Corporate Distress and Supervisory Blacklisting: The Italian Case

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Abstract

The paper focuses on two control instruments created by the Italian Companies and Exchange Commission (CONSOB), the Blacklist and the Grey-list, to monitor the going-concern perspectives of listed Italian companies in distress situations. The study analyzes the determinants underlying the probability to enter the lists, the main characteristics of the firms included in the lists, particularly referring to the Altman's Z-Score ratios, and the characteristics, which favor the likelihood of exiting the lists. Through the use of logistic and OLS models, the research demonstrates that the entering, the stay, and the exiting of the companies from the Consob lists can be accurately predicted by the indicators of the Z-Score and the most relevant profitability ratios. This is an innovative analysis of the determinants that affect the relationship between the Consob and the companies listed in the Italian Stock Exchange. In particular, it could generate useful knowledge for the companies evaluating an IPO on the Italian market or already listed and contribute to creating awareness of the parameters affecting the going concern evaluation by the authority.

1. Introduction

In an environment characterized by agency problems and frictions, the role of information becomes crucial to ensure capital markets efficiency, a need that increases when some companies operate under distress conditions.

In this context, the position of control authorities acquires growing importance: their interventions aimed at imposing additional reporting requirements on targeted economy actors often contribute to the stability in the capital markets.

With attention to the Italian system, analyzed in this study, the surveillance authority on the securities market is the National Commission for Companies and the Stock

Exchange (Consob) whose work, in detecting problematic companies, is adjuvated by the release of the auditors' opinions about the state of health of the securities issuers.

The constitution of two attention lists, namely the Black List and the Grey List, destined to host the issuers that show difficulties at the profitability or the sustainability level is a powerful tool created by Consob and aiming at gathering information about the health of the listed companies.

In this perspective, the first purpose of this research is to identify the specific economic and financial indicators, which affect the probability of becoming part of the "attention lists". The objective is to analyze the effectiveness of Consob surveillance tools in detecting riskier firms and in increasing market transparency. The second area of investigation delves into the relationship between the Consob lists entrance and companies' profitability performance. The analysis of firms and market reaction to the registration in the lists provides useful information about the aftermath of the event.

In conclusion, the study has the intent to examine whether specific economic and financial performances influence the probability of exiting from the lists to give direction on the interventions that would effectively help to identify strategic solutions.

2. Literature review

The kick-start for this research is the consideration of the additional disclosure requirements required to the companies added to the Consob lists.

Danovi (2014), by analyzing the Italian listed companies in the blacklist found that this control system proved valuable utility to improve transparency in the market, providing investors with an additional tool to acquire timely information. Punctual and

update information is crucial to handle with companies in such an intricate and risky situation.

2.1 Theory, practice and the role of the information transparency

The paper stress the importance of the informative transparency for the sound development of the market and of the industrial system. In the economic literature, informative transparency is realized through disclosure meant as decisions regarding content and modality through which information is portrayed to external stakeholders (Zona, 2015).

Informative transparency has gained over time more and more fuss to collect fresh capital in the financial markets. Significance and diffusion of reliable financial information are vital for the company to align different stakeholders' interests (Fortuna, 2009). The literature considers important to identify a wide set of indicators that firms should publicly communicate to their stakeholders as an accountability mechanism (e.g. De la Cuesta-González and Pardo, 2019). Financial news and the release of the company's financial statement is the "zeroing-moment" of information asymmetry. More precisely, between the ones leading the company (i.e., directors and managers) and the ones outside the "pilot-house" of the company, namely shareholders and whoever might have some interests within the company (i.e., stakeholders and wanna-be investors) (Pini, 1991). As clarified by Bonafini (2005), the communication process is both internal (among employees) as well as external. External information flow is pivotal for the organization since it enables the company to lure outer investments, which are financial inflows necessary for the company viability and durability. Hence, the company's going concern depends on financial inputs received from founders, actual shareholders, and, even more critical, from institutional investors and households (Sharpe, 2008).

Transparent and clean financial information allow financial markets to be sound. This implies that, in theory, efficient financial markets should safeguard investors from opportunistic behaviors. In reality, financial markets are not flawless; indeed, as past experiences show, unfair behaviors are likely to occur. Managers might carry out opportunistic practices designed to widen information asymmetries maximizing selfish interests while minimizing the company's ones (Fortuna, 2009). Information asymmetry, also known as "information failure", occurs when one counterpart has more extensive information than the other one in a transaction. The practice of making new or secret information known by all stakeholders defines the disclosure (Welker, 1995); investors rely on it because when it is realized they have at their disposal all the necessary information unleashed by the company to carry out appropriate and aware valuations about their investments (Gormley *et al.*, 2018). In light of this, the widespread academic and professional opinion is that the promotion of the communication between listed companies (in particular) and financial markets can contribute to remove the presence of information asymmetries. The availability of sound and up-to-date information allows investors to decide whether to invest in a company or not without any hidden skeleton in the closet and an unpleasant setback. For this reason, it is essential to persuade the market that there is not such concealed information (Gormley *et al.*, 2018).

2.2 The role of disclosure

Given that the markets are not perfectly efficient and given the presence of asymmetric information, investors need to be protected by the legislator intervention, with the amending of the so-called information disclosure (Popova *et al.*, 2013). In Italy, listed companies' information disclosure is granted by specific legislation postulating the genesis of both "mandatory disclosure" and "voluntary disclosure." The former accomplishes to compulsory requirements by the law to protect third parties and ensure the minimum informative level. Instead, the voluntary disclosure

is the further discretionary informative disclosure that integrates the previous mandatory one. Public regulators (e.g., Consob) play an essential role, monitoring financial intermediaries and all those companies subject to surveillance.

The role of control authorities is therefore fundamental as well as their impact on compulsory corporate disclosure. To understand regulation effectiveness in solving information asymmetries and agency problems, some authors have focused on identifying capital market imperfections that might justify the presence of mandatory disclosure (Leftwich, 1980; Watts & Zimmerman, 1986; Beaver, 1998) in capital markets. This perspective is based on the hypothesis that in a market free of frictions or externalities, firms are incentivized to optimally trade-off costs and benefits of voluntary disclosure, and thus to produce the efficient level of information for investors in the economy. Leftwich (1980), Watts and Zimmerman (1986), and Beaver (1998) note that financial statement information can be regarded as a public good since existing shareholders implicitly pay for its production but cannot recharge potential investors for the use of this information. This issue is defined as a free-riding problem and can lead to the potential underproduction of information in the economy. Besides, Leftwich (1980), Watts and Zimmerman (1986), and Beaver (1998) found a second explanation that favors the regulatory intervention by focusing on public concerns other than market failures. In this perspective, they argue that Regulators may also be interested in protecting the welfare of financially unsophisticated parties; therefore, by creating minimum disclosure requirements, they aim to reduce the information gap that exists between informed and uninformed investors. Notwithstanding the importance of mandatory disclosure, some authors have investigated the failures of regulatory intervention. Posner (1974) and Watts and Zimmerman (1986) have argued that, in some cases, the regulation is supplied in response to the demands of specific interest groups struggling among themselves to maximize the incomes of their members, rather than acting in defense of the public interest.

2.2.1 Mandatory disclosure

The mandatory disclosure's goal is the provision to third parties with minimum information, compulsory by law, and necessary to grant informative efficiency on the market. The shareholder's interests protection is accomplished with the disclosure of the drawn up statutory financial statements, the fulfillment of taxation duties and the disclosure of management reports requested by the Italian legislation (Van der Jagt, 2019).Those documents must be edited with the so-called general principle of "clarity, truthfulness and accuracy" expected by the legislator. Modality and representation of information are defined ex-ante by law; the internal processes for the creation of those documents are decided upon the standard practices carried on by the company. It is noteworthy to mention that listed companies across Europe must conform to the IAS/IFRS accounting standards released by the International Accounting Standards Board (IASB) and periodically updated by the same authority. The objective is to assure a higher degree of transparency to investors and comparing financial performance evenly across Europe (Van der Jagt, 2019).

2.2.2 Voluntary disclosure

In recent years, it has become more and more important the idea of providing the stakeholders with further additional non-mandatory information. By definition, voluntary information disclosure is not mandatory by law. The objective is making companies perceived as much transparent as possible by third parties (Pini, 1991). The discrepancy between mandatory information inferred from financial statements and all the other potential information at the disposal of the companies led the firms to integrate financial information by the use of the so-called "voluntary disclosure" (Salvi, 2013). Companies decide both which information disclose and by which means disclose it. All in all, the purpose of voluntary disclosure is building up a reliable and active dialogue with investors first but also with other stakeholders

assuring the company is acting responsibly and taking care of the environment (Salvi, 2013).

Companies are encouraged to disclosing information on a voluntary base. Interesting research carried on (Nekhili *et al.*, 2012) spells out how listed companies compete for the highest market capitalization by the mean of information disclosed. Postulating the assumption according to which the market is unstable by its nature, the more financial information a company provides, the more investors feel safe about the company's financial condition, the more stock prices go up, the higher the market capitalization becomes. Investors are eager for additional information to ascertain better timing and measure the uncertainty of future cash flows with the final aim of deciding whether to invest in a company or not. Companies answering the "investor's information call" are more likely to see their market value soaring, attracting even more investors, dragging down interest rates paid over loans and bonds. Besides, higher market value reduces the likelihood of bankruptcy. Therefore, there is a connection between voluntary disclosure, market value, and the going concern of the company over time. Voluntary disclosure does not come without pitfalls. Additional information means a more substantial cost burden on the company's shoulders. Costs can be split into data collection costs, data management costs, legal costs, and proprietorship costs. The latter is the most harmful. Indeed, through voluntary disclosure, strategic and competitive private information might be released, causing possible negative consequences to the company and a loss of competitive advantage (Bagherpour Velashani and ArabSalehi, 2008).

The economic literature has distinctively focused on identifying the impact of voluntary disclosure on the stock market liquidity, and the cost of capital reduction (Barry and Brown, 1984; Diamond and Verrecchia, 1991; Kim and Verrecchia, 1994; Botosan, 1997; Healy *et al.*, 1999; Gelb and Zarowin, 2002).

Diamond and Verrecchia (1991) and Kim and Verrecchia (1994) confirmed that in firms with a higher level of disclosure, investors are more confident about paying a

"fair price" for the stocks, thus increasing the overall market liquidity. Healy *et al.* (1999) drew comparable conclusions by analyzing 97 firms and investigating for any upside change in the stock market liquidity associated with improvements in analyst disclosure ratings. They found that in the sampled companies, the stock prices increased significantly and independently from current earnings performance. Similarly, Gelb and Zarowin (2002), after controlling for current and future earnings, discovered that those companies with high disclosure rates had better stock price performance compared to firms with low disclosure ratings.

In the perspective of the cost of capital, Barry and Brown (1984) noted that when disclosure is imperfect, investors bear a higher risk in forecasting the expected future earnings on their investment, thus demanding an incremental return to compensate for the exposure. Therefore, the higher the level of corporate disclosure, the lower the information risk borne by investors, thus the lower the cost of capital for the company. Botosan (1997) found that in firms with low analysts following, the cost of equity capital decreases by about twenty-eight basis points for a one-unit increase in the disclosure measure.

2.3 Evolution of disclosure process

Over the last years, both mandatory and voluntary disclosure experienced a healthy development mainly due to global, social, and environmental push. Indeed, data manipulation and disgraceful managerial behaviors translated into cooked book numbers and determined mistrust in the disclosure of company information (Daske and Gebhardt, 2006). Over the years, Italy has experienced even more strict rules for disclosure, summarized in three stages. The first stage is the one lasting up until 2005 when the disclosure was executed merely upon the willingness of companies. The second phase started when Italy partially adopted the 2001/65/CE directive defined as the "modernization directive". With that act, companies were forced to undertake formal evaluation methods for specific financial statements' items and to

disclose all risks born in their portfolio of financial instruments. It is noteworthy to highlight that, although financial statements were the most widespread disclosure method among companies, the forecasted level of clearness expected by the law was not reached. The third and last stage comes with the complete adoption of the 2001/65/CE directive. The most relevant aspect is that companies are requested to disclose all risks which might lead the company in jeopardy (even if not mentioned in the act) (European Parliament, 2001). Therefore, there has been a shift from general disclosure upon voluntary basis dominated by the reticence policy, to a stricter disclosure for the sake and protection of financial markets focused on transparency. The awareness that external disclosure contributes to qualifying the "exterior look" of a company struggled to take place, hence leading to an acquisition or a loss of blessings. Thus, the need for further transparency has become more and more compelling, coupled with a revitalization of financial markets. That results in the request for companies to provide the market with more frequent disclosure of higher quality and granular financial information. For instance, Consob introduced stricter compliance in terms of more frequent release of information (monthly, quarterly) and higher quality degree of information disclosed. That step ahead upheld and revolutionized the old conception and informational degree of the yearly informative. Therefore, it caused a gradual estrangement from the policy of reticence (Gentile *et al.*, 2015).

2.4 Consob and monitoring power over listed companies

The Consob is an independent Italian administrative authority established by law, n.216, June the 7th 1974. It is in charge of protecting investors, pushing for transparency and development in the Italian financial market. Generally, the regulatory power is the expression of the normative function allowing the reduction of information asymmetry. Hence, it is a tool to overcome market failure.

The normative force of Consob develops on two levels. The first concerns the relationship between market authorities, while the second one involves the regulatory mechanism. The first level makes sure whether there is a need for coordination between authorities to create the most effective discipline to safeguard the market. The second level ascertains whether, in the Italian system, it is possible to realize a joint financial market agent participation in the generation of norms. To squeeze down the concept, the characteristics of the normative power boil down to cooperation and participation (Cardarelli, 2007). In the Italian system, Consob is in charge of supervising and monitoring, encouraging the participation of all categories to the development of the legislation. Indeed, Consob is deemed to be the moderator because of the tools it has and the role it plays (Cardarelli, 2007).

Communications are one of the essential tools at the disposal of Consob. They are key information vehicles to speak with the market. The main drawback is that those tools are tainted by the public role played by Consob (Cardarelli, 2007). Other than formal communications, the supervisor has other mechanisms, such as recommendations that, from a legal standpoint, are not overtly binding, but they assume the role of moral suasion (Cardarelli, 2007). On top of that, Consob steps into financial markets also through opinions, recommendations, and answers to questions. It is relevant to mention that all tools are isolated and one-directional. Therefore, they are not sufficient for realizing the proper information sharing into a system which is, by its nature, decentralized, and spontaneous. Instead, what Consob should do is endorsing the periodic information disclosure trough the collection of information of the "at stake entity" from different market operators (Cavazzuti, 2000).

As far as control is concerned, it should be strictly related to regulatory activity. Control implies more than mere law application. Indeed, it is also one of the informative sources through which the public entity (Consob) might track down new market needs worthy of protection and admissible as protected by law (Cavazzuti, 2000).

Besides cooperation, participation, and control, Consob is also playing the role of sanctioning supervisor referring to interdiction and supplementary function. As per interdiction, it is meant to be the authority of delisting a company temporarily or permanently preventing the company from going on with its activity. The additional function is related to the Consob authority to take measures to ensure transparency (Bindi and Pisaneschi, 2018).

Hitherto, there is little academic research over the correlation between normative power and information theory.

Last years' experience shows how the market is not perfect, and, regulations exhibited substantial limits. The Italian case of Parmalat is an example of how the market, by itself, did not realize adequate investor protection; also, control failure of national supervisors and the lack of proper legislation over violation of transparency led to the problems of quality appreciation (Bindi and Pisaneschi, 2018).

3. Topic presentation and data

3.1 Focus on the Consob lists and research questions presentation

After describing the properties and the objectives of the Consob surveilling lists (grey and black), the following paragraphs provide a broader perspective on the sample and the statistical methods that analyze the three key hypotheses of the research. The Consob intention is to include problematic companies into two frequently updated "warning lists" (black and grey); these companies, which are mainly listed on the MTA market segment (the main segment among the Italian Stock market segments), show financial strains and are, therefore, required by Consob to disclose additional information about their economic and liquidity situation to the market more often than other entities.

The two lists present peculiar and distinctive elements. The grey list includes the companies characterized by a positive auditors' judgment about their financial statements, but also by the indication of doubts about their possibility to survive in the market over time. These firms have to submit their additional disclosure obligations to the Consob on a trimester basis.

For the companies which did not receive an opinion from the auditors or obtained a negative one or if the entity reveals losses that account for more than 1/3 of the statutory capital as provided by art. 2466 of the Italian Civil Code, Consob uses the blacklist, since there are serious doubts about the business continuity or the correctness of the criterions applied for the cash flow statement drawing up. In a nutshell, the blacklist is a set of companies required to provide the market every month with updated data about their financial situation, according to the Financial Services Law (art. 114).

The permanence in the lists is not sure, and some events may constitute a reason for the exit. In particular, there are three possibilities to exit from the list:

- The auditing firm expresses an unqualified opinion on the company's financial statements;
- The company's stocks are delisted from the Stock Exchange;
- The firm files for bankruptcy or liquidation and ceases its activities.

The preliminary description of the warning lists is necessary to introduce our research questions, which focus on the entry in the Consob list, on the possible changes induced by the belonging to these groups on the economic performance of the members, and on the determinants of the likelihood to exit the lists themselves. The hypothesis of the study, here presented, are the following:

- H1: There is a relationship between corporate financial and economic distress and the probability to enter in the Consob lists;

- H2: The entry is associated with changes in economic and financial performance at the year of the event and in the following two years;
- H3: There is a relationship between corporate financial and economic indicators and the probability of exiting the Consob lists.

At this point, it is necessary to point out that we are aware of the Consob focus on auditor's opinion to decide on a company inclusion in one of the lists, but our research interest is oriented to look directly at the prediction power of financial statements indicators; in fact, auditors release their opinions even considering financial statements variables.

3.2 The Consob surveillance and the regulatory framework for grey and blacklists

In compliance with Consob and Borsa Italiana (the Italian Stock Exchange) requirements, all companies listed on the Italian Stock Exchange must release financial information to the capital market quarterly; however, as introduced above, some exceptions apply to the firms belonging to "grey" or "black" lists which have to disclose more details and more frequently.

In this context, the Consob objective is twofold: on the one hand, the definition of dedicated lists allows the Authority to monitor the correctness of the information provided to the public; on the other hand, it improves market transparency and the efficiency at advantage of the investment activities.

The blacklist and the grey list have the objective to limit the information asymmetry between the pool of investors (households as well) and the listed companies by potentially reducing the number of bankruptcies due to inadequate market information. The underlying regulatory framework implements TUF Art. 114 (legislative decree 59/1998 subsequently updated) and Art. 66 (stemming from the legislative decree n°24 and n°58, February 1998), which refers to the list of conducts

that listing (or listed) companies have to honor. However, to include an entity in the lists, the legislator also refers to Art. 2446 cc, which governs the reduction of the regulatory capital in case of losses.

TUF Art.114 is the fundamental pillar in the creation of the blacklist. Indeed, in principles, this article requires all listed firms to disclose key information on their activities, holding relationships and subsidiaries. It is the Consob role to define disclosure methodologies and requirements; these affect not only the national newspapers but also the entire relationship with the market. Only under certain circumstances, listed companies can delay the communication of specific privileged information, if, for instance, the company's interest is at stake or the disclosure can deceive investors, thus producing an untreatable hiatus between the reality and what declared by the company. Nevertheless, Consob reserves the full right and authority to force companies to disclose all necessary information.

Art.66 defines the technical standards to implement legislative decrees n°24 and n°58 and outlines the principles underlying disclosure duty. In particular, the article states that such obligation is accomplished as soon as the market and all stakeholders obtain adequate information on the important events that affect the company. Any public announcement should deliver the necessary information, that allows investors to evaluate the event thoroughly, thus it must not be deceptive or misleading (Montedoro 1998).

Finally, Art. 2446 of the Italian Civil Code states that as soon as the nominal capital is reduced of more than 1/3, directors, and, in case of their indifference, the board of auditors, have to summon the shareholder meeting to take all the measures needed (Ciervo, 2011). Shareholders' meeting has to be provided with a report on asset management of the company with remarks and comments arranged by the board of auditors. If the capital reduction is not absorbed by the end of the next fiscal year, the shareholders meeting or the board of auditors, have to reduce the nominal capital concerning the ascertained loss (Ciervo, 2011).

The Consob can unilaterally decide to suspend the trading of the shares issued by the "included in the lists" companies for a period or indefinitely. About blacklisted companies, Consob requires them to disclose updated details on the following fundamental information:

- the Net financial position, highlighting the short-terms items and the medium-long term items separately;
- past-due obligations;
- company's related parties' relationships;
- other useful information for a full assessment of the evolution of the company situation.

The Greylist was established in 2009, at the peak of the Italian financial crisis, to monitor companies experiencing a period of management distress. These entities are required to inform the market with detailed information on their management, other than additional accounting documents. The information disclosed is the same as blacklisted companies, but they are provided quarterly instead of a monthly basis. Additionally, issuers are required to integrate annual financial statements with extra information that allow investors to appraise the company's trend.

3.3 Data Description

The research adopts a sample composed of 71 companies listed on the Italian Stock Exchange and included in a grey or blacklist published by the Consob in the period between 2009 and 2018. On average, the firms kept under "special surveillance" represent about 12% of the total number of listed companies.

In the sample, approximately forty-eight firms (sixty-eight % of the total sample) are in the blacklist, while forty-one companies (fifty-eight % of the whole sample) are in the greylist; From a timing standpoint, Figure 1 shows the number of companies in the grey and blacklists by year since 2009. The analysis of the historical trend

presents two relevant elements to highlight. On the one hand, it shows a correlation between the "health" of the macroeconomic environment, and the number of companies in the list, as demonstrated by its dramatic increase experienced in the aftermath of the financial crisis, when it reached the peak of forty-nine companies in 2012. Additionally, the economic weakness of the industrial sectors after the recession supports the first hypothesis of this research, which assumes a link between a situation of corporate distress and the probability of entering the Consob lists. On the other hand, in all the studied years, the number of blacklisted companies is higher than the number of attendants to the grey list. In this perspective, considering that the entrance in the blacklist, rather than the grey list, is generally associated with a more troubled financial condition, also this observation supports the first hypothesis of the study.

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Insert Figure 1 approximately here

Figure 1 Total Companies in the Consob List by Year

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The average number of years spent on the blacklist is 3.8 compared to 3.6 of the firms in the grey list (Figure 2). From this perspective, it appears that the companies in the blacklist require, on average, 0.2 more years to find a strategic solution. It is now important to highlight three aspects. First, considering the available information, the research does not test for statistical differences between the two samples; consequently, at this stage, it is not possible to derive reliable conclusions on the significant potential diverging behaviors between the two groups of companies. Furthermore, the lack of reliable historical public data makes it difficult to extend the analysis before 2009. Finally, in the research, the term "strategic solution" indicates different outcomes not necessarily oriented to the restoring of the company, but rather it refers to a change in the legal status, which, for instance, could include the scenarios of liquidation, merger, and acquisitions. A strategic solution should

maximize the value of the company, no matter if it requires the end of the business and the liquidation of all its assets.

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Insert Figure 2 approximately here

Figure 2 Average N. of Years in the Consob List by Type from 2009

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Table 1 and Table 2 exhibit the descriptive statistics on the relevant economic and financial variables in the sampled companies. These indicators will constitute a fundamental part of the statistical models developed in the research. The analysis of these statistical indicators allows identifying distinct insights that characterize the structure of the sample. Firstly, the tables shows a progressive value reduction in most indicators from 2009 to 2014, followed by a partial recovery in the last years of the analysis. Moreover, the range – given by the difference between max and min values – is often high due to the differences in terms of industry, financial structure, and business activities that arise among the companies in the sample. Lastly, in all indicators the mean and the standard deviation are subject to substantial yearly changes due to the frequent changes in the composition of the Consob lists: indeed, from 2009 there have been numerous renewals in the groups of companies under special surveillance.

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Insert Table 1 approximately here

Table 1 Sample Descriptive Statistics from 2009 to 2012

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Table 2 Sample Descriptive Statistics from 2012 to 2017

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Table 3 shows the trend in the principal independent variables over three years. In particular, it analyzes the evolution of each variable two and one years before the entrance in Consob lists, and at the time of the event – these timing indicators are expressed, respectively, by the terms "Y-2", "Y-1" and "Y" – with the objective to identify unusual economic developments in:

- Liquidity (i.e., Working Capital to Total Assets);
- Profitability (i.e., EBIT to Total Assets, ROS, ROI, and ROE);
- Solidity and Structure (i.e., Market Value of Equity to Book Value of Debt, Z-Score);
- Efficiency (i.e., Retained Earnings to Total Assets, Sales to Total Assets);
- Market (i.e., Market Capitalization);

To eliminate outliers, the variables are winsorized at a 95 % threshold. Therefore, all data above 97.5th percentiles are set to the 97.5th value, while those below 2.5th percentiles are adjusted to the 2.5th value.

Also, the analysis of the P2Y CAGR (see the formula below), gives insights on the relative changes occurred during the studied period.

$$P2Y\ CAGR = \left(\frac{Variable_{i,Y}}{Variable_{i,Y-2}}\right)^{\frac{1}{2}} - 1 \text{ [Equation 1]}$$

In which:

- i term indicates the variables included in ith row;
- Y-2 and Y refer, respectively, to the values of the ith indicators two years prior and at the time of entrance event.

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Insert Table 3 approximately here

Table 3 Consob Lists Trend from Two Years prior the Event up to the Entrance

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The analysis of the market indicators suggests a distinctive decreasing trend in the value of the equity capitalization in the Stock Exchange. In the full sample, the decline is –22%, from €119 million in Y-2 to €72 million in Y (- €47 million reduction). Similar conclusions apply to each of the two lists, even though there is a more marked decline in blacklisted companies (-27% compared to -15% of the companies in the grey list).

Concerning the financial and economic perspectives, between Y-2 and the year of the event there has been a sustained value decline in the key variables, even though the magnitude has been different by indicator and the Consob list group. From Table 3 it is evident that profitability factors have had a more significant contraction than other ratios, especially ROE and ROS, which over the three years have declined about -34% and -27%, respectively. It is also interesting to note the divergent behavior observed between the grey and blacklists. In general, the reduction experienced by the companies on the blacklist has been far more acute than those in the grey list. Remarkably, excluding the market capitalization, which has been presented earlier in the paragraph, in the grey list, only 33% of indicators have reduced compared to the 100% of the blacklist, while 67% have remained constant or slightly increased. The Z-Score, a statistical method to predict the bankruptcy event, is on average below the 1.8 thresholds – the cutoff points that indicate a high risk of default – in both the grey and blacklist. However, in the blacklist, the Z-Score has been the lowest throughout the period, providing evidence that these companies generally have a more troubled financial and economic situation.

4. Variables and Statistical Analysis: the model

4.1 Presentation of the research questions and of the variables

The research methodology relies on logit and regression models and variables to test for the three hypotheses:

- H1: There is a relationship between corporate financial and economic distress and the probability to enter in the Consob lists;
- H2: The admission to one of the lists links changes in economic and financial performance at the year of the event and the following two years;
- H3: There is a relationship between corporate financial and economic indicators and the probability of exiting the Consob lists.

Delving into the methodology, H1 and H3 would require the use of logistic models (or logit) to explain the relationship between one dependent binary (or dichotomous) variable and one or more independent indicators. The general form of the log-odds (expressed by l) is indicated by the following formula:

$$l = \alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_n x_n \text{ [Equation 2]}$$

Where:

- α is the constant term;
- β_i is the coefficient of the i-th indicator;
- x_i is the i-th predictor.

The resulting coefficients β_i provide insights on how a one-unit increase in the x_i predictor affects the log-odd of the event, other things being equal. If the coefficient is positive, the log-odd of the event increases by each unit increase of the predictor; on the contrary, a negative β suggests a reduction in the log-odd associated with each unit increase in the analyzed variable.

Regarding the H2 hypothesis, the methodology would leverage on a linear regression model to test the relationship between a quantitative dependent indicator and a dummy variable expression of the Consob lists entrance event. The formula is:

$$y_i = \alpha + \beta_1 x_1 + \varepsilon_i \text{ [Equation 3]}$$

Where:

- α is the constant term;
- β_1 is the coefficient of the 1th indicator;
- x_1 is the 1th predictor;
- ε_i is the error term.

The test of H1 assumption leverages on three logit models – each specified by a number in brackets – to evaluate the log-odd to enter:

- the Consob lists [1];
- the black list [2];
- the grey list [3].

The logit model [1] considers black and grey lists altogether, with no distinction based on the Consob list classification, thus using the dependent variable EnterListBlackorGreyY1N. In contrast, [2] and [3] investigate the characteristics of each list, separately, leveraging on two distinguished dependent variables, EnterBlackListY1N0, and EnterGreyListY1N0, which constitute the log-odd to enter the blacklist and the grey one, respectively. Likewise, in H3 the assumption will be assessed leveraging on three logit models (indicated by [27], [28] and [29]), with the difference that the analysis will evaluate the log-odd to exit the Consob lists, rather than the entrance event, considered both on a jointly and individual basis. Accordingly, the three dependent variables are ExitListBlackorGreyY1N, ExitBlackListY1N0, and ExitGreyListY1N0.

4.1.1 The variables

Before proceeding with the description of the hypotheses structure, it is necessary to delve into the independent variables adopted in this study, intending to present the first results and to introduce the following analyses.

Assuming that corporate distress affects the economic and financial performances, thus the probability of entering the Consob lists, the research has decided to leverage on Z-Score elements (Altman, 1968) as fundamental profitability indicators.

4.1.2 The Z-Score reference

To introduce the application of the Z-Score model, elaborated by Professor Edward I. Altman in 1968, we present the variables in the algorithm, applied to verify the first hypothesis of this study:

- Working Capital/Total Assets_Wins ratio measures liquid assets in comparison to the size of the company. Indeed, a company experiencing consistent operating losses has a shrinking working capital compared to its total assets.
- Retained Earnings/Total Assets_Wins is an implicit measure of the age and the earning power of a company. A relatively young firm has a higher probability of failure compared to mature and well-established comparable and generally shows a lower ratio because it has not had time to cumulate profits (Altman 1968).
- EBIT/Total Assets_Wins divides profits before interest and taxes by the total assets of a company, estimating the productivity of the company's assets, excluding any tax or leverage factors.
- Mkt Value Equity/Book Value of Debt_Wins includes a market dimension and the risks associated with stock price fluctuations. In this ratio, equity is the expression

of the market valorization, and debt consists of both current and long-term items, as shown in the financial statements of the company.

- Sales/Total Assets_Wins is the turnover ratio and represents a standard financial measure that illustrates the sales-generating ability of the firm's assets. It measures management's capability to work in competitive conditions (Altman 1968).

Our hypothesis aims to investigate the possible link between the troubled situation of a company and the probability of being included in the Consob lists. To better evaluate the symptoms of distress, we include in our model some fundamental profitability measures which are not part of the Altman's algorithm but which can provide information about the survivance of the firm and indicate the distress approaching.

We hence include in our model fundamental profitability measures, winsorized to exclude outliers' impact, such as:

- ROS_Wins explains the profitability linked to the number of services or goods sold. Too high operating costs reduce sales profitability, even if the company has strong performances in terms of market share and customer satisfaction. Insufficient sales can result in low ROS ratios. The following formula allows calculating ROS ratio:

$$ROS = \frac{Operating\ profit}{Sales} \text{ [Equation 4]}$$

- ROI_Wins is an indicator that expresses the relationship between the capital invested in the company and its capability to generate operating profit; this ratio is an implicit measure of management effectiveness and more specifically, of its capacity to generate adequate returns from firms' assets to stakeholders' expectations, business risks, and competitors performance.

$$ROI = \frac{Operating\ profit}{Net\ Invested\ Capital} \text{ [Equation 5]}$$

- ROE_Wins is interesting, in particular, from the perspective of the company's shareholders. The evidence of regularly low remunerations to shareholders describes a situation of economic inefficiency, which can affect financial equilibrium and generate liquidity tensions.

$$ROE = \frac{Net\ Earnings}{Book\ Value\ of\ Equity}\ \text{[Equation 6]}$$

Lastly, Year is a variable that takes into consideration external impacts associated with different periods; this control indicator has the objective to evaluate potential distortions in the macroeconomic environment following the outburst of the financial crisis in 2007.

After the specification of the key variables, we specify the goal of the model applied to verify the first assumption. The H1 objective is to study if the selected economic and financial indicators affect the probability of entering the Consob lists.

This section presents the results of the logistic regression which verifies the hypothesis 1 (H1) and concludes explicating the goals and the rationale underlying the other two research questions indicated as hypothesis 2 (H2) and hypothesis 3 (H3).

We consider the necessity to check the reaction of the company to the inclusion in the Consob lists, assessing the link between the entrance event and specific economic and financial results in the year "Y" (the year of the event) and the following two years. The second hypothesis in this paper (H2) aims at investigating the presence and the size of this reaction.

Finally, our interest turns to the possible link between the financial and economic variables and the probability of exiting the Consob lists. This could be read as an indicator of the effectiveness of the lists themselves, but the focus is on the presence of a nexus between the trend followed by the ratios of the company and the probability of exiting the list.

The dependent indicators have been selected consistently to the results of H1 analysis; therefore, only the lists and variables that have been found statistically significant have been subject to further investigations. In particular:

- Mkt Value Equity/Book Value of Debt_Wins;
- Sales/Total Assets_Wins;
- ROS_Wins;
- ROE_Wins.

5. Results

The objective of this paragraph is to analyze the key results and draw conclusions on the key hypothesis previously highlighted.

5.1 The Consob List Entrance Probability: Financial and Economic Distress Indicators

The results of the first analysis (see Table 4) demonstrate that it is possible to identify some economic and financial indicators which influence the probability of a company to become part of a Consob list. The variables included in the analysis have to be measured at the year preceding the entrance in the list ("Y-1"), considering the aim of the analysis, i.e. the appreciation of the future probability of becoming a member of the list itself. This indicates that the Z-Score components, used as independent variables in the regression, are significant predictors to explain the increase in the probability of entering the lists, at least in some cases. As shown in Table 4, some components of the Z-Score appear of particular significance in the logistic regression which tries to analyze the likelihood of entering the black, the grey, or, generically, one of the two Consob lists: specifically, this analysis considers both separately and jointly the blacklist and the greylist, to emphasize the differences in the two lists and

to have a first impression of the compared relevance of the two catalogs. Considering the two lists jointly and referring to the Z-Score components, the most significant variables are the Sales/Total Assets_Wins and the Mkt Value Equity/Book Value of Debt_Wins. This implies that the productivity of the company and the appreciation of the financial market can significantly contribute to staving off the inclusion in the Consob lists. The statistical meaningfulness of the same components is higher focusing on the blacklist, which has stricter requirements and communicates a more dangerous situation to the market. Adding the variables included to check the impact of the company's profitability on the probability to enter the Consob lists, the profitability, measured both at the level of sales (ROS) and for the shareholder (ROE) is of particular interest. This is not surprising, given our attention to the listed companies and the meaning of ROE, a measure of wealth creation for the company owners'. The Stock Exchange lists the shares of a company, and the ROE is a direct measure of the wealth creation for the shareholders, their owners. This idea contributes to explaining the relevance of ROE as a variable of interest in the Consob's judgment.

It is relevant to pay attention also to the importance of the variable Market Value Equity/ Book Value of Debt_Wins. According to the results, an increase in this ratio, which implies a better appreciation of the company value by the market, reduces the probability of entering, in particular, the blacklist. A company that highlights a good perception of its value has fewer chances of receiving negative judgments by the auditors and, consequently, of being added on an "alert list".

The database starts in 2009, at the outburst of the economic and financial crisis (at least in Italy). As the years go by, the solution to the recession period becomes closer and this seems to stave off from the firms the perspective of becoming a member of the list. According to this consideration, it is possible to explain the significance of the independent variable Year.

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Insert Table 4 approximately here

Table 4 Multinomial Regression Model on Entrance Event (Dependent Variables Winsorized at 5%)

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5.2 The Consob Lists Relationship to Economic and Financial Performance

Table 5 and Table 6 show the results of the regression models that investigate the potential link between entrance event and companies' economic and financial performance at the year of the event "Y" and in the two following years ("Y+1" and "Y+2").

This analysis allows testing the second hypothesis (H2), and it is implemented only for the variables significant for the H1.

It is interesting to note that the Z-Score components lose much of their significance (kept only by the variable Mkt Value Equity/Book Value of Debt_Wins just for the Blacklist and for the year of inclusion). The profitability ratios, which prove meaningfulness for the first regression (ROS and ROE), continue to show relevance in the second study, even if limited to the same year of entrance into the list. On the contrary, it seems that the relation between the entrance and company's performance dissipates in the two years following the event: indeed, no statistical significance has been found in "Y+1" and "Y+2. In part, this phenomenon finds an explanation in the impact that any type of news or public announcement has on the financial market at the time when the company is declared to be classified in the Consob list - the so-called announcement effect. However, no specific test has been carried out to test for this conclusion, which seems logically correlated to the regression results.

Overall, the entrance in the Consob lists considered together or, more specifically, in the blacklist show a negative relationship, often significant at 1% threshold, with both ROS and ROE at the year of the event "Y". On the contrary, with one exception for the blacklist, no significant association has been detected between the entrance and the other two variables: Mkt Value Equity/Book Value of Debt_Wins and Sales/Total Assets_Wins neither in "Y" nor in "Y+1" and "Y+2". Nevertheless, it is necessary to consider that the Adjusted R2 is, in most cases, lower than 1%, meaning that the regression models can explain only a negligible part of the total variation observed in the dependent variable. However, there is an exception in the relation between the dummy variable EnterBlackListY1N0 and ROE, in which the model can explain almost 5% of the total variation.

Entering the list seems to be linked to a reduction in profitability performance. However, it will be hazardous to conclude that the event is the source of the decrease, especially, considering that most of the companies in the sample have troubled conditions (confirmed in H1). In this scenario, it could be possible that the reduction in profitability performance at the year of the event is implicitly caused by the preliminary distress circumstances.

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Insert Table 5 approximately here

Table 5 Linear Regression Models – Market Value of Equity to Book Value of Debt and Sales to Total Assets

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Insert Table 6 approximately here

Table 6 Linear Regression Models - ROS and ROE

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5.3 The Consob List Exit Probability: The Impact of Financial and Economic Indicators

Shifting the attention to the likelihood of exit from the Consob lists, the analysis repeated the inclusion of economic and financial factors in a new multinomial logit regression where the dependent variable is the impact on the probability of being removed from the surveilled group.

The analysis confirms the relevance of the previous variables, in particular, the Market Value of Equity/the Book Value of Debt and the ROE for the blacklist.

The reasons link to the same motivations adduced before (appreciation of the market and profitability from the perspective of securities owners). Besides, the ratio between the market value of equity and the book value of debt affects the probability of exit, because it is the measure of solidity (it is the expression of the financial leverage of the firm, and its improvement represents a reduction in risk). It is possible to assess that there are some financial measures (also components of the Z-Score) that present a potential influence on the likelihood of exiting the blacklist and that the financial statements' ratios able to explain at least partially the probability of inclusion in the lists suggest a role even in predictability of the possible exit from these alert catalogs. Finally, the Year has a statistical meaning: again, as the end of the recession approaches, the probability of exiting the lists seems to increase.

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Insert Table 7 approximately here

Table 7 Multinomial Regression Model on Exit Event (Dependent Variables Winsorized at 5%)

6. Conclusions

Corporate disclosure is particularly relevant in distressed firms. In Italy, the Consob has created the Black and Grey lists to force disclosure in troubled firms and increase market awareness of the risks for investors.

The econometric analysis, based on the companies belonging to the lists or, at least, to one of them, from 2009 to 2017, allows inferring some relevant outcomes on the indicators that influence the likelihood of entering and exiting the lists and the conditions during the stay in the specially surveilled lists.

Regarding the elements that influence the likelihood of entrance (H1), the analysis demonstrates that the Z-Score components and profitability indicators impact the probability of becoming a member of the black or the grey list. In particular, the results prove that the solvency ratio (market value of equity to book value of debt ratio), the firm's asset capability to generate sales (asset turnover) and the operating and shareholder profitability (ROS and ROE), to be significant predictors in determining the likelihood of entrance.

The study shows a relationship between permanence in one of the lists and the economic results of the troubled firms (H2). In particular, the link is statistically significant in the short term (at the year of the event) for ratios such as ROS and ROE. The timing perspective appears relevant only at the year of the event, while the entrance in the list shows no connection with the firm's performance trends in the subsequent periods. Indeed, the Consob does not aim at exacerbating the media pressure on the troubled conditions of these companies, avoiding a negative halo and panic among investors. However, the Consob still exerts the supervisory and the monitoring authority, checking systematically for the compliance of troubled firms with disclosure requirements.

Most of the variables that proved to be significant for the entrance phase are also relevant for the Consob to approve the exit from the lists of the analyzed companies.

In this perspective, the third and last hypothesis (H3) confirms the importance of the Market Value of Equity to the Book Value of Debt ratio and the ROE to forecast the likelihood of exiting.

The analysis involves both the companies in the grey and black lists. It is worth noting that the results observed for the firms in the black list show a higher statistical significance when compared to the outcomes of companies included in the grey list. It is noticeable that this situation depends on the intrinsic features of the black list and its more problematic components. In particular, the reputational implication of being included in the black list, which is the most severe, should educate listed companies to manage their economic and financial parameters carefully.

The paper is relevant because it adds awareness to the existing literature about the implications of the symptoms of fragility in a firm. The existence of the Consob lists increases the probability of showing the weak conditions of a firm to the market, reducing its attractiveness to the investors.

In conclusion, it is possible to assess that the state of health of the company is a useful predictor for the inclusion in the attention lists created by the Consob, at least in terms of higher or lower admission likelihood. These lists show an announcement-effect power, even if the real extension over time of this attention claim on the market requires additional investigation.

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Tables

Table 1 Sample Descriptive Statistics from 2009 to 2012

Year	Variables (Not Winsorized)	Market Cap (thousand €)	Net Sales (thousand €)	EBIT[†] (thousand €)	Ratio Working Capital to Total Assets	Ratio Retained Earnings to Total Assets	Ratio EBIT[†] to Total Assets	Ratio Market Value Equity to Book Value Debt	Ratio Sales to Total Assets	Ratio Return on Sales	Ratio Return on Invested Capital	Ratio Return on Equity	Z_SCORE
2009	**Observations**	**87**	**80**	**80**	**65**	**80**	**80**	**80**	**80**	**80**	**63**	**68**	**80**
	Mean	240,543	564,934	11,853	0.2	-0.4	-0.1	4.6	0.6	-138.3	-0.9	-0.5	3
	Maximum	6,810,420	14,200,000	1,648,725	0.7	0.5	0.2	190.7	2.6	0.3	6.7	5.4	115
	Minimum	3,450	2	-434,764	-0.8	-20.5	-1.1	0.0	0.0	-10,076.0	-57.3	-9.7	-26
	Standard Deviation	799,165	1,920,986	210,702	0.3	2.3	0.2	22.9	0.5	1,130.3	7.3	1.6	14
2010	**Observations**	**87**	**76**	**76**	**60**	**75**	**75**	**76**	**75**	**76**	**59**	**66**	**76**
	Mean	201,326	601,947	19,014	0.1	-0.5	-0.1	2.1	0.6	-4.1	0.5	-1.2	1
	Maximum	4,719,600	14,500,000	2,502,718	0.5	0.9	0.9	48.2	2.1	5.2	41.4	3.7	31
	Minimum	3,530	53	-938,973	-1.1	-29.4	-2.5	0.0	0.0	-249.7	-13.3	-24.8	-38
	Standard Deviation	588,374	1,971,334	321,985	0.3	3.4	0.4	6.0	0.5	29.0	5.7	4.3	6
2011	**Observations**	**87**	**72**	**72**	**57**	**72**	**72**	**70**	**72**	**71**	**55**	**53**	**72**
	Mean	130,710	604,665	-84,679	0.1	-0.6	-0.2	33.8	0.6	-3.0	0.0	-0.8	19
	Maximum	2,731,620	12,300,000	618,311	0.9	0.4	0.2	2,323.4	1.9	1.2	11.7	1.0	1,396
	Minimum	1,000	0	-3,295,098	-1.8	-27.6	-2.3	0.0	0.0	-159.4	-7.9	-9.9	-41
	Standard Deviation	411,726	1,878,714	431,132	0.3	3.3	0.4	277.6	0.4	19.0	2.3	1.8	165
2012	**Observations**	**87**	**66**	**64**	**52**	**66**	**64**	**65**	**66**	**62**	**49**	**45**	**66**
	Mean	116,253	597,382	-85,880	0.1	-1.2	-0.7	72.3	0.6	-25.0	0.9	-0.8	40
	Maximum	2,636,520	11,800,000	179,130	0.5	0.4	0.2	4,512.1	1.8	4.1	37.0	0.8	2,669
	Minimum	2,140	0	-2,111,942	-0.5	-33.2	-33.1	0.0	0.0	-1,522.0	-5.4	-7.5	-156
	Standard Deviation	351,135	1,881,620	321,879	0.2	5.0	4.1	559.6	0.4	193.2	6.0	1.6	329

† Earnings before interests and taxes

Table 2 Sample Descriptive Statistics from 2012 to 2017

Year	Variables (Not Winsorized)	Market Cap (thousand €)	Net Sales (thousand €)	EBIT† (thousand €)	Ratio Working Capital to Total Assets	Ratio Retained Earnings to Total Assets	Ratio EBIT† to Total Assets	Ratio Market Value Equity to Book Value Debt	Ratio Sales to Total Assets	Ratio Return on Sales	Ratio Return on Invested Capital	Ratio Return on Equity	Z_SCORE
2013	Observations	87	63	60	52	60	60	62	63	60	48	45	63
	Mean	121,737	386,234	-56,642	0.1	-0.7	-0.1	1.6	0.6	-0.5	-0.2	-1.1	0
	Maximum	2,048,940	8,128,427	147,825	0.7	0.2	0.3	20.9	1.4	1.1	16.4	0.8	11
	Minimum	2,480	174	-2,278,251	-1.0	-20.1	-0.7	0.0	0.0	-7.5	-11.5	-20.2	-16
	Standard Deviation	289,443	1,127,031	299,527	0.3	2.6	0.2	3.7	0.4	1.2	3.4	3.2	3
2014	Observations	87	56	54	46	54	54	54	56	53	44	44	56
	Mean	118,385	384,175	-90,053	0.1	-0.8	-0.1	1.5	0.6	-0.3	0.2	-0.5	0
	Maximum	2,404,760	7,624,936	1,536,159	0.6	0.2	2.8	24.0	1.4	3.8	10.3	7.9	13
	Minimum	2,010	0	-6,134,899	-1.7	-21.4	-1.0	0.0	0.0	-6.4	-10.5	-15.5	-18
	Standard Deviation	294,088	1,096,138	865,788	0.4	3.1	0.5	3.4	0.4	1.2	2.6	2.9	4
2015	Observations	87	54	53	44	51	53	52	54	53	43	45	54
	Mean	139,202	396,789	19,243	0.1	-0.5	0.0	1.9	0.6	-3.4	-0.4	-1.2	1
	Maximum	3,612,320	7,302,849	1,402,187	0.7	0.2	3.2	27.4	1.6	16.7	4.8	0.4	16
	Minimum	1,480	4	-124,900	-0.5	-14.5	-1.1	0.1	0.0	-164.8	-9.3	-16.7	-18
	Standard Deviation	417,902	1,081,975	198,141	0.2	2.1	0.5	4.8	0.5	22.8	1.8	2.8	5
2016	Observations	87	51	50	41	48	50	48	51	50	40	41	51
	Mean	83,708	388,940	-55,356	0.0	-0.9	-0.1	181.2	0.5	-0.8	-0.2	-0.2	101
	Maximum	788,260	5,817,493	190,249	0.5	0.5	0.8	4,598.3	1.4	19.9	2.8	6.8	2,760
	Minimum	580	20	-2,455,442	-1.8	-33.7	-1.2	0.0	0.0	-35.9	-14.9	-6.5	-45
	Standard Deviation	145,964	961,074	351,354	0.4	4.9	0.3	869.3	0.4	6.0	2.5	1.8	507
2017	Observations	87	51	49	39	45	48	48	49	48	37	44	49
	Mean	140,744	393,754	-87,908	0.1	-1.2	0.1	13.1	0.6	2.0	-0.1	1.2	7
	Maximum	4,463,090	5,713,153	199,004	0.7	0.7	6.2	166.0	1.9	114.2	3.1	57.0	99
	Minimum	2,080	0	-3,828,090	-0.5	-40.0	-0.8	0.1	0.0	-7.9	-3.5	-2.3	-52
	Standard Deviation	502,167	1,000,774	551,988	0.2	6.2	0.9	35.9	0.5	16.6	1.2	8.7	23

† Earnings before interests and taxes

Table 3 Consob Lists Trend from Two Years prior the Event up to the Entrance

Variables (Dependent Variables Winsorized at 5%)	Enter Grey or Black List			Enter Black List			Enter Grey List		
	Y-2‡	Y-1§	Y¶	Y-2‡	Y-1§	Y¶	Y-2‡	Y-1§	Y¶
Market Value of Equity (thousand €)	118,619	69,624	71,615	95,915	46,442	50,640	159,120	115,362	114,700
Ratio Working Capital to Total Assets	0.14	0.11	0.10	0.15	0.11	0.09	0.11	0.11	0.12
Ratio Retained Earnings to Total Assets	-0.14	-0.20	-0.24	-0.17	-0.26	-0.31	-0.10	-0.08	-0.12
Ratio EBIT† to Total Assets	-0.05	-0.10	-0.12	-0.06	-0.12	-0.15	-0.04	-0.05	-0.06
Ratio Market Value Equity to Book Value Debt	1.53	1.18	1.53	1.42	1.00	1.39	1.73	1.52	1.78
Ratio Sales to Total Assets	0.57	0.60	0.55	0.59	0.63	0.55	0.54	0.52	0.54
Ratio Return on Sales	-0.18	-0.29	-0.45	-0.20	-0.33	-0.49	-0.13	-0.22	-0.37
Ratio Return on Invested Capital	-0.08	-0.13	-0.20	-0.08	-0.14	-0.26	-0.10	-0.11	-0.07
Ratio Return on Equity	-0.47	-0.70	-0.81	-0.45	-0.87	-1.18	-0.50	-0.35	-0.29
Z_Score	1.39	0.92	0.77	1.27	0.73	0.52	1.59	1.31	1.22

† Earnings before interests and taxes

‡ two year prior the event

§ one year prior the event

¶ the year of the event

Table 4 Multinomial Regression Model on Entrance Event (Dependent Variables Winsorized at 5%)

Multinomial Regression Model (Dependent Variables Winsorized at 5%)	Enter Grey or Black List	Enter Black List	Enter Grey List
Regression ID	**[1]**	**[2]**	**[3]**
Working Capital/Total Assets_Wins	0.3169	0.7661	-0.1657
	(0.44)	(0.8)	(-0.15)
Retained Earnings/Total Assets_Wins	0.2665	-0.6167	1.6963
	(0.43)	(-0.82)	(1.5)
EBIT/Total Assets_Wins	0.5362	-0.2823	1.5885
	(0.28)	(-0.12)	(0.49)
Mkt Value Equity/Book Value of Debt_Wins	-0.1417	-0.7776	0.0847
	(-1.84)*	(-2.84)***	(1.04)
Sales/Total Assets_Wins	0.8478	1.0853	0.4906
	(2.44)**	(2.32)**	(0.97)
ROS_Wins	-1.0275	-1.128	-0.8007
	(-2.47)**	(-2.07)**	(-1.33)
ROI_Wins	-0.7157	-0.3997	-0.982
	(-1.42)	(-0.66)	(-1.18)
ROE_Wins	-0.4795	-0.6735	-0.0281
	(-3.41)***	(-4.22)***	(-0.1)
Year	-0.1491	-0.1731	-0.1198
	(-3.05)***	(-2.55)**	(-1.75)*
Constant	297.2537	344.5744	237.7436
	(3.02)***	(2.52)**	(1.72)*
Number of Observations	783	783	783
Pseudo R2 =	0.103	0.2066	0.0454
LR chi2 (9) =	57.55	80.11	13.55
Probability > chi2 =	0	0	0.1394

* significance levels at 10%

** significance levels at 5%

*** significance levels at 1%

Table 5 Linear Regression Models – Market Value of Equity to Book Value of Debt and Sales to Total Assets

Linear Regression Model (Dependent Variables Winsorized p at 5%)		Enter Grey or Black List	Enter Black List	Regression ID
Mkt Value Equity/Book Value of Debt_Wins	Year of event	-0.407	-0.9071	[4] [5]
		(-1.15)	(-1.95)*	
Constant		1.6161	1.6273	
		(12.31)***	(12.87)***	
Number of Observations		555	555	
F(1, 553) =		1.32	3.8	
Probability > F		0.2518	0.0517	
R-squared =		0.2%	0.7%	
Adj R-squared =		0.1%	0.5%	
Mkt Value Equity/Book Value of Debt_Wins	One year later	0.1173	-0.3256	[6] [7]
		(0.55)	(-1.22)	
Constant		0.8836	0.9218	
		(11.89)***	(12.76)***	
Number of Observations		696	696	
F(1, 694)		0.3	1.49	
Probability > F		0.5815	0.2231	
R-squared =		0.0%	0.2%	
Adj R-squared =		-0.1%	0.1%	
Mkt Value Equity/Book Value of Debt_Wins	Two years later	-0.1784	-0.4172	[8] [9]
		(-0.85)	(-1.58)	
Constant		0.851	0.8598	
		(11.49)***	(11.95)***	
Number of Observations		609	609	
F(1, 607)		0.71	2.49	
Probability > F		0.3981	0.1154	
R-squared =		0.1%	0.4%	
Adj R-squared =		-0.1%	0.2%	
Sales/Total Assets_Wins	Year of event	-0.0485	-0.0569	[10] [11]
		(-0.98)	(-0.88)	
Constant		0.5738	0.5714	
		(30.81)***	(31.79)***	
Number of Observations		566	566	
F(1, 564)		0.96	0.78	
Probability > F		0.3279	0.3776	
R-squared =		0.2%	0.1%	
Adj R-squared =		0.0%	0.0%	
Sales/Total Assets_Wins	One year later	0.0336	-0.0105	[12] [13]
		(0.69)	(-0.17)	
Constant		0.3862	0.391	
		(22.6)***	(23.51)***	
Number of Observations		696	696	
F(1, 694)		0.47	0.03	
Probability > F		0.4917	0.8642	
R-squared =		0.1%	0.0%	
Adj R-squared =		-0.1%	-0.1%	
Sales/Total Assets_Wins	Two years later	0.0221	-0.0136	[14] [15]
		(0.42)	(-0.21)	
Constant		0.3753	0.379	
		(20.48)***	(21.25)***	
Number of Observations		609	609	
F(1, 607)		0.18	0.04	
Probability > F		0.6726	0.8357	
R-squared =		0.0%	0.0%	
Adj R-squared =		-0.1%	-0.2%	

* significance levels at 10%

** significance levels at 5%

*** significance levels at 1%

Table 6 Linear Regression Models - ROS and ROE

Legend

Independent variables are represented on the columns

Dependent variables are represented on the rows

Linear Regression Model (Dependent Variables Winsorized p at 5%)		Enter Grey or Black List	Enter Black List	Regression ID
ROS_Wins	Year of event	-0.2138 (-3.08)***	-0.2964 (-3.25)***	
Constant		-0.2622 (-10.05)***	-0.2699 (-10.73)***	
Number of Observations		553	553	[16] [17]
F(1, 551)		9.46	10.55	
Probability > F		0.0022	0.0012	
R-squared =		1.7%	1.9%	
Adj R-squared =		1.5%	1.7%	
ROS_Wins	One year later	-0.032 (-0.63)	-0.0288 (-0.45)	
Constant		-0.1813 (-10.24)***	-0.1831 (-10.63)***	
Number of Observations		696	696	[17] [18]
F(1, 694)		0.4	0.21	
Probability > F		0.5273	0.6506	
R-squared =		0.1%	0.0%	
Adj R-squared =		-0.1%	-0.1%	
ROS_Wins	Two years later	0.0213 (0.39)	0.0037 (0.05)	
Constant		-0.1941 (-10.03)***	-0.1918 (-10.18)***	
Number of Observations		609	609	[19] [20]
F(1, 607)		0.15	0	
Probability > F		0.7	0.9577	
R-squared =		0.0002	0	
Adj R-squared =		-0.0014	-0.0016	
ROE_Wins	Year of event	-0.2773 (-1.97)**	-0.9763 (-4.72)***	
Constant		-0.4955 (-10.5)***	-0.4814 (-10.78)***	
Number of Observations		451	451	[21] [22]
F(1, 449)		3.9	22.27	
Probability > F		0.0489	0	
R-squared =		0.9%	4.7%	
Adj R-squared =		0.6%	4.5%	
ROE_Wins	One year later	-0.0554 (-0.73)	0.061 (0.64)	
Constant		-0.2626 (-9.84)***	-0.2739 (-10.54)***	
Number of Observations		696	696	[23] [24]
F(1, 694)		0.53	0.4	
Probability > F		0.4681	0.5253	
R-squared =		0.1%	0.1%	
Adj R-squared =		-0.1%	-0.1%	
ROE_Wins	Two years later	0.0973 (1.19)	0.0667 (0.65)	
Constant		-0.2695 (-9.36)***	-0.2624 (-9.36)***	
Number of Observations		609	609	[25] [26]
F(1, 607)		1.41	0.42	
Probability > F		0.2361	0.5178	
R-squared =		0.2%	0.1%	
Adj R-squared =		0.1%	-0.1%	

* significance levels at 10%

** significance levels at 5%

*** significance levels at 1%

Table 7 Multinomial Regression Model on Exit Event (Dependent Variables Winsorized at 5%)

Legend

Dependent variables are represented on the columns

Independent variables are represented on the rows

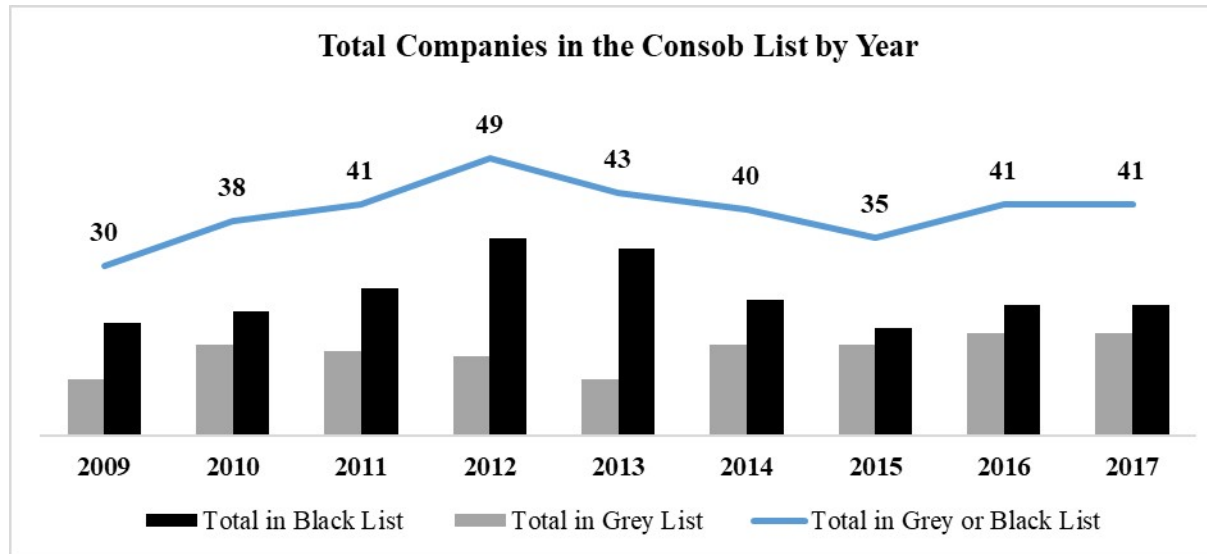| Multinomial Regression Model (Dependent Variables Winsorized at 5%)	Exit Grey or Black List	Exit Black List	Exit Grey List
Regression ID	**[27]**	**[28]**	**[29]**
Working Capital/Total Assets_Wins	-2.0058	-2.0431	-1.3007
	(-2.12)**	(-1.82)*	(-0.71)
Retained Earnings/Total Assets_Wins	-0.4164	-0.8842	0.1089
	(-0.58)	(-1.06)	(0.09)
EBIT/Total Assets_Wins	-2.7678	-2.9137	-2.9785
	(-1.29)	(-1.16)	(-0.83)
Mkt Value Equity/Book Value of Debt_Wins	0.1376	0.2663	-0.3728
	(1.91)*	(3.36)***	(-1.26)
Sales/Total Assets_Wins	-1.1127	-1.4069	-0.6677
	(-2.81)***	(-3.03)***	(-0.88)
ROS_Wins	0.7614	1.1286	0.3025
	(1.62)	(1.93)*	(0.38)
ROI_Wins	0.9725	0.9095	0.9989
	(1.67)*	(1.39)	(0.86)
ROE_Wins	0.0832	1.04	-0.6938
	(0.39)	(2.32)**	(-2.56)**
Year	-0.0705	-0.1292	0.0815
	(-1.32)	(-2.04)**	(0.82)
Constant	139.8596	257.6805	-167.6951
	(1.3)	(2.03)**	(-0.84)
Number of Observations	783	783	783
Pseudo R2 =	0.0534	0.0989	0.0878
LR chi2 (9) =	24.17	35.71	15.71
Probability > chi2 =	0.004	0	0.0733

* significance levels at 10%

** significance levels at 5%

*** significance levels at 1%

Figures

Figure 1 Total Companies in the Consob List by Year

Total Companies in the Consob List by Year

Legend: Total in Black List, Total in Grey List, Total in Grey or Black List

Years: 2009 (30), 2010 (38), 2011 (41), 2012 (49), 2013 (43), 2014 (40), 2015 (35), 2016 (41), 2017 (41)

Figure 2 Average N. of Years in the List (from 2009)

Average N. of Years in the List (from 2009)

3.6   3.8   4.9

Average N. of Years in the List (from 2009)

■ Grey and Black List   ■ Black List   ■ Grey List