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Sonic Exploration: Orchestrating Operational Risks through Internal Audit.

If Mohamed Bouaziz

Professor of Higher Education at the Faculty of Legal, Economic and Social Sciences of Agadir -
Laboratory of Studies and Research in Economics and Management

E-mail : m.bouaziz@uiz.ac.ma

Koukkous Abdellative

Professor at the Faculty of Sciences of Agadir- Laboratory of Mathematics, Computer Science and
Applications, Information Security

E-mail : a.koukkous@uiz.ac.ma

Tarik Maalemi

Doctoral student at the Faculty of Legal, Economic and Social Sciences of Agadir

Email: tarik.maalemi@uiz.ac.ma

Abstract:

The accounting industry is currently making ongoing efforts to enhance ethics and professionalism, with an emphasis on the importance of maintaining high standards of integrity and independence in financial reporting. This is crucial to ensure investor, shareholder and general public confidence in financial reporting and to ensure transparency in business transactions. Accounting professionals are required to follow ethical standards and regulations to ensure the quality and reliability of financial information. Efforts to enhance ethics and professionalism in the accounting industry are therefore essential to ensure the transparency, accountability, and credibility of the industry.

In addition, accounting organizations are implementing continuing education programs for professionals to keep them informed of the latest standards and regulations, as well as best practices for maintaining high levels of integrity and independence. Accounting professionals are also encouraged to report any inappropriate ethical behavior or violations of standards to maintain transparency and accountability in the industry.

Finally, efforts to strengthen ethics and professionalism in the accounting industry also include the application of sanctions for inappropriate ethical behavior or standards violations. Sanctions may include warnings, financial penalties, suspension, or disbarment of the professionals in question.

In conclusion, enhancing ethics and professionalism in the accounting industry is an ongoing and important task in maintaining the trust and credibility of the industry. Accounting professionals are required to follow current ethical standards and regulations, complete continuing education programs, and report any inappropriate ethical behavior or violations of standards. Efforts to strengthen ethics and professionalism in the accounting industry are therefore critical to ensuring the transparency, accountability and credibility of the industry..

key words: ethics; reliability; stakeholders; shareholder

Introduction

Risk management is a relatively recent function within companies. Indeed, as early as 1916, when distributing operations within companies, Henri Fayol mentioned. The security function, whose objective was the protection of goods and individuals. As early as 1985, Professors Patrick Joffre and Gérard Koenig stressed the need for companies to develop a strategy in response to the financial and operational risks they were facing.

Its development has been favored both by the practices and needs of companies, as well as by advances in scientific research invested in this discipline aimed at modernizing management methods. These modern management methods are based on the application of mathematical and statistical models, as well as optimization techniques. The mastery and application of these methods are now essential to ensure effective management of the company.

Thus, risk-taking is inevitable and essential, but it must be subject to rigorous management. The concept of " **internal control** ", taken in its broadest sense (including risk management, control and corporate governance), corresponds to the implementation of provisions that ensure reasonable management of the risks of a organization to enable it to achieve its objectives. Internal control is therefore a fundamental element of the control environment of any structure, whatever its size, sector of activity or environment. Regarding the sustainability and development of organizations, the absence of concern for internal control would be just as detrimental as excessive reluctance in taking risks resulting from a timorous strategy.

Finally, internal control, like any organizational system, is naturally subject to failure. External or internal developments systematically impact the internal control system, which must constantly adapt. In order to ensure that these control mechanisms fulfill their roles perfectly, the general management of the organizations equip themselves with a "tool" for the evaluation and monitoring of internal control, this is obviously the activity of **the internal audit** . In its role of assessing the existence, correct application and efficiency of internal control systems, the audit could therefore be qualified as being " **the control of (internal) control** ”.

Faced with the growing plethora and diversity of operational risks within the company, it is difficult to define boundaries that limit this factor inherent in any activity. However, it is possible thanks to the internal audit, to decide on the effectiveness of the measures to manage these risks.

Operational risks permeate all of the company's inherent processes. As a result, they play a determining role in the profitability of the company, the quality and price of the products marketed, as well as the production and delivery times.

Indeed, internal audit is positioned as an investigative tool aimed at giving concrete form to the desire for transparency and providing support to company stakeholders in the effective exercise of their responsibilities. With this in mind, internal audit exercises careful monitoring of the assessment and management of operational risks, paying particular attention to the control of risks that may arise unpredictably. At the same time, it provides in-depth analysis and recommendations to boost business performance.

The objective of our dissertation, devoted to operational risks, is the presentation of the methodology for properly carrying out an internal audit mission in order to manage this risk, while respecting international standards, with its own tools. This objective can be achieved by answering the following question:

To what extent does internal audit contribute to the control of operational risks of agricultural enterprises in the Souss-Massa region?

Our research question raises a certain number of questions depending on the measurement approaches used and which will need to be answered. These questions are:

- **How does the internal audit mission take place in a company and what is its impact?**
- **What are the operational risk identification and management systems within the company?**

What is the contribution of internal audit in the control of operational risks?

Research objective

The subject of this thesis revolves around the contribution of internal audit to the management of operational risks of agricultural enterprises in the Souss-Massa region, we will provide a global and very precise vision of internal audit in the management of operational risks. .

The objective of this research is to examine how and to what extent internal audit practices can contribute to effective operational risk management.

Interest in the choice of theme

Internal audit has always been at the heart of managerial debate. However, this debate has taken on particular importance in recent years, due to the emergence of new concepts and approaches, in particular that of risk management. The growing recognition of the importance of managing risk proactively and strategically has highlighted the key role of internal audit in this area. From this perspective, it seems reasonable to question the interest of this subject.

Theoretical interests

Due to the recentness of the internal audit function relative to other business functions. The body of academic knowledge in this area is limited. Therefore, this research paper will represent a valuable contribution to the existing literature, thus providing novice researchers with a point of reference to deepen their investigations and advance knowledge in this field.

Empirical interest

The empirical interest of this research lies in its ability to encourage Moroccan companies and especially companies in the agro-food region of the Souss Massa region to consider the implementation of internal audit. Many experiments and theories, such as transaction cost theory and agency theory, have demonstrated the usefulness of internal audit in terms of performance and optimization of expenses. By providing solid empirical evidence, this research can convince Moroccan companies of the importance of implementing an effective internal audit system, highlighting the tangible benefits it can bring. This could spur them to take concrete steps to integrate internal audit into their operational risk management, with the goal of improving their overall performance and maximizing the effectiveness of their spend.

It is therefore a question of providing companies, and more specifically agricultural companies in the Souss-Massa region, with elements enabling them to understand the advantages of internal auditing. To get them to change their perception of auditors by considering them not as inspectors or "company policemen", but as professionals acting in the interest of all individuals within the company. The study of the contribution of the audit to the management of operational risks is therefore of crucial importance in this perspective. It aims to make companies in the region aware of the added value that internal audit can bring, by promoting a more positive view and encouraging better use of this practice for effective risk management and therefore good governance.

Research Methodology

In order to analyze the aforementioned problem, we will opt for a hypothetico-deductive approach and a post-positivist positioning. This epistemological choice is justified by the desire to apprehend reality objectively, that is to say by seeking to provide explanations as they are. Our study will focus on exploring the main internal audit practices that contribute to the management of operational risks in agri-food companies located in the Souss-Massa region.

Our hypothetical model was developed based on an extensive literature review, with the aim of identifying the various latent and manifest variables that explain the close relationship between internal audit and operational risk management. These variables were then encoded to meet the requirements of the software and machines used for data processing and analysis, respecting the methodological requirements inherent in these technological tools.

The hypothetical model in question was subjected to a quantitative survey in the form of a questionnaire, which was administered to a sample of agribusinesses located in the Souss-Massa region. Despite several consecutive reminders, only 39 questionnaires were returned out of the 70 self-administered questionnaires to internal auditors, requested via the LinkedIn professional network and through e-mails.

1. Theoretical foundation of internal audit

The internal audit, emanating from the discipline of accounting and financial control, nowadays takes on a broader and enriched conception, in order to meet the growing requirements of the increasingly complex management of companies. As a management assistance function, its purpose is to support the members of the organization in the exercise of their responsibilities, with particular attention to assessing the sufficiency and reality of the internal control system. In addition, he makes a substantial contribution to all of the company's activities. Each area of direction invariably involves planning tasks, organizing responsibilities, conducting operations and controlling their progress.

Based on reflections and theoretical advances on the subject of auditing, the literature shows that the function of this mechanism is struggling to develop a unanimous definition in the field of management sciences. Indeed, this finding stems from the fact that the audit function includes several disciplines that serve as explanatory factors to its role in the development of the company.

It also follows that differences in perceptions on this subject, strong disparities can emerge if one takes into account the diversity of the theoretical currents which explain the reasons for

the creation of the function of internal audit. Indeed, each theoretical stream brings a unique perspective on the role and objectives of internal auditing, which can lead to different interpretations and variable definitions of this function. However, by understanding these theoretical grounds, we are able to grasp the intellectual underpinnings that led to the emergence of internal auditing as a core function within organizations. Transaction cost, agency, and corporate governance theories provide relevant conceptual frameworks that help us deeply understand the underlying reasons for the creation of internal audit.

Therefore, we are going to dedicate this part of our article to the study of these different theories, establishing logical links between the different currents, in order to deepen our understanding of the importance of internal audit in the management of organizations. .

1.1 Agency theory and corporate governance

Agency theory is a conceptual framework widely used to analyze the relationships between stakeholders in a company. It focuses on the issues of information asymmetry and conflicts of interest that may arise between the owners (shareholders) and the agents (managers) in charge of managing the company.

The authorship of the agency theory is attributed to Jensen and Meckling (1976) .
¹shareholder-manager relations.

The agency, subject of the theory bearing this name, consists in delegating the management of the own goods and interests of the owners of the company or of a person to a third person and to ensure that the latter acts well in the interest of owners. In this case, the shareholders provide the capital and grant the managers a mandate to manage the company as well as possible (that is to say, they try to maximize the performance of the company) ².

The person who entrusts someone else with the power to make decisions on their behalf is known as the **principal** or principal, and the one who acts on behalf of the principal is known as **the agent** or mandatary. In this perspective, the contractual link unites the owner, designated as the principal, and the manager of the company, called the agent.

In this case, internal audit emerges as the most effective way to control and monitor the behavior of the agent in favor of the owners. In other words, internal audit is an essential

¹ Coriat . B, Weinstein. O, “The theories of the firm between contracts and skills”, A critical review of contemporary developments, University Paris 13, CEPN, CNRS, France, 2008, p 07

² Dept. _ MH, Finet . A, Hamdouch . A, Labie. M, Piera . FM, Piot. C, "Corporate governance: Managerial, accounting and financial issues", Edition De Boeck University, Brussels, 2005, p 17.

mechanism to ensure that the agent, acting on behalf of the principal, acts responsibly and in accordance with the interests of the owners.

1.2 Internal audit and corporate governance

For some years, the present theory has emphasized the importance of the internal audit function as a mechanism of corporate governance that seeks to resolve conflicts of interest between the principal and the agent due to information imbalance (information asymmetry).

Indeed The role of internal audit in corporate governance can be assessed through two levels: reduction of information asymmetries and risk management ³.

1.3 Reducing information asymmetries

In the context of information asymmetry reduction, it is important to note that the manager, as agent, generally has more information about the company than the shareholder, as principal, because he is responsible for its day-to-day management. However, in order to guarantee the reliability of the information provided by the manager, the presence of an audit committee plays a crucial role. This committee acts as a control mechanism by ensuring the transmission of information between the auditors, whether external or internal, and the Board of Directors.

The integration of the internal audit function within the audit committee is particularly beneficial, as it allows the internal auditor to contribute to the reduction of information asymmetries within corporate governance. This approach promotes transparency and strengthens confidence in the financial and operational information provided by the manager. By involving the internal auditor in the governance process, the audit committee improves oversight and understanding of the risks facing the company, which contributes to better decision-making at the board level (Archambeault , DeZoort and Holt, 2008).

In summary, the existence of an audit committee in the first level of corporate governance makes it possible to guarantee assurance on the information provided by the manager by acting as an interface between the auditors, internal and external, and the board administration. The integration of internal audit within this committee helps to reduce information asymmetries and to strengthen transparency and trust within the company. (Wiseman and Gomez-Mejia, 1998).

³Ebondo WA Mandzila . E, "Internal audit and corporate governance: theoretical readings and practical issues", Euromed - Marseille School of Management Domaine de Luminy, Marseille, 2007, p 05.

1.4 Risk management

In terms of risk management, internal audit plays an essential role, particularly in the process of drawing up the report on internal control, required by the law on financial security (LSF) for listed companies. The internal auditor is responsible for informing the board of directors of weaknesses in the internal control system as well as risk areas that may affect the achievement of strategic, operational, informational and compliance objectives.

Internal control refers to the set of policies, procedures and mechanisms put in place by a company to ensure the effective management of risks and the protection of its assets. The internal auditor is responsible for evaluating the effectiveness of these internal controls and identifying potential shortcomings. By identifying weaknesses in the internal control system, the internal auditor helps to strengthen risk management within the company.

Additionally, the internal auditor is also responsible for alerting the board of risk areas that could compromise the achievement of the company's strategic, operational, informational, and compliance objectives. These risks may include issues related to regulatory compliance, data security, human resources management, business continuity, etc. By providing this key information, the internal auditor helps the board to make informed risk management decisions and put in place appropriate measures to mitigate those risks (AM Uwamahoro – 2022) .

According to Gramling and Myers (2006), the internal auditor has an influence on five components of enterprise risk management. It gives reasonable assurance as to the risk management process, that the risks are correctly assessed, that the risk management process has been properly assessed, that the reporting on major risks has been correctly established and that a report on the management of the main risks has been drawn up ⁴. In this case, internal audit also contributes to good governance through the improvement of risk management. In summary, in the second level of enterprise risk management, internal audit is responsible for preparing the internal control report in accordance with legal requirements. He informs the board of directors of the weaknesses of the internal control system and of the risk areas that may hinder the achievement of the company's strategic, operational, informational and compliance objectives. This allows the board of directors to make informed decisions on risk management and put in place the necessary measures to mitigate them.

⁴Madagh . MC, Madagascar . SR, "Internal audit at the heart of the dynamics of corporate governance: Theoretical readings and practical issues", Ecole des Hautes Etudes Commerciale (EHEC), Algiers, 2012, p 12.

1.5 Transaction cost theory

Transaction cost theorists believe that the firm offers advantages in terms of reducing transaction costs. Transaction costs refer to the costs incurred in establishing and managing contracts, finding information, negotiating, monitoring and resolving disputes in external markets.

According to this perspective, companies are able to internalize certain transactions, ie to carry them out within the organization rather than to carry them out on external markets.

By internalizing these transactions, companies can carry them out at a lower cost, which constitutes an economic advantage. Thus, the company appears as a more efficient mode of organization for carrying out certain activities ⁵.

1.6 Objectives of internal audit in reducing transaction costs:

Internal audit aims to entrust the implementation of verification and compliance control to internal auditors. By performing these tasks within the company, managers seek to reduce the fees of external legal auditors. Additionally, internal auditing saves transaction costs because internal auditors are already familiar with business processes and operations.

By reducing the transaction costs associated with external auditing, the company can improve its operational and financial efficiency. In addition, by having an internal audit department, the company has an integrated internal control function, which strengthens risk management, compliance with standards and governance mechanisms.

In conclusion, the transaction cost theory explains that the creation of an internal audit department allows companies to reduce transaction costs related to external audit by internalizing part of the audit work. This helps to enhance the effectiveness of audit and control processes, while providing benefits in terms of risk management and governance.

2. Internal audit and operational risk management

The problem of risk taking within companies is nowadays proving to be a major issue, much more significant within organizations. The evolution of society combined with the perception of the world vis-à-vis the risks makes a considerable contribution in this regard.

Basically, there is a profound variety of risks in business, capable of jeopardizing its day-to-day viability. Among them, **the operational risk** of a considerable magnitude, is placed

⁵Bertine. E, "Internal Audit", Organization edition, Paris, 2007, p23

immediately after the financial risks, and arises from the nerve center of the company's operations.

Jean David DARSA considers in his book (the operational risks of the company, p57), that without misuse of language and in the preamble of our remarks that theoretically, all the risks present in a company are potentially, by nature and in essence operational risks , because they are directly linked, directly or indirectly, to the company's operating cycles.

The control of operational risks is the concern of any company. According to the authors Christian JIMINEZ and Patrick MERLIER, in their work entitled "Prevention and management of operational risks" (pages 64, 65, 73 and 74), the establishment of an operational risk control system involves the participation of many actors within the company, because these risks manifest themselves at all levels and in all functions of the organization. The control of operational risks is no longer the sole competence of a few experts, but must be transformed into a real corporate culture, where each individual contributes to defining actions aimed at limiting and anticipating risk, itself considered as a global problem, and no longer as a series of specific or isolated events to be dealt with individually according to particular areas. In order to set up an effective organization, the company has another tool in addition to internal control, namely the internal audit, which is considered as the guarantor of the reality and materiality of the internal control system. Its main role consists of validating the relevance and quality of the risk management system, as well as proposing measures for improvement.

The objective pursued by this second part of our article consists in providing essential elements of comprehension which will allow us to define the concept of risk in a general way, as well as the operational risk in a specific way. In addition, we will seek to identify it, detect it, understand it and control it in an optimal way, in order to illustrate the crucial contribution of internal audit in its control process.

This part of our article is structured according to a thematic tripartition. In the first part of our article, we will undertake an in-depth study of risk and operational risk, striving to detail it more precisely, to circumscribe its contours and scope to better understand it. The second part of our article will allow us to explore the way in which the company carries out the identification of operational risks, by highlighting the resources at its disposal for this purpose. As for the last part of our article, it will be devoted exclusively to the role played by internal audit in the control of operational risk within the company, which is positioned as the central pivot and the primary objective of this research.

2.1 operational risk fundamentals

The inherently risky nature of any business makes it impossible to completely eliminate all sources of risk. This is why the identification and definition of the various risks play a crucial role and allow the company, according to its characteristics and its capacities, to put in place the appropriate management strategy.

The main objective of this part of our article is to present in an organized way the complex field of risk in the context of the company, by exploring the various stages of the emergence of the concept of "risk" throughout the history, its mysterious origin, its precise definition, the variety of typologies that characterize it, as well as the theoretical foundations that give it its conceptual substance by subsequently exploring

2.1.1 Operational risk

After having contextualized our approach and briefly covered the thirteen major classes of risk present in the company, let us now address the operational risks, the subject of this research. This class of risk is positioned at the heart of the risk pyramid that we presented to you in the previous section. This positioning is quite logical, because this class of risks will crystallize all the daily operational activities of the company under its core business ⁶.

To start, let's ask ourselves: What is an operational risk ?

2.2.3 Definition of operational risk, components and typology

The precise definition of operational risk proves to be the fundamental pillar of efficient management. To date, there has not been a unanimous definition allowing all organizations to adopt a common approach and a single management methodology.

The debate on the definition started with **the Basel I committee** . For him, operational risks corresponded to the risks of direct and indirect loss resulting from the inadequacy or failure of procedures, people and systems or resulting from external events. This definition has been criticized because it is difficult to calculate certain indirect losses.

In the working document of September 2001, the committee proposed another definition: “operational risks are defined as the risk of losses due to an inadequacy or failure of procedures, personnel, internal systems or external events”. This definition includes legal risk, but does not take into account strategic and reputational risks.

⁶ Ean-david darsa the company's operational risks 2013. P57.

Vanini (2004) criticizes the definition of **Basel I**, according to him, the use of this definition without any extension leads to difficulties of application in companies, such as the operational risk represents only a possibility of loss, the potential gain is neglected.

The definition indicates that people and systems are the causes of losses, but it does not take into account that they are best placed to detect the sources of potential losses and issue warnings. Moreover, the **Basel I working document** focused on the loss, does not make it possible to represent the old losses of the companies, nor the possible future ones. And finally, Vanini adds that this definition implies that the losses are only direct, when in reality, the indirect losses are comparatively greater.

Vanini defines operational risk as: “ the risk of deviation between the profit associated with the production of a service and the expectations of managerial planning. The RO corresponds to the difference recorded, positive or negative, in relation to the expected profit. Operational risk management must be based on three factors: the gain, the costs and the risk of producing the services⁷ ”. The Basel Committee has tried to precisely delineate the scope of operational risks in a clear and common definition. He offered another definition. **Basel II** thus defines operational risk as follows: “ Operational risk is defined as the risk of loss resulting from shortcomings or faults attributable to internal procedures, personnel and systems or to external events. The definition includes legal risk, but excludes strategic and reputational risks⁸ ”.

Christian JIMENEZ and Patrick MERLIER (2004, p18), have included in their work extended definitions of operational risks, which could be:

“All risks other than credit risk, market risk and financial risk (exchange rate, liquidity)”.

"Operational risks include all risks likely to interrupt or compromise the proper functioning of the company, to call into question the achievement of its objectives, or to cause damage likely to affect its profitability or its image".

According to (Laurent, 2019): “Operational risk can be defined as the risk that does not depend on how a company is financed, but rather on how it operates its business.

⁷JEZZINI Mohammed, "literature review: operational risk", University of Avignon and the Vaucluse countries, 2005, p 3.

⁸JIMENEZ Christian & al, “prevention and management of operational risks”, bank review edition, Paris, France, 2004, p17.

2.2 Operational risk management

After developing the risk map, their management appears necessary. Indeed Risk management in order to reduce them is an essential part of risk control.

2.2.1 Definition

Risk management, derived from multiple sources and practiced by a plethora of professionals, can be defined as a first attempt, based on a fusion of definitions proposed by several authors, as a continuous, rigorously planned and structured process, whose objective consists of supporting managers in their informed decision -making , by identifying, classifying and quantifying risks, in order to then manage and control them effectively.

In the following table, we will undertake to present the most relevant and widely adopted definitions of risk management.

Table 01: Risk Management Definitions

Organization / Author	Definition
Institute of Risk Management (MRI)	Process that aims to help organizations understand, assess and act on all of their risks in order to increase the probability of success and reduce the probability of failure (Paul Hopkins, 2010).
Matthew P. Thompson et al, 2016	Risk management can be defined as a set of coordinated processes and activities that identify, monitor, assess, prioritize and control the risks an organization faces.
Bahamid et al, 2017	Risk management can be defined as the systematic process of analyzing, identifying and responding to risks. It consists of maximizing the chances and impact of positive events while minimizing the probability and impact of negative events, in order to achieve objectives.

ISO 31000,2018	Risk management is the set of coordinated activities aimed at directing and controlling an organization with respect to risks. In this definition, coordination consists of organizing the conditions for dealing with risks within the organization and finding the best solution for the interests of the stakeholders (Seiji Abe et al, 2018).
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Source : *Personal elaboration*

In summary, risk management is presented as a rigorous and coordinated mechanism whose objective is to support organizations in their apprehension, their evaluation and their decision-making relating to all the risks they face. It aims to reduce the impact and consequences of identified events, preventing them and reducing their impact when they occur. This involves identifying hazards, assessing risk, developing and implementing mitigating controls and reviewing their effectiveness (Vaughan Ivan Clarke, 2017).

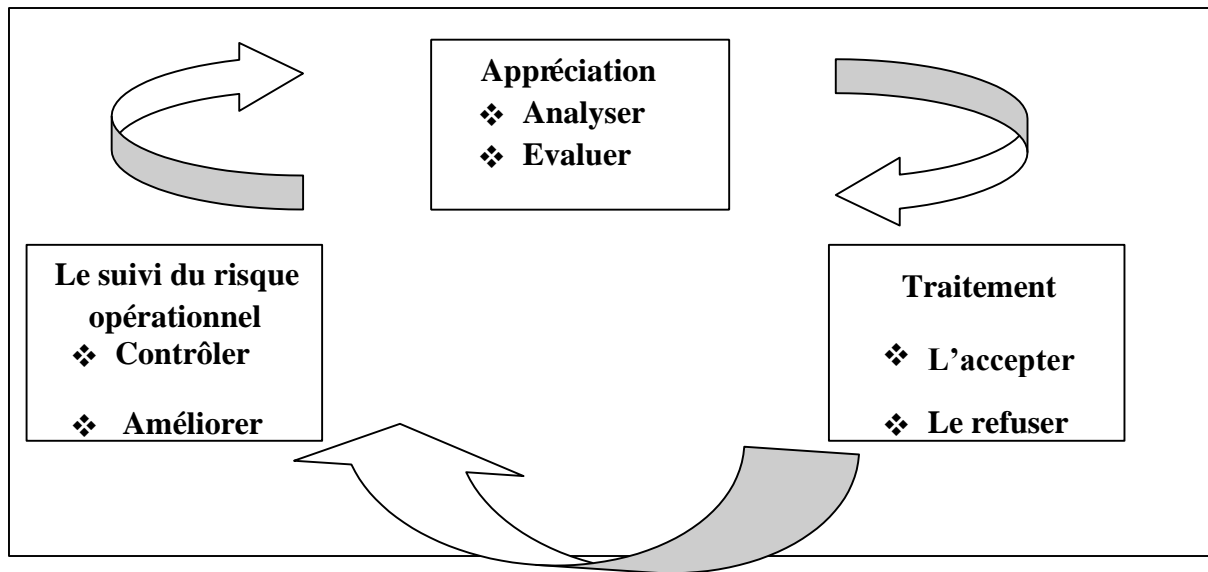
3.2. The stages of operational risk management

For SARDI (2002, p183), the risk management process comprises a certain number of stages which are three (3) main stages:

- Risk assessment;
- Risk treatment;
- Operational risk monitoring.

The following diagram summarizes these steps:

Picture 01: the stages of operational risk management



Source: SAIDANI Zahir, *op.cit* , p60.

The three stages of any risk management process must take the form of the diagram, therefore proceed according to three stages which complement each other in order to achieve an effective management system.

3. Presentation of variables and research hypotheses

After carrying out an in-depth documentary analysis of our work, we identified two distinct types of constructions. Which are four independent variables: competence, independence, audit engagement work and internal audit's relationship with the audit committee. And a dependent variable: operational risk management.

In this part of our article, we will first present the identification of the variables to be explained and the explanatory variables. Then, we will discuss the relationship that exists between them from a review of the literature.

3.1 Construction of research models

When we venture to examine the determinants of internal audit quality, we find ourselves faced with an essential question: how can we erect a conceptual model that is able to reduce the level of abstraction inherent in the endogenous variable? In other words, how can we select the appropriate dimensions and the relevant variables in order to make the conceptual model tangible through observable empirical data? An effective way to do this is to make explicit the dimensions that can empirically translate the quality of internal auditing. Depeletau (2000) defines the dimensions as “components of the concepts; they define the characteristics of the concepts that we want to observe”.

In the present study, we drew extensively on the literature review and pre-existing research as fundamental bases in order to outline our conceptual model.

To arrive at a selection between the variables to be eliminated and those that we kept, we classified them first according to the availability of statistical data, then lastly according to the level of legitimacy they acquired following a debate in the literature. Undoubtedly, the scarcity of statistical data will limit our ability to fully grasp our dimensions. However, we will endeavor to reconcile the theoretical ideal and the empirical constraints in order to find a satisfactory compromise.

3.2 Summary of Research Hypotheses

Table 02 : summary of assumptions

Models	Hypotheses	predicted sign
Hypothetical model (M1)	The competence of the internal auditor would have a positive impact on the effectiveness of internal audit in the management of operational risks	(+)
Hypothetical model (M2)	The independence of the internal auditor would have a positive impact on the effectiveness of internal audit in the management of operational risks	(+)
Hypothetical model (M3)		(+)
Hypothetical model (M4)		(+)

Source : *Personal elaboration*

3.4 Search result

After analysis of the data collected, we applied all the tests previously put forward, in order to validate the model proposed for the measurement of internal audit.

Indeed, the result of the exploratory analysis made it possible to demonstrate all the facets for measuring the "Internal Audit" variable. In this regard, the factorial structure obtained was subjected to a review of reliability and validity, in order to concretize a structural model predisposed to evaluate its overall performance.

3.4.1 Quality of representation and result of the dimensionality test

Checking the quality of our sample is a sine qua non to start the process of developing our model. Two criteria were chosen for this purpose, the KM-O index and the sphericity of Bartlett, whose result obtained, respectively of 0.780 (KMO > 0.5) and 0.000 (significance of Bartlett's Sphericity < 5%) provides assurance that our sample reflects an acceptable quality of representation.

Table 02: Quality of representation of internal audit items

Quality of representation of internal audit items	
Olkin index for quality	measurement 0.780
Bartlett's sphericity test Meaning	0.000

Source : Results generated by SmartPLS

Therefore, we will proceed to the dimensionality test, in order to deduce the latent factors inherent in the "Internal Audit" variable. To do this, we proceeded by a PCA , in order to increase the number of saturation on each extracted vector.

The 4 factors extracted in particular that of "Competence". " Independence ". "Mission Works" "Relationship with the Audit Committee". Indeed represent the 4 measurement dimensions of internal audit.

3.4.2 Purification of instruments for measuring the latent variable

"The relationship with the audit committee" a latent variable " The relationship with the audit committee " is estimated by three manifest variables (items): the quality of the relationship with the audit committee, the nature of the access of the internal audit manager to the audit committee, also the degree of involvement of the audit committee in the review of internal audit work. Cronbach's alpha coefficient (0.832) for this block of measurements attests to the strong consistency of the measurement scale used.

Table 03: Cronbach's alpha calculated for the latent variable measurement block

" The relationship with the audit committee "

Construct reliability and validity

Built	Cronbach's Alpha	Number of items
The relationship with the audit committee	0.832	3

Source : *Results generated by SmartPLS*

In the same vein, the principal component analysis (PCA) carried out for the measurement block of the latent variable “the relationship with the audit committee” announces the component that best represents said variable.

From the results of the principal component analysis, it is evident that this block of measures will not be subject to any dimension reduction. Consequently, the latent variable "Independence of internal auditors" will retain the same composition of the measurement scale, namely: RAI-CM _1 (the quality of the relationship with the audit committee), RAI-CM _2 (the nature access of the head of internal audit to the audit committee), also RAI-CM _3 (the degree of involvement of the audit committee in the review of internal audit work).

3.5 Synthesis of the information contained in the datasets of the manifest variables retained

With the selected manifest variables verified, we now need to subject their data contents to statistical tests to characterize their distributions by:

- Position and dispersion parameters (mean and standard deviation);
- Parameters tracing the shape of the distribution (Skewness for symmetry and Kurtosis for kurtosis); And
- Data normality tests (Kolmogorov-Smirnov and Shapiro- Wilk).

The mean is the best-known measure of the central tendency of a sample. It is the sum of all observations divided by the number of observations. The standard deviation is a true parameter of inferential statistics.

Along with the mean, the standard deviation gives a rough idea of how much each number in a set deviates from the central value. A low standard deviation means that the values in a statistical data set are close to the mean of the data set, while a large standard deviation means that the values in the data set are farther from it. the average.

We then determine the asymmetry of the distribution by means of the coefficient " *Skewness* ". This parameter is used to calculate the degree of distortion from the bell curve (or normal distribution). It measures the lack of symmetry in the data distribution, if it equals 0 (although this is unlikely for real world data) the data is perfectly symmetrical.

In this case, the distribution spreads to the right (positive skew) or to the left (negative skew). We continue the description of the distribution of our sample by identifying its flatness through the kurtosis coefficient.

It is a statistical measure used to describe the degree to which data clusters in the tails or peaks of a distribution (Hair et al., 2017). If it is equal to 0, the distribution is mesokurtic .

This means that the kurtosis is identical to that of the normal distribution. Negative values of kurtosis (Platykurtic) indicate that a distribution is flatter (fewer peaks) compared to the normal distribution. Positive values of kurtosis (leptokurtic) indicate that a distribution is sharper than the normal distribution.

3.5.1 Reliability and validity of model constructs

Assessing the reliability and validity of model constructs is a complex task and may vary depending on the field of study, the measurement methods used and the nature of the variables.

The exploratory analysis of the data carried out previously in this part of our article pronounced a strong internal consistency of our measurement blocks. The use of Cronbach's alpha test allowed us to obtain an estimate of the reliability of the first-order latent variables on the basis of the inter-correlations. However, Cronbach's alpha has been consistently criticized for underestimating internal consistency reliability (Sarstedt et al., 2017).

Because of its inaccuracies, it is technically more appropriate to apply a different measure of internal consistency reliability, called composite reliability or Jöreskog 's rho . This measure of reliability takes into account the different external loads of latent variables. The composite reliability (CR) has values in the interval [0; 1], the higher the value, the higher the level of reliability.

The result obtained in table 36 confirms the internal consistency of our measuring instruments, given that all the values exceed the threshold of (0.7).

Table 04: Reliability test

Dimensions	Cronbach's α	Composite Reliability
Skill	0.862	0.862
Independence	0.930	0.932
Mission works	0.838	0.924
Relationship with the audit committee	0.838	0.851

Source : *Results obtained from calculations under SmartPLS*

In particular, in confirmatory research, values between 0.7 and 0.9 can be considered satisfactory. Nevertheless, values greater than 0.95 indicate a lack of indicators to be a valid measure of the constructs.

In our case of analysis, the results calculated from Smart.PLS show a better composite reliability, i.e. all the constructs have a composite reliability greater than 0.7 without exceeding the undesirable threshold of 0, 95.

3.5.2 Hypothesis test: correlation coefficient

Hypothesis tests are used to represent the hypothetical links between the different structures, with a value of $P < 0.05$ being considered significant. According to Henseler, Ringle , and Sarstedt (2014), normalized beta coefficients and path coefficients have the same meaning in regression, with the resulting T-values used to determine the relevance of relationships between structures. To determine if formative indicators play a significant role in construct formation, we need to use Bootstrapping (Hair Jr et al., 2017) to test if the external weights in the formative measurement models are significantly different from zero. Thus there are two possibilities or else two hypotheses; either the contribution of the external weight is statistically significant or not, and to decide we use the Student 's T value . This step consists

in verifying the existence of a correlation between the studied variables, as well as the orientation of this relationship if it exists. In our case, we seek to study the influence of the following independent variables: the competence of internal auditors, the independence of internal auditors, the work of the audit mission as well as the relationship of internal audit with the audit committee. audit. On the dependent variable, which is operational risk management. According to Lee & Chen (2013), the analysis of the meaning and significance of the causality coefficient makes it possible to reject or accept the hypotheses of the research model. The causality coefficients are calculated using the "Bootstrap" procedure of Smart PLS. The P-value, also called "p-value", represents the probability of error associated with a statistical test. If we accept a relation between our independent and dependent variables, it means that this relation is realized in 95% of the cases or more. In other words, in less than 5% of cases, this relationship may not occur. For us to accept a relationship between our variables, the P value must be less than 0.05.

Table 05 : Bootstrapping test for determining the confidence interval

Dimensions	Standard Beta	Standard Error	T value	P-value
Competence => Operational risk management	0.392	0.136	2.810	0.005
Independence => Operational risk management	0.316	0.129	2.452	0.014
Mission work => operational risk management	-0.296	0.125	2.508	0.012
Relationship with the audit committee => operational risk management	0.213	0.159	1.362	0.173

Source : *Our own calculations under SMARTPLS*

3.5.3 The coefficient of determination (R square)

Always in a logic of continuity of consolidation of the validity of our structural model (internal model), we mobilize a third test commonly used for this purpose. This is the coefficient of determination (R^2) which offers the researcher a very powerful tool for measuring the predictive power of the structural model by means of calculating the square of the correlation between the actual and predicted values of an endogenous construction. specific (the quality of accounting information for our case) (Rigdon , 2012).

We therefore seek to present the combined effects of exogenous latent variables (dimensions): “CMP”, “IND”, “TMD” and “RAI-CM”) on the endogenous latent variable (GRO operational risk management). In other words, we want to analyze the degree of variance of our global composite variable (GRO) explained by all of its sub-dimensions (exogenous variables) linked to it (Sarstedt et al., 2014) .

We recall that we designed our hierarchical latent variable model according to the approach of repeated indicators following a type II model (reflective-formative).

In such circumstances, almost all of the variance of the higher-order constructs (HOC) is explained by its underlying lower-order constructs (LOC) generating, therefore, values of R^2 close to 1 ($R^2 \approx 1$) (Ringle et al., 2012). This is indeed the case, the table below illustrates what we have previously planned.

Table 06 : Coefficient of determination test (R square)

	R-Square	R Square Adjusted
GRO	0.832	0.792
<i>a recommended threshold :> 0.19</i>		
R^2		

Source : Results obtained from calculations under SmartPLS

As expected, the results illustrated in the table below attest to the levels of significance of R^2 and adjusted R^2 is acceptable, thus constituting support for our model.

This is how our higher order composite variable (GRO) is explained by its sub-dimensions.

3.6 Analysis and Discussion of Results

Our study aims to examine how internal audit contributes to operational risk management in the agro-food sector of the Souss Massa region. We asked the internal auditors to identify precisely how the audit can promote effective management of operational risks. Respondent responses show a significant correlation between these two variables, highlighting the importance of internal audit in managing operational risk.

Previous research has confirmed that the integration of the internal audit function is still under development globally, highlighting the need for additional studies to better understand the relationship between internal audit and management. operational risks. In this subsection of our article, we will examine the results of our empirical study on the contribution of internal audit to effective operational risk management, focusing on the case of the agro-food sector in the Souss-Massa region.

Following this approach aimed at developing an integrated measurement model of the contribution of internal audit to the management of operational risks, inspired by the Churchill paradigm, all the criteria adopted reflect the validity of our model of all the measurement variables used. . However, we will have to analyze a specific variable, namely the "Training.

This finding raises the need for further discussion. Indeed, it is essential to analyze in detail the results obtained in order to draw relevant conclusions and to contextualize them within the framework of our research. By looking closely at the effects of measured variables on operational risk management, we can better understand the critical importance of the internal audit function within organizations.

3.6.1 Competence (H1)

The competence of internal auditors has a beneficial influence on the management of operational risks, which **validates hypothesis H1**.

The first factor includes four elements that define competence, including training, experience, knowledge and relational capacity, which revealed a strong correlation with the measured concept, with the exception of the "training" variable. This scale demonstrated moderate convergent validity, with a correlation of **0.534** . Although its discriminant validity is checked, this scale can be kept with caution in the measurement model.

This reservation is made because the diploma does not provide reasonable assurance as to the mastery of the professional practices of internal audit. Thus, it would be wise to complete the

measuring instrument with a third criterion, "certification of auditors", which could not be integrated due to its almost total absence.

In other words, the mere possession of a diploma does not automatically guarantee a person's competence in this field. Therefore, having a degree in internal auditing does not necessarily prove that someone has the knowledge and practical skills needed to perform internal audits effectively. This is why the idea of completing the measuring instrument with a third criterion, the certification of auditors, is proposed. Auditor certification is professional recognition issued by independent, accredited bodies, attesting that individuals have the skills and knowledge required to perform internal auditing competently.

By incorporating auditor certification as an additional criterion, we can achieve a more comprehensive assessment of an individual's proficiency in internal auditing professional practices. This ensures that auditors not only have the theoretical knowledge acquired through their degree, but also the practical skills and professional recognition necessary to conduct internal audits effectively.

3.6.2 Independence (H2)

Like competence, the independence of an internal auditor has a positive influence on their ability to manage operational risks. Thus, we find that **the second hypothesis is validated** . The second factor includes three elements related to the independence of internal audit, namely the level of ethics of the team, its hierarchical reporting and its degree of autonomy. The results obtained confirm that all the variables actually measure the dimension that they are supposed to measure, indeed the hierarchical reporting as an indicator of measurement of the internal audit has been proven unequivocally by the majority of theories, mainly the theory as an internal audit measurement indicator. Our results significantly (positively) confirm this relationship in the agro-food sector.

3.6.3 H3 audit engagement work

The conclusions of our study reveal a beneficial impact of audit engagement work on operational risk management, which **confirms the validity of our hypothesis** . The third factor encompasses three elements with technical and methodological characteristics related to internal audit engagement work. It primarily encompasses the ability of the audit team to control and detect risks: This means that the audit team is able to identify and understand the risks an organization is facing, which enables appropriate control measures to be put in place.

Then the ability to formulate relevant recommendations: This indicates that the audit team is able to propose concrete actions to mitigate the identified risks. These recommendations must be appropriate and effective to help the organization improve its operational risk management.

And finally the level of application and compliance with international standards governing the professional practices of internal auditing. This implies that the audit team adheres to professional standards and good practices in the performance of its audit engagement work. Compliance with these standards ensures the quality and reliability of audit results.

The results obtained once again confirm that all the variables measured effectively reflect the dimension of the work of the audit mission.

3.6.4 The relationship with the audit committee H4

Despite the confirmation of the first three hypotheses, the fourth hypothesis was rejected, even if the convergent validity measures revealed strong correlations between the items measuring the construct of the relationship with the audit committee (0.851, 0.837, 0.902). These convergent measures highlight a consistent and solid relationship between the measured variables.

However, despite these encouraging results, the hypothesis was not supported in our study. This could be explained by the presence of variables not taken into account that could influence the relationship between the structure of the relationship with the audit committee and the contribution of internal audit to the management of operational risks. Organizational factors such as corporate culture or governance structure could play a crucial role in this relationship. It would therefore be relevant to conduct additional research to explore these unconsidered variables and their possible impact.

CONCLUSION

It is essential to take a step back and reassess the objectives of the study that have been assigned to us in order to carry out our task. In this way, we can begin a systematic discussion of multiple expected and unexpected outcomes. At the same time, we will highlight the key moments that have defined our work, while acknowledging the challenges we have faced. In conclusion, we will examine the limits and shortcomings of our research, as well as possible prospects for extension.

Research objectives

The main objective of this study is to examine the contribution of internal audit to the management of operational risks in companies. More specifically, this modest research aims to study how internal audit practices can strengthen risk identification and management mechanisms within companies, and to what extent they do so.

In order to analyze how internal audit could contribute to enterprise risk management, we undertook an in-depth search of the existing literature in order to propose an explanatory model of this relationship in the specific context of agribusinesses in the region. Souss Massa. It should be emphasized that the complexity of our task stems directly from our desire to understand the multiple roles played by internal audit in the management of operational risks, which have often been neglected by previous studies.

Bibliography & Webography

A. FINET, and others, 2005 "Corporate governance: managerial, accounting and financial issues", Editions De Boeck University, Belgium.

B. Élisabeth, 2007 "Internal audit issues and international practice", Edition Eyrolles, France.

COSO / PwC/IFACI (trans.), "Enterprise risk management: Reference framework – Application techniques",

DEMETEERE, 2006 "Management control in the public sector", 2nd edition, LGDJ, France, 2005.

E. BERTIN, 2007 "Internal Audit", Edition of Organization, France.

E. EBONDO, 2007 "Organization and methodology of internal audit", Internal Audit: International issues and practices, Edition Eyrolles, France.

Fioleau B. (2009). Agricultural accounting. In Encyclopedia of Accounting, Management Control and Auditing (Ed. Colasse , B.). Paris : Economica , 115-123.

Fornell , C. and Bookstein, FL (1982) Two Structural Equation Models: LISREL and PLS Applied to Consumer Exit-Voice Theory. Journal of Marketing Research , 19, 440-452.

G. Bajan- Banaszak (1993), "The chartered accountant and management consulting", Revue Française de Comptabilité, no. 249, October, p. 95-10.

G. CHARREAUX 2000 "Corporate governance and accounting, Encyclopedia of Accounting, Management Control and Audit", Edition Economica, France.

Gavard -Perret, Marie Laure, David Gotteland , Christophe Haon , and Alain Jolibert . 2008. Research methodology - succeeding in management science thesis or dissertation. Pearson Education.

Gavard -Perret, ML, Gotteland , D., Haon , C., and Jolibert , A. (2012). Methodology of research in management sciences. Succeed in your dissertation or thesis, 2.

GERERD, CAVANOU, GUTTMANN & VOUREH, " Controlor & Auditor", Edition Dunod , France, 2006.

GUEYE, (Abdoul Karim), "General state inspections in Africa: realities, prospects and challenges", Senegal, 2010.

Habib, A., and Azim , I. (2008). Corporate governance and the value-relevance of Accounting information: Evidence from Australia. Accounting Research Journal, 21(2), 167-194.

IFA, "Audit committees, 100 good practices", France, 2008.

IFACI, "Standards for the professional practice of internal auditing", Paris, 2011.

IFACI, IAS (International Institute of Social Audit), "Words for the audit", Imprimerie Compédit Beaugard SA, France, 1995.

KHELASSI, (Reda), "Applications of internal audit", Edition Houma, Algeria, 2010.

KHELASSI, (Reda), "Internal audit - Operational audit: Techniques, Methodology, Internal control", Editions Houma, Algeria, 2007.

Kurbanova , E., Korableva , O., & Kalimullina , O. (2018). Enhancing the effectiveness of asset management through the development of a license management system based on the SCCM 2012 program by Microsoft company. In the 20th International Conference on Enterprise Information Systems, ICEIS 2018 (pp. 171-178). SciTePress .

Lamoureux, A., and Lamoureux, A. (2006). Research and methodology in the human sciences. Beauchemin .

Mr Firth. (1979). The impact of size, stock market listing, and auditors on voluntary disclosure in corporate annual reports. Accounting and business research , 9(36), 273-280.

S. CHABANI and H. OUACHERINE, 2013, "Guide to Methodology for Research in Social Sciences", Taleb Impression, 1st edition, Algeria.

Ebonde , (Eustache), " Corporate governance : an approach through audit and internal control",
Edition Harmattan, France.

Koenig, (Gérard), "New theories for managing the business of the 21st century", Edition
Economica, France, 1999.