

Management and non-management perception of risk culture in a South African retail bank

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PREFACE

This mini-dissertation is the final deliverable in the Centre for Applied Risk Management (UARM)'s taught master's degree programme. The mini-dissertation was written in article format and consists of three sections: Research project overview, Article and Reflection.

This mini-dissertation is the student's work. The student was responsible for the final concept, set up, execution of the research project and writing of the mini-dissertation. The members of the supervisory team contributed in an advisory and technical support capacity to study conception and design, analysis and interpretation of data and critical revision of the manuscript. The mini-dissertation was language edited before submission.

The main study supervisor gave the student permission to submit this mini-dissertation for examination.

ABSTRACT

Much has been written on risk culture within the financial sector, and the material includes requirements and guidelines set by regulatory bodies. However, there appears to be a scarcity of published literature specifically demonstrating the assessment of risk culture maturity levels across management and non-management personnel within retail banking. Uncertainty about whether management and non-management staff, in both risk and business functions, share similar risk perceptions had led to a South African retail bank's interest in assessing its risk culture maturity. Financial regulatory and best practice requirements emphasise the fact that the responsibility for promoting sound risk culture rests with the board and senior management. A "tone-at-the-top" that is "in-tune-with-the-middle" facilitates a common understanding of risk between management and non-management staff, which is essential for promoting a mature risk culture. The North-West University UARM Risk Culture Survey (UARM RCS-2018) was distributed to approximately 350 employees to gain insights into staff perceptions of the organisation's risk culture. A statistical analysis of the responses confirmed a high risk culture maturity level among the sample population with 72% perceiving risk to be highly integrated in decision making. In terms of one's own management of risk, management employees perceived a greater level of comfort than did non-management employees. While management acknowledged accountability for embedding risk culture, the main area cited for improvement was the overall tone from the top (i.e. leadership). This survey-based approach to assessing risk perceptions of a retail bank's personnel, with the use of UARM RCS-2018, yielded valuable insights that illustrate its potential usefulness for other financial institutions and for scholars investigating risk culture.

Keywords: *risk culture, assessing risk culture maturity, tone-at-the-top, tone-in-the-middle, risk practitioner, business practitioner*

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RESEARCH PROJECT OVERVIEW

How does this study fit into the field of risk management?

Publicised events such as the 2008 financial crisis, the Wells Fargo scandal (2016) and the Steinhoff collapse (2017) are examples of gross failures in risk management and a degradation of management's moral and ethical fibre (Argandoña, 2012; Mims, 2017; Naudé, Hamilton, Ungerer, & Malan, 2018). Such events brought risk culture to its centre-stage position, with Fraser, Fraser, and Simkins (2010, p. 88) suggesting that a strong risk culture is a prerequisite for an organisation's effective management of risk, and questions being asked about what must be done to mature and strengthen it. Answers remain outstanding, with many organisations still lagging behind in the endeavour to mature their risk culture. Regulatory bodies such as the Financial Stability Board and Basel Committee of Banking Supervision prescribed steps that are needed for a strong organisational risk culture. However, there is little published evidence to suggest that these requirements have been met or have led to improvement. In order to be able to improve risk culture, the ability to assess its existing maturity level is necessary. Using a survey-based approach this study set out to assess and compare the existing risk culture maturity levels within a South African retail banking organisation's management (senior and middle) and non-management structures in risk and business functions.

Why did the student decide to study this specific topic?

Ensuring a mature risk culture throughout the bank was a key pillar in the strategy of the Chief Risk Officer (CRO) for the organisation selected for this research. The CRO recognised the need to gauge and understand existing organisational risk maturity levels in order to improve them. Therefore, prior to this study, a series of risk culture workshops had been conducted to determine the constraints of integrating risk management within business processes and to propagate the need for a mature risk culture. I recognised that, for a more accurate view of the organisation's risk culture maturity level and the consistency of that culture across employee levels, a deeper analysis would be required. To contribute to this strategic objective, I conducted a pilot study using the risk culture assessment instrument developed by the NWU's Centre for Applied Risk Management.

The present project was designed to investigate the extent to which the selected South African retail bank implemented theoretical best practice and conformed to regulatory requirements. It demonstrates the application of a method for assessing organisational risk culture maturity, thereby contributing to the existing body of knowledge material of interest to both the risk and business communities, as well as to researchers and corporates seeking to judge the maturity of organisational risk culture.

Selected journal for the article

The *South African Journal of Economic and Management Sciences* (SAJEMS), published by African Online Scientific Information Systems (AOSIS), was selected as the preferred journal for the study. As a leading South African-based publication, SAJEMS encourages research in economics, management and other related disciplines that “breaks down common intellectual silos and prepares a new path for debate on the operation and development of sustainable markets and organisation”. The journal follows a double-blind review process in which the names of authors and reviewers are not known to each other; articles are examined by the editorial staff before being sent for assessment by two (or more) independent expert reviewers. In terms of journal impact, the journal provides several citation-based measurements, which, for 2017, included:

- CiteScore, based on SCOPUS, Elsevier (0.65)
- Source-Normalized Impact per Paper (SNIP), based on SCOPUS, Elsevier (0.42)
- Scimago Journal Rank (SJR), based on SCOPUS, Elsevier (0.21).

The journal is listed by approved indexing services – Scientific Electronic Library Online (SciELO) SA and Thomson Reuters Web of Science Core Collection, Social Sciences Citation Index (SSCI) – and is accredited by South Africa’s Department of Higher Education and Training (DHET). In an endeavour to generate greater risk awareness within management and business structures, the student considered that this journal, which publishes at least one issue annually, would serve as the ideal vehicle for publication of the research reported here. This study contributes to the hitherto under-explored practical assessments of organisational risk culture maturity levels in relation to the requirements and guidelines set by financial regulatory bodies. For the purpose of journal publication, the student intends to revise the current study in accordance with the submission guidelines for the journal, available at: https://sajems.org/index.php/sajems/pages/view/submission-guidelines#part_1.

ARTICLE

Article Title:

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1. ABSTRACT

Much has been written on risk culture within the financial sector, and the material includes requirements and guidelines set by regulatory bodies. However, there appears to be a scarcity of published literature specifically demonstrating the assessment of risk culture maturity levels across management and non-management personnel within retail banking. Uncertainty about whether management and non-management staff, in both risk and business functions, share similar risk perceptions had led to a South African retail bank's interest in assessing its risk culture maturity. Financial regulatory and best practice requirements emphasise the fact that the responsibility for promoting sound risk culture rests with the board and senior management. A "tone-at-the-top" that is "in-tune-with-the-middle" facilitates a common understanding of risk between management and non-management staff, which is essential for promoting a mature risk culture. The North-West University UARM Risk Culture Survey (UARM RCS-2018) was distributed to approximately 350 employees to gain insights into staff perceptions of the organisation's risk culture. A statistical analysis of the responses confirmed a high risk culture maturity level among the sample population with 72% perceiving risk to be highly integrated in decision making. In terms of one's own management of risk, management employees perceived a greater level of comfort than did non-management employees. While management acknowledged accountability for embedding risk culture, the main area cited for improvement was the overall tone from the top (i.e. leadership). This survey-based approach to assessing risk perceptions of a retail bank's personnel, with the use of UARM RCS-2018, yielded valuable insights that illustrate its potential usefulness for other financial institutions and for scholars investigating risk culture.

Keywords: *risk culture, assessing risk culture maturity, tone-at-the-top, tone-in-the-middle, risk practitioner, business practitioner*

2. INTRODUCTION

It is common knowledge that an organisation needs to take risks in order to achieve its goals and objectives (Desai, 2008; Carretta, Fiordelisi, and Schwizer, 2017). According to Desai (2008), a degree of risk-taking helps a company to be competitive, adapt to the environment, and improve its performance. Carretta, Fiordelisi, and Schwizer (2017) also recognise that some areas within a bank have a higher risk-taking appetite than other, more risk-averse ones. Whilst it may be necessary for an organisation to take risks, excessive risk taking and reckless decision making can have severely detrimental consequences.

A key example was the collapse of Lehman Brothers (a global financial services firm) at the time of the 2008 financial crisis. The Financial Crisis Inquiry Commission (FCIC) concluded that dramatic failure within the organisation of corporate governance and of risk management, as was also the case in other financial institutions impacted at the time, were among the reasons for the crisis (Angelides et al., 2011). Lack of transparency in the financial institutions and “an erosion of responsibility and ethics” were also cited by the FCIC as contributors (Angelides et al., 2011). In the wake of the crisis, corporates, regulators and supervisors alike intensified their focus on corporate culture and its subset, risk culture. In South Africa, the King IV Report on Corporate Governance for the country’s companies listed on the Johannesburg Stock Exchange underscores the need to integrate and embed risk management into a business’s activities and organisational culture (King, 2016).

The Financial Stability Board (FSB), an international regulatory body, set out the foundational elements of a sound risk culture as well as guidance for its assessment and effectiveness within financial institutions (FSB, 2014, p. 2). The Basel Committee of Banking Supervision (BCBS) revised its principles in order to strengthen banks’ overall checks and balances. One of the objectives was to emphasise “key components of risk governance such as risk culture, risk appetite and their relationship to a bank’s risk capacity” (BCBS, 2015, p. 4). The FSB noted in particular that a key element in promoting a sound risk culture is to ensure that there is a common understanding and awareness of risk at all appropriate levels of the institution (FSB, 2014, pp. 6–7).

Many published academic studies highlight the importance of a sound, mature risk culture and the need for financial institutions to subscribe to the guidelines and principles set out by regulatory and advisory bodies such as the FSB, BCBS and King. No studies in the scholarly literature could be found, however, that report on risk maturity at different levels in a banking organisation, or, particularly, in retail banking. Among risk practitioners, concerns arose as to whether management and non-management staff in both risk and business functions share similar levels of risk culture maturity.

To address such uncertainty, I evaluated the risk culture of two levels of employees of a South African retail bank. For information about their perceptions regarding risk and risk management, a survey-based approach was employed using a Risk Culture Scale (UARM RCS-2018), developed by the Centre of Applied Risk Management (UARM) at the North-West University (NWU) (Appendix A). The evaluation was conducted across management and non-management levels of a South African retail bank, within its risk function as well as its business functions.

The primary research question that drove this study was: how do the risk culture perceptions of management and non-management employees compare in a South African retail bank?

Supporting the main research question, the first objective was to perform a literature review on risk culture and those responsible for establishing and maintaining the level of risk culture desired. The question to be answered was: what insight(s) can be gained from the available literature on risk culture maturity and specifically on the role of senior and middle management?

The second objective was to use an assessment instrument, the UARM RCS-2018, to investigate the perceptions of risk culture held by management and non-management employees of the retail bank selected for this study in order to answer the question: what are the perceptions of the bank's management (senior and middle) and non-management employees, in both risk and business functions, of the prevailing risk culture?

2.1. The South African retail bank studied

As one of the four largest financial institutions of its kind in South Africa, the organisation studied here was a retail bank operating under the banking licence of its parent company, which is listed on the Johannesburg Stock Exchange. Across its operating structure, which comprises several segments and corresponding business units, the company's primary operations, within and outside South Africa, include the delivery of personal, private, commercial, corporate and business banking services to the public. Services include, amongst other things, the provision of saving and investment accounts, debit and credit card transactional accounts, private loans (personal/housing finance) and corporate funding. Considering the range of clients and of services provided, the bank faces several types of risk including (but not limited to): credit risk, operational risk, regulatory risk, market risk, information technology risk, reputational risk and financial risk.

The parent company, and the retail bank under study, adopted an enterprise risk management (ERM) approach to ensure that risk is managed across the entire organisation. The ERM framework used is consistent with the principles advocated by the BCBS, the Bank's Act (No. 94 of 1990), King IV (King, 2016), and regulations relating to banks, and other subordinate legislation. The implementation and adherence to the framework's set of requirements, which pertain to aspects of

structure, responsibility and policies, is necessary for the board of the organisation studied, to discharge its obligations.

The board and senior/executive management of the organisation studied here acknowledged their ultimate accountability for effective risk management throughout the organisation. The formulated ERM framework, policies and standards (i.e. the structural components) attested to the board and senior management's acknowledging responsibility in embedding a sound risk culture. However, there was uncertainty as to whether:

- a) execution of the behavioural aspect of their responsibilities throughout the organisation (i.e. driving risk awareness including ethical and moral behaviour in risk-taking decisions) was effective; and
- b) all employees understood that overall responsibility and accountability for the embedding of risk culture rested with the board and senior managers.

One of the key strategic objectives of the bank's divisional Chief Risk Officer (CRO) was to promote a stronger, more mature risk culture. In a CRO-hosted risk culture workshop in April 2018, prior to this study, strong emphasis was placed on achieving a clear understanding of risk culture across the organisation. The CRO highlighted the fact that only with a common understanding of risk and risk management principles would the staff be able to work as a collective in maturing the organisation's overall risk culture.

In this context, management recognised the need to understand better the employees' current perception(s) of the bank's risk culture, which also required their understanding of culture, organisational culture, risk management and risk culture.

3. BACKGROUND

The focus of this study was the way in which risk culture was perceived by a South African retail bank's management and non-management staff in both risk and business (non-risk) functions. Following the 2008 global financial crisis, various regulatory and supervisory bodies, consultants and academics placed considerable emphasis on the value of a mature risk culture to serve as the cornerstone for organisations' strategic and functional activities (for example, FSB, 2014; BCBS, 2015; IRM, 2012; Carretta, Fiordelisi, & Schwizer, 2017; Sheedy & Griffin, 2014). Emerging from international regulatory, supervisory and best practice guidelines was the clear responsibility and accountability of the board and senior management in establishing and maturing a sound risk culture (FSB, 2014; BCBS, 2015; IRM, 2012).

3.1. Culture and organisational culture

Hofstede, Hofstede, and Minkov (2010) describe culture as “the collective programming of the mind that distinguishes the members of one group or category of people from others”. They argue that culture is not innate, but is learned and shared with others who live or lived within the same social environment. Just as social environments such as family, school, living community, youth group and workplace differ, so too does culture. Organisations serve as typical examples of social environments in which there are varying cultures.

Schein (2009), an organisational psychologist recognised for his work in the field of organisational development, believes that organisational culture is based on a set of basic assumptions held by its members, which influences their way of acting and thinking. He argues that over-simplified views of culture, referred to, for example, as “the way things are done”, are only instances of manifestations of culture but not culture itself. For him culture exists at multiple levels, i.e. in artefacts, espoused values and tacit assumptions levels; to understand culture better, one needs to understand these levels (Schein, 2009, pp. 21–22). For Kummerow and Kirby (2013), these levels are central to the issues and challenges associated with assessing organisational culture.

Schein’s views on organisational culture contrast with earlier perspectives encapsulated by Brown (1998), for whom beliefs, values and adopted ways of doing things lead to the formulation of its employee behaviours. Brown (1998) defined organisational culture as a “pattern of beliefs, values and learned ways of coping with experience that have developed during the course of an organisation’s history, and which tends to be manifested in its material arrangements and in the behaviours of its members” (1998, p. 9). The international Institute of Risk Management (IRM) subsequently proposed that repeated behaviour of individuals gives rise to organisational culture. Behaviour, in turn, is underpinned by the inherent values, beliefs and attitude of individuals as well as by the existing organisational culture (IRM, 2012).

3.2. Risk management and risk culture

Roeschmann (2014) distinguishes between risk culture and the risk management framework. The processes to be used, limits to be observed and values to be aspired to are defined by a risk management framework, while risk culture defines which rules and norms are perceived to be rational and important. In its basic form, risk management’s core activities are centred on the assessment of identified risks and controls. Risk culture is regarded as a set of norms, attitudes and behaviour towards risk and risk management that influences every individual’s decision-making process (FSB, 2014; BCBS, 2015). In summary, risk culture has to do with the adoption of innate risk consideration in everyday activities.

Since the appearance of the first King report on Governance in 1994, subsequent reports (King, 2002, 2009, 2016) clearly endorse the need to acknowledge and manage risks within an organisation, and he identifies those responsible for the governance of risk and how risks are to be approached and responded to. Unchecked risk-taking can have devastating results for the organisation. Management of risk, therefore, needs to be finely balanced so that, whilst it provides effective protection to the organisation, it does not inhibit its business activities. A culture, specifically a risk culture, that enables this balance across the varying levels of an organisation could unlock value for the business (IRMSA, 2014).

The International Standards Organisation (ISO) describes risk management as “coordinated activities to direct and control an organization with regard to risk” (ISO, 2009). While this widely accepted definition is useful, it was decided that the present study required a search for a more comprehensive description of organisational risk management. The Committee of Sponsoring Organisations of the Treadway Commission (COSO) provides a more purposeful description, framing the key components (business objectives, responsible personnel and associated risk activities) effectively into its interpretation of enterprise risk management (ERM). COSO defines ERM as “a process, effected by an entity's board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives” (COSO, 2004).

Fraser et al. (2010) argue that since individuals responsible for decision making exist at multiple levels of the organisation, so too must a risk-aware culture be extended throughout these levels. All business decision makers need to understand the importance of identifying, assessing and communicating current and potential risks to existing business activities and those planned for the future (Fraser et al., 2010, pp. 67–70). If risk culture, prevalent throughout the organisation, is allowed to weaken, certain risks could take root, grow and lead potentially to dire or even fatal consequences in an organisation (Levy, Lamarre, & Twining, 2010).

Elements of a strong risk culture identified by Levy et al. (2010), comprise:

- “Clear and well communicated risk strategy
- High standards of analytical rigor and information-sharing across the organisation
- Rapid escalations of threats or concerns
- Visible and consistent role-modelling of desired behaviours and standards by senior managers
- Incentives which encourage people to ‘do the right thing’ and think about the overall health of the whole organisation
- Continuous and constructive challenging of actions and preconceptions at all levels of the organisation.”

Underpinning these elements is the need for their consistent application throughout the organisation. Roeschmann (2014), for instance, suggests that consistency is essential for effective embedding of risk management, and warns that “inconsistent basic assumptions at the deepest level of risk culture are a likely feature of local subgroups”.

The FSB emphasises the importance for the board and senior management to lead by example in demonstrating strong adherence to risk management and high standards of integrity, thereby establishing the requirements for a healthy risk culture. Leadership is especially necessary, as the behaviour of those at the top will be emulated by the rest of the organisation over time (FSB, 2014, p. 5). Therefore the role of management in conjunction with the risk culture element, visible and consistent role-modelling of desired behaviours and standards by senior managers, as listed by Levy et al. (2010), is especially elevated by the present study.

3.3. Management tone

Attaining a common understanding of risk culture; striking a balance between its structural and behavioural components; and setting, communicating and enforcing risk culture effectively, all lie in the hands of the organisation’s board and senior management (“the top”). The IRM, Basel Committee and FSB view the promotion and embedding of a sound risk culture as depending on the “tone-at-the-top” (FSB, 2014; BCBS, 2015; IRM, 2012).

Apart from the responsibilities at board and senior management levels, Levy et al. (2010) highlight the need for employees at all levels of the organisation to constructively challenge actions and preconceptions. The FSB (2014) also refers to the responsibilities of the “tone-at-the-top” and “tone-in-the-middle” (middle-level management), with the latter being responsible for relaying the culture derived from leadership down to the business lines where it is operationalised.

In discussing management tone, Baker (2009) observed that, for a business to thrive, every individual must “sing from the same song-sheet”. For this to happen, the correct tone needs to be cascaded from the top through the rest of the organisation. Thus, he brought the “tone-in-the-middle” into sharper focus, suggesting that problems arise when the messages from top management are lost in translation at the middle-management levels. The “tone-at-the-top”, therefore, must be “in-tune with-the-middle”, provided it is the appropriate tone that is conveyed.

4. METHOD

A literature review was conducted for the understanding of risk, risk management, culture, organisational culture and risk culture within financial institutions, as well as to gain insights into the desired risk culture within the financial sector. The intention of the study was to determine the risk culture perceptions held by managers and non-managers at various levels within a South African

retail bank. Specific focus was afforded to the role of senior and middle management in risk culture. A survey (UARM RCS-2018) developed at the North-West University was effected to investigate the perceptions of risk culture held by employees across various levels of the organisation under study. Given the size of the organisation (in excess of 30 000 employees), the limited period available to conduct the research, and the novelty of the approach in this context, a pilot study was conducted.

4.1. Research design

Qualitative, quantitative and mixed method types of research are the major approaches used by researchers (Johnson, Onwuegbuzie, & Turner, 2007). Quantitative research was adopted for this study and the instrument used to assess risk culture was the UARM RCS-2018 survey (Appendix A1). Gable (1994) refers to the survey approach as a group of methods that emphasizes quantitative analysis, where – as in the present study – data collected (via questionnaires, telephone interviews or from published statistics) are analysed using statistical techniques that enable us to statistically compare the perceptions of risk culture held by employees. For the purpose of the pilot study the corporate banking, support and personal banking segments within the organisation were targeted.

4.2. Participants, survey and process followed

Adopting a convenience sampling method for the pilot study, approximately 350 permanent staff members were purposefully selected. For this study, it was deemed important to obtain a fair representation of participants from both risk and business functions. Therefore, management and non-management staff of both functions were approached. Participants were given an opportunity to classify themselves as either risk practitioners or business practitioners, where 'business' implied any area other than the roles associated with the risk function. The rationale for the sample selection, as agreed with each participating segment's CRO, was to limit potential survey fatigue, frustration or confusion on the part of the participants. This consideration was introduced in the context of the general employee survey that had been conducted prior to this study, the risk culture workshops run and scheduled, as well as the timing of our survey overlapping the period in which the organisation entered its financial year end. Risk practitioner personnel who took part numbered approximately 150 staff members (40% of the sample size) while business personnel numbered approximately 200 staff members (60% of the sample size).

The UARM RCS-2018 survey was sanctioned for use after the segment CROs had reviewed and vetted the items within it. For the period 8 May 2018 to 18 June 2018 (inclusive), the survey was hosted online and made available to the employees. As it was centrally administrated by the North-West University and no identifiable information had been requested, participant anonymity was preserved.

The process was initiated by the drafting of a formal request for survey participation, which was e-mailed to the targeted recipients (Appendix A2). Encompassed in the request was the purpose of the study as well as instructions pertaining to the completion and further distribution of the questionnaire. To maximise the probability of obtaining a balanced view of both functions, each risk practitioner targeted, whether manager or non-manager, was requested to forward the survey participation request to their corresponding, business practitioner (manager or non-manager). To demonstrate the legitimacy of the survey, the requests provided confirmation of the CRO's support, and included the CRO in the e-mail distribution list.

4.3. Data analysis

The survey consisted of 8 demographic and 44 risk-related items. Among the risk items, 24 questions related to the integration of risk management within the organisation (Factor 1) and 18 items related to one's own understanding and management of risk (Factor 2). Two additional diagnostic questions were included, with the first related to improving risk inclusion in decision-making (Appendix A1) and the second, the risk type considered when completing the survey.

SAS® was used to analyse the survey responses collected, with specific focus on the management, non-management, risk function and business function groups. To address the study's objectives, inferential statistics were used for drawing inferences and conclusions from the data.

The UARM RCS-2018 Cronbach's alpha score of 0.96, determined by use of the PROC CORR, confirmed that the survey was reliable for the sample selected (where 1 represents most reliable and 0, least reliable).

In terms of the risk culture of the management and non-management levels as well as the risk and non-risk functions, the maturity scores were obtained by calculating the averages of the items within each factor.

A test for normality of the data was conducted by utilising the PROC UNIVARIATE procedure in SAS®. The histograms for the items and factors were skewed to the left (Appendix C), which meant that a non-parametric test had to be conducted to test for differences in distributions between groups.

To test the differences in distribution between participants occupying management and non-management roles, the SAS® PROC NPAR1WAY procedure was employed whereby the Wilcoxon scores were used to obtain the Kruskal-Wallis (where more than two groups are compared) or Mann-Whitney (where only two groups are compared) test results. For both the factor and item levels, the Pairwise Man-Whitney U tests were performed for each combination of pairs where statistical significant differences had been noted when more than two groups were compared.

The survey results are discussed, at a 95% confidence level, in the results and discussion section to follow.

4.4. Research permission and ethical considerations

Permission to conduct the risk culture study was obtained from each of the participating segment's CROs. This was especially necessary as the study included the use of the UARM RCS-2018 questionnaire for the collection of data from employees at differing levels of the organisation. UARM ethical clearance (ECONIT-2018-14) and permission was obtained from the NWU Ethics committee for the use of UARM RCS-2018.

The permission was granted on the basis of assurances that were provided for the preservation of each respondent's anonymity and for maintaining the confidentiality of the study. In this regard, I entered into a non-disclosure agreement with the organisation at the request of the Head of Legal Risk.

5. RESULTS AND DISCUSSION

In this section, the analysis and summary of the demographic information obtained for this study is presented. Thereafter, the outcome of the factor analysis of UARM RCS-2018 is discussed. This is followed by the interpretation and discussion of areas where significant differences had been noted between the management and non-management levels as well as between the risk practitioner and business practitioner participants.

5.1. Demographics

A total of 121 participants completed the survey, of whom 66 were risk practitioners (44% of the targeted risk population) and 55 were business practitioners. It is not possible to calculate the percentage response rate from business practitioners due to the request having been made to distribute the survey further. The highest percentage of responses, 48%, was received from middle management, followed by the non-manager, senior manager and executive levels (30%, 19% and 3%, respectively). For the purposes of this study, the executive level responses were combined with the responses received from senior management.

The participant gender composition was 51% female and 49% male, with 66% confirming that English was their first language. A 10-year age interval grouping between ages 20 and 59 (inclusive) was used for this study, with the percentage of participants in each group as follows: 14% in the 20–29-year interval; 57% in the 30–39-year interval; 18% in the 40–49-year interval and 11% in the 50–59-year interval. Concerning the respondents' highest level of education, 33% had a university postgraduate qualification, 33% had obtained a bachelor's degree, 12% had obtained a college

qualification, 12% had reached secondary school level, and 10% listed “Other” for their level of qualification.

In terms of the employment period with the organisation under study, the largest portion, 30%, of the participants had been employed for longer than 10 years. The balance of the participants had been split as follows: both the 3–5-year and 5–10-year groupings constituted 21% each, while 18% had been employed for between 1 and 3 years and 11% had been with the company for less than a year.

In summary, the demographic profile suggested an educated, experienced and well balanced (risk and business) population for the completion of the survey.

5.2. UARM RCS-2018 Factor Analysis

UARM RCS-2018 adopted a 5-point Likert scale for which the rating items “Never” / “Not at all”, “Infrequently” / “Not well”, “Sometimes” / “Moderately well”, “Usually” / “Well” and “Always” / “Perfectly” were afforded score values of 1, 2, 3, 4, and 5, respectively. An additional rating item, “I do not know” or “I do not understand the statement” as relevant to the item, was introduced into the survey but was excluded from the factor analysis (Appendix A1). Table 1 illustrates the total number of items that comprise each factor.

Table 1: UARM RCS-2018 factor description and number of items

Factor description	Total # items
Factor 1: Perceived level of integration of risk in decision-making processes	24
Factor 2: Comfort with own risk management role	18

The mean value of responses to the items within each factor was calculated to determine a factor score for the management, non-management, risk and business (non-risk) participants, in order to assess their perceived levels of risk culture maturity. These scores are represented in Tables 2–4. The scores were considered against the five levels of risk culture maturity (Table 5) as derived from the UARM Risk Culture Maturity Scale (UARM RCS-2018) (Appendix A1).

Table 2: Factor scores for all participants, management and non-management levels

	Factor 1 (Avg)	Factor 2 (Avg)
All participants	3.7	3.8
Senior Management	3.7	4.1
Middle Management	3.7	3.8
Non-management	3.7	3.7

Table 3: Factor score comparison for management and non-management levels

Role Level	Factor 1 (Avg)	Factor 2 (Avg)
Management	3.7	3.9
Non-management	3.7	3.7

Table 4: Factor score comparison for risk and business functions

Organisational Function	Factor 1 (Avg)	Factor 2 (Avg)
Risk practitioners	3.6	3.9
Business practitioners	3.7	3.8

Table 5: Risk culture maturity levels (see Appendix A1 for details)

Maturity Level	Factor Score (FS)	Description
Level 1	$1.0 \leq FS < 1.5$	Risk management is perceived as a very low integrated enabler of achieving the organisation's objectives
Level 2	$1.5 \leq FS < 2.5$	Risk management is perceived as a low integrated enabler of achieving the organisation's objectives
Level 3	$2.5 \leq FS < 3.5$	Risk management is perceived as a medium integrated enabler of achieving the organisation's objectives
Level 4	$3.5 \leq FS < 4.5$	Risk management is perceived as a high integrated enabler of achieving the organisation's objectives
Level 5	$4.5 \leq FS \leq 5.0$	Risk management is perceived as a very high integrated enabler of achieving the organisation's objectives

High mean scores obtained for both factors ranged between 3.6 and 4.1 by all participants and was indicative of the high level of risk maturity existing in the sample population (Level 4). This was also true for the specific comparison groups, management versus non-management, and the risk versus business functions. In other words, as per Table 5, risk management was perceived as a high integrated enabler of achieving the organisation's objectives.

Tests for significant differences in risk culture maturity were conducted for the management levels as well as the two comparison groups, i.e. non-management versus management and risk function versus business function. The outcomes of the tests are presented and discussed in Section 5.3.

5.3. Significant differences in risk culture maturity levels

The null hypothesis, whereby the distributions are equal, was used in the test for significant differences in distributions for all of the study's test groups. Through the Kruskal-Wallis or Mann-Whitney U tests, the calculated probability (p-value) was used to determine if, at a 5% significance

level ($\alpha=0.05$), the null hypothesis of equal distributions was to be accepted ($p>\alpha=0.05$) or rejected ($p<\alpha=0.05$). The results of the tests between management and non-management groups are presented in Table 6 and Table 7.

Table 6: Significant differences for risk culture between management and non-management

Mann-Whitney U test					
Level of role	n	Wilcoxon Mean Score	Chi-square test statistic	p-value	Significant difference at $\alpha=0.05$
Factor 1: Perceived level of risk integration in organisation					
Management	85	61	0.06	0.812	No
Non-management	36	62			
Factor 2: Perceived comfort with own risk management role					
Management	85	66	5.95	0.015	Yes
Non-management	36	49			

Table 7: Significant differences for risk culture between management levels

Kruskall-Wallis test					
Level of role	n	Wilcoxon Mean Score	Chi-square test statistic	p-value	Significant difference at $\alpha=0.05$
Factor 1: Perceived level of risk integration in organisation					
Senior Management	27	65	0.72	0.699	No
Middle Management	58	58			
Non-management	36	62			
Factor 2: Perceived comfort with own risk management role					
Senior Management	27	78	10.24	0.006	Yes
Middle Management	58	61			
Non-management	36	49			

No statistical significant difference was found between management and non-management in terms of their perception of the level to which risk is integrated in the organisation (Factor 1). However, the inverse was noted for the second factor (pertaining to the perception of one's own comfort in managing risk), i.e. a statistical significant difference was observed. For further insight, tests for statistical significant difference were conducted among the non-management, middle management and senior management groups (Table 7). As with the management versus non-management test, no statistical significant difference was registered for the first factor, whereas the second factor showed a statistical significant difference.

Factor 1 – Risk integration

With the same mean score (3.7) recorded for each management and non-management level and with the null hypothesis accepted for Factor 1, it can be said that a shared perception was held by the sample of respondents that a high level of risk culture maturity existed in the organisation. In reviewing the response distributions of the Factor 1 items, it was concluded that the larger proportion of the management (senior and middle) and non-management groups perceived senior management as accepting accountability and responsibility for risk related issues. Furthermore, it was believed that senior management led by example in that they “practised what they preached”. A strong, common perception was that the organisation considered the risks when defining its objectives and that the risk management function contributed to the achievement of these objectives. Overall, there was strong support to the organisation’s approach to risk management with results indicating that it was well integrated in the organisation’s management processes.

Factor 2 – Risk Management comfort

Although the risk culture maturity level was high for both groups, the existence of statistical significant differences demonstrated that management perceived a greater level of comfort in their own management of risk than that which was perceived by non-management in terms of their management of risk. These included the understanding of risk principles (frameworks and standards), demonstrating confidence in taking accountability for risks and understanding the link between the organisation’s risk and objectives. Understanding these key areas may be deemed necessary to managing the uncertainties existing within one’s role and the level to which risk-based decisions are executed.

An item level analysis for Factor 2 was conducted to determine which items registered statistical significant differences within the management and non-management groups. These results are presented in Appendix B1. Following this, Pairwise Man-Whitney U tests for each combination of management level pairs were performed on the items identified (Appendix B2). The results revealed that senior management and middle management differed in their perceived accountability for risk events within their roles as well as in their understanding of how to use risk management principles (particularly when making work-related decisions). Senior management held higher mean scores than middle management in these aspects as well as in their perceived understanding of the organisation’s risk appetite and the link between its risks and objectives.

The outcomes of the test for statistical significant differences between the risk and business functions are presented in Table 8.

Table 8: Significant differences for risk culture between risk and business functions

Mann-Whitney U test					
Role type	n	Wilcoxon Mean Score	Chi-square test statistic	p-value	Significant difference at $\alpha=0.05$
Factor1: Perceived level of risk integration in organisation					
Risk Practitioners	66	58	1.21	0.271	No
Business Practitioners	55	65			
Factor 2: Perceived comfort with own risk management role					
Risk Practitioners	66	63	0.71	0.399	No
Business Practitioners	55	58			

The Mann-Whitney U test for both comparison groups for Factors 1 and 2, yielded p-values greater than the 5% significance level ($\alpha=0.05$). Thus, with the null hypothesis accepted, the distribution of all the participants' responses is said to be the same. Therefore, given their respective high mean factor scores (Table 4), both groups similarly perceived the level to which risk was integrated within the organisation and their level of comfort in terms of their own management of risk to be high.

Areas in which differences in responses were evident pertained mainly to the understanding of the risk management framework and what the term "risk" means. Also perceived differently were the understanding of how to use risk management principles when making work-related decisions and what information is needed by others to make risk-related decisions. Participants within the risk function demonstrated greater comfort in these areas than those within the business function.

5.4. "I do not know"/ "I do not understand the statement" data summary

To gain insight into those areas in which the participants had the greatest uncertainty, an analysis was conducted on all items for which the "I do not know" or "I do not understand the statement" response had been registered.

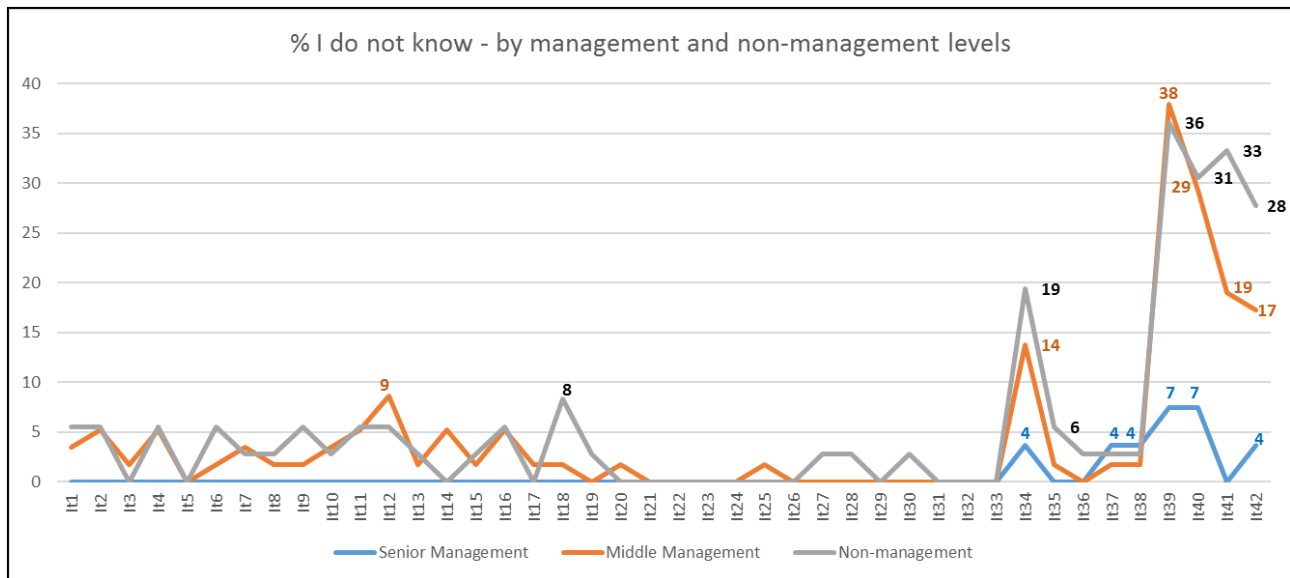


Figure 1: UARM RCS-2018 “I do not know” percentage item responses (management levels)

Figure 1 provides management and non-management level views of survey response items for which either the “I do not know” or “I do not understand the statement” response were selected. The five areas in which the highest concentration of these responses was observed were in items 39, 40, 41, 42 and 34 (ranked from highest to lowest) which, when analysed from a functional perspective, are the same areas of greatest uncertainty for risk and business practitioners (Appendix D). Table 9 provides a description of these five items and demonstrates the similarities between the senior, middle and non-management levels in terms of uncertainty felt in these areas.

Table 9: Common areas of most uncertainty felt by management and non-management

Item/Area of most uncertainty	High number of responses received (✓ = yes, X = no/none)		
	Senior Management	Middle Management	Non-Management
Item 34: The organisation's risk training initiatives have prepared me to manage the risks connected to my role.	✓	✓	✓
Item 39: The organisation rewards staff members who take responsible risks.	✓	✓	✓
Item 40: The organisation punishes staff members who take irresponsible risks.	✓	✓	✓
Item 41: Managers treat staff fairly when a risk materialises (i.e. when a risk event occurs).	X	✓	✓
Item 42: Managers use risk management as criterium when evaluating the performance of staff members.	✓	✓	✓

Non-management participants (and risk practitioners, as per Appendix D) demonstrated the highest level of uncertainty as to whether they were sufficiently equipped by the risk training initiatives to deal with risks and other uncertainties connected to their role. When proportionately compared to the non-management and middle management groups, senior management respondents exhibited

less uncertainty around how the organisation responds to both responsible and irresponsible risk taking. At a functional level, risk and business practitioners demonstrated similarities in the levels of uncertainty across a number of survey items.

In terms of staff being treated fairly in the event that a risk materialized (Item 41), for both non-management and middle management the results show that this was the second highest area of uncertainty and third highest for the risk practitioner group. On the other hand, with no member of their group responding “I do not know”, senior management seemed confident about the treatment of staff.

Among the areas of uncertainty identified by senior management, knowing which risks they are accountable for (item 38) and accepting accountability for risk-events connected to their role (item 37) are two areas in which middle and non-management do not share a similar level of concern with that of senior management.

5.5. Diagnostic questions data summary

The UARM RCS-2018 survey included two diagnostic questions to assist in understanding the participants' view of risk management within the organisation.

The outcome of the first of these two questions, “To improve the inclusion of risk in decision-making in the organisation, I believe that we must start with improving...”, is depicted in Figure 2.

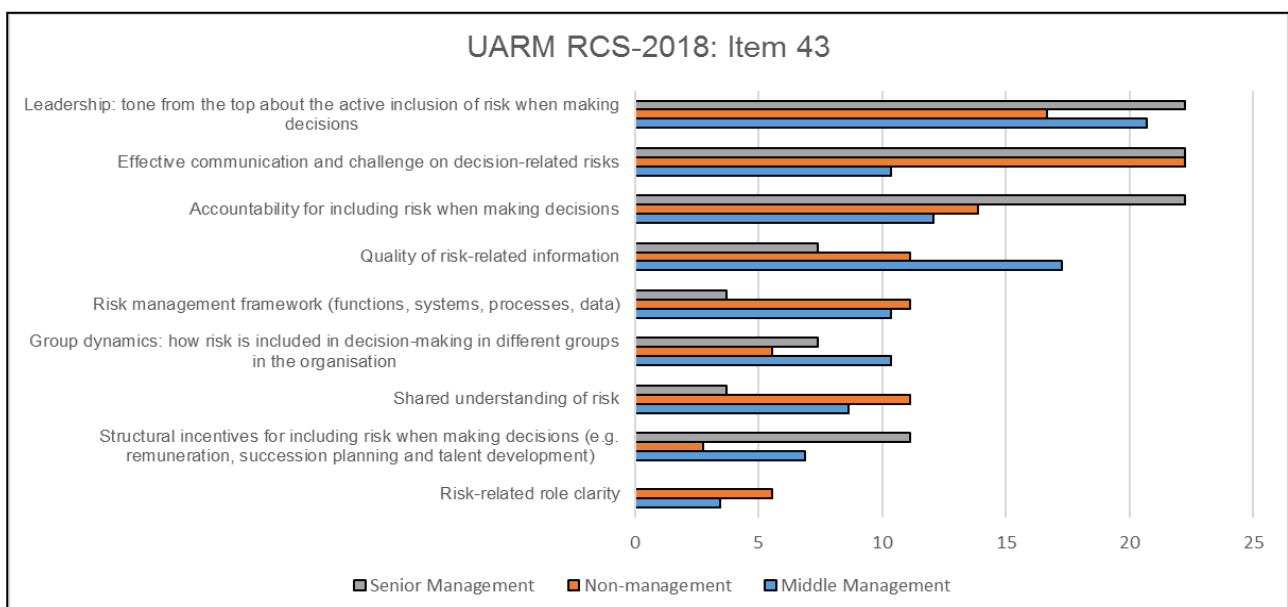


Figure 2: UARM RCS-2018 item 43: Percentage responses for areas requiring improvement to progress the inclusion of risk in decision making.

Responses to this survey item not only presented the opportunity to identify potential areas for improving risk-based decision making but also afforded insight into those areas perceived to be

working well. Overall, as illustrated in Figure 2, the participants appeared to be comfortable in having a clear understanding of risk, in their risk associated roles, and in the manner in which risk formed part of decision-making within different groups of the organisation. The second least aspect viewed as requiring improvement was incentivising risk based decisions, and senior management formed the majority of the participants who selected this option.

The main area requiring improvement, as indicated by the respondents, pertained to the tone from the top (i.e. leadership) regarding the active inclusion of risk in decision making. Other areas perceived to warrant most improvement included: the effective communication and challenging of decision-related risks; accountability of risks included in decisions made; and the quality of risk related information.

In considering the four areas perceived to need most improvement, the possible themes such as leadership role-modelling, effective communication, ability to challenge decisions and improved information quality, seem to share similarities with elements of a strong risk culture as listed by Levy et al. (2010), discussed earlier in the present study.

The results of the responses received to the second question “Which risk type did you have in mind when completing the survey?” are presented in Figure 3.

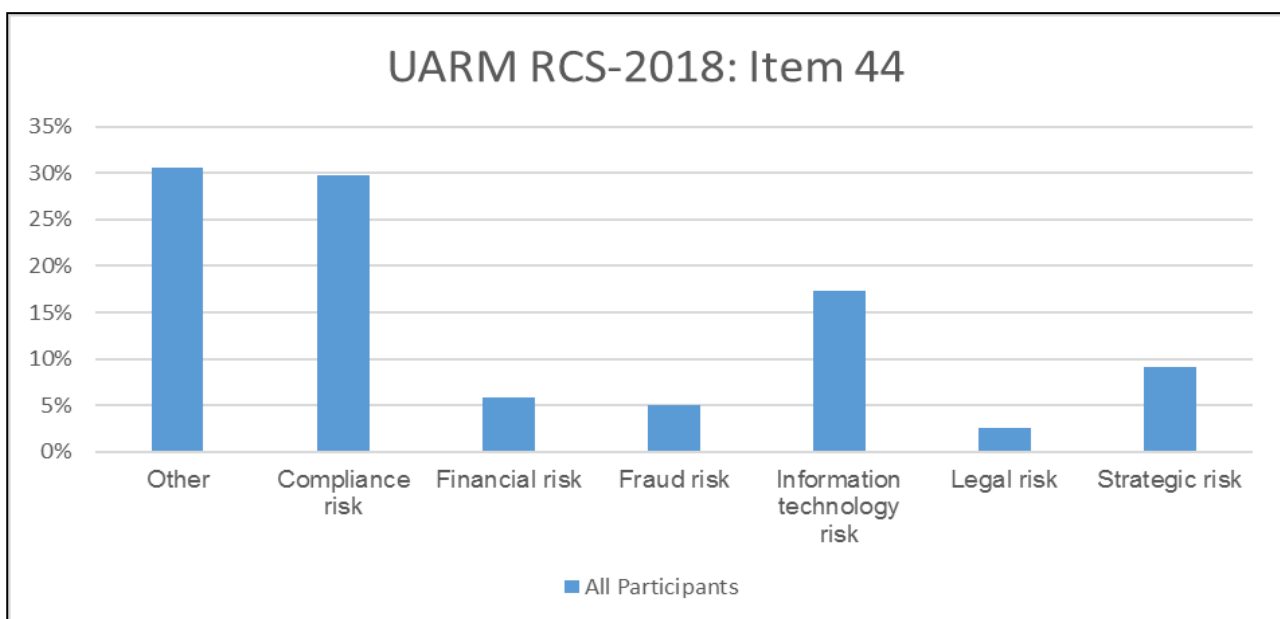


Figure 3: UARM RCS-2018 item 44: Risk types considered when completing the survey

Responses to this question saw “Other”, “Compliance Risk” and “Information Technology” listed as the top three risk types considered when completing the survey. Within “Other”, several risk type combinations were considered, for example, “operational risk, fraud risk, compliance risk”, “compliance risk, financial risk and fraud risk” and “all risk types”. A total of 68% of the “Other” responses cited operational risk either within the combinations or as a specific risk type. Therefore,

together with the compliance and information technology risk types, operational risk featured prominently as the risks most considered by the participants when completing the survey. This outcome could be attributed to the fact that those individuals who initially requested to participate in the study, originated from the compliance, information technology and operational risk communities. Thereafter, survey participation requests had been circulated to other communities.

While serving as only a pilot study, insights may be drawn by the organisation in terms of the participants' perception of those risk areas warranting continued focus. This may be especially the case, as it is apparent that variants of these three risk types feature within the top ten areas of concern in multiple reports, such as the Banking Banana Skins 2015 (Lascelles & Patel, 2015); Top 10 operational risks for 2018 (Risk.net, 2018) and the Top 10 South African Industry Risks (IRMSA, 2018).

5.6. Overall results discussion

The participants within the pilot study viewed the level of risk culture maturity to be high as they regarded risk management as being highly integrated within the organisation, enabling the pursuit of its objectives. Among the several risk types considered while completing the survey, the majority of the respondent's top-of-mind risks were compliance, operational and IT risks.

Any consideration of the results of the maturity level assessment ought to take into account the potential for these levels to be inflated through response biases (for example, social desirability and conformity, threat biases).

Using the null hypothesis to test if the risk culture maturity view was consistent across the management (senior and middle) and non-management levels, we were able to demonstrate that for the first factor of the risk culture maturity assessment scale, the perception held by all levels was the same. The main aspects within Factor 1, which emerged resulting from being highly agreed to by the participants, pertained to senior management accepting accountability for risk matters as well as leading by example. Also, management and non-management were comfortable with risk being considered in the setting of business objectives and perceived risk management as enabling its achievement. The importance of these aspects is that they align to those which the FSB and BCBS emphasise as necessary for embedding a strong risk culture.

In Factor 2, the statistical significant differences pertained to management and non-management's perceived comfort in their own management of risk. The main themes contributing to the differences were the participant's willingness to take accountability for risk, their understanding of the risk framework and standards, and the link between risk and business objectives. Compared to middle management, senior management felt a greater sense of accountability towards the materialisation of risks and better understood the application of risk principles in decision making. Those aspects

may also be part of the reason why middle management felt less confident in their understanding of the link between the organisation's risks and objectives.

In terms of these themes, the evident differences in senior and middle management's understanding, identified in the pilot study, may prove insightful for the organisation on a broader scale. For the organisation, this difference in understanding may grow in priority especially since the FSB highlights the fact that a sound risk culture is reliant on having a common understanding of risk. Therefore, with middle management considered to be the ambassadors between top management and the workforce that makes the organisation function (Osterman, 2009), addressing those areas where gaps are evident will ensure a "tone-in-the-middle" that is in tune with the "tone-at-the-top". Perhaps also beneficial to the organisation would be serious consideration of the participants' overall view that leadership's "tone-at-the-top", effective communication, ability to challenge risk-decisions, and accountability for risk decisions are areas listed as most requiring improvement. This could be of special interest, since these views share similarities with calls by the BCBS for reinforcement of the "tone-at-the-top", with the board promoting risk awareness by discouraging excessive risk-taking and highlighting the fact that it is everyone's responsibility to operate within the risk appetite and limits set (BCBS, 2015).

At a functional level, comparison of responses between risk and business practitioners showed no statistical differences in their perception of the organisation's risk culture. The participants maintained high factor scores across both factors. Risk practitioners demonstrated a higher understanding of the risk principles and their application when making risk-based decisions than did the business practitioner participants. This result was not unexpected, especially since coordinating risk related matters is a risk practitioner's primary function.

6. CONCLUSION

In setting out to determine how the risk culture perceptions of management and non-management employees compare in a South African retail bank, the study explored practical assessments of organisational risk culture maturity levels in relation to what is prescribed in the literature. In the absence of an established formal risk culture maturity assessment instrument, the pilot study conducted made use of the North-West University-developed risk culture assessment scale (UARM RCS-2018) to gather risk culture perceptions of employees in selected segments of the organisation under study.

Assessed from both management and non-management perspectives and from functional (risk versus business practitioner) perspectives, the survey responses had been subjected to a factor analysis consisting of the following two factors:

- Perceived level of integration of risk in decision-making processes (Factor 1)
- Comfort with own risk management role (Factor 2).

The outcome of the analysis showed that, overall, the participants regarded the organisation's risk culture maturity to be high, and no statistically significant differences were observed in the perceptions held between the comparison groups (management versus non-management and risk versus business (non-risk) practitioners) about the level to which risk was integrated in the organisation (Factor 1).

Business practitioners demonstrated similar levels of comfort to that of risk practitioners as far as the assessment of their own management of risks (Factor 2) was concerned. While no statistically significant difference was evident for this comparison, the same could not be said for the comparison of the perceptions held by the management and non-management staff. Deeper analysis revealed statistical differences between senior management and middle management, with senior managers perceiving a higher understanding of risk principles, risk accountability and the link between risks and business objectives. This result is important as the alignment of the "tone-at-the-top" and "tone-in-the-middle" is essential in achieving a common understanding of risk, which the FSB has stated is key to promoting a strong risk culture (FSB, 2014, pp. 6–7).

To help to improve the overall inclusion of risk in the organisation's decision-making processes, participants were asked to list areas that they felt warranted greater attention. The areas identified by the study's sample population as requiring greatest improvement included the following:

- Leadership's tone from the top
- Communication and ability to challenge decisions taken
- Accountability for risks

- Quality of risk information.

These findings, while limited to the pilot study, may provide valuable insights and diagnostic pointers into those areas that the organisation may need to investigate further in order to promote a common understanding of risk and improve the overall risk culture maturity.

The study yielded greater than expected maturity levels and suggested alignment between the risk and business practitioner's perceptions of the organisation's risk culture maturity. Although this is generally a positive outcome, the limitations of the study would need to be taken into account. These include:

- The existence of potential response bias, for example, social desirability and conformity, threat biases;
- The limited period for the research, as well as the large size of the organisation under study, led to a pilot study limited to selected segments;
- With a sample size not representative of the organisation's entire staff complement, the results of the study are not generalizable to the rest of the organisation.

The successful execution of the risk culture maturity assessment tool (UARM RCS-2018) within the pilot study offers an opportunity for the organisation to conduct a larger-scale study that would include the deployment of the assessment instrument across an increased sample population size, representative of the entire company.

Furthermore, based on the initial encouraging outcomes of the use of the risk culture maturity assessment instrument in the present study, the approach demonstrated here could also be helpful to other banks and scholars seeking to investigate risk culture maturity within an organisation.

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8. REFLECTION

The prevalence of risk within the corporate environment is undeniable. The management of risk is often delicately poised in that an overly constrictive approach could potentially result in missed opportunities for the organisation whilst a lax approach could present unwarranted loss or exposure. Much literature exists on risk, risk management and risk culture. Academics, regulatory and best practice bodies place emphasis on the role a mature risk culture plays in effectively managing risk. While subscribing to the principles of these best practices and regulatory bodies, management of the organisation under study expressed concerns as to whether or not a uniform understanding and maturity level of risk culture existed amongst the staff. This then afforded the student the basis on which to conduct the research study.

The organisation under study

For the organisation, risk culture is highly topical and part of the CRO's strategic pillars. With seemingly no formal tool for the assessment of organisational risk culture, the UARM-developed risk culture scale (UARM RCS-2018) was used in this study to great effect. Although the pilot study consisted of a relatively small sample population, the study was able to raise to the surface key insights into which the organisation may wish to look further in its attempts to improve its existing risk culture.

The student

Entering into the programme, I was under no illusion that, in order to complete it, tremendous amounts of effort, dedication and sacrifice would be required. Choosing to exit the programme due to my daughter's birth and her requiring immediate life-saving surgery meant that rejoining and completing the qualification seemed an inconceivable thought. After all, family comes first!

Rejoining the programme under much support, care and encouragement from Professor Zaaiman and her team, I was, however, able to extract and appreciate every bit of value the course had to offer.

Much insight on risk management, the various research approaches, and writing styles gained during the first-year modules culminated in the completion of the mini-dissertation. Reflecting on the past three years, it is overwhelmingly evident that forging key relationships, not only with the immediate UARM team but also with the likes of the Kerlick team and the North-West University's librarians, was critical for the successful achievement of the qualification.

If I had to do this all over again, I would not change anything, for every defeat and victory along the way helped me to appreciate the rigours of producing quality research. Furthermore, it is because of

those experiences that my eyes have been opened to the beauty of humanity and the power of the Almighty God.

9. APPENDICES

Appendix A1: UARM Risk Culture Scale (UARM RCS-2018)

An Overview

Hermien Zaaiman and Hedré Pretorius

Aims

This document provides a summary of the North-West University (NWU)'s Centre of Applied Risk Management (UARM) Risk Culture Scale (UARM RCS). Current approaches to risk culture tend to be qualitative, using a general view of what risk culture is. Where risk culture questionnaires are applied, it is important to ascertain the validity and reliability of the resulting information against the broad construct of risk culture. The UARM Risk Culture Scale (UARM RCS) was developed to meet the need for an academically validated instrument to measure the risk culture in organisations.

Approach

Multiple definitions of risk culture exist in regulatory papers and risk standards. One of the more comprehensive definitions is that of the Basel Committee on Banking Supervision (BCBS) defining risk culture as: "A bank's norms, attitudes and behaviors related to risk awareness, risk-taking and risk management, and controls that shape decisions on risks. Risk culture influences the decisions of management and employees during the day-to-day activities and has an impact on the risks they assume" (BCBS, 2015, p. 2).

However, applying such broad definitions to evaluate and improve the risk cultures of organisations is complex. This process requires the development of instruments to assess and measure specific aspects of risk culture. The UARM RCS was developed using our decision-focused view of risk culture as basis for the development and testing of its items:

'The risk culture of an organisational group is manifested by the importance given to considering risk when the group makes decisions. The level of explicit inclusion of risk in decision-making represents the implicit, subjective value afforded to risk by the group.'

The scale items were therefore developed to represent aspects of the integration of items in risk culture based on our Risk Culture Indicator (RCI) model, described by Zaaiman in the Appendix: 'Risk Culture Indicator Model – An Overview'.

Status

The UARM RCS provides three sets of results that can be used to assess the

1) Two risk-culture-related factors

The 42-item five-point Likert scale has been developed and piloted over 3 years (2016-2018). The scale is now mature and can be regarded as valid, as the scale items map to the RCI model and has shown in multiple studies to work well across sectors, functions and management levels (content validity). The scale also shows a high Cronbach α reliability coefficient of 0.97 (internal consistency).

The scale measures two risk-culture-related factors:

- Perceived level of integration of risk in decision-making processes (24 items)
Note: Although the items cover the indicators in the RCI Model, only one factor is found in the answer data. This can be ascribed to the interlinked nature of the indicators and provides an indication of the validity of the scale for the study of this aspect of risk culture.
- Comfort with own risk management role (18 items)

The factor scores are calculated as the average of the responses over the items making up the factor. This translates to the following risk-culture-maturity scale for the decision-based view of risk culture used in this study.

		UARM RCS-2018 (FS = Factor Score)				
		1.0 $\leq$ FS < 1.5	1.5 $\leq$ FS < 2.5	2.5 $\leq$ FS < 3.5	3.5 $\leq$ FS < 4.5	4.5 $\leq$ FS $\leq$ 5.0
Factor 1	Perceived level of integration of risk in decision-making processes	Very low level of perceived integration	Low level of perceived integration	Medium level of perceived integration	High level of perceived integration	Very high level of perceived integration
Factor 2	Comfort with own risk management role	Very low level of comfort	Low level of comfort	Medium level of comfort	High level of comfort	Very high level of comfort

2) The I-do-not-know/I-do-not-understand-the-statement answer option

Item response options include an 'I do not know' or "I do not understand the statement" option to mitigate possible spurious effects of respondents who truly do not know the answer to an item. The I-do-not-know answers were not included in the scale's factor analysis, and only participants with fewer than 30% of I-do-not-know answers (per factor) were included in the calculation of the factor scores. This means that the participant had to have answered at least 16 of the items in factor 1 and 12 items in factor 2 to be included in the calculation of the factor score.

In addition, the full set of the study's I-do-not-know answers are analysed separately, thereby providing valuable information on the levels of uncertainty about risk-culture-related aspects in the study sample(s) that could be indicative of possible risk-related knowledge in the study population(s).

3) The what-needs-to-change-first diagnostic question

The scale also contains a further RCI model-based diagnostic question:

'To improve the inclusion of risk in decision-making in the organisation, I believe that we must start with improving....'

Evaluating the responses to this question allow for suggestions on the way forward on improving the risk culture of the organisation.

Interpretation of results

When the scale is applied, the results have to be interpreted in the context of the study for which the results were obtained.

To keep in mind when analysing and interpreting the scale results:

- 1) In a questionnaire like this, only the group response makes sense and the individual's factor score cannot be used as an indication of the individual's 'risk culture' as culture is always a group concept.
- 2) Maturity levels of the measured factor could be inflated by response biases (e.g. social desirability influence).
- 3) The results of the scale are valid at factor level. As scale-based factor is based on the coherence for the group of items that make up the factor. These items were designed based on the measurement aims of the scale but do not contain every possible item that could have been used. Other items that refer to the construct may have shown the same result, implying that focusing on differences at item level could divert the user's attention to inadequately tested aspects of the underlying construct, while not considering the validated construct. The scale is able to provide indications of where risk culture-related issues lie in the organisation, and was not designed to identify micro-level issues. Other scales and research methods are required to do detailed follow-up investigations.

For more information on UARM RCS-2018, please contact: Hermien Zaaiman at

hermien.zaaiman@nwu.ac.za

<http://commerce.nwu.ac.za/uarm>

Appendix A2: UARM RCS-2018 Survey participation request



Mon 2018/05/21 3:04 PM

Moodley, Nigel

Risk Culture Survey : Participation request

To [redacted]

Cc [redacted]

Dear colleague(s),

I trust you are well.

I write to you with permission and support received from the Premium segment CRO, [redacted] (cc'd)

I am currently studying *Applied Risk Management* at the North-West University (NWU). As part of the study an assessment on organisational risk culture perceptions is needed to meet the final/dissertation year requirement.

To obtain the view of risk perceptions held by both risk and non-risk (business/operational) personnel, your assistance is needed for the following:

- a) Your participation in a 15 minute (or less) online risk culture survey - https://www.research.net/r/UARMRCQ2018_FNB ; and
- b) If you are part of the risk fraternity, to please engage with your corresponding Business Unit personnel (1 x manager and 1 x non-manager) requesting their participation as well*

*Note: this aspect is essential so as to avoid a risk-biased outcome.

Please rest assured that responses to the survey are strictly anonymous as no identifiable personal information is requested. At the request of the CRO, [redacted], the study is to also remain confidential to which the university remains obliged to do.

Your participation in the study will be of great assistance and will be much appreciated.

Thank you and kind regards,
Nigel Moodley

Appendix B1: Factor 2 Item level test for significant difference between management and non-management

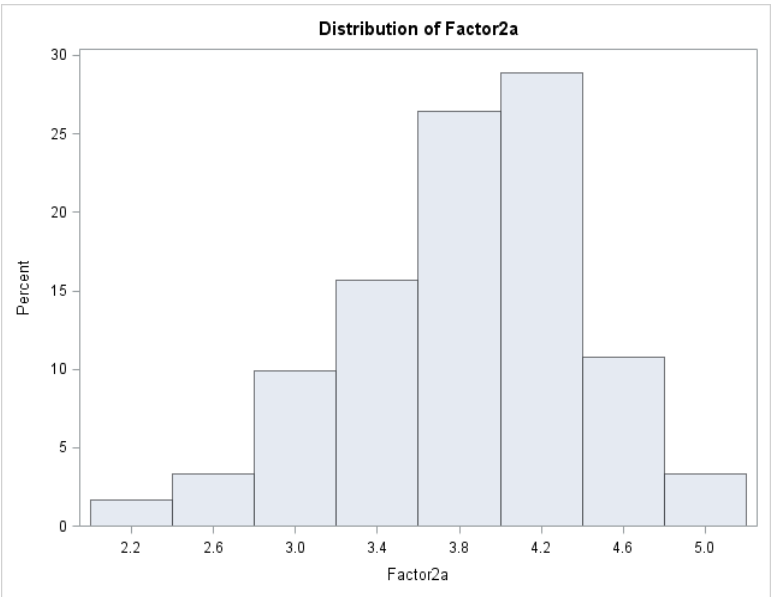
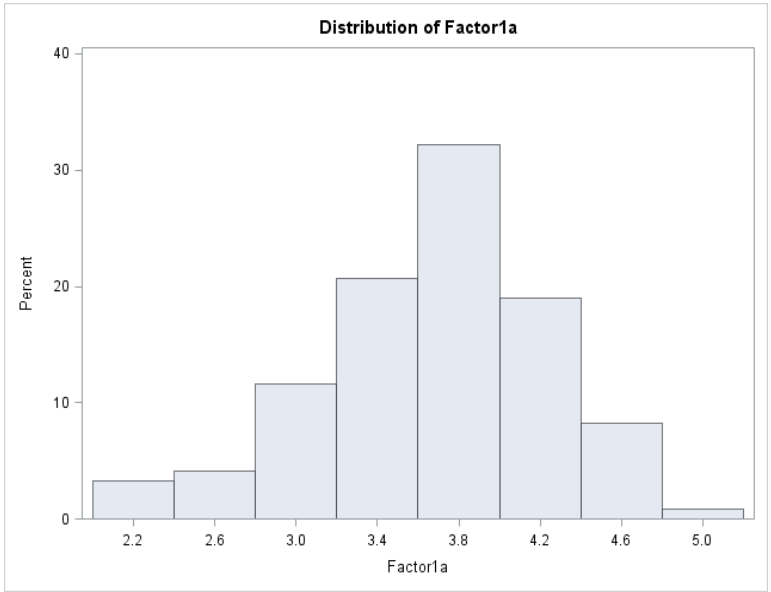
Factor 2: Perceived comfort with own risk management role	Significant difference at $\alpha=0.05$
I understand the organisation's risk management framework (processes, practices, etc.)	Yes
I am able to challenge my direct manager on risk issues in the organisation.	Yes
I understand the link between the organisation's risks and objectives.	Yes
I understand the organisation's risk appetite framework.	Yes
I understand what the risk managers (practitioners) tell me.	Yes
I know how well the organisation is doing in meeting our objectives.	Yes
I understand how to use risk management principles when making work-related decisions.	Yes
I am able to manage the uncertainties connected to my role.	Yes
I am accountable for events linked to risks connected to my role.	Yes
I know which risks I am accountable for.	Yes

Appendix B2: Factor 2 Item level test for significant difference between senior, middle and non-management levels

Mann-Whitney U tests				
Level of role	n	Mean Wilcoxon Score	Chisquare test statistic	p-value
It21: I understand the organisation's risk management framework (processes, practices, etc.)				
Middle Management	58	52	4.24	0.040
Non-management	36	41		
Non-management	36	27	6.80	0.009
Senior Management	27	39		
It25: I understand the link between the organisation's risks and objectives *				
Middle Management	58	39	6.51	0.011
Senior Management	27	52		
Non-management	36	26	10.56	0.001
Senior Management	27	40		
It26: I understand the organisation's risk appetite framework *				
Middle Management	58	39	4.77	0.029
Senior Management	27	51		
Non-management	36	27	7.63	0.006
Senior Management	27	39		
It31: I know how well the organisation is doing in meeting our objectives				
Non-management	36	27	7.11	0.008
Senior Management	27	39		
Middle Management	58	52	4.66	0.031
Non-management	36	40		
It33: I understand how to use risk management principles when making work-related decisions *				
Middle Management	58	39	5.11	0.024
Senior Management	27	51		
Non-management	36	27	8.36	0.004
Senior Management	27	39		
It35: I am able to manage the uncertainties connected to my role *				
Middle Management	58	52	5.51	0.019
Non-management	36	40		
Non-management	36	27	6.51	0.011
Senior Management	27	38		
It37: I am accountable for events linked to risks connected to my role *				
Middle Management	58	38	9.46	0.002
Senior Management	27	54		
Non-management	36	26	11.80	0.001
Senior Management	27	41		

* Senior management differs from middle management for items 25, 26,33 and 37.

Appendix C: Survey Factor 1 and Factor 2 distribution graphs



Appendix D: UARM RCS-2018 - “I do not know”/ “I do not understand the statement”
Risk and Business Practitioner Responses

