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The Impact of Corporate Governance on Risk Taking in European Insurance Industry

Francesco Venuti, Simona Alfiero

***Abstract*—**The aim of this paper is to develop an empirical research on the nature and consequences of corporate governance on Eurozone Insurance Industry risk taking attitude. More particularly, we analyzed the effect of public ownership on risk taking with respect to privately held Insurance Companies. We also analyzed the effects on risk taking attitude of different degrees of ownership concentration, directors compensation, and the dimension/diversity of the Board of Directors. Our results provide quite strong evidence that, coherently with the Agency Theory, publicly traded insurance companies with more concentrated ownership are less risky than the corresponding privately held.

***Keywords*—**Agency theory, corporate governance, insurance companies, risk taking.

I. Introduction

BOTH corporate governance and risk taking have been for a long period of time at the centre of numerous studies, especially in the last decade. After the global financial crisis started in 2007, the attention to risk-related topics has even increased. "Clearly, one of the result financial crisis is an increased focus on the effectiveness of board risk oversight practices" [13]. The Insurance Industry is particularly involved in topics regarding risk, as managing it efficiently can be considered the "core business" of any insurance (and re-insurance) company. The entire financial sector – included the insurance industry - has been deeply involved in the most recent financial crises. Many insurance company's difficulties may certainly be directly connected with excesses in risk taking (one for all the bailout of AIG by the US Government) and opportunistic behavior of their managers. Parallel to this, from the beginning of the XXI century on, big financial scandals such as Enron, Worldcom, Parmalat, XL Holidays renewed the attention on corporate governance aspects. Moreover, the collapse of big banks and financial institutions all over the world (such as Royal Merchant Bank Limited, Rims Merchant Bank Limited, Financial Merchant Bank Limited, Progress Merchant Bank Plc, Republic Merchant Bank Limited) strengthened the urge for new rules and more investigation on these topics [43]. It has been clearly shown that an appropriate and effective corporate governance framework is necessary to recognize and protect the rights and interests of all those parties that have relationships with the company, named stakeholders. In other words, the relationship between corporate governance and risk-taking is quite strong and, according to our view, especially in the financial sector (and specifically in insurance industry), there is still a lot of room for more studies and more in-depth analysis in this field.

In the last decay, increasing during the crisis and even more recently, lots of questions regarding, among others, the level of risk, risk management, asset-liabilities approaches (ALM), the importance of regulation, executive compensations, ownership structures, board of directors duties, the action and duties of auditors and monitoring mechanisms have been largely debated. The magnitude of the crisis and its global effects have added even more importance to those topics, even if it hasn't come up with a definite theoretical framework and solutions. Moreover, with a specific focus on the insurance sector, according to our studies, there is still a lot of room for improvement and more studies concerning risk taking, risk management and executive behaviors.

The aim of this paper is to analyze the impact of some corporate governance elements on risk taking, with a specific reference to the European insurance industry.

The innovative points of this study can be traced in the focus only on insurance sector (exclusion of financial companies from most of the corporate governance studies is quite common in this research field) and in looking for direct connection between corporate governance elements on risk taking (rather than on performance measure).

II. Theoretical Framework

The theoretical framework of our study refers mainly to:

- The insurance industry
- Agency theory
- Stakeholders theory
- Corporate Governance

As for the Insurance Industry, it should be pointed out that, because of some specific aspects, this sector can be considered a "unique" and even "different" not only from other sectors but also from other financial companies (i.e. from banks, investment funds, etc.). The most important peculiarities that differentiate insurance companies from all the other kind of "firms" can be traced mainly in the following elements:

- Insurance is a strictly regulated sector. Regulation for insurance company designs at many different levels and covers both solvency and prices [23].
- There are a lot of different regulators that set rules and laws at different levels, largely affecting the activities, duties, management, accounting and disclosures of insurance companies. Sometimes different rules coming from different regulatory authorities are not perfectly homogenized.

Francesco Venuti and Simona Alfiero are with the Department of Management, University of Torino, Italy (Corresponding author: Francesco Venuti, phone: +39 011 670 6019; e-mail: francesco.venuti@unito.it, simona.alfiero@unito.it).

- Inversion of the production cycle, as in the insurance business the premiums received by the insurance (revenues) precede the payments of an eventual claim (costs).
- In the insurance business, opposite to almost all of the other production activities, revenues (coming from premiums) are quite certain, whereas operational costs (coming from eventual claims, especially in non-life insurance) are uncertain (in not only their amount, but also regarding the time). Using Latin words, we could say that the uncertainty of insurance costs refers to "an, quantum et quando". "The exploitation cycle is inverted [...] namely the accounting and management consequences of the prefinancing of the service, the cost of which is not exactly known in advance" [5]. In other words, insurers may know their actual costs only after a policy has expired.
- Due to the "inverted cycle" and the uncertainty of almost all the operating costs, asset management and investment decisions of an insurance company are particularly important and strictly connected with its core business. This is because premiums have to be invested until claims and expenses have to be paid. As a consequence, investments in financial assets represent the majority of insurance assets.
- Insurance companies differ from banks and other companies also in terms of board structure [39].
- Insurance companies have a widely recognized "social relevance" and social responsibility, especially with the community, the policyholders and the market. This is mainly because they are important institutional investors (due to the previous points) as well as risk-taker.

Due to all these points, risk taking and risk management become very important for the insurance company, more than for any other entity of different sectors. Moreover, the global financial crisis has confirmed the importance and danger of risks. In fact, specifically the banking, insurance and financial services industries have been hardly hit by investments in risky financial instruments, including sub-prime loans, mortgage-backed securities and structured investment vehicles. All those unique features motivate us to further investigation, research and examine the relation between some corporate governance features and risk taking. Another important theoretical background for our study is the wide framework of the agency theory [27], since we analyze the effect of elements such as ownership concentration, board composition and executive compensation on risk taking attitude. The root of the agency theory is the relationship between the owners of the company (principals) and the managers and executives (agent). According to this theory, the principals delegate the running of the business to "their" agents [1], expecting that the executives will act and take decisions in the owners' interests. The problem is that, due to information asymmetry, managers may not act and behave in their principals interests [27].

An effective and correct corporate governance structure (not only for insurance companies) require appropriate standards in order to recognize, protect and promote the rights, relationships and interests of all the parties that are involved with the firm's activities. All those parties, named stakeholders, have been largely studied in literature in the "stakeholders theories". Among the most important stakeholders of an insurance company, with possible conflicts of interest, there are: owners, managers, board of directors, auditors, actuaries, employees, policyholders and regulators [37], [45].

III. Literature Review

The literature has identified several problems resulting from the agency relationship between principals and agents. However, several governance mechanisms have also been developed to control and solve this problem. Those mechanisms are usually divided into external mechanisms and internal mechanisms. Among the internal mechanisms that solve the principal-agent problem there are the characteristics of the Board of Directors (BODs) [8], [40], [41], duality of the CEO [16], managerial compensation [20], [35], insider ownership [9], [26], [27] large stakeholders and blockholders [10], debt and dividend policies [21]. On the other hand, are considered external mechanisms: threat of takeover [17], [19], [27], financial analysts [38], legal environment, minority shareholders protection [28].

We took into consideration only some internal mechanisms among those mentioned and particularly some characteristics of the Board of Directors and ownership concentration. Our objective is to study the effect of some corporate governance elements, some of them deeply affected by the principal-agent relationship, on risk taking in European Insurance sector.

A large literature has analyzed the effect of corporate governance variables on firms performance, but only few studies have investigated on the impact of those variables on risk taking, particularly in the financial sector and, moreover, in the insurance industry [6].

The analysis of risk taking and risk management has an increasing importance in all sectors, especially in the financial industry and for insurance companies. The Basel Committee (for the banking system) and the Solvency Directives (for EU insurance companies) clearly focused the improvements, efforts and the attention that should be paid to risk-related topics at all levels.

> "Enterprise risk management is a process, effected by the entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within the risk appetite, to provide reasonable assurance regarding the achievement of objectives" [12].

The effects of Board of Directors characteristics and diversity (size, composition, gender, kinds of expertise, age, education, values, etc...) on insurance company's performances have been largely studied, even with different and sometimes contrasting results [22], [33], [34], [37], [42], [44], [46].

Lipton [30], [31] provides a qualitative description (mainly

from a legal point of view) of the role of the board in corporate risk management, stating that "the board cannot and should not be involved in actual day-to-day risk management".

Maingot [32] had analyzed the consequences of the financial crisis on the management of risks in the financial services sector in Canada, tracking fourteen types of risk and categorizing them by level of risk exposure, risk consequence and risk management disclosures. They found very minor changes in the risk disclosures from 2007 to 2008.

Ballou [2] had published a survey of current Directors of publicly traded companies examining the type and quality of risk information received from management. The conclusion was that without any doubt pressure on the boards of directors of publicly traded companies to perform increased oversight in the area of risk management will absolutely continue to rise as there are still a high number of opportunities to improve the nature and extent of risk information provided to the board.

Only some recent studies have focused their attention on the relationship between corporate governance aspects and risk in the insurance sector. Cheng [7] analyzed the relationship between risk-taking attitude and institutional ownership of life-health insurance companies, finding evidence that institutional ownership stability reduces total risk, but increases leverage and investment risk. Cole [11] analyzed the effect of ownership concentration on risk taking, whereas Eling and Marek [18] found specific evidence only in the UK and German Insurance Market.

IV. Research Questions

Inside the theoretical framework and given the existing related literature, our paper aims to answer to the following research questions.

RQ1: Are publicly traded Insurance Companies less risky than other similar privately-held Companies?

According to the agency theory, the managers of a publicly traded company would probably take less risk than desired by their principals (owners). This means that a publicly-held company would be less risky than an otherwise similar privately-held company, where there is a closer alignment between principal and agent interests.

RQ2: Is an Insurance Company with higher ownership concentration less risky than an otherwise similar Company with lower concentration?

According to the agency theory and some literature on the topic, higher ownership concentration means more control by the owners on the managers. Empirically larger shareholders are generally associated with higher performances, even if there are some mixed results. Higher concentration and better performance may suppose higher risk-taking levels.

RQ3: Do higher directors compensation correspond to higher risk-taking?

In non-financial companies, the relationship between managers compensations and firms performance and risk-taking have been largely studied, even if there are a lot of contrasting contributions and empirical evidence. It is generally accepted that compensation incentives may be used to align the interests of owners and managers, even in insurance companies [35]. With higher compensations, directors are expected to work harder and perform better performances. If the compensation is linked with the performance, it can lead directors to take more risk (and higher return).

The relationship between manager compensations, corporate governance, and risk-taking is particularly interesting, even if the empirical evidence is not entirely conclusive. In April 2009, Mary Schapiro, SEC Chairman, announced that he "want(s) to make sure that shareholders fully understand how compensation structures and practices drive an executive's risk-taking. The Commission will be considering whether greater disclosure is needed about how a company — and the company's board in particular — manages risks, both generally and in the context of setting compensation". Some researches [14], [25] found a negative empirical relation between compensation and risk taking, but, at the same time, more recent ones [24] found no significant statistical correlation at all.

RQ4: Are Insurance Companies with larger board of directors (BODs) less risky than companies with smaller boards? In other words, does the dimension of the BODs affect risk taking?

Sah and Stiglitz [40], [41] analysed the effect of the dimension of the board of directors, arguing that larger boards tend to reject risky projects as it is more difficult to convince a large number of directors that a risky project is worthwhile. In other words, according to some theories, larger boards reflect communication problems and more difficulties for the board to find an agreement on higher risk-taking policies and decisions. On the other hand, other researches [29], analyzing the US insurance industry, found lower risk only for asset risks, whereas, as the dimension of the board increase, they found higher systematic risk and also higher equity risk. These contrasting results have not been explained yet inside an organic theoretical framework.

RQ5: Are Insurance Companies with more heterogeneous board of directors (BODs) less risky than companies with more homogenous ones?

In this analysis, we took into consideration gender composition of BODs and the nationality of the directors. Both theoretical and empirical findings on the relationship among gender diversity of the board, performance and risk-taking are inconclusive. The same seems to be for the impact on firms' performance and risk taking of foreign directorship. It is generally accepted that higher diversity of the board of directors makes managers act more ethically and take less risk (as it is more difficult to converge on higher risk actions).

V. Methodology and Data

This section describes the methods used in developing the research, collecting and analyzing data, and the description of the variables.

A. Data

Many different sources have been used to collect the data for this research. First of all, several academic journals and

articles have been analyzed for a better understanding of the theoretical framework and the previous academic studies. For the empirical analysis, data have been collected largely from the ISIS database (provided by Bureau van Dijk). Additional data have been collected through the websites of insurance companies, from EIOPA (European Insurance and Occupational Pensions Authority) and the national association of insurance companies in different EU Countries.

The analysis of this research have been conducted on the basis of 396 observations coming from 126 insurance companies from the 27 EU Countries (Croatia has not been included as it entered the EU only on July 2013) in the period running from 2009 to the end of 2013.

B. Regression Analysis

The first step of the data analysis was the correlation analysis in order to determine statistically the level of association between the variables considered in the model and to detect any chance of multicollinearity. Multiple regression analysis is the statistical method employed in this study.

In the regression analysis, we considered as dependent variable a measure of risk. In previous academic research and in literature there exists a wide variety of variables used as proxy for risk taking. Traditionally, the classical capital structure literature [36] distinguishes between business risk and financial risk. Business risk is then generally referred to the two main areas of insurance business activity: investing and underwriting. Other theories and studies distinguish among asset risk, product risk and total risk. Literature on risk taking in insurance companies uses a wide range of different measures: market risk measures, accounting risk measures and risk-based capital measures.

Following previous research [18], we use the logarithm of the ratio of total assets to total net equity as a proxy for financial risk. This is a measure for the leverage of the insurer that proxies financial risk under the adoption of the so-called "finite risk paradigm". This hypothesis assumes that capital and risk are positively related [3], [4], [15]. Many studies suggest clearly that the insurance industry operates within this paradigm rather than the so-called excessive risk paradigm, even if there are some studies, mainly related to the financial crisis, that do not support the finite risk paradigm.

For the multiple regression analysis, we use (1):

$$RISK_{i,t} = \beta_0 + \beta_1 \cdot X_{i,t} + \beta_2 \cdot C_t + \varepsilon_t \qquad (1)$$

where: $RISK_{i,t}$ is the vector of the dependent variable (risk), $X_{i,t}$ is a vector of the corporate governance variables. that have to be tested for the study (described in the following paragraph) that may affect the risk-level. C_t is a vector of variables that controls for each firms characteristics (dimension, technical reserves, profitability, group, internationality). ε_t is the vector of unobserved scalar random variables (errors).

Finally, we assume that the variable $Y_{i,t}$ is influenced by a stochastic error ε_t with the standard assumption of strict exogeneity (conditional mean equals to zero; absence of correlation and constancy of the variance).

C. Variables Description

The dependent variable is the risk-measure (RISK), that in this study is the ratio of total assets to total net equity.

The corporate governance variables include the following variables:

- PUB: Publicly traded vs. privately traded company. For the ownership, we distinguish between privately held and publicly traded insurance companies by whether the firm is listed or not (i.e. it issues publicly traded stocks). According to these criteria, we labeled as "listed companies" those whose shares are traded on a main stock exchange in an EU Country. It is a dummy variable that is equal to 1 if the company is publicly traded and 0 otherwise.
- OWN: is the ownership concentration, measured as the percentage of shares owned by the five largest stockholders of the Company.
- BCOMP: it measures the Board of Directors compensations considering the total amount of all the emoluments to all Directors.
- BSIZE: Size of the Board as the number of directors on the Board of Directors of each Insurance Company in a particular financial year.
- BFEM: Gender diversity of the Board, measured as the percentage of female directors in the board.
- BNAT: Board nationality as the number of Countries the directors come from.

In the vector C_t there are other variables to control for each company's characteristics. All the variables are described in Table I.

D. Results and Discussion

This section presents the results obtained from the research and the data analysis, with a discussion of the major findings.

In Table II are reported the descriptive statistics for the data set.

PUB is a dummy variable, whose values are 0 or 1. The average value of 0,833 denotes that there is definitely a predominance of public insurance companies in Europe.

With regard to the ownership concentration, our statistics show that the average of the sample is 21% (shares owned by the five largest shareholders), with a minimum of 7% and a maximum of 81%.

The Board of Directors compensations has an average value of 18.705.290 Euro, while the average dimension of the Board is close to 13 members. The average percentage of female in the Boards is 23% (less than 1 to 4), while the average number of Country the Directors come from is only 2.

The average value of ROE is around 7%, with a maximum of 53% and a minimum of -26%.

Table III reports the results of the multivariate regression models, with the corresponding t-statistics, R-square and adjusted R-square.

TABLE I
VARIABLES DESCRIPTION

Variable	Meaning	Description
RISK	Measure of Risk	Log of the ratio between total assets and net equity
PUB	Public or Private Company	Dummy variable (1=publicly traded; 0=privately held)
OWN	Ownership Concentration	% of shares owned by the five largest stockholders
BCOMP	Board Compensation	Total Emoluments to all Directors (Euro)
BSIZE	Board Size	Number of the members in the Board of Directors
BFEM	Gender of the Directors	% of female member in the Board of Directors
BNAT	Nationalities of the Directors	Number of different nationality of the Directors
DIM	Company Dimension	Log of total Assets
RES	Technical Reserves	Log of Technical Reserves
ROE	Profitability	Ratio of net income and net equity
GRP	Part of a group	Dummy variable (1=part of a group; 0=otherwise)
INT	International Activity	Dummy variable (1=international activities; 0=otherwise)

TABLE II
DESCRIPTIVE STATISTICS

Variable	Mean	Median	St. Dev.	Min	Max
RISK	1.210	1.161	0.185	0.682	1.442
PUB	0.833	1.0	0.373	0.0	1.0
OWN	0.210	0.208	0.081	0.070	0.810
BCOMP	18,705,290	13,053,585	13,891,387	7,388,750	42,078,000
BSIZE	12.924	11.000	5.495	6.000	26.000
BFEM	0.228	0.192	0.091	0.091	0.364
BNAT	2.056	2.000	0.706	1.0	4.0
DIM	11.157	11.610	0.735	9.910	11.852
RES	10.775	11.139	0.945	8.623	11.673
ROE	0.068	0.079	0.098	-0.258	0.535
GRP	0.778	1.0	0.416	0.0	1.0
INT	0.889	1.0	0.315	0.0	1.0

The value of the R-square shows that the overall goodness of fit of the multivariate regression is really good. The F-test in the analysis of variance (ANOVA) shows that in the regressions at least one of the parameter is linearly related to the dependent variable (risk).

Regarding the independent variables, we find a significant statistical correlation (at 95%) with the dependent variable (risk) for:

- PUB: there is a negative significant correlation for the variable of private/public ownership. This means that publicly traded Insurance Companies are less risky than other similar privately-held Companies. This is coherent with the theoretical framework and previous literature.
- OWN: there is a negative significant correlation for the ownership concentration, as companies with larger and stronger owners take less risk than the other company with lower level of ownership concentration, as theory predicts.
- BSIZE: we find a negative coefficient for the variable that counts for Board dimensions. This suggests that Companies with bigger Boards (Board with a higher number of directors) take less risk than smaller ones. The theoretical explanation was that larger board find more difficult to converge to very risky projects.
- DIM: there is a positive correlation with the variable "dimension". Bigger companies take more risk than smaller ones.
- RES: the amount of technical reserves helps to measure the dimension of the "operational activity" of an insurance company. The amount of reserves counts also for the amount of obligation that the company have towards its policy-holders. The correlation is positive as the companies with higher amount of (technical) reserves tale more risk.
- ROE: insurance companies with higher profitability (ROE) take less risk. This result may be quite surprising as the standard theory would suggest that taking more risk generally implies higher returns.
- GRP: being part of a group means taking more risk.
- INT: insurance companies that play in an international context (more than one Country) are less risky than the "national" ones.

VI. SUMMARY AND CONCLUDING COMMENTS

This section presents the results obtained from the research and the data analysis, with a discussion of the hypothesis and the research questions.

Firstly, in line with much of the extant literature, we have empirically documented that corporate governance deeply affects (financial) risk taking. The regression model denotes a good fit and a quite high explanatory power. Therefore, it is really important for the insurance company to have a high control on corporate governance variables and to promote a good and positive culture relating to those topics.

According to our analysis, we find quite strong evidence supporting our hypothesis and the existing literature. The results of the regression, allow us to answer positively to RQ n. 1-2-4. We could not say anything about RQ 3-5 as there those variables are not statistically significant.

We provide evidence that, according to our regression analysis, Insurance Companies publicly traded, with higher ownership concentration and larger Board of Directors are less risky than other similar privately-held Companies, with lower ownership concentration and a lower number of Directors.

The effects of board diversity on risk taking need more specific analysis as in this model it is not statistically significant. The average value of the female number of directors is still quite low (less than 1 director on 4 is a woman).

The major limit of this analysis may be found in the use of only one measure of risk (more specifically financial risk). The same analysis may be developed and extended to different measure of risk (product risk, total risk, etc...), also using more than one variable.

Further development may be conducted analyzing other risk measures as well as including more corporate governance variables (for example investigating more in depth board diversity, with more specific variables).

TABLE III
REGRESSION RESULTS

Regression Statistics	
Multiple R	0,8882
R Square	0,7889
Adjusted R Square	0,7828
Standard Error	0,0862
Observations	396

	df	*SS*	*MS*	*F*	*Significance F*
Regression	11	10,6557	0,9687	130,4361	0,0000
Residual	384	2,8518	0,0074		
Total	395	13,5075			

	Coefficients	*Standard Error*	*t-Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-1,1330	0,1249	-9,0709	0,0000	-1,3785	-0,8874
PUB	-0,0459	0,0162	-2,8320	0,0049	-0,0777	-0,0140
OWN	-1,1138	0,1206	-9,2385	0,0000	-1,3508	-0,8767
COMP	0,0000	0,0000	1,6913	0,0916	0,0000	0,0000
BSIZE	-0,0066	0,0011	-5,7899	0,0000	-0,0089	-0,0044
BFEM	-0,1171	0,0948	-1,2356	0,2174	-0,3035	0,0693
BNAT	0,0092	0,0105	0,8774	0,3808	-0,0114	0,0297
DIM	0,1190	0,0103	11,5387	0,0000	0,0988	0,1393
RES	0,1290	0,0104	12,4545	0,0000	0,1086	0,1493
ROE	-0,1937	0,0529	-3,6655	0,0003	-0,2976	-0,0898
GRP	0,0494	0,0165	2,9985	0,0029	0,0170	0,0818
INT	-0,0624	0,0182	-3,4296	0,0007	-0,0981	-0,0266

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