e-06*** 0.000	-2.45E-07 0.000	-2.56e-06*** 0.000	-2.27e-06*** 0.000
<i>LEV_PER</i>	-0.0000117 0.000	-0.00014*** 0.000	-1.80E-06 0.000	-0.0001516*** 0.000	-0.0000135 0.000	-0.0001489** 0.000	-0.0002777*** 0.000	-0.0001534** 0.000	-0.000415*** 0.000
<i>DY_PER</i>	.0235503*** -0.004	-0.0070349* -0.003	.0138079*** -0.003	.0165154*** -0.005	.0373582*** -0.005	.0098764* -0.005	.0516192*** -0.005	.0303233*** -0.005	.0379454*** -0.006
<i>EPS</i>	-0.0001807 0.000	-0.0002778** 0.000	-0.0001692 0.000	-0.0004585*** 0.000	-0.00035** 0.000	-0.0004708*** 0.000	-0.0000418 0.000	-0.0006277*** 0.000	-0.0003319* 0.000
<i>MTBV</i>	-0.0004238*** 0.000	-0.0001289 0.000	-0.0001259 0.000	-0.0005527*** 0.000	-0.0005497*** 0.000	-0.0007931*** 0.000	-0.0002581 0.000	-0.0006786*** 0.000	-0.0006274*** 0.000
<i>TOP10</i>	-0.0011379*** 0.000	-0.0011111*** 0.000	-0.0016802*** 0.000	-0.002249*** 0.000	-0.002818*** 0.000	-0.002057*** 0.000	-0.0035358*** 0.000	-0.0039291*** 0.000	-0.0044549*** 0.000
<i>pos_past_ind</i>	7.719643* -3.319	1.710944 -3.208	6.616933* -3.196	9.430587* -4.158	14.33658*** -4.163	4.821447 -4.617	11.57019* -4.666	16.04752*** -4.816	8.671994 -5.447
<i>pos_pres_ind</i>	1.063441 -1.400	0.8551211 -1.353	-3.641491** -1.348	1.918562 -1.754	-2.57805 -1.756	3.702713 -1.948	0.6851254 -1.968	-1.722929 -2.031	3.324397 -2.297
<i>pos_fut_ind</i>	-20.63536** -6.329	-7.849478 -6.116	15.78395** -6.094	-28.48484*** -7.929	-4.851407 -7.939	-27.69389** -8.805	-12.42835 -8.897	-12.70089 -9.184	-19.48687 -10.386
<i>neg_past_ind</i>	-0.5479088 -1.838	2.291509 -1.777	-5.77154** -1.77	1.7436 -2.303	-6.319449** -2.306	5.546838* -2.558	-9.091698*** -2.585	-4.02794 -2.668	-2.996952 -3.017
<i>neg_pres_ind</i>	-2.221941** -0.692	-1.598526* -0.668	-0.8583791 -0.666	-3.820466*** -0.867	-3.08032*** -0.868	-3.823358*** -0.962	-4.318774*** -0.972	-4.678845*** -1.004	-5.920192*** -1.135
<i>neg_fut_ind</i>	-9.063196* 12.54936***	12.54936*** -4.457717	-4.457717 3.486165	3.486165 -13.52091**	-13.52091** 3.536885	3.536885 -14.77583**	-14.77583** -0.9715525	-0.9715525 -2.175746	-2.175746

	-3.916	-3.785	-3.771	-4.906	-4.912	-5.448	-5.505	-5.682	-6.427
<i>constant</i>	.0025057***	.0020299***	.0009649*	.0045356***	.0034706***	.0042978***	.003714***	.0055006***	.0055061***
	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
<i>R-sqr</i>	0.002	0.002	0.002	0.003	0.004	0.003	0.006	0.005	0.006
<i>dfres</i>	60790	60790	60790	60790	60790	60790	60790	60790	60790
<i>BIC</i>	-235599.2	-239746.2	-240196.9	-208179.2	-208031	-195439	-194170.7	-190319.9	-175350.9

	<i>CAR(-3,3)</i>	<i>CAR(-4,4)</i>	<i>CAR(-5,5)</i>	<i>CAR(-6,6)</i>	<i>CAR(-7,7)</i>	<i>CAR(-8,8)</i>	<i>CAR(-9,9)</i>	<i>CAR(-10,10)</i>
<i>Lenght</i>	-2.33E-07	-9.45E-07	-6.31E-07	-2.65e-06*	-2.96e-06*	-2.82e-06*	-3.45e-06**	-2.39E-06
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>ROE_per</i>	2.16e-06***	2.80e-06***	3.12e-06***	3.67e-06***	3.78e-06***	4.28e-06***	4.24e-06***	4.37e-06***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>OP. PROFIT MARGIN</i>	-2.67e-06***	-4.49e-06***	-3.80e-06***	-5.40e-06***	-6.24e-06***	-6.07e-06***	-7.08e-06***	-8.13e-06***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>LEV_PER</i>	-.0008501***	-.00143***	-.0013306***	-.0014789***	-.001428***	-.0015291***	-.0016799***	-.0017142***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>DY_PER</i>	.0414357***	.0311448***	.0478079***	.0301822***	.0486598***	.0372609***	.0595732***	.0653556***
	-0.007	-0.008	-0.008	-0.008	-0.009	-0.009	-0.009	-0.010
<i>EPS</i>	-0.0003036	-.0004863*	-0.0003851	-0.0001796	-0.0003488	-0.0002209	-0.0003701	-0.0004814
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>MTBV</i>	-.0008714***	-.001154***	-.0010978***	-.0010167***	-.0007961**	-.0013061***	-.0012857***	-.0015301***
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>TOP10</i>	-.0065246***	-.0082389***	-.0085975***	-.0092998***	-.0102054***	-.0101118***	-.0109808***	-.0116111***
	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
<i>pos_past_ind</i>	12.54268*	8.995538	12.89415	12.67648	11.88589	12.76189	19.59513*	14.7487
	-6.040	-7.261	-7.230	-7.639	-8.070	-8.346	-8.705	-8.915
<i>pos_pres_ind</i>	2.583981	2.860458	1.595219	3.286794	3.495539	0.1020967	-2.735347	0.924321
	-2.548	-3.063	-3.050	-3.222	-3.404	-3.521	-3.672	-3.760
<i>pos_fut_ind</i>	-5.821482	8.247647	13.30758	4.332116	2.705281	1.70078	23.57734	19.15561

	-11.518	-13.846	-13.787	-14.566	-15.388	-15.916	-16.599	-17.000
<i>neg_past_ind</i>	-12.33831***	-27.05363***	-19.68909***	-27.94356***	-25.87726***	-30.85381***	-28.39831***	-32.01391***
	-3.346	-4.022	-4.005	-4.231	-4.470	-4.624	-4.822	-4.938
<i>neg_pres_ind</i>	-3.895302**	-4.51114**	-5.349948***	-3.33238*	-4.790687**	-3.534669*	-3.721869*	-3.1562
	-1.259	-1.513	-1.507	-1.592	-1.682	-1.739	-1.814	-1.858
<i>neg_fut_ind</i>	-0.9709796	14.32713	17.2419*	15.20723	19.56703*	15.96006	11.62738	10.01019
	-7.127	-8.567	-8.531	-9.013	-9.522	-9.848	-10.271	-10.519
<i>constant</i>	.0076839***	.0128725***	.0111991***	.0131822***	.0123365***	.0138698***	.0140138***	.0148938***
	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
<i>R-sqr</i>	0.01	0.015	0.014	0.016	0.015	0.015	0.017	0.018
<i>dfres</i>	60790	60790	60790	60790	60790	60790	60790	60790
<i>BIC</i>	-162773.8	-140392.2	-140912.4	-134222.7	-127547.9	-123445.3	-118332.7	-115433.3

It shows the U.S. stock market and recessions going all the way back to 1871. Over the last 147 years, recessions are a fairly regular occurrence, but since 1950 the country has only been in recession 15% of the time. The arrogant academics running the Federal Reserve believe they can manipulate the levers of monetary policy to control the direction of the economy. An academic, or a bubble-headed financial news network spokes-model can't see recession and stock market crash dead ahead. The masses are about to find out again you can't spend your way out of a recession or borrow your way out of debt. Economic history is littered with the bodies of those who declared this time was different. One is the stock market, where fortunes can be won by exploiting an arbitrage opportunity an instant before your competitors. Some financiers recently calculated it was worth spending \$300m (£247m) drilling through mountains between Chicago and New York to lay fibre-optic cables in a slightly straighter line. That sped up communication between the two cities' exchanges by three milliseconds. The accurate keeping of universally accepted time also underpins computing and communications networks. But perhaps the most significant impact of the atomic clock - as in the past with ships and trains - Several leading stock market indexes around the globe endured bear market declines in 2018. In the U.S. in December, the small cap Russell 2000 Index (RUT) bottomed out 27.2% below its prior high. The widely-followed U.S. large cap barometer, the S&P 500 Index (SPX), just missed entering bear market territory, halting its decline 19.8% below its high. Tick tock goes the clock, counting down to a 2019 recession. The U.S. private sector added 129,000 jobs in March, the weakest reading in 18 months and below consensus expectations of 165,000, according to an Econoday economists survey. The report is watched for clues to official labor data due Friday. As such its stock price tends to be more volatile than average, with the price going up and down each week more based on sentiment than actual change in cash flows. One of the benefits of continuing to follow a particular stock closely in Cash Flow Kingdom chat and exclusive articles, is you are prepared and able to take advantage of such opportunities as they occur. Our opinion on Archrock has not changed any. On a much longer scale than your tick tock clock is the European commission's proposal to end utilizing all fossil fuels including NG by 2050, where they envision wind, solar and other, intermittent "renewable" energy sources to produce hydrogen gas by electrolysis when there is excess electricity, and store the H2 gas for electricity generation when intermittent sources fall short.