VOLUNTARY DISCLOSURE STRATEGIES AND THE COST OF CAPITAL OF ITALIAN BLUE CHIPS

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KEYWORDS	ABSTRACT
Voluntary disclosure, information asymmetries, risk premia.	How do Italian blue chips actually deal with disclosure about their business model? Does their disclosure strategies affect the cost of capital through a reduction of the information risk premia? The paper identifies four different disclosure strategies through a cluster analysis on the contents of the annual reports, the investor relations and press releases of a set of Italian Blue Chips in 2003. The it uses an original model to extract the information risk premia from the time series of stock prices and trading volumes time. The level of information risk premia is split between market-related and firm-specific drivers to permit the estimation and discussion of the correlation with trading volume and the different disclosure strategies identified. Overlaps from results in cluster analysis and information risk premia determinants let us conclude that broad and exhaustive financial communication allows reduction of the cost of capital.

1. INTRODUCTION

Italy is well known for several things, i.e. arts, food, lifestyle, dressing, "made in Italy", small business and ... financial markets inefficiency, mainly due to information asymmetries. Is it possible that no Italian listed company is aware of the benefits arising from financial disclosure strategies resolving the information asymmetries? The answer is "no, for sure!". This study investigates how the Italian Blue Chips use voluntary disclosure strategies to reduce their cost-of-equity-capital by compressing the embedded information risk premia. The paper examines two main questions.

Firstly, we focus on choices concerning voluntary disclosure of the business models. The Italian Company Law fixes a minimum standard both in quantity and quality of information to be distributed through financial reporting. Mandatory information may be inefficient to resolve the information asymmetries. In fact, competition forces corporations to innovate strategies to keep business models more and more effective. In this framework of fluid business evolution, rigidity imposed by financial figures and commercial law may be misleading. That is why, several companies prefer to provide additional information, by a voluntary disclosure strategy. Such a strategy requires to manage trade-offs between costs arising from keep public strategic trends of the company and benefits related to higher investor attraction due to the deeper knowledge of long-term sources of competitive advantage. Secondly, we are interested in verifying whether such expensive strategies can benefit the corporation of an effective cost of capital reduction. Investors in inefficient financial markets add further risk premia to their expected return being aware of bias

in mapping the true risk-to-return performance of the investment due to information asymmetries. Like for the payoff risk, even information risk may be unbundled into systematic and firm specific. That is why the real impact on the cost-of-capital can be thus very different between corporations as it can be the efficacy of disclosure strategies. Contrarian to other studies, we argue that the "quality" of information can have higher impact than the "quantity" in finalizing the impact of disclosure strategies In case of inefficient regulatory framework of financial communication it will be even possible that some disclosure strategies may result inefficient because of massive impact of systematic information risk.

The conclusion is based on empirical results over a sample of 40 Italian Blue Chips listed in Borsa Italiana Market in 2003 and involved in manufacture business (thus excluding financial industries companies). For any of the company in the sample we collected all the information-having-strategic-impact included in the annual report, in all the investor relation activities and in the press releases available through the corporation web site. Then, we ranked any specific informative item has been fixed by computing: (i) the frequency in the use of words referring to the specific subject; (ii) the number of connections with the other subjects in order to understand their relative importance in the exposition context. Therefore we ran a cluster analysis over such two aspect and crossed the emerging results. Furthermore, we collected time series of stock prices and trading volumes to compute the excess-volatility due to the information risk, recurring to an original model developed by the authors. Such indicator has been split into firm-specific and systematic quotas, to be compared with the actual investor behaviour as emerged from trading volumes, particularly in case of over-volatility reduction. The higher the correlation the higher is supposed to be the cost-of-capital impact. Results from this analysis has been compared with those emerging from the previous semantic one, searching for overlaps.

The paper is deployed as follows: next paragraph (#2) reports literature referring to voluntary disclosure strategies of the business model and their impact over the equity cost-of-capital, thus formulating specific research questions; in paragraph #3 the sample is discovered along with the mass of informative documents that were analyzed and their analysis; in section #4 results about the disclosure strategies are discussed; in section #5 the information risk proxies are measured and discussed for their effective impact over the cost-of-capital. Section 6 shows some concluding remarks striking both limits and potential developments for the research.

2. LITERATURE REVIEW AND RESEARCH QUESTIONS

Research about voluntary disclosure strategies aims to verify the opportunity to avoid adverse selection situations that emerged after Akerlof's seminal paper (Akerlof, 1970). Managers should have incentives to communicate to the financial market all the pieces of information they have in order to reduce the information asymmetries and, by that way, the actual level of the equity cost-of-capital (Grossman e Hart, 1980; Grossman, 1981; Milgrom, 1981).

Since no empirical evidence suggests the opportunity of full disclosure, further research has been developed in order to find possible constraints to such a strategy. Some authors suggest the existence of indirect costs of full disclosure; such costs are linked to the negative impact over the competitive advantage (Verrecchia, 1983; Darrough e Stoughton, 1990, Wagenhofer, 1990; Feltham e Xie, 1992; Newman e Sansing, 1993; Darrough, 1993; Gigler, 1994; Hayes e Lundholm, 1996). Such researches conclude that there can be a rational economic proof of not-to-communicate since the compression of expected return could be higher than the reduction in cost-

of-capital (a wide and deep analysis of the literature can be found in Verrecchia, 2001 e Dye, 2001).

This conclusion is against the growing evidence of huge amount of capital requirements related to modern business models and the correlated requirement to keep them clear to investors in order to avoid capital rationing. Global markets and rapid technology evolution increase the possible configurations of the business model along with their evolution, thus increasing the difficulties in communicating them. Intangibles and the know-how embedded in the so-called "human capital" let the business model being more and more original and firm specific, so that the schemes of the mandatory financial communication imposed by regulation find hard to transmit the entire set of information (Lev e Zarowin, 1999). Both aspects do contribute to increase the minimum capital required so that corporations increase their trust over the equity capital for funding and get further pressure to disseminate more "sensitive" information to investor for their value assessment (Beretta, 2006).

On these basis, AICPA (*American Institute of Certified Public Accountants*), FASB (*Financial Accounting Standards Board*), CICA (*Canadian Institute of Chartered Accountants*) and IASB (*International Accounting Standards Board*) deployed proposals to improve the information flows inside the annual report, particularly in sections referring to the business model description. Italian Law fixes suggestions into rule #2428 of the Civil Code, specifying the necessity to detect the value drivers arising from the business model of the corporation even in qualitative terms. Effectively we agree with Agliati when specifies that "A business model is mainly a case history; a history telling us how this model should react to solicitation generating inside the market and from the other members of the competitive arena such as the competitors" (our free translation from Agliati, 2006, page 29)

Can we definitively say that listed companies have more and more incentives to increase voluntary disclosure about their business model to allow investors to get the underpinnings of a sustainable competitive advantage, so reducing adverse selection phenomena and, by that way, reducing their cost of equity capital? Can we trust over trueness of such hypothesis even in the case of possible short term damages that might impact over the competitive position? No clear empirical evidence let us answer these questions, but it is very interesting to observe how the main efforts of research emerge from authors coming from countries where the level of information efficiency is low. According to the Italian evidence, Bagnoli (2005) investigated how annual financial reporting is composed as per the management activities and find out three possible strategies of voluntary disclosure, to be detected according to the intensity of disclosure about top-strategic information. Prencipe (2004) verified the impact of direct costs over voluntary disclosure related to specific business areas.

No research has been conducted about voluntary disclosure strategies for the business model. Please notice the use of the expression "strategy" in order to specify that they are based on specific decision process aiming to compare the cost-to-benefit ratio of the activities required to prepare, disseminate and controlling the impact of deploying "critical" information (Lev, 1992; Healy e Palepu, 1993). So our first target in this paper is to check such strategies of voluntary disclosure and, in the meanwhile, their drivers according to the experience of non-financial Italian Blue Chips. Here's the emerging our first research question

RQ1: which are the strategies mainly used by Italian Blue Chips to disclose their business model? Which are their main drivers?

To get full evidence of the drivers we begun from checking the relationship existing between the industry and the adopted communication strategies. This is because we can suppose that communication practices may differ between industries both for historical reasons, fixing, for example, specific benchmarks connected to the specific ways competition is carried on: "… in particular whether firms face existing competitors or merely the threat of entry, and on whether firms compete primarily on the basis of price or long-run capacity decisions" (Healy e Palepu, 2001, page 424). For this scope we distinguished the sample companies into Manufacturers, Commercial/Service and Holdings (Cooke, 1991; Raffournier, 1995)[1].

Further analysis has been made to discover if the number of employees, the total invested capital, the equity and the revenues can be drivers of the disclosure strategies. We expect that bigger corporations are to conduct greater investments that let them keep more connected to the equity capital, thus more sensible to the adverse selection problem. Moreover, they have higher incentives to reduce private information dealing to cut the transaction costs (Diamond, 1985). Competition costs are probably lower for bigger corporations since, *ceteris paribus*, they have more defensive tools for their competitive position (Raffournier, 1995). Even costs to prepare, disseminate and controlling data are lower in the case of big corporation because of lower impact of fixed costs (Lang e Lundholm, 1993). Legal costs related to sues could instead being higher because of their stronger impact (Skinner, 1994). Finally, the bigger is the corporation, the higher will be the number of financial analysts and of the stakeholders (trade unions, Government, etc.) who will be interested in their performances, thus generating pressure to get information (Schipper, 1991).

Finally we have controlled the impact over return variables such as the return on equity (ROE) (Raffournier, 1995; Inchausti, 1997), usually used to measure the quality of the investment. The higher is the return on equity, the higher will be the degree of voluntary disclosure in order to reduce the risk of adverse selection (Lang e Lundholm, 1993). For sure, the higher is the corporate rate of return, the higher will be the attention that the corporation does attract from other stakeholders including competitors, clients, suppliers and workers. They could conclude that the higher corporate return is direct consequence of their lower return, thus sustaining greater transaction costs. Moreover, a low-return corporation should carry on more voluntary disclosure in order to reduce the negative impact arising from legal sues from investors due to lack of information (Skinner, 1994)

Focusing now on the effects of strategies of voluntary disclosure of the business model, we may find a couple of possible explication of cost of capital reduction (Healy e Palepu, 2001).

The former is due to the increase of liquidity of the security, thus reducing the equity cost of capital by an increase in the demand of the security (Diamond e Verrecchia, 1991) and a reduction in the expected value of losses due to transaction against informed traders (Easley e O'Hara, 2004).

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[1]Darrough e Stoughton (1990) show that costs of higher disclosure are directly linked to the number and dimension of the competitors.

The reduction of transaction costs might also affect the bid-ask spread in security trading (Amihud e Mendelson, 1986). Some authors strike out a possible positive relationship between voluntary disclosure, information asymmetries and equity cost of capital (Kim e Verrecchia, 1994; Zhang, 2001), even if several empirical evidences support a negative correlation (Welker, 1995; Coller e Yohn, 1997; Healy et al., 1999; Leuz e Verrecchia, 2000; Heflin et al., 2005; Brown e Hillegeist, 2007). Not all the empirical researches seem to be consistent (Francis et al., 2008).

The latter, is connected to the assumption that when the disclosure is imperfect, investors are charged with a further information risk due to wider uncertainty in expectations concerning payoffs. If this kind of risk is systematic (Barry e Brown, 1985; Handa e Linn, 1993; Coles et al., 1995), many investors will require a further return to bear such a risk; more recently (Mantovani, 2008) information risk premia link to firm-specific risk has been discovered. In effect, there seems to be no full consensus about the effective possibility to diversify the information risk (Clarkson et al., 1996) and how disclosure might reduce it, having redundant evidence about this (Botosan, 2006). Some authors show a significant relationship only in the case of securities generating low interest for analyst (Botosan, 1997) or corporation carrying on aggressive accounting strategies (Gietzmann e Ireland, 2005), or carrying on *disclosure* strategies only through the annual report (Botosan e Plumblee, 2002).

For sure, results from empirical evidence might be connected to the choices made by researchers for measuring disclosure: self-made ratios can overweight some subjects according to the researcher point of view, while independent index (such as the AIMR one) may be inefficient to describe the specific problem to be investigated. Healy and Palepu (2001) support the use of self-made ratios because of their better support to a specific disclosure investigation, but they strike out the higher costs of their computation in terms of reduces samples that can be analyzed. That's why several research based on self-made ratios do not attribute relative weight to the importance of specific items (Ahmed e Courtis, 1999). In our opinion, the real problem is connected to the choice of only measuring the level of disclosure, thus making the hypothesis that quality and quantity of disclosure will be strongly related (Botosan, 1997): we suggest, instead, a disclosure index will not be able to consider all the relationships between the different components of the items to be communicated, just like the strategy of disclosure should suggest to corporations. Thus, we support the idea of reject the mere quantitative approach to adopt a more systemic one (Drazin e Van de Ven, 1985) or a configurative one (Meyer et al. 1993) as usually done in the analysis of strategies of production, organization and competition (Dess et al., 1993; Miller, 1986; Milgrom e Roberts, 1995), just like a paper of Chavent et al. propose (2006).

Referring now to the measurement of information risk we must first distinguish between risk existence and the effective impact it may have on the financial markets equilibrium (so, the existence of an actual information risk premia). This separation is required in order to find an economic support to the choices in terms of disclosures; in fact, as a paradox, in a world without information risk premia, no economic incentive would exists to carry on strategies of voluntary disclosure. The question is still more complicated from the necessity to standardize the information flows to the investors (thus increasing the information efficiency of the markets) against the possibility that highly standardized information flows can impede to diffuse very specific pieces of information, particularly those connected to the competitive advantage of the corporation (thus impacting on the value creation process). That's why it is technically possible that an increase in the quantity of information could reduce its quality and, by that way, the appetite for a specific investment. Allen and Gale (1994) proposed to split the total risk of an

investment into two components: the "payoff risk", representing the actual risk embedded in cash flows and the "information risk" being it the gap between the risk perceived from investors and the payoff one. The actual investment behaviour will be based on the sum of the two risks and, by this way, the actual level of the prices of the securities. Bertinetti et Al (2004) tried to analyze the possible sources of information risk and found out that some of them are endogenous to the financial markets so are of systematic source. Two classes of systematic information risk have been identified: (i) those generated by the information timing, i.e. connected to the natural quantity of time required to widespread information into the markets; (ii) those generated by the so called "information error", i.e. related to biases in perception of risk due to the application of specific techniques. A third possible source of information risk may be the financial communication processes (Bertinetti, 1996) mainly connected to the firm-specific part of it.

According to the proposal of Bertinetti ed Al, (2004), Mantovani (2004 and 2012) proposed an original methodology to indentify some proxies of the information risk that entitle to distinguish between systematic and firm specific components of it. The methodology is based on the idea that in financial markets evolving toward efficiency (even in a weak form) the information risk can be proxy by the spread existing between long term and short term volatility of stock returns. In fact, investors will choose investments on the base of biased short-term volatility while the action of the information traders will contribute to widespread information inside the market (Grossman and Stigliz, 1980), thus fixing the volatility to the long term value, i.e. to the payoff risk only. The wider is the time window used to compute the short-term volatility the lower will be the gap between long-term and short-term computation. Bertinetti ed Al, (2005) try to test the model by detecting the information risk premia in special events in the financial markets such as the sale of newly issued shares, comparing the experience in different European Countries (Italy, France and Spain); relevant results were found, thus trusting the methodology. Gardenal (2007) try to detect the connections between the information risk and the risk aversion of investors in a behavioural finance context, while Mantovani (2008) proposed a very long term analysis (15 years) for the information risk to find out the possible drivers of an information risk premia model.

Our second target in this paper is to investigate the impact of the different strategies of voluntary disclosure about the business model on the information risk premia as measured in Mantovani (2008), thus answering to the following research question

RQ2: which is the actual impact of the disclosure strategies over the information risk premia (and the cost of equity capital)?

You can better understand while the information risk premium is included in the equity cost of capital by looking at an example that synthetically compares the price paths in financial markets due to the wide spreading of new pieces of information in two different possible scenarios: from one side, the theoretical path supposed by frictionless markets; on the other side, the diesel market where along with long-term investors even information traders, stock pickers and market timers do act.

Proof of the methodology to proxy estimate the information risk premia can be found in Mantovani (2012). According to the paper we may conclude that the information risk

- is not simply linked to the "quantity of information" diffused to investors (if information cannot be elaborated the acknowledge does not increase) but also by their "quality";

- must be split into two parts: the systematic one, due to the mechanism that in a concrete way the market use to process information (both quantity and quality); the firm-specific one, strictly connected to the disclosure strategies adopted by corporations.

The equity cost of capital will be then determined by these components. So can be explained why companies fully disclosed may have information risk: the market could not be able to process the information or the standard imposed are not fully capable to transfer the entire set of information. We are expecting, then, that optimal disclosure strategies should reduce at least the firm-specific level of risk premium.

3. SAMPLE SELECTION AND METHODOLOGY

We investigate the voluntary strategies of the entire set of the 40 Italian Blue Chips listed in the Milan stock exchange in year 2003 (annex 1). We do focus on the Italian experience in order to emphasize the gap with the best practice in financial communication and even to determine the opportunities that such a gap can generate. The inner differences between the Italian model and the Anglo-Saxon one can be also correlated to the level of protection to the investor, being higher in formal terms in Italy, being higher in substantial term in the Anglo-Saxon system, thus generating several doubts about the efficacy of the two models (Francis ed Al., 2005). Finally we must consider that the reduced propensity to voluntary disclosure in Italian corporation is widely documented (Guatri e Eccles, 2000; Bagnoli, 2005) and for sure determined by the high concentration of shareholders and the diffusion of the model of "family corporations" (Beretta 2006).

We have chosen to look at the bigger corporations in order to have a more uniform sample to analyze while including companies having the highest possible degree ho voluntary disclosure. Moreover, the absolute dimension of the corporation may affect the equity cost of capital because of higher level of liquidity in share trading (Botosan e Plumblee, 2002). On the opposite we decided to exclude the companies operating in the financial industries because of the specific information model they usually adopt and particular regulatory framework for their financial communication activities (Hossain et al., 1995), strictly related to their business.

We are aware of the limits that may arise from analyzing only year 2003. Nevertheless, it is likely that voluntary disclosure strategies have an intertemporal dependence since choices made in a certain period influence those made in the next period. Cosimano et al. (2002) and Einhorn e Ziv (2008) affirm the existence of this dependence in a relatively stable environment. Bagnoli (2009) affirms, with particular reference to Italian listed companies, the existence of important intertemporal dependence effects also with strong discontinuities at a competitive environment and informative level that make them relatively instable and unpredictable.We preferred to increase the number of corporations and of documents analyzed for each year instead of increasing the frequency of years.

The documents analyzed are mainly the annual report with particularly reference to the sections dealing with the business model – particularly as regulated in section 2428 of the Italian Civil Code – the investor relations activities and the press release available through the web site. From the beginning of the 90's several professional associations and regulators (AICPA, 1994; FASB, 2001; CICA, 2001; IASB, 2005) try to propose standards to increase sections of the annual report concerning the description of the business model. Italy adopted a specific application of the suggestions in its civil law as suggested by EASG, 2000.

The Italian legislator, in line with the European one, left high discretion to the companies on how to translate these binding issues into types of information to be provided and their level of depth. Therefore, the methods of drawing up the annual report are mandatory in form, but essentially voluntary in content. The decision to consider alongside the narrative sections of the annual report also the investor relations and press releases depends on the evidence that their coordination, in terms of strategies of disclosure, is not perfect. For example, using the disclosure index produced by AIMR, Lang and Lundholm (1993) documented the presence of a correlation of only 0.41 between the annual report and investor relations. The method used for the analysis of the documents is the content analysis, widely used in studies on corporate voluntary disclosure (Guthrie et al., 2004) and because it allows a good reproducibility and valid inferences from the data (Krippendorf, 1980). In particular, we assume that the importance attached by each company to the various strategic issues depends on (and is therefore indicative of) the strategy of voluntary disclosure of the business model adopted. Therefore, for each company we have identified and then coded information with strategic content reported on the documents analyzed, taking as unit of analysis the single sentence (Hackston and Milne, 1996).

The analysis grid was derived from the model of the "Rombo del Valore" by Olivotto (2000) that identifies, in the aspects below, the basic mechanisms generating economic value[2]:

1.   Attractiveness of the *Competitive Environment*;
2.   Strength of the *Competitive Specificities;*
3.   Excellence of the *Process System;*
4.   Validity of the *Exploitable Skills.*

In particular, the analysis grid was divided into three levels (Annex 2):

1.   six macro-headings (marked by capital letters) that act as information areas and are attributable to the macro-theme of economic value and its determinants where, however, the competitive environment has been divided into: General Environment and Specific Environment;

2.   twenty-one *headings* (marked by the capital letter of the macro-item which they belong to and by a lowercase letter) resulting from the breakdown of macro-items (not the economic value which is also a macro-headings) and representing the strategic issues that companies should handle with;

3.   nineteen sub-items (marked with uppercase and lowercase letters of the source entry and with a numeric value) resulting from the decomposition of some items.

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[2]The use of a self- built grid of analysis is, according to Francis et al. (2008), justified by the likely stability of the voluntary disclosure strategies.

A list of coding rules was defined for each no further decomposable item and for each sub-component of the grid of analysis. A preliminary test to verify the completeness of the grid of analysis and the robustness of the coding rules (refining eventually the ambiguous ones and at the same time standardizing the coding capacity of the analysis) was conducted on two companies (5% of the sample) belonging to different sectors. These companies were independently reviewed by one of the authors and two junior analysts. The results of the individual analysis were compared, the differences discussed and the list of coding rules refined.

Using this new list of coding rules, the two junior analysts analyzed separately the remaining 38 selected companies. Every 5 companies analyzed, the results separately obtained by the junior analysts were compared. If they did not coincide, the junior analysts were asked to reconsider the point and agree on a position. After 2 discussions, the differences nearly disappeared[3].

In the analysis we estimated the importance of every individual business topics by identifying both the number of words dedicated to them, and the number of their connections with other themes. We assumed that the number of words devoted to a certain issue is a significant estimator of its level of detail. It is possible that some issues are, because of their nature, synthetic, so that a more extensive analysis does not enrich their informative power, or that they require a discussion of amplitude which widely varies from company to company.

These exceptions are not such that to lead to the rejection of the assumption mentioned above (Copeland and Fredericks, 1968; Tsalta and Walker, 2001; Leuze and Schrand, 2008). We also assumed that the number of connections that a theme has with the other themes is a significant estimator of its level of importance.

The connections were divided into causal links: $A \rightarrow B$ (A causes B) and connotative: $A \leftrightarrow B$ (A and B are related). Accepting the assumptions of the software used for the reconstruction of the connections (Decision Explorer), the importance score was calculated by assigning a value of: 1 on each link of grade 1 ($A \rightarrow B$), 0.5 to each link of grade 2 ($A \rightarrow B \rightarrow C$) and 0.33 to link each of grade 3 ($A \rightarrow B \rightarrow C \rightarrow B$), and then summing up the values given to each individual connection.

We then proceeded to aggregate, through a cluster analysis (SPSS 13.0), the companies selected on the basis of both the number of words devoted to each individual topic, and the number of their connections with other themes. This was made in order to identify two sets of strategies of voluntary disclosure of the business model: one based on the importance of the issues in terms of space and one based mostly on the importance of the issues in terms of importance. These two sets must have this feature: to be made of groups in which the statistical variance between grouped items is low (internal cohesion), whereas the variance between different groups is maximized (external separation). The choice of the clustering algorithm led to the use of the Ward agglomerative hierarchical method with the Euclidean distance. This algorithm was used by Bagnoli (2005) and is most commonly used in strategic management (Ketchen and Shook, 1996). This algorithm moves from considering every single element of a group and proceeds through a series of passages in which the nearest groups are grouped two by two until you get to the identification of a single group. This brings to a tree-chart showing how the groups were built. To

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[3]This process of systematic comparison ensures high reliability of the results achieved through the codification, thus making unnecessary the calculation of indices of reliability (Krippendorf, 1980).

identify the number of groups to consider in order to derive the most significant results, we proceeded visually inspecting the tree and cutting it in proximity of the highest jump (Ketchen and Shook, 1996).The results achieved in both clustering procedures were nevertheless confirmed by the analysis of the agglomeration coefficient, which shows the Euclidean distances for all the progressive steps of grouping. The groups identified through the cluster analysis, conducted on the basis of the number of words devoted to each individual topic, were crossed with those emerged from the cluster analysis conducted on the number of their connections. This was to identify a taxonomy of strategies for voluntary disclosure of the business model based on the importance of the issues in terms of both space dedicated to them and importance assumed.

We then moved to recognize if and how the voluntary disclosure strategies of the business model identified had an impact on the information risk of the companies belonging to the sample. To do that, we first collected the time series of their stock prices and their related trading volumes. On this basis, we adopted the procedure firstly used by Mantovani (2004) and briefly described above. Its application follows the rules below.

The time series of prices used in the analysis ranges from 1.1.2002 - 30.12.2005, a total of 1'043 daily observations for each individual stock and also for the general market index (Comit Global Index). The observation period was chosen in order to be able to recognize the disclosure strategies adopted by the firms analyzed for the first research question.The choice of the range of analysis took place so that the time horizons before and after the analysis were identical and, simultaneously, large enough to be able to calculate average levels of volatility, compatible with the minimization of the information information on the whole time horizon (only in this way, in fact, we can highlight, by difference, the short term information risk). Previous analysis show that three years are a sufficiently long period of time; this is because the dissemination of information in 2003 takes place in the same year (especially in the second half) and then again in the first half of next year 2004.

The methodology is fully explained in Mantovani (2012). From the time series of prices we first computed the returns of each trading day using the following formula:

$r_t = (P_t - P_{t-1})/P_{t-1}$ [1]

Starting from the returns time series, it is then possible to calculate, for the specific period of analysis, the traditional indicators of risk (measured by the standard deviation of returns), and an estimate of the stock beta which allows to decompose the total risk (as expressed by the standard deviation) into the diversifiable and the systematic part.

The standard deviation refers to the entire set of daily returns (i.e. 1043-1 returns); for this reason, it was used in this study as an indicator of the investment risk not influenced by the information risk (σ LT) , at least from the short-term risks.

Analytically:

$$\sigma LT = \sqrt{\sum_{t=1}^{1+1042} \frac{\left(r_t - \overline{r_t}\right)^2}{1043}} \qquad [2]$$

Restricting the analyses to 60 consecutive observations, we get the value of the overall risk in the short term (σST), obviously different from the long-term one because of the presence of information risk. Analytically:

$$\sigma ST = \sqrt{\sum_{t=1}^{1+60} \frac{\left(r_t - \overline{r_t}\right)^2}{60}}$$ [3]

For each stock index (and for the general index), we then calculated the series of the 983 short term standard deviations. These are obviously shorter time series than the previous ones, since they range from March 28, 2002 (i.e. 60 days later) to December 30, 2005 (like the other series).

To be precise, we should emphasize that the use of historical data computed ex-post is equivalent to hypothesize a market model of rational expectations. In the writer's opinion, the solution does not conflict with the hypothesis underlying this study only if we accept that the information risk may be also systematic in nature and that the informed agents are not exactly equal to the total number of agents operating in the financial market. The alternative hypothesis to take the expected volatility as our risk measure would be more effective only if one contemporaneously accepted the absence of information risk on the financial instrument, which allows to estimate the expectations about the volatility levels. Since this calculation is usually made on the basis of the derivative prices, like e.g. options, it is difficult to claim that the additional hypothesis is more easily met than the one we adopted.

Subtracting from σST the unique value of σLT calculated for the whole period, we get an indicator of the *pro-tempore* total information risk impact (TIR) on the market:

TIR = σST – σLT   [4]

Being TIR the measure of the information risk impact, its proxy is instead identified by variations of TIR over time or by changes in volatility in excess with respect to the equilibrium levels, changes that we can attribute to the mechanics of new information diffusion on the market (systematic part) and also to the disclosure policies adopted by the companies (idiosyncratic part).

The evidence of high impacts of the information risk on the risk indicators characterizing the investment (including the idiosyncratic part) and of these risks on daily returns will justify the subsequent search for connections with relevant facts, specific of each investment.

$\partial TIR/\partial t \cong TIR_t - TIR_{t-1} = dTIR$ [5]

We obtain in this case a further reduced set of data to the period March 29, 2002 – December 30, 2005, which amounts to 982 observations, one fewer than the previous one. It is possible to estimate the proxy of the information risk also for the general index, consistently with the theoretical evidence according to which the information asymmetries in the market are not necessarily linked only to the choices made by enterprises, but also to the mechanisms by which the market as a whole deals with the available information and also to the information standards imposed by the regulation, whose effectiveness remains, *erga omnes*, in doubt. The evidence of low levels of the ratio between dTIR and TIR discovered in other studies (Mantovani, 2008) indicates that the persistence of the information risk tends to be significant, a fact this to be imputed to the time needed by the markets to adapt their mechanisms of working, particularly the institutional ones. The research of the systematic information risk level can be made following the

same logic as seen before for the total risk (i.e. contrasting levels calculated over long periods of time with those over shorter periods).Differently from before, however, we proceed with the calculation of the betas of the stocks and from them with the identification of the share of standard deviation which describes the systematic risk. The short term beta was calculated using the traditional formula applied on a 60 days-series of the stock returns and of the market index, consistently with the procedure used for the short-term volatility. Analytically:

$$\beta ST = \frac{Cov_{t=60}(r_t; r_m)}{Var_{t=60}(r_m)} \qquad [6]$$

where the suffix "m" refers to the market as a whole.

On the basis of the traditional decomposition of the variance of a stock return into its systematic part and its idiosyncratic one, we can also decompose the overall returns standard deviation and isolate the idiosyncratic part. Analytically:

$$,Var(r_t) = \beta^2 Var(r_m) + \varepsilon^2 \qquad [7]$$

Equation 7 refers to the efficient frontier. We prefer to refer to the capital market line portfolio having the same expected return but a systematic risk as depicted in equation [8]:

$$\delta = \sigma(r_t) - \beta \text{ x } \sigma(r_m) \qquad [8]$$

where βx $\sigma(r_m)$, the share of systematic risk supposing a fully efficient market, thus let us include in δ even the over-volatility due to any source of risk: the idiosyncratic and the information one. Both indicators are calculated both for the long and the short term, allowing to determine the impact of the systematic information risk (SIR) and its variability (dSIR) and, by difference, the impact of the idiosyncratic information risk (DIR) and its variability (dDIR), of course not present in the case of the general market index.

Finally, to highlight the actual impact of the disclosure policies adopted by the companies we need to understand what is the contribution of the idiosyncratic information (DIR) to the total information information (TIR) and compare it with the systematic part. By calculating the correlation between SIR and TIR and then between DIR and TIR for the time horizon under analysis we can draw some preliminary results. Of course, the correlation levels between individual securities will never be perfect (1.00); only for the general market index TIR is fully determined by SIR. However, the sum of the two correlations won't be 1, being a part of the SIR determined by the inadequacy of the information standards to represent the riskiness of the specific investment.

In these cases, then, the strategies of disclosure will act both on the level of idiosyncratic information risk, according to the traditional doctrine, and on the systematic one if the company voluntarily decides to integrate the information where insufficient (assuming of course that it is aware of that). The actual benefit on the cost of capital will depend also on the reaction that the financial market can develop. Partially integrating the original model, we tried to understand this phenomenon through the degree of correlation between changes in the DIR and the trading volumes of the securities along the time period of interest.The idea is that if changes in dDIR determine changes also in the volumes, then not only the potential exists, but the financial market is ready to recognize it. The threshold of 13% is the reference point, as being the average level of the Italian market (see Bertinetti et al., 2004).

4. THE DISCLOSURE STRATEGIES OF THE BUSINESS MODEL AND THEIR DETERMINANTS

The first objective of this paper is to recognize the strategic choices regarding the voluntary disclosure of the business model adopted by the Italian blue chips and their determinants. The cluster analysis procedure described in the previous paragraph led us to distinguish firms into two groups if we consider the number of words devoted to each individual topic (Annex 3), and in two other groups (different from the two just mentioned) if we consider the number of their connections with other themes (Annex 4).The first two groups were then crossed with the second two groups. This led us to identify four groups of companies with different strategies for voluntary disclosure.To identify the disclosure strategies, we have compared the average number of words dedicated and connections established by different groups of firms in the description of their business models and of the individual topics discussed (Annex 5 and 6). To test the statistical significance of the differences between these averages we used the One-Way ANOVA (SPSS 13 for Windows). Before this analysis we tested if the underlying variables were normally distributed using the Kolmogorov-Smirnov test of (Annex 7 and 8). Unlike most of the statistical tests, a significant result is, in this case, bad news: the normal distribution does not approximate well the one characterizing the variable in the analysis ($Z<0.05$). Comparing the average number of words dedicated and connections established by different groups of firms in the description of their business models we discovered their voluntary disclosure strategies can be broadly characterized as follows (Table 1):

- *Group A*: very well described but little interrelated themes;
- *Group B*: very well described and very much interrelated themes;
- *Group C*: bad described and little interrelated themes;
- *Group D*: bad described but very much interrelated themes.

Table 1: Groups of Firms and Relative Voluntary Disclosure Strategies

	Low interrelation among themes	High interrelation among themes
	Group A	*Group B*
Very well described themes	Acea Alitalia Autogrill Autostrade per l'Italia Bayer Davide Campari Enel St. Microeletronics	Eni Fiat Luxottica Mediaset Telecom Tenaris Volkswagen
	Group C	*Group D*
Bad described themes	Asm Brescia Autostrada To-Mi Bulgari Buzzi Unicem Caltagirone Editore Finmeccanica Gruppo Editoriale l'Espresso Italcementi Lottomatica Rcs Mediagroup Recordati Sias Snia Telecom Italia Media Tod's	Aem Arnoldo Mondadori Editore. Benetton Group Edison Hera Merloni Elettrodomestici. Saipem Seat Pagine Gialle Snam Rete Gas Tim

After that, comparing the average number of words devoted by the different groups of firms in the description of individual strategic issues and restricting the analyses only on the variables whose distribution is a normal, we discovered that what mostly differentiates the voluntary disclosure strategies of the firms belonging to groups A and B compared to the firms belonging to groups C and D is a more in depth discussion of the first item *Bb) Relative position of the firm* which indicates the competitive strength of the company with respect *to its competitors*, and then of all the headings and subheadings related to the macro-heading *C) Competitive Specificities* which highlight the sources of competitive strength with the exception of the sub-heading *CC2)Adaptability in discontinuity*. Also the major deepening of the voice *Dc) Processes for the amplification of the firm value* which describes the actions developed to improve the efficiency and effectiveness of the business processes, and the voice *De) Processes of value creation* which,instead, highlights the actual procedures of development of these processes and differentiates the strategies for voluntary disclosure of companies belonging to groups A and B with respect to the others. With particular reference to the last heading mentioned, the most significant differences are found at the level of sub-headings *De4) Marketing*; *De7) Human Resources* and *DE9) Support activities*. Those listed are, moreover, generally recognized as the most critical business processes. Finally, the greater deepening of the item *Eb) Orientation to the incremental improvement* differentiates the voluntary disclosure strategies of firms belonging to

groups A and B from the others. Instead, the lack of differentiation at the level of heading *Ec) Orientation to radical improvement*, consistent with the result found above in the subheading *CC2) Adaptability in absence of continuity*, seems to prove the companies' choice, regardless of the groups they belong, not to investigate issues related to their ability to respond to strategic risk (ICAEW, 1997, Jorion, 1997).All this despite the huge number of studies focused to deepen the quality of financial reporting with particular attention to the disclosure of business risks (Bozzolan and Beretta, 2004). Moreover, comparing the average number of connections established by different groups of firms in the description of individual strategic issues and always concentrating on the variables normally distributed, we can see that the issues that mostly differentiate the disclosure strategies of the firms belonging to groups B and, in a less strong way, D with respect to groups A and C nearly coincide with the themes mentioned before.

This result seems to show that these issues are actually the most crucial and characterizing the different disclosure strategies of the business model. The not perfect coincidence is due to a major role of the headings *Aa) Financial-economic Environment* and *Ac) Political and Institutional Environment* in the disclosure strategies of firms belonging to groups B and D compared to others. This lack of coincidence may be due to the fact that despite the central role assumed by them in dealing with strategic issues, clearly important premises for the overall corporate actions, their depth can be achieved also by dedicating to them reduced spaces. The not perfect coincidence is mainly due to a reinforced role of the headings *Bc) Variability of the specific environment*; *Db) Processes for the research of opportunities*; *De8) Technology Management* and *Ea) Orientation to the expectations of stakeholders* in the firms' strategies of disclosure belonging to groups B and D compared to others. This greater importance points out a particular attention given to the evolution of the specific environment. Thus, the importance of the processes aiming at recognizing latent potentials to generate value (environmental scanning), through both: (i) entering new markets, and (ii) developing new products and processes through new technologies, especially those allowing a better satisfaction of the stakeholders (e.g., occupational safety, eco-compatible transformation processes, etc.). The fact that this concern is not translated into greater exploration of these strategic issues may depend on the fear of providing too detailed information to competitors[4].

To understand the determinants of the voluntary disclosure strategies recognized so far, we controlled for the impact on the latest of the average Dimension measured by Number of employees, Invested capital, Equity, Net revenue, and Profitability, measured in terms of ROE of companies belonging to the different groups, and thus their distribution across sectors. To test the statistical significance of differences between these averages we used the One-Way ANOVA (SPSS 13 for windows). Before doing this, however, we verified if the underlying variables were normally distributed with the Kolmogorov-Smirnov test (Annex 9).

Given that none of the dimensional variables observed is normally distributed, we proceeded to test the statistical significance of the differences between means including by non-parametric test of Kruskal Wallis. Both tests (parametric and nonparametric) showed a statistically significant difference in terms of average dimension, however measured, but not at the level of profitability among the firms belonging to the different groups identified. In particular, firms belonging to

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[4]"Three factors appear to determine whether information creates competitive disadvantage: the *type* of information, the *level of detail,* and the *timing* of the disclosure. As for the type of information, routine operating data (companies often provide such operating data for inclusion in industry-wide statistics) are generally less likely to cause competitive disadvantage than information about product development. However, the greater the level of detail about new product plans - for example, including unique features and the reasons for their potential appeal - the greater the likelihood of competitive disadvantage. Similarly, the level of detail about other types of disclosures determines whether they can cause competitive disadvantage".FASB (2001: 18).

groups A and especially B have a significantly higher average dimension than those belonging to groups C and D (Table 2). The dimension seems to explain at least as much as the average number of words devoted by firms belonging to groups A and B in the description of their business models and of the individual topics. By contrast, the distribution among industrial sectors of the companies belonging to the different groups found does not seem significantly different and does not appear to explain the different strategies of voluntary disclosure of the business model recognized.

Table2: The Drivers of the Identified Groups.

Variable	Gr.	μ	σ	Min	Max	Anova		Kruskal Wallis Test	
Dimension						*F*	Sig.	χ2	Asymp. Sig.
Employees	A	37.456	38.375	1.390	115.400	6,792	0,001	18,08	0,000
	B	104.184	114.638	5.600	334.873				
	C	6.491	11.859	909	46.861				
	D	8.614	7.038	2.484	21.314				
Invested Capital	A	18.022.347	23.754.163	1.214.606	69.015.000	8,660	0,000	9,78	0,021
	B	50.348.882	43.886.166	3.912.676	119.136.000				
	C	3.415.282	6.587.764	505.203	26.556.385				
	D	5.345.238	4.588.256	1.726.023	16.495.000				
Equity	A	1.513.178	1.940.883	29.040	6.063.000	3,563	0,023	19,40	0,000
	B	2.859.924	3.244.944	27.269	8.854.000				
	C	327.681	495.704	20.741	1.855.571				
	D	992.263	1.265.865	67.452	4.212.000				
Sales	A	9.566.670	12.281.328	729.655	30.022.000	9,426	0,000	18,38	0,000
	B	33.217.362	30.824.386	2.824.636	87.153.000				
	C	1.541.731	2.119.336	244.306	8.233.040				
	D	2.420.782	1.608.445	735.565	5.985.000				
ROE	A	1%	20%	-42%	19%	0,875	0,463	2,08	0,557
	B	10%	18%	-25%	30%				
	C	6%	12%	-20%	20%				
	D	12%	8%	-1%	25%				
Sector		**Manufacturing**		**Commercial/Services**		**Holding**			**Total**
Sector	A	13%		50%		37%			100%
	B	14%		29%		57%			100%
	C	13%		27%		60%			100%
	D	0%		50%		50%			100%

5. IMPACT OF DISCLOSURE STRATEGIES OF THE BUSINESS MODEL ON THE INFORMATION RISK PREMIA

The second objective of this paper is to recognize the impact of different strategic choices in terms of voluntary disclosure of the business model adopted by the Italian blue chips on their level of information risk. The procedure described in paragraph 3 led to first calculate the average daily returns of the securities of companies in the sample, their total risk (standard deviation) and systematic risk (beta of the title), and the total risk composition (in %) in systematic and idiosyncratic part (3le 5).

Looking at Table 3, some aspects are worth being highlighted:

- the high level of volatility with respect to the daily return (on average, the former is over 61 times the latter), sign of the continuous adjustment of market prices, even after the flow of information;

- the consistency of the idiosyncratic risk with respect to the total risk, on average equal to 61.36%, and never smaller than 36.78% with a maximum of 89.70%.

Without entering into details of academic discussions, the data presented in the table put in evidence that the idiosyncratic risk factors characterizing these investments are substantial, both in relation to the payoff risk and to the information risk.

Instead, Table 4 shows the results of the calculations of the total information risk in accordance with the methodology described before and its impact compared to the levels of total risk and idiosyncratic risk of the investment. It should be noted immediately that also the general index shows information risk, inconsistently with the theoretical predictions, thus confirming that the problem of asymmetric information on the market should not be related only to the choices made by the enterprises, but also to the mechanisms by which the market as a whole povides information and also to the standards imposed by the regulators, whose effectiveness, *erga omnes*, remains doubtful.

Table 3: Analysis of the Relation Between Returns and Risk

Company	Daily Returns		Beta	Weight of Risk (%)	
	Average	St. Dev.	of the period	Systematic	Diversifiable
Acea	0,0183%	1,7118%	0,8392	45,09%	54,91%
Aem	-0,0260%	1,6011%	0,7929	45,55%	54,45%
Alitalia	-0,1562%	2,6210%	0,9845	34,55%	65,45%
Arnoldo Mondadori Editore	0,0277%	1,7340%	1,0506	55,72%	44,28%
Asm Brescia	0,0365%	1,2236%	0,2591	19,48%	80,52%
Autogrill	0,0231%	1,7401%	0,8513	45,00%	55,00%
Autostrada To-Mi	0,0911%	1,3495%	0,3410	23,24%	76,76%
Autostrade per l'Italia	0,0831%	1,1892%	0,2888	22,34%	77,66%
Bayer	0,0153%	2,2818%	1,3955	56,25%	43,75%
Benetton	-0,0146%	2,0876%	0,9698	42,73%	57,27%
Bulgari	0,0289%	2,3193%	1,3858	54,96%	45,04%
Buzzi Unicem	0,0588%	1,7343%	0,8099	42,95%	57,05%
Caltagirone Editore	0,0045%	1,5542%	0,5731	33,91%	66,09%
Davide Campari	0,0913%	1,5581%	0,2971	17,54%	82,46%
Edison	0,0131%	1,9326%	0,6712	31,95%	68,05%
Enel	0,0181%	1,3451%	0,6536	44,69%	55,31%
Eni	0,0563%	1,4651%	0,7363	46,23%	53,77%
Fiat	-0,0633%	2,1656%	1,1774	50,01%	49,99%
Finmeccanica	-0,0054%	1,9878%	1,3446	62,22%	37,78%
Gruppo Editoriale l'Espresso	0,0375%	1,9199%	1,1693	56,02%	43,98%
Hera	0,1027%	1,2678%	0,1800	13,06%	86,94%
Italcementi	0,0598%	1,3951%	0,5689	37,51%	62,49%
Lottomatica	0,1224%	1,5633%	0,3585	21,09%	78,91%
Luxottica	0,0231%	1,7370%	0,6879	36,43%	63,57%
Mediaset	0,0140%	1,8041%	1,0450	53,27%	46,73%
Merloni Elettrodomestici	0,0547%	1,8578%	0,5763	28,53%	71,47%
Rcs Mediagroup	0,0303%	2,2751%	1,1954	48,33%	51,67%
Recordati	0,0220%	1,9965%	0,6590	30,36%	69,64%
Saipem	0,1066%	1,9203%	0,6992	33,49%	66,51%
Seat Pagine Gialle	0,0189%	1,6674%	0,3326	18,34%	81,66%
Sias	0,1135%	1,4783%	0,3277	20,39%	79,61%
Snam Rete Gas	0,0356%	1,1067%	0,1239	10,30%	89,70%
Snia	-0,0190%	2,0222%	0,3048	13,86%	86,14%
St Microelectronics	-0,0706%	2,5697%	1,7044	61,00%	39,00%
Telecom Italia	-0,0166%	1,6568%	1,0035	55,71%	44,29%
Telecom Italia Media	0,0334%	2,2736%	0,9351	37,83%	62,17%
Tim	-0,0220%	1,6485%	1,0933	61,00%	39,00%
Tenaris	0,2414%	2,0633%	0,4721	21,05%	78,95%
Tod's Group	0,0268%	2,0835%	1,1387	50,27%	49,73%
Volkswagen	-0,0032%	2,0987%	1,4425	63,22%	36,78%
Milan Comit Global	0,0150%	0,9198%	1,0000	100,00%	0,00%

Table 4: Relation Between Information Risk and Total Risk

Company	Risk			Incidence of info-risk on tot-risk:	
	Total	Idiosyncratic	Information	Total	Idiosyncratic
Acea	1,7118%	0,9400%	0,0740%	4,33%	7,88%
Aem	1,6011%	0,8718%	0,0801%	5,00%	9,19%
Alitalia	2,6210%	1,7154%	0,1357%	5,18%	7,91%
Arnoldo Mondadori Editore	1,7340%	0,7678%	0,1590%	9,17%	20,71%
Asm Brescia	1,2236%	0,9853%	0,0412%	3,37%	4,18%
Autogrill	1,7401%	0,9571%	0,1451%	8,34%	15,17%
Autostrada To-Mi	1,3495%	1,0359%	0,0263%	1,95%	2,54%
Autostrade per l'Italia	1,1892%	0,9236%	0,0715%	6,01%	7,74%
Bayer	2,2818%	0,9983%	0,2378%	10,42%	23,82%
Benetton	2,0876%	1,1957%	0,0885%	4,24%	7,40%
Bulgari	2,3193%	1,0447%	0,1687%	7,27%	16,15%
Buzzi Unicem	1,7343%	0,9894%	0,0567%	3,27%	5,74%
Caltagirone Editore	1,5542%	1,0271%	0,0771%	4,96%	7,51%
Davide Campari	1,5581%	1,2848%	0,0758%	4,86%	5,90%
Edison	1,9326%	1,3152%	0,2429%	12,57%	18,47%
Enel	1,3451%	0,7440%	0,0938%	6,98%	12,61%
Eni	1,4651%	0,7879%	0,1019%	6,95%	12,93%
Fiat	2,1656%	1,0826%	0,0527%	2,44%	4,87%
Finmeccanica	1,9878%	0,7511%	0,1696%	8,53%	22,58%
Gruppo Editoriale l'Espresso	1,9199%	0,8444%	0,1190%	6,20%	14,10%
Hera	1,2678%	1,1022%	0,0725%	5,72%	6,58%
Italcementi	1,3951%	0,8718%	0,0417%	2,99%	4,78%
Lottomatica	1,5633%	1,2336%	0,1058%	6,77%	8,58%
Luxottica	1,7370%	1,1043%	0,0876%	5,04%	7,93%
Mediaset	1,8041%	0,8430%	0,1372%	7,60%	16,28%
Merloni Elettrodomestici	1,8578%	1,3277%	0,1052%	5,66%	7,92%
Rcs Mediagroup	2,2751%	1,1756%	0,0801%	3,52%	6,81%
Recordati	1,9965%	1,3904%	0,1853%	9,28%	13,33%
Saipem	1,9203%	1,2772%	0,1019%	5,31%	7,98%
Seat Pagine Gialle	1,6674%	1,3615%	0,0350%	2,10%	2,57%
Sias	1,4783%	1,1768%	0,0497%	3,36%	4,22%
Snam Rete Gas	1,1067%	0,9927%	0,0434%	3,92%	4,37%
Snia	2,0222%	1,7419%	0,0823%	4,07%	4,72%
St Microelectronics	2,5697%	1,0021%	0,2130%	8,29%	21,26%
Telecom Italia	1,6568%	0,7338%	0,1379%	8,32%	18,80%
Telecom Italia Media	2,2736%	1,4136%	0,0709%	3,12%	5,02%
Tim	1,6485%	0,6430%	0,1749%	10,61%	27,20%
Tenaris	2,0633%	1,6290%	0,0187%	0,91%	1,15%
Tod's Group	2,0835%	1,0362%	0,1037%	4,98%	10,01%
Volkswagen	2,0987%	0,7720%	0,1742%	8,30%	22,57%
Milan Comit Global	0,9198%	0,0000%	0,0938%	10,19%	n.s.

The average impact of the information risk is around 5.80% of the daily total risk highlighted by the securities, with a maximum value equal to 12.57% and a minimum equal to 0.91% of the total.

A notable fact is that the minimum incidence of the information risk is not reached by the general market index (which shows an incidence equal to 10.19%), but by a single firm. Note that the minimal impact of the information risk is not reached by the market index (which shows an incidence equal to 10.19%), but by a single firm. The fact that several companies are characterized by a lower incidence than the market shows that the level of information risk in the total system can also be influenced by a reduced number of stocks characterized by high incidence.

The cross-reading of this data with the one about the consistency of the total investment risk compared to the returns (Table 3) leads to the conclusion that the information risk is a significant determinant of the daily performance of an investment. If we consider only the case of the general market index, for example, the total investment risk has a standard deviation of 0.9198%, namely 61 times the average daily return which is equal to 0.0150%. The impact of the information risk estimated for the index is equal to 0.0938%, representing 10.19% of the total risk of the stock, still over 6 times the daily average return. We can conclude that the opportunity to generate extra returns (positive and negative) on a daily basis is very high, and this is a possible reason of some traders' activities in our market.

If we consider only the idiosyncratic risk which has a heavy weight on the overall risk, as seen in Table 3, we discover that the incidence for the various investments is more pronounced (of course this evidence is not detectable for the market index that, by nature, does not incorporate risk diversifiable). Table 4 then reports the impact of the information risk on the total idiosyncratic risk of each specific investment. Here the incidence is obviously higher than the incidence on the total risk, and has an average of 10.74%. The high incidence of the idiosyncratic risk on the total risk of the investment combined with the significant impact of the information risk on the diversifiable one, let us think that the effects of the voluntary disclosure strategies on the cost of capital of the firms can be considered very significant.

Table 5 compares the total value of TIR with the average value of its daily variation (dTIR) in order to understand the major / minor persistence over time of information risk on a specific investment. It is worthwhile to recall that this indicator requires particular attention to be interpretated, since when it is low it means that the daily changes are modest, and the persistence of risk information is higjher. *Vice versa*, high values of the indicator, demonstrate that the total information risk has undergone substantial changes, but limited in time.

Table 5: Drivers of the TIR Persistence

	TIR	dTIR	dTIR/TIR
Company	Total Info-risk	Average daily variation	Average persistence of RIT
Acea	0,0740%	0,0003%	0,3623%
Aem	0,0801%	0,0008%	0,9732%
Alitalia	0,1357%	0,0004%	0,2908%
Arnoldo Mondadori Editore	0,1590%	0,0016%	1,0194%
Asm Brescia	0,0412%	0,0006%	1,5702%
Autogrill	0,1451%	0,0010%	0,6800%
Autostrada To-Mi	0,0263%	0,0001%	0,2209%
Autostrade per l'Italia	0,0715%	0,0000%	0,0641%
Bayer	0,2378%	0,0003%	0,1305%
Benetton	0,0885%	0,0002%	0,2596%
Bulgari	0,1687%	0,0006%	0,3363%
Buzzi Unicem	0,0567%	0,0002%	0,4168%
Caltagirone Editore	0,0771%	0,0012%	1,5519%
Davide Campari	0,0758%	0,0001%	0,1175%
Edison	0,2429%	0,0004%	0,1520%
Enel	0,0938%	0,0002%	0,2660%
Eni	0,1019%	0,0005%	0,4934%
Fiat	0,0527%	0,0007%	1,2604%
Finmeccanica	0,1696%	0,0010%	0,5721%
Gruppo Editoriale l'Espresso	0,1190%	0,0015%	1,2871%
Hera	0,0725%	0,0021%	2,8435%
Italcementi	0,0417%	0,0003%	0,7008%
Lottomatica	0,1058%	0,0007%	0,6267%
Luxottica	0,0876%	0,0001%	0,0787%
Mediaset	0,1372%	0,0012%	0,8423%
Merloni Elettrodomestici	0,1052%	0,0012%	1,1774%
Rcs Mediagroup	0,0801%	0,0001%	0,1702%
Recordati	0,1853%	0,0001%	0,0803%
Saipem	0,1019%	0,0004%	0,4343%
Seat Pagine Gialle	0,0350%	0,0020%	5,7284%
Sias	0,0497%	0,0009%	1,8641%
Snam Rete Gas	0,0434%	0,0001%	0,2004%
Snia	0,0823%	0,0003%	0,3059%
St Microelectronics	0,2130%	0,0009%	0,4372%
Telecom Italia	0,1379%	0,0008%	0,5637%
Telecom Italia Media	0,0709%	0,0005%	0,6936%
Tim	0,1749%	0,0021%	1,2258%
Tenaris	0,0187%	0,0033%	17,7561%
Tod's Group	0,1037%	0,0008%	0,8137%
Volkswagen	0,1742%	0,0019%	1,0738%
Milan Comit Global	0,0938%	0,0002%	0,2656%

Theevidenceof alow levelof the ratiobetweendTIRandTIRforthemarket indexindicates that the persistenceof information risktends tobesignificant, a fact tobe connectedto the timeneeded by the market change its mechanics, inparticular theinstitutional ones. Instead, analyzing thedata forindividualsecurities, we observe thatin tencases[5](outofforty), the indicator is smaller thanthat calculatedforthe whole market. Seven out of thesecases[6]also showa TIRsmaller than themarket one. Forthem, therefore, the information riskis one of the less incident and lessvariable(and

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[5]Autostrada To-Mi, Autostrade per l'Italia, Bayer, Benetton, Davide Campari, Edison, Luxottica, RCS Mediagroup, Recordati, Snam Rete Gas.

[6] Autostrada To-Mi, Autostrade per l'Italia, Benetton, Davide Campari, Luxottica, RCS Mediagroup, Snam Rete Gas.

thereforemorerepersistentinitslowlevels). Table 6displaysthe averageof the threeindicatorsof information risk(total, systematic, idiosyncratic) estimated foreachof the fortycompaniesanalyzed.

Table 6: Components of the Information Risk

Company	Average dTIR	Average dSIR *	Average dDIR **
Acea	-0,0002683%	-0,0002837%	0,0000154%
Aem	-0,0007798%	-0,0006356%	-0,0001442%
Alitalia	0,0003944%	-0,0006463%	0,0010407%
Arnoldo Mondadori Editore	-0,0016209%	-0,0011279%	-0,0004930%
Asm Brescia	0,0006474%	0,0002459%	0,0004016%
Autogrill	-0,0009869%	-0,0001994%	-0,0007876%
Autostrada To-Mi	0,0000581%	-0,0000552%	0,0001134%
Autostrade per l'Italia	0,0000458%	0,0003272%	-0,0002815%
Bayer	-0,0003103%	-0,0002662%	-0,0000440%
Benetton	0,0002298%	0,0006055%	-0,0003757%
Bulgari	-0,0005674%	-0,0003320%	-0,0002355%
Buzzi Unicem	-0,0002365%	0,0002386%	-0,0004751%
Caltagirone Ed.	-0,0011967%	-0,0000063%	-0,0011904%
Davide Campari	0,0000890%	0,0004873%	-0,0003983%
Edison	0,0003691%	0,0001750%	0,0001941%
Enel	-0,0002496%	0,0002608%	-0,0005104%
Eni	-0,0005026%	0,0002925%	-0,0007951%
Fiat	-0,0006647%	-0,0004931%	-0,0001716%
Finmeccanica	-0,0009703%	-0,0006767%	-0,0002937%
Gruppo Editoriale l'Espresso	-0,0015322%	-0,0012104%	-0,0003218%
Hera	0,0020614%	0,0011544%	0,0009070%
Italcementi	-0,0002919%	0,0004342%	-0,0007261%
Lottomatica	-0,0006632%	0,0002195%	-0,0008827%
Luxottica	-0,0000690%	0,0007135%	-0,0007825%
Mediaset	-0,0011556%	-0,0010290%	-0,0001266%
Merloni Elettrodomestici	-0,0012384%	0,0000989%	-0,0013373%
Rcs Mediagroup	0,0001363%	-0,0001375%	0,0002738%
Recordati	0,0001487%	0,0000310%	0,0001177%
Saipem	-0,0004427%	0,0009727%	-0,0014154%
Seat Pagine Gialle	0,0020042%	0,0003521%	0,0016522%
Sias	-0,0009266%	-0,0001698%	-0,0007568%
Snam Rete Gas	0,0000869%	0,0003479%	-0,0002610%
Snia	-0,0002516%	-0,0002724%	0,0000207%
St Microelectronics	-0,0009314%	-0,0008082%	-0,0001231%
Telecom Italia	-0,0007775%	-0,0006886%	-0,0000890%
Telecom Italia Media	-0,0004919%	-0,0001441%	-0,0003478%
Tim	-0,0021437%	-0,0012685%	-0,0008752%
Tenaris	0,0033245%	0,0022928%	0,0010317%
Tod's Group	-0,0008437%	0,0001333%	-0,0009770%
Volkswagen	-0,0018706%	-0,0012541%	-0,0006165%

* Systematic component of the observed variations of Information Risk
** Idiosyncratic component of the observed variations of Information Risk

A caveat. Thepresence ofsystematic information riskfor each ofthecompaniesanalyzedisthe result oftwoaspects: first, the structural mechanismsby whichthefinancial market disseminatesinformation, which are attributableto the market itselfand to its informational efficiency; second,however, it is generatedby the higher/loweradequacythat the informational standards provide in order to facilitate the investment evaluation process for the investors. Inother words,themarketmay taketoo longtodisseminate information,but it isalsopossiblethatinformation, although quantitativelyappropriate, is not qualitatively effective.

Table 7shows thecorrelationsof the twocomponents, whichallowsto distinguishthe analyzed sample in twoparts:

- on one hand, securitieswhose informationriskismostly drivenbysystematicriskfactors(i.e.thefunctioning of the marketor theinadequacyof thedisclosure standardsadoptedbythemarketto effectively representtheriskof each specificcompany);

- on the other hand, securities whose information risk is mainly due to idiosyncratic risk factors, which make financial disclosure policies (possibly) more effective.

Table 7: Determinants of the Total Information Risk

Company	Average correlation between dTIR and		Key
	dSIR	dDIR	Driver
Acea	0,4923	0,5715	Dir
Aem	0,5537	0,4180	Sir
Alitalia	0,2255	0,8449	Dir
Arnoldo Mondadori Editore	0,7461	0,0664	Sir
Asm Brescia	0,5175	0,5038	Sir
Autogrill	0,5975	0,1971	Sir
Autostrada To-Mi	0,3648	0,3847	Dir
Autostrade per l'Italia	0,5476	0,6468	Dir
Bayer	0,6568	0,4883	Sir
Benetton	0,3776	0,6100	Dir
Bulgari	0,6971	0,2087	Sir
Buzzi Unicem	0,6215	0,1920	Sir
Caltagirone Editore	0,5843	0,2542	Sir
Davide Campari	0,2596	0,5036	Dir
Edison	0,4604	0,6209	Dir
Enel	0,7021	0,4609	Sir
Eni	0,6217	0,1652	Sir
Fiat	0,5815	0,3325	Sir
Finmeccanica	0,7105	0,2697	Sir
Gruppo Editoriale l'Espresso	0,7116	0,1363	Sir
Hera	0,2469	0,6770	Dir
Italcementi	0,4475	0,3119	Sir
Lottomatica	0,1940	0,8435	Dir
Luxottica	0,1475	0,6007	Dir
Mediaset	0,7056	0,1566	Sir
Merloni Elettrodomestici	0,4094	0,6466	Dir
Rcs Mediagroup	0,5649	0,3320	Sir
Recordati	0,7186	0,7645	Dir
Saipem	0,4491	0,3810	Sir
Seat Pagine Gialle	0,7797	0,9321	Dir
Sias	0,2212	0,5788	Dir
Snam Rete Gas	0,3359	0,6341	Dir
Snia	0,2394	0,7542	Dir
St Microelectronics	0,7513	0,0673	Sir
Telecom Italia	0,6856	0,1828	Sir
Telecom Italia Media	0,4379	0,6084	Dir
Tim	0,7963	0,1149	Sir
Tenaris	0,7341	0,6364	Sir
Tod's Group	0,6398	0,5540	Sir
Volkswagen	0,6011	0,5720	Sir

From the table, we discover that for 17firms[7](outof 40) the impactofDIRisgreaterthan the impact of SIR, highlighting in this way the greater potential economic benefitresulting from better disclosure policies.For the otherfirms,the systematic information riskhas a greater impact, sothattheir best choiceswill be to integrate the mandatory information.Thetable above presentsapotentialadvantage, which can become a real benefit for the cost of capital according to the reaction the financial market could develop. Thetransformationofthispotential advantageinto anactual advantage will depend on the interaction with the negotiation volumes, whose links are highlighted in Table 8.

Table 8:Volume's Sensitivity to Variationsof DIR

Company	Key Driver	Average correlation between volumes (*) and dDIR	
Acea	DIR	0,254423653	Significative
Aem	SIR	0,223030824	
Alitalia	DIR	0,205261689	Significative
Arnoldo Mondadori Editore	SIR	0,00519644	
Asm Brescia	SIR	0,014430504	
Autogrill	SIR	0,094549478	
Autostrada To-Mi	DIR	0,153139755	Significative
Autostrade per l'Italia	DIR	0,059794906	
Bayer	SIR	0,160240064	
Benetton	DIR	0,381926277	Significative
Bulgari	SIR	0,178125542	
Buzzi Unicem	SIR	0,148445959	
Caltagirone Editore	SIR	0,008611688	
Davide Campari	DIR	0,08715219	
Edison	DIR	0,148291985	
Enel	SIR	0,114530088	
Eni	SIR	0,015473053	
Fiat	SIR	0,189819567	
Finmeccanica	SIR	0,211185222	
Gruppo Editoriale l'Espresso	SIR	0,143171456	
Hera	DIR	0,094976288	
Italcementi	SIR	0,186171622	
Lottomatica	DIR	0,222382187	Significative
Luxottica	DIR	0,129732347	
Mediaset	SIR	0,11666375	
Merloni Elettrodomestici	DIR	0,34267757	Significative
Rcs Mediagroup	SIR	0,236433995	
Recordati	DIR	0,275007133	Significative
Saipem	SIR	0,194059856	
Seat Pagine Gialle	DIR	0,24795105	Significative
Sias	DIR	0,165499899	Significative
Snam Rete Gas	DIR	0,206458225	Significative
Snia	DIR	0,130736747	
St Microelectronics	SIR	0,017106034	
Telecom Italia	SIR	0,077649933	
Telecom Italia Media	DIR	0,128874649	
Tim	SIR	0,117891402	
Tenaris	SIR	0,01002964	
Tod's Group	SIR	0,195248138	
Volkswagen	SIR	0,097024461	

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[7]Acea, Alitalia, Autostrada To-Mi, Autostrade per l'Italia, Benetton, Davide Campari, Edison, Hera, Lottomatica, Luxottica, Merloni, Recordati, Seat Pagine Gialle, Sias, Snam Rete Gas, Snia, Telecom Italia Media.

Intencases(Acea, Alitalia, AutostradaTo-Mi, Benetton, Lottomatica, Merloni, Recordati,Seat PagineGialle, Sias, SnamReteGas) we discovered a double condition of significance of the idiosyncratic information risk on the total information risk and of the correlation among DIR and negotiation volumes. For thesecompanies,therefore, thelink betweenvoluntarydisclosurestrategies

5. CONCLUSIONS AND LIMITATIONS

The present study had as its first objective to recognize the strategic choices regarding the voluntary disclosure of the business model adopted by non-financial blue chips listed on the Italian Stock Exchange in 2003 and their determinants. To do this, we have identified and then coded the information with strategic content contained in the Annual Report, investor relations and press releases published on the websites. Then we estimated the importance given by each individual company to each topic by identifying both the number of words dedicated to them, and the number of connections with other themes to capture their importance in the description. We then proceeded to clustering the voluntary disclosure strategies adopted by the companies on the basis of the number of words devoted to each individual topic, and of their importance score, and then we crossed the results obtained. This led to identify four different approaches to voluntary disclosure:

- *Group A*: very well described but little interrelated themes;
- *Group B*: very well described and very much interrelated themes;
- *Group C*: bad described and little interrelated themes;
- *Group D*: bad described but very much interrelated themes.

In particular, we found that what mostly differentiates the voluntary disclosure strategies of firms belonging to groups A and B (very detailed issues) compared to firms belonging to groups C and D (low-deepened topics) is a deeper discussion of the most strategically sensitive issues, i.e. those aimed at explaining the competitive position of the company and its sources, both in terms of competitive specificities and of business processes that create these specificities.

We also found that the greater importance of these issues is also what mostly distinguishes the voluntary disclosure strategies of firms belonging to groups B and to a lesser extent, D (very inter-related issues) compared to firms belonging to groups A and C (little interrelated themes). In addition to these themes, we discovered that also themes regarding the environment, both general (its evolution) and specific, the processes aimed at recognizing latent potential to generate value through both the entry into new markets, the development of new products and processes also thanks to the contribution arising from new technologies, especially if they allow to better meet stakeholder expectations, help in differentiating the voluntary disclosure strategies.

The fact that the most important themes taken from the list do not correspond to a greater depth may depend on their fear to provide information strategically sensitive to the competitors or, more simply, on a lack of availability of more detailed information. Mavrinac and Eccles (1995) found that only 9% of U.S. companies has an explicit disclosure strategy. Trying to understand the causes of this result, the authors concluded: "Senior managers' ignorance of the policy's Significance is one potential reason. A second reason May Be That Does Not Understand the firm ITS current strategic position and has little time for improving "(Eccles and Mavrinac, 1995: 14).
For sure, firms belonging to groups A and especially B have a significantly higher average size than those belonging to groups C and D. The size seems to explain at least the average number of

words devoted by companies belonging to the first two groups mentioned in the description of their business models and the specific topics.

The second objective of this study was to recognize if and how the strategic choices regarding voluntary disclosure of the business model have an impact on the information risk of the firms belonging to the sample.

To this end, we first collect the time series of stock prices and their related trading volumes. Then we proceeded with the calculation of proxies for estimating the level of information risk embedded in the dynamics of market prices of shares, dividing it into the two classes of systematic information risk (that is linked to how the company communicates with the market "given" the existing regulatory framework) and idiosyncratic information risk (i.e. related to specific business risks which cannot be reproduced through alternative investments, albeit similar).

Then we made comparisons between the results obtained and the actual investors' behavior (i.e. considering the dynamics of the trading volume of each security) to understand the effect of market sensitivity to the phenomenon, namely the possible impacts on the cost of capital. We found that none of the 10 companies having a high correlation between idiosyncratic information risk and average trading volumes, belong to Group B.

This allows us to say that the financial market is really sensitive to the voluntary disclosure strategies and that it will select investments designed to favor those with greater information transparency. If, however, the idiosyncratic information risk is greater, financial exchanges are determined, among other things, by the need to leave the investments with higher information risk in the hands of information traders or investors with a greater ability to interpret the (limited?) information available to the benefit of the entire market and thus paid with returns comprehensive of adequate risk premia.

This study has some limitations. The first is that it focuses on the Italian context. The central role still played by banks in Italy, which reduces the dependence of firms from the capital market, the strong presence of family-owned listed companies, characterized by a small shareholder base and the still limited efficiency of the financial market to appreciate the demands of financing and the legal system of investors' protection require caution on the possibility to generalize the findings to other contexts. The second limitation relates to the samples analyzed, which is clearly shifted to large companies[8]. The third limitation concerns the use of the number of words devoted to a strategic issue and the number of its connections with other themes as estimators of the level of importance of the theme itself.

To solve the last limit, although increasing the subjectivity of the analysis, we could enter into the content of information provided by assessing the level of significance. The fourth limitation is the limited time period considered. The goal to be achieved by future studies is therefore to extend the analysis of strategic information contained in the Annual Report, investor relations and press releases published on websites, considering a higher number of companies of different dimension,

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[8]The efficiency of the financial market and legal system of investor protection aspects are interrelated: "Countries with weaker investor protection also tend to have financial systems that are relatively more bank-based precisely because broad-based equity markets are two relatively unattractive to the weak investor protection environment (Francis et al., 2005: 1126).

also belonging to national contexts other than Italy, in order to discover also the evolutionary disclosure strategies adopted by listed firms and their impact on the information risk.

Annex 1: The Sample

Nr	Company	Sector	Nr	Company	Sector
1	Acea	Utilities	21	Hera	Utilities
2	Aem	Utilities	22	Italcementi	Construction
3	Alitalia	Travel, Tourism	23	Lottomatica	Other Services
4	Arnoldo Mondadori Ed.	Media	24	Luxottica	Apparel, Accessories
5	Asm Brescia	Utilities	25	Mediaset	Media
6	Autogrill	Transport, Tourism	26	Merloni Elett.	Electronic Equipment
7	Autostrada To-Mi	Transport, Tourism	27	Rcs Mediagroup	Media
8	Autostrade per l'Italia	Transport, Tourism	28	Recordati	Pharmaceuticals
9	Bayer	Pharmaceuticals	29	Saipem	Oil&Gas
10	Benetton Group	Apparel	30	Seat Pagine Gialle	Media
11	Bulgari	Apparel, Accessories	31	Sias	Other Services
12	Buzzi Unicem	Construction	32	Snam Rete Gas	Utilities
13	Caltagirone Ed.	Media	33	Snia	Holding, chemicals
14	Davide Campari	Food and Beverage	34	St. Microeletronics	Electronic Components
15	Edison	Utilities	35	Telecom	Utilities, telecommunication
16	Enel	Utilities	36	Telecom Italia Media	Utilities, telecommunication
17	Eni	Oil&Gas	37	Tenaris	Holding
18	Fiat	Automobile and Parts	38	Tim	Telecommunication
19	Finmeccanica	Industrial Machinery	39	Tod's	Apparel
20	Gruppo Ed. l'Espresso	Media	40	Volkswagen	Automobile and Parts

Annex 2:The Matrix of the Analysis

Ve	Economic Value	D	Processes System
A	**General Environment**	Da	Processes for defining the business
Aa	Economic-Financial Environment	Db	Processes for seeking opportunities
Ab	Natural-Infrastructural Environment	Dc	Processes for broadening value
Ac	Political-Institutional Environment	De	Processes for value creation
Ad	Scientific-Technological	*De1*	*Logistics in*
Ae	Socio-cultural Environment	*De2*	*Transformation*
B	**Specific Environment**	*De3*	*Logistics out*
Ba	Attractiveness of a specific Environment	*De4*	*Marketing*
Bb	Firm's relative position	*De5*	*Services*
Bc	Variability of the Specif Environment	*De6*	*Supplying Management*
C	**Competitive Specificities**	*De7*	*Human Resource Management*
Ca	External Integration	*De8*	*Technology Management*
Ca1	*Extent of the external relationships*	*De9*	*Backup Activity*
Ca2	*Depth of the external relationships*	**E**	**Exploiyable Competencies**
Cb	Internal Integration	Ea	Orientation to stakeholders's expectations
Cb1	*Effectiveness of the inside operations*	Eb	Orientation to incremental improvement
Cb2	*Efficiency of the inside operations*	Ec	Orientation to radical innovation
Cc	Flexibility	Ed	Risk Orientation
Cc1	*Adaptability in a context of continuità*	Ef	Orientation to the management of knowledge
		Ef1	*Acquisition of knowledge Acquisizione di conoscenza*
Cc2	*Adaptability in a context of discontinuity*	*Ef2*	*Condivision of knowledge*
		Ef3	*Generation of knowledge*
		Ef4	*Exteriorization of knowledge*

Annex 3: The agglomeration coefficient and the tree-chart for the cluster analysis based on the "number of words"

Agglomeration Schedule

	Cluster Combined			Stage Cluster First Appears		
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
1	11	20	310310,000	0	0	2
2	7	11	987684,667	0	1	3
3	7	13	1702140,00	2	0	4
4	7	39	3101791,20	3	0	11
5	19	31	5003351,20	0	0	13
6	23	27	7037774,70	0	0	12
7	15	29	9609775,20	0	0	18
8	22	32	12260342,7	0	0	10
9	10	30	15040253,2	0	0	20
10	2	22	17906627,7	0	8	19
11	7	28	21222952,7	4	0	27
12	23	26	24733313,8	6	0	20
13	19	33	28455109,2	5	0	17
14	1	16	32497119,7	0	0	29
15	36	38	37486804,2	0	0	19
16	24	37	43031432,7	0	0	30
17	4	19	48730244,1	0	13	18
18	4	15	55805256,8	17	7	24
19	2	36	63480613,9	10	15	21
20	10	23	73884760,4	9	12	33
21	2	12	84826443,4	19	0	24
22	8	35	96891948,9	0	0	29
23	14	40	109668138	0	0	26
24	2	4	123084995	21	18	27
25	5	21	137653441	0	0	33
26	6	14	153355272	0	23	31
27	2	7	173901411	24	11	35
28	9	18	195987133	0	0	32
29	1	8	220863219	14	22	32
30	24	25	245794360	16	0	31
31	6	24	275748244	26	30	36
32	1	9	308210231	29	28	34
33	5	10	340860207	25	20	35
34	1	34	396035657	32	0	37
35	2	5	453354105	27	33	39
36	3	6	521337874	0	31	38
37	1	17	598650231	34	0	38
38	1	3	749254903	37	36	39
39	1	2	1,23E+009	38	35	0

Rescaled Distance Cluster Combine

Annex 4: The Agglomeration Coefficient and the Tree-Chart for the Cluster Analysis Based on the "Number of Connections"

Agglomeration Schedule

Stage	Cluster Combined Cluster 1	Cluster Combined Cluster 2	Coefficients	Stage Cluster First Appears Cluster 1	Stage Cluster First Appears Cluster 2	Next Stage
1	11	20	310310,000	0	0	2
2	7	11	987684,667	0	1	3
3	7	13	1702140,00	2	0	4
4	7	39	3101791,20	3	0	11
5	19	31	5003351,20	0	0	13
6	23	27	7037774,70	0	0	12
7	15	29	9609775,20	0	0	18
8	22	32	12260342,7	0	0	10
9	10	30	15040253,2	0	0	20
10	2	22	17906627,7	0	8	19
11	7	28	21222952,7	4	0	27
12	23	26	24733313,8	6	0	20
13	19	33	28455109,2	5	0	17
14	1	16	32497119,7	0	0	29
15	36	38	37486804,2	0	0	19
16	24	37	43031432,7	0	0	30
17	4	19	48730244,1	0	13	18
18	4	15	55805256,8	17	7	24
19	2	36	63480613,9	10	15	21
20	10	23	73884760,4	9	12	33
21	2	12	84826443,4	19	0	24
22	8	35	96891948,9	0	0	29
23	14	40	109668138	0	0	26
24	2	4	123084995	21	18	27
25	5	21	137653441	0	0	33
26	6	14	153355272	0	23	31
27	2	7	173901411	24	11	35
28	9	18	195987133	0	0	32
29	1	8	220863219	14	22	32
30	24	25	245794360	16	0	31
31	6	24	275748244	26	30	36
32	1	9	308210231	29	28	34
33	5	10	340860207	25	20	35
34	1	34	396035657	32	0	37
35	2	5	453354105	27	33	39
36	3	6	521337874	0	31	38
37	1	17	598650231	34	0	38
38	1	3	749254903	37	36	39
39	1	2	1,23E+009	38	35	0

```
                    Rescaled Distance Cluster Combine

C A S E      0        5        10       15       20       25
Label  Num  +---------+---------+---------+---------+---------+
    20
    31
    13
     8
    27
    28
    16
    34
    11
    23
     9
    33
    12
    14
     7
    22
     6
     5
     3
    39
     1
    19
    36
    18
    25
    15
    17
    29
    38
    32
    26
    35
    21
     2
    24
    30
    37
     4
    40
    10
```

Annex5:The Characterizing Topics in Terms of Space

Cod	Gr.	μ	σ	Min	Max	Anova F	Anova Sig
Tot.	A	36.511	8.713	25.845	51.481	32,426	0,000
	B	32.941	10.504	18.197	48.501		
	C	9.320	5.762	2.907	22.927		
	D	15.426	5.684	9.679	28.891		
VE	A	426	813	0	2.354	0,638	0,595
	B	234	468	0	1.290		
	C	381	412	0	1.413		
	D	158	148	0	415		
Aa	A	446	529	12	1.605	2,255	0,099
	B	318	287	56	805		
	C	155	207	0	753		
	D	119	187	0	547		
Ab	A	74	126	0	342	1,259	0,303

	B	21	36	0	94		
	C	26	92	0	356		
	D	0	1	0	4		
	A	795	1113	0	3.153		
Ac	B	684	910	0	2.590	0,488	0,693
	C	385	819	0	3.230		
	D	491	543	0	1.776		
	A	0	0	0	0		
Ad	B	4	12	0	31	0,814	0,494
	C	9	24	0	85		
	D	0	0	0	0		
	A	43	120	0	340		
Ae	B	45	102	0	274	0,343	0,795
	C	33	51	0	149		
	D	104	330	0	1.043		
	A	409	418	0	1.291		
Ba	B	455	378	15	927	2,484	0,076
	C	181	316	0	1.101		
	D	112	138	0	469		
	A	566	380	49	1.048		
Bb	B	781	616	143	1.920	4,119	0,013
	C	212	253	0	922		
	D	362	325	63	1.070		
	A	1.399	978	156	3.388		
Bc	B	833	818	203	2.118	7,082	0,001
	C	214	230	0	769		
	D	450	469	0	1.456		
	A	3.121	1574	978	4.686		
Ca1	B	4.955	2951	704	10.336	13,199	0,000
	C	881	890	0	3.341		
	D	1.289	740	306	2.409		
	A	3.747	1821	438	6.545		
Ca2	B	2.170	794	806	3.024	7,053	0,001
	C	975	1208	0	3.921		
	D	1.904	1542	375	5.936		
	A	3.112	2466	492	7.033		
Cb1	B	2.102	1231	783	4.480	8,340	0,000
	C	487	532	0	1.869		
	D	986	625	147	1.888		
	A	2.209	1740	233	5.388		
Cb2	B	1.726	1455	441	3.952	3,763	0,019
	C	641	555	50	2.001		
	D	1.114	978	112	2.849		
	A	2.815	1747	1.034	5.990		
Cc1	B	3.057	1104	753	4.077	18,143	0,000
	C	427	524	0	1.604		
	D	822	503	50	1.460		

Cc2	A	61	160	0	456	2,050	0,124
	B	2	5	0	14		
	C	3	9	0	31		
	D	72	84	0	250		
Da	A	499	446	0	1.245	1,079	0,370
	B	335	500	0	1.401		
	C	240	261	0	936		
	D	247	266	0	871		
Db	A	448	215	231	867	2,236	0,101
	B	209	167	45	546		
	C	189	337	0	1.150		
	D	184	143	0	377		
Dc	A	4.095	1285	2.416	5.619	12,684	0,000
	B	2.063	1659	697	4.911		
	C	1.119	780	185	2.964		
	D	1.594	1012	280	3.295		
De1	A	12	23	0	60	0,529	0,665
	B	14	36	0	96		
	C	8	22	0	79		
	D	34	95	0	304		
De2	A	565	769	0	1.899	0,794	0,505
	B	431	580	0	1.567		
	C	358	731	0	2.753		
	D	127	146	0	366		
De3	A	151	183	0	506	1,177	0,332
	B	207	200	21	574		
	C	69	110	0	297		
	D	127	199	0	610		
De4	A	6.068	3159	2.190	9.796	17,749	0,000
	B	6.272	2807	3.080	10.374		
	C	949	764	85	2.809		
	D	2.001	1664	0	4.157		
De5	A	618	946	0	2.231	1,566	0,214
	B	170	116	0	280		
	C	110	229	0	805		
	D	355	692	0	2.299		
De6	A	246	253	0	709	1,834	0,159
	B	929	1945	0	5.315		
	C	74	138	0	391		
	D	181	293	0	889		
De7	A	440	399	0	1.166	4,759	0,007
	B	354	240	60	789		
	C	63	96	0	311		
	D	281	272	0	728		
De8	A	1.179	1925	0	5.622	3,231	0,034
	B	1.440	1125	163	2.872		
	C	201	297	0	1.187		

	D	486	448	24	1.327		
	A	818	729	29	1.926		
De9	B	520	186	240	761	3,651	0,021
	C	235	224	0	605		
	D	588	439	139	1.553		
	A	468	624	25	1.555		
Ea	B	803	663	102	1.883	1,543	0,220
	C	252	592	0	2.329		
	D	364	395	0	1.265		
	A	440	344	0	925		
Eb	B	651	553	101	1.837	3,519	0,025
	C	201	276	0	1.067		
	D	219	192	50	680		
	A	90	172	0	495		
Ec	B	102	189	0	507	1,574	0,213
	C	9	29	0	111		
	D	101	125	0	365		
	A	190	250	0	544		
Ed	B	159	306	0	824	2,533	0,072
	C	14	44	0	167		
	D	38	61	0	198		
	A	131	159	0	451		
Ef1	B	114	159	0	430	2,014	0,129
	C	12	30	0	110		
	D	110	183	0	551		
	A	217	276	0	731		
Ef2	B	122	114	0	289	0,614	0,610
	C	126	203	0	565		
	D	102	115	0	286		
	A	565	531	0	1.314		
Ef3	B	612	568	0	1.346	6,070	0,002
	C	62	105	0	328		
	D	204	171	0	509		
	A	50	75	0	167		
Ef4	B	46	51	0	125	0,625	0,604
	C	18	52	0	187		
	D	103	289	0	923		

Annex 6:The Characterizing Topics in Terms of Importance

Cod	Gr.	μ	σ	Min	Max	Anova	
						F	Sig
Tot.	A	177	46,61	84	216	25,071	0,000
	B	354	71,73	269	440		
	C	158	61,68	50	244		
	D	300	50,32	242	413		
VE	A	7	5,66	0	13	0,721	0,546
	B	10	7,34	0	18		
	C	6	4,36	0	13		
	D	8	5,76	0	14		
Aa	A	4	4,21	0	10	6,976	0,001
	B	13	2,23	9	16		
	C	5	3,86	0	12		
	D	6	5,25	0	13		
Ab	A	3	2,83	0	7	0,111	0,953
	B	3	4,72	0	11		
	C	2	2,80	0	7		
	D	2	4,43	0	12		
Ac	A	7	5,29	0	14	4,058	0,014
	B	11	3,45	6	17		
	C	5	3,94	0	11		
	D	5	4,38	0	13		
Ad	A	0	0,00	0	0	0,928	0,437
	B	1	3,78	0	10		
	C	1	2,29	0	7		
	D	0	0,00	0	0		
Ae	A	0	0,00	0	0	1,458	0,242
	B	3	4,43	0	10		
	C	3	3,68	0	11		
	D	3	4,50	0	11		
Ba	A	2	4,02	0	10	5,661	0,003
	B	10	4,14	5	16		
	C	4	4,32	0	13		
	D	8	4,83	0	13		
Bb	A	7	4,80	0	14	10,045	0,000
	B	15	3,51	9	18		
	C	4	5,03	0	13		
	D	11	4,19	3	19		
Bc	A	8	4,19	0	13	3,222	0,034
	B	11	3,13	7	17		
	C	6	3,77	0	14		
	D	6	4,85	0	12		
Ca1	A	8	3,80	0	12	9,531	0,000
	B	15	3,63	10	19		

	C	9	2,23	5	12		
	D	13	3,82	6	20		
Ca2	A	9	4,42	0	13		
	B	15	3,06	11	20	8,479	0,000
	C	8	3,97	0	14		
	D	14	3,81	10	22		
Cb1	A	9	3,70	0	12		
	B	15	4,04	9	20	9,766	0,000
	C	7	5,07	0	15		
	D	14	2,37	11	18		
Cb2	A	10	3,94	3	15		
	B	14	6,84	2	23	3,141	0,037
	C	9	4,18	0	15		
	D	14	3,84	5	19		
Cc1	A	8	3,56	0	11		
	B	14	4,08	8	19	8,689	0,000
	C	7	4,10	0	12		
	D	13	2,91	9	20		
Cc2	A	4	4,66	0	14		
	B	1	3,78	0	10	2,393	0,085
	C	2	3,37	0	10		
	D	6	5,31	0	13		
Da	A	7	3,16	0	10		
	B	10	4,96	0	15	2,761	0,056
	C	6	3,59	0	12		
	D	9	4,08	0	15		
Db	A	5	3,56	0	9		
	B	11	2,21	7	13	7,582	0,000
	C	6	4,53	0	13		
	D	11	1,91	8	13		
Dc	A	12	2,12	8	14		
	B	16	2,82	12	21	7,845	0,000
	C	11	3,93	0	16		
	D	16	2,28	14	21		
De1	A	2	3,48	0	8		
	B	2	4,54	0	12	0,263	0,851
	C	1	2,14	0	7		
	D	2	3,41	0	9		
De2	A	5	4,30	0	10		
	B	9	6,44	0	16	2,264	0,098
	C	4	3,98	0	12		
	D	6	5,02	0	13		
De3	A	3	3,65	0	8		
	B	10	5,40	0	16	8,209	0,000
	C	2	3,32	0	8		
	D	9	5,47	0	15		
De4	A	11	3,36	5	14	6,895	0,001

	B	16	1,50	14	18		
	C	9	3,61	4	14		
	D	15	5,78	0	19		
	A	3	3,74	0	9		
De5	B	9	5,13	0	14	5,774	0,002
	C	4	4,35	0	11		
	D	9	4,19	0	14		
	A	5	3,89	0	9		
De6	B	9	5,71	0	17	9,770	0,000
	C	1	2,61	0	9		
	D	9	4,90	0	17		
	A	5	4,60	0	11		
De7	B	11	3,34	7	15	5,018	0,005
	C	5	3,79	0	12		
	D	9	5,47	0	15		
	A	4	4,55	0	10		
De8	B	13	5,50	4	19	7,019	0,001
	C	6	5,07	0	13		
	D	12	3,88	7	19		
	A	5	4,10	0	11		
De9	B	12	3,31	9	18	8,425	
	C	6	4,53	0	12		
	D	11	2,51	5	14		
	A	7	4,54	0	12		
Ea	B	13	2,61	8	16	7,210	
	C	6	4,07	0	12		
	D	11	4,49	0	15		
	A	6	4,59	0	13		
Eb	B	14	3,39	9	19	10,139	
	C	5	4,60	0	12		
	D	11	2,71	4	14		
	A	1	1,77	0	5		
Ec	B	7	4,74	0	11	5,528	
	C	2	3,78	0	11		
	D	7	5,36	0	15		
	A	4	4,23	0	10		
Ed	B	7	4,75	0	12	3,303	
	C	1	2,65	0	8		
	D	4	5,32	0	11		
	A	2	2,72	0	6		
Ef1	B	8	5,52	0	15	4,623	
	C	2	3,00	0	8		
	D	6	5,38	0	15		
	A	2	2,56	0	7		
Ef2	B	9	4,41	0	13	10,262	
	C	3	3,69	0	11		
	D	9	3,75	0	13		

Ef3	A	5	3,06	0	8	5,754
	B	9	6,42	0	17	
	C	2	3,44	0	10	
	D	8	4,62	0	14	
Ef4	A	1	2,12	0	6	4,538
	B	6	4,98	0	13	
	C	1	2,09	0	8	
	D	4	5,08	0	12	

Annex 7: The Distribution of the Words Dedicated to the Strategic Topics

	Contenuti	N	μ	σ	Kolmogorov-Smirnov Test	
					Z	Asymp.Sig. (2-tailed)
	Total of the words	40	20.418	13.602	0,993	0,278
Ve	Economic Value	40	308	480	1,645	0,009
Aa	Economic-Financial Environment	40	233	321	1,593	0,013
Ab	Natural-Infrastructural Environment	40	28	82	2,474	0,000
Ac	Political-Institutional Environment	40	546	828	1,630	0,010
Ad	Scientific-Technological	40	4	16	3,327	0,000
Ae	Socio-cultural Environment	40	55	176	2,392	0,000
Ba	Attractiveness of a specific Environment	40	257	336	1,539	0,018
Bb	Firm's relative position	40	420	421	1,064	0,208
Bc	Variability of the specif Environment	40	618	740	1,536	0,018
Ca1	*Extent of the external relationships*	40	2.144	2.147	1,243	0,091
Ca2	*Depth of the external relationships*	40	1.971	1.674	0,756	0,617
Cb1	*Effectiveness of the inside operations*	40	1.420	1.603	1,276	0,077
Cb2	*Efficiency of the inside operations*	40	1.263	1.256	1,157	0,137
Cc1	*Adaptability in a context of continuity*	40	1.464	1.497	1,122	0,161
Cc2	*Adaptability in a context of discontinuity*	40	32	85	2,314	0,000
Da	Processes for defining the activity area	40	310	354	1,205	0,109
Db	Processes for seeking opportunities	40	243	263	1,123	0,160
Dc	Processes for broadening value	40	1.998	1.554	1,235	0,095
De1	*Logistics in*	40	16	52	2,669	0,000
De2	*Transformation*	40	354	615	1,888	0,002
De3	*Logistics out*	40	124	168	1,847	0,002
De4	*Marketing*	40	3.167	3.090	0,966	0,308
De5	*Services*	40	283	575	2,115	0,000
De6	*Supplying Management*	40	285	845	2,328	0,000
De7	*Human Resource Management*	40	244	284	1,236	0,094
De8	*Technology Management*	40	685	1.091	1,677	0,007
De9	*Backup Activity*	40	490	462	0,912	0,376
Ea	Orientation to stakeholders's expectations	40	419	581	1,489	0,024
Eb	Orientation to incremental improvement	40	332	367	1,156	0,138
Ec	Orientation to radical innovation	40	64	129	2,000	0,001
Ed	Risk Orientation	40	81	181	2,345	0,000
Ef1	*Acquisition of knowledge Acquisizione di conoscenza*	40	78	139	1,965	0,001
Ef2	*Condivision of knowledge*	40	138	188	1,583	0,013
Ef3	*Generation of knowledge*	40	294	409	1,491	0,023
Ef4	*Exteriorization of knowledge*	40	51	151	2,331	0,000

Annex 8: The Distribution of the Importance of the Strategic Topics

	Contents	N	μ	σ	Kolmogorov-Smirnov Test	
					Z	Asymp.Sig. (2-tailed)
	Total of the words	40	231,55	98,36	0,555	0,917
Ve	Economic Value	40	7,48	5,50	1,190	0,118
Aa	Economic-Financial Environment	40	6,40	4,98	0,855	0,457
Ab	Natural-Infrastructural Environment	40	2,28	3,51	2,477	0,000
Ac	Political-Institutional Environment	40	6,38	4,75	0,698	0,715
Ad	Scientific-Technological	40	0,58	2,10	3,371	0,000
Ae	Socio-cultural Environment	40	2,38	3,75	2,445	0,000
Ba	Attractiveness of a specific	40	5,50	5,09	1,487	0,024
Bb	Firm's relative position	40	8,40	5,93	0,913	0,375
Bc	Variability of the specif Environment	40	7,18	4,39	0,625	0,829
Ca1	*Extent of the outside relationship*	40	10,75	4,19	0,681	0,743
Ca2	*Depth of the outside relationship*	40	10,90	4,88	0,644	0,801
Cb1	*Effectiveness of the inside operations*	40	10,18	5,30	0,890	0,406
Cb2	*Efficiency of the inside operations*	40	11,43	4,98	0,765	0,602
Cc1	*Adaptability in a context of continuity*	40	9,95	4,70	0,685	0,737
Cc2	*Adaptability in a context of discontinuity*	40	3,13	4,47	2,262	0,000
Da	Processes for defining the activity area	40	7,70	4,16	0,695	0,719
Db	Processes for seeking opportunities	40	7,78	4,28	0,969	0,305
Dc	Processes for broadening value	40	13,43	3,81	0,826	0,503
De1	*Logistics in*	40	1,38	3,14	3,125	0,000
De2	*Transformation*	40	5,53	5,02	1,357	0,050
De3	*Logistics out*	40	5,50	5,47	1,693	0,006
De4	*Marketing*	40	12,13	4,82	0,883	0,416
De5	*Services*	40	5,90	5,08	1,438	0,032
De6	*Supplying Management*	40	5,15	5,34	1,628	0,010
De7	*Human Resource Management*	40	6,83	4,99	0,781	0,575
De8	*Technology Management*	40	8,50	5,78	0,818	0,515
De9	*Backup Activity*	40	8,15	4,80	1,424	0,035
Ea	Orientation to stakeholders's expectations	40	8,60	4,96	0,845	0,472
Eb	Orientation to incremental improvement	40	8,43	5,23	0,925	0,359
Ec	Orientation to radical innovation	40	3,65	4,80	2,381	0,000
Ed	Risk Orientation	40	3,33	4,48	2,505	0,000
Ef1	*Acquisition of knowledge Acquisizione di conoscenza*	40	3,98	4,70	1,747	0,004
Ef2	*Condivision of knowledge*	40	5,08	4,78	1,460	0,028
Ef3	*Generation of knowledge*	40	5,30	5,04	1,128	0,157
Ef4	*Exteriorization of knowledge*	40	2,38	4,09	2,651	0,000

Annex 9:The Distribution of the Corporate Characteristics

Contenuti	N	μ	σ	Kolmogorov-Smirnov Test	
				Z	Asymp.Sig. (2-tailed)
Dimension - Employees	40	30.311	60.638	1,985	0,001
Dimension – Invested Capital	40	15.032.564	26.827.040	2,024	0,001
Dimension - Equity	40	1.174.068	1.889.918	1,840	0,002
Dimension - Sales	40	8.909.717	17.699.554	2,312	0,000
Profitability - ROE	40	7%	14%	1,343	0,054

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