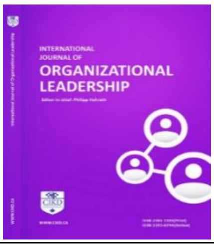

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The Effect of the Board of Directors on Perceived Risk and the Non-Financial Performance of Firms

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ABSTRACT

One of the perspectives that has attracted the most attention in international management is the importance of the board of directors in the performance of firms. In this way, the primary purpose of this research is to investigate the moderating effect of the board director on the relationship between perceived risks and the financial and non-financial performances of the firms. To fulfill this purpose, a survey was conducted among 480 Colombian exporting companies between August and December 2023. To process the information, a structural equation model was used that allowed the relationships of the study to be analyzed. The main results were that financial, time, and performance risks have a more significant impact on non-financial performance when there are board directors who provide not only greater information about the environment but also lines of action necessary for the firm that allow it to take advantage of the environment in which it exists that operates. In contrast, the social and psychological risks were not significant.

According to Ferrarini et al. (2023), the European Commission has increased its attention to finding alternatives to transition to a sustainable economy. This interest aims to meet the Paris Agreement's objectives and sustainable development goals. In this way, the legislative body has developed a reform for adopting financing plans that promote sustainable development. One of the ways that allows firms to focus their efforts on these types of initiatives is the constitution of corporate governance that allows the alignment of resources and capabilities in the achievement of objectives that contribute to the sustainability of the firm. In this way, corporate governance is related to the duties and sustainable corporate governance, including the relationship between market practices and the regulatory framework that contributes to sustainable development objectives and the Paris Agreements.

Xiang et al. (2022) state that corporate governance plays a fundamental role in the management and performance of companies in the current business environment. A critical component of corporate governance is the board of directors, an essential body overseeing an organization's strategic and financial decisions (Ferrarini et al., 2023). The composition of the board of directors, mediated by aspects such as the diversity of its members, their experience, independence, and competence, has become a topic of increasing relevance in the business and academic field.

Recognizing the importance of market conditions in terms of sustainability strategies and their association with the different risks that firms face, it is imperative to understand how board directors can help consolidate efforts from resource management and the establishment of appropriate policies according to the nature of the firm (Le & Nguyen, 2023). Elements such as the composition and alignment of the board of directors with the strategic objectives are fundamental for improving the firm's investment decisions, improving the trust of stakeholders, and ensuring compliance with the firm's financial metrics. This study aims to contribute not only to the body of knowledge about the board of directors but also to the practical realm by shedding light on how effective board structures and strategic alignment can drive impactful policies, robust monitoring mechanisms, and a profound commitment to cultivating a corporate culture that reinforces values associated with sustainability and social responsibility (Pinheiro et al., 2023). Through this exploration, the research offers actionable insights that transcend theoretical understanding, empowering organizations to navigate the dynamic landscape with a focus on long-term resilience and ethical practices (Cambrea et al., 2023).

Within the different studies developed in the field of the board of directors' non-financial performance, it is possible to find different fields, such as earnings management (Al-Begali & Phua, 2023; Al-Sayani & Al-Matari, 2023; Amin & Cumming, 2023; Bona Sánchez et al., 2023; Hussain et al., 2023; Le & Nguyen, 2023; Nguyen et al., 2024; Pramono et al., 2023), Gender studies (Alves, 2023a; Alves, 2023b; Aversano et al., 2023; Mansour et al., 2023), Risk management (Diab et al., 2023; Elsayed & Hassanein, 2023; Khandelwal et al., 2023), compensation (Dong et al., 2023; Owusu et al., 2023), composition (Ahlberg et al., 2023; Asad et al., 2023; Cambrea, et al., 2023; Gavana et al., 2023; Mohy-ud-Din, 2023; Pinheiro et al., 2023), innovation (Dipendra, 2023).

Considering the different results of the research consulted, it is possible to find several persistent gaps in the literature. These gaps can be found mainly without a narrative that allows cohesion between the different development fields. Another aspect is finding patterns and collective views on the studied topics. Additionally, it is possible to find methodological differences and theoretical fields between the studies, thus presenting the need for a theoretical framework to ensure the rigor and applicability of the studies. Finally, a more solid discussion of the context and practical implications that contribute to understanding the non-financial performance of board directors may affect the opportunity to develop future research that has practitioners' visions.

As far as the board of directors' research is concerned, addressing the novelty and complexity of the field involves not only scrutinizing the factors within board structures that shape decision-making processes related to sustainability but also going deeper into the potential risks companies encounter (Khandelwal et al., 2023). It is crucial to extend beyond merely examining influences on decision-making and, instead, focus on comprehensively understanding the multifaceted challenges that can significantly affect a firm's overall performance (Al-Begali & Phua, 2023). This approach not only adds depth to the existing body of knowledge but also t also provides a more holistic perspective that encompasses both positive influences and potential pitfalls within the intricate landscape of the board of directors (Amin & Cumming, 2023).

In addition to the above, the current context of board directors is characterized by fundamental issues related to geopolitical uncertainties. However, this inquiry is just one facet of a broader challenge encompassing major crises, macroeconomic shocks, and climate change. While boards express confidence in addressing local challenges, a prevailing sentiment of unpreparedness emerges concerning larger-scale forces, perceived as too ambiguous to comprehend fully (McKinsey & Company, 2023). In response to this paradigm shift, the board of directors must swiftly adapt, demanding a more nuanced approach to understanding, monitoring, and mitigating geopolitical risks on their global footprint.

Considering the firm's context and the development of knowledge related to board directors and non-financial performance, two essential gaps can be established in the literature. The first is related to the need to investigate the risk levels of the environment in business contexts where its effect on the firm's performance is identified (Diab et al., 2023). The second gap is related to the influence of the board of directors on the firm's non-financial results. The above is based on the need to investigate more than the composition of the board of directors, the influence on decisions considering internal aspects such as the risks associated with the performance and social impact of the firm (Le & Nguyen, 2023; Pinheiro et al., 2023).

An important aspect to highlight is that the board of directors can significantly influence financial decision-making and, therefore, the financial performance of a company (Al-Sayani & Al-Matari, 2023). However, despite the increasing attention this topic is receiving, there are still gaps in our understanding of how these specific factors impact the non-financial performance of the firm (Amin & Cumming, 2023). In this way, the purpose of this study is to analyze the moderating effect of the board of directors on the relationship between perceived risks and the financial and non-financial performances of the firms.

This paper is structured as follows: In the first part, a review is made of the literature in the field of the board of directors, non-financial performance, and perceived risks. In the second part, the methodology used for data processing is presented. The third part presents the results of the analysis carried out. In the fourth part, the conclusions of the research are presented. In the final part of the document, the main contributions, the limitations of the study, and future lines of research are presented.

Theoretical Framework: A Critical Perspective from the Board of Directors' Research

An essential aspect of the different studies of the board of directors is how the importance of investment decision-making is highlighted, the trust between the different stakeholders is established, and financial metrics are met. Despite the above, a weakness is noted in the narrative, revealing critical gaps in the literature, thus preventing a complete understanding of the object of study.

The need for a narrative is the most significant gap in the connection of the areas of development on which the studies have focused. This absence of connection limits the synthesis of the various results, anticipating the emergence of a unified understanding. Regarding the methodological and theoretical differences between the different studies, the challenge in applicability and rigor in future studies is observed. The absence of a theoretical proposal supports this condition, leaving the different studies susceptible to criticism, especially with academic rigor. Without solid theoretical foundations, the practical implications and the discussed context limit future research lines.

Research efforts should contribute to both the development of theoretical and practical visions that compromise the impact on knowledge development. Overcoming the above will allow progress in understanding the board of directors, especially regarding non-financial performance, promoting coherence and providing more robust foundations for future research aligned with practitioners' perspectives.

Organizational Theory: Board of Directors' Foundations

From the organizational theory, the board of directors is considered an entity responsible for responding to the possible restrictions presented in the environment that limit a firm's performance (Miller-Millesen, 2003; Pfeffer & Salancik, 2015). The resource dependence theory strongly emphasizes context and allows us to understand how the firm responds to market conditions. In this way, the board of directors must face the stress generated by environmental uncertainty, mainly emphasizing the factors that intervene in decision-making, especially in the investment of resources (Schmid & Roedder, 2021).

In this way, the behavior of the board of directors is directly influenced by two factors: the resources that are given in the environment and that must be used for the benefit of the firm and the institutional regulatory environment. From the resource dependence theory, there is the possibility of explaining the behavior of the board of directors from the pressure exerted by the resources in the environment. This way, the firm will try to adapt and overcome existing limitations (Middleton, 1987).

However, the firm's environment is also defined by institutions that regulate the firm behavior. According to scholars such as Alshababi (2021), from the institutional theory perspective, the external environment directly influences the board of directors since it affects their behavior. Other studies in the field have shown that the role of the board of directors depends on different institutional configurations that include economic conditions, legal systems, and power structures (Sakawa et al., 2021).

From the institutional theory's perspective, the board of directors' behavior is considered a response to the regulatory pressures existing in the environment. This perspective suggests that environmental considerations lead to adopting behaviors and structures legitimized in the institutional environment (Bin Idrees et al., 2024). In this way, organizational theory raises awareness about the fact that organizations respond to environmental conditions and that, from the internal perspective, pressures lead the firm to structure itself to respond more effectively to the dynamics of the environment (Joseph et al., 2023).

By examining how external pressures, resources, and institutional contexts shape the board's behavior, we gain insight into how board directors make strategic decisions, allocate resources, and respond to regulatory pressures. This understanding ultimately elucidates how the board's actions influence a firm's non-financial performance within the dynamic environment. Consequently, the study of board behavior, specifically through the lens of risk perception impacting non-financial performance, contributes to our comprehension of how behavior can shape responses to external pressures, utilization of resources, and adaptation to institutional contexts.

The Board of Directors Perceives Risk and Non-Financial Performance Foundations

The relationship between perceived risk, non-financial performance, and the role of the board of directors is a critical aspect of effective corporate governance and strategic decision-making within a firm (Chen et al., 2021). Perceived risk, encompassing factors such as reputational concerns, regulatory compliance, and ethical considerations, is pivotal in shaping a company's non-financial performance (Taghavi Moghaddam et al., 2018). The board of directors, as the governing body responsible for oversight and strategic direction, is instrumental in navigating and mitigating these risks to ensure the long-term sustainability and success of the organization (Fernández-Temprano & Tejerina-Gaite, 2020).

When perceived risks are not adequately managed, they can have profound implications for a firm's non-financial performance. Reputational damage arising from ethical lapses or non-compliance with regulations can erode stakeholder trust and impact brand value. As stewards of the Company's reputation, the board of directors must actively engage in risk oversight, setting the tone for a risk-aware culture that permeates the organization (Aversano et al., 2023; García-Ramos & Díaz, 2021).

The board's role becomes even more critical in industries where non-financial performance metrics, such as environmental, social, and governance (ESG) factors, are increasingly important Mer and Virdi (2021). These metrics are often directly tied to a company's perceived ethical and social responsibility, and failure to address them can result in negative perceptions among investors, customers, and the wider community. Boards prioritizing ESG considerations contribute to a holistic approach to risk management, aligning the Company's operations with societal expectations and sustainable practices.

Risk Perception and Non-financial Performance

There is a dynamic relationship between perceived risks, non-financial performance, and the influence of the role of the board of directors on ineffective corporate governance. This dynamic aligns with the established narrative, providing theoretical propositions that substantiate the interconnectedness of various risks and their direct influence on non-financial performance.

In this way, five distinct types of risks are introduced—financial, psychological, time, social, and performance—and posits that each directly and positively influences non-financial performance. This previous condition aligns with emphasizing the significance of perceived risks, encompassing reputational concerns, regulatory compliance, and ethical considerations, in shaping a company's non-financial performance. The assertion that financial risk, psychological risk, time risk, social risk, and performance risk all contribute positively to non-financial performance reinforces the idea that effective risk management, especially under the board of directors' vision, is essential for the long-term sustainability and success of the organization.

Some studies (Aversano et al., 2023; Chen et al., 2021; Fernández-Temprano & Tejerina-Gaite, 2020; García-Ramos & Díaz, 2021; Mer & Virdi, 2021; Taghavi Moghaddam et al., 2018) provide the foundational elements for the research in the area, linking the theoretical framework to empirical evidence and reinforcing the argument that boards play an essential role in navigating and mitigating these risks for effective corporate governance and strategic decision-making. The proposed hypothesis is based on the literature. It contributes a structured framework for understanding various risks' direct and positive influences on non-financial performance within the broader context of corporate governance.

According to scholars such as Escandon-Barbosa and Salas-Paramo (2022), the perception of risk is directly associated with obtaining a product or service, which is conceptually composed in a multidimensional way. In this way, it is proposed that this type of concept is related to the perception of a person related to a phenomenon, which may have variations according to the behavioral patterns that may develop in certain countries (McLeay et al., 2021). These risks are financial, social, time, psychological, and performance.

In the case of non-financial performance, it is possible to find a considerable amount of evidence about how firms adjust their measurement systems to achieve goals and objectives that allow them to improve their performance (Sim & Koh, 2001). Although the results show superior performance, issues related to their external performance regarding service quality can be observed (Huang et al., 2017). This focus on the non-financial can evidence superior performance mainly caused by its long-term orientation, customer orientation, and focusing efforts on value creation.

In the case of financial risk, it is associated with the possibility of unfavorable results for the firm in terms of the implementation of actions aimed at fulfilling its reason for being. Most financial decisions will focus on the financial benefits caused by the soaring prices of selling products. However, in the long term, this can become a way to limit innovation processes within the firm (Sun & Lei, 2021). The consideration of financial risk, especially in the reduction of profits, is a critical factor for making decisions aimed at achieving objectives more related to social impact and preserving the excellent image of the firm (Hamrouni et al., 2019). Although it has been a factor studied before in the literature, for the specific case of non-financial performance, it is necessary to develop empirical work in the field that allows us to better understand its interaction and dependence on other factors. The above allows us to establish the following hypothesis:

H1. Financial risk has a direct and positive influence on non-financial performance.

In the case of psychological risk, it is considered a feeling of dissatisfaction that is generated by emotions regarding a phenomenon. Much of the literature considers this hedonic and altruistic factor because it is a motivating factor of emotions that can influence the pattern of behavior that an individual assumes in a situation, such as improving performance beyond the financial, improving the image of the firm in the market (Escandon-Barbosa et al., 2021; McLeay et al., 2018). For scholars such as Nguyen et al. (2020), psychological factors allow us to observe how individuals' behaviors focus on non-financial performance results through the search for objectives focused on ethical and social aspects. That allows a direct impact on the environment in which they operate. The psychological risk is also associated with the possible emotional effects of focusing on activities that are not profitable for the firm but have a high ethical and moral component, which affects the vision of the Company and its effect on the social field in which it operates (Bernados Jr, 2023). In this way, the following hypothesis is proposed:

H2. Psychological risk has a direct and positive influence on non-financial performance.

The relationship between time risk and a firm's non-financial performance is a critical factor that underscores the dynamic challenges and opportunities businesses face in today's fast-paced and ever-changing environment (Kittur & Chatterjee, 2023). Time risk, referring to the uncertainties and potential disruptions associated with the timely execution of strategies, product development, and operational processes, can significantly impact a company's ability to meet non-financial performance targets and adapt to evolving market demands (Cobben et al., 2023).

Time risk is associated with the time used to achieve objectives (Escandon-Barbosa et al., 2021). Over time, an evaluation of the viability of the actions that allow achieving the objectives and the attributes they entail can be carried out. For scholars such as Forsythe et al. (2006), these aspects related to time are also related to the characteristics of the context in which it operates, and that can influence decisions regarding the firm's strategies in terms of the achievement of objectives that are beyond what is profitable solely and exclusively, and that will be mediated by the social and cultural context in which it operates (Ali et al., 2023). According to the above, the following hypothesis is proposed:

H3. Time risk has a direct and positive influence on non-financial performance.

The relationship between social risk and the non-financial performance of a firm is a complex and multifaceted dynamic that significantly influences the long-term sustainability and success of the business (Oulmakki et al., 2023). Social risk encompasses a broad spectrum of factors, including but not limited to issues related to labor practices, human rights, community engagement, and environmental responsibility (Lee et al., 2023). As businesses operate within an increasingly interconnected and socially conscious global landscape, the impact of social risk on non-financial performance has become a critical consideration for corporate leaders and stakeholders alike (Sahoo et al., 2023).

The definition of social risk is related to the unsatisfactory consequences of people's opinions. This type of risk is also related to affective elements that intervene when making a decision (McLeay et al., 2018). The emotions developed by people, especially in management positions, are related to their attitude towards activities that aim to generate social impact in the business context. Likewise, in this field of study, it is possible to find research related to the values and norms that can influence decision-making processes, especially in the context of countries at distinct levels of development (Salido Hernandez et al., 2018). Recently, scholars have proposed that social risk becomes a fundamental driver for developing activities that show non-financial actions, especially in social responsibility. In reality, social risks have introduced mechanisms that force firms to develop activities that include environmental and social well-being (Nevárez & Ruelas, 2019).

H4. Social risk has a direct and positive influence on non-financial performance.

The interplay between performance risk and a firm's non-financial performance constitutes a crucial dimension in the strategic management of modern businesses (Hajmohammad et al., 2023). Performance risk, encompassing factors such as operational efficiency, technological disruptions, and supply chain vulnerabilities, directly influences a company's ability to meet its objectives and deliver on its promises (Ganeshkumar et al., 2023). The impact of performance risk on non-financial performance is intricate, affecting various aspects of a firm's operations, reputation, and stakeholder relations.

The performance risk is related to the need for available and short-term information to know the scope of actions in social and environmental matters. Studies in the field have shown that this also depends on cultural elements at the country level, which reveals the set of values and beliefs and how the firm makes decisions. In this way, the performance risk perception will be associated with the set of internal changes of the firm that will allow it to provide better products (Amirtha et al., 2021). Performance risk occurs because decisional processes require adequate and timely information about possible irregularities in the Company's social impact processes.

H5. Performance risk has a direct and positive influence on non-financial performance.

Board of Directors and Corporate Performance Perspective

The composition of the board of directors is a crucial element in corporate governance and financial decision-making in companies. Despite the growing importance of this aspect, the need for a detailed understanding of how the board's influence on the non-financial performance of organizations poses a significant problem in the field of finance and corporate management. This problem manifests in the lack of clarity about how board diversity (in terms of gender, experience, and background), director independence, and competence impact financial decision-making and shareholder value creation. This lack of understanding limits the ability of companies to make informed and effective decisions, which, in turn, can affect their competitiveness and sustainability in an increasingly complex and globalized business market.

An important aspect to highlight is that corporate governance has its roots in the emergence of agency theory (Xiang et al., 2022). From the theory of agency, there are two relationships: one is the principal, and the other is the agent. This relationship refers to the owner of the firm and the different relationships he creates with the agents, referring primarily to the board of directors. Likewise, agency theory needs to catch up on the different relationships within the firm due to the possibility of conflicts between the capital's owners and the firm's executives.

The previous situation occurs because, in many cases, the agents do not support the principal's interests. The agency theory is based on the type of decisions made by the managers of a firm that are aligned with the objectives of the investors and focus on a better use of the firm that should not be affected by the objectives of the managers. In this sense, the influence of the board of directors from a theoretical point of view allows us to understand the importance of its role and the need to contrast it with the empirical field to identify factors that influence decision-making within the firm (Ferrarini et al., 2023).

From a financial point of view, investors can influence corporate governance through the influence of the board of directors through their voting rights and the threat of selling their shares (Liu & Zhao, 2021; Wang & Wang, 2022). In this way, the constitution of corporate governance allows for the efficient integration of information systems that reduces, on the one hand, the asymmetry of information and allows for more effective investments. For scholars such as Kong et al. (2020), structuring a board of directors not only allows us to see the importance of the investments in innovation that the forms can make but also to reduce the salary gap with which workers are compensated.

On the other hand, scholars such as Wang and Cheng (2023) propose that despite considering improvements in the aspects of investment and compensation, it is also pertinent to consider that innovation processes within firms have inverted shapes. This type of process related to innovation is also related to the cultural context in which a firm develops activities (Ain et al., 2022). In this way, institutions appear according to the location of the operation, which in some way stimulates or restricts the active participation of the board of directors (Areneke et al., 2022).

In the specific case of the moderation effect of the board of directors in the relationship between financial risk and non-financial performance, it is a pivotal aspect of corporate governance that influences a firm's resilience and strategic agility. As a critical governance body, the board of directors is crucial in moderating and shaping this relationship to ensure optimal organizational performance.

The board's moderation function becomes particularly significant in industries and economic environments where financial risk can introduce uncertainties affecting the non-financial aspects of the business. For instance, during periods of economic downturns or financial market turbulence, companies may face increased financial risk that, if left unmitigated, could negatively impact their ability to invest in sustainability, innovation, and corporate social responsibility—all of which are integral components of non-financial performance.

Related to psychological risk, the board of directors serves as a crucial moderator in this relationship by influencing the organizational climate and setting the tone for how psychological risks are addressed. A proactive and insightful board can contribute to creating a positive and inclusive workplace culture, mitigating psychological risks that could otherwise impede non-financial performance metrics such as employee satisfaction and innovation.

For his part, the board's strategic guidance is particularly crucial in industries characterized by rapid technological advancements, changing consumer preferences, and dynamic regulatory landscapes. Time risk in such contexts can affect a firm's ability to innovate, implement sustainable practices, and adapt to evolving social expectations—all integral components of non-financial performance. Boards that actively moderate the relationship between time risk and non-financial performance contribute to developing strategies that balance the need for agility with the importance of maintaining ethical and socially responsible business practices.

Boards that actively moderate the relationship between social risk and non-financial performance contribute to developing comprehensive strategies that integrate responsible business practices with strategic goals. Social risks, such as labor practices, community engagement, and environmental sustainability, can have far-reaching implications for a company's reputation and stakeholder trust. Boards prioritizing social responsibility in decision-making processes help steer the organization toward practices that mitigate social risks and enhance non-financial performance metrics, including Corporate Social Responsibility (CSR) indicators.

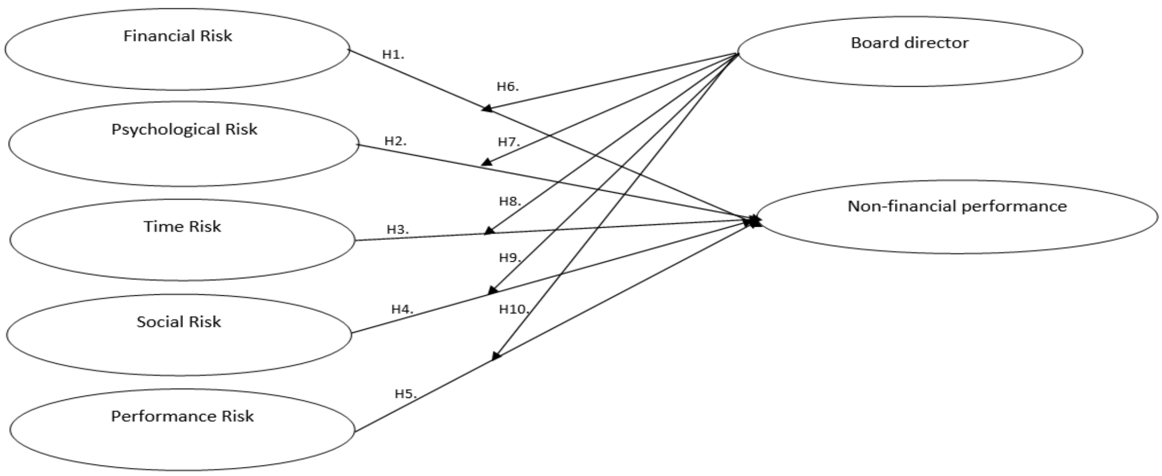
The board of directors plays a crucial role in setting a company's strategic direction, and their decisions influence how performance risks are managed. Proactive boards engage in risk oversight, setting the tone for a risk-aware culture within the organization. This previous idea includes implementing strategies to mitigate performance risks that could otherwise hinder non-financial performance metrics, such as corporate social responsibility, ethical practices, and environmental sustainability. Considering the previous approaches, the following hypotheses are proposed where the board of directors plays a moderating role between the different relationships of the present study:

H6. The board of directors has a moderation effect on the relationship between Financial Risk and non-financial performance.
H7. The board of directors moderately affects the relationship between psychological risk and non-financial performance.
H8. The board of directors has a moderate effect on the relationship between time risk and non-financial performance.
H9. The board of directors moderately affects the relationship between social risk and non-financial performance.
H10. The board of directors has a moderate effect on the relationship between performance risk and non-financial performance.

According to the previous hypotheses, the conceptual model in Figure 1 is proposed:

Figure 1

Conceptual Model



Method

To achieve the specified objective, a survey involved 480 Colombian exporting enterprises from different industries, including agriculture, manufacturing, technology, and services. The selection method confirmed several participants from different business regions in Colombia (Bogota, Medellin, Barranquilla, and Cali), giving valuable insight into the differences and possibilities experienced by exporters in each industry. The survey, conducted from August to December 2023, aims to offer an understanding of the complexity of export activity in these significant industries, allowing a detailed understanding of their dynamics.

The survey was done with attention to specifics and closely corresponds to the observed tendencies of businesses in Colombia, precisely capturing the business sector's diverse structure. The research includes 480 firms and provides evidence of the distribution patterns. Among the surveyed organizations, 0.459% are classified as large enterprises, which amounts to 8 companies. SMEs (Small and Medium Enterprises) represent 7.25% of the businesses surveyed, totaling 35. The majority, 88.81%, are microenterprises, which accounts for 427 companies. The consistency between the estimated distributions and the survey's methodology emphasizes its methodological rigor and offers a comprehensive analysis of the number of large, SME, and microenterprises in the surveyed sample, increasing the comprehension of the business dynamics across various business groups.

The research utilized a meticulously designed sample approach to ensure a representative, diverse selection of enterprises for both size and geography. Ensuring the generalizability of the study findings and capturing the unique characteristics of the Colombian business environment were the goals. The diversity of business sizes was addressed using a systematic methodology. Based on factors like annual earnings or employee numbers, companies were divided into three size groups: small, medium, and giant. Geographic diversity was additionally taken into account across the sampling process. Businesses selected from various Colombian regions, including the major cities with the highest concentration of businesses in Colombia: Bogota, Medellin, Cali, Barranquilla, and Cartagena.

A resume and explicit instructions emphasizing the importance of honesty and confidentiality during face-to-face conversations were given to respondents, and the questionnaire completed pilot testing to guarantee clarity and applicability. Protocols for continuation were put in place to optimize involvement and respond to any questions during in-person interactions. Informed consent and data confidentiality were two ethical principles that were strictly observed in this presential study. To improve transparency and replicability, comprehensive documentation of the techniques was maintained up to date. Therefore, the presential survey technique was employed to promote personal and direct interaction with participants to increase the reliability and completeness of the data collected for an in-depth analysis.

Finally, a Structural Equation Model (SEM) was employed to analyze the complex relationships within the study. SEM is a robust and versatile statistical technique that permits the simultaneous examination of multiple variables and their interdependencies. By utilizing SEM, this research was equipped to quantitatively assess the moderating impact of the board of directors on the connection between perceived risks and firm performance, both financial and non-financial. The SEM employed in this study was meticulously constructed to include critical variables, namely perceived risks, the board of directors' role, and financial and non-financial performance indicators. This model was designed to investigate direct and indirect relationships, uncovering the intricate interplay among these variables. Before data analysis, the collected data underwent thorough preparation, including data cleaning and transformation, to ensure its quality and reliability. The adequacy of the model was assessed using various fit indices, such as chi-square goodness-of-fit, CFI, RMSEA, and others, allowing for a rigorous evaluation of how well the model aligned with the observed data.

Instrument

Financial Risk Scale: The Financial Risk Scale assesses risks associated with the financial costs and economic benefits of adopting new technology. Comprising three items by Stone and Gronhaug (1993), it focuses on initial prices, high costs, low product prices, and the potential absence of returns. Three items, such as “There are financial risks associated with initial prices; There are financial risks due to high costs and low prices of the new product generated, and There are financial risks related to the possibility of not obtaining returns," are used for measurement. The method involves a survey and Stata modeling, demonstrating internal solid consistency with a Cronbach's alpha value of .87.

Time Risk Scale: The Time Risk Scale evaluates risks related to the time spent learning and adopting technology. Utilizing two items from Stone and Gronhaug (1993), it captures risks associated with adoption and usage/diffusion time. Two items, like "There are time risks associated with adoption times and There are time risks associated with usage and diffusion" are employed for measurement. The approach combines a survey with Stata modeling, exhibiting high reliability with a Cronbach's alpha value of .89.

Social Risk Scale: Focusing on risks related to others' perceptions, the Social Risk Scale includes three items measuring social status, opinions, and self-perception risks. Three items, such as "There are social risks related to the social status of using these symbiotic processes; There are social risks that can create positive or negative opinions, and there are social risks associated with self-perception and self-image," are used for measurement. The method involves a survey and Stata modeling, with solid reliability reflected by a Cronbach's alpha value of .91.

Psychological Risk Scale: The Psychological Risk Scale assesses the risk related to relationships with emotions and feelings and their influence on successfully adopting innovative technology. It seeks to understand how sentiments are relationships and impact technology adoption outcomes. The items are like “There are risks associated with the relationship with other network members; There are risks related to sharing information, and There are risks related to conflicts in beliefs when adopting these symbiotic processes."

Performance Risk Scale: The Performance Risk Scale evaluates risks related to technology performance. It includes two items covering technology performance and satisfaction with symbiotic products. Two items, " There are performance risks of the technology and its benefits, and there are performance risks related to the satisfaction of symbiotic products," are employed for measurement. Utilizing a survey and Stata modeling, the scale exhibits strong reliability with a Cronbach's alpha value of .86.

Non-Financial Performance: Non-financial measures comprise a set of 13 items, drawing inspiration from the framework introduced by Hoque and James (2000) and aligning with the principles outlined by Kaplan and Norton (1996). These items are organized into three distinct non-financial perspectives: the customer, internal business processes, and learning and growth perspectives. From the customer perspective, respondents were presented with five specific items to assess their organization's reliance on non-financial measures, including market share, customer satisfaction survey results, on-time delivery performance, customer response time, and warranty repair cost. The internal business processes perspective consisted of four items, focusing on variables like material and labor efficiency variance, efforts related to process improvement and reengineering, the introduction of new products, and the establishment of long-term relationships with suppliers. The learning and growth perspective encompassed an additional four items, which gauged the extent to which organizations emphasized staff development and training, cultivated positive workplace relations, measured employee satisfaction levels, and prioritized employee health and safety. Respondents expressed their organization's utilization of these measures on a five-point scale, ranging from 1 (to a minimal extent) to 5 (to a significant extent), allowing us to gain insights into the extent to which these non-financial measures were integrated into performance evaluation processes within their respective organizations.

Board directors: The variable "board of directors' size" is evaluated at a binary level, distinguishing between boards with different membership levels. In our assessment, boards are categorized into two distinct groups to facilitate analysis. One group is labeled as "0," representing boards with fewer than five active members, while the other group is labeled as "1," indicating boards with more than six members. This categorization allows us to clearly distinguish between boards with smaller and larger memberships based on a reference point: the mean number of members in our dataset.

Results

Table 1 lists the variables used in this research, their definitions, and measurements. Stone and Gronhaug (1993) calculate overall risk as a metric that captures the risks that arise while implementing new activities or processes.

Table 1

Mean, Standard Deviation Correlation Matrix, AVE, and SCR

Constructs	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*AVE*	*SCR*
1. Non-Financial	4.52	1.13	1.00						.65	.83
2. Time	5.83	1.39	0.17	1.00					.75	.92
3. Social	5.54	1.74	0.15	0.07	1.00				.78	.94
4. Psychological	5.87	0.93	-0.23	0.01	0.03	1.00			.70	.88
5. Performance	6.53	0.51	-0.18	0.05	0.08	0.06	1.00		.60	.78
6. Financial	5.76	1.05	-0.23	0.01	0.03	0.04	0.05	1.00	.68	.85

Table 1 presents an overview of the constructs analyzed using the entire sample in our study. Table 1 provides vital statistics, including the mean and standard deviation values, offering valuable insights into the interconnections between the six constructs in our correlation matrix. The mean score for each construct is 5.75, with a standard deviation of 1.04, illustrating the substantial diversity of responses collected through the questionnaire.

The correlation matrix, revealing the relationships between these constructs, establishes their suitability for inclusion in a structural equation model. Significantly, the associations among these constructs do not raise concerns related to heteroscedasticity. This robust dataset supports the foundation for our subsequent analyses. Furthermore, the results of our Confirmatory Factor Analysis (CFA) confirm the appropriateness of the data and demonstrate strong reliability. The Composite Reliability Index (CFI) surpasses the recommended threshold of .7, as established by Bagozzi and Yi (1988). Additionally, we assessed the Average Extracted Variance (AVE) for each construct, ensuring that it exceeds the variance shared with other latent constructs (consistently exceeding .5 in all cases), following the criteria outlined by Fornell and Larcker (1981). The Cronbach's alpha (α) values, consistently exceeding .8, reinforce the robustness of our measures.

In terms of overall statistical fit, our analysis yielded the following results for the total sample: χ^2 (Chi-Square) = 267.43, RMSEA (Root Mean Square Error of Approximation) = .07, CFI (Comparative Fit Index) = .95, TLI (Tucker-Lewis Index) = .93, and SRMR (Standardized Root Mean Square Residual) = .04. Together, these statistics attest to the applicability of our dataset and the reliability of the measurement and analysis methods we have selected.

Table 2 presents the results of the SEM analysis, which pertains to the moderation effect and hypothesis testing. Table 2 presents the regression weights, t-values, and p-values for every proposed relationship.

Table 2

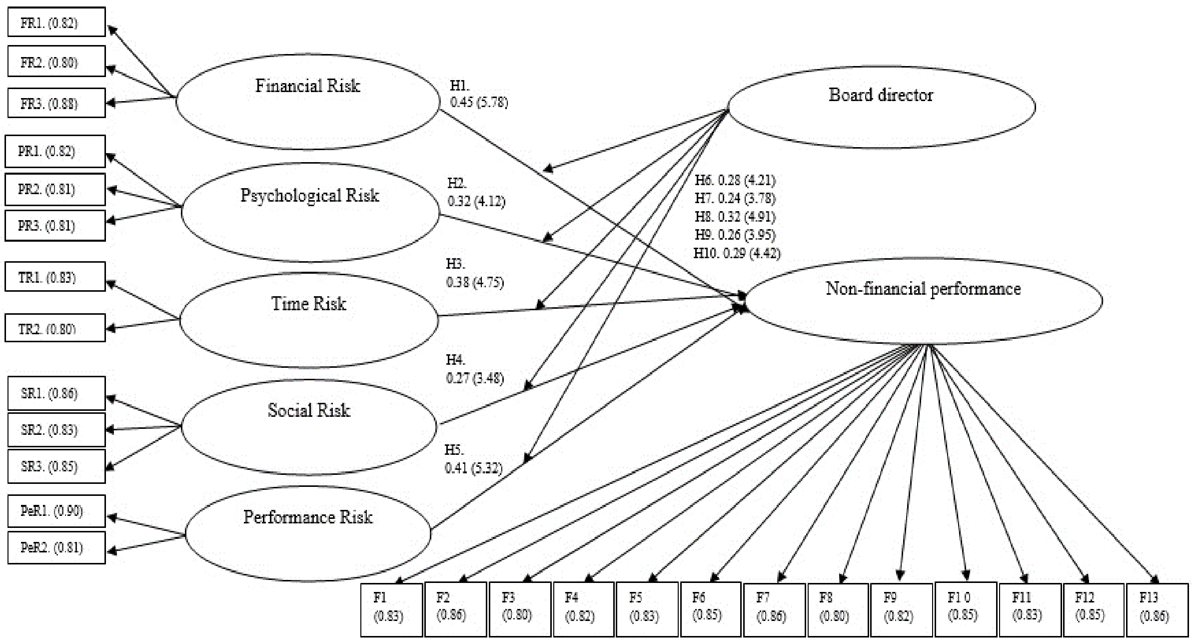
SEM Results

Model Relationship (Hypothesis)	β	*t*	*p*
H1. Financial risk has a direct and positive influence on non-financial performance.	.45	5.78	.000
H2. Psychological risk has a direct and positive influence on non-financial performance.	.32	4.12	.000
H3. Time risk has a direct and positive influence on non-financial performance.	.38	4.65	.000
H4. Social risk has a direct and positive influence on non-financial performance.	.27	3.48	.000
H5. Performance risk has a direct and positive influence on non-financial performance.	.41	5.32	.000
H6. The board of directors has a moderation effect on the relationship between Financial Risk and non-financial performance.	.28	4.21	.000
H7. The board of directors moderately affects the relationship between psychological risk and non-financial performance.	.24	3.78	.000
H8. The board of directors has a moderate effect on the relationship between time risk and non-financial performance.	.32	4.91	.000
H9. The board of directors moderately affects the relationship between social risk and non-financial performance.	.26	3.95	.000
H10. The board of directors has a moderate effect on the relationship between performance risk and non-financial performance.	.29	4.42	.000
Adjustment of the Multigroup Model RMSEA: .007; CFI: .90; TLI: .90			

Following conducting a study that utilized six scales and collected 400 surveys, we developed this index to evaluate the predictive capacity of our structural equation modeling (SEM) model. Following the model fitting process using the sample data, we utilized the predict command in Stata to obtain predictions for data not included in the original sample. Q^2 was calculated for each scale, and the findings were positive, demonstrating a greater predictive capacity than a null model. For instance, we achieved an average Q^2 value of .18, indicating that our model accounts for approximately 18% more variability in the endogenous variables compared to a model that does not consider hidden links. This study's results confirm our model's accuracy in predicting outcomes, offering strong evidence of its capacity to apply to new data beyond traditional measures of fit. We have completed the information analysis to secure the confidence that this analysis strengthens the durability and relevance of our methodological approach. Figure 2 shows the constructs, items, and hypotheses confirmed with our data. For H1, financial risk directly and positively impacts non-financial performance. A significant positive correlation ($\beta = .45$, $t = 5.78$, $p < .01$) is identified in the analysis, indicating that increased emphasis on non-financial performance characteristics is correlated with more significant financial risks.

Figure 2

Conceptual Model with Hypothesis Testing



H2 indicated that psychological risk has a direct and beneficial impact on non-financial performance. With statistical significance ($\beta = .32$, $t = 4.12$, $p < .01$), the study supports this theory, showing the critical impact of psychological risk factors on a firm's non-financial performance. H3 suggested that time risk had a direct, positive impact on non-financial performance. A substantial positive connection ($\beta = .38$, $t = 4.65$, $p < .01$) aligns with the prediction. Businesses considering time as a risk element are driven to improve their non-financial performance by emphasizing productivity and on-time delivery. H4 hypothesized a direct positive impact of social risk on non-financial performance. Our data analysis ($\beta = .27$, $t = 3.48$, $p < .01$) supports this hypothesis, emphasizing the significant impact of social risk—including public perception and opinions—on non-financial performance outcomes.

H5 proposed that performance risk has a positive effect on non-financial performance. With statistical significance ($\beta = .41$, $t = 5.32$, $p < .01$), the study supports this prediction. It shows that businesses that recognize the importance of performance-related risks are more likely to concentrate on improving their non-financial performance characteristics.

Additionally, graphical representation is necessary since it enables the analysis of deviations or changes in the trajectory upon introducing the moderation variable. The significance of centering variables around their mean for this approach is emphasized by Aiken (1991). The procedure entails figuring out low and prominent levels for every connection. One negative standard deviation of the moderation variable is equivalent to the low level, while one positive standard deviation is equivalent to the prominent level. The analysis involves determining if self-reported healthy eating behavior varies with changes in each independent variable, impacted by changes in the relatedness demand, by Aiken (1991) methodology.

Moderation Effect Analysis

H6 and Figure 3 suggested that financial risk had a direct and favorable impact on non-financial performance, with the board of directors acting as a moderator in this relationship. The statistical analysis shows A significant moderating impact ($\beta = .28$, $t = 4.21$, $p < .01$). Financial risk has a more significant impact on non-financial performance when the board of directors is actively involved. The previous result shows the board's strategic role in managing financial risks and affecting non-financial performance outcomes.H7 and Figure 4 suggested a direct and positive effect of psychological risk on non-financial performance, with the board of directors regulating this connection. There is a significant moderating impact ($\beta = .24$, $t = 3.78$, $p < .01$). The board's proactive involvement highlights the role of empowering firms to handle psychological risks and increases the impact of psychological risk on non-financial performance.

Figure 3

Moderation Effect (a)

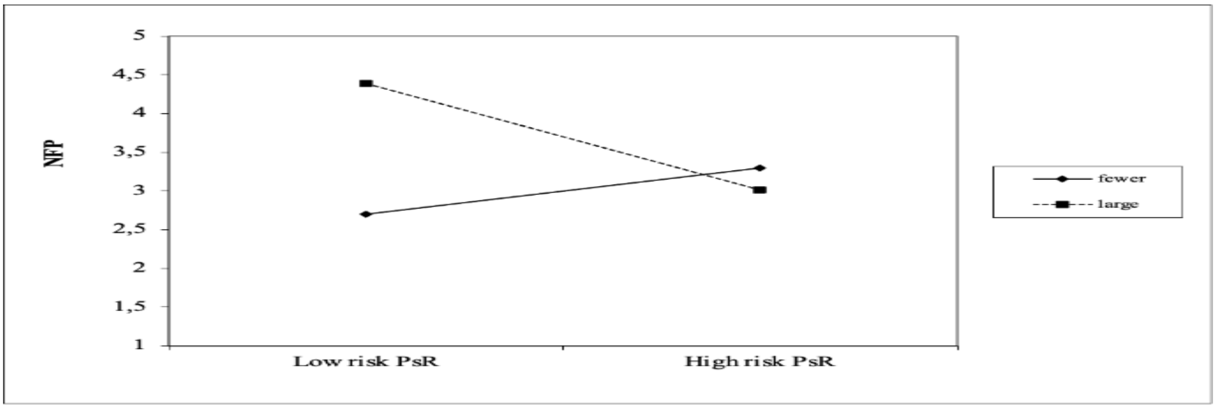
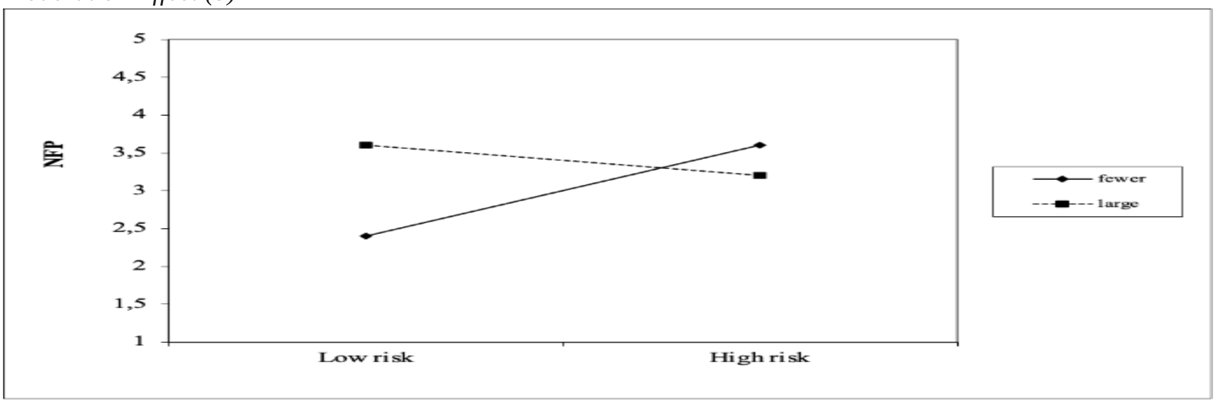


Figure 4

Moderation Effect (b)



According to H8 and Figure 5, time risk has a positive and immediate effect on non-financial performance; however, this relationship is moderated by the board of directors. The statistical results reveal a significant moderating impact (β = .32, t = 4.91, p < .01). The influence of time-related risks on non-financial performance is amplified by an involved board, indicating the board's proactive involvement in effectively managing time-related risks and producing better non-financial performance results. H9 and Figure 6 suggested that social risk has an immediate and positive effect on non-financial performance, with the board of directors participating as a moderator in that relationship. The analysis shows A substantial moderating impact (β = .26, t = 3.95, p < .01). Engagement on the part of the board increases the influence of social risks on non-financial performance, emphasizing the board's proactive role in assisting firms in managing social risks.

Figure 5

Moderation Effect (c)

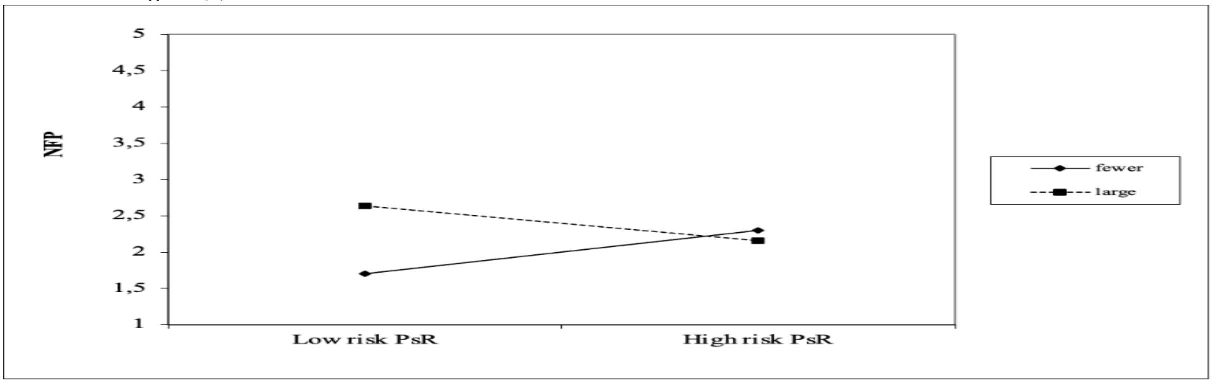
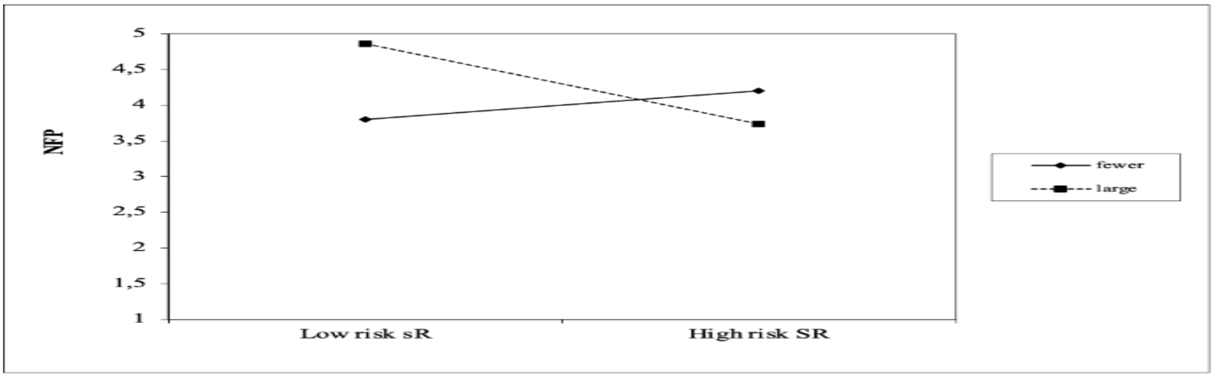


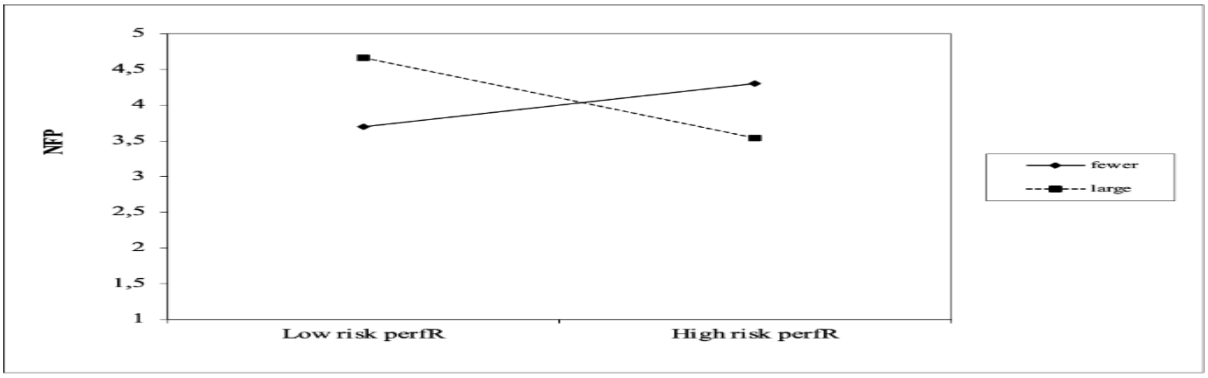
Figure 6

Moderation Effect (d)



H10 and Figure 7 suggested that performance risk has a positive and direct effect on non-financial performance, with the board of directors acting as a moderator in this connection. A significant moderating impact is shown (β = .29, t = 4.42, p < .01). A proactive board emphasizes the board's efficacy in resolving performance-related issues and positively impacts non-financial performance outcomes, strengthening the influence of performance-related risks on non-financial performance.

Figure 7
Moderation Effect (e)



Discussion

The theoretical contribution is related to the complex connection between risk perception, non-financial performance, and the moderating impact of the board of directors in Colombian exporting enterprises. Expanding on the comprehensive risk perception framework put out by Escandon-Barbosa and Salas-Paramo (2022), our study establishes and verifies different facets of risk, encompassing financial, psychological, time, social, and performance risk. Significantly, this research shows that effectively dealing with these risks positively impacts non-financial performance, adding to the current knowledge on the relationship between risk and organizational results. This study goes beyond prior research by showing how the board of directors actively influences the effect of various risk factors on non-financial performance. The results demonstrate that an active board amplifies the beneficial impacts of financial, psychological, temporal, social, and performance-related risks on non-financial performance. This previous idea highlights the importance of the board's active involvement in effectively managing various problems and utilizing risk variables to enhance the firm's overall performance.

Our research shows practical advice for providing export companies and their boards of directors to improve non-financial performance by implementing effective risk management strategies. Initially, firms should conduct thorough risk assessments that consider multiple aspects, such as financial, psychological, temporal, social, and performance concerns. By comprehending risk characteristics, firms can create focused tactics to tackle and alleviate these factors.

Furthermore, the study emphasizes the crucial significance of the board of directors in influencing how organizations address risks. Boards should proactively participate in strategic decision-making, oversee risks, and communicate with stakeholders to enhance risk factors' positive influence on non-financial performance. Firms must cultivate a proactive board culture that acknowledges and deals with emotional and psychological factors, effectively handles time-related difficulties, navigates social risk, and strategically tackles performance-related barriers. Furthermore, our research highlights the significance of consistently monitoring and adjusting risk management measures. Boards should constantly be alert to shifts in the corporate environment and consistently reevaluate their risk management methods. Boards that take a proactive approach can guide firms through changing difficulties, eventually resulting in enhanced non-financial performance outcomes.

Conclusion

In this study, we explored the multifaceted relationship between risk perception and non-financial performance, focusing on the moderating role of the board of directors in Colombian exporting companies. Our research draws on the theoretical foundations of risk perception, non-financial performance, and corporate governance, which are crucial factors in the contemporary business landscape. Our findings align with previous research conducted by Escandon-Barbosa and Salas-Paramo (2022), which posited that risk perception is a multidimensional construct that directly influences product or service acquisition. Building upon this theoretical foundation, we identified and examined various dimensions of risk, including financial, psychological, time, social, and performance risks. These dimensions were empirically shown to directly and positively influence non-financial performance. Specifically, our results show that organizations considering financial risks are more likely to enhance their non-financial performance dimensions. This previous idea corroborates the theoretical underpinnings that highlight the importance of risk assessment in improving overall performance (Ferrari et al., 2023).

Additionally, we confirm that psychological risk plays a significant role in shaping non-financial performance. The influence of emotions and dissatisfaction on a firm's non-financial performance highlights the importance of addressing these psychological aspects to achieve better performance outcomes (McLeay et al., 2018). Furthermore, we found that organizations perceiving time as a risk factor are motivated to improve non-financial performance. This result resonates with previous research emphasizing the significance of time efficiency in enhancing overall performance (Forsythe et al., 2006).

Our study also supports that social risk, encompassing public perception and opinions, significantly influences non-financial performance outcomes. These findings underscore the role of social factors in shaping a company's non-financial performance, consistent with studies in the field (Oliver & Lee, 2010; Wang et al., 2016). Moreover, we recognize that the significance of performance-related risks positively impacts non-financial performance. Organizations that address performance-related challenges are better equipped to enhance their non-financial performance dimensions (Amirtha et al., 2021). Additionally, the board of directors is actively engaged and exercises effective governance; financial risk factors amplify non-financial performance. In practical terms, the board's strategic involvement enhances the organization's capacity to navigate financial risks, positively influencing non-financial performance outcomes. This condition aligns with prior research highlighting how board governance influences financial decision-making and performance (Xiang et al., 2022). Also, the findings reveal that an actively engaged board enhances the impact of psychological risk on non-financial performance. This situation suggests that organizations with proactive boards are better equipped to effectively manage risk's emotional and psychological aspects, ultimately leading to more positive non-financial performance outcomes. The result reinforces the importance of board engagement in addressing the complex relationship between emotions and performance (McLeay et al., 2018).

On the other hand, the analysis indicates that an actively engaged board strengthens the influence of time-related risks on non-financial performance. Organizations with proactive boards are more capable of efficiently managing time-related risks, which include issues related to efficiency and timely product or service delivery. The result highlights the crucial role of the board in shaping performance outcomes in response to various time-related challenges (Forsythe et al., 2006). The results demonstrate that a board that actively participates enhances the impact of social risks on non-financial performance. Organizations with proactive boards are better equipped to navigate the complex terrain of public perception, opinions, and social risk, aligning their strategies to bolster non-financial performance. This finding underlines the influential role of the board in addressing issues related to social factors (Oliver & Lee, 2010; Wang et al., 2016).

Finally, the statistical analysis reveals a significant moderating effect, indicating that a proactive board strengthens the impact of performance-related risks on non-financial performance. This idea means that organizations with engaged boards are more adept at addressing performance challenges, ultimately leading to more positive non-financial performance outcomes. The result emphasizes the board's critical role in shaping performance outcomes amid various performance-related obstacles (Amirtha et al., 2021).

Our general results underscore the need for organizations to adopt a comprehensive risk management strategy tailored to specific risk factors, leveraging the board's moderating influence for enhanced performance in line with modern governance principles. Finally, our study emphasizes several vital conclusions: first, Risk perception, encompassing various dimensions, significantly influences non-financial performance outcomes in Colombian exporting companies. Second, the board of directors plays a crucial moderating role, amplifying the impact of different risks on non-financial performance. Third, actively engaged boards enhance organizational capacity to navigate risks and drive performance improvement. Fourth, A comprehensive risk management strategy and strategic governance are essential for organizations to achieve sustained non-financial performance excellence in today's dynamic business environment. These insights provide a valuable roadmap for organizations seeking to navigate risks effectively and drive performance excellence in an increasingly complex global marketplace.

The theoretical implications of this study are profound, contributing to the understanding of the relationship between risk perception, non-financial performance, and the moderating role of the board of directors in Colombian exporting enterprises. This research extends the current knowledge by identifying and verifying different dimensions of risk, including financial, psychological, time, social, and performance risk. The study demonstrates that effectively addressing these multifaceted risks positively influences non-financial performance, enriching our understanding of the link between risk and organizational outcomes. Furthermore, the study advances previous research by illustrating how the board of directors actively shapes the impact of various risk factors on non-financial performance, underscoring the importance of their strategic involvement in managing organizational challenges and leveraging risk variables to enhance overall performance.

From a practical standpoint, this study offers insights for export companies and their boards of directors to enhance non-financial performance by implementing effective risk management strategies. Firstly, firms are advised to conduct comprehensive risk assessments that consider multiple dimensions of risk, enabling them to develop targeted tactics to address and mitigate these factors effectively. Moreover, the study highlights the critical role of the board of directors in influencing organizational responses to risks. Boards are encouraged to engage proactively in strategic decision-making, risk oversight, and stakeholder communication to maximize the positive impact of risk factors on non-financial performance. Cultivating a proactive board culture that acknowledges and addresses emotional, psychological, temporal, social, and performance-related challenges is essential.

Additionally, the study underscores the importance of ongoing monitoring and adjustment of risk management measures. Boards should remain vigilant to changes in the corporate environment and continuously reassess their risk management strategies. By adopting a proactive approach, boards can guide firms through evolving challenges, ultimately improving non-financial performance outcomes.

On the other hand, while our study offers valuable insights into the relationships between risk, board governance, and non-financial performance, it is essential to acknowledge several limitations. First, our research focused on a specific industry and region, which may limit the generalizability of our findings to other sectors and geographic areas. Second, the study relied on self-reported data, which can introduce response bias and measurement error. Future research could benefit from diverse samples and more objective performance measures. Additionally, our study primarily explored moderating effects, and more in-depth qualitative investigations into board dynamics could provide a richer understanding of how governance mechanisms influence these relationships.

Our research lays the foundation for several promising avenues of future research. Firstly, extending this study to different industries and global contexts can offer a broader perspective on the role of boards in managing risk and enhancing non-financial performance. Secondly, examining the mechanisms through which board actions, such as strategic decision-making, risk oversight, and stakeholder engagement, influence these relationships could provide deeper insights. Finally, investigating the long-term impacts of board governance on non-financial performance and sustainability outcomes can be a compelling area of inquiry. As businesses face increasing complexity and global challenges, understanding the multifaceted role of boards in addressing risk and driving non-financial performance is essential for achieving sustainable success.

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