

## **Examining Practitioner Studies to Explore ERM and Organizational Culture**

**Thomas Cooper**  
**Memorial University**

**Alex Faseruk**  
**Memorial University**

**Shazli Khan**  
**Memorial University**

*We explore the relationship between Enterprise Risk Management (ERM) and organizational culture through a meta-analysis of practitioner studies. We ask the question: what is the relationship between ERM and organizational culture? To understand the link between ERM and organizational culture; ERM, organizational culture, and risk culture are defined and then followed by a meta-analysis of relevant practitioner studies. Ultimately we found a significant relationship in elements of risk management and organization culture, and this finding may be used to guide practitioners as well as future academic research in the area.*

### **INTRODUCTION**

The concept of risk management is gaining increased prominence in both the corporate and academic arenas. With roots in the financial sector, risk management has embraced a more encompassing perspective to include the internal and external factors that may affect an organization's ability to achieve strategic and operational objectives. One of the main drivers for this approach to risk management, Enterprise Risk Management (ERM), involves a comprehensive and integrated framework for managing company-wide risk to maximize value (Slywotzky and Drzik, 2005; Chapman, 2006).

Part of this drive for increased risk assurance was the 2008 financial crisis. In practitioner studies, such as KPMG's International survey of almost 500 bank executives, 48 percent of respondents considered "risk culture" to be the cause of the recent 2008 credit crisis (Farrell and Hoon, 2009). In Accenture's 2009 global risk management study, 82 percent of the executives highlighted a need to improve risk culture to create enterprise-wide risk awareness (Accenture, 2009). As Bill Schlich leader of Ernst & Young's Global Banking & Capital Markets Practice said, "In light of recent events, there was strong agreement that managing risk effectively requires both top-down oversight and bottom-up involvement from front-line risk takers," he further added "In order to create and instill a culture of risk awareness within banks, risk management must become everyone's business" (Ernst & Young, 2010, p. 1).

Organizational culture has also been highlighted within ERM as essential in managing the broad spectrum of risks across an organization (COSO 2004). At a broader level, organizational culture has

been identified as a cause of failure in risk management, not only for the recent financial crisis, but related to other catastrophic events, such as the Titanic, Three- Mile Island, NASA shuttle disasters, an Intel defective chip, Firestone Tires, and the 9/11 terrorist attacks (Kimbrough and Componation, 2009).

Practitioner studies show it is important to have a strong risk culture to understand, communicate and use those results to achieve the benefits of ERM (Towers Perrin, 2009). ERM, when implemented appropriately, facilitates identifying, assessing and responding to risks through a systemic method using a common language. A common language and approach to managing risk should then be manifested in the organization's culture.

In this paper, we explore the relationship between Enterprise Risk Management (ERM) and organizational culture through a meta-analysis of practitioner studies. We ask the question: what is the relationship between ERM and organizational culture? To understand the link between ERM and organizational culture; ERM, organizational culture, and risk culture are defined and then followed by an analysis of relevant practitioner studies. The contribution is to provide insights into the importance of the relationship between ERM and organizational culture particularly from a practitioner perspective.

### **Understanding ERM**

The history of ERM as a formal approach to management of risk emerges in 2004 when the Committee of Sponsoring Organizations of the Treadway Commission (COSO), developed the *Enterprise Risk Management – Integrated Framework* to assist organizations in managing risks. While building upon its earlier internal control framework, the ERM framework provided organizations with an encompassing approach to recognizing and managing risks. According to COSO (2004, p.2),

Enterprise risk management is 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.

This framework examines risks related to strategic, operations, reporting and compliance objectives and involves all segments of the organization. ERM broadened the scope of risk management behaviors to include every significant business risk of the organization comprehensively and systemically. It requires that all these risks be considered in relation to each other to create a consolidated risk profile (PricewaterhouseCoopers LLP, 2004; Risk and Insurance Management Society Inc, 2009). However, much of the extant literature is void of a thorough discussion about how organizational culture supports ERM. In order to better understand the relationship between ERM and organization culture, it is important to frame ERM's fundamental concepts around organizational culture.

### **Defining Organizational Culture**

Culture is sometimes perceived as the softer side of an organization (Alvesson and Berg, 1993; Alvesson 2002). Yet Schein (1992) proposes that culture is one of the most powerful influencers on organizational decision making and strategy. Difficult to measure and evolutionary in nature, culture is often viewed as broadly shared and learned experiences, values, meanings, and understandings. It can be represented and communicated in symbols, rituals, myths, stories and legends, and interpreted through events, ideas and experiences.

It is also important to note that culture is a complex element of an organization that includes the values, norms, rites, rituals, ceremonies, heroes and scoundrels that affect its members. Value sharing and structuring of experience within an organization is the essence of this complex web (Champoux, 2003). Kunda (1992) further describes organizational culture as a system of symbols and meanings that provides the shared rules governing aspects of membership in an organization as well as how they are shaped and expressed; implying culture is about how individuals interact within an organization. Rogers and Ferketish (1993), on the other hand, contend the shared values reflected in the behaviors of leaders and

employees at every level is the basis of organizational culture, while Blake and Mouton (1969) described corporate culture as the routine ways of doing things that is considered acceptable within an organization.

Phrases such as, 'value sharing', 'shared rules', 'common language' and 'shared basic assumptions', within the above descriptions may indicate influence as the essence of organizational culture. Based on the preceding descriptions, organizational culture is likely then to influence both business processes and decision making, affecting both an employee's perception and behavior.

In practitioner studies, culture is a prominent feature in ERM frameworks but different words are used to describe it such as: the Secretariat of ISO TMB WG on Risk Management (2007) used 'organizational context', Casualty Actuarial Society (2001) stated 'establishing context' and Gates and Hexter (2005) called it 'risk culture' (as cited in Kimbrough and Compton, 2009). Diverse words may indicate the degree of emphasis on organizational culture within different frameworks. 'Risk culture' might focus directly on the importance of organizational culture; whereas 'establishing context' might indirectly refer to the importance of organizational culture. Although the emphasis on organizational culture might differ within different risk frameworks, however it is still an essential element common to all.

As seen from the COSO (2004) definition, ERM is a process affected by an entity's board of directors, management, and other personnel; organizational culture then may affect human resources and people, ultimately impacting any approach to ERM. Questions emerge as to why the relationships between ERM and organizational culture are important and how are they related. Based on practitioner studies, it would seem that the emphasis on the importance of adopting a risk culture is clear. However, in reviewing practitioner studies it is not clear if the relationship between organizational culture and ERM is significant. Our approach analyzes practitioner studies in a meta-analysis to explore if the perceived relationship is statistically significant.

## APPROACH TO THE STUDY

### Methodology

The study was designed to determine the statistical significance of the perceived relationship between ERM and organizational culture. To determine this, relevant questions from practitioner studies were grouped under six major hypotheses. Practitioner studies were sourced from a comprehensive search of the major risk management consultancies websites and all were publicly available. The list of the studies is as follows:

- *Enterprise Risk Management Survey*, involved 31 institutions ( The Risk Management Association, 2006)
- *Global Risk Management Study*, involved more than 250 of the world's largest enterprises (Accenture, 2009)
- *Risk Management in Spotlight*, a survey involved 111 financial institutions worldwide (Deloitte, 2009)
- *Enterprise Risk Management: From Theory to Practice*, involved 21 companies in regulated industries such as insurance, banking, and utilities (KPMG LLP, 2009)
- *Perspectives on ERM and the Risk Intelligent Enterprise*, involved 151 company responses from North America, South America, and Europe. (Deloitte, 2008)
- *Best practice in risk management: a function comes of age*, surveyed 218 executives around the world. (The Economist Intelligence Unit, 2007)
- *The Bigger Picture: Enterprise Risk Management in Financial Services Organizations*, involved 316 senior executives worldwide. (The Economist Intelligence Unit , 2008)
- *The future of risk*, a report by Ernst & Young on the survey conducted by the Economist Intelligence Unit in 2009 that involved 507 executives from across the world. (Ernst & Young Global Limited, 2009)

- *2008 ERM Benchmarking Survey*, a survey conducted involved 165 Chief Auditor Executives or heads of internal auditing (Global Audit Information Network , 2008)
- *Global Enterprise Risk Management Survey 2010*, a report based on a survey of 103 executives conducted in 2007 (AON Analytics, 2010)
- *Enterprise Risk Management: The Full Picture*, a report based on the survey conducted by involving 103 participants from Americas and Europe, the Middle East and Africa (EMEA). (AON, 2007)
- *Global Risk Management Survey: Fifth Edition- Accelerating Risk Management Practices*, a survey involved 130 global financial institutions in 2006 (Deloitte, 2007)
- *Report on the Current State of Enterprise Risk Oversight: 2nd Edition*, a study on research conducted in Conjunction with the American Institute of Certified Public Accountants (AICPA) Business, Industry & Government Team and the ERM Initiative at North Carolina State University (Beasle, Branson, & Hancock, 2010)
- *Senior Finance Executives on the Current Financial Turmoil*, a survey by CFO Research and Tower Perrin in 2008 that included 125 senior finance executives from the United States (CFO Research and Towers Perrin, 2008).

Questions emerging from the above studies were used to test and develop the hypotheses outlined below. The analysis consisted of three main steps:

**TABLE 1**  
**STEP 1: CALCULATING A RESPONSE VALUE**

Each question was ranked by the authors based on the following scale of 0 to 10.

Very Important	8-10
Important	6-8
Somewhat Important	4-6
Not so Important	2-4
Not at all important	0-2

Each rank was multiplied with the percentage of the respondents agreeing to the question. A response value from every study was obtained using a weighted average. The hypothesis was then accepted if the mean response value was equal to or greater than 5.

**Step 2: Conducting the Mann Whitney Test**

The Mann Whitney test was conducted to identify whether the data collected for each hypothesis is significantly different. It was postulated that it is important to determine if the data were significantly different as this would indicate if results are independent.

**Step 3: Conducting Probabilistic Analysis**

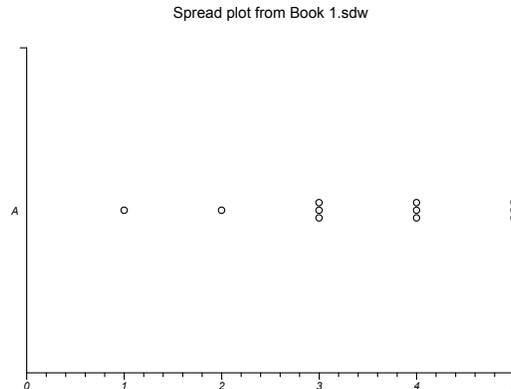
Probabilistic analysis was conducted to confirm that the analysis is robust and is sensitive to uncertainty in ranking. The following considerations were made during the probabilistic analysis:

- Rank assigned to each question is considered to be a normal value with a possible deviation of 2 units. For example, a question rank is assigned as 8, its mean value is considered as 8 and possible variation (which is standard deviation) is 2, which means its value could be 6 or 10.
- Monte Carlo simulation was conducted to estimate final importance based on question rank and response.
- 500 simulations have been carried out; it has been verified that these simulations were enough to stabilize the results.

- The assumption of normality was verified from the fact, that the median and mean results of each response analysis observed are the same.
- It was further verified that if large variation (high standard deviation) was given then results would change significantly.

Results, based on a number of hypotheses, are outlined below:

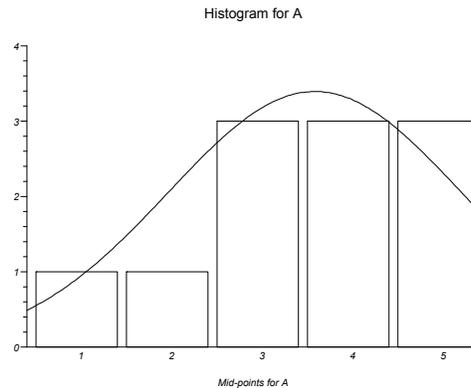
**GRAPH 1**  
**HYPOTHESIS A: IS DEFINING RISK APPETITE IMPORTANT FOR ERM?**



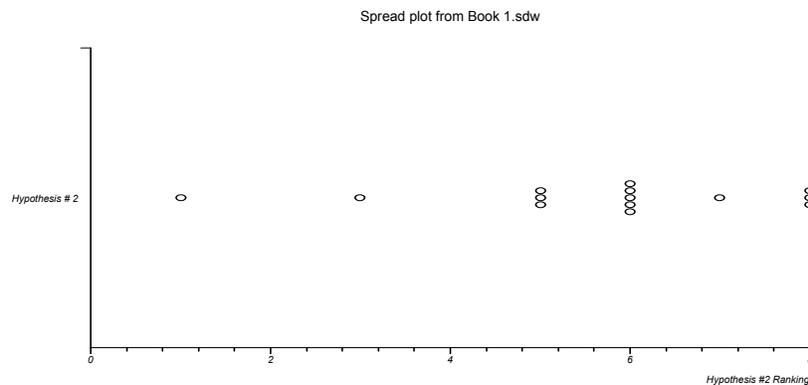
To test the above hypothesis, survey responses from 11 studies that directly or indirectly linked risk appetite and ERM were included. Only one question was direct while others were indirect. As evident from the above spread plot, overall response value after ranking was not greater than 5. Thus, even the sample maximum would also fall within the “somewhat important” ranking. The mean response value is 3, which falls within the “not so important” category. Moreover, the standard deviation is 1, which indicates that the response values are clustered around the mean. It appears then that respondents do not consider defining risk appetite as important for ERM and this hypothesis falls within the rejection region. It could also indicate organizations do not consider defining or communicating risk appetite essential for ERM success, which could imply that organizations do not consider the link between ERM and organizational culture to be strong.

Further, the probabilistic response value based on the generation of multiple trials is also 3. It confirms that the analysis is robust and sensitive to uncertainty in ranking. The probabilistic mass function curve indicates that the population distribution is normal but ‘skewed to the left’; highlighting that most of the response values are located within the response value 3-5. It could be further argued that only a very small percentage of organizations reject totally the importance of risk appetite since only one response falls within the “not at all important” category. It appears therefore respondents do not consider risk appetite very important for ERM but they do not completely reject the concept.

**GRAPH 2  
HISTOGRAM FOR HYPOTHESIS A**



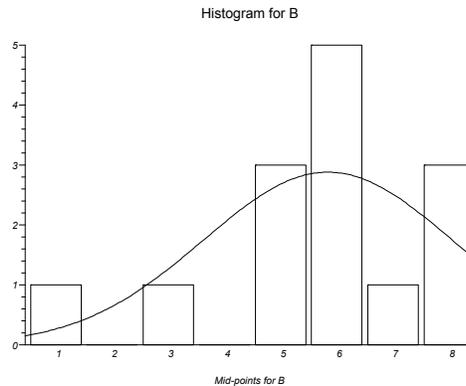
**GRAPH 3  
HYPOTHESIS B: IS ORGANIZATIONAL CULTURE A MAJOR BENEFIT OR BARRIER TO  
ERM IMPLEMENTATION?**



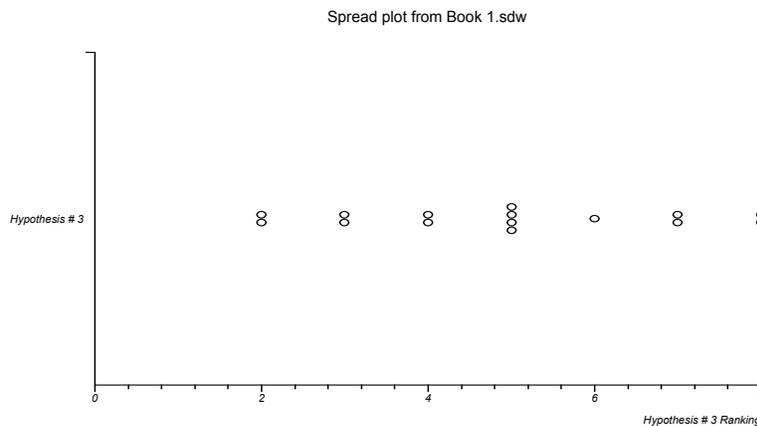
To test the above hypothesis, survey responses from 14 studies were considered that specifically asked about the importance of culture for ERM. Many of the questions included in the analysis were direct such as “Main Challenges of Adopting ERM strategy: Embedding risk management within company culture” (The Economist Intelligence Unit, 2008). Few indirectly implied if organizational culture was perceived as a challenge or a benefit. As the above graph indicates, sample maximum is 8 and sample minimum is 1, the response range is therefore wide. Moreover, standard deviation is 2, which indicates variability in the data. The mean response value is 6, which falls within the ‘important’ category. There is therefore sufficient evidence to conclude that organizational culture is either considered as a major benefit or barrier to ERM implementation since most of the responses are within ‘somewhat important’ to ‘important’ ranking. It could be argued if organizational culture is a major benefit or barrier to ERM implementation then organizational culture influences ERM; it could also imply that the link between ERM and organizational culture is strong.

The probabilistic response value based on the generation of multiple trials is also 6. It confirms that the analysis is robust and is sensitive to uncertainty in ranking. The probabilistic mass function curve indicates that the population distribution is normal but ‘skewed to the left’; highlighting that most of the response values are located within the response value 5-8. It could be therefore argued that a significant percentage of organizations totally consider organizational culture either important or very important for ERM implementation.

**GRAPH 3  
HISTOGRAM FOR HYPOTHESIS B**



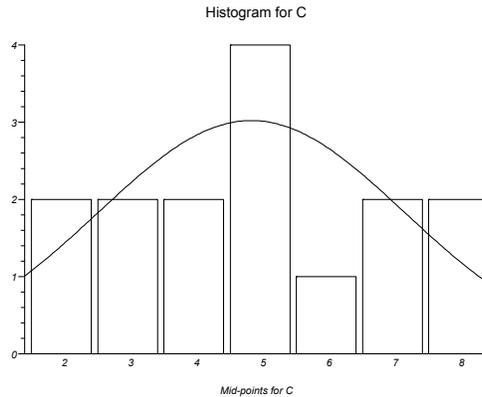
**GRAPH 4  
HYPOTHESIS C: IS THE TONE FROM THE TOP IMPORTANT FOR EFFECTIVE ERM?**



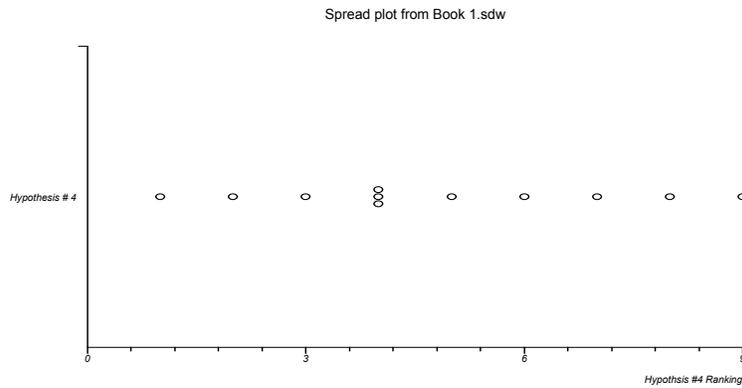
To test the above hypothesis, survey responses from 15 studies that questioned executives' involvement within risk management were included. Few of the questions were direct and indicated if successful implementation of ERM was dependent on senior executives 'buy in', while others were indirect evaluating the level of understanding of risk and risk oversight by senior executives. 'Tone from the top' refers to senior management communication and involvement with risk management. As the above graph indicates, sample maximum is 8 and sample minimum is 2. Though standard deviation is 2, the range is not too wide, which indicates low variability in the data. The mean response value is 5, which falls within the 'somewhat important' category. Based on the mean response value it therefore appears tone from the top helps in ERM implementation, but the spread of the response value also indicates variability in respondents' perception. It could then be argued if a board's leadership is important to ERM, then the link between ERM and organizational culture is important because a board's leadership shapes organizational culture.

The probabilistic response value based on the generation of multiple trials is also 5, confirming that the analysis is robust and is sensitive to uncertainty in ranking. The probabilistic mass function curve indicates that the population distribution is normal; different organizations appear to value tone from the top differently.

**GRAPH 4**  
**HISTOGRAM FOR HYPOTHESIS C**



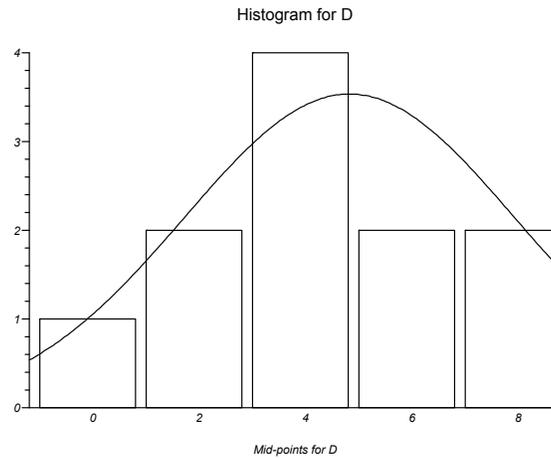
**GRAPH 5**  
**HYPOTHESIS D: DOES ERM AFFECT ORGANIZATION'S DECISION MAKING PROCESS?**



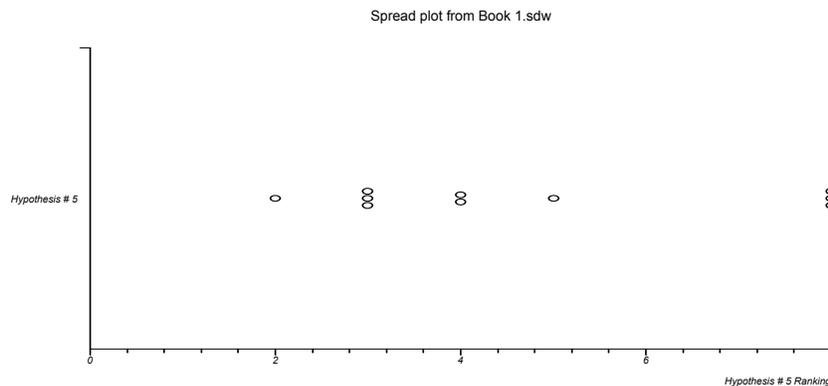
To test the above hypothesis, survey responses from 11 studies that inquired about the level of influence or consideration given to ERM while making decisions were considered. Many of the questions included in the analysis were direct, while some indirectly inquired if risk information influences decisions. As the above graph indicates, sample maximum is 9 and sample minimum is 1, therefore, response range is wide. Moreover, standard deviation is 2, which indicates variability in the data. The mean response value is 5, falling within the 'somewhat important' category. ERM has a very high influence on decision making within some organizations whereas some do not consider it at all in their decision making. Based on the analysis, it appears respondents do consider risk management in decision making but the level of the consideration varies. It could be argued if ERM influences decision making then it influences the way to perceive, think, and feel about a problem, which is also a part of organizational culture; indicating that a link between ERM and organizational culture exists.

Further, the probabilistic response value based on the generation of multiple trials is also 5, confirming that the analysis is robust and is sensitive to uncertainty in ranking. The probabilistic mass function curve indicates that the population distribution is normal; highlighting that most of the response values are located around the response value 4. It could then be argued that management considers ERM in decision making, but the extent of its influence is not clear.

**GRAPH 6  
HISTOGRAM FOR HYPOTHESIS D**



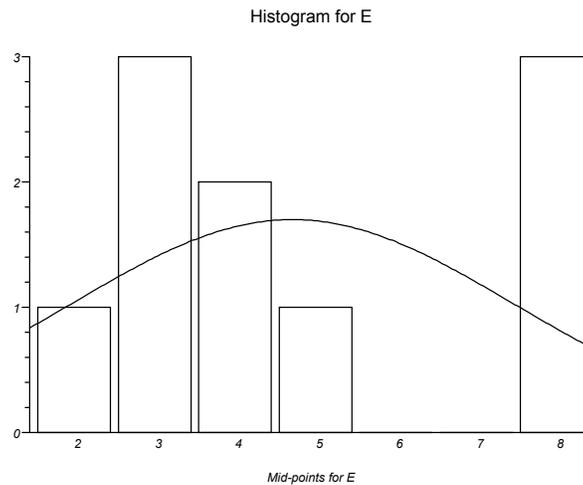
**GRAPH 7  
HYPOTHESIS E: DOES ERM LEAD TO BETTER UNDERSTANDING OF RISK AND CONTROL WITHIN AN ORGANIZATION?**



To test the above hypothesis, survey responses from 10 studies that asked about influence of ERM on organization wide understanding of risk and control were considered. Few of the questions included in the analysis were direct, while some indirectly inquired if ERM improves the understanding of risk and control. As the above graph indicates, sample maximum is 8 and sample minimum is 2, meaning the response range is not wide. As the sample maximum is an outlier, it could be maintained that only few organizations have experienced or consider that ERM significantly improves the understanding of risks and controls. The mean response value is 5 with a standard deviation of 2, falling within the ‘somewhat important’ category. It would therefore appear respondents agree that ERM leads to better understanding of risks and controls. It could be argued that an understanding of risks and controls relates to common language and concepts within organizational culture. If ERM therefore affects the understanding of risks and controls then it also links to organizational culture.

The probabilistic response value based on the generation of multiple trials is also 5; confirming that the analysis is robust and is sensitive to uncertainty in ranking. The probabilistic mass function curve further indicates that the population distribution is normal. Moreover, it is interesting to note that the sample maximum appears to be an outlier; indicating that a few studies had a very strong positive response whereas other did not.

**GRAPH 8**  
**HISTOGRAM FOR HYPOTHESIS E**



**Mann Whitney Test**

The analysis is based on non-parametric data; as a result a non-parametric Mann Whitney test has been conducted. The test is conducted to determine if the data for different hypothesis are different. If both data sets are significantly different, then conclusions are drawn based on the significantly different data.

Analyzing data from A-B, A-C, A-D, and A-E sets of hypotheses through the Mann Whitney test highlights that these data sets are not significantly different; however, their conclusions are different. For example, Hypothesis A states that “Is defining risk appetite important for ERM?” is not important; whereas, Hypothesis C states that “Is the tone from the tone important for effective ERM?” is somewhat important.

**TABLE 2**  
**RESULTS OF THE MANN WHITNEY TEST**

<u>Test</u>	<u>A-B</u> <u>Mann-</u> <u>Whitney U</u> <u>test</u>	<u>A-C</u> <u>Mann-</u> <u>Whitney U</u> <u>test</u>	<u>A-D</u> <u>Mann-</u> <u>Whitney U</u> <u>test</u>	<u>A-E</u> <u>Mann-</u> <u>Whitney U</u> <u>test</u>	<u>B-C</u> <u>Mann-</u> <u>Whitney U</u> <u>test</u>	<u>C-D</u> <u>Mann-</u> <u>Whitney U</u> <u>test</u>
<b>Observations</b>	Observations (x) in A = 11 median = 4 rank sum = 88.5 Observations (y) in B = 14 median = 6 U = 22.5 U' = 131.5	Observations (x) in A = 11 median = 4 rank sum = 115 Observations (y) in C = 15 median = 5 U = 49 U' = 116	Observations (x) in A = 11 median = 4 rank sum = 108.5 Observations (y) in D = 11 median = 4 U = 42.5 U' = 78.5	Observations (x) in A = 11 median = 4 rank sum = 108.5 Observations (y) in E = 10 median = 4 U = 42.5 U' = 67.5	Observations (x) in B = 14 median = 6 rank sum = 238.5 Observations (y) in C = 15 median = 5 U = 133.5 U' = 76.5	Observations (x) in C = 15 median = 5 rank sum = 206.5 Observations (y) in D = 11 median = 4 U = 86.5 U' = 78.5

<u>Test</u>	<u>A-B Mann-Whitney U test</u>	<u>A-C Mann-Whitney U test</u>	<u>A-D Mann-Whitney U test</u>	<u>A-E Mann-Whitney U test</u>	<u>B-C Mann-Whitney U test</u>	<u>C-D Mann-Whitney U test</u>
<b>Probability</b>	Exact probability (adjusted for ties): Lower side P = 0.0008 (H <sub>1</sub> : x tends to be less than y) Upper side P = 0.9992 (H <sub>1</sub> : x tends to be greater than y) Two sided P = 0.0015 (H <sub>1</sub> : x tends to be distributed differently to y)	Exact probability (adjusted for ties): Lower side P = 0.039 (H <sub>1</sub> : x tends to be less than y) Upper side P = 0.961 (H <sub>1</sub> : x tends to be greater than y) Two sided P = 0.0781 (H <sub>1</sub> : x tends to be distributed differently to y)	Exact probability (adjusted for ties): Lower side P = 0.122 (H <sub>1</sub> : x tends to be less than y) Upper side P = 0.878 (H <sub>1</sub> : x tends to be greater than y) Two sided P = 0.244 (H <sub>1</sub> : x tends to be distributed differently to y)	Exact probability (adjusted for ties): Lower side P = 0.1986 (H <sub>1</sub> : x tends to be less than y) Upper side P = 0.8014 (H <sub>1</sub> : x tends to be greater than y) Two sided P = 0.3972 (H <sub>1</sub> : x tends to be distributed differently to y)	Exact probability (adjusted for ties): Lower side P = 0.1066 (H <sub>1</sub> : x tends to be less than y) Upper side P = 0.8934 (H <sub>1</sub> : x tends to be greater than y) Two sided P = 0.2132 (H <sub>1</sub> : x tends to be distributed differently to y)	Exact probability (adjusted for ties): Lower side P = 0.4246 (H <sub>1</sub> : x tends to be less than y) Upper side P = 0.5754 (H <sub>1</sub> : x tends to be greater than y) Two sided P = 0.8493 (H <sub>1</sub> : x tends to be distributed differently to y)
<b>Confidence Interval</b>	95.6% confidence interval for difference between medians or means: K = 41 median difference = -2 CI = -4 to -1	95.3% confidence interval for difference between medians or means: K = 45 median difference = -1 CI = -3 to 0	95.3% confidence interval for difference between medians or means: K = 31 median difference = -1 CI = -3 to 1	95.7% confidence interval for difference between medians or means: K = 27 median difference = -1 CI = -3 to 1	95.4% confidence interval for difference between medians or means: K = 60 median difference = 1 CI = -1 to 3	95.3% confidence interval for difference between medians or means: K = 45 median difference = 0 CI = -2 to 2

There are possibly two main reasons for these observations:

- In the present analysis, range for each rank is 2, such as “not so important” is 2-4, where as “somewhat important” is 4-6. As these numbers cover a broad range, that is not captured by the Mann Whitney test.
- The importance analysis is carried out using weighted analysis based on real numbers, which are later converted to ranks. A significant sensitivity might be lost when converting a real number to rank. For example, a value 4.45 is considered as rank 4.

As both causes are linked to the variability of the data, a probabilistic analysis using Monte Carlo simulation as discussed in the previous section was conducted that confirmed the analysis is robust and is sensitive to uncertainty in ranking.

## DISCUSSION

As evidenced by the practitioner literature, risk is effectively embedded within organization processes and used in day-to-day decision making when a risk culture is established within an organization (Towers Perrin, 2009). Decisions of management and employees are influenced by risk culture, even when they do not consciously weigh risks and benefits (Farrell and Hoon, 2009). Without a strong risk culture, even a strong ERM program may not influence decision making; thus, it may be considered an important building block of effective risk management (Farrell & Hoon, 2009).

For a better ongoing understanding of risk culture, it is important to define it. While the key elements and definitions of organizational culture presented by Alvesson and Berg (1993) and Alvesson (2002) are useful in analyzing culture, it is a definition by Schein (1992 p.12) that offers a new perspective for managing risk:

*Culture is “a pattern of basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.*

Interestingly, Schein has defined culture using the word “problem,” thus implying that culture is developed in response to problems. This is a particularly valuable definition in the context of ERM and organizational culture considering a risk is often perceived as a potential threat to or problem in achieving an organization’s goals and objectives.

An examination of Schein’s (1992) definition may provide the basis for defining risk culture. “A pattern of basic assumptions” is a consistent concept in all culture definitions. It speaks to the dominant belief that culture is created through shared understanding of the organization’s norms, values, philosophy, thinking, and business processes. The phrase “what has worked well enough to be valid” demonstrates that past practices contribute to the present culture.

Schein’s (1992) definition also brings forth three new elements not present in other definitions, namely learning through solving problems, external adaptation and internal integration, and teaching members how to react to a problem. Learning through problem solving implies that as an organization takes new approaches to solving problems or managing risks, the organization will learn and the culture will evolve. External adaptation and internal integration illustrates that culture is not static and is influenced by problems presented in the external and internal environments. The third element, teaching members the correct way to perceive, think and feel in relation to the problems, is also relevant to the area of risk. It implies that organizations can change a culture by teaching members new “correct” ways to respond to problems.

If an organizational culture is a complex group learning process (Schein, 1992), then an organizational risk culture is increasingly more complex given the unpredictability and multiple risks

faced by an organization. Undoubtedly, one of the most important elements of ERM is creating a risk culture (Lam, 2003).

It may then be suggested that the Schein (1992) definition of culture could be adapted slightly to define risk culture. The changes to the definition are in italics.

*Risk culture is “a pattern of basic assumptions that the group learned as it identified, evaluated and managed its internal and external risks that have worked well enough to be considered valid, and therefore to be taught to new members as the correct way to perceive, think, and feel in relation to those risks”.*

While still not a perfect definition, it does incorporate the key elements of assumptions, group learning and teaching, internal and external risks, perceptions, feelings and thoughts.

## CONCLUSION

Having a strong risk culture means that employees understand an organization’s strategic orientation, and risk appetite; further they can freely discuss about prevailing risk and opportunities (Farrell & Hoon, 2009). Transforming the perception of risk with the change in strategy is a dynamic process. Strong leadership, commitment and engagement across the organization can change the way an organization behaves and makes decisions (Towers Perrin, 2009). However, it takes time to reframe perceptions of risks because “risk is in the eye of the beholder” (Sharon, 2006, p. 1). Risk management should be successfully embedded into an organization when the beliefs and behaviors of employees of that organization reflect risk understanding, risk awareness, and the implementation of risk management framework (Ruin, 2008).

In a world of uncertainties, organizations should be implementing ERM as an approach to better manage risk. ERM is expected to be integrated within the organization so that risks are addressed systematically and consistently, not on an ad hoc basis. Risk practitioners, such as those found in the Risk and Insurance Management Society, argue that the capabilities of the organization’s risk management practices depends on the degree to which it is instilled in the organization’s culture and management’s decision-making (Risk and Insurance Management Society Inc, 2009). ERM is a whole organizational approach to managing risk; the understanding and managing of how organization culture influences the implementation and practice of managing risk, specifically using ERM, is an important consideration for both practitioners and academic researchers. In our study, we have explored the relationship between ERM and organizational culture as a starting point for further research and understanding by practitioners of the importance of developing a risk culture. Ultimately we found a significant relationship in elements of risk management and organization culture, and this finding may be used to guide practitioners as well as future academic research in the area.

## REFERENCES

Accenture, (2009). Managing Risk for High Performance in Extraordinary Times. Available at Accenture Website: [http://www.accenture.com/NR/rdonlyres/78589759-FE29-43E3-AFDF-171D1B9F2587/0/Accenture\\_Managing\\_Risk\\_for\\_High\\_Performance\\_in\\_Extraordinary\\_Times.PDF](http://www.accenture.com/NR/rdonlyres/78589759-FE29-43E3-AFDF-171D1B9F2587/0/Accenture_Managing_Risk_for_High_Performance_in_Extraordinary_Times.PDF) (accessed August 6, 2012).

Alvesson, M. (2002). *Understanding Organizational Culture*. London, U.K: SAGE Publications.

Alvesson, M. and Berg, P.O. (1993). *Corporate Culture and Organizational Symbolism*. Berlin: Walter de Gruyter.

AON Analytics. (2010). *Global Enterprise Risk Management Survey 2010*. Available at AON Analytics Website: <http://insight.aon.com/?elqPURLPage=4889> (accessed August 6, 2012).

AON. (2007). *Enterprise Risk Management: The Full Picture*. Available at AON website: <http://insight.aon.com/?elqPURLPage=932> (accessed August 6, 2011).

Beasle, M., Branson, B., and Hancock, B. (2010). *Report on the Current State of Enterprise Risk Oversight: 2nd Edition*. Available at: <http://www.mgt.ncsu.edu/erm/index.php/articles/entry/state-erm-2nd/> (accessed August 6, 2012).

Blake, R. and Mouton, J.S. (1969). *Building a Dynamic Corporation through Grid Organization Development*. Reading, Mass: Addison-Wesley Publishing Company.

CFO Research and Towers Perrin. (2008). *Senior Finance Executives on the Current Financial Turmoil*. Available at: CFO Website: <http://www.cfo.com/whitepapers/index.cfm/displaywhitepaper/12582927> (accessed August 4, 2011).

Champoux, J. E. (2003). *Organizational Behaviour: Essential Tenets*. London, U.K. Thomson Learning.

Chapman, R. J. (2006). *Simple Tools and Techniques for Enterprise Risk Management*. London, UK: John Wiley & Sons.

COSO, (2004). *Enterprise Risk Management*. Available at: Committee of the Sponsoring Organizations of the Treadway Commission: [www.coso.org](http://www.coso.org) (accessed August 6, 2012).

Deloitte, (2009). *Cultural Issues in Merger and Acquisitions*. Available at: [http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us\\_consulting\\_CulturalIssuesinMA\\_010710.pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_consulting_CulturalIssuesinMA_010710.pdf) (accessed April 18, 2012).

Deloitte, (2006, June). *ERM done right*. Available at: [http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us\\_risk\\_Risk%20Intelligent\\_ERM%20Done%20Right%20final.pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_risk_Risk%20Intelligent_ERM%20Done%20Right%20final.pdf) (accessed April 18, 2012).

Deloitte, (2008). *Perspectives on ERM and the Risk Intelligent Enterprise*. Available at: [http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us\\_risk%20consulting-ERMBenchmarkSurvey\\_110308.pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_risk%20consulting-ERMBenchmarkSurvey_110308.pdf) (accessed April 18, 2012).

Deloitte, (2009). *Risk Management in the Spotlight*. Available at: [http://www.deloitte.com/assets/Dcom-Global/Local%20Assets/Documents/us\\_fsi\\_GlobalRskMgmtSrvy\\_June09\(1\).pdf](http://www.deloitte.com/assets/Dcom-Global/Local%20Assets/Documents/us_fsi_GlobalRskMgmtSrvy_June09(1).pdf) (accessed August 6, 2012).

Deloitte, (2010). *The People Side of Risk Intelligence*. Available at: [http://www.deloitte.com/view/en\\_US/us/Services/additional-services/talent-human-capital-hr/617529bbdb177210VgnVCM100000ba42f00aRCRD.htm](http://www.deloitte.com/view/en_US/us/Services/additional-services/talent-human-capital-hr/617529bbdb177210VgnVCM100000ba42f00aRCRD.htm) (accessed August 6, 2012).

Ernst & Young Global Limited, (2009). *The Future of Risk*. Available at: [http://jobportal.de.ey.com/Publication/vwLUAssets/The\\_future\\_of\\_risk/\\$FILE/The%20future%20of%20risk.pdf](http://jobportal.de.ey.com/Publication/vwLUAssets/The_future_of_risk/$FILE/The%20future%20of%20risk.pdf) (accessed August 6, 2011).

- Ernst & Young Global Limited, (2010, March 16). *Top Priority: Creating a Risk Aware Culture*. Available at: [http://www.ey.com/GL/en/Industries/Banking---Capital-Markets/Banking\\_and\\_Capital\\_Markets\\_Risk\\_Convergence](http://www.ey.com/GL/en/Industries/Banking---Capital-Markets/Banking_and_Capital_Markets_Risk_Convergence), (accessed August 6, 2012).
- Farrell, J. M., and Hoon, A. (2009, May 12). *What's Your Company's Risk Culture?* Available at: [http://www.businessweek.com/managing/content/may2009/ca20090512\\_720476.htm](http://www.businessweek.com/managing/content/may2009/ca20090512_720476.htm) (accessed April 17, 2011).
- Gates, S. and Hexter, E. S. (2005). *From Risk Management to Risk Strategy*. New York, N.Y.: Conference Board.
- Global Audit Information Network, (2008). *2008 ERM Benchmarking Survey*. Available at: The Institute of Internal Auditors: <http://www.theiia.org/guidance/benchmarking/gain/knowledge-services/2008-erm-benchmarking-survey/> (accessed August 6, 2011).
- Kimbrough, R. L., and Compton, P. J. (2009), "The Relationship Between Organizational Culture and Enterprise Risk Management", *Engineering Management Journal*, 21(2), 18-26.
- Kunda, G. (1992). *Engineering Culture: Control and Commitment in a High Tech Corporation*. Philadelphia, PA: Temple University Press.
- KPMG LLP. (2009). *Enterprise Risk Management: From Theory to Practice*. Available at: KPMG: [http://us.kpmg.com/Rutus\\_Prod/Documents/12/KPMG-ERM-Theory-Practices.pdf](http://us.kpmg.com/Rutus_Prod/Documents/12/KPMG-ERM-Theory-Practices.pdf) (accessed August 6, 2011).
- Lam, J. (2003). *Enterprise Risk Management: From Incentives to Controls*. San Francisco: John Wiley & Sons.
- PricewaterhouseCoopers, (2008). *Does ERM Matter?* Available at: Pricewaterhousecoopers Website: [http://www.pwc.com/en\\_GX/gx/insurance/pdf/erm\\_exec\\_summary.pdf](http://www.pwc.com/en_GX/gx/insurance/pdf/erm_exec_summary.pdf) (accessed August 8, 2011).
- PricewaterhouseCoopers LLP. (2004, September). *Enterprise Risk Management - Integrated Framework*. Available at: COSO website [http://www.coso.org/documents/COSO\\_ERM\\_ExecutiveSummary.pdf](http://www.coso.org/documents/COSO_ERM_ExecutiveSummary.pdf) (accessed August 8, 2011).
- Risk and Insurance Management Society Inc. (2009). *The 2008 Financial Crisis: A Wakeup Call for Enterprise Risk Management*. Available at: RIMS Website [http://www.ucop.edu/riskmgt/erm/documents/2008fincrisis\\_wakeupwall.pdf](http://www.ucop.edu/riskmgt/erm/documents/2008fincrisis_wakeupwall.pdf) (accessed April 18, 2012).
- Rogers, R.W. and Ferketish, B.J. (1993). *Value-Driven Change Process*. *Executive Excellence*, 10(3), 5-6.
- Ruin, J. E. (2008, January 19). *Instilling Risk Awareness Attitude*. Available at: New Strait Times: [http://findarticles.com/p/news-articles/new-straits-times/mi\\_8016/is\\_20080119/instilling-risk-awareness-attitude/ai\\_n44387832/](http://findarticles.com/p/news-articles/new-straits-times/mi_8016/is_20080119/instilling-risk-awareness-attitude/ai_n44387832/) (accessed April 18, 2012).
- Schein, E.H., (1992). *Organizational Culture and Leadership*. San Francisco: Josey-Bass.
- Sharon, B. (2006, February). *The Elusive Risk Culture*. Available at: Community Central <http://www.continuitycentral.com/feature0306.htm> (accessed April 18, 2012).

Slywotzky, A.J., & Drzik, J. (2005). *Countering the Biggest Risk of All*. *Harvard Business Review*, 83(4), 78-88.

The Economist Intelligence Unit, (2009, June), *After the Storm: A New Era for Risk Management in Financial Services*. Available at: SAS Website:  
<http://graphics.eiu.com/marketing/pdf/after%20the%20storm.pdf> (accessed April 18, 2012).

The Economist Intelligence Unit, (2008). *The Bigger Picture: Enterprise Risk Management in Financial Services Organizations*. Available at: Silicon Website: <http://www.silicon.com/white-papers/view/business-functions/the-bigger-picture-enterprise-risk-management-in-financial-services-organisations-60690603> (available at August 6, 2011).

The Economist Intelligence Unit, (2007). *Best Practice in Risk Management: A Function Comes of Age*. Available at The Economist Intelligence Unit Website:  
[http://graphics.eiu.com/files/ad\\_pdfs/eiu\\_Risk\\_Management.pdf](http://graphics.eiu.com/files/ad_pdfs/eiu_Risk_Management.pdf) (available at August 6, 2011).

Tower Perrins, (2010). *Embedding ERM- A Process of Evolution*. Available at: Tower Perrins  
[http://www.towersperrin.com/tp/getwebcachedoc?webc=USA/2009/200906/ERMEmbedding\\_6-23-09.pdf](http://www.towersperrin.com/tp/getwebcachedoc?webc=USA/2009/200906/ERMEmbedding_6-23-09.pdf) (accessed at August 6, 2011).

Towers Perrin, (2008). *Embedding ERM - A Tough Nut to Crack*. Available at: Towers Perrin  
[http://www.towersperrin.com/tp/getwebcachedoc?webc=GBR/2009/200901/2008\\_Global\\_ERM\\_Survey\\_12809.pdf](http://www.towersperrin.com/tp/getwebcachedoc?webc=GBR/2009/200901/2008_Global_ERM_Survey_12809.pdf) (accessed at August 7, 2011).

Towers Perrin, (2009). *Embedding ERM: A Process of Evaluation*. Available at: Towers Perrin:  
[http://www.towersperrin.com/tp/getwebcachedoc?webc=USA/2009/200906/ERMEmbedding\\_6-23-09.pdf](http://www.towersperrin.com/tp/getwebcachedoc?webc=USA/2009/200906/ERMEmbedding_6-23-09.pdf) (accessed April 18, 2011).