

Determinants of Operational Risk Management in Moroccan Public Universities

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Abstract

Operational risk management has become a key lever for supporting the strategic transformations undertaken by universities. By contributing to the management of critical operational risks inherent in university activities, it helps ensure institutional continuity and supports the achievement of both operational and strategic objectives. In this context, the present study aims to identify and validate the determinants associated with the adoption of an Operational Risk Management System (ORMS) within Moroccan Public Universities (MPUs). The research is based on a flexible methodological approach structured around three complementary stages: A literature review, an exploratory qualitative study, and a quantitative survey conducted among 120 administrative managers from the twelve Moroccan public universities, with a response rate of 46%. Based on the literature, a set of potential determinants of ORMS adoption was identified and subsequently refined and contextualized through the findings of the exploratory qualitative study. These determinants were then subjected to a confirmatory analysis to assess the quality of the measurement model. The findings confirm the reliability and validity of the retained measurement constructs and highlight five major determinants associated with the adoption of ORMS within Moroccan public universities: The operational risk management process (PGRO), the university council (CUN), indebtedness (ENDT), profitability (RENT), and good governance (BGOV).

Keywords

Operational Risk, Risk Management System, Determinants, Public University

1. Introduction

Operational risk management has become a key strategic component for the effective governance and functioning of public universities, particularly in the context of the

profound transformations affecting higher education systems (Dill, 1996; Billing, 2004; De Boer et al., 2007). Far from being merely an administrative procedure, it is increasingly recognized as a managerial approach that enhances organizational resilience, enables institutions to anticipate potential threats, and supports institutional stability in an increasingly complex and dynamic environment.

By promoting proactive risk identification and implementing effective preventive mechanisms, universities can reduce operational disruptions, optimize the use of available resources, and strengthen their capacity to achieve both operational and strategic objectives. Consequently, operational risk management has become an essential driver of organizational performance, sound governance, and institutional sustainability.

In response to these challenges, public universities are increasingly adopting management practices originally developed in the private sector, including Operational Risk Management Systems (ORMS). This evolution reflects the growing complexity of the higher education environment, characterized by increasing internal and external pressures, heightened accountability requirements, and rising expectations regarding governance, transparency, and organizational performance (Sityata et al., 2021).

Despite this growing interest, knowledge regarding the determinants associated with the adoption of Operational Risk Management Systems within Moroccan public universities remains limited. This theoretical and empirical gap highlights the need for a better understanding of the determinants that may facilitate, encourage, or condition the adoption of ORMS within Moroccan public universities.

Against this background, the present study aims to identify and validate the determinants associated with the adoption of an Operational Risk Management System (ORMS) in Moroccan public universities. To achieve this objective, the study is based on a literature review, an exploratory qualitative study, and a confirmatory quantitative analysis to assess the reliability and validity of the proposed measurement constructs. The study addresses the following research question.

What are the determinants of adopting an Operational Risk Management System in Moroccan public universities?

2. Research Methodology

This research is grounded in an adapted positivist paradigm, offering a degree of flexibility in data collection while ensuring the rigor and validity of the findings.

The methodological design follows a three-stage approach. First, an extensive literature review was conducted to identify the main determinants associated with the adoption of Operational Risk Management Systems (ORMS). Second, an exploratory qualitative study was carried out through semi-structured interviews with twelve administrative officials representing the twelve Moroccan public universities, including vice presidents, project managers, advisors, general secretaries, division heads, and department heads. This phase provided a deeper under-

standing of the phenomenon under investigation and contributed to refining the conceptual framework.

Finally, a quantitative survey was conducted to validate the findings of the exploratory study. The target population consisted of 120 administrative officials from the 12 Moroccan public universities, belonging to the same categories of administrative positions as those included in the exploratory study. A structured questionnaire was distributed to all targeted participants. Of the 120 administrative officials invited to participate, 46% completed and returned the questionnaire. The survey was conducted over a five-month period, from January to May 2024.

The university constituted the unit of analysis in this study. Data were collected from administrative officials occupying senior management positions, including vice-presidents, project managers, advisors, general secretaries, division heads, and department heads. Given their direct involvement in university governance and operational management, as well as their institutional responsibilities and extensive knowledge of their universities' management practices, these officials were well positioned to provide reliable information on the adoption of Operational Risk Management Systems (ORMS) within their respective universities.

This article is derived from a broader doctoral research project based on Partial Least Squares Structural Equation Modeling (PLS-SEM). However, it does not present the complete structural model developed within the doctoral study. Rather, its objective is to identify and examine the determinants of the Operational Risk Management System (ORMS). In this study, the term “determinants” refers to elements that may facilitate, encourage, or condition the adoption of an Operational Risk Management System (ORMS), rather than to causally established relationships. Accordingly, only the assessment of the measurement model is reported, as it is sufficient to establish the reliability and validity of the constructs used in this analysis.

3. Empirical Results

A. Literature Review Findings

The literature review identified a set of determinants associated with the adoption of an Operational Risk Management System (ORMS) in public universities. These determinants can be grouped into two main categories: conditional determinants and incentive determinants.

a. Conditional determinants

Conditional determinants refer to the elements considered indispensable for the effective implementation of an operational risk management system.

First, risk culture emerges as a critical component. It encompasses the shared values, beliefs, and behaviors within an organization regarding the perception and management of risks (Armel et al., 2016).

Second, the risk management policy constitutes an essential formal framework that defines the objectives, responsibilities, and procedures related to risk management (Wadesango et al., 2018; Ariff et al., 2014; Beasley et al., 2005).

Furthermore, the risk management process is a key element of the system (Aming'a & Moronge, 2018; Aubry, 2005), and its formalization contributes significantly to its effectiveness.

Finally, the presence of a risk manager or a dedicated risk management function is necessary for the proper functioning of the risk management process, ensuring the coordination of the various activities that comprise it (Kleffner et al., 2003; Wadesango et al., 2018; Lodewijk Eikenhout, 2015; Togok et al., 2014; Yazid et al., 2011; Hoyt & Liebenberg, 2011; Beasley et al., 2005; Liebenberg & Hoyt, 2003; Kleffner et al., 2003).

b. Incentive determinants

The incentive determinants include the elements that stimulate or encourage the implementation of an operational risk management system.

The size of the organization is frequently cited as a major incentive determinant. Indeed, large organizations are generally exposed to a wide range of risks, which increases the need to use a risk management system (Togok et al., 2014; Hoyt & Liebenberg, 2011; Beasley et al., 2005; Liebenberg & Hoyt, 2003; Önder & Ergin, 2012; Stulz, 1996).

The role of the University Board is also an incentive determinant. A board engaged in governance and internal control issues promotes the adoption of advanced risk management practices (Institut des Auditeurs Internes, 2003; Kleffner et al., 2003; Abraham, 2013).

Next, the level of indebtedness can encourage the implementation of necessary mechanisms to control the risks incurred (Liebenberg & Hoyt, 2003; Pagach & Warr, 2010; Hoyt & Liebenberg, 2011), as well as the degree of opacity (Hoyt & Liebenberg, 2011; Liebenberg & Hoyt, 2003; Denglos, 2007; Önder & Ergin, 2012).

Furthermore, the search for good governance encourages the modernization of management tools (Hassen & Zakaria, 2013), as well as compliance with recommendations from external stakeholders (Liebenberg & Hoyt, 2003; Kleffner et al., 2003; Beasley et al., 2005; Christopher & Sarens, 2015; Huber, 2009; Sum & Zurina, 2017), in addition to the pursuit of profitability (Denglos, 2007; Önder & Ergin, 2012).

Regarding profitability, an important clarification should be made: in the public sector, the concept of profitability differs from that of the private sector, insofar as the objectives pursued are often different. Indeed, in the public sector, profitability is generally associated with the achievement of social, environmental, or economic objectives rather than the maximization of profit.

B. Exploratory Study

The determinants associated with the adoption of an Operational Risk Management System (ORMS), identified through the literature review, were initially assessed through an exploratory qualitative study based on semi-structured interviews conducted with twelve administrative managers representing the twelve Moroccan public universities (MPUs). This stage led to the exclusion of three de-

terminants from the proposed research model: risk culture, risk management policy, and the risk manager function.

Regarding risk culture, according to 42% of respondents, it is not disseminated at all management levels; only members of the executive board are aware of operational and strategic risks.

With respect to the operational risk management policy, only two universities (17%) have a formal document currently undergoing the institutional approval process. For the majority of universities (83%), however, the development of such a policy remains a work in progress.

With regard to the risk manager function, only four universities have established a dedicated risk management position, largely due to the lack of institutionalization of this role within Moroccan public universities (MPUs). As explained by the Vice-President of a Moroccan public university (based on the account of a single interviewee): “The risk management function is not included in the official organizational chart of the MPU. Consequently, operational risks are managed by unit heads when they occur.”

Nevertheless, 67% of respondents reported the existence of an informal operational risk management process that enables the identification, assessment, and mitigation of risks, despite the absence of a formalized risk management framework within their institution.

The distribution of conditional determinants for the adoption of an operational risk management system in MPUs is presented in **Figure 1**.

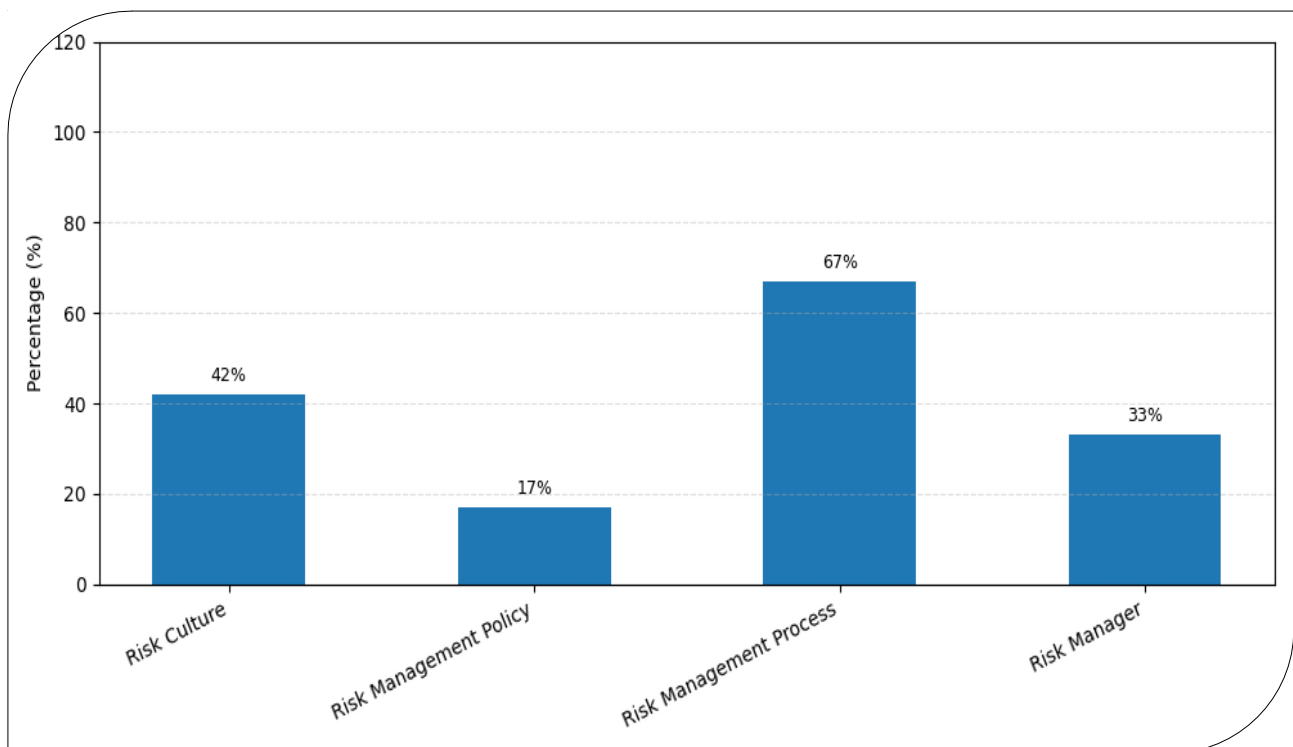


Figure 1. Conditional determinants for the adoption of an ORMS.

Regarding the representativeness of the incentive determinants for the adoption of an Operational Risk Management System (ORMS), it is presented in **Figure 2**.

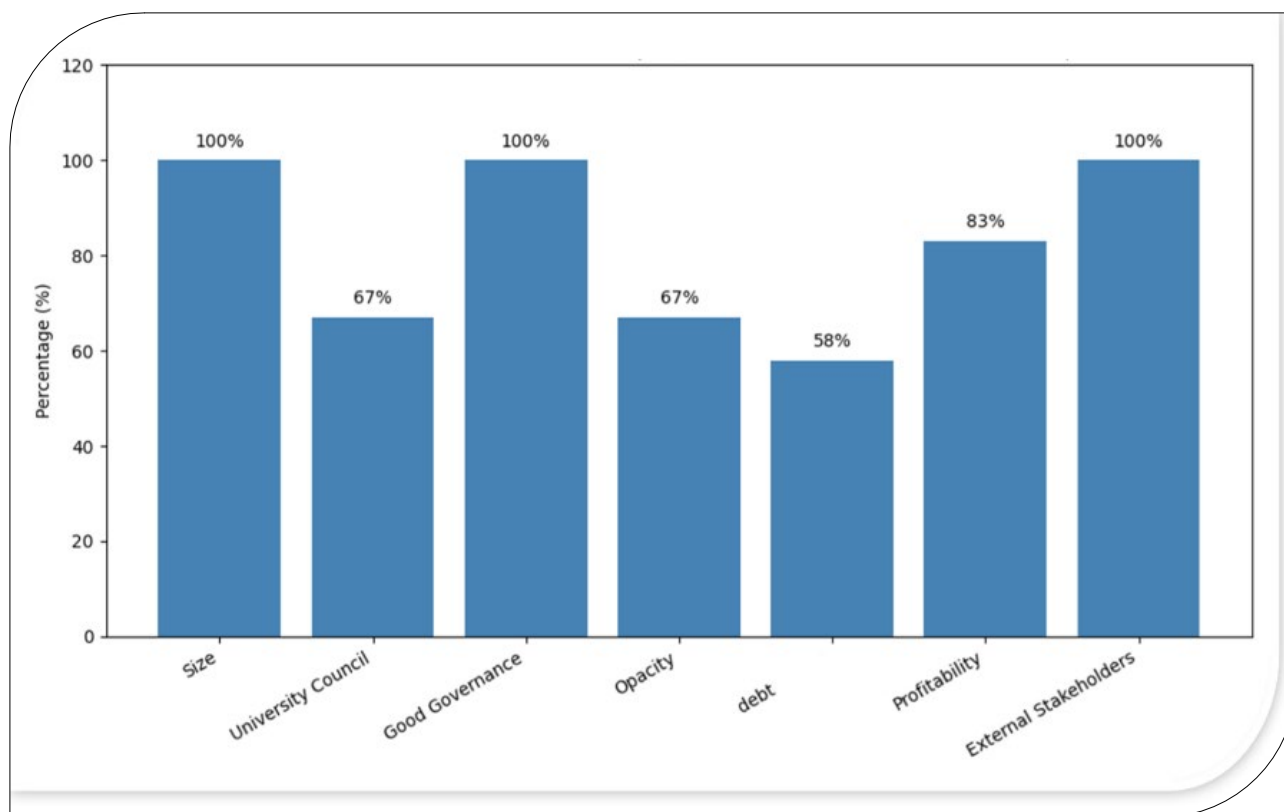


Figure 2. Incentive determinants influencing the adoption of an ORMS.

Three parameters obtained unanimous agreement from all interviewed managers: size, good governance, and external stakeholders.

Moroccan public universities (MPUs) give importance to operational risk management when their size is significant, mainly due to the increased complexity of their organizational structure, the large number of institutions, students, as well as teaching and administrative staff. In this regard, the Secretary-General of the Presidency of a Moroccan public university (MPU) stated, based on the account of a single interviewee, that:

“The larger the organizational structure, the more complex the management becomes and the more difficult it is to control operations.”

Furthermore, MPUs are interested in operational risk management in order to comply with recommendations from external stakeholders and to engage in a process of improving governance.

Regarding the other parameters, namely profitability, the University Council, opacity, and indebtedness, the results of the study show the following:

- **Profitability:** This concept has several meanings within Moroccan public universities (MPUs). It is notably associated with improving payment and commitment rates, increasing scientific output, strengthening the university's ter-

ritorial anchoring, and complying with applicable regulations. For 83% of MPUs, this broad interpretation of profitability represents an incentive determinant for implementing an Operational Risk Management System (ORMS).

- **University Council:** 67% of respondents believe that the Council encourages improvement and the adoption of new management tools by integrating proposals, criticisms, and observations expressed during its meetings.
- **Opacity:** According to the same respondents, opacity, particularly in asset management, also represents an incentive determinant for adopting an ORMS.
- **Indebtedness:** Finally, 58% of participants consider indebtedness to be another determinant promoting the implementation of an ORMS.

In summary, Moroccan public universities are gradually moving toward modern management inspired by private sector practices. As explained by the Vice-President of a Moroccan public university (based on the account of a single interviewee):

“Our university is in a transition phase toward modern management. Strategies are being developed to achieve strategic objectives and meet stakeholders’ expectations.”

This transition is illustrated notably by the adoption of an Operational Risk Management System (ORMS), which in most public universities is currently based on a non-formalized management process. Several determinants support its adoption: university size, the University Council, good governance, external stakeholders, profitability, opacity, and indebtedness.

C. Confirmatory Results

The findings obtained from the exploratory study were subsequently subjected to a confirmatory analysis. To this end, the measurement instrument was developed by adapting items from the existing literature and refining them based on the findings of the exploratory qualitative study. This process ensured that the questionnaire was both theoretically grounded and contextually relevant to Moroccan public universities. The final questionnaire comprised eight constructs measured through 30 items. All items were assessed using a five-point Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree. **Table 1** presents the measurement constructs, their corresponding items, and coding scheme.

Table 1. Measurement constructs and questionnaire items.

Construct	Code	Measurement Item
Operational Risk Management Process (PGRO)	PGRO1	Risks are identified within your university.
	PGRO2	Your university analyzes the identified risks by examining their causes and potential consequences.
	PGRO3	Your university assesses the identified risks by evaluating their likelihood of occurrence and potential severity.
	PGRO4	Your university implements actions to treat the identified risks.
	PGRO5	Information related to identified risks is communicated to the relevant departments.
	PGRO6	Your university periodically monitors the management of critical risks.

Continued

University Size (SIZE)	SIZE1	The number of students is high relative to the university's capacity.
	SIZE2	The administrative staff-to-student ratio is unsatisfactory.
	SIZE3	The academic staff-to-student ratio is unsatisfactory.
	SIZE4	Your university manages several higher education institutions.
University Council (CUNV)	CUNV1	Risks are discussed at the University Council level.
	CUNV2	The University Council oversees the implementation of a risk management process.
	CUNV3	The University Council is regularly informed about the results of the risk management process.
	CUNV4	The University Council ensures the periodic evaluation of the risk management process.
	CUNV5	The University Council ensures that appropriate actions are taken promptly to address critical risks.
Indebtedness (ENDT)	ENDT1	Your university has outstanding debts (e.g., suppliers, faculty members, government).
	ENDT2	Reducing debt helps decrease conflicts of interest between the university and its creditors.
	ENDT3	Reducing debt contributes to lowering the university's risk exposure.
	ENDT4	The implementation of risk management practices contributes to reducing the university's debt level.
Opacity (OPAC)	OPAC1	Your university has a weak internal control system (e.g., lack of information systems, inadequate procedures, insufficient segregation of duties).
	OPAC2	Your university has a weak risk management system (e.g., absence or limited use of risk maps).
profitability (RENT)	RENT1	Risk management contributes to achieving operational objectives.
	RENT2	Risk management contributes to achieving strategic objectives.
	RENT3	Risk management contributes to improving the university's overall performance.
Good Governance (BGOV)	BGOV1	Your university promotes the values of transparency.
	BGOV2	Your university involves different stakeholders in the decision-making process.
	BGOV3	Your university reports its activities to external stakeholders.
	BGOV4	Your university has a code of ethics.
External Stakeholder Pressure (PPREX)	PPREX1	Your university has been under pressure from external stakeholders to implement a risk management system.
	PPREX2	Your university uses a risk management system to meet the recommendations of external stakeholders.

Authors.

Subsequently, the measurement model was evaluated to assess the psychometric properties of the constructs. First, standardized loadings were examined to determine the strength of the relationships between the observed indicators and

their respective latent constructs. Next, the internal consistency reliability of the measurement model was assessed using Cronbach's alpha, Dillon-Goldstein's rho (Composite Reliability), and rho_A. These indicators were used to verify the reliability of the measurement scales before proceeding with the evaluation of convergent and discriminant validity.

Table 2. Initial measurement model results.

	Reflective: SGR_Oper
PGRO	0.729
TUNV	0.427
CUNV	0.756
ENDT	0.81
OPAC	0.425
RENT	0.738
BGOV	0.684
PPREX	0.425
Cronbach	0.797
DG	0.842
rho_A	0.849

Logiciel STATA.

Indeed, **Table 2** reveals weak correlations between the observed variables size (TUNV), opacity (OPAC), and external stakeholders (PPREX) and their latent factor, the Operational Risk Management System (SGR-Opér). Consequently, these variables were excluded from the research model.

The removal of these low-contributing dimensions enabled the optimization of the measurement model, as presented in **Table 3**.

Table 3. Results of the optimized measurement model.

	Reflective: SGR_Oper
PGRO	0.756
CUNV	0.719
ENDT	0.864
RENT	0.727
BGOV	0.697
Cronbach	0.817
DG	0.868
rho_A	0.848

Logiciel STATA.

The table above shows that the loadings for all dimensions become acceptable,

and even excellent for some, especially after removing the dimensions with low contributions from our model.

The standardized loadings indicate a strong correlation between the latent factor Operational Risk Management System (SGR_Oper) and its respective dimensions: operational risk management process (PGRO), university council (CUNV), indebtedness (ENDT), profitability (RENT), and good governance (BGOV). Furthermore, the measurement reliability test, after possible item purification, conducted using Cronbach's alpha, Dillon-Goldstein's Rho, and rho_A coefficients, demonstrates the reliability of the measurement instruments used.

4. Conclusion

Moroccan public universities operate in an environment characterized by profound and continuous transformations, giving rise to operational risks that may hinder the achievement of both strategic and operational objectives. In this context, the present study sought to identify and validate the determinants associated with the adoption of an Operational Risk Management System (ORMS) within Moroccan public universities (MPUs).

To achieve this objective, the study adopted a flexible methodological approach combining a literature review, an exploratory qualitative study, and a confirmatory quantitative analysis. The literature review identified two complementary categories of determinants associated with ORMS adoption. The first category comprises enabling determinants, namely risk culture, risk management policy, the risk manager function, and the operational risk management process. The second category includes organizational and governance-related determinants, namely university size, the University Council, opacity, profitability, indebtedness, good governance, and external stakeholders.

The exploratory qualitative study, conducted through semi-structured interviews with twelve administrative managers from Moroccan public universities, enabled the refinement of the conceptual framework by identifying the determinants most relevant to the Moroccan university context. In particular, three constructs—university size, opacity, and external stakeholders—were excluded due to their limited contribution to the measurement model.

Subsequently, the confirmatory analysis, based on questionnaire data collected from 120 university managers (response rate: 46%), confirmed the reliability and validity of the retained measurement constructs. The findings support the relevance of five determinants associated with the adoption of ORMS within Moroccan public universities: the operational risk management process (PGRO), the University Council (CUN), indebtedness (ENDT), profitability (RENT), and good governance (BGOV).

Despite these contributions, the findings should be interpreted in light of certain limitations. The reluctance and mistrust expressed by some respondents may have influenced the accuracy of their responses. In addition, some participants had limited access to institutional information, which may have affected their abil-

ity to answer certain questionnaire items. Future research could build on these findings by testing the structural relationships among these determinants and ORMS through the complete PLS-SEM model developed as part of the broader doctoral research.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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