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AN INVESTIGATION ON POSSIBLE LINKS BETWEEN RISK MANAGEMENT, PERFORMANCE MEASUREMENT AND REWARD SCHEMES

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ABSTRACT

The ongoing global financial crisis underlined the urgent need of changing traditional executives compensation schemes. Governments and authorities reacted through regulation and standards, while professionals and academics have suggested several new pay mechanisms (e.g. deferred bonus). Given some limitations of the above-mentioned solutions, the paper aims at understanding whether they can be improved by introducing incentives strictly tied to companies' risk metrics for executive members of the Boards and top managers with strategic responsibilities. The link between monetary incentives and the achievement of desired risk-adjusted performance is thus proposed and explored. Following a qualitative methodology, four case studies were carried out using semi-structured interviews with Italian risk managers and human resources managers. Results show that a reward system based on risk measures is welcome and feasible, if not already adopted. It needs to be carefully tailored to each company. Lastly, its adoption and implementation rely on various contextual conditions and can be hindered by some difficulties in risk measurement. The paper contributes to the reward and risk management literature by investigating new tools to satisfy the need of sounder compensation practices.

Risk, executive compensation, reward, performance indicators

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INTRODUCTION

Today it is largely recognized that the global financial crisis of 2008 has demonstrated the inadequacy of traditional executive Board members' compensation schemes to support company's sustainable performance results (FSF, 2009). Short term bonuses and share option plans were among the most criticized instruments. While intended to reduce agency costs (Jensen & Meckling, 1976), bonuses and options have actually rewarded short term share price volatility instead of advancing shareholders' interests of long-term value creation (Acharya & Richardson, 2009).

Reactions from shareholders, governments and other stakeholders arrived quickly. In Europe as well as in the U.S., shareholders have begun to ask for an active role in the definition of remuneration programs (e.g. voting pay programs), while governments have adopted new regulations and disclosure rules so that remuneration schemes are no longer an internal matter defined by the top management itself (Vartiainen *et al*., 2008; Mercer, 2009). At the same time, professionals and researchers in the banking sector have proposed to make executives more accountable for their decisions through greater use of long term incentives associated with longer stock holding periods (Acharya & Richardson, 2009).

Although these mechanisms can be a viable tool for aligning top management efforts with long term objectives, we question if they can be further improved by introducing incentives that are more strictly tied to a company's risk level. In particular, since risk is the domain of risk management and strongly connected to the achievement of strategic objectives, we aim to explore whether compensation schemes can be linked to risk metrics used to assess company risks and control risk responses.

Our investigation starts with the analysis of compensation structures and performance measures usually associated with executives (par. 2.1), revealing that the enduring use of traditional financial measures, although evaluated in the long term, do not necessary avoid company exposure to excessive risks. Then, we examine the most recent solutions proposed by the literature (such as the bonus/malus approach) designed to ensure that incentives will not lead to decisions that can put a company's survival at risk (par. 2.2). In particular, we analyse their feasibility and identify their pros and cons (Bossenbroek, 2009).

New compensation mixes seem to not be enough in ensuring sound management and the consideration of risks is not included, although underlined by regulations and recommendation. Thus, the paper aims at suggesting the inclusion of risk indicators in company performance measurement systems and proposes to pay managers' variable remuneration according to the achievement of desired risk-adjusted performance. This proposal is explored both theoretically and empirically.

Hypothesis on which measures and procedures have to be used to monitor risks are discussed through interviews with risk and human resources managers of some Italian companies working in different businesses. Results indicate that a reward scheme based on some kind of risk measures is welcome. However, it should be tailored carefully to the specific company and there are some uncertainties about its diffusion in Italy because of the current lack of risk culture in both small and large listed companies. Lastly, results indicate that a linkage between risk management and incentives systems cannot be easily applied on a company-wide basis, because of risk measurement difficulties in some business areas.

1. PRIOR RESEARCH ON COMPENSATION PRACTICES

1.1 Executive rewards

Compensation is a monetary reward given to an employee for a specific action undertaken or outcome. Compared to non-monetary or psychological rewards (i.e. promotion, autonomy, recognition or appreciation to employees for their action), monetary ones are usually defined explicitly (described in a contract and calculated through a formula) and associated with a verifiable result or with a measure that approximates the desired result. In fact, benefits, long- and short-term monetary incentives (e.g. bonuses) which all increase the fixed or base salary of an employee are usually linked to specific outcomes or performances. This relationship between pay and performance has been studied by two main research streams, which draw from agency theory and motivational theories respectively (Devers *et al.*, 2007).

Agency theory (Jensen & Meckling, 1976) - largely used in corporate governance studies which analyse the supposed link between remuneration and performance (Cosh, 1975; Forbes *et al.*, 1993) - suggests using rewards to avoid the principal-agent problem between executives (agent) and shareholders (principal) and reduce the threat of top managers' moral hazard. According to this view, the Board in accordance with shareholders can establish rewards that, when linked to firm outcomes, will stimulate managers to achieve shareholders' desired performances. In fact, rewards take advantage of executives' self-interest by channeling their focus away from extracting opportunistic rents and toward maximizing shareholder wealth (Devers *et al.*, 2007).

However, the greatest amount of research on rewards derives from organizational and psychological studies, which consider rewards as a motivational tool. Organizational researchers such as Vroom (1964), Maslow (1970) and Herzberg (1987) have developed several behavioural theories concerning employees' motivation (see Locke, 1991 and Latham, 2007 for a review), which have been widely used in management studies. In this field, rewards are held to be fundamental to reinforce the management systems they are associated with, since they inform employees about which areas and results are important and motivate

and direct their behaviour accordingly (Simons, 2000). Thus, rewards (especially pay) can become predictors of future behaviours and outcomes.
With reference to executive directors and key managers with strategic responsibilities, today rewards mainly consist of monetary incentives associated with company performance. In all sectors, monetary incentives such as bonuses, stock options and company shares represent a common form of remuneration that accounts for about 2/3 of their entire compensation package (Hewitt, 2009). Such incentives are probably the biggest and most effective lever that shareholders can use to influence managers' behaviour both in the US and Europe. They correspond to the variable part of top managers' compensation package and are usually tied to the achievement of individual, business-unit and firm-wide goals expressed in terms of key performance indicators (KPI).

This pay-for-performance model is welcome because it entails benefits (Jenkins *et al*., 1998) such as avoiding subjective evaluations as in the case of supervision on employees' behaviours and efforts (the measurement method is considered objective) and it is supposed to lead to company's desired results. Actually, the general underlying assumption is that goal setting increases managers' commitment (Latham & Locke, 2006) and linking monetary incentives to these goals increases the intensity and duration of managers' effort toward the rewarded indicator, which in turn is supposed to lead to improvements in company performance (Bonner & Sprinkle, 2002), although some researchers have found inconsistent associations between top managerial incentives and company outcomes (Barkema & Gomez-Mejia, 1998). Indeed, firm performance is not only a function of managerial decisions, but also of factors outside managers' control (Yermack, 1997; Tosi *et al.*, 2000).

Moreover, incentives are largely widespread because the use of explicit rewards based on a pay-for-performance compensation program for top managers is commonly accepted and welcome. Motivational (non-monetary) rewards are more appropriate for blue collar employees (Arnolds & Venter, 2007). On the contrary, executives and top managers believe in the feasibility of tying pay to strategic performance (Pennings, 1993) and they are more tolerant of putting at risk their own pay compared to lower employees (Milgrom & Roberts, 1992).

Lastly, companies prefer monetary incentives. They are flexible on the amount and pay-out frequency and do not create competition among managers as promotions can (Milgrom & Roberts, 1992). However, as anticipated by the study of Guidry *et al*. (1999) and confirmed by the recent financial crisis, incentives can be used by executives in ways that benefit themselves at the expense of shareholders and company survival in the long term. For example, some authors have argued that when compensation is not directly tied to firm performance, top managers tend to minimize risks and underperform (Wiseman & Gomez-Mejia, 1998). On the

contrary, long-term incentives may encourage risk taking, which can have a negative effect on shareholder results (Devers *et al*., 2006).

Recent unforeseen company failures have demonstrated that traditional executive compensation structures linked to financial short term performance measures tend to push managers to choose risky strategies at the expenses of long term value creation just to reach the targets set and maximize their associated incentives (Acharya & Richardson, 2009). Executives as well as top managers' attention has been mainly focused on the achievement of annual sales, profits, net financial debt and other accounting measures without considering or being responsible for large risks taken and possible future negative consequence deriving from their decisions (Crouhy *et al*., 2006). However, some Authors have already underlined the importance of incorporating non-financial indicators (related for example to human resource management or marketing and customer service) into the measurement systems pertaining to award contracts (Needles *et al.,* 2008).

With regard to executives compensations, stock options have been the most criticized instruments (Wright *et al*., 2007) as they limit downside risk while offering an upside potential, thus encouraging executives to make risky bets in the hope of a big return (Datta *et al*., 2001; Sanders, 2001; Rajgopal & Shevlin, 2002). Initially promoted to align the risk preferences of risk-averse executives with those of risk-neutral shareholders, stock options have generated the opposite result: executives undertaking riskier investments than those expected by shareholders. In fact, as anticipated by Kahneman and Tversky (1979), the negative context has exacerbated executives' tendency to take risk while a positive context would have motivated risk aversion.

Moreover, Board of directors have usually considered compensation systems independently of risk consequences, especially in financial firms where compensation schemes were largely unrelated to risk management and risk governance (FSF, 2009). Similarly, risk was not considered a relevant issue in compensation given to lower employees such as middle management and heads of departments. Middle management has usually received bonuses on the basis of direct negotiations with senior management and HRD regarding revenue and volume goals setting as well as the definition of a compensation that could grant the retaining of talents. However, key risks harming company performances also arise from operations, sales and other day-to-day activities performed in lower company units.

1.2 Review on recent compensation practices

The beliefs that the current crisis has been promoted by distortive executive compensation practices together with deficiencies in risk management systems and weaknesses in corporate governance arrangements – especially in financial services companies (FSF, 2009; Kirkpatrick, 2009) has led academics, professionals and institutional bodies to foster a change in compensation systems. Currently executives' remuneration is a key issue in public debates together with questions regarding the power of oversight bodies and the role of the Board and non-executive directors (Faulkender *et al.*, 2010; Filatotchev, 2011).

Official actions as well as research initiatives addressing unsound compensation practices have been translated into different proposals on corporate governance reforms and pay structures (Earle, 2009)**.** Regarding corporate governance structure, regulatory authorities and government bodies have issued new rules on corporate governance aiming to improve companies' disclosure and accountability on both risk and compensation (Vartiainen *et al.*, 2008; Mercer, 2009). For example, the SEC requires listed companies to issue a Definitive Proxy Statement in which to disclose management compensation, the role of the Board in risk oversight and the nature of communications between the Board and the management about risk issues, while the U.S. Treasury Department ask CEOs of financial institutions that received federal funding to certify that the compensation committee has reviewed executives' incentive compensation arrangements with the senior risk officers in order to avoid that compensation schemes encourage executives to take excessive risks.

Also the composition and functioning of the Remuneration Committee within the Board, whose existence has been always considered crucial (Jensen & Murphy, 1990; Elson, 1993), have been questioned (FSF, 2009; FSB, 2009). Specifically, the Committee should have more professional competences in compensation and risk management together with a significant autonomy which would enable it to contribute effectively to the definition of the compensation system's design and to oversee, judge and eventually propose changes to its functioning. Furthermore, it should work more closely with the company's Risk Committee in defining top managers' incentives. Finally, it should review compensation schemes more often in order to align them to environmental conditions and take into account exceptional government interventions (as occurred in case of large banks rescued by the government); regular controls could be established to review the compensation system for compliance with company's policies and objectives.

At the same time new standards have been proposed to improve compensation practices (FSF, 2009; FSB, 2009). Some of the main suggestions have been summarized as follows:

- Compensation schemes should limit the consideration of potential future revenues whose timing and likelihood of realization remain uncertain at the time of payout. Thus, the amount of the compensation and its allocation within the firm should take into account the risk of carrying out the consequences of unforeseen or partially known situations.
- Compensation schemes should wipe out guaranteed or minimal amount bonuses.
- The variable part of compensation schemes should consist more in long-term incentives than in short-term incentives, thus payments will be deferred from 3 to 5 years. This avoids payments finalized over short periods where risks are realized over long periods. Similarly, the Conference Board (2009) has suggested using long-term measures such as total shareholder return.
- Among different types of incentive, shares and other non-cash based instruments should be preferred to bonuses as they seem better to align managers' decisions and behaviours to long term value creation and the time horizon of risk.
- The variable part of compensation schemes should consider current and future negative financial performances by linking these results to possible contractions of managers' variable compensation. In other terms, it should be possible to reduce payouts of bonuses previously earned using clawback arrangements or introducing a bonus/malus approach to compensation as already applied in some banks (UBS, 2008) which allow the possibility of subtracting bad performances recorded in the future from total remuneration. Using a bonus/malus approach, a bonus pool is cashed out in an alternate manner over time. The common idea is that managers' moral hazard is reduced because reward schemes include information on future risks generated by today's actions (Acharya & Richardson, 2009). A modified version of bonus/malus approach is called "Dynamic Incentive Accounts" (Edmans *et al.*, 2009). It suggests deferring a part of annual incentives into an account held both in cash and company stocks. If stock price underperforms, the account is re-balanced by shifting amounts from the cash part to the stock part in order to keep a specified minimum percentage of the account in stock. The account gradually vests and pays out over time, including after termination of employment.
- Gratuity (severance payments) should be related to performance achieved over the whole period of employment, so that its amount is aligned with long-term value creation and does not end up rewarding managers even when company records bad performances as with existing contractual arrangements.

- Finally, the indicators on which the variable compensation is based need to be differentiated when regarding senior executives and top managers that have a material impact on the risk exposure of the firm or employees working in the Risk and Compliance Department or Function. While for senior executives performance measures should regard the company's overall performances expressed both in financial and risk terms, for employees working in the Risk Function performance measures should be based principally on the achievement of the objectives of their functions. Thus, remuneration for risk staff should be determined independently from financial, quantitative and qualitative performances of other business areas. This allows them to be independent and preserve their integrity in supporting the Remuneration Committee, which defines incentives for managers working in business areas.

Putting all these recommendation together creates a compensation scheme in which the variable part is dominant and is made of shares (e.g. 50%) and a deferred cash compensation for the remaining portion (e.g. 50%) which vests gradually in years and can be subtracted in case of negative performances. Thus, firms will define a mix of cash, equity and other forms of compensation that must be consistent with risk alignment and the employee's position and role. As a matter of fact, in the banking sector some companies have begun to use more long-term incentives, restricted shares, deferred bonuses and longer stock holding periods instead of paying annual bonuses, although these mechanisms are scarcely used in Europe (Hewitt, 2009, 2010) and their benefits have to be demonstrated in the future.

2. EXPLORING HOW TO LINK REWARD TO RISK MANAGEMENT

As emerges from the literature review, most research efforts and proposals have dealt with the definition of new compensation mixes, which are supposed to steer top managers in the pursuit of goals that do not expose the company to excessive risks. However, this does not seem to be the optimal solution. There are financial institutions (such as USB) that recorded serious losses from excessive risk taking while having compensation schemes based on long-term incentives and high stock holdings already in place whereas the ones that survived had strong incentives to take risks (Kirkpatrick, 2009; Nestor Advisors, 2009).

At the same time proposals regarding pay structure reforms did not really include considerations about the risk management system or try to integrate it in the reward system. Risk management and control systems are still considered separate instruments, whose design and functioning are defined by different committees and administered by different managers. When the Risk Management Committee is required to attend to the Remuneration Committee's meetings, it mainly provides

information on the position and activities of the organization so that others can better define the size and type of incentives to set.

On the contrary, we expect to obtain significant advances by proposing to link compensation to the company's risk management system. Risk can be conceived as uncertainty about outcomes and events. Thus it is the possibility that future positive or negative events might produce a reality different from expected (Renn, 1998). In turn, risk management explicitly deals with the aspects of decision making that are uncertain, the nature of that uncertainty, and how it can be addressed. So risk management necessarily copes with most of the long-range decisions and, nonetheless, with the strategy (Baird & Thomas, 1985) and the achievement of strategic objectives (Young & Tippins, 2001; Cokins, 2009). Furthermore, it helps decision makers make informed choices, supporting the prioritization of actions and the distinction among alternative courses of action as well as decisions about whether a risk is unacceptable and whether a risk treatment will be adequate and effective.

This implies a continuous and integrated way to manage risks recognizing the interdependencies within the enterprise and enabling the identification of the company's aggregated risk exposure. To this end, several frameworks and standards (i.e. AS/NZS 4360:2004, FERMA and ISO 31000:2009) have been issued. They all share the link between risk management and strategy. Thus, they allowed to evolve from a "silos" approach - where the focus is on insurable risks and financial risks that are managed within the single business unit or function in a fragmented way - to a "holistic" risk management approach, although the two of them seem to coexist in business practices (Mikes, 2005). Enterprise Risk Management (ERM) (COSO, 2004) represents the most widespread framework (Hexter & Gates, 2005; AON, 2010) which explicitly addresses risks and opportunities in decision making at all company levels, enhancing managers' capacity to achieve strategic objectives and create value in the long term.

The linkage between rewards and risk management system implies several benefits. It should generate a greater responsibility of top and middle managers in their decision making and guarantee a better alignment of their behavior with company risk objectives. In this regard, compensation structures may play an important role in leading personnel behavior when trade-offs between short-term goals and long-term risk-adjusted value are involved in their decisions (Brooks, 2010).

Secondly, it should contribute to creating or reinforcing a risk-aware culture in the organization, whose existence can assure that risk management will effectively support more intelligent decision-making regardless the kind of risk management framework chosen (AON, 2010).

Moreover, it should give support for overcoming two important deficiencies in past risk management practices that have favored the financial crisis: the ineffective or the lack of Board oversight and the absence of transmission of risk information (Kirkpatrick, 2009). Setting a compensation plan tied to risk could make the Board more committed to monitor over the company's risk management system and push it to ask for more detailed information. In other terms, by redressing the balance back towards personalisation - that means more personal accountability - the risk management system will be more effective rather than remaining a technical instrument with perfect functionality but minimal impact over the organization. Too much reliance on formal risk management systems and/or their externalisation has pushed individuals to detach themselves, legally and morally, from the system in which they were working (Birkinshaw & Jenkins, 2010).

Since risk is an element ignored in traditional reward systems, a risk-related reward system also pushes managers to consider relevant dimensions that are otherwise usually disregarded. Moreover, risk identification and assessment require involvement and confrontation among risk owners of different areas, risk managers and even the Board. As a consequence, the definition of rewards tied to risk measures reinforces the benefits of a participative process of target-setting such as promoting responsibility, managers' personal involvement, creativity and collective learning. Participation in questionnaires or interviews to assess risks is not thought of as an additional duty. On the contrary, managers will be more active in participating and refining techniques used to identify and measure risks, benefiting from the efficacy and maturity level of risk management.

Our proposal should also better help the company consider all possible different types of risks. Instead of focusing on one risk dimension (i.e. value-at risk), an integration between risk management and compensation systems could help take into account the complexity and multidimensional nature of risk.
Lastly, it should be noted that also middle management's pay structures can be risk-adjusted together with top managers' compensation when an enterprise risk management system is in place. In this case both top and middle managers can be held responsible for risk identification, valuation and response, thus a common pay-sensitivity to risk can contribute to greater dialogue, consideration of cause-effect relationships and greater efficacy in risk management.

The most difficult part of this proposal regards the development of procedures and measures that can be used to monitor risks and the specification of the link between ERM and reward systems.

In fact, the traditional incentive alignment model is based on initial goal setting, measurement of results and calculations of rewards correlated to results. As such, it requires perfect accountability of what managers do and a clear link between managers' effort, risk outcomes and pay. On the contrary, those managers would not be motivated or would be tempted to manipulate data (Simons, 2000). In turn,

rewards can be associated with risk management only in case of clear measurability of expected outcomes, while risks are not always quantifiable. Accuracy in risk quantification tends to decrease when moving from low to top levels (IMA, 2007). Moreover, risks are usually so strongly interrelated that risk outcomes are not always controllable, but depend on the work of several managers belonging to different company functions and departments.

Thus, as ISO 31000:2009 underlines, one of the key tasks is determining risk management performance indicators aligned with organizational performance indicators and causal maps that explain which factors (risk drivers) have to be managed (or monitored if not controllable) to curb the company's risks. Instruments such as scenario analysis and/or simulation analysis facilitate risk assessment and gain/loss curves capture risk impact on revenues or other metrics, while stochastic economic scenarios depict the aggregate scenario of all risks and their impact on the company's overall risk profile.

Also the use of key risk indicators (KRI) can be useful when it is difficult to define a risk measure to which to associate monetary incentives. KRIs show the potential presence, level or trend of a risk and signal factors that can affect performances as well as the need for further actions at every organizational level, while also showing the level of stress under which risk management activities may be operating (Beasley *et al.*, 2010). KRIs provide early warning signals about changes on risk exposures, allow predicting if a traditional KPI may be achieved or not, help define performance targets, contribute to monitoring performance goals and to improving accountability (helping to communicate who is responsible for monitoring a specific risk, what is acceptable, when to escalate an issue, to whom the issue should be reported, how the risk should be addressed).

With reference to executive directors or top managers, incentives can be associated with risk goals expressed in terms of synthetic measures such as earnings at risk calculated for business units or the entire organization on the basis of expected impact of risk drivers on earnings. Thus, managers are not motivated to maximize earnings through whatever decision they prefer, but rather to curb the variability of earnings, working directly or pushing lower managers to work on risk causes measured by KRIs. If causal maps and KRIs are defined correctly, then risk-based incentives can be defined for both top and lower managers, for risk owners of all areas and hierarchical levels. As an alternative, the Financial Stability Board suggests using both quantitative measures and human judgment in determining risk adjustments so that compensation can be adjusted for all types of risk including risks that are difficult to measure (such as reputation risk and liquidity risk) (FSB, 2009).

3. METHODOLOGY

In order to investigate the creation of a link between reward and risk management, this study integrates both the deductive and inductive perspectives, which in Italian accounting studies are usually considered to be complementary rather than antithetical (Canziani, 1998). In fact, the empirical research represents a crucial moment and is equally important with respect to the deductive construction of the theories. This is even more fitting considering that the diffusion of risk management practices is relatively recent and it is still ongoing and deeply evolving.

Thus, after developing the first part of the work in which some linkages between risk management and incentives are proposed, and some performance metrics are identified, the paper reports managers' view about what they are currently experiencing in their firms and what could be implemented in the future. We opted for a qualitative approach and the use of direct interviews, as it appeared to be the most appropriate method for the issue under discussion. The limited diffusion of risk management systems in Italian companies and their recent or even partial implementation would have made difficult and inappropriate to investigate the extent of a possible linkage between risk measures and performance evaluation. On the contrary, a few specific interviews could help gain a deeper insight into how reward systems are constructed as well as respondents' attitudes and personal opinions (Flick, 2002) regarding a possible link between risk management and managers' pay.

Questions were addressed to risk managers, because they represent the repository of company knowledge about risks and risk management and they provide an independent judgement about possible changes in top managers' reward systems. Furthermore, the risk function is the subject that can help determine whether a risk-adjusted metric might make sense (Earle, 2009). However, some risk managers suggested to interview also human resources managers working in their companies to collect more information about the compensation plans in practice. Thus, given the cross-field topic of the research, the identification of the interviewees has been inspired by the saturation principle.

In detail, information was sourced through the use of semi-structured interviews, which ensure comparable information better than unstructured interviews (Corbetta, 2003). Each interview lasted in between two and three hours. Most questions were kept very open so managers could speak freely. Data and information from reports and from the Investor Relations section of the companies' web sites have been used as well.

The risk managers were contacted through the Italian Risk Manager Association, which has been really useful in finding contacts on the basis of the information we gave about the content of our research as well as the different features of the

companies we wanted to investigate. Specifically, we contacted risk managers working in manufacturing and service companies rather than in the banking and insurance sector. The reason is twofold. First of all, it allowed to extend our research area to other industries that have not received as much attention as banks from regulators and standard setters, following the indication of those few authors that have began to stress the importance of robust risk management also in non-financial institutions (Kirkpatrick, 2009). Moreover, it allowed highlighting whether compensation schemes include risk performance measures because of top managers' awareness of using risk-adjusted incentives rather than because of external pressures exercised by the Basel Committee or the National Insurance Supervisors (IAIS).

The remuneration of executive members of the Board of Directors and top managers with strategic responsibilities was the focus of the research. Attention is narrowed down to executives because their decisions have a large impact on a company's goal achievement and because the Board is ultimately responsible for monitoring the enterprise risk management program, although the primary board-level risk oversight role is typically delegated to a committee (Branson, 2010). At the same time, the Board and top management have been blamed for being one of the causes of the recent worldwide financial and economic crisis as they made choices to increase short-term value of stocks and obtain bonuses, without considering overall company risk exposure (Acharya & Richardson, 2009). Independent and non-executive directors of the Board are not investigated since they do not have executive power and their variable remuneration (when it is not completely fixed) is usually based on attendance to Board and other Committees meetings.

This study may be considered as explorative (Ryan *et al*., 2002), thus it does not aim to demonstrate the generalizability of specific affirmations or provide definitive conclusions. It aims to explore how performance-dependent rewards can be applied to motivate executive directors and top managers to use risk management systems effectively and consequently to undertake less risky behaviours, balancing their expectations with shareholder concerns about company profitability and level of risk.

4. EMPIRICAL ANALYSIS

Information from interviews describes risk managers and human resources managers' opinions about the general feasibility of performance risk-dependent rewards in the Italian context. Mostly important it provides indications about existing reward schemes and possible links between risk management and top managers' remuneration in four Italian companies whose name disclosure has not

been authorized. Thus, on the basis of the interviews with managers it has been possible to reconstruct four case studies. Direct quotes from interviewees are used.

CASE A

After several mergers and acquisitions, company A is one of the biggest Italian groups operating in the water, energy and environmental businesses. It provides gas, electricity, water, waste collection and disposal to a total customer base of about 3 million customers in approximately 240 municipalities (mainly located in Northern and Central Italy), recording in 2009 more than € 4.2 million in revenues. Ebitda was € 567.3 million in 2009 and constantly grew year by year. At a consolidated level, the company has almost 6.500 employees, 125 of those are managers.

The Board is made up of 18 members: two of them are executive directors (the Chairman and the CEO), while the others are non-executive independent directors. Some of those are appointed by municipalities, which actually own the 62% of the company's equity in total. Listed on the Italian Stock Exchange since 2003, it appointed the Remuneration Committee in 2008, which is composed of four non-executive independent directors in charge of making proposals to the Board with regard to remuneration of the Chairman, the CEO and directors who cover specific roles. It proposes the general criteria for the remuneration of senior management and executives as well.

Since 2006 the incentive system for executives has been linked to the achievement of performance objectives set in the balanced scorecard, which derive from the company's mission and code of ethics. The balanced scorecard represents the source of MBOs. This system was introduced initially for senior executives and was later extended to all the managers of the Group. The performance bonus calculation is based on a system of profitability and productivity indicators (Group's gross operating margin, per capita gross operating margin of the companies belonging to the Group and the Territorial Operating Structures), and a series of quality indicators that vary according to the business segment. Since 2010, these quality indicators tend to focus on sustainability (i.e. decrease in number of claims, respect for standards defined in the water service charter), thus some of them express some connection with risk management (i.e. frequency of accidents, the average arrival time in response to emergency calls).

Moreover, managers and executives receive an annual bonus, which can be up to 25% of the fixed remuneration, based on the achievement of results relative to the objectives assigned at the beginning of the year (individual balanced scorecard) and structured in three parts: specific project objectives based on the targets in the group's business plan set out in operational terms; economic targets set out in the annual budget; and assessment of compliance with the leadership model. The first two parts take up about 51% of the variable remuneration of senior management of

the Group, while the third one takes up the remaining 49%). However, final allocation of the bonus is also determined by the results achieved within certain Group parameters (company results and residential customer satisfaction).

The allocation of targets for executives and managers, and the assessment of whether these targets have been met, is a well-defined process headed by the CEO in cooperation with the Corporate Social Responsibility department and the HR teams that oversee the whole process. Neither stock option plans nor long-term monetary remuneration plans have been set. In this case, the risk manager believes the reward system may be linked to risk management, which, however, currently has some limitations in this respect.

Risk management is considered a defensive tool to protect the company from negative events. Risks are treated properly just when considered as strategic by the Board. That is the case of commodity price risks, which are managed by a specific committee (the only existent one) that meets frequently and it is presided over by the Chairman of the Board. The risk manager is aware that this approach implies two big issues. First of all, the Board should be clear about which risks are strategic and which ones are not, while often it only considers daily risks, ignoring, for example, risks related to events that have never occurred before. A deep understanding of risks should also include comprehending their dynamics - what is considered a strategic risk today might not be so tomorrow and vice versa (i.e. risks deriving from nanotechnologies).

Risk management is centralized at the corporate level by assigning a wide mandate to the Internal Auditing department, which directly reports to the Group Vice-Chairman of Board and to the Executive Committee. The Risk Management department operates only in the holding company, but not in the subsidiaries. It is in charge of managing pure risks and refers directly to the Legal and Corporate Affairs department, which, in turn, refers to the Chairman of the Board. Other risks are managed by single departments: Internal Auditing (compliance risks); CFO (financial risks) and Security and Safety (i.e. asset risks, IT risks).

"The actual silos approach emphasizes the reactive management of risks and the lack of a common risk language obstructs comparison among risk areas as well as the identification of the company's risk profile". No risk management framework and risk management standards have been implemented so far, although ERM is seen a possible tool to implement once there is the adequate organizational culture. The interviewee feels the need for a transversal structure that would have an overall view of the risk exposure and a deep knowledge of the company itself so as to understand the interconnections among risks and among risk responses put in practice by the risk owners.

Linking the compensation system to risk objectives and measures is considered useful by the interviewee as it may improve the risk management effectiveness of

the company: "it may drive managers' and executives' attention toward the risk and, in turn, improve their sensitivity toward the importance of risk management and to keep it alive". For example, a few years ago the risk manager interviewed activated a three-stage project to mitigate the risk related to the 3.500 vehicles the company uses. Part of his variable remuneration was linked to the actual implementation of the project and, specifically, to having carried out the risk analysis, measurement and identification of risk responses. However, linking his remuneration also to risk monitoring "could have resulted in a greater effectiveness of the risk responses and to a decrease of the risk itself".

With regard to the implementation of the link between reward and risk management, the subject interviewed underlines that operating in regulated markets as his company does may discourage such a link, since the high entry barriers and subsidies from public entities can reduce a company's results volatility.

Generally speaking, the provision of incentives linked to risk-based performance measurement is considered favorably but it requires that some conditions be satisfied wherever applied. First of all, the risk owners have to be clearly identified, which is not always an easy task. Sometimes there are multiple risk owners. In addition, effective incentives should be based on a holistic view of the risk management process, so that the actions of a single owner can be evaluated in relation to the company's overall risk exposure. Lastly, the risk manager suggests that measurement could be easy with regard to operative and financial risks, but great difficulty can arise from the definition of generally accepted parameters involving Board members. Although they are risk owners (i.e. competitive and reputational risk), the measurement of risk performance is not easy.

CASE B

Company B is a group listed on the Italian Stock Exchange which offers telecommunication services, ICT and media solutions both in Italy and abroad (mainly in Latin America) and employs more than 84.000 units in all. In 2009 the consolidated Ebitda was € 11.1 million, while the revenues amounted to € 28.6 million.

The Board is made up of 14 directors: five of which are independent. One of the three members of the Nomination and Remuneration Committee is independent. Each member of the Board receives an annual fixed remuneration which is increased by an additional fixed sum paid in case the person is also member of a committee. The Chairman and the CEO receive a fixed annual remuneration and another fixed amount for the position. They also benefit from a stock option plan, which is reserved to top management and to executive directors of the company. 75% of stock options assigned to the Chairman and the CEO are not subject to performance conditions and can be exercised for three years from the expiry of the vesting period.

A short-term incentive system is provided for the CEO, who receives an additional variable remuneration of between 50% and 200% of his fixed remuneration, depending on the economic results and the achievement of specific objectives. In 2010, this CEO's bonus was related to the level of achievement of suitable certifiable indicators based on the annual budget (consolidated Net Income; Net Financial Position; consolidated organic Ebitda; total organic domestic revenues; quality in terms of Customer Satisfaction Index). In addition to those quantitative parameters (which accounted for 80% in total) there is a qualitative overall performance evaluation criterion applied to the CEO, based on the discretional opinion of the Board of Directors and proposed by the Nomination and Remuneration Committee. Other managers with strategic responsibilities also receive variable remuneration as well as the fixed component. This is linked to the economic results achieved by the company and/or the achievement of specific objectives.

Furthermore, the company has share-based forms of remuneration. The Board of Directors has launched a plan for the granting of ordinary shares, free of charge, called "Performance Share Granting". The amount of shares depends on the degree of achievement of predetermined share performance targets, expressed in terms of absolute and relative Total Shareholder Return.

Since 2010, the company also promotes a policy of alignment between shareholders' and management interests through a long-term remuneration plan which involves a selected number of executives ("Long Term Incentive Plan 2010-2015"), who had not previously received remuneration based on financial instruments.

With regard to risk management, risk is conceived as the possibility that certain events can affect the achievement of the company's objectives and, thus, it is managed in a strategic and proactive way. Following a top-down approach, risks are initially identified from the objectives set in the strategic plan. In order to ensure a global approach to risk management, in 2009 the company adopted ISO 31000 standards. In that occasion, the Risk Management department has been established. It is chaired and coordinated by the head of the "Administration, Finance and Control" department and it reports to the CFO.

The Risk Management Committee leads the group's risk management process by coordinating the preventive action plan designed to ensure the operational continuity of the business and monitoring the effectiveness of the countermeasures adopted. The risk management approach, as approved by the Risk Management Committee, is based on an assessment of the risk profile by management in relation to both company processes and strategic objectives. This approach involves mapping the risks and focusing on those considered to be the most important, drawing up a Master Plan of mitigating actions and carrying out risk treatment

activities involving the establishment of interdepartmental working groups defined by the Risk Management Committee.

The interviewees state that while the CEO's and Board members' reward system is based only on financial performance, there is a link between remuneration and risk performances at the managerial level, but only in areas where core risks and compliance risks are handled. In those areas (i.e. IT and finance), the perceived importance of risks lead to more mature risk management and, in turn, the MBO contains elements coming from the risk management plan. Risk objectives are set for risk managers as well, who are also evaluated on the basis of a "risk maturity index", which measures the level of maturity of the risk management process.

An extension of the mentioned link is under consideration for the lower levels (middle management), although "it would be possible to apply it to all corporate levels as long as an adequate risk awareness and maturity in risk management processes exist." Furthermore, "the remuneration can be linked to risk management and work as an incentive when the company sets challenging, but possible objectives."

The two risk managers interviewed appreciate the idea of a Board remuneration scheme linked to KRI based on objective information or quali-quantitative data. This scheme would not measure the level of a specific risk (i.e. number of accidents), but the results of the risk management actions (i.e. risk mitigation). However, "as strategic risk is difficult to quantify, the identification of KRIs is not an easy task. Often, the only possible indicator that can be used is the development and improvement of risk reducing actions over time in terms of impact and likelihood, which can be hard to quantify as well".

Nevertheless, they believe that the majority of Italian companies are not ready for a reward system linked to risk performance, because risk management systems (when adopted) are still in a primitive form and the average small company dimension as well as the large presence of family members in Boards do not contribute to the diffusion of a risk culture.

CASE C

Company C operates as general contractor in the planning and construction of public transport infrastructure, specifically of metro lines. Although remaining local/regional-based, its activity has extended to other fields, such as road works, parking areas and public buildings and from 2003 the management of water provision services to an Italian municipality - which owns 100% of the company's equity. The company employs 700 people. Looking at consolidated results, Ebitda in 2009 amounted to € 17.34 million, while revenues amounted to € 236.93 million.

The Board of Directors is made up of the Chairman and four other directors. Rewards are linked to financial performance measurement, but they are not used as an incentive to more effective risk management. One of the risk managers' past objectives was the reduction of insurance policy' costs, regardless of how this action affected the company's risk exposure. No link exists between reward schemes and risk management.

Risk is considered as the possibility that an event could have negative economic effects that should be prevented and avoided. Its management consists in transferring risks to insurance companies chosen through a public auction. After entering into the water business, the company risk profile has changed since new risks arose (i.e. governance risk) and others changed (i.e. regulative risk and competitive risk, asset risk), but "the Board does not pay specific attention to them. Not even shareholders are concerned about risk management". Neither a risk management framework has been adopted nor has a holistic risk management system been put in place.

The Risk Management department refers to the Legal Affairs department and it handles pure risks, but does not know about other risks nor the actions undertaken to face them. In general, each risk owner manages its risk in isolation without coordination at the corporate level. A lack of knowledge about the overall company exposure has recently lead the company to ask for an insurance broker to carry out a global risk assessment, although this will not mean the implementation of a risk management framework.

According to the interviewee, "a link between the reward system and risk management could be possible and effective as long as there is an adequate risk culture". However, the public nature of the shareholder could be an obstacle because their representatives think neither in a profit perspective nor do they manage by objectives. So "the only way to create the risk culture is through a top down command and control approach".
This implies a full and deep commitment of the Board, which, in turn, should involve the Human Resources department. In fact, whoever manages the remuneration schemes should understand very well the risk sources and actions to measure risk-adjusted performances. In any case, according to the risk manager, rewards can improve risk management effectiveness only when there is a holistic risk management in practice that allows identifying and understanding the interconnections among risks and among responses taken by the single risk owners.

CASE D

Company D is one of the world's largest cement producers and one of the largest industrial Italian groups as well. Following an internalization strategy, the company now operates in 22 countries, employing about 21.000 people. It has been listed on

the Italian Stock Exchange since 1925. In 2009 revenues amounted to about € 5 billion and Ebitda to € 957 million.

The Board consists of 18 members: the Chairman, the CEO, an Executive Deputy Chairman and fourteen directors (four of which are non-executive). Within the Board, the Remuneration Committee has been appointed the task of making proposals to the Board regarding remuneration, incentives and stock option plans for directors holding special assignments, the top management and the head of Internal Control. Directors and the CEO can receive short-term incentives, long-term benefits and stock options.

Incentive plans are set in order to align remuneration to the creation of value in the long term and to award the achieved results. Specifically, a three year-stock option plan is addressed to a limited number of directors of the holding and its subsidiaries, which is based on the achievement of objectives linked to the Group economic results and/or to the gradual implementation of strategic projects approved by the Board.

A stock plan is also set for managers with strategic responsibilities or specific operative tasks, depending on the achievement of objectives set by the Board. However, the stock option plan is going to be replaced by a cash-based plan. A long-term monetary incentive plan is also in practice. It is consistent with the annual incentive plan in terms of scores, targets and objectives. The plan operates on three three-year cycles. The amount of the bonus is proportional to the results achieved in one cycle and is based on the achievement of corporate financial objectives and individual objectives which are not linked to the company's share price.

With regard to risk management, the company conceives risk as the possibility that an event could affect strategy implementation and the achievement of strategic objectives. In this perspective, the Board, who is particularly sensitive to risk issues, decided few years ago to adopt the COSO-ERM framework whose effectiveness is reviewed together with the strategy. Implementing the ERM, the company identified risk scenarios at the group level and risk management strategy was developed as a consequence.

The Risk Management department is a staff structure at the corporate level chaired by the Chief Risk Officer (CRO), which reports directly to the CEO and CFO, and established in 2010 to ensure a holistic approach to risk management integrated into the strategic planning. However, today it still deals with pure risks, which are transferred to third parties and it has a partial overview on the company risk exposure. Specifically, several activities regarding risks were undertaken in 2010:

- appropriate risk mitigation measures were taken to guarantee group-wide consistency and coordination;

- responsibilities for such measures were assigned and a "Primary Risk Owner" was identified for each area of risk;
- group-wide guidelines were formulated, identifying the main types of intervention and controls for the various areas of risk. These principles were formalized in internal documents known as "Risks Management Guidelines";
- strategies were defined and measures taken to align risk management systems of the Group with the target standards, in order to contain exposure to risks within the defined limits.

A link between risk management and reward system is already in practice. In detail, managers' long-term incentive schemes are linked to the three year "Risk and Compliance Program" launched in 2008 which sets clear directives on accountability and boundaries for managing risk areas across the Group, with particular focus on the allocation of responsibilities at corporate versus country level. No further details are available, but the incentive plan is linked to the achievement of risk exposure reduction deriving from the risk mitigation action plans launched in 2010.

On the contrary, the interviewed human resources manager provided several insights about risk-based performance incentives for directors of cement plants. The company has defined a "Property Preservation Program" whereby activities are analyzed to identify risk sources in the cement plants. Risk areas are monitored trough an indicator called "key performance indicator" which can vary between zero (worst case) and one (best case). At the beginning of the year, the Risk Management department sets the initial value of the aggregated KPI, while at the end of the year it aggregates the KPI coming from each cement plant and compares it to the initial value.

The KPI is a coefficient made up of three elements:

- a result of the evaluation of 30 factors (i.e. fire prevention plans and training programs) made by an insurance company which defines the cement plan's risk profile and suggests actions to reduce it;
- index of the furnaces' reliability;
- number of accidents occurring in the plant.

The KPI allows judging the performance of risk responses: if the indicator is stable, then the risk has been managed and monitored. The Risk Management department reports the aggregated KPI of each cement plant to the HR department, which connects them to remunerations. The manager interviewed believes that "the link between risk management and reward system is both useful and possible since objectives, no matter whether they are related to risk management activities or to financial results, can be given to specific persons and can be measurable".

5. FINDINGS

Looking at the remuneration policy adopted by the four companies, in all cases the reward system includes monetary incentives linked to the achievement of both corporate and individual objectives based on financial measures (such as group Ebitda or ROE) and, to a lesser extent, on qualitative measures (i.e. customer satisfaction index). Listed companies present a more complex reward system for CEO and managers, however only companies B and D – which are both listed and internationalized and count a larger number of employees compared to the others – have a long-term incentive plan.

Interestingly, companies B and D already link managers' performance-based pay to risk indicators. While company B uses an aggregated key risk indicator resulting from a structured mix of measures that explains the outcomes of risk measure and the risk exposure in the cement plants, company D uses a risk management maturity index whenever possible. This index has been stated to be more useful in measuring the performance of upper management, since it does not measure the level of risk, but the results of the actions to manage it. However, no indications have been found with reference to a linkage of CEO pay to risk exposure.

It is worthwhile underlining that the companies B and D are also those who implemented a holistic and strategic risk management framework. In those cases, the Board judges risk management to be a strategic lever. It established a group Risk Committee or department lead by the CFO in charge of monitoring the risk management process and coordinating efforts. In those companies, the perception of risk in its duality and, in particular, of the importance of strategic risk, has lead to an attempt at integrating its management within the strategic planning. Risk management maturity is also shown by the implementation of formalized frameworks: the COSO-ERM in one case and the ISO 31000 framework in the other one.

The picture is quite different in companies A and C, which both provide public utilities (although for one of them this is not the core business), operate locally and have public sector entities in their equity. In case C, the pay for performance model does not include risk measures. From the individual BSC used by the company A, a link with risk management can only be supposed. It has been neither confirmed or explained by the interview with the risk manager.

Risk management in case A and C is carried out using a reactive and silos approach. The Risk Management department (named/working as Insurance Management Department) reports to Legal Affairs and deals with pure risks, transferring them to third parties. This department is only one of the multiple staff in charge of managing single risks, without specific coordination. The silos-approach is due to the Board's lack of confidence in holistic risk management and

results in an absent knowledge both of the existing interconnections among risks and risk responses and of the company overall risk profile and exposure.

The way risks are managed as well as the existence of a risk-based reward scheme seem to be deeply related to how risk is conceived. In fact, those who felt the need to have a holistic risk management system are the companies that describe risk as the uncertainty associated with the achievement of objectives and to the implementation of strategy, recognizing the possibility that ongoing or future events could have negative as well as positive impacts on the company. On the contrary, a silos approach to risk management is used where risk is conceived as the possibility that an uncertain event might produce a loss or, more generally, an economically negative effect on the company and on the achievement of its objectives.

The risk and human resources managers of the four companies all agree on the usefulness of linking the reward system to risk management in order to improve the effectiveness of the latter and to create a risk-aware culture. This culture plays a really important role and seems to be both a driver and a result. In fact, establishing the mentioned link could lead to considering risk in decision making and, more generally, to creating greater sensitivity toward risk issues within the company and to keeping it alive where it already exists.

At the same time, the lack of a risk-aware culture is one of the several obstacles identified. In this perspective, the commitment of the Board is seen as crucial. Among other factors that can facilitate or hinder the introduction of a risk dimension in reward systems, the approach to risk management also appears to be fundamental. It is not possible to link risk performance to pay where there is no clear understanding of risk objectives and strategies and clear identification of risk owners as well as of the interconnections among risks and risk responses.

The third obstacle underlined is the difficulty of the measurability of risk performances. Only one risk manager does not think there are obstacles in linking risk and rewards, since the measurement of risk objectives could be as easy as the measurement of the other company's objectives. It is important to note that none of the subjects interviewed affirmed that linking risk performances to incentives may lead to possible drawbacks such as excessive focus on risk at the expenses of other goals or manager stress due to feeling unable to control uncertainties. Only one manager (company B) emphasized the perils of setting unfeasibly challenging risk targets.

Withdrawing from the specific operative and strategic context in which the interviewed managers operate, the size, the ownership structure and the business sector are important factors that can affect the adoption of risk measures in incentive schemes. Currently, Italian companies are mostly small. These are often family businesses dominated by the presence of the entrepreneur that is seldom

willing to delegate decision-making power. These companies often suffer from a lack of risk culture, which does not foster the implementation of an advanced risk management process.

Moreover, operating in regulated markets can be an obstacle to the implementation of incentive systems linked to risk management because of two reasons. The companies operating in such sectors are mostly publicly owned and so often lack managerial business practices. In addition, where monopoly conditions still exist, the volatility of the financial results is reduced and thus the perception of risk may be low as well.

CONCLUSIONS

Results show that the link between traditional performance-based monetary incentives and risk management objectives is both feasible and welcome. Some companies, and specifically the ones who implemented a strategic and holistic approach to risk management, have already defined risk measures and targets that align managers' operations with the company's strategic risk priorities.

A reward scheme based on some kind of risk measures is desired in companies where incentive pay and holistic risk management do not exist, but also where those components are adopted and partially linked. However, it should be tailored carefully to specific company strategic objectives and type of business.

Moreover, our proposal cannot be easily applied on a company-wide basis, because of risk measurement difficulties in some business areas. Measurability seems to be an easier task with reference to operational and financial risks. Thus, risk performance has been found mainly in top and middle management remuneration, while for CEOs some additional considerations need to be made.

The difficulty in identifying measures does not make finding them impossible. One solution could be to link incentives to enterprise risk management effectiveness measures. Evaluating the effectiveness of the company's risk management is not easy and, overall, not objective. Some measures of effectiveness could be the number of unforeseen events and in-year adjustments required by the redirection process or total hours of senior management time required in strategic risk workshops and approvals based workshops (Toneguzzo, 2010). In any case, success in bringing uncertainties within the risk appetite for an entity requires skilled judgment and, thus, subjectivity both in the ex ante and ex post assessment of uncertainty management. Furthermore, in time of great losses and disruptive environmental changes, some subjective components of performance evaluation should be maintained and perhaps increased as managers cannot be adequately motivated by bonuses linked to objective indicators difficult to achieve.

A Risk Management Maturity Index could also be used to link rewards to different levels in risk management process implementation or to determining the distance between current conditions and objectives. The index could be based on different dimensions, depending on the specific context in which it is applied in terms of risk management maturity, such as: knowledge about risk; process management; reporting; awareness; attitude.

The link between risk management and reward could be also fostered by the existence of managerial systems such as Balanced Scorecard, which could be a natural framework for identifying risks associated with objectives at all business levels (Kaplan, 2009).

For the moment, risky behaviour on the part of CEOs can be limited to some extent by linking variable remunerations to long-term performances through long-term incentives. A bonus-malus approach to bonus payment may be an effective solution until risk performances are included in managers' evaluation. This change has to be carefully planned in order to avoid losing talented managers who could prefer competitors' compensation schemes.

Furthermore, this study suggests that Italian risk managers believe that company risk management systems can really benefit from a linkage with monetary incentives. None of the subjects interviewed seemed to be worried about possible negative consequences of the linkage mentioned and, specifically, about the possibility of generating extremely cautious behaviours that cause the discharge of good businesses only because they are a little more risky.

However, there are some uncertainties about its diffusion in Italy because of the current lack of risk culture in both small and large listed companies where risk management systems have been implemented in the last few years. The explorative case studies analyzed here allow some initial hypotheses about which companies may be more open to risk evaluation in manager performance and thus where to focus future research. These are listed companies with international operations, where owners do not have total control of company but rather, where professional managers guide the organization.

As mentioned above, the deployment of a reward system based on both risk and financial performance can be facilitated or hindered by some specific factors, such as the type of company, its culture, the approach to risk management and the presence of a sophisticated reward system. These hypotheses have to be verified on a large scale using the traditional positive approach and quantitative methods of analysis to understand the direction and the magnitude of influence, to identify possible interrelations among different factors and in order to get results upon which to base generalizations.

Future research should consider the cultural factor since company culture appears as a key element and seems to be both a driver for and a result of creating a reward system linked to risk measures. Moreover it appears fundamental to interview non-executive directors who participate to Remuneration Committees and are responsible for top managers and CEOs' pay determination, in order to compare their opinions with those of risk managers and human resources managers.

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