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Internal Control and Enterprise Risk Management ERM: Towards a Process and Behavioral Integration

João Pedro Carocinho Rabaçal

Master's in Business Economics and Competition

Supervisor:

Nelson Campos Ramalho, Associate Professor, ISCTE - University
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Department of Human Resources and Organizational Behavior |
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October, 2023



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Department of Economics

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Resumo

A gestão do risco empresarial (ERM) é uma questão crítica na *governance* corporativa que ganhou sofisticação com o aparecimento de matrizes integradas como a COSO (2013). Ainda assim, a relação exata entre as componentes do COSO continua a ser um desafio por ultrapassar. Além disso, uma componente importante é a liderança, como sugerido pela ISO31000, que ainda está à espera de integração com a matriz COSO. Com base em estudos empíricos iniciais, este estudo foi desenhado para testar um modelo de mediação sequencial que começa na liderança e empenho e termina nas atividades de monitorização através das outras componentes COSO, testando simultaneamente o papel que a liderança participativa pode desempenhar enquanto condição de fronteira (moderadora). Com uma amostra de 637 profissionais de contabilidade, auditoria e controlo, os resultados corroboram totalmente o efeito de mediação sequencial que inclui a liderança e empenho, mas dão apenas apoio parcial à interação com a liderança participativa. Os resultados mostram que há vantagens em integrar COSO e a ISO31000, embora o papel da liderança participativa mereça uma análise mais aprofundada no futuro.

Palavras-chave: COSO, ISO31000, ERM, Liderança

Códigos JEL: G32, G34

Abstract

Enterprise Risk Management is a critical issue in corporate governance that has gained sophistication with the emergence of integrated models and frameworks such as COSO (2013). Still, the exact relationship between COSO components is yet an unfulfilled challenge. Additionally, an important component is leadership as suggested by ISO31000, which is yet waiting for integration with COSO framework. Based on previous empirical early studies, this research is designed to test a sequential mediation model starting from leadership and commitment and ending with monitoring activities via other COSO components while testing the role participative leadership may play as a boundary condition. With a sample of 637 professionals in accounting, auditing, and controlling, findings fully support the sequential mediation effect that includes leadership and commitment, but only partially support the interaction with participative leadership. Findings show COSO and ISO31000 can be integrated albeit the role of participative leadership deserves further scrutiny in the future.

Keywords: COSO, ISO31000, ERM, leadership

JEL Codes: G32, G34

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1. Introduction

Enterprise risk management (ERM) is a topic of the utmost importance to shareholders, but also, and no less important, to other stakeholders. The evolution of risk management practices, theories and models began with fragmented approaches in which the various types of risk were monitored or prevented by different organizational decision-makers according to their areas of responsibility. For example, financial or exchange rate risks fall under the domain of the finance department, risks associated with natural disasters fall under the domain of the relationship with insurers, and labor safety risks fall under the HR department (Bromiley et al., 2015). According to these authors, fragmentation in the assessment and mitigation of organizational risk represents a risk in itself, since only an integrated view of risks allows for a full understanding of their nature and interdependencies. These integrated views include COSO (2013) and ISO31000.

Although COSO framework has been established for many years and has received large attention by scholars judging on the +6000 papers registered in scholar google presently that refer to this framework, the precise way its components articulate is not entirely clear. One of the scarce papers that establish a theory on these components interrelations was authored by Rae et al. (2017). According to these researchers' proposal, COSO operates in a sequential way where the main components (e.g. control environment) favor those downstream (e.g. risk assessment) with information and communication operating with a differing logic (backing those more closely linked to control). Their empirical findings were not very encouraging, but the study has some operational features that may preclude ruling out such theoretically informative proposal. In furthering the exploration of such sequential effects, there is a behavioral dimension that is only lightly suggested in COSO (2013) but is clearly central in ISO31000: leadership. Within this vein, Sax and Torp (2015) explored the relation between behavioral variables (namely the participate leadership style, Choi, 2004) as a facilitator (moderator) of the relation between corporate risk management and risk performance.

We reason both focuses (Rae et al., 2017 processual-approach, and Sax & Torp, 2015 focus on leadership as moderator) are informative because they offer insight as to the importance of control components as well as their interaction with leadership, so to favor risk mitigation.

In both cases there are aspects of a methodological nature that deserve further attention. Rae et al. (2017) empirical study offers important findings, however the modest sample size casts a shadow upon the robustness of such findings. Namely, a sample of 69 precludes the use

of structural equations because the requirements of the mathematical models underlying it imply ratios between estimates and observed variables that are much higher than the ones such a sample allows for (cf. Hair et al., 2019). Likewise, Sax and Torp's (2015) empirical model substantially diverge from the one hypothesized having been the supported model presented as a posteriori finding after rejecting the original model. This suggests a research gap that may bring novelty by integrating these lines of literature while endeavoring to test it with greater sample sizes, and more robust hypotheses motivation based on behavioral theory.

In line with the call for research made by Bromiley et al. (2015) that ERM research has been mostly explored in accounting and finance journals, although it should also be targeted within the scope of management journals, we believe it is worth to add behavioral variables such as leadership, in similar ways of Sax and Torp (2015) but also bridging COSO (2013) framework with ISO31000, under a processual view as proposed by Rae et al. (2017).

For this purpose, we will review literature starting by exploring risk management as a topic that gained central status in corporate governance, to characterize COSO framework and its five components, ISO31000 and how leadership is acknowledged as a key factor, participative leadership as a lever reported in risk management literature to propose a conceptual model that entails a sequential moderated mediation involving five hypotheses. Based on this conceptual model, the methods are depicted with a focus on procedure, sample, data analysis strategy, and measures (with both validity and reliability indicators). Findings are reported starting with descriptive and bivariate statistics and moving to the hypotheses testing. The dissertation ends by discussing and concluding while acknowledging the study's limitations and offering insights into future research.

2. Literature review

2.1. Risk management

Risk is an intrinsic feature of any corporation as, *per definition*, an enterprise is precisely a venture that is guided by goals but entails uncertainty as regards its achievement. Therefore, in order to start, develop, or run a business any decision maker should take risks into account. Businesses are driven to embrace risks to withstand and prosper. The main purpose of the risk management function is to understand the range of risks currently undertaken by the company, as those planned. This involves assessing whether these risks align, with standards and in cases where they do not determine the course of action (Hull, 2012). Still, risk is not the same as uncertainty. Risk is the controlled likelihood that any given unexpected adverse outcome may occur crossed with its severity (Aven, 2009).

The evolution from a fragmented approach to an integrative approach took more than two decades, having been in 2001 that the term “Enterprise Risk Management – ERM” emerged in scholar literature as a construct that specifically to an integrative view of risk management.

ERM is the activity that allows controllers to measure and manage risks in a consistent and systematic way, giving the organization essential information and the incentive to optimize the tradeoff between risk and return from its actions, thus strengthening its ability to execute the strategic plan (Nocco & Stulz, 2006). ERM can also be thought of as the strategic management discipline that supports the achievement of organizational objectives by dealing with the full spectrum of risks, managing their joint impact as an interdependent portfolio of risks (RIMS, 2011), and so the use of this tool will only be possible if risk management, governance and the institution's corporate strategy are aligned (Bromiley et al., 2015).

An effective ERM strategy, despite providing a better estimate of expected value and better preparation for unexpected losses, does not eliminate risk. Therefore, extremely negative results remain a possibility and the effectiveness of ERM strategies should not be judged based on the possibility of these same results occurrence (Nocco & Stulz, 2006).

ERM is, in fact, a tool that can act as a mechanism for creating value for its shareholders, as long as the practical difficulties that come with its implementation are explored and overcome.

The move away from a purely financial view of ERM, which is currently practiced (Jean-Jules & Vicente, 2021), and the difficulties experienced in implementing this tool - with the

current challenges of management practice - open the door to studying the influence of socio-technical factors on its successful implementation. While complementary, the risk management processes of reporting and auditing provide valuable oversight while the pivotal consideration remains in the establishment of the right personnel, culture conducive to their motivation and providing of the appropriate incentives from the outset (Lam, 2014). It is thus possible to identify a series of socio-technical factors for the successful implementation of ERM, by capturing the complexity of the adaptations that must be made and including the type of dynamic capabilities that the organization must take advantage of to achieve this, we can end up considering ERM as a socio-technical system (Jean-Jules & Vicente, 2021).

The study of ERM should focus mainly on the implementation of organizational planning and change management systems, with the aim of understanding how different individuals and groups within the organization define risk and how potential biases in the assessment of risk can lead to challenges in the implementation of risk management initiatives, as opposed to the attempt to explain differences in company risk over time and between companies. Thus, fragmentation in the assessment and mitigation of organizational risk represents a risk in itself, since only an integrated view of risks allows for a full understanding of their nature and interdependencies (Bromiley et al., 2015).

Among the various proposals that sought to systematize the types of risk and how their combined analysis would allow for a more efficient and effective reading, the COSO framework (2013) as well as international standards such as ISO31000 have become unavoidable benchmarks in this field.

These frameworks are exactly what the name implies, lists of dimensions that make it possible to identify the elements that contribute to effective risk management.

2.2. COSO

COSO is an acronym that came to be known to label an integrative ERM framework which takes its origin in the naming of the organization that produce it: Committee of Sponsoring Organizations of the Treadway Commission.

This is an organization created in 1985 through the joint action of several relevant organizations (American Accounting Association; American Institute of Certified Public Accountants; Financial Executives International; Institute of Internal Auditors, and the Institute of Management Accountants, Dickins & Fay, 2017) in the aftermath of several financial scandals, and intended to help institutions on their managing of internal processes and

procedures, thus improving their internal control, risk management, governance and fraud deterrence (Landsittel & Rittenberg, 2010).

This Commission proposed a framework, known as COCO framework, that identifies five domains of activity conducive to better internal control.

Control environment concerns the predominant ethical values in the corporation that sets the tone at the top, how diligently the executive board oversees operations, the effectiveness of the structure and authority and responsibility established by management, the degree with which the organization is committed to competence, and how strongly accountability is enforced (Rezaee, 1994).

Risk assessment concerns how clearly objectives are stated and suitable, how comprehensively the organization identifies and analyses risks, also comprehending fraud risk, and analyses change in the control systems (Fourie & Ackerman, 2013; Heong & Teng, 2018).

Control activities concern the exact concrete activities the organization sets up, with an extension on control over the use of technologies and the establishment of policies and procedures. This component is essential as it is the first to deploy concrete systems and behaviors that enable the true application of internal control (Fourie & Ackerman, 2013; Rezaee, 1994).

Information and communication concern the choice of organizations to use relevant information, to suitably and timely communicate it both internally and externally. On the quality and integrity of information totally depends on the degree of awareness about the status of the operations in the corporation, as well as the future effectiveness of any action taken to correct a divergent occurrence (Fourie & Ackerman, 2013).

Monitoring activities concerns how much the organization is conducting separate evaluations in a continuous fashion and likely how much deficiencies are evaluated and communicated (Fourie & Ackerman, 2013; Rezaee, 1994).

The internal control report introduced by this organization allows to define internal control as a process, dependent on the management, and designed purposively to offer reasonable guarantees of achievement of: objectives concerning operational effectiveness and efficiency, the reliability of the financial report, and compliance with the law (Moeller, 2007).

Despite its merits, a simple list of items is not an explanatory model, because the relationship between these items remains to be established. This leaves room to ask what the best management procedure is to optimize the process. This precise doubt originated criticism to COSO framework accusing it of being overly ambiguous and hardly actionable (Beasley et al., 2010). To offer an empirically based answer Rae et al. (2017) proposed the five components

operate as a sequential process triggered by control environment, that fosters a better risk assessment, that fosters control activities, leading to more information and communication, that ends up with stronger monitoring activities.

A paper titled “Associations among the Five Components within COSO Internal Control Integrated Framework as the Underpinning of Quality Corporate Governance” was authored by Rae et al. (2017) intending to empirically analyze the relations among the COSO five components, taken as the foundation of a good corporate governance, and how these components affect the internal control. By applying Structural Equations Modelling data analysis technique, the researchers tested the measurement model as well as the structural one that depicted a sequential mediation starting with control environment, and ending on monitoring activities, while giving information and communication a transversal status that makes it a driver of the control components (risk assessment, control activities, and monitoring). A primary structural model was established to design unidirectional associations having found several direct effects linking components, namely control environment to information & communication, but not to risk assessment, control activities or monitoring. Additionally, risk assessment was found to have a direct effect on control activities but not on monitoring activities. Likewise, control activities were found to have a direct effect on monitoring. Information & communication has a direct effect on risk assessment, but not on any other component.

Although this study opens way for an empirically partial support of a sequential mediation entailing the five COSO components, we reason that the design proposed does not exactly match the tacit sequence COSO framework proposes, namely that the process stems from a favorable control environment, that fosters good risk assessment, that is the ground upon control activities are deployed leading to better information and communication that leads to better monitoring activities. This is not the only logical proposal, but it is the one that tacitly stems from the original list of COSO components.

Therefore, we hypothesize that:

H1: Control environment exerts an indirect sequential positive effect on monitoring activities, through risk assessment, control activities and information & communication.

This hypothesis aligns with COSO framework primordial purpose of improving organizational performance through a better integration of risk management, strategy, control and governance.

2.3. ISO31000

The authors of "Internal Audit and Risk Management. ISO 31000 and ERM Approaches" define ERM as an important part of the strategic management of any organization, since this tool allows us to identify positive and negative aspects of risks, providing insight into the occurrence of events within the organization that will have an impact on the achievement of its objectives.

As for the new ISO 31000 risk management system, its main added value is the identification of risk owners and the widespread dissemination of risk knowledge, both inside and outside their organization, making it a vehicle to give risk management centrality in an organization's success.

Florea and Florea (2016) point to the international standard ISO 31000 "Risk management - Principles and guidelines", which establishes a series of principles that need to be met to make risk management effective, as an indispensable tool for achieving the organizational objectives outlined, bringing a systematic and disciplined approach to evaluating and improving the effectiveness of risk management, control and governance processes.

The authors state that company-wide risk management brings many benefits as a result of its structure, consistency and coordinated approach. However, if ERM is to help raise the profile and increase the effectiveness of internal audit, it needs to protect its independence and the objectivity of its assurance services by integrating consultancy services and ensuring compliance with all relevant standards, thereby providing assurance to management on the effectiveness of risk management.

ISO31000 highlights an important factor of risk management, that is the role leadership plays in committing the organization with internal control procedures. This aspect is largely overlooked in literature on COSO, but a closer look COSO (2013) framework reveals it already acknowledges the leadership role by partially ascribing the CEO ownership of the internal control systems (Baker, 2009). Risk management has been ascribed as a top responsibility for c-suite that Andersen and Young (2021) refer to as CRO which stands for Chief Risk Officer. Risk leadership is thus the category these authors use to name "a moral relationship between

leaders, followers, and other stakeholders that recognizes and accounts for the presence of contextual factors” (p. 8).

We therefore hypothesize that:

H2: Leadership and Commitment is positively associated with control environment (H2a), risk assessment (H2b), control activities (H2c), information & communication (H2d), monitoring (H2e).

By integrating the first and the second hypothesis, the sequential mediation expected is extended by adding leadership and commitment as a upstream driver. We therefore hypothesize that:

H3: Leadership and commitment exert an indirect sequential positive effect on monitoring activities, through control environment, risk assessment, control activities and information & communication.

2.4. Advancing the Processual Approach with leadership

As reviewed, Rae et al. (2017) study identified a set of relations between COSO components that suggest control environment triggers other processes that are linked together in a varied sequence of relations to lead to risk mitigation and better internal control. However, such findings must consider the context and specificities of the empirical study and design.

Firstly, although the authors deployed a large-scale invitation to publicly traded companies, only 69 validly answered the survey, which rendered a small sample size. Albeit such size may allow for some specific data analyses it is not compatible with using complex data analysis such as Covariance-Based Structural Equations Modelling, because the requirements of the mathematical models underlying it imply ratios between observed variables and estimates that are far higher than the ones in this paper even resources to Maximum Likelihood estimating methods (cf. Hair et al., 2019). This does not necessarily preclude findings’ validity, but it casts doubt as to the measurement error and it may actually explain some of the absent effects reported in that paper.

In addition to leadership and commitment role previewed in ISO31000, another paper adds to extant knowledge on the role of leadership: “Speak up! Enhancing risk performance with enterprise risk management, leadership style and employee voice” authored by Sax and Torp (2015). This paper was designed to test the effect of participative leadership style on risk

performance, as well as its interaction with ERM processes. Based on a survey of the 500 largest Danish companies, the relationship between ERM and participative leadership style in risk performance was then tested using SEM analyses. Sax and Torp (2015) findings show the existence of a positive interaction effect, in addition to an increase in risk performance, on the part of ERM and the participative leadership style. This supports the theory that effective risk management should include both a comprehensive and formalized ERM framework and organizational initiatives that increase strategic responsiveness through employee involvement. However, the model empirically supported in Sax and Torp (2015) does not correspond to what the authors originally theorized and was presented as an alternative after the initial model was rejected.

Participative leadership is usually taken as a positive factor in organizations. It is a leadership style that is taken as modern due to the empowerment of employees and teams, but its study and endorsement goes back more than 60 years when Rensis Likert (1961) wrote the “A New Model of Management” where he proposed a theory that previews leader’s and employees mutually supporting each other, where decisions were made collectively, and work standards were set to high level.

Within risk management this prevalent view is also present in akin literature as leadership is expected to foster organizational culture, and participative leadership particularly endorses a clan culture (Cameron & Quinn, 2006) that is characterized, among other things, by a participated decision-making that involves all the members (Hartnell et al., 2019). Participative leadership can also be deployed in organizations of any size since it requires no specific organizational structure of resources other than the will of the leader to empower employees in decision making (Huang et al., 2021). Participative leadership thus, can be a lever for any other effects due to its general mobilization of organizational members.

Considering the literature reviewed so far, integrating the procedural approach of Rae et al. (2017), the COSO framework, together with ISO31000 suggestion that leadership plays a central role in fostering commitment to risk management, we reason participative leadership plays a moderator role as found in Sax and Torp’s (2015) paper. We therefore hypothesize that:

H4: There is an interaction between participative leadership and leadership & commitment in the positive direct effect on COSO components in such a way that when participative leadership is higher, the effects are stronger.

Because this establishes one interaction effect for each of the direct effects established in the first hypothesis, there are five sub-hypotheses, as follows:

H4a: There is an interaction between participative leadership and committed leadership in the positive direct effect on control environment component in such a way that when participative leadership is higher, the effect is stronger.

H4b: There is an interaction between participative leadership and committed leadership in the positive direct effect on risk assessment component in such a way that when participative leadership is higher, the effect is stronger.

H4c: There is an interaction between participative leadership and committed leadership in the positive direct effect on control activities component in such a way that when participative leadership is higher, the effect is stronger.

H4d: There is an interaction between participative leadership and committed leadership in the positive direct effect on information & communication component in such a way that when participative leadership is higher, the effect is stronger.

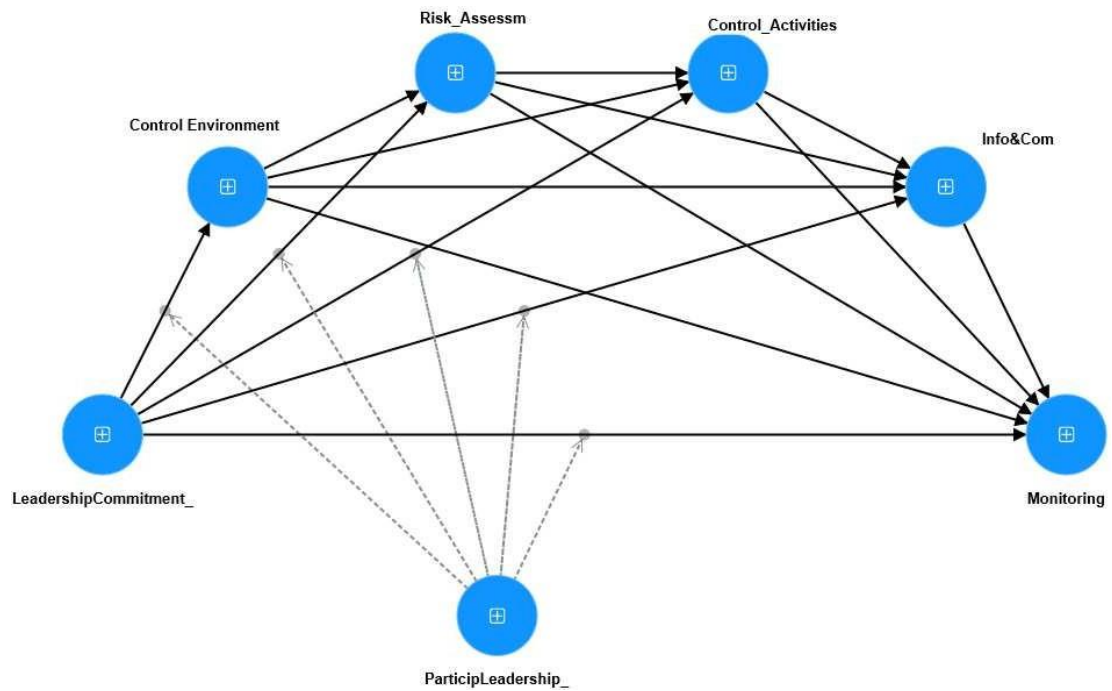
H4e: There is an interaction between participative leadership and committed leadership in the positive direct effect on monitoring component in such a way that when participative leadership is higher, the effect is stronger.

Due to the proposed sequential mediation as stated in the third hypothesis, crossed with the interaction effect posited by the fourth hypothesis, it is reasonable to hypothesize that the moderating effect of participative leadership should be extended to the full sequential mediation starting on leadership & commitment and ending on monitoring activities. We therefore hypothesize that:

H5: There is an interaction between participative leadership and committed leadership in the indirect effect of committed leadership on monitoring through a sequential mediation involving risk assessment, control activities and information & communication in such a way that when participative leadership is higher, the positive indirect effect is stronger.

Bringing all the five hypotheses together, establishes a conceptual model that allows for a better insight on the overall relations hypothesized (Figure 2.1).

Figure 2.1 – Conceptual model



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3. Method

3.1. Procedure

Invitations were sent via a professional network (LinkedIn) to 2586 individuals exerting professional activity within the domain of accountancy, internal auditing, or financial management.

The questionnaire was built on Qualtrics and pre-tested to filter out any typo, mistake or interpretive difficulty related to the items, as well as to gauge the average response time. The questionnaire was made accessible through an anonymous link as well as a QR code.

The link used is: https://iscteul.co1.qualtrics.com/jfe/form/SV_1Sz0g1N0KQt0xca

And the QR Code:

Figure 3.1 – QR code to survey



The questionnaire started by inviting to participate, making explicit the target respondents were financial controllers, internal auditors and accountants. It made clear the academic nature of the study, its focus, as well as all the other elements that an informed consent require. Namely, the voluntary participation, the estimate time for completion, and an email address so that the participant could ask for any clarification. To maximize the sample size, the invitees were challenged to spread the link throughout their professional network, so starting a snow-ball sampling. The exact message shown to participants was the following:

“My name is João Rabaçal, I'm doing my Master's in Business and Competition Economics at ISCTE - Instituto Universitário de Lisboa and I would like to invite you to participate in an academic study about corporate risk minimization frameworks.

This study is directed to controllers, internal auditors and accountants, and this questionnaire will take only 4 minutes. I would be grateful if you could answer. Your participation is entirely voluntary, anonymous and confidential.

The data are intended for research purposes and aggregate statistical analysis only. Thank you in advance for your cooperation and if you have any questions, please contact me at joao_pedro_rabacal@iscte-iul.pt

If you wish to continue, please press the arrow below. Thank you,
João Rabaçal”

The second part of the questionnaire starts with an identification of the professional role given that this has the potential to influence answers. The question was:

“Thank you for having accepted to participate. Please state your professional role: 1) I am an Accountant, 2) I am a Controller, 3) I am an Internal Auditor, and 4) I have another related role. Please state which role:_____”

After this, the questionnaire proceeds by showing the questions pertaining to COSO model as well as other variables in the conceptual model, as described in measures section below.

3.2. Sample

796 answers were identified from which 637 are valid, after excluding those that simply entered the questionnaire but opted not to answer any question or just filled a very short number of items, in which case they had too many missing values to be considered. The sample comprises individuals that are on average 35.2 years-old ($SD=8.73$), balanced but slightly more masculine (51.3%), with mean organizational tenure of 5.5 years (but highly dispersed $SD=6.6$). This implies the sample has a varied range of organizational tenure, and the same is observed with team size which averages 10.7 individuals but is also highly varied ($SD=15.7$). Lastly, participants work mostly in larger sized organizations (250 or more, 59.1% but also in SME (19.8% in smaller than 250 but larger than 50 individuals; 5.2% in smaller than 50 but larger than 25; 7.1% in smaller than 25 but larger than 10) and 8.8% in micro companies.

3.3. Data analysis strategy

Data analysis start by checking the quality of responses by identifying those that either have too short response time (thus evidencing lack of attention to the items), that have streamlined with too many invariant responses, or where there are too many missing values – i.e. over 10%.

Data analysis proceeds by testing the validity and reliability of measures used, which is an important filter when these are perceptual in nature. For such purpose a set of techniques has been established in literature, namely the construct validity (which can be evaluated via confirmatory factorial analysis, CFA), convergent validity (which is measured with the Average Extracted Variance that should attain at least 50% on the latent construct, Fornell & Larcker, 1981), and the reliability (which is usually assessed with either Cronbach Alpha or Composite Reliability from Joreskog (1971), which should attain 0.70 to be acceptable).

A CFA is considered valid if the fit indices achieve determined thresholds. We adopt those recommended by Hair et al. (2019). Namely a well-fitted model with a sample larger than 250 and of a substantial complexity as evidenced by the number of estimated parameters (usually over 12 observed variables) is expected to show: a significant chi-square ($p < .05$), a comparative fit index (CFI) above .94, a Root Mean Square Error of Approximation (RMSEA) below .07 and a Standardized Root Mean Square Residual (SRMR) below .08. If the constructs are both valid and reliable then they can be used to further test the hypotheses entailed in the conceptual model.

Due to the increased risk of bias when putting all the variables together in the conceptual model, we opted to test the hypotheses with Partial Least Squared Structural Equation Modelling (PLS-SEM, Hair et al., 2017) which has the advantage of not requiring normal data distribution and other assumptions associated with parametric data analysis techniques. PLS-SEM also has indicators of validity and an acceptable model should have a Normed Fit Index (NFI) of at least .90, and a SRMR also below .08. Its predictive value is given by Stone-Geisser Q^2 (which should be a positive number) and RMSE contrasted with MAE (RMSE should be higher, Shmueli et al., 2019).

3.4. Measures

The measures used in this study are all published in peer reviewed outlets and have been used internationally.

COSO entails a model that comprehends five components that organize 17 principles of risk mitigation (COSO, 2013): 1) Control Environment, 2) Risk assessment, 3) Control activities, 4) Information & Communication, and 5) Monitoring activities. Respondents were requested to answer in a 5-point Likert scale (1= Strongly disagree, 5=Strongly agree).

Control environment was measured with COSO (2013) five items: “The organization demonstrates commitment to integrity and ethical values”, “The executive board exercises

oversight responsibility”, “The management establishes structure, authority, and responsibility”, “The organization demonstrates commitment to competence”, and “The organization Enforces accountability”. This measure has good convergent validity (AVE=.615) as well as reliability (Cronbach alpha=.843, CR=.888).

Risk Assessment was measured with COSO (2013) four items: “The organization specifies suitable objectives”, “The organization Identifies and analyzes risk”, “The organization Assesses fraud risk”, and “The organization identifies and analyzes significant change control activities”. This measure has good convergent validity (AVE=.632) as well as reliability (Cronbach alpha=.804, CR=.873).

Control Activities were measured with COSO (2013) three items: “The organization Selects and develops control activities”, “The organization selects and develops general controls over technology”, and “The organization deploys control activities through policies and procedures”. This measure has good convergent validity (AVE=.691) as well as reliability (Cronbach alpha=.776, CR=.870).

Information & Communication was measured with COSO (2013) three items: “The organization uses relevant information”, “The organization communicates internally”, and “The organization communicates externally”. This measure has good convergent validity (AVE=.595) and a moderately good reliability as Cronbach alpha is slightly below the threshold (.657) but the composite reliability is acceptable (CR=.812).

Monitoring Activities were measured with COSO (2013) two items: “The organization conducts ongoing and/or separate evaluations”, and “The organization evaluates and communicates deficiencies”. This measure has good convergent validity (AVE=.818) as well as reliability (Cronbach alpha=.777, CR=.900).

The CFA for COSO model has good fit ($X^2/df=3.915$, $p<.01$; CFI=.943; RMSEA=.068, SRMR=.042) thus evidencing its construct validity.

Leadership comprehends two dimensions: Leadership & commitment and Participative Leadership. **Leadership & commitment** was measured with five items based on ISO31000 that express integration (“The leadership has a clear understanding of the organizational structures and context”), design (The leadership is strongly committed to managing risk in an effective way), implementation (“There is a clear decision-making process to identify how/when/and who should take which action to prevent or mitigate risk”), evaluation (“There is a periodical evaluation of risk management performance so that we all know how well and effectively risk management is being conducted”), and improvement (“The risk management framework is periodically revised so to improve its fit to the changing reality both inside and outside the

organization”). Respondents were requested to answer in a 5-point Likert scale (1= Strongly disagree, 5=Strongly agree). This measure has good convergent validity (AVE=.730) as well as reliability (Cronbach alpha=.907, CR=.931).

Participative Leadership style was measured with Choi (2004) scale comprehending 4 items (“Your direct manager actively seeks your opinions and ideas on strategic issues”, “Your direct manager is open to new ideas and initiatives from all employees”, “Your direct manager appreciate that employees experiment with new ideas and products”, “Your direct manager ensure that the interest of employees is considered when making strategic decisions”). This measure has good convergent validity (AVE=.836) as well as reliability (Cronbach alpha=.935, CR=.953).

The CFA that integrates both Leadership dimensions shows good fit indices ($X^2/df=3.579$, $p<.01$; CFI=.986; RMSEA=.064, SRMR=.026) thus evidencing its construct validity.

3.5. Measurement model

The measurement model indicates how good the constructs integrate to explain the dependent variable and how they differentiate among themselves. The Stone-Geisser Q^2 is shown in Table 3.1 as well as the RMSE and MAE indices evidence the predictive quality of the model. This model has an NFI of .932 and a SRMR of .039 which shows it is validly interpretable.

Table 3.1 – Validity

	Q ² predict	RMSE	MAE
Control Environment	0.413	0.77	0.593
Control Activities	0.344	0.814	0.603
Information & Communication	0.392	0.783	0.605
Monitoring	0.380	0.79	0.607
Risk Assessment	0.464	0.735	0.544

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4. Results

4.1. Descriptive and bivariate analysis

The reported means for COSO components suggest they are mostly present in the daily life of organizations. Among these the most frequently reported is Control Environment (Mean=4.26, SD=.66) followed by risk assessment (Mean=4.02, SD=.76) and information and communication (Mean=4.01, SD=.74). With slightly lower frequency, one observes the control activities (Mean=3.96, SD=.81) and monitoring activities (Mean=3.84, SD=.94). Outside COSO framework, (from ISO 31000) leadership & commitment shows relatively lower frequency (Mean=3.81, SD=.84) and participative leadership is closely reported (Mean=3.93, SD=1.01).

The associations found between sociodemographic variables and those comprised in the conceptual model are neither very frequent nor strong. Age shows no significant correlation at all, and gender and organizational tenure only correlate with leadership commitment but at very modest magnitude ($r=.097, p<.05$; $r=.084, p<.05$, respectively). Organizational size also correlates with leadership commitment at modest magnitude ($r=.087, p<.05$) but also with control activities ($r=.141, p<.01$) and monitoring ($r=.106, p<.01$). Team size is the variable that most frequently associates with those in the conceptual model showing significant correlations with all of those in the sequence that comprises the indirect effect, whereas the strongest is observed with leadership commitment ($r=.149, p<.01$). It is worth noting that the moderator variable (participative leadership) has no significant association with any of the sociodemographic variables.

Focusing on the sequenced mediation, leadership commitment shows strong correlations with all the variables in the model varying between $r=.581 (p<.01)$ and $r=.675 (p<.01)$ which suggests the theoretic status given to this variable in the model is encouraged by these findings. The fact that all of the COSO variables are significantly correlated among themselves goes in line with the established framework and it suggests the sequence proposed in COSO is not linear in the sense that early components in the process (e.g. control environment) may not only influence the immediate component (i.e. risk assessment) but also other components downstream (e.g. information and communication or monitoring activities). Still, the magnitude association between adjacent components is seemingly stronger than the other ones

observed in the table. Lastly, our moderator is also associated with all the variables in the model although with lower magnitude.

Table 4.1 – Descriptive and bivariate statistics

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Age	35.2	8.73	1										
2. Gender	1.53	.53	.063	1									
3. Org Tenure	5.52	6.66	.611**	.036	1								
4. Org Size	4.13	1.30	-.144**	.098*	-.078	1							
5. Team size	10.68	15.70	.024	.046	.001	.168**	1						
6. LeadCommit	3.81	.84	.042	.097*	.084*	.087*	.149**	1					
7. ControlEnvir	4.26	.66	.055	.076	.034	-.041	.104*	.597**	1				
8. RiskAss	4.02	.76	.027	.039	.050	.054	.107**	.675**	.707**	1			
9. ActControl	3.96	.81	.016	.061	.025	.141**	.125**	.581**	.556**	.673**	1		
10. InfoCom	4.01	.74	.007	.037	.004	-.007	.091*	.583**	.592**	.660**	.539**	1	
11. Monitor	3.84	.94	.004	.017	.013	.106**	.161**	.608**	.589**	.680**	.583**	.626**	1
12. PartLead	3.93	1.01	-.032	-.006	-.025	-.046	.005	.532**	.476**	.458**	.368**	.454**	.434**

* $p < .05$; ** $p < .01$

4.2. Hypotheses testing

The first hypothesis establishes a positive sequential indirect effect departing from control environment to monitoring, through risk assessment, control activities, and information & communication. The coefficient found for this indirect effect is positive and significant ($B=.005$, $p=.029$) which supports H1. See table 4.2.

The second hypothesis comprises five sub-hypotheses pertaining to the direct effect leadership commitment has upon each of the COSO components. Findings show significant coefficients with control environment ($B=.455$, $p<.001$), risk assessment ($B=.381$, $p<.001$), control activities ($B=.205$, $p<.001$), information & communication ($B=.153$, $p<.001$), and monitoring ($B=.149$, $p<.001$) which renders support to all the sub-hypotheses and therefore, fully supports H2.

Table 4.2 – Direct, Indirect, and conditional effects

Variables	Control Environment		Risk Assessment		Control Activities		Information & Communication		Monitoring Activities	
Direct Effects										
Leader Commitment (LC)	.455 (p<.001)	H2a sup	.381 (p<.001)	H2b sup	.205 (p<.001)	H2c sup	.153 (p<.001)	H2d sup	.149 (p<.001)	H2e sup
Control Environment (CE)			.465 (p<.001)		.105 (p<.01)		.177 (p<.001)		.092 (p<.05)	
Risk Assessment (RA)					.456 (p<.001)		.322 (p<.001)		.257 (p<.001)	
Control Activities (CA)							.105 (p<.05)		.139 (p<.01)	
Info. & Comm. (I&C)									.222 (p<.001)	
Monitoring (M)										
Indirect effects										
CE->RA->CA->I&C-M									.005 (p<.05)	H1 sup
LC->CE->RA->CA->I&C->M									.002 (p<.05)	H3 sup.
Conditional direct effects										
PL*LC->CE	-.091 (p<.01)	H4a ns								
PL*LC->RA			.007 (p=.371)	H4b ns						
PL*LC->CA					-.027 (p=.131)	H4c ns				
PL*LC->I&C							.045 (p<.05)	H4d sup		
PL*LC->M									.010 (p=.317)	H4e ns
Conditional indirect effect										
PL*CE->RA->CA->I&C->M									.001 (p=.066)	H5 ns
Adjusted R ²	42.2%		60%		49.5%		55.2%		55.8%	

The third hypothesis joins the theoretical proposition that links ISO3100 (leadership commitment) to COSO components into a sequential indirect effect that crosses all the structure until monitoring. The regression coefficient is very small ($B=.002$) but nonetheless it is still significant for $p<.05$ ($p=.031$) which supports H3.

The fourth hypothesis establishes that participative leadership has reinforcing effects upon the direct effects that depart from leadership commitment towards all the COSO components. It thus entails five sub-hypotheses in a similar vein to those previewed in the second hypothesis. The interaction between participative leadership and leadership commitment in explaining control environment is significant ($B=-.091$, $p<.01$) but negative, which goes counter to the direction established theoretically (see figure 4.1). This rejects H4a.

Figure 4.1 – Interaction Part. Lead. * Leader Commit. -> Control Envir.



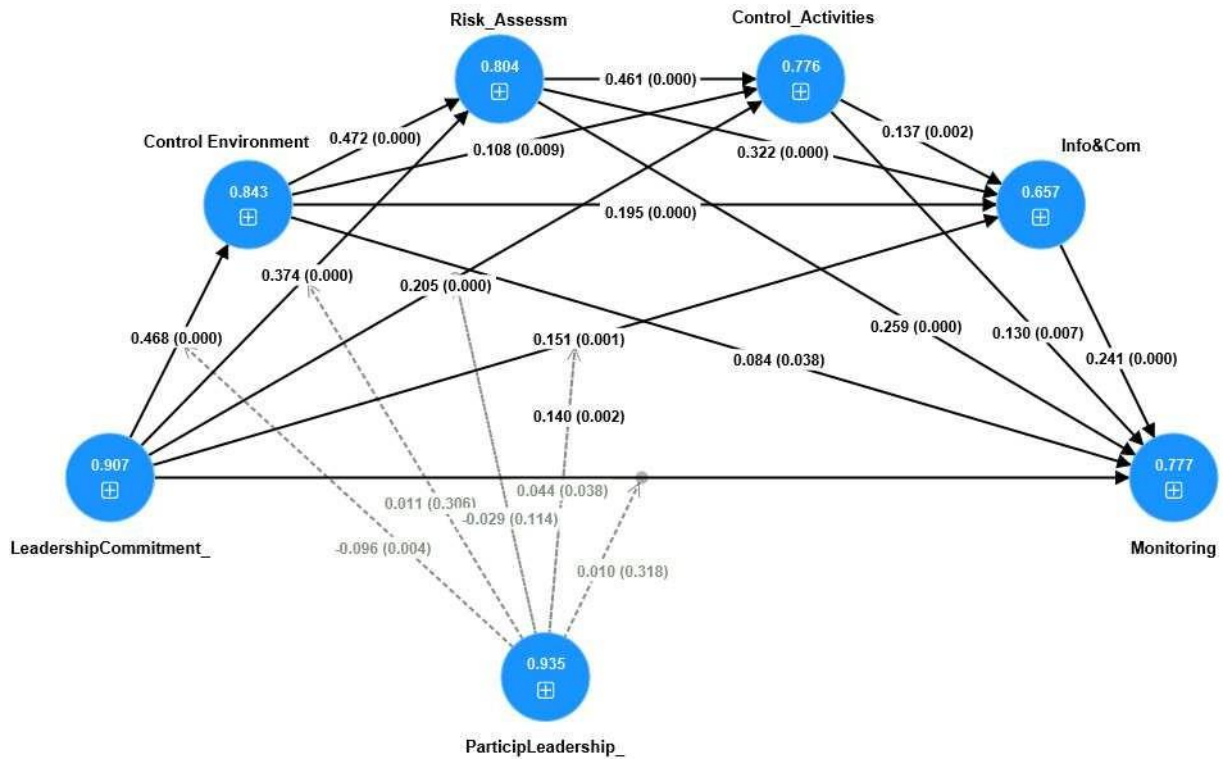
The interaction between participative leadership and leadership commitment in explaining risk assessment ($B=.007$, $p>.05$), control activities ($B=-.027$, $p>.05$), and monitoring ($B=.010$, $p>.05$) are all non-significant which rejects H4b, H4c, and H4e, respectively. Lastly, the interaction between participative leadership and leadership commitment in explaining information & communication is significant ($B=.045$, $p=.03$) which supports H4d (Figure 4.2).

Figure 4.2 – Interaction Part. Lead. * Leader Commit. -> Info&Com.



Lastly, joining the interaction effect of participate leadership with the indirect sequential effect established in the third hypothesis showed a liminal non-significant coefficient ($B=.001$, $p=.066$) which rejects H5. Figure 4.3 shows the overall findings for the conceptual model.

Figure 4.3 – Integrated path coefficients



5. Discussion and conclusion

Research on ERM is undoubtedly critical for corporations, for its governance and all it entails as regards guaranteeing stakeholders a suitable management of the resources and outcomes.

In the aftermath of financial scandals, COSO framework emerged as a joint effort to tackle, both in a preventive and corrective way, corporate wrongdoing due to poor risk assessment, feeble control activities, poor monitoring activities, poor information and communication and also poor control environment as the tone at the top may be giving the wrong directions to corporations, its managing bodies and workers in general.

Although this framework gained much acceptance, the precise way its components articulate has been largely conceived. Likewise in line with ISO31000, the role leadership plays may be more central than COSO tacitly indicates. Some recent research has been endeavoring to explore both aspects related to sequential effects among COSO components (e.g. Rae et al., 2017) and the role of leadership, both conceived as leadership as a source of commitment or as a style that leverages effects (Sax & Torp, 2015).

From the point of view of theory, explaining the elements that link the control environment to the monitoring activities carried out within the scope of internal control in companies makes it possible to understand how constructs that are very separate are linked in a causal nexus, such as the control environment and monitoring activities. The work carried out by Rae et al. (2017) clarifies the process, making it possible to transform the COSO framework not into a set of five important aspects for internal control, but into an interconnected hierarchical set differentiating proximal from distal causes. This process is important, but it is designed in a contextual vacuum that makes no sense in a company, given that any internal control process coexists with other important aspects that can condition it, such as those identified by Sax and Torp (2015). Both theoretical contributions are relevant, but with the moderate mediation model we propose, we think we can add to the existing theory, enabling us to understand the extent to which the process can be helped or, on the contrary, hindered by these contextual variables: Leadership & Commitment and Participative Leadership.

Therefore, this study was designed to integrate all this literature into a single conceptual model that has not only theoretic relevance but also practical relevance. Its five hypotheses depict a conceptual mode that fundamentally establish a process connecting all COSO components, adding leadership and commitment as a common precursor as well as participative leadership as a boundary condition favorable to the effectiveness of the whole process.

From an applied point of view, this conceptual model is very useful because it allows us to understand how a company can implement the COSO framework and develop both the climate and the leadership in order to maximize the framework's effectiveness for robust internal control.

As indicated, the aim of this study is to integrate these two approaches (procedural and contextual) by exploring an explanatory model of risk management that incorporates the hierarchical nature of the COSO component dimensions with behavioral aspects, namely Leadership & Commitment and Participative Leadership, exactly in line with the studies explained, but integrating them.

The first hypothesis establishes that the control environment exerts an indirect sequential positive effect on monitoring activities, mediated by risk assessment, control activities, and information and communication (sequential effect of COSO), in other words, a favorable control environment facilitates effective risk assessment, which, in turn, drives control activities and effective communication, ultimately leading to improved monitoring of operations. In line with Rae et al. (2017), our findings clearly show that the original COSO sequence is empirically supported, which aims to enhance organizational performance through the effective integration of his five components (but with the differing role ascribed to information and communication that in our conceptual model is treated exclusively as a link in the chain).

The second hypothesis establishes that leadership and commitment are positively associated with each of the five COSO components, namely control environment (H2a), risk assessment (H2b), control activities (H2c), information and communication (H2d), and monitoring activities (H2e). This hypothesis was formulated in recognition of the role that leadership plays in committing an organization to internal control procedures, an aspect highlighted in ISO 31000. The findings from the analysis showed significant coefficients for the direct effect of leadership and commitment on all of the COSO components thus providing a robust support for all the sub-hypotheses and, consequently, fully support hypothesis 2. This emphasizes the importance of strong leadership in the implementation and effectiveness of internal controls in line with Baker (2009) although it can be conceived not so as stemming from an individual leader but rather from the relationship established between leaders, followers and other stakeholders as advocated by Andersen and Young (2021).

The third hypothesis establishes that leadership and commitment exert an indirect sequential positive effect on monitoring activities, with control environment, risk assessment, control activities, and information and communication acting as intermediaries. This

hypothesis logically builds upon the first and second hypotheses. Findings support this hypothesis suggesting that there is a meaningful connection between leadership commitment and the sequence of control components leading to monitoring activities. It thus provides stronger empirical support for the idea that leadership and commitment play a role in shaping the whole of the internal control structure.

The fourth hypothesis establishes that participative leadership would act as a moderator, strengthening the positive direct effects of leadership commitment on COSO components. This hypothesis posits the idea that leadership, particularly participative leadership, plays a crucial role in fostering organizational culture and decision-making involvement in line with the empirical study conducted by Sax and Torp (2015). Five sub-hypotheses were hypothesized, based on the five COSO components (H4a to H4e). Findings show that participative leadership does not strengthen the positive direct effect of leadership and commitment upon control environment thus rejecting H4a. The same is observed for the relation between leadership & commitment and risk assessment (H4b), control activities (H4c) or monitoring (H4e) which were all rejected. However, as hypothesized, there is a significant interaction between leadership & commitment and participative leadership in explaining information and communication in such a way that when leadership is participative the level of information & communication is higher, and leadership & commitment is more effective.

The fifth and final hypothesis posits that there is an interaction between participative leadership and leadership commitment in the indirect effect of leadership commitment on monitoring through a sequential mediation involving risk assessment, control activities, and information and communication. Although the moderating role of participative leadership may be restricted only to one of the five possible paths (only in the path linking leadership & commitment to information & communication) the conditional indirect sequential mediation from leadership commitment to monitoring could be modulated by this boundary condition, as proposed in H5. Findings did not support this conditional indirect effect (although the statistic showed a liminal p-value of .066). Still, for a 95% confidence interval this statistic cannot be taken as significant and thus H5 is rejected. Consequently, the interplay between leadership commitment, participative leadership, and the COSO components may not follow the hypothesized pattern outlined in this hypothesis.

All in all, Rae et al. (2017) process model gains support from our findings, albeit with variation as regards information & communication components. Their reasoning is sound, but we think also that information & communication may play an important role in bridging control and monitoring activities. Our findings seem to support this proposal although it is a fact that

the magnitude of the coefficients linking information & communication to the other adjacent components are the weakest in the model. Adding to this model, ISO 31000 should receive its credit for highlighting the special responsibilities leadership has in fostering commitment to risk control. Our findings fully support this claim and bridge COSO and ISO31000. Sax and Torp (2015) contention that participative leadership plays an important role did not echo in our findings. Still, their claim that participative leadership is critical may still hold but with other conceptual model because participative leadership is associated with all the COSO components as well as with leadership & commitment as evidenced in the bivariate statistics table.

These findings can offer some insight into the limitations of this study as well as cues for future studies. The first limitation pertains to the cross-sectional design of this study. Although this same design was used by Rae et al. (2017) and these authors infer a causal relationship between COSO components, in fact correlational design cannot ascertain causality. Although it can be reasoned by COSO's rationale, both this as well as Rae et al. (2017) studies fall short of providing clear evidence of such causal chain. We take this as a reasonable suggestion. Not evidence. Future research may address this limitation by collecting data in a time-lagged fashion where components would be answered following the expected causal-chain. This may also cast doubt on the true causality, but it considers one of the primal conditions for causal-effect to occur: time precedence of causes. In line with this limitation, the absence of the interaction effect (diverging from Sax & Torp, 2015 original findings) does not preclude participative leadership from playing a role. The conceptual model we adopted may indeed be limited due to the option of mirroring previous conceptual models without truly making a critical assessment of its theoretic robustness. Still, the option seems reasonable as science is mostly an exercise of discovery upon previous research and our conceptual model was the one that most closely integrated published relevant studies.

Still, this is an exact mirror and for such reason information and communication component became an intervening variable ending into monitoring activities. This is but a partial role this component is given in the original Sax and Torp (2015) study. Future research may consider using it as a predictor in the same vein the original study did. We must state a caveat about this as participative leadership and leadership & commitment may conflate which requires clear theory on how these variables can co-occur as predictors without creating multicollinearity because they do have considerable correlations among themselves.

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Attachments

Attachment A – Survey

A1. My name is João Rabaçal, I'm doing my Master's in Business and Competition Economics at ISCTE - Instituto Universitário de Lisboa and I would like to invite you to participate in an academic study about corporate risk minimization frameworks.

This study is directed to controllers, internal auditors and accountants, and this questionnaire will take only 4 minutes. I would be grateful if you could answer. Your participation is entirely voluntary, anonymous and confidential.

The data are intended for research purposes and aggregate statistical analysis only. Thank you in advance for your cooperation and if you have any questions, please contact me at joao_pedro_rabacal@iscte-iul.pt

If you wish to continue, please press the arrow below.

Thank you,

João Rabaçal

A2. Thank you for having accepted to participate. Please state your professional role:

- I am an Accountant
- I am a Controller
- I am an Internal Auditor
- I have other related role. Please state which role:

A3. Think about your organization and state how much you agree or disagree that the following statements describe it. Use 1 for "Strongly disagree" up to 5 for "Strongly agree"

	1	2	3	4	5
1. Demonstrates commitment to integrity and ethical values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Exercises oversight responsibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Establishes structure, authority, and responsibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Demonstrates commitment to competence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Enforces accountability.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Specifies suitable objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Identifies and analyzes risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Assesses fraud risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Identifies and analyzes significant change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Selects and develops control activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Selects and develops general controls over technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Deploys control activities through policies and procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Uses relevant information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Communicates internally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Communicates externally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Conducts ongoing and/or separate evaluations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Evaluates and communicates deficiencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A4.

You have completed 55% of the questionnaire



Please press the arrow below to continue

A5. Please think about the organization leadership in relation with risk management. Use 1 for "Strongly disagree" up to 5 for "Strongly agree"

	1	2	3	4	5
The leadership has a clear understanding of the organizational structures and context	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The leadership is strongly committed to managing risk in an effective way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is a clear decision-making process to identify how/when/and who should take which action to prevent or mitigate risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is a periodical evaluation of risk management performance so that we all know how well and effectively risk management is being conducted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The risk management framework is periodically revised so to improve its fit to the changing reality both inside and outside the organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A6. Please think about how much employees' opinions are welcomed in your organization and share how much the following statements describe it. Use 1 for "Strongly disagree" up to 5 for "Strongly agree"

	1	2	3	4	5
All employees in the company can express their own opinion and feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All employees can freely express thoughts and ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In our company, it is appreciated that employees express their opinion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No one in this company will be blamed or given penalties because the person has a different opinion than the majority/top management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A7. Please think about the organization leadership in relation with risk management. Use 1 for "Strongly disagree" up to 5 for "Strongly agree"

	1	2	3	4	5
Your direct manager actively seeks your opinions and ideas on strategic issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your direct manager is open to new ideas and initiatives from all employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your direct manager appreciate that employees experiment with new ideas and products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your direct manager ensure that the interest of employees is considered when making strategic decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A8.

You have completed 90% of the questionnaire



Please press the arrow below to continue

A9. Just for the characterization of the sample, please state your...

Gender

- Female
- Male
- Non-Binary
- Prefer not to disclose

A10. Your Age

A11. For how many years are you working in your organization?

A12. What is the size of your organization? (Number of employees)

Up to 10

10 to 24

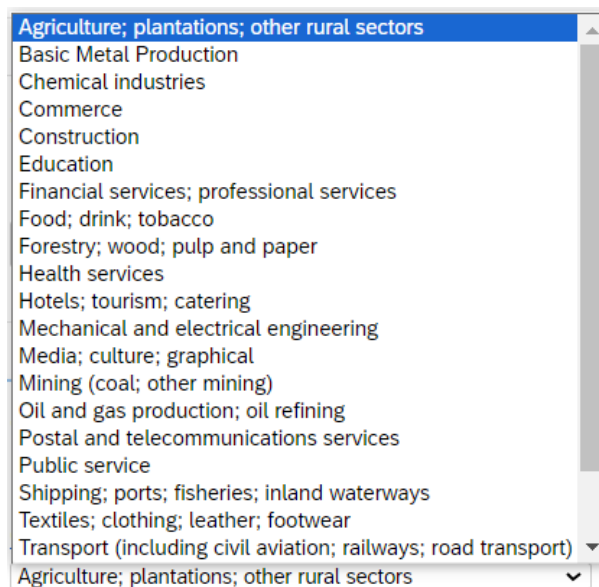
25 to 49

50 to 249

250 or more

A13. How many employees work in your team?

A14. Finally, in which industry is your organization classified?



Agriculture; plantations; other rural sectors
Basic Metal Production
Chemical industries
Commerce
Construction
Education
Financial services; professional services
Food; drink; tobacco
Forestry; wood; pulp and paper
Health services
Hotels; tourism; catering
Mechanical and electrical engineering
Media; culture; graphical
Mining (coal; other mining)
Oil and gas production; oil refining
Postal and telecommunications services
Public service
Shipping; ports; fisheries; inland waterways
Textiles; clothing; leather; footwear
Transport (including civil aviation; railways; road transport)
Agriculture; plantations; other rural sectors

A15. To end the questionnaire please press the arrow below.

Thank you very much for your collaboration!

João Rabaçal