

# The impact of corporate governance press news on stock market returns

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## Abstract

Mass media has a significant impact on financial markets since news can contribute to the formation of investor expectations. Our paper analysed the relationship between the ways of communication of governance news and the investors' behaviour by analysing a large sample of corporate governance news published for the period 2003-2007. Our findings show that stock returns are influenced by the semantic content of corporate governance news, company performance and health and by the interaction of these variables.

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Keywords: Corporate governance; shareholder value; event study; text analysis

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## 1. Introduction

Mass media has a significant impact on financial markets since news can contribute to the formation of the expectations of investors and, more generally, to the improvement of market information efficiency. Previous studies combine the value, positive or negative, of news relating firms to volume of trading and to performance and price volatility of their shares (Tetlock, Saar-Tsechansky, Mackassy, 2008; Tetlock, 2007; Antweiler, Frank, 2004; Coval, Shumway, 2001).

In recent years, several factors have contributed to raise the debate on corporate governance, to which mass media has given increasing importance. It is a widespread belief that good governance contributes to increase the reliability, transparency and integrity of corporate events resulting in a most valuable company, in a lower cost of capital and a higher competitiveness (Carretta, Farina, Schwizer, 2007). It is also possible to assume that the news on corporate governance provided by mass media (the so-called “communicated governance”) could play a role in the investment selection process, affecting the sentiment of investors. In theory, governance news contribute to minimizing the costs of monitoring the work of management by shareholders and / or the legitimacy of firms as a result of the compliance with commonly accepted standards for good governance (Fiordelisi and Molyneux, 2009).

When speaking of governance news it is necessary to distinguish between “which” information they provide and “how” they are communicated. The relationship between governance and mass media has so far been treated only marginally in literature and always in relation to the content of information, such as ignoring the role of channels and modes of communication (Dyck, Volchkova, Zingales, 2006; Ellstrand, Dalton and Dalton, 2005). This work will permit an evolution of this field of study, allowing an enrichment both in their content and in the instruments used, through the objective to verify the impact of the content and the ways of communication of governance news on the performance of listed firms.

Our paper aims to analyse the relationship between the ways of communication of governance news and the investors behaviour by analysing a large sample of corporate governance news published in the period 2003-2007 within “Il Sole 24 Ore” (which the most renowned Italian economic newspaper with a market share of 59%<sup>1</sup> in terms of sold copies among Italian economic newspapers), between 2003 and 2007.

The contribution of our paper is manifold: first, our analysis account for the possibility (hitherto neglected by other studies) that the investors behaviour is influenced both by the value of the news (i.e positive vs. negative) and the exposition tone (i.e. dramatized vs. soft). Second, we consider both the semantic content of corporate governance news, the corporate economic and financial situations and their jointly influence: investors behaviour is certainly influenced by the company performance and its soundness (e.g. company stock return is likely to be influenced if a not income, operating efficiency, etc), the semantic contents of the news (e.g. company stock return is likely to be influenced if a CEO member resigns) and by the interaction of both factors (e.g. investors react to the CEO member leave differently if the company is healthy or

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<sup>1</sup> Source: <http://www.m-dis.it/>

unsound). Third, our analysis of corporate governance news is based on a “naïve” classification of corporate governance news (i.e. news related to changes in the board of directors, to the board of directors functioning, to company ownership and other news). In order to use measures not affected by “subjectivity” and hence obtain accurate estimates of a very large number of news, we also apply the text analysis techniques to measure both the value (i.e. the semantic news meaning) and the expositive tone (i.e. the strength exhibition of language in the news).

This paper is structured as follows: we review the related literature (section 2), outline the methodology (section 3), describe our sample (section 4) and present the results (section 5).

## **2. Theory and hypothesis**

Corporate governance is a matter of great importance since the interest of academics, operators and mass media has gradually increased over time. Recently, empirical studies have been conducted in order to verify whether good governance practices can help to improve financial performance and market value of firms (El Mir, Seboui, 2008; Lehn, Patra, Zhao, 2007; Tam, Tan, 2007; Blace, Jang, Kim, 2006; Cremers, Nair, 2005; Durnev, Kim, 2005; Bebchuk, Cohen, Ferrell, 2004; Bauer, Günster, Otten, 2004; Drobetz, Shillhofer, Zimmermann, 2003, Gompers, Ishii, Metrick, 2003) or to reduce the cost of capital (Klock, Mansi, Maxwell, 2005;).

Several factors (such as corporate scandals, regulatory reforms, etc.) have contributed in recent years to turn and raise the debate on corporate governance, to which mass media has given increasing importance. In this regard, it seems reasonable to assume that news on corporate governance provided by mass media (the so-called “communicated governance”) could play a role in the selection process of investment, affecting the sentiment of investors.

According to Deephouse (2000), mass media plays two functions in financial markets: i) “information broker” by simply spreading information “passively”; ii) “active participant”, whose comments allow players operating in markets to better assess their investment choices (Hayward, Rindova, Pollock, 2004; Pollock, Rindova, 2003). In general, dissemination of news by mass media can be seen as a mechanism aimed to improve market informative efficiency. More specifically, Rindova, Pollock and Hayward (2006) show that mass media, with positive and negative comments, has a primary role for the construction of corporate reputation.

Bagnoli, Beneish and Watts (1999) argue that the predictive ability of whisper forecasts is greater than analysts forecasts. That predictive ability has been subsequently disproved by investigations of Tumarkin and Whitelaw (2001). Wysocki (1998) has verified the existence of a link between the changes in the number of posts appeared in internet regarding some firms and subsequent changes in yields and volumes of trading of shares. The relationship between quantity of news and volume of trading was confirmed by Coval and Shumway (2001) and Antweiler and Frank (2004), who have

also demonstrated the existence of a statistically significant relationship between abundance of information and price volatility.

Regarding the influence that the press can have on the choices of investors, Tetlok, Saar-Tsechansky and Mackassy (2008) and Tetlock (2007) have examined the link between corporate news appeared in the Wall Street Journal and firms' market value. In detail, these studies have identified the existence of a statistically significant relationship between the value (positive or negative) of news about firms and the volume of trading, the yield and price volatility of their shares.

For corporate governance news, the same considerations made for the broader category of corporate news are true. Furthermore, the impact of governance news can be explained at the light of the agency theory (Jensen, Meckling, 1976; Fama, Jensen, 1983) and of the theory of social constructivism (Johnson, Ellstrand, Dalton, Dalton, 2005; Pollock, Rindova, 2003; Deephouse, 2000).

Agency theory on the conflict of interest between principal and agent, attributes to governance bodies the responsibility for monitoring the actions of management in order to prevent opportunistic behaviours that could damage stakeholders' interests. Monitoring, however, is conditioned by the presence of information asymmetry between ownership and management (Holmstrom 1999; Wisdom, Gupta, 1994; Milgrom, Roberts, 1992). Governance news would mitigate the effect of information asymmetry, helping to inform investors on the behaviour of managers and to disclose problems within control mechanisms, with positive effects on control costs. Moreover, according to the theory of social constructivism, mass media can contribute to the legitimacy of firms' governance following comments based on the comparison with standards commonly considered "good governance".

Ultimately, the widespread of governance news contributes, according to agency theory, to minimize the agency costs and, in light of the theory of social constructivism, to the legitimacy of firms as a result of compliance with commonly accepted standards for good governance.

Various empirical studies have been undertaken to investigate this issue. Dyck, Volchkova and Zingales (2006) show that news about governance abuses increase the pressure from investors and supervisory authorities and decrease the likelihood of further violations. Johnson, Ellstrand, Dalton and Dalton (2005), however, through the technique of event study, analyzed the impact of news publication in the magazine Business Week rating on the boards of several companies on returns of their shares. In an observation period ranging from 6 days prior to 9 days following, the publication of a favorable rating has positive impact (but significant only within 2 days after) on the performance of the shares. The same authors also observed a mildly positive impact of unfavourable rating on returns before and after the event, considering this an issue worthy of further investigations. Literature provides important evidences that news can influence the behaviour of investors, then reflected on the price of the shares as well as volumes of trading. However no evidences exist on "how" content and ways of communication of corporate news influence investor behaviour. In the context of cognitive studies (Baumeister, Bratslavsky, Finkenauer, Vohs, 2001; Rozin, Royzman 2001; Fisk, Taylor, 1991; Brief, Motowidlo, 1986) it is proved that positive and

negative news have a different impact on people perception since negative news could have a different and more significant impact on individuals than positive ones. As evidence of this, Tetlock, Saar-Tsechansky and Mackassy (2008) found that variations in the indicators of profitability and efficiency of market operations are function of the percentage of negative words in the news. Moreover some news could have effects in a relatively short period and other news could have effects in the medium and long term (such as news regarding core aspects of firm management).

Regarding the ways of communication, the emotion aroused by news is likely to influence individuals' behaviour (Reeve, 1992). Shoemaker and Reese (1996) argue that newspapers generally tend to put emphasis in the news in order to make them more "engaging" to the public. As a consequence, journalists may tend to "dramatize" news to make their articles most interesting so that they can maximize their impact by making the individuals more attached to their writing style (Damton, 1975). This news' dramatization increases the individuals' involvement and provides more credit to the content of items (Gibson, Zillmann, 1994).

### **3. Methodology**

This section describes the research methods used in the paper. First, we outline the text analysis methodology used to analyse the information contents of corporate governance news (sections 3.1), we describe our event study employed to assess the new impact on stock market returns and, finally, we present our econometric model to investigate the link between corporate news and stock market returns.

#### **3.1. Text analysis**

Text analysis methodology (Stone, Dunphy, Smith, Ogilvie, 1966), engaged through the use of the software Wordsmith 4 (Scott, 1999) of Oxford University, is instrumental in achieving the objective of this work. This technique is justified by the need to provide measures not affected by subjectivity of opinion and hence by the possibility of obtaining more accurate classifications on a very large number of news.

We apply text analysis techniques to assess the value (positive/negative) and the expositive tone (high/low) of corporate governance news by using the vocabulary Harvard IV Psycho - Social (Kelly, Stone, 1975). Namely, these two items are estimated as follows (Osgood, Suci, Tannenbaum, 1957): 1) value is defined as the degree with which news have a positive or negative meaning. The value of 1 means that corporate governance news have the highest positive value and the value -1 refers to the higher negative value; 2) expositive tone is defined as the degree with which news express their meaning in a strong or weak manner. The value of 1 means that corporate governance news have the strongest expositive tone, while the value -1 refers to the lowest expositive tone. Scales are a way to deal with the content of some news on the basis of the terms contained in it: value allows us to express the degree with which news are positive or negative; power, instead, refers to the strength of the expositive tone of

news. The representation of the importance of the scales within the news is based on a formula like this:  $(X - Y) / (X + Y)$  where  $X$  and  $Y$  are the number of terms contained in the dichotomous scale. The way to determine the value of news is this:  $(P - N) / (P + N)$  where  $N$  and  $P$  are respectively the number of positive and negative words in news, according to the classification given by the vocabulary Harvard IV Psycho - Social. The value is obtained is comprised between -1 (completely negative news) and 1 (completely positive news). Similarly, the way to determine the strength of the expositive tone of news is this:  $(S - W) / (S + W)$  where  $S$  and  $W$  are respectively the number of words contained in the news that express strength or weakness, according to the classification given by the vocabulary Harvard IV Psycho - Social. The value is obtained in this way is comprised between -1 (low strength) and 1 (high strength exhibition).

### 3.2. Event study

We use an *event* methodology to analyse if the stock returns of companies interested by corporate governance news display abnormal returns around the news date ( $t$ ). Using the Capital Asset Pricing Model framework, we estimated the expected return ( $R_{jt}$ ) of company  $j$  at time  $t$  as:

$$R_{jt} = \alpha_j + \beta_j RM_t + \varepsilon_{jt} \quad (1)$$

where  $R_{jt} = \text{Log}[(P_t + D_t) / P_{t-1}]$ ,  $P_t$  and  $D_t$  are the market price and the daily flow dividend, respectively;  $RM_t$  is the rate of return of the domestic market for that sector in which pertains to the target bank/bidder on day  $t$ , i.e.  $RM_t = \text{Log}[(I_t / I_{t-1})]$ ,  $I_t$  is the value of the market index at time  $t$  and  $\varepsilon_{jt}$  is the error term. The time span considered in estimating the market parameters  $\alpha_j$  and  $\beta_j$  are based on one year and the expected rate of return is estimated as:

$$\hat{R}_{jt} = \hat{\alpha}_j + \hat{\beta}_j RM_t \quad (2)$$

We define the event windows (i.e. a time period of  $-t$  days before and  $+t$  days after the news announcement date) of different sizes: from 41 days (-20, +20) to zero (i.e. a calculation carried out for a single publishing day).

Following the standard procedure (e.g. Fiordelisi, 2009, Ismail and Davidson 2005)<sup>2</sup>, we calculate the AR on stock  $j$  on day  $t$ , the average CAR and its variance for the event period  $[\tau_1, \tau_2]$  as follows:

$$AR_{jt} = R_{jt} - \hat{R}_{jt} = R_{jt} - \hat{\alpha}_j - \hat{\beta}_j RM_t \quad (3)$$

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<sup>2</sup> This procedure was originally developed by Scholes (1977), Dodd and Warner (1983) and Brown and Warner (1980 and 1985).

$$\overline{\text{CAR}}(\tau_1, \tau_2) = \frac{1}{n} \sum_{j=1}^n \text{CAR}_j(\tau_1, \tau_2) \quad (4)$$

$$\text{Var}[\overline{\text{CAR}}(\tau_1, \tau_2)] = \frac{1}{n^2} \sum_{j=1}^n \hat{\sigma}_j^2(\tau_1, \tau_2) \quad (5)$$

Where:

$$\hat{\sigma}_j^2(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1) \hat{\sigma}_{\epsilon_j}^2 \quad (6)$$

Under the null hypothesis of no market impact, we can draw inferences on  $\overline{\text{CAR}}$ , utilizing the following standard Z-score statistic:

$$Z = \frac{\overline{\text{CAR}}(\tau_1, \tau_2)}{\text{Var}[\overline{\text{CAR}}(\tau_1, \tau_2)]^{1/2}} \approx N(0,1) \quad (7)$$

Following Cummins and Weiss (2004), we applied the procedure of Standardized Cross Sectional to reflect the independence among the securities and to adjust for the estimation of the variance. This procedure assures that the security of no single company in the sample dominates the results of the analysis and helps improve the power of the test statistics. The SCAR, the average SCAR, the adjusted variance and the new Z test statistic are estimated as:

$$\text{SCAR}_j(\tau_1, \tau_2) = \frac{\text{CAR}_j}{\hat{\sigma}_i^2(\tau_1, \tau_2)} \quad (9)$$

$$\overline{\text{SCAR}}(\tau_1, \tau_2) = \frac{1}{n} \sum_{j=1}^n \text{SCAR}_j(\tau_1, \tau_2) \quad (10)$$

$$\text{Var}[\overline{\text{SCAR}}(\tau_1, \tau_2)] = \frac{1}{n^2} \sum_{j=1}^n \left[ \text{SCAR}_j(\tau_1, \tau_2) - \overline{\text{SCAR}}(\tau_1, \tau_2) \right]^2 \quad (11)$$

$$Z = \frac{\overline{\text{SCAR}}(\tau_1, \tau_2)}{\text{VAR}[\overline{\text{SCAR}}(\tau_1, \tau_2)]^{1/2}} \quad (12)$$

### 3.3. Econometric model

We specify linear models to investigate the relationships between stock returns and variable related to corporate governance news, following established literature (Agrawal and Knoeber 1996, Baliga, Moyer and Rao 1996, Core, Holthausen and Larcker 1999, Fiordelisi 2007).

$$\begin{aligned}
CAR_{i,t} = & a_0 + a_1 VAL_{i,t} + a_2 ET_{i,t} + a_3 NCB_{i,t} + a_4 NCF_{i,t} + a_5 NO_{i,t} + a_6 TAX_{i,t} + & (13) \\
& + a_7 EXT_{i,t} + a_8 OPR_{i,t} + a_9 OPC_{i,t} + a_{10} LEV_{i,t} + a_{11} R_{12i,t} + a_{12} OLD_{i,t} \\
& + a_{13} \ln(TA_{i,t}) + a_{14} (R_{12} * VAL_{i,t}) + a_{15} (R_{12} * ET_{i,t}) + a_{16} (R_{12} * NCB_{i,t}) + \\
& + a_{17} (R_{12} * NCF_{i,t}) + a_{18} (R_{12} * NO_{i,t}) + a_{19} D_1 + a_{20} D_2 + a_{21} D_3 + a_{22} D_4 + \varepsilon_{i,t}
\end{aligned}$$

where  $i$  subscript denotes the cross-section dimension,  $t$  denotes the time dimension, CAR is the abnormal cumulative return, VAL is the degree with which news have a positive or negative meaning, ET is the degree with which news express their meaning in a strong or weak manner, NCB is a dummy variable (i.e. 1 if the news is related to changes in board of directors, 0 otherwise), NBF is a dummy variable (i.e. 1 if the news is related to the board of directors functioning, 0 otherwise), NO is a dummy variable (i.e. 1 if the news is related to the company ownership, 0 otherwise), TAX is the between company net profit and pre-tax profits, EXTR is the ratio between company pre-tax profits and operating profits, OPR is the ratio between company operating revenues and total assets, OPC is the ratio between company operating costs and total assets, LEV is the ratio between total assets and total equity,  $R_{12mont}$  is the company stock return over the 12 months before the news, OLD is the number of past corporate governance news published over the last 12 months,  $D_i$  ( $i=1,2,3,4$ ) are dummy variables for the year<sup>3</sup>, and  $\varepsilon_{i,t}$  is the random error term.

We consider three groups of variables as covariates (table 1). The first relates to variables dealing with corporate governance: first, we consider dummy variables capturing the “type” of news (namely, news related to changes in board of directors, news related to board of directors functioning; news related to company ownership and other governance news<sup>4</sup>). We also consider two variables estimated using the text analysing referring to the value and the expositive tone of the news.

< INSERT TABLE 1 >

The second group of covariates refers to company’s performance. Namely, CARs are likely to be influenced by company’s performance: rather than using a single performance indicator (e.g. the Return on Equity), we include various variables to account for possible managerial factors influencing performance obtained by the following the Dupont’s five-part ROE decomposition<sup>5</sup>:

<sup>3</sup> We consider four dummy variable for a 5 year period (i.e. 2002 is not included) to avoid multicollinearity problems.

<sup>4</sup> This latter dummy variable is not included to avoid multicollinearity problems.

<sup>5</sup> Since our sample comprises both financial and non-financial companies, the ROE decomposition used is slightly different from the original one in order to keep consistency in the analysis among different companies.



$$ROE_{i,t} = \frac{NP_{i,t}}{PTP_{i,t}} \times \frac{PTP_{i,t}}{OP_{i,t}} \times \left( \frac{OR_{i,t}}{A_{i,t}} - \frac{OC_{i,t}}{A_{i,t}} \right) \times \frac{A_{i,t}}{E_{i,t}} \quad (14)$$

where NP is net profit, PTP is pre-tax profits, OP is operating profits, OR is the total operating revenues, OC is the total operating costs, A is total assets and E is the total equity capital. As a consequence, the first ratio on the right side ratio (NP/PTP)

The third group of covariates are cross-variables obtained by multiplying corporate governance variables and performance variables. These variable recognise that the impact of corporate governance news on stock returns is not simply due to their type or semantic meaning, but also consider the “economic” situation of the company and the interaction among these variables. Namely, company stock return is likely to be influenced by corporate performance and healthy (e.g. profits, operating efficiency, etc), by the semantic news contents (e.g. company stock return is likely to be influenced if a CEO member resigns) and also by the interaction of both factors (e.g. investors react to the CEO member leave differently if the company is healthy or unsound).

#### 4 Data description

Our sample includes corporate governance news topics of listed companies in the Italian Stock Exchange market and published within “Il Sole 24 Ore” between 2003 and 2007. All news of “Il Sole 24 Ore” were extracted from the database Factiva, which provides access to more than 10,000 sources from newspapers, magazines, news agencies and information sites. In order to reduce the margins of subjectivity in choosing the news, and then make replicable results, our classification of news replicates the Factiva one. For the purpose this paper, governance news are considered all those falling in sub-categories “Changes in Management” and “Corporate Governance / Investor Relations” within the broader category “Corporate and Industrial News” of Factiva.

Regarding the event study analysis, for each news, we calculate the daily return series of the company involved: stock market information were obtained from Datastream database. In order to calculate the company expected return, we used the following nine industry-benchmark indices: DJTM Italy, DJTM Italy Automobiles, DJTM Italy Banks, DJTM Italy Electricity, DJTM Italy Insurance, DJTM Italy Industrials, DJTM Italy Media, DJTM Italy Technology, DJTM Italy Telecom, DJTM Italy Utilities.

Regarding the company financial ratios, data have been obtained by Aida and Bankscope databases. Since values come from different data sources, we take into consideration differences due to different accounting principles (namely, from GAAP to IFRS) during the period analysed.

Table 2 reports some descriptive statistics for variable considered in the analysis. ROE displays a negative mean value during that period analysed ranging from 23.8% (Mediaset in 2007) and -179.5% (Alitalia in 2004). High standard deviations levels of

tax and extraordinary items influence on performance (TAX and EXT, respectively) are consistent with substantial accounting actions and extraordinary operations made by Italian companies to smooth overtime profits and losses. Revenues ability and operating efficiency denote the ability of firms to generate value from their operating activities: in particular both ratios show similar values in term of mean (0.343 the former and 0.328 the latter) and standard deviations (38.5% and 39.3%). Finally data regarding the financial leverage confirm one of the main characteristics of Italian company: firms' undercapitalization. Its mean is extremely high (over than 8.6), which means that on average total assets are more than eight times the amount of the equity. The highest level belongs to Generali, that in 2007 had a financial leverage equal to 20,26; on the other side, again in 2007, Fmr-Art'è shows the lowest level among all companies during that period. Corporate governance news have usually a positive value and written with strong expositive tones (i.e. the mean ET value is equal to 0.82).

< INSERT TABLE 2 >

Table 3 summarises corporate governance news according to the "type" of news by distinguishing news related to changes in the board of directors (NCB), news related to the board of director functioning (NBF), news related to ownership (NO) and other corporate governance news (OCG). The number of news related corporate governance has shown a strong upward trend during last five years: the proportional increase is more than 400%, with a total number of news in 2007 close to 90. During the same period, changes in board news have represented the main topic, with more than half of news talking about that. Starting from 2006, corporate governance matters have become critical subjects also in Italians mass media; in fact, not only news related to changes in board have been published but also ownership and board functioning subjects have taken space in newspapers.

< INSERT TABLE 3 >

## 5. Results

Table 4 displays the event study results obtained analyzing 213 corporate governance news for Italian listed companies published between 2003 and 2007. The percentage of positive CARs ranges between 40% and 60% showing substantial differences about stock return reactions to the news. The results heterogeneity is consistent with the heterogeneity of corporate news included in the sample. Focussing on symmetric event windows, mean CARs vary from 0.5% [in the event window (-3,3)] and 1.5% [in the event window (-20,20)] and all results are statistically significant with the 10% confidence level or less. The percentage of positive CARs increases as the even windows length increase ranging from 52.1% [in the event window (-3,3)] and 57.1% [in the event window (-20,20)]. In order to assess if investors are able to anticipate news, we also select two set of event windows, one preceding and the other following the news publishing date [respectively, (-20,-1), (-10,-1), (-5,-1), (-3,-1) and (0,20), (0,10), (0,5), (0,3), (0,1)]. On average, we find positive CARs both before and after the

news publishing date and results obtained are statistically significant at the 10% confidence level or less. The percentage of CARs immediately after the news publishing date is lower than 50%, while this percentage increases above 50% after 10 days from the news publication. Despite all mean CARs estimates are positive (for all event windows analysed), we cannot conclude that corporate governance news have a positive impact on companies stock returns. There is a substantial heterogeneity of CAR estimates (e.g. in some event windows, the number of positive and negative CARs is exactly equal) so that it is not possible to take cautious conclusions about the impact of corporate governance news.

< INSERT TABLE 4 >

In order to assess the stock market reaction due to the semantic contents of news, corporate performance and their interactions, table 5 reports results for our econometric model (1). First, we observe that the Ramsey Reset test shows that, in most cases, it is possible to reject the null hypothesis (at the 10% confidence level or less) that our models have no omitted variables: although unpleasing, these results are largely expected since our aim is to assess the link between corporate governance news and stock returns rather than to use an efficient forecasting method. As a consequence, it is not surprising that the explanatory power of models ranges between 10.4% and 32.2%. In addition, the White's test and the Breusch-Pagan/Cook-Weisberg test results display that there are heteroskedasticity problems in few models: as a consequence, reported standard errors and hypothesis tests are based on White variance estimator to account for these problems.

< INSERT TABLE 5 >

Focusing on symmetric event windows, CARs display a positive and statistically significant (at the 10% confidence level or less) relationship with NO, OPC and  $ET \cdot R_{12}$ , while it is usually estimated a negative and statistically significant link with TAX, OPR,  $R_{12}$ ,  $NBC \cdot R_{12}$ , and  $NO \cdot R_{12}$ . These results are consistent with the view that stock returns tend to increase around ownership news if the company was not profitable over the past 12 months (i.e.  $R_{12} < 0$ ), otherwise the overall effect on stock returns is substantially negative (i.e. investors dislike ownership related news for profitable companies so that they tend to sell their stocks). Our results also suggest that the value and expositive tone (stand-alone) of corporate governance news are not statistically significant related to CARs, but the expositive tone for profitable companies (i.e.  $R_{12} > 0$ ) has a positive influence on CARs: this is consistent with the view that investors are influenced by the expositive tone of news related to profitable companies and tend to buy their stocks). The negative link between CARs and  $NBC \cdot R_{12}$  display that stock returns are negatively linked with news related to change in the board of directors for profitable companies (i.e.  $R_{12} > 0$ ), but not in case on non-profitable companies. Overall, these results provide evidence that corporate governance news have a statistical significant link with company stock returns and the accurate assessment of these links require accounting for the company performance and soundness since investors seem to react differently to the news. Overall, a naïve classification of corporate governance news seems to be quite effective (even if subjective) and the text analysis of news

shows the importance of their exposition tone (although their values do not exhibit a statistically significant link with CARs).

In order to further confirm the aforementioned findings, we conducted a number of robustness checks by selecting different event windows before and after the publications news. Focussing on the event studies before the news publication date, results are strongly consistent with the abovementioned discussion, especially that stock returns tend to increase before the news publication if this is an ownership news and the company was not profitable over the past 12 months (i.e.  $R_{12} < 0$ ), otherwise the overall effect on stock returns is substantially negative (i.e. investors dislike “rumors” for ownership news for profitable companies so that they tend to sell their stocks). As expected, the news exposition tone is not statistical related to the CARs since the news is not yet published. As such, the text analysis do not enable us to generate variables with a statistically to CARS prior to the news publication, while a naïve and subjective classification of news achieve this results. This suggests that investors are influenced by “rumors” about corporate governance news and (before the news publication) are simply able to assess the “type” of news (e.g. news related to ownership structure), while they are not able to accurately assess the value and exposition tone. Focussing on the event studies after the news publication date, results are quite consistent with the above presented ones. CARs display a positive and statistically significant (at the 10% confidence level or less) relationship with OPC and  $ET \cdot R_{12}$ , while it is usually estimated a negative and statistically significant link with OPR,  $R_{12}$  and  $VAL \cdot R_{12}$ . In these models, text analysis enables us to generate variables with a statistically to CARS, while a naïve and subjective classification of news do not achieve this results. This is consistent with the view that, after the news publications, investors’ behaviour is influenced by the value and the exposition tone of the news, while they are not anymore influenced by the “type” of news.

## 6 Conclusions

Mass media has a significant impact on financial markets since news can contribute to the formation of investor expectations Our paper analyses the relationship between the ways of communication of governance news and the investors behaviour by analysing a large sample of corporate governance news published for the period 2003-2007 within “Il Sole 24 Ore” between 2003 and 2007.

Our analysis accounts for the possibility that the investors behaviour is influenced both by the value of the news and the exposition tone. Both, semantic content of corporate governance news and corporate financial situation and their jointly influence have been considered in the empirical analysis. Our analysis is also based on a naïve and subjective classification of corporate governance news and on text analysis techniques to measure both their value and expositive tone.

Our results provide evidence that stock returns tend to increase around ownership news if the company was not profitable over the past 12 months (i.e.  $R_{12} < 0$ ), otherwise the overall effect on stock returns is substantially negative (i.e. investors dislike ownership

related news for profitable companies so that they tend to sell their stocks). Our results also suggest that the value and expositive tone (stand-alone) of corporate governance news are not statistically significant related to CARs, but the expositive tone for profitable companies (i.e.  $R_{12} > 0$ ) has a positive influence on CARs: this is consistent with the view that investors are influenced by the expositive tone of news related to profitable companies and tend to buy their stocks). The negative link between CARs and NBC\*  $R_{12}$  displays that stock returns are negatively linked with news related to change in the board of directors for profitable companies (i.e.  $R_{12} > 0$ ), but not in case on non-profitable companies.

Our paper also provides findings showing that investors are influenced by “rumors” about corporate governance news and (before the news publication) are simply able to assess the “type” of news, while they are not able to accurately assess the value and exposition tone. After the news publication, investors’ behaviour is influenced by the value and the exposition tone of the news, while they are not anymore influenced by the “type” of news.

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**Table 1 – Description of variables used to investigate the relationship between corporate governance news and stock return reactions**

<b>Stock market variables</b>		
<b>Variable</b>	<b>Symbol</b>	<b>Description</b>
CAR over the event window (20;20)	CAR(20;20)	CAR(20;20) is the cumulative abnormal return calculated between 20 days before the publishing of the news and after 20 days
CAR over the event window (10;10)	CAR(10;10)	CAR(10;10) is the cumulative abnormal return calculated between 10 days before the publishing of the news and after 10 days
CAR over the event window (5;5)	CAR(5;5)	CAR(5;5) is the cumulative abnormal return calculated between 5 days before the publishing of the news and after 5 days
CAR over the event window (3;3)	CAR(3;3)	CAR(3;3) is the cumulative abnormal return calculated between 3 days before the publishing of the news and after 3 days
CAR over the event window (20;1)	CAR(20;1)	CAR(20;1) is the cumulative abnormal return calculated between 20 days before the publishing of the news and after 1 days
CAR over the event window (10;1)	CAR(10;1)	CAR(10;1) is the cumulative abnormal return calculated between 10 days before the publishing of the news and after 1 days
CAR over the event window (5;1)	CAR(5;1)	CAR(5;1) is the cumulative abnormal return calculated between 5 days before the publishing of the news and after 1 days
CAR over the event window (3;1)	CAR(3;1)	CAR(3;1) is the cumulative abnormal return calculated between 3 days before the publishing of the news and after 1 days
CAR over the event window (0;20)	CAR(0;20)	CAR(0;20) is the cumulative abnormal return calculated between the publishing date of the news and 20 days later
CAR over the event window (0;10)	CAR(0;10)	CAR(0;10) is the cumulative abnormal return calculated between the publishing date of the news and 10 days later
CAR over the event window (0;5)	CAR(0;5)	CAR(0;5) is the cumulative abnormal return calculated between the publishing date of the news and 5 days later
CAR over the event window (0;3)	CAR(0;3)	CAR(0;3) is the cumulative abnormal return calculated between the publishing date of the news and 3 days later
CAR over the event window (0;1)	CAR(0;1)	CAR(0;1) is the cumulative abnormal return calculated between the publishing date of the news and 1 day later
<b>Corporate governance variables</b>		
<b>Variable</b>	<b>Symbol</b>	<b>Description</b>
Value	VAL	VAL refers to the degree with which news have a positive or negative meaning. The value of 1 means the corporate governance new has the highest positive value and the value -1 refers to the higher negative value;
Expositive tone	Expositive tone	ET refers to the degree with which news express their meaning in a strong or weak manner. The value of 1 means the corporate governance new has the strongest expositive tone, while the value -1 refers to the lowest expositive tone.
News related to changes in board of directors	NCB	NCB is a dummy variable, i.e. 1 if the news is related to changes in board of directors, 0 otherwise
News related to board of directors functioning	NBF	NBF is a dummy variable, i.e. 1 if the news is related to the board of directors functioning , 0 otherwise
News related to the company ownership	NO	NO is a dummy variable, i.e. 1 if the news is related to the company ownership, 0 otherwise
<b>Corporate performance variables</b>		
<b>Variable</b>	<b>Symbol</b>	<b>Description</b>
Tax impact	TAX	TAX is the between company net profit (NP) and pre-tax profits(PTP), i.e. TAX= NP/PTP. This ratio provides information about the tax influence on corporate profits
Extraordinary items	EXT	EXTR is the ratio between company pre-tax profits (PTP) and operating profits (OP), i.e EXT=PTP/OP. This ratio provides information about the extraordinary items influence on corporate profits
Revenue efficiency	OPR	OPR is the ratio between company operating revenues (OR) and total assets (A), i.e. OPR=OR/A. This ratio provides information about the company ability of generating operating revenues
Operating efficiency	OPC	OPC is the ratio between company operating costs (OC) and total assets (A) , i.e. OPC=OC/A. This ratio provides information about the company operating efficiency.
Financial leverage	LEV	LEV is the ratio between total assets (A) and total equity (E), i.e. LEV=A/E. This ratio provides information about the company operating efficiency.
Past stock return	R <sub>12mont</sub>	R <sub>12mont</sub> is the company stock return over the 12 months before the first day of the past event window around the announcement day (e.g. for the event window (-20,20), R12 is the stock return from -273 and -21 days from the publishing date (assuming that in the working years there are 252 observations).
Old news	OLD	OLD is the number of past corporate governance news published over the last 12 months

**Table 2 – Sample: descriptive statistic**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
CAR(20;20)	197	0.017	0.084	-0.230	0.377
CAR(10;10)	197	0.015	0.066	-0.262	0.217
CAR(5;5)	197	0.007	0.052	-0.319	0.219
CAR(3;3)	197	0.007	0.048	-0.148	0.261
CAR(20;1)	197	0.008	0.056	-0.189	0.251
CAR(10;1)	197	0.008	0.045	-0.159	0.191
CAR(5;1)	197	0.004	0.032	-0.153	0.193
CAR(3;1)	197	0.003	0.027	-0.133	0.191
CAR(0;20)	197	0.010	0.056	-0.174	0.253
CAR(0;10)	197	0.007	0.053	-0.254	0.361
CAR(0;5)	197	0.003	0.046	-0.270	0.295
CAR(0;3)	197	0.005	0.045	-0.109	0.394
CAR(0;1)	197	0.004	0.041	-0.142	0.408
ROE	193	-0.052	0,387	0,238	-1,795
VAL	193	0.466	0.438	-1.000	1.000
ET	193	0.824	0.198	0.000	1.000
TAX	197	0.709	0.745	-4.051	5.434
EXT	197	0.304	7.359	-71.682	3.638
OPR	197	0.344	0.386	-0.011	1.349
OPC	197	0.328	0.394	0.005	1.435
LEV	197	8.682	5.488	1.306	20.266
R <sub>12</sub>	197	0.052	0.252	-0.888	0.790
OLD	197	5.335	6.003	1.000	23.000

**Table 3 – Type of corporate governance news**

<b>Year</b>	<b>NCB</b>	<b>NBF</b>	<b>ON</b>	<b>OCN</b>	<b>Total</b>
2003	15	1	1		17
2004	22	1	2		25
2005	19	5	2		26
2006	21	6	10	4	41
2007	32	11	19	26	88
<b>Total</b>	<b>109</b>	<b>24</b>	<b>34</b>	<b>30</b>	<b>197</b>

Where:

NCB is the number of news related to changes in the board of directors, NCF is the number of news related to the board of director functioning, ON is the number of news related to ownership and OCN is the number of other corporate governance news .

**Table 4 – Results: Cumulative Abnormal Return around the publication date of corporate governance news for Italian listed companies between 2003 and 2007**

Event window	Mean CAR <sup>(b)</sup>	Standard deviation <sup>(b)</sup>	Z-test <sup>(c)</sup>	Positive CAR <sup>(b)</sup>
(-20;20)	1.519	8.543	1.609*	57.143
(-10;10)	1.339	6.499	2.724**	56.682
(-5;5)	0.547	5.194	1.810**	52.074
(-3;3)	0.577	4.796	2.667***	52.535
(-20;-1)	0.922	5.439	2.236**	56.221
(-10;-1)	0.819	4.476	3.569***	52.074
(-5;-1)	0.362	3.162	2.960***	51.152
(-3;-1)	0.298	2.768	3.257***	54.839
(0; 20)	1.105	5.471	2.463***	55.760
(0; 10)	0.504	5.150	1.995**	51.152
(0; 5)	0.175	4.441	1.014	42.857
(0; 3)	0.280	4.437	2.564***	41.935
(0; 1)	0.282	3.986	11.580***	45.161

<sup>(a)</sup> The table display the results of an event study analyzing the data of 213 corporate governance news between 2003 and 2007. The abnormal return has been calculated using OLS regression. The OLS parameters have been estimated during a period of 252 days in which the markets were open prior to the event window, maximum (-20, +20). As for market returns, the market sector index was applied. We applied the Standard Cross Sectional procedure to CAR. The statistical significance test is the one suggested in Dodd-Warner (1983)

<sup>(b)</sup> Value are in percentage.

<sup>(c)</sup> The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5% and 1% respectively.

**Table 5 – Results: the relationship between corporate governance news, corporate performance and cumulative abnormal returns for Italian listed companies between 2003 and 2007 (193 observations)**

	EVENT WINDOWS AROUND THE NEWS PUBLICATION DATE				EVENT WINDOWS BEFORE THE NEWS PUBLICATION DATE				EVENT WINDOWS AFTER THE NEWS PUBLICATION DATE				
	y=CAR(-20,20)	y=CAR(-10,10)	y=CAR(-5,5)	y=CAR(-3,3)	y=CAR(-20,1)	y=CAR(-10,1)	y=CAR(-5,1)	y=CAR(-3,1)	y=CAR(0,20)	y=CAR(0,10)	y=CAR(0,5)	y=CAR(0,3)	y=CAR(0,1)
Intercpet	-0.0465 (0.0941)	-0.0342 (0.0666)	-0.0572 (0.0495)	-0.0595 (0.0513)	-0.0406 (0.0585)	-0.0408 (0.0490)	-0.0523 (0.0343)	-0.0583** (0.0280)	-0.0588 (0.0537)	0.0063 (0.0637)	-0.0051 (0.0540)	-0.0012 (0.0614)	-0.0055 (0.0617)
NBC	0.0243 (0.0216)	0.0125 (0.0172)	0.0220 (0.0136)	0.0289** (0.0114)	0.0207 (0.0129)	0.0102 (0.0123)	0.0095 (0.0065)	0.0127** (0.0056)	0.0246* (0.0130)	0.0023 (0.0141)	0.0125 (0.0124)	0.0164 (0.0107)	0.0044 (0.0095)
NBF	0.0325 (0.0246)	0.0010 (0.0199)	-0.0080 (0.0177)	-0.0040 (0.0145)	0.0529*** (0.0140)	0.0290** (0.0134)	0.0071 (0.0080)	0.0079 (0.0069)	0.0497*** (0.0136)	-0.0279 (0.0175)	-0.0152 (0.0161)	-0.0120 (0.0146)	-0.0038 (0.0127)
NO	0.0507*** (0.0164)	0.0452*** (0.0150)	0.0254** (0.0113)	0.0226* (0.0116)	0.0432*** (0.0115)	0.0311*** (0.0100v)	0.0211*** (0.0069)	0.0165** (0.0065)	0.0462*** (0.0113)	0.0140 (0.0114)	0.0044 (0.0088)	0.0062 (0.0089)	0.0069 (0.0077)
VAL	0.0119 (0.0140)	0.0004 (0.0102)	-0.0073 (0.0090)	-0.0055 (0.0075)	0.0154 (0.0096)	-0.0017 (0.0079)	0.0034 (0.0050)	0.0029 (0.0041)	0.0125 (0.0096)	0.0023 (0.0078)	-0.0109 (0.0081)	-0.0083 (0.0073)	-0.0058 (0.0074)
ET	-0.0025 (0.0364)	0.0202 (0.0296)	0.0083 (0.0292)	-0.0032 (0.0181)	0.0001 (0.0201)	0.0210 (0.0187)	0.0144 (0.0144)	0.0136 (0.0108)	0.0013 (0.0194)	-0.0010 (0.0263)	-0.0059 (0.0260)	-0.0167 (0.0196)	-0.0039 (0.0208)
TAX	-0.0184** (0.0086)	-0.0179** (0.0080)	-0.0143** (0.0072)	-0.0120* (0.0065)	-0.0131 (0.0084)	-0.0112 (0.0088)	-0.0076 (0.0086v)	-0.0080 (0.0078)	-0.0145* (0.0079)	-0.0067 (0.0051)	-0.0068* (0.0036)	-0.0039 (0.0036)	-0.0036 (0.0031)
EXT	0.0002 (0.0004)	0.0000 (0.0004)	-0.0004 (0.0003)	-0.0004 (0.0003)	0.0005*** (0.0003)	0.0004 (0.0003)	0.0000 (0.0002v)	0.0000 (0.0001)	0.0006** (0.0003)	-0.0004 (0.0003)	-0.0005* (0.0003)	-0.0004 (0.0003)	-0.0003 (0.0002)
OPR	-0.4283** (0.2079)	-0.3581*** (0.1360)	-0.1672* (0.0967)	-0.2087** (0.1025)	-0.1737 (0.1189)	-0.1150 (0.0952)	-0.0067 (0.0765v)	-0.0171 (0.0631)	-0.2534** (0.1160)	-0.2412* (0.1252)	-0.1589 (0.1058)	-0.1904 (0.1245)	-0.1663 (0.1248)
OPC	0.4222** (0.2068)	0.3742*** (0.1334)	0.1832** (0.0916)	0.2159** (0.1044v)	0.1827 (0.1206)	0.1289 (0.0962)	0.0191 (0.0784v)	0.0211 (0.0653)	0.2620** (0.1156)	0.2432* (0.1304)	0.1627 (0.1087)	0.1935 (0.1336)	0.1660 (0.1351)
LEV	-0.0008 (0.0017)	-0.0002 (0.0011)	-0.0006 (0.0010)	-0.0013 (0.0008)	0.0001 (0.0011)	0.0004 (0.0007)	0.0000 (0.0005)	-0.0005 (0.0004)	0.0000 (0.0011)	-0.0006 (0.0009)	-0.0007 (0.0008)	-0.0008 (0.0007)	-0.0004 (0.0007)
Ln(A)	0.0021 (0.0028)	0.0012 (0.0019)	0.0020 (0.0013)	0.0029* (0.0015)	0.0007 (0.0018)	0.0004 (0.0014)	0.0010 (0.0010)	0.0013 (0.0009)	0.0014 (0.0017)	0.0008 (0.0018)	0.0011 (0.0014)	0.0016 (0.0017)	0.0013 (0.0017)
R <sub>12</sub>	-0.2902** (0.1254)	-0.2259** (0.0940)	-0.0967 (0.0926)	-0.1676 (0.0775)	-0.0942 (0.0756)	-0.0195 (0.0729)	0.0473 (0.0466v)	0.0060 (0.0367)	-0.1580** (0.0742)	-0.2089** (0.1009)	-0.1437* (0.0818)	-0.1733** (0.0705)	-0.1393** (0.0642)
OLD	0.0022** (0.0010)	0.0015 (0.0009)	0.0006 (0.0007)	0.0004 (0.0007)	0.0023*** (0.0007)	0.0017** (0.0007)	0.0007 (0.0005)	0.0003 (0.0004)	0.0024*** (0.0007)	-0.0002 (0.0008)	-0.0001 (0.0006)	0.0001 (0.0007)	-0.0001 (0.0006)
NBC* R <sub>12</sub>	-0.1350** (0.0603)	-0.0604 (0.0389)	-0.1247*** (0.0434)	-0.1212** (0.0510)	-0.0274 (0.0380)	-0.0324 (0.0402)	-0.0591*** (0.0198)	-0.0713*** (0.0188)	-0.0245 (0.0362)	-0.0277 (0.0563)	-0.0654 (0.0473)	-0.0500 (0.0463)	0.0159 (0.0355)
NBF* R <sub>12</sub>	-0.2456*** (0.0796)	-0.0810 (0.0707)	-0.0831 (0.0558)	-0.0767 (0.0634)	-0.1311** (0.0521)	-0.0695 (0.0565)	-0.0506** (0.0246)	-0.0635*** (0.0213)	-0.1166** (0.0551)	-0.0114 (0.0655)	-0.0326 (0.0528)	-0.0128 (0.0572)	-0.0115 (0.0452)

NO* R <sub>12</sub>	-0.3634*** (0.0872)	-0.2633*** (0.0730)	-0.1710*** (0.0743)	-0.1092 (0.0703)	-0.1738*** (0.0661)	-0.1273** (0.0593)	-0.1025** (0.0463)	-0.0738 (0.0429)	-0.1772*** (0.0650)	-0.1350** (0.0633)	-0.0684 (0.0551)	-0.0360 (0.0504)	-0.0058 (0.0406)
VAL* R <sub>12</sub>	-0.0009 (0.0705)	0.0063 (0.0634)	-0.0137 (0.0409)	-0.0666** (0.0336)	-0.0031 (0.0484)	0.0508 (0.0509)	0.0273 (0.0245)	0.0031 (0.0182)	-0.0281 (0.0494)	-0.0446 (0.0484)	-0.0409 (0.0368)	-0.0696** (0.0344)	-0.0743** (0.0368)
ET* R <sub>12</sub>	0.5184*** (0.1657)	0.3574*** (0.1326)	0.2543*** (0.1140)	0.3551*** (0.0790)	0.2021* (0.1038)	0.0594 (0.0898)	0.0024 (0.0619)	0.0615 (0.0440)	0.2849*** (0.1052)	0.3004*** (0.1130)	0.2512*** (0.0896)	0.2937*** (0.0732)	0.2113*** (0.0801)
D <sub>1</sub>	0.0141 (0.0431)	0.0105 (0.0246)	0.0195 (0.0198)	0.0195 (0.0212)	-0.0079 (0.0285)	0.0015 (0.0182v)	0.0093 (0.0142)	0.0197* (0.0114)	0.0033 (0.0269)	0.0091 (0.0248)	0.0104 (0.0206)	-0.0003 (0.0242)	-0.0019 (0.0234)
D <sub>2</sub>	-0.0241 (0.0393)	-0.0165 (0.0260)	-0.0038 (0.0200)	-0.0039 (0.0175)	-0.0285 (0.0260)	-0.0027 (0.0160)	0.0094 (0.0103)	0.0176** (0.0074v)	-0.0231 (0.0256)	-0.0139 (0.0207)	-0.0131 (0.0173)	-0.0217 (0.0168)	-0.0165 (0.0142)
D <sub>3</sub>	0.0169 (0.0385)	0.0081 (0.0234)	0.0120 (0.0191)	0.0014 (0.0179)	0.0068 (0.0260)	0.0062 (0.0151)	0.0060 (0.0105v)	0.0104 (0.0075)	0.0121 (0.0256)	0.0015 (0.0184)	0.0061 (0.0169)	-0.0091 (0.0166)	-0.0095 (0.0157)
D <sub>4</sub>	0.0044 (0.0394)	-0.0039 (0.0244)	0.0114 (0.0197)	0.0074 (0.0184)	-0.0075 (0.0262)	-0.0049 (0.0162)	0.0087 (0.0110)	0.0180** (0.0088)	-0.0018 (0.0256)	0.0009 (0.0186)	0.0026 (0.0167)	-0.0107 (0.0162)	-0.0105 (0.0141)
R-square	0.2594	0.2532	0.1982	0.2605	0.2875	0.2152	0.1212	0.1550	0.3215	0.1729	0.1851	0.1964	0.1044
F-static (22,140)	3.52***	2.61***	1.90**	3.41***	3.40***	1.94**	1.62**	1.59*	3.98***	1.79**	2.62***	3.67***	2.44***
R-R test, p-value	0.0338	0.0439	0.007	0.000	0.195	0.001	0.005	0.000	0.516	0.0049	0.0106	0.0021	0.1257
White's test, p-value	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661	0.4661
BS/CW test, p-value	0.1386	0.1678	0.9821	0.0324	0.783	0.0287	0.0049	0.0004	0.5902	0.1830	0.4015	0.0287	0.0387

Note: We reported in brackets standard errors estimates using the White estimator to account for heteroskedasticity problems. The R-R test is the Ramsey Reset test and the null hypothesis is that the model has no omitted variables. The White's test null hypothesis is the homoskedasticity. The BS/CW test is the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity and the null hypothesis is the Constant variance. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5% and 1% respectively.