University of Ottawa
Faculty of Graduate and Post-Doctoral Studies
Master's in Business Administration

Thesis

Risk Management Practices in Six Organizations in the Government of Canada

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Abstract

This thesis is an exploratory study that measured the alignment of corporate risk management practices in six organizations in the Government of Canada with best practices described in the 2009 ISO 31000, as well as five independent variables believed to influence risk management practices in an organization. The objective was to determine if risk management practices vary from one organization to another in a single government, and if so why, as well as building a number of testable hypotheses for future research. The thesis found that risk management practices do vary significantly from one organization to another. It also found that there is a strong correlation between an organization's budget, total workforce and the policy instruments it uses, and the alignment of its corporate risk management practices with ISO 31000:2009. This study furthers our understanding of how risk management is implemented in public sector organizations.

Acknowledgements

I would like to first express my great gratitude to my thesis supervisors professors David Dewar and Daniel Lane for their support and patience as I navigated this process, which was a invaluable learning process far beyond the subject matter of this thesis. I also thank professor Geneviève Tellier for taking the time to review and provide important comments on drafts of the thesis. This thesis would not have been possible without the help of colleagues in the organizations in my sample and TBS who accepted to be interviewed and provide the necessary documentation on risk management in the public sector. These colleagues remain unnamed as is generally the case in the public sector, but they brought risk management in the Government of Canada – often an abstract concept – alive.

Thank you also to my parents who supported me through my endless ramblings about risk management at family dinners. Finally this thesis would not have been possible without my wife Jennifer who truly bore the burden of the time required to complete this work that was conceived before our two wonderful children.

Glossary of Acronyms

AS: Australia Standards
CED-Q: The Canada Economic Development for Quebec Regions Agency
CIC: Citizenship and Immigration Canada
CIDA: The Canadian International Development Agency
CSA: Canadian Standards Association
CRP: Corporate Risk Profile
DFO: Fisheries and Oceans
DH: Deputy Head
DPR: Departmental Performance Report
DV – DV Cumulative: Dependent variable cumulative score
EDA: Exploratory Data Analysis
FAA: Financial Administration Act
FTE: Full Time Equivalent
G&Cs: Grants and Contributions
HC: Health Canada
IRMF: Integrated Risk Management Framework
ISO: International Standards Organization
MAD: Mean Absolute Deviation
MAF: Management Accountability Framework
NZS: Standards New Zealand
OAG: Office of the Auditor General of Canada
PCO: Privy Council Office
POL INSTR: Policy Instrument
PRIO RISK: Type of risk prioritized
PWGSC: Public Works and Government Services Canada
RM: Risk Management
RM FTE: FTEs dedicated to corporate risk management
RM % FTE: FTEs dedicated to corporate risk management as a % of total organization FTEs
RPP: Report on Plans and Priorities
TB: Treasury Board of Canada
TBS: Treasury Board of Canada Secretariat

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Chapter 1: Introduction

The idea that risk is everywhere and that everyone manages risk has now become commonplace. But what is risk? Is it the possibility of a natural disaster that could result in countless casualties? Is it an element in the equation used by financial analysts to calculate potential return on investment? According to the 2009 ISO 31000 standard on risk management, risk is simply the "effect of uncertainty on objectives." (International Organization for Standardization 2009, p. 1) Based on this definition, the expression "everyone manages risk" is, therefore, true. If we accept that individuals and organizations all have objectives, that these objectives are necessarily set in the future, and that the future is uncertain, then everyone and every organization manages risk. As one prepares to tee off on the first hole of a golf course, one sets an objective which is only seconds away: hit the ball 200 yards straight down the fairway. But assessing the effect of the wind on the ball's trajectory is no easy feat, not to mention the possibility of being slightly distracted as one swings, and the long list of elements one needs to manage as one stares at the ball on the tee in order to achieve the objective. Luckily, for most of us, the importance of the outcome of such a situation is not critical to our future well-being.

Now consider a team of scientists working in a governmental health organization in a country suffering from food shortages and rapid demographic growth. They have been asked to study a new form of genetically modified maize and make recommendations to elected officials to help them decide whether it should be allowed for cultivation in the country. Early results confirm that this new form of maize promises to increase crop yields dramatically thus leading to a better-fed and healthier population. This uncertain aspect represents "upside risk". However, no studies exist on the negative long-term health effects of consuming such a product – "downside risk". Then there are economic risks. Increased crop yields would likely lead to more people being employed in the maize value chain. But on the other hand, because of patent issues, most traditional farmers will not have the means to purchase the seed and will likely be forced to sell their land and move to the city, and join the already bulging ranks of urban unemployed.

The recent nuclear disaster in Fukushima reminds us that mitigation measures are not always sufficient to prevent some well-known and foreseeable risks. Some fifty years ago, when the Japanese government decided to start building nuclear power plants, it necessarily weighed the opportunities of nuclear energy and the potential threats. The opportunities included an almost endless supply of relatively "clean" energy, which supported some forty years of steady economic growth. At the same time, nobody understood better than the Japanese themselves the threats these opportunities presented. History will likely look back at this nuclear disaster as a failure to assess the potential impact of known risks, and a lack of appropriate risk responses: recent reports indicate that there is no science for dealing with the molten radioactive material now sitting on the floor of the reactors (Jamail 2011, p. 1). The long-term health consequences of this event on the Japanese people is still unknown.

Similar things have been said of the 2008 financial "meltdown" which led to a global recession. Poor risk management by financial institutions – arguably the most experienced organizations in risk management – and inadequate regulatory regimes imposed by governments and international bodies, led to a global recession (Blundell-Wignall, Atkinson and Lee 2008, p. 2) and resulted in millions of people losing their houses, their retirement savings, their jobs, etc.

These examples illustrate the importance of sound, well-informed risk management and beg the question: could better risk management have averted these disasters? Unfortunately, the answer is: not necessarily. Risk management cannot always prevent undesirable events from occurring. However, it can mitigate the effects of events through thorough risk analysis and development of risk responses and mitigation strategies. The Fukushima and financial meltdowns can be described as risk management failures by authorities – amongst others – because arguably they did not have answers to some basic questions that should have been raised through the application of sound risk management practices. Japanese authorities clearly do not have an answer to the following question: how does one dispose of an exposed molten mass of intensely radioactive material following a massive earthquake and tsunami? The fallout from the 2008 financial crisis arguably demonstrated that regulatory authorities had not properly weighed the advantages of a less stringent regulatory regime versus the need to protect the citizenry against reckless behaviour by a number of major financial institutions leading to bankruptcy?

These examples are based on extreme, and thankfully infrequent events, although with drastic consequences. They are also examples of the traditional public perception of risk management by governments. The commonly held view is that governments are responsible for crisis management and response, managing risks to the governments' objectives: a safe, healthy, productive, etc., citizenry. Governments and public sector managers have come to realize that there is a myriad of risks associated with daily decisions, from where to purchase office supplies, to how to enforce new legislation.

Consider the purchase of office supplies by a manager who must choose the supplier. There is the obvious financial risk: purchasing overpriced supplies. Then there are procedural risks associated with the purchase: the transaction must be carried out in accordance with all applicable rules, regulations and laws. These risks are largely similar to those that a private sector organization would have to consider in the same situation. However, in the public sector, even if the most appropriate supplies were purchased at an acceptable price and following all the applicable rules, public organizations are subject to public scrutiny. Someone, some group or another supplier, may object to the decision to purchase the supplies from the selected supplier, and depending on the scale of the transaction and the level of attention generated in the public and the media, such seemingly minor decisions can have a significant impact on an organization's reputation. This in turn affects the level of public trust in the organization – a basic precondition for an organization to be able to fulfill its mandate in a liberal democracy.

"Risk" has been viewed as something negative to be avoided. However, risk management is about much more than avoiding negative outcomes. ISO 31000 lists the potential benefits of sound risk management for an organization.

> "When implemented and maintained in accordance with [the] International Standard, the management of risk enables an organization to, for example: increase the likelihood of achieving objectives; encourage proactive management; be aware of the need to identify and treat risk throughout the organization; improve the identification of opportunities and threats; comply with relevant legal and regulatory requirements and international norms; improve financial reporting; improve governance; improve stakeholder confidence and trust; establish a reliable basis for decision making and planning; improve controls; effectively allocate and use resources for risk treatment;

> improve operational effectiveness and efficiency; enhance health and safety performance, as well as environmental protection; improve loss prevention and incident management; minimize losses; improve organizational learning; and improve organizational resilience." (International Organization for Standardization 2009, pp. v – vi)

There is therefore no shortage of good reasons to implement risk management in an organization. The challenge, however, is how to implement risk management. Until the release of ISO 31000 in 2009, there was no internationally agreed upon set of best practices for the implementation of risk management although some national level efforts to standardize practices had been undertaken. For example, in 1997, the Canadians Standards Association (1997) first published its "Risk Management: Guideline for Decision Makers" (CAN/CSA-Q850-97) and in 2004 Standards Australia (2004) released the Australian and New Zealand "Risk Management Standard" (AS/NZS 4360:2004).

Over the past 20 years, governments have also come to recognize the importance of implementing and integrating sound risk management in all their operations. In the Government of Canada, the first major step towards government-wide implementation of integrated risk management was the Integrated Risk Management Framework in 2001 (TBS 2001). This framework and subsequent Implementation Guide (TBS 2004) applied to all organizations in the Government of Canada and supported the standardized implementation of known risk management best practices at the time. The approach to implementing risk management in the Integrated Risk Management Framework was quite prescriptive, and could be described as one-size-fits-all, while ISO 31000:2009 adopts a principles-based and flexible approach to risk management. This flexibility is necessary given the scope of the ISO 31000, which "can be used by any public, private or community enterprise, association, group or individual" (International Organization for Standardization 2009,, p.1), but it also implies that within any of these groups, risk management should be tailored to the specific needs of the organization to be effective. This, however, raises the question: is this true in a government? Do organizations in a single larger organization – in this case the Government of Canada – implement risk management differently because of different types of risks managed and different policy environments? Or do common applicable frameworks, policies and guidelines – such as the ones issued by the Treasury Board Secretariat in the case of the Government of Canada – result in uniform risk

management practices across the government? Put simply: do risk management practices vary from one organization to another in the Government of Canada?

1.1 Research Objectives and Questions

This study is an exploratory study, which seeks to build testable hypotheses for future research. Given the shortage of studies on the practice of risk management at the corporate level across government organizations, there is currently insufficient academic literature to test a formal hypothesis here.

The first objective of this thesis is to determine whether risk management practices vary from one organization to another in the same government despite common risk management frameworks, policies, guidelines, etc. The research question associated with this objective is the one alluded to above: "do risk management practices vary?" To answer the first question (do risk management practices vary?) this study measured a dependent variable – "risk management practices" – in six government organizations.

The second objective of this thesis is to explore potential explanations for observed variations in risk management practices. The research question associated with this second objective is "why do risk management practices vary?" This study explores the relationship between risk management practices (the dependent variable) and five independent variables as potential explanatory factors for variations in risk management practices as part of the hypothesis building exercise.

The thesis examines how risk management is practised in the Government of Canada in six departments and agencies. While it does not aim to provide definitive answers to the research questions above, it will contribute to our overall understanding of how risk is managed in public organizations and why we can observe certain differences in risk management practices. This study is particularly relevant in the post ISO 31000 context because the new standard recognizes that risk management processes and practices must be tailored to an organization's needs, but it does not tell us what these differences are likely to be. As the second chapter will discuss, the

academic literature does not provide much insight into how different public organizations manage risk.

1.2 Thesis Outline

This thesis is divided into six chapters. The second chapter provides a review of the literature on risk management in public administration. The literature review places this study in its academic context and describes the evolution of thinking around risk management in governments. The third chapter discusses risk management and its evolution in the Government of Canada. This chapter focuses on how risk management *should* be practised according to Treasury Board Secretariat: the government central agency responsible for the general management of government. Chapter 4 presents the methodology for the collection and the analysis of data used in this study. It discusses the construct and data sources of the dependent and independent variables, the data collection tools and the approach used in the analysis of the data. The methodology chapter also provides preliminary information on the organizations in the sample. The fifth chapter presents the results of the data analysis as well as preliminary conclusions. Finally, implications of this study's findings for future research are discussed in the general conclusion of Chapter 6.

Finally, the scope of this thesis is limited to "corporate level" risk management in government organizations. This means that only risks and risk management practices that have organization-wide implications are covered. Risks or risk management practices that are limited to a specific branch or program of an organization are not covered by this thesis.

Chapter 2: Review of the Literature

Humans have always managed risk. Every time we make a decision about the future where the outcomes of a given course of action are uncertain, we are consciously or unconsciously managing risk. We may even develop a risk mitigation plan by saying to ourselves, "well if that doesn't work, then I could…" The fact that we manage risk has not changed; what has is the way we perceive and define "risk", and how we manage it. In the past, risk was often viewed as a hazard, with an emphasis on crisis management and protecting oneself or one's organization against the hazard, generally through control mechanisms and insurance. In the 1990s, the prevailing view of risk came to be seen as a potential event with either negative (threat) or positive (opportunity) outcomes. Risk information was used to support organizational processes such as planning and reporting. Today, the International Standards Organization (ISO) has established an internationally agreed upon definition of risk: "the effect of uncertainty on objectives", and the management of risk is no longer limited to specific functions of an organization, but rather it should be part of any decision-making process (International Organization for Standardization 2009).

This literature review aims to provide the reader with an overview of the evolution of risk management and how it came to be seen, especially in the public sector, as an essential component of sound management. It is recognized that there exists extensive academic research on risk management beyond what is presented below. The vast majority of this literature focuses on the broader management of specific risks – when risk was viewed as a hazard – such as natural disasters, scientific or technological failures, as well as specific technical areas of risk management, for example, risk analysis, risk mitigation, etc. As such, this broader work was deemed to be beyond the parameters of this study. Rather, this research, and the literature review, focus on corporate risk management in public sector organizations of the Government of Canada. This focus was chosen because it represents a considerable gap in our knowledge and understanding of how and why risk management is practised in public sector organizations.

2.1 Early Risk Management

The earliest recorded instance of risk management according to Covello and Mumpower (1985) was a group in ancient Mesopotamia called the Asipu in 3200 B.C., whose function was to assist with difficult decisions.

> "The Asipu would identify the important dimensions of the problem, identify alternative actions, and collect data on the likely outcomes (e.g. profit or loss, success or failure) of each alternative. The best available data from their perspective were signs from the gods […] The Asipu would then create a ledger with a space for each alternative. If the signs were favourable, they would enter a plus in the space; if not, they would enter a minus. After the analysis was completed, the Asipu would recommend the most favourable alternative" (Covello and Mumpower 1985, p. 103).

A key element of modern risk analysis and risk management – probability theory – was first developed in 17th century France by Blaise Pascal (Ore 1960). For the first 200 years following its discovery, probability theory was mostly used to calculate life expectancies and the effects of disease on certain populations. At the same time, the insurance industry began to flourish in England, although without much success, until the 19th century when modern accounting was integrated into the calculations of life insurance rates (Covello and Mumpower 1985, p. 109).

While modern risk management was born in the field of insurance and finance, governments have always managed risks, although neither very scientifically, nor very successfully. Examples include governments taking measures to protect their populations against the threat of natural disasters, famine, disease, etc. exist in all ancient civilizations. This was sometimes achieved through religious-magical methods such as sacrifices, or through regulatory measures such as the development of building codes or the issuance of permits. Covello and Mumpower (1985) describe what was perhaps the first recorded attempt to manage risks through government regulation; the "Code of Hammurabi (circa 1950 B.C.) decreed that should a house collapse and kill the occupants, the builder of the house must forfeit his own life" (Covello and Mumpower 1985, p.113).

2.2 The 1970s and 1980s

Skipping ahead some 4,000 years, academic literature on risk management by governments focused on the management by public institutions of specific risks to the public. The emphasis was on regulatory regimes to mitigate the impacts of potential hazards such as public health threats (Jasanoff 1986; Travis, Richter, Crouch, Wilson and Klema 1987), emergency management of hazards such as nuclear threats or natural disasters (Petak 1985), ballooning public debt (Aghion and Bolton 1990) and the communication of risk information to the public (Sandman 1987; Plough and Krimsky 1987; Otway and Wynne 1989). As a response to these "risks", the focus was on ensuring that proper crisis and emergency management processes were in place, but even more so on ways for governments to obtain appropriate insurance coverage for their liabilities in the event of a crisis, and how to communicate with the public ahead of and during crises.

While the scope of risk management in government was still limited in the literature of the 1970s and 1980s, the realization that fundamental differences between governments and private organizations might affect the way governments make decisions related to risk started to emerge. In 1977, W. Pfennigstorf identified a number of these differences:

> "First, a government entity could not be wiped out by a large uninsured loss in the same way as a private business, by being forced into liquidation and out of existence. The survival of government units is subject to political rather than economic forces – as organizations and as carriers of public powers and duties they must continue to exist and to function even if their liabilities exceed their assets and even if they are unable to pay their creditors. […] Second, governments, unlike private businesses, are not governed by the principle of profit maximization, and while economy is one objective of responsible government, it is not the only objective or even the most important one. […] A third characteristic of governmental management is that the political climate in which governments operate encourages attempts to improperly influence decisions. There are elaborate rules and procedures to ensure integrity, often at the expense of economy and efficiency" (Pfennigstorf 1977, pp.257-258).

These findings play an important role in setting the stage for the subsequent debate on *how* governments manage risk and how they *should* manage risk, by identifying factors unique to the public sector that influence the way risk is managed.

2.3 The 1990s

In the 1990s, academic literature on risk management by governments focused increasingly on regulatory regimes and controls (Pollack 1996) as risk came to be viewed less as a specific hazard but rather as potential events in the future. This being said, throughout the 1990s, crisis management following a disaster continued to be a strong focus of the literature. The general technological explosion since the Second World War was a strong driver for sustained attention to the potential dangers of the application of new technologies and the impact of regulatory regimes on minimizing the risks to the public (Terry 1998).

Smith and Toft (1998) point out some difficulties faced by public organizations and especially those regulatory bodies responsible for crisis management. They argue:

> "Given that such confusion reigns, in framing the nature of the main terms used within this area [risk management], it is perhaps not surprising that risk and crisis management does not receive the attention that it should in some quarters." (Smith and Toft 1998, pp. 8-9).

Risk communication, a function seen as key to the government's role as a regulator and crisis manager, continued to receive significant attention in the 1990s. This field evolved from psychology studies in the 1970s and 1980s on risk perception. Slovic (1993) illustrates the importance of risk perception, risk communication and public trust in their governments in Western democracies, using the example of the reliance on nuclear energy in France and the United States:

> "France leads the world in the percentage of electricity generated by nuclear power (73% in 1991, compared to 21% for the U.S.). […] Today [1993], surprisingly, the perception of risk from nuclear power remains extremely high in France-as high as in the U.S. […] However, French citizens, while recognizing that they have little control over risks to their health and safety, have a high degree of trust in their government and in the experts who design and operate nuclear power plants. Americans, in contrast, combine their similarly high degree of perceived risk with a distrust of government, science, and industry and a belief that they do have some ability to control risks." (Slovic 1993, p. 680).

Smith and McCloskey (1998) discuss risk communication by governments – as the organizations responsible for responding to major catastrophic events – and point out that:

> "It is apparent that concerns over risk issues can escalate beyond a level expected by those charged with the management of that risk." (Smith and McCloskey 1998, p. 41).

According to the authors:

> "Risk communication is often interpreted as a matter of providing credible information that the public will believe and passively accept. However, the public will need to be more involved in the process of identifying and estimating the levels of risk to which they are exposed. For the public sector, effective risk communication and management is a key factor in developing and maintaining public confidence." (Smith and McCloskey 1998, p. 49).

Finally, they call for more research into the effectiveness of communication strategies and a more integrated approach by the various organizations within a department. Arguably, some governments have made some limited progress in this area in the last decade, but the ongoing nuclear crisis at Fukushima in Japan is evidence that communications following a catastrophic event could still be improved.

The 1990s also saw a rise in academic literature interested in *how* governments practise or *should* practise risk management. The backdrop for this was the larger "New Public Management" (Hood 1991) wave that swept across Western countries in the 1990s where private sector management approaches were promoted as models to be followed by governments. Jeremy Vincent writes in 1996 that "In recent years, issues of "risk" in public services have been of growing interest to the academic community" (Vincent 1996, p. 57) and suggests that a "climate of 'managerialism' ('pro-entrepreneurialism' and thus, presumably, 'pro-risk taking')" (Vincent 1996, p. 57) may be partly responsible for this interest.

Bozeman and Kingsley (1998) characterize the dominant view in academic literature in the 1990s as one that supports the belief that:

> "If government can just be more entrepreneurial, can entertain appropriate risks,

> then many of its (presumed) managerial problems will disappear or at least be diminished." (Bozeman and Kingsley 1998, p.116).

The extent to which the public sector and the private sector came to be seen as "one" is best illustrated by Inger Boyett's 1996 article entitled "The Public Sector Entrepreneur" (Boyett 1996). He argues that:

> "The economics literature suggests, that for markets to operate at their maximum level of efficiency, there is an overwhelming need for entrepreneurial activity. There is no suggestion that the new quasi markets of today's public sector should be any different." (Boyett 1996, p. 36).

From this perspective the public sector entrepreneur is seen as no different than his private sector counterpart; he is primarily a risk taker.

Perhaps, partly as a reaction to this somewhat ideologically driven view of risk management in the public sector, a body of academic research has emerged that seeks to understand better the unique context in which risk is managed by governments.

For a public sector manager to manage risk in the same way that his or her private sector counterpart does, risk management needs to be addressed "scientifically". The generally agreed way to calculate risk is as a function of impact and probability. Thus, a manager should be able to decide, based on numerical data of the probabilities estimated for uncertain events, in which cases the probability-weighted potential benefits (e.g. profit impacts) outweigh the weighted potential losses impacts and make decisions that allow his or her organization to seize net positive opportunities (Vose 2008).

However, such an approach to risk management in government does not take into account certain realities of management in the public sector. Smith and McCloskey (1998) discuss one of the main challenges for public organizations to manage uncertainty in a scientific way: political control of government organizations. They note:

> "One of the most difficult risk scenarios occurs when risk issues escalate to levels of political conflict beyond those justified by available evidence." (Smith and McCloskey

1998, p. 48).

Vincent (1996) suggests that another major difference is the higher level of scrutiny to which public sector organizations are subjected. He links this to the fact that, unlike the private sector, where the funds entrusted to an organization are provided willingly by shareholders "on the expectation of a reasonable profit return" (Vincent 1996, p.57), in the public sector funds managed by organizations were "appropriated from the general public on a non-voluntary basis" (Vincent 1996, p.58). This increased scrutiny is understood to affect the level of risk the public sector is willing to accept, especially in a context where the possibility of punishment for failure exceeds the expectation of reward for success.

Utility Theory, which "is interested in people's preferences or values" (Fishburn 1968, p. 335), and Expected Utility Theory tackle the issue of risk management in such an environment. According to Mongin (1997):

> "Expected Utility Theory states that the decision maker chooses between risky or uncertain prospects by comparing their expected utility values, i.e., the weighted sums obtained by adding the utility values of outcomes multiplied by their respective probabilities" (Mongin 1997, p. 342).

When faced with a decision, managers must always ask themselves: "Are the potential benefits of having things go right worth the risks if things go wrong?" (Keeney 1982, p. 813) Since public sector managers are less likely to expect a reward for positive outcomes resulting from risky activities, but are generally well aware of consequences of negative outcomes, the value scale that a public sector manager is likely to use for the range of outcomes from risk taking is expected to differ significantly from that of a private sector manager.

In addition to discussing such obvious differences in the very nature of private and public sector organizations, in the 1990s important empirical research was conducted on the differences between private and public organizations and why they are managed differently. Rainey (1991) and Bozeman and Bretschneider (1994) look at the different dimensions of management in the public sector and explain the differences between public and private organizations through an empirical investigation. In 1998, Bozeman and Kingsley published an empirical study that set out to understand a key element of risk management in public versus private organizations: risk

taking and the widely accepted but unproven risk aversion of public sector managers. The authors explain that:

> "While we are uncomfortable with the idea of public managers engaging in risk taking, we are less troubled by the idea of public managers tackling issues that involve a great deal of risk. This is particularly true of areas where our values hold that the marketplace cannot or should not be the sole arbiter of risk (for example, the issues of defense, public health and safety, research and development, and education)." (Bozeman and Kingsley 1998, p. 110).

Their study tests a number of hypotheses, which are linked to the generally held belief that managers in the public sector are more risk averse than their counterparts in the private sector. Based on the empirical data collected in over 300 public and private sector organizations, the authors found that "while the private sector respondents tend to view their organizations as more risk-oriented, the differences are neither striking nor statistically significant" (Bozeman and Kingsley 1998, p. 113). Instead, the study proposes a model of 5 variables found to be the most significant in explaining variations "in perceptions of risk culture in an organization". These are: 1. the level of political control over an organization; 2. the level of trust displayed by senior management ("top trust"); 3. the level of red tape in the organization; 4. the expectation of reward for good performance ("promote/perform"); and 5. mission clarity (Bozeman and Kingsley 1998).

2.4 The 2000s

A search in Google Scholar for key words "risk, management, public sector" and "risk, management, government" reveals that in the 2000s, the number of academic publications which address issues of risk in public sector management is significantly smaller than the same search for publications in the previous decade of the 1990s. Some authors continued to examine regulatory regimes (Hood, Rothstein and Baldwin 2001) and the influence of governments on risk management in the private sector (Hutter and Jones 2007). However, while the 2000s produced fewer academic publications on risk management in the public sector, Western governments – particularly Westminster system governments and the U.S.A. – became much more active in publishing guidance documents on risk management as we will discuss below.

The 2008 financial crisis generated significant academic attention to risk management and more specifically its failures in the financial, insurance and accounting industries, the very sectors where modern risk management was born. Some authors, such as Stulz (2008), were quick to defend the financial sector against accusations of flawed and even incompetent risk management by arguing that one needs to "distinguish between flawed assessments by risk managers and corporate risk-taking decisions that, although resulting in losses, were fundamentally reasonable at the time they were made" (Stulz 2008, p.48).

Other authors point the finger squarely at the financial industry and regulatory bodies. In a 2009 articled entitled "The Risk Management of Nothing", M. Power concludes that:

> "A thin conception of 'risk appetite' predominantly focused on capital rather than human behaviour is an important source of 'intellectual failure' within the Enterprise Risk Management model which should be addressed by regulators, senior management and boards" (Power 2009, p.854).

2.5 Risk Management in Governments

Governments' concern with the way they practise risk management beyond issues related to crisis and emergency management, and insurance, started in the 1990s. Originally, it was mostly linked to other issues such as value-for-money in the delivery of public services, transparency and the achievement of results, and "less concerned with risk taking as such than with more generalized discussions regarding accountability and control" (Vincent 1996, p. 59). The Australian government's Management Advisory Board (1993) describes the prevailing view of risk management in Westminster systems in its 1993 note on "Accountability in the Commonwealth public sector":

> "Today, public servants use risk management techniques which involve a more explicit assessment of the risks involved in taking a particular decision. Risk management recognises that mistakes will be made - but should not be repeatedly made. That would be risky management as would the case of a single palpably obvious and serious

> mistake that could have been avoided. If need be, public servants would be expected to defend the judgments involved in that risk assessment before ministers and, through them, parliamentary committees. Adoption of a risk management approach has not led to any diminution in the requirement for due process, but rather to a heightened focus on cost-effective outcomes." (Management Advisory Board 1993, p. 7)

According to Vincent (1996), the contemporary academic literature

> "…generally reflects more constitutional concerns, and draws on constitutionally-focused language, rather than clearly managerial concerns and language; and that exploration of risk issues is more likely to be handled indirectly, by consideration of public servants' and organizations' *accountability* and the means of their control." (Vincent 1996, p. 57)

This is taken to the point where accountability obscured the question of how the public service manages risk.

The UK government was one of the first to address directly the issue of risk management, risk culture and risk-taking in HM Treasury's 1994 "Risk Management Guidance Note" (HM Treasury 1994), which "advocates the development of a "positive attitude towards the control of risk – a 'risk management culture...'; and stresses the importance of managers' awareness that '... they have ...(within certain limits) ownership of risk'." (Vincent 1996, p. 58).

2.6 ISO 31000

In March 2005, the International Standards Organization launched the development a international standard on risk management. ISO 31000 on risk management was released in November 2009 after a number of delays. It represents the culmination of recent thinking around risk and risk management. It is still too early to assess ISO 31000's impact on industry, but, so far, "most decision makers seem to welcome the new standard and it has so far received very good reviews" (Purdy 2010, p.881).

The limited academic reaction to ISO 31000 is, so far, mixed. G. Purdy's (2010) assessment of ISO 31000 was relatively positive. He concludes that while the standard will be improved over

time, it represents a "significant milestone in the field of risk management" (Purdy 2010, p.886). Leitch (2010) is not as upbeat and feels that "despite its positives the overall conclusion must be that ISO's new standard on risk management is disappointing" (Leitch 2010, p. 892). His criticism of ISO 31000 is centered around four issues. According to Leitch, ISO 31000:2009 is "(1) unclear; (2) leads to illogical decisions if followed; (3) is impossible to comply with; and (4) is not mathematically based, having little to say about probability, data and models" (Leitch 2010, p. 892). He hopes that subsequent version will improve on this first version (Leitch 2010, p. 892). ISO 31000:2009 is discussed in further detail in Chapter 4 "Methodology and Research Design" of this thesis.

2.7 Summary

As this chapter has shown, much has been written about how governments respond to risks, how they *should* respond to risks and why risk management may differ in private and public sector organizations, implying that there will be some variation. The literature also recognized that risk management needs to be "tailored" (TBS *coordinated Conclusions* 1999, p. 1), without, however, clearly explaining what that meant in practise, and without specifying whether risk management needed to be tailored at the sector level (public/private) at the organization level (from one organizations to another in the same sector) or for different functional areas within a single organization. In 2009, IS0 31000 partly answered this question by stating that risk management must always be tailored and what to take into account when tailoring practices to meet one's needs (International Organization for Standardization 2009, p. 8) . However, there is a clear gap in the understanding of how governments actually practice risk management, and what influences the way they manage risks. Governments have themselves produced policies that describe how risk management should be practised by the different organizations making up the government (the case of the Government of Canada is presented in the next chapter) but still little had been published on how the different organizations in a government practise risk management. This is the gap that this thesis research aims to start filling.

Chapter 3: Risk Management in the Government of Canada

This chapter focuses on the evolution of risk in the Government of Canada, the key players, how responsibilities are assigned and how it is implemented. The discussion will be limited to risk management at the corporate level of government organizations and, therefore, will not deal with risk management at the program level in individual departments to be consistent with this study's scope and focus on corporate risk management in departments. However, references are made to practices, policies, etc. that are mostly relevant at the program level when they are deemed important to the overall understanding of risk management in the Government of Canada, as will be the case with the Precautionary Principle. Corporate risk management is understood as the management of risks that an organization faces as a whole as opposed to risks that only concern a specific program (or programs) in the organization. As an example, an organization's finance branch may have to manage risks related to the implementation of a new accounting software package. While one can easily imagine that this risk may have a domino effect on the rest of the organization, this risk would not be considered a corporate risk in the same way that risks associated with securing the necessary financial resources for the organization to function would be.

The first subsection outlines the evolution of risk management approaches in the Government of Canada, through successive risk management policies, frameworks and guidance documents. On August 27, 2010, the Treasury Board of Canada Secretariat (TBS) Framework for the Management of Risk came into effect replacing the 2001 Integrated Risk Management Framework (IRMF). As such, risk management in the Government of Canada is currently in a transitional phase as departments and agencies adjust their practices to reflect the 2010 Framework. The second and third sub-sections of this chapter discuss TBS, its role in the government of Canada and more specifically as it relates to risk management in the Government of Canada. The fourth sub-section backtracks slightly to focus on the 2001 IRMF as it was in effect when most of the data sources for this thesis were produced. The 2010 Framework is discussed in the conclusion of this thesis. Finally, this chapter provides the backdrop for the empirical work presented in chapters 4 and 5 through a detailed description of risk management in the Government of Canada.

3.1 Evolution

In Canada, the federal government's first Policy on Risk Management was published in 1994, but unlike contemporary UK documents discussed in the previous chapter, the Canadian policy was a reflection of risk management from academic literature of the 1980s and previous decades. The policy is limited to the management of and protection through insurance against harmful incidents. It states:

> "It is government policy to identify, and reduce or eliminate risks to its property, interests and employees, to minimize and contain the costs and consequences in the event of harmful or damaging incidents arising from those risks, and to provide for adequate and timely compensation, restoration and recovery." (Treasury Board of Canada Secretariat 1994, p. 2).

The Government of Canada first seriously turned its attention to risk management as a component of general management in the late 1990s with the publication in 1997 of the Report of the Independent Review Panel on Modernization of Comptrollership in the Government of Canada (Independent Review Panel on Modernization of Comptrollership in the Government of Canada 1997). The initiative was primarily driven by the need to manage scarce resources at a time when the federal government had just undergone the most important cutbacks in its history. The report identified risk management as one of the four key elements of modern comptrollership (Independent Review Panel on Modernization of Comptrollership in the Government of Canada 1997, p. 4). It noted that risk tolerance thresholds had traditionally been low in government and that "managers need more sophisticated tools to manage risks" (Independent Review Panel on Modernization of Comptrollership in the Government of Canada 1997, p. 15) if they are expected to do so in a new and changing environment. While risk management was viewed as essentially linked to control mechanisms, the importance of this report is that it approaches risk management as an essential component of sound management in the public sector.

In 1999, the Treasury Board Secretariat commissioned a study of best practises in public and private sector risk management (Treasury Board of Canada Secretariat 1999c). The study concludes that new realities in the public sector such as "resource restraint, people replaced by

systems, the global pace of change, etc." reinforce the case for a "drive towards more systematic management of risk". A number of best practices, which should be applicable to the public sector, are identified:

> "…commitment from the top, communication, and using committees and teams helps foster a supportive work environment; workshops, teaming and training contribute to easily understood methods; and senior management commitment and communicating risk support accountability; … Risk Management should be a continuous, dynamic process, tailored to each organization; a Risk Management Policy or Framework is key to clarifying roles and responsibilities." (Treasury Board of Canada Secretariat 1999c, pp. 1-3).

Finally the studies recommend that once some of the pre-requisites such as commitment from the top have been fulfilled, the best approach is a phased, gradual implementation of risk management initiatives rather than an organization-wide approach (Treasury Board of Canada Secretariat 1999c, p. 3).

The following year (2000), TBS published "Results for Canadians" to provide a coherent framework for management in the Government of Canada, and in which the issue of risk management is addressed (Treasury Board of Canada Secretariat 2000). While the document does not contain a section that specifically addresses risk management, the concept of risk management is integrated throughout the document. TBS makes a commitment: "an integrated risk-management framework will be developed and adapted for use by departments and agencies" (Treasury Board of Canada Secretariat 2000, p. 30) establishing risk management as a management priority for the government. Language such as "effective and sound risk management", "intelligent risk taking" and "taking acceptable risks" is used, and while these concepts are not defined in the document, risk management is always closely linked to the need for effective control systems and the minimization of exposure to negative impact events.

In 2001, TBS delivered on its commitment to develop a framework to guide risk management efforts in the federal government by publishing the "Integrated Risk Management Framework" (IRMF), replacing the 1994 Policy on Risk Management (Treasury Board of Canada Secretariat 1994). The IRMF sets an ambitious objective:

> "Application of the Integrated Risk Management Framework, in conjunction with related risk management activities, will support a cultural shift to a risk-smart workforce and environment in the Public Service. Such an environment is one that supports responsible risk management, where risk management is built into existing governance and organizational structures, and planning and operational processes." (Treasury Board of Canada Secretariat 2001, p.7)

An important contribution of the IRMF is that it provides definitions for the Government of Canada of key concepts starting with "risk". The IRMF acknowledges that there is no universally agreed upon definition of risk but proposes the following one:

> "Risk refers to the uncertainty that surrounds future events and outcomes. It is the expression of the likelihood and impact of an event with the potential to influence the achievement of an organization's objectives." (Treasury Board of Canada Secretariat 2001, p. 9)

This definition is noteworthy for two reasons. The first is how close it is to the ISO definition provided more than eight years later in 2009 ("effect of uncertainty on objectives"), and how different it is from the definition used by the Privy Council Office (PCO) one year earlier (2000) in a report entitled "Risk Management for Canada and Canadians" prepared by a working group of senior managers (Assistant Deputy Minister Working Group on Risk Management), where "risk" is defined as "a function of the probability (chance, likelihood) of an adverse or unwanted event, and the severity or magnitude of the consequences of that event" (Privy Council Office 2000, p. 3). The latter definition is representative of the traditional view of the public sector that is risk adverse and where risk is something negative that should be avoided. The definition proposed by the IRMF indicates that TBS had "done their homework" when it came to providing a balanced definition based on contemporary international best practises. The difference in the two definitions also reflects a still often-heard complaint from risk management specialists in the public sector today, that despite all the progress made, when it comes to risk and risk management, some senior managers "still don't get it" (Personal Communication 2011).

In 2003, the Office of the Auditor General (OAG) published an audit of the Government of Canada's progress towards the implementation of modern comptrollership. Chapter 1 deals specifically with risk management and provides an assessment of the "adequacy of departmental efforts to implement the Integrated Risk Management Framework developed by

the Treasury Board Secretariat" (Office of the Auditor General 2003, p. 6). The report finds that little progress had been made in implementing integrated risk management as per the guidance provided in the Integrated Risk Management Framework, and called for "more practical guidance on how to carry out specific key steps toward integrating risk management into their [departments] management culture" from TBS (Office of the Auditor General 2003, p. 1). An important point raised in the report was the need to clarify risk tolerance levels at the corporate level:

> "No department that we audited had a fully developed profile clearly indicating the level of risk that senior management was prepared to tolerate throughout the department. The development of risk tolerances assists departments in integrating risk management into their operations. Without clearly established risk tolerances, some managers may choose to avoid risk entirely, preferring the status quo; others may take greater risks than senior management is willing to accept." (Office of the Auditor General 2003, p.1).

The report stopped short of proposing a methodology to establish risk tolerances in a government department. The above quote still applies in 2010 to the six organizations covered in this study. This being said, risk tolerance is receiving more attention today from TBS and departments, and the importance of establishing risk tolerance levels is widely accepted by practitioners. The debate continues around what methodology to use and how to keep senior management engaged in such an unstable yet key element of risk management.

In 2004, TBS released the Integrated Risk Management Implementation Guide with further detailed guidance on how to implement the IRMF. Another noteworthy document which provides additional guidance to science-based departments is the 2003 PCO "Framework for the application of precaution in science-based decision making about risk" (Privy Council Office 2003). While the 1994 Policy on Risk Management (Treasury Board of Canada Secretariat 1994) did not address the application of the precautionary principle, one could argue that with its focus on risk avoidance and "elimination", the need to exercise precaution went without saying. With the 1994 policy rescinded, and the IRMF much more open to risk-taking, the Government of Canada decided to clarify how decisions, which could lead to irreversible harm, should be approached. In situations where there is "sound or credible evidence" of potential "irreversible damage" if a decision were delayed, and where there is a lack of scientific certainty, precaution

will be applied. “Fisheries management” is cited as an example of such an area where precaution may be applied (Privy Council Office 2003, p. 3). While PCO does not define precaution, in practice “precaution” has led many science-based programs to develop a staunchly risk averse culture and avoid risks based on the impossibility to completely eliminate a potentially negative outcome. The 2003 PCO Framework notes:

> “Canada has a long-standing history of applying precaution in areas of federal regulatory activities. The Government’s obligations in this regard are governed by applicable provisions of federal law, binding federal-provincial agreements and international agreements to which Canada is a party” (Privy Council Office 2003, p. 2).

3.2 Treasury Board of Canada Secretariat

As far as risk management in the Government of Canada is concerned, there are, from an organizational standpoint, two main players: (i) the departments and agencies (six of which make up the sample for this study), and (ii) TBS, the government central agency responsible for the “general management of the government” (Treasury Board of Canada Secretariat, *website*, 2011). While departments and agencies do interact with other parts of government on issues surrounding risk management (for example, with Parliament through the yearly mandatory reporting process, and the Privy Council through the Deputy Head’s performance assessment) the relationship and interaction with TBS is much more intense. A closer examination of TBS, its role in government, and vis-à-vis departments and agencies is, therefore, necessary to better understand the context in which organizations, and the risks they face, are managed.

The Treasury Board of Canada is the government’s “management board”, its “budget office” and the “employer of the core public administration”. The Treasury Board of Canada Secretariat, or TBS, is:

> “…the administrative arm of the Treasury Board. It supports Treasury Board ministers and strengthens the way government is managed to better serve Canadians and ensure value for money in government spending… [TBS] also provides leadership and guidance on management functions within departments and agencies, while respecting the primary responsibility of deputy heads in managing their organizations and their role as accounting

officers" (Treasury Board of Canada Secretariat 2011b, p. 3).

This being said, "the Treasury Board of Canada… has the authority to ensure that the government as a whole is managed in a coherent and effective manner" (Treasury Board of Canada Secretariat 2008, p. 1). TBS is the organization responsible for oversight of management practices as detailed in its government-wide policies. The primary oversight tool used by TBS is the Management Accountability Framework, or MAF, which is used to "assess overall management performance" in departments and agencies. The MAF is discussed in greater detail below. TBS further specifies:

> "The level of oversight exercised by Treasury Board will be based largely on the department's own internal management and oversight regime and the actions taken within the department to deal with issues of non-compliance" (Treasury Board of Canada Secretariat 2008, p. 7).

In a situation where an organization is found to be non-compliant with Treasury Board policies and requirements,

> "Treasury Board's decision to take further action or to intervene … (i.e., negative consequences for departments) hinges on the degree of risk involved in the management problem at hand. Interventions take various forms, including informal follow-ups, requests for specific information or additional reports, external audits or other investigations, formal direction on specific preventative or corrective measures to be taken by the department, and withdrawal of authority." (Treasury Board of Canada Secretariat 2008, p. 7).

3.3 Risk Management and TBS

TBS has different tools it can use to provide guidance and set requirements for departments and agencies. These instruments are frameworks, policies, directives, standards, guidelines and tools. Policies, directives and standards are mandatory for departments and agencies, guidelines and tools are voluntary, and frameworks are described as architectural (Treasury Board of Canada Secretariat 2008, p. 4). Frameworks are therefore, not strictly speaking, mandatory, but rather "provide the supporting structure within which specific Treasury Board policies and other

instruments can be understood in strategic terms" (Treasury Board of Canada Secretariat 2008, p. 4). In some cases, a framework will have associated policies, which clearly lay out requirements for departments. Because mandatory policies generally flow from and elaborate on elements in the frameworks, the frameworks are generally viewed by departments and agencies as mandatory. Guidelines are not mandatory according to TBS, but rather provide "guidance, advice or explanation" (Treasury Board of Canada Secretariat 2008, 9).

TBS does not have a policy on risk management. Instead, it explains that "the principles contained [in the Framework] take form through embedded risk management requirements across the renewed Policy Suite" (Treasury Board of Canada Secretariat 2010b, p. 6) which includes policies and directives that contain requirements related to risk management. Some examples of requirements and responsibilities for departments and agencies, related to risk management, embedded in other TBS policies are provided below.

The Policy on Internal Control (Treasury Board of Canada Secretariat 2009) specifies that:

> "Risks relating to the stewardship of public resources are adequately managed through effective internal controls, including internal controls over financial reporting. [And that] deputy heads have … the responsibility to ensure that internal controls are regularly reviewed in the context of risk, ensuring that those internal controls are balanced against and proportional to the risks which they mitigate." (Treasury Board of Canada Secretariat 2009, pp. 3-4)

Other risk management requirements and expectations are laid out in the Policy on Internal Audit (Treasury Board of Canada Secretariat 2006):

> "Chief audit executives provide annual holistic opinions to deputy heads and audit committees on the effectiveness and adequacy of risk management, control, and governance processes in their departments, as well as reporting on individual risk-based audits. Similarly, it was decided that the Comptroller General report annually to Treasury Board on the state of risk management, control and governance processes across government, addressing fundamental controls, including basic reporting controls for financial statements, thematic or sectoral controls, and the results of risk-based internal audit work carried out within departments (TBS 2006, p. 2)… [Further,] it is expected that the Minister would meet annually in camera with the Internal Audit Committee for assurance regarding risk management, control and audit systems." (Treasury Board of Canada Secretariat 2006, p. 4)

The 2008 TBS Policy on Transfer Payments also contains some important information on risk management requirement and responsibilities. It states:

> "Transfer payment programs are designed, delivered and managed in a manner that takes account of risk and clearly demonstrates value for money. [And] Ministers are responsible for … setting the strategic direction for risk tolerance for departmental transfer payment programs." (Treasury Board of Canada Secretariat 2011f, pp. 3-4)

Within TBS, the Centre of Excellence on Risk Management is the focal point for risk management in the Government of Canada. Its mandate is to:

> "improve integrated risk management across the federal government by providing advice, developing learning resources, promoting a community of risk management practice, and by supporting engagement on horizontal risk management issues" (TBS Center of Excellence on Risk Management 2010, p. 2).

The Centre of Excellence for Risk Management fulfills its mandate in a variety of ways. It acts as an information and resource centre for risk management in the government, by organizing the Government of Canada Risk Management Forum and participating in various other forums that deal with public sector risk management. The Centre of Excellence also leads government-wide consultations on the development of key risk management documents such as frameworks, guides and tools. It is also the primary interlocutor at TBS for departments and agencies on issues relating to risk management. Finally, the Centre of Excellence assesses the performance of departments and agencies in the area of risk management by participating in the MAF assessment process. It develops the MAF questionnaires for risk management and evaluates responses from the organizations being assessed.

The MAF was first introduced by TBS in 2003 as part of the larger public service management modernization agenda launched three years earlier by the *Results for Canadians* report (Treasury Board of Canada Secretariat 2000). It defines management expectations for Deputy Heads (DH) and provides the basis on which the Clerk of the Privy Council conducts performance assessments of DHs. Because DHs are responsible and accountable for the overall management of their organization, the MAF is therefore the standard against which management's

performance in an organization is assessed. As reported on the MAF website, the MAF is made up of "10 essential elements of sound management" (Treasury Board of Canada Secretariat 2011d) or, as they are also often referred to by practitioners in the Government of Canada, "areas of management":

1. Public service values;
2. Governance and strategic direction;
3. Policy and programs;
4. People [workforce];
5. Citizen-focused service;
6. Stewardship;
7. Accountability;
8. Results and performance;
9. Risk management; and
10. Learning, innovation and change management (Treasury Board of Canada Secretariat 2011d).

DHs are expected to implement and oversee sound management practices in each of these areas of management throughout their organization. In order to "gauge progress toward those objectives" (Treasury Board of Canada Secretariat 2011d). Interestingly, TBS explains that the MAF is not necessarily "prescriptive" and that organizations should adjust management practices as appropriate to ensure "higher organizational performance" (Treasury Board of Canada Secretariat 2011d). But because departments are assessed by TBS against the indicators, and because of the sizeable stick that TBS holds (see discussion on non-compliance with Treasury Board policies above), much of the reporting by departments to TBS, at least in the area of risk management, is very much focused on meeting the requirements of the MAF and implementing elements of the IRMF.

3.4 The 2001 Integrated Risk Management Framework

This section takes amore in depth look at the 2001 IRMF (Treasury Board of Canada Secretariat 2001) and 2004 Implementation Guide (Treasury Board of Canada Secretariat 2004). These two documents provided the architecture for risk management in the Government of Canada until 2010 and the release of the 2010 Framework for the Management of Risk. As was discussed in

the previous section, while there are risk management requirements embedded in other TBS policies, there is no TBS policy on risk management. Therefore there is no single document that organizations can refer to in order to get a complete picture of TBS requirements related to risk management as the Framework and the Guide are not mandatory. In the absence of such a document, organizations have had the tendency to approach the IRMF and its elements as requirements and the 2004 Implementation guide as guidance on how to meet those requirements. This has been reinforced over time by the fact that TBS has based its assessments of risk management in organizations in large part on the IRMF as we will see in the section below on MAF assessments. This being said, there are no clearly stated consequences for not implementing elements of a framework; something that would be the case with a policy. An organization could therefore interpret this situation as TBS providing it with flexibility in the implementation of risk management.

3.4.1 Who Was Responsible for Risk Management?

The Financial Administration Act (sections 16.3 and 16.4) designates Deputy Ministers (or Deputy Heads "DH") as "accounting officers" for their respective departments and agencies. It also creates the legal obligation for DHs to appear before parliamentary committees to answer questions regarding, amongst other things: "the measures taken to organize the resources of the organization to deliver departmental programs in compliance with government policies and procedures" and "the measures taken to maintain effective systems of internal control in the organization" (FAA 2011, sections 16.3-16.4). In other words, the DH is ultimately responsible for the overall administration of his or her organization, and thus effective management of risk by his or her organization.

The 2001 IRMF specifies how the DH fulfills his or her responsibilities regarding risk management. It should be noted that the changes to the FAA that officially designate DHs as accounting officers were made in 2006, and that the 2001 IRMF, therefore, precedes these changes. This being said, there are no contradictions or conflicts between the DH's responsibilities as defined in the 2001 IRMF and those on the 2006 amendment to the FAA. The IRMF states that the DH is responsible for:

- "setting the tone from the top that systematic and integrated risk management is

valuable for understanding uncertainty in decision-making and for demonstrating accountability to stakeholders;

- determining the best way to implement the Integrated Risk Management Framework in their organization;
- ensuring that a supportive learning environment exists for risk management, including sensible risk-taking and learning from experience;
- ensuring, from a corporate perspective, that risks are prioritized and that appropriate risk management strategies are in place to respond to identified risks; and
- ensuring the capacity to report on the performance of the risk management function (i.e., knowing how well the department or agency is managing risk)" (Treasury Board of Canada Secretariat 2001, p. 41).

In addition to the DH and TBS, the IRMF specifies risk management responsibilities for the following groups (Treasury Board of Canada Secretariat 2001, p. 42):

1. Senior management: is responsible for "integrating risk management into overall departmental strategy and management frameworks", and for "providing managers and employees with learning opportunities and training to build competencies." Senior management is also responsible for the allocation of resources "for investment in more systematic risk management."
2. Managers: are responsible for using risk information when making decisions and "ensuring there is appropriate ongoing operational and corporate-related risk management action, planning, training, control, monitoring and documentation."
3. Functional advisors and risk management specialists: are responsible for providing advice on risk management in line with applicable policies, providing technical support to managers in their risk management activities and developing tools for managers to manage risk.
4. The review and internal audit group: is responsible for "reporting to the Deputy Head on the department's or agency's performance under the IRMF."
5. All public servants are responsible for demonstrating "risk-smart behaviours", which can generally be described as understanding the risk that they are taking in their functions, and "documenting decisions and supporting information."

As discussed in the previous chapter, in 2004, TBS published the "Integrated Risk Management Implementation Guide" (Treasury Board of Canada Secretariat 2004) to provide more specific guidance to departments and agencies on the implementation of risk management in the federal government and the expectations of central agencies. The Guide was largely a response to the OAG's report from 2003, which called for more specific guidance from TBS (Office of the Auditor General 2003, p. 1). The report highlighted some issues that had emerged because of lack of clarity around responsibilities and the way in which organizations should assign them. For example, the OAG report found that in some organizations:

> "Internal audit [had] been made responsible and accountable for implementing significant components of the integrated risk management initiative on behalf of senior management. In [the OAG's] view, the close involvement of internal audit in implementing the initiative may compromise its ability in the future to provide objective, independent advice and assurances on the effectiveness of integrated risk management in the department." (Office of the Auditor General 2003, p. 1).

The appendices of the 2004 Implementation Guide (Treasury Board of Canada Secretariat 2004, pp. 36-38) contain a detailed table, which specifies the responsibilities of each group as they relate to expected results under the four elements of integrated risk management according to the IRMF (1. developing the corporate risk profile; 2. establishing an integrated risk management function; 3. practising integrated risk management; and 4. ensuring continuous risk management learning), as well as responsibilities to ensure sustained commitment and support for risk management from senior management.

An analysis of the "responsibilities tables" in the Implementation Guide (Treasury Board of Canada Secretariat 2004, pp. 36-38) reveals that three key players are responsible for the implementation of risk management: the DH, managers, and, an additional figure not mentioned in the IRMF – a corporate "risk champion" designated by the DH. The responsibilities of the other actors identified in the IRMF – i.e. risk management specialists (provide advice and technical support), the review and audit group (report on performance) and all public servants (be "risk-smart") – do not receive much additional attention in the 2004 guidelines. Some concrete examples of what is expected from DHs include:

> "…plac[ing] integrated risk management on the executive team agenda; … giv[ing] it time at the executive table; … mak[ing] and communicat[ing] decisions around priorities and risk acceptance so employees have a shared sense of risk and context for their individual judgements; … ensur[ing that] risk management is anchored at the deputy head level and that the right people are involved in or leading implementation; and explain[ing] to stakeholders that risk is a part of managing to get a net reward, that innovation requires experimentation and learning from experience supported by sound risk management" (Treasury Board of Canada Secretariat 2004, pp. 36-38).

The responsibilities of corporate risk champions include: "lead[ing] and facilitat[ing the] development and dissemination of implementation plans and necessary guidance"; leading the development of the corporate risk profile, advising the DH on issues regarding risk management; and controlling the quality and relevance of training on risk management (Treasury Board of Canada Secretariat 2004, pp. 36-38). While managers are expected to contribute throughout the integrated risk management process, their most important responsibilities appear under the third element: "practising integrated risk management" (Treasury Board of Canada Secretariat 2004, p. 37). These include:

> "…systematically identify and manage risk strategically in functional units; always know who is managing; ensure employees are familiar with the latest risk management guidance; [and] ensure particular risk management responsibilities are reflected in employees' work objectives." (Treasury Board of Canada Secretariat 2004, p. 37).

As previously noted, the Implementation Guide provided useful as organizations implemented the IRMF. The guidance was primarily aimed at the working level and those managers responsible for implementing risk management in the organization. In the Government of Canada, an Implementation Guide does not establish requirements as a policy does. Therefore, there are no explicit consequences for an organization if it does not implement the guidance contained in the Implementation Guide. However, an organization may decide that it is in its best interest to follow TBS guidance since TBS is also responsible for assessing its performance.

3.4.2 How Was Risk Managed?

The Government of Canada is a mosaic of individual and unique departments and agencies. The

objective of this thesis is to determine whether or not, and if so, how risk management practices vary in organizations in the Government of Canada in the context of a common framework, policies, guide and tools applicable to all. These common documents could potentially lead to a greater homogenization of risk management practices across organizations as these organizations strive to meet the requirements related to risk management contained in these documents. However, if practices vary in spite of common requirements, it is important to determine how and why they vary in order to further our understanding of risk management in public sector organizations. This section, therefore, provides the reader with an overview of the common 2001 IRMF (Treasury Board of Canada Secretariat 2001) and 2004 Implementation Guide (Treasury Board of Canada Secretariat 2004) used by departments and agencies in the federal government until 2010 to paint a picture of how risk management should be practised by departments and agencies according to TBS.

As the IRMF's title suggests, risk management should be "integrated" and "built into existing governance and organizational structures, and planning and operational processes" (Treasury Board of Canada Secretariat 2001, p. 7). Integrated risk management is defined as:

> "…a continuous, proactive and systematic process to understand, manage and communicate risk from an organization-wide perspective. It is about making strategic decisions that contribute to the achievement of an organization's overall corporate objectives." (Treasury Board of Canada Secretariat 2001, p. 12).

This emphasis on integrated risk management is a recognition that in order to be useful and to contribute to the achievement of the organization's desired results, risk management needs to look across the whole organization, and beyond, at the external environment in which it operates. It is also a reaction to what is sometimes described as the "silo mentality" that afflicts many organizations, and especially large public sector organizations, whereby individual parts of the organization operate, and in this case manage risks, independently of the rest of the organization. The IRMF acknowledges the significant pre-existing risk management experience in government, especially within organizations concerned with the health and safety of citizens (Treasury Board of Canada Secretariat 2001, p. 8). Despite this experience, the implementation of integrated risk management is still potentially challenging for these organizations as it is not limited to science-based risks (understood in this case as "threats"), but applies to all risks faced

by an organization: policy, program, operational, project, financial, human resources, technological, health, safety and political risks. Ultimately, the implementation and practise of integrated risk management should "support a cultural shift to a risk-smart workforce and environment in the Public Service" (Treasury Board of Canada Secretariat 2001, p. 7). The IRMF provides a detailed explanation of its vision of a "risk-smart workforce", but it can be summarized as a workforce where everyone understands that they are managing risks, are familiar with the basic tools and techniques of risk management and where risk management becomes second-nature or simply matter-of-fact (Treasury Board of Canada Secretariat 2001).

The IRMF is built around four "related elements" to be implemented by organizations in the federal government. TBS' considers that "the application of the Framework is expected to enable employees and organizations to better understand the nature of risk, and to manage it more systematically" (Treasury Board of Canada Secretariat 2001, p. 13). The four elements are:

1. Developing the corporate risk profile;
2. Establishing an integrated risk management function;
3. Practising integrated risk management; and
4. Ensuring continuous risk management learning.

These four elements form the backbone of the common framework that applies to all organizations in the Government of Canada. As each element is implemented – preferably through a gradual and phased approach (TBS 1999c, p. 3) – organizations meet their obligations vis-à-vis TBS. The IRMF describes each element, some essential steps for the implementation of the element and associated expected results. However, the level of detail in the guidance is limited, thus leaving organizations to determine the best way to implement these elements. Only in 2004 did the Implementation Guide provide specific guidance on how to implement each element, as well as "questions to consider" during implementation, and examples of implementation efforts by departments and agencies (Treasury Board of Canada Secretariat 2004, p. 9-10). The four elements are described in greater detail below.

Element 1 - Developing the corporate risk profile: TBS explains that a corporate risk profile (CRP),

> "…helps a department or agency establish a direction for managing corporate risks. The profile presents a snapshot of the organization's risk status at a particular point in time by addressing the following questions from a risk perspective: where is the organization now (threats, opportunities, strengths, and weaknesses); where is it going (organizational objectives and expected results); and what are the key high-level risks that need to be managed at the senior management level to enable the organization to achieve its corporate objectives and results?" (Treasury Board of Canada Secretariat 2004, p. 9-10)

For a CRP to achieve its objective, it must be based on an internal and external environmental scan, which will allow the organization to identify the "key characteristics and attributes of the risks it faces". These include: "the type of risk", "the source of the risk" (external, internal), "what is at risk" (impact and exposure) "and the level of ability to control the risk" (Treasury Board of Canada Secretariat 2001, p. 17). When developing the CRP, an organization must "assess [its] current risk management capacity" to assess the level of exposure of the organization to a given risk and the capacity of organizational infrastructure to manage and respond to the risk (Treasury Board of Canada Secretariat 2001, p. 17). The Implementation Guide further notes, "management must ensure that this infrastructure is capable of supporting the organization's current and anticipated integrated risk management needs" (Treasury Board of Canada Secretariat 2004, p. 13). Another key element in the development of the CRP is the "understanding [of] risk tolerances" within the organization and of stakeholders, including citizens (Treasury Board of Canada Secretariat 2001, p. 19). As previously discussed, establishing risk tolerances continues to be a challenge for departments and agencies. In fact, most have not yet successfully done so at the corporate level. This may be, in part, because the IRMF identified the need to understand tolerances, but did not require organizations to report on risk tolerance levels, or even to include them in a corporate risk document such as the CRP.

Element 2 - Establishing an integrated risk management function: According to the IRMF,

> "…establishing an integrated risk management function means setting up the corporate 'infrastructure' for risk management that is designed to enhance understanding and communication of risk issues internally, to provide clear direction and demonstrate senior management support." (Treasury Board of Canada Secretariat 2001, p. 20).

This is achieved through the establishment and communication of the "strategic risk management direction" of the organization by senior management, the "integration of risk management into decision-making", "reporting on performance", and "building the organizational capacity" to manage risk by allocating the necessary resources and developing and implementing the appropriate risk management processes and tools (Treasury Board of Canada Secretariat 2001, pp. 20-25). The Implementation Guide discusses a key aspect of this element: the identification of a corporate risk management champion or unit (Treasury Board of Canada Secretariat 2004, p. 17). The corporate risk champion is:

> "…commonly assigned to a corporate function at the assistant deputy head level, for example, in the strategic and business planning unit or corporate services branch… The corporate risk champion should be supported with appropriate resources; this might include specialists to provide expertise on a systematic approach to the process of integrating risk management." (Treasury Board of Canada Secretariat 2004, p. 17).

The corporate focal point or unit (in some cases the "unit" is made up of a single individual) generally carries out tasks associated with corporate risk management activities such as the coordination of the CRP development process, development of tools, and provision of advice on risk management, etc., (Treasury Board of Canada Secretariat 2004, p.36-38). Another suggestion in the Implementation Guide, which has proven popular with organizations in the sample of this study, is the establishment of a network of "local change sponsors or risk champions". The Implementation Guide describes the network as:

> "…interested individuals [who] can assist senior management in developing work plans that reflect a corporate perspective on risk-related issues. It is also an appropriate channel for communicating implementation concepts and timing throughout the organization." (Treasury Board of Canada Secretariat 2004, p. 17).

Element 3 - Practising integrated risk management: Much can be said about how to practise integrated risk management, but the main elements of the practice of risk management as laid out by TBS are briefly summarized below. According to the Implementation Guide, practising integrated risk management is about:

> "…integrating the practise of risk management throughout an organization within the guiding framework, philosophy, and practices the organization has established. Local

> risk management thinking and practises must inform and be informed by the integrated view." (Treasury Board of Canada Secretariat 2004, p. 20).

In order to practise integrated risk management, an organization must adopt a common and continuous risk management process which "assists an organization in understanding, managing and communicating risk" (Treasury Board of Canada Secretariat 2001, p. 26). The process should be built around four major steps and nine related activities listed below (Treasury Board of Canada Secretariat 2001, pp. 28-29):

A. Risk Identification

1. Identifying issues, setting the context, defining the problem, determining necessary resources, and performing a stakeholder analysis.

B. Risk Assessment

2. Assessing key risk areas;
3. Measuring likelihood and impact;
4. Ranking risks considering risk tolerance.

C. Responding to Risk

5. Setting desired results of the risk management process;
6. Developing options to minimize threats and maximize opportunities;
7. Selecting a response strategy;
8. Implementing the strategy (development and implementation of a plan).

D. Monitoring and Evaluation

9. Monitoring, evaluating, adjusting and learning from experience and reporting on results.

The IRMF specifies that the results of this process:

> "…are to be integrated both horizontally and vertically into organizational policies, plans and practices. Horizontally, it is important that results be considered in developing organization-wide policies, plans and priorities. Vertically, functional units, such as branches and divisions, need to incorporate these results into programs and major initiatives." (Treasury Board of Canada Secretariat 2001, pp. 31-32).

The IRMF also emphasizes the need for communication and consultation with stakeholders "at

every stage of the risk management process" (Treasury Board of Canada Secretariat 2001, p. 35). It describes "risk communication" as involving:

> "…a range of activities, including issue identification and assessment, analysis of the public environment, … development of consultation and communications strategies, message development, working with the media, and monitoring and evaluating the public dialogue. The public sector has the additional responsibility of reporting to and communicating with Parliament" (Treasury Board of Canada Secretariat 2001, pp. 35-36).

Element 4 - Ensuring continuous risk management learning: While promoting continuous organizational learning is a necessity for any organization if it hopes to be successful and relevant as time passes, it serves another important and more immediate purpose in the case of integrated risk management. As noted above, for integrated risk management to succeed, a "cultural shift" in the organization to a "risk-smart workforce" is needed. To achieve this,

> "Organizations must embrace opportunity, innovation, and responsible risk-taking, while striving to achieve corporate objectives… Organizations will need to encourage learning and focus on building risk management capacity, while concentrating on increasing risk management awareness, knowledge, and skills – at the individual, team, and organizational levels – and strengthening processes (i.e. the development and use of risk management tools)." (Treasury Board of Canada Secretariat 2004, p. 24).

The IRMF emphasizes the need for leadership from the top through the allocation of resources for organizational learning, support for innovation, and by encouraging managers to act as coaches and teachers for employees. Learning plans also need to be integrated "into all aspects of risk management, [as this] is fundamental to building capacity and supporting the strategic direction for managing risk" (Treasury Board of Canada Secretariat 2001, p. 38). In other words, learning plans should be used as tools to build the capacity needed to manage risks identified through the risk management process.

TBS had done extensive research on best practices in risk management in both the private and public sector, and the IRMF is based on the findings of this research. However, ten years after the release of the IRMF, many organizations continue to struggle to implement different

elements of this integrated approach. The 2010 Framework for the Management of Risk (Treasury Board of Canada Secretariat 2010) provides explicit flexibility through a principle-based approach, and should facilitate the effective management of risk by departments and agencies. The idea that risk management and risk-information should be integrated into all processes and all decisions in an organization is now well-ingrained and established in organizations covered by this study. While it would be unfair to identify the IRMF as the culprit for ongoing implementation challenges – in fact, considerable progress has been made in the last ten years – the ability to tailor approaches based on guidance provided by the 2010 Framework and the best practices identified in ISO 31000 should allow many organizations to continue to progress towards effective and integrated risk management.

3.5 Summary

This chapter provided an overview of how risk management *should* be implemented by departments and agencies from 2001 to 2010. It has been ten years since the release of the IRMF, and seven since the release of the Implementation Guide, and still, when the new Framework came into effect, many organizations were struggling to implement some of the four basic elements of integrated risk management according to TBS. Organizations are having trouble fitting into the TBS mould. While the 2010 Framework and support documents could be interpreted as TBS' acknowledgement that such a prescriptive approach had reached its limits, it is more likely driven by the evolution in the field of risk management of recent years which has culminated in the publication of ISO 31000, as well as an effort to align risk management practices in the Government of Canada with international best practices.

Chapter 4: Methodology – Research Design

4.1 Introduction

The objective of this study is to understand "if", "how" and "why" risk management varies from one organization to another within the same larger organization, in this case the Government of Canada. While a substantial body of literature exists on how risk management *should* be practised in public sector organizations, relatively little academic literature exists that describes how and why risk management is practised in public sector organizations. As we saw in the literature review, the academic studies that have examined how risk management is practised in the public sector tend to be comparative studies between the private and public sectors and, therefore, do not focus on variations within the public sector itself.

One of the first challenges from a methodological standpoint is that there is insufficient previous research from which to develop a testable hypothesis. This thesis is therefore the result of an exploratory study, which collected extensive empirical data on risk management in six organizations in the Government of Canada. All organizations in the sample have been implementing the guidance in the TBS IRMF since its release in 2001. Neither this guidance nor the MAF assessment criteria differ from one organization to another, and therefore, one could expect risk management practices to be relatively homogenous across the organizations in the sample.

4.2 Choice of Sample

The sample is made up of six organizations in the Government of Canada; four departments and two agencies:

1. The Canada Economic Development for Quebec Regions (CED-Q) Agency;
2. Citizenship and Immigration Canada (CIC);
3. The Canadian International Development Agency (CIDA);
4. Fisheries and Oceans (DFO);
5. Health Canada (HC); and

6. Public Works and Government Services Canada.

The difference in status of these organizations (i.e., department vs. agency) is not considered significant for this study. These organizations were selected because they cover a range of sizes (budget and human resources), mandates, and represent the four program sectors as defined by TBS: (1) International Affairs, Security and Justice Sector (CIC and CIDA); (2) Economic Sector (CED-Q and DFO); (3) Government Operations Sector (PWGSC); and (4) Social and Cultural Sector (HC). This section briefly presents the organizations in the sample. More detailed information is provided in Chapter 5, sub-section 5.2.1 on the findings of the independent variables.

CED-Q: CED-Q is the federal agency responsible for promoting the economic development of communities in the province of Quebec, through the provision of support to mainly small and medium sized enterprises as well as non-profit organizations. This support is provided through services such as information and referral services, guidance for organizations on such things as developing a business plan or a funding application, and consulting services to assist business start-ups, export, etc. In addition, CED-Q is a funding organization that provides repayable and non-repayable contributions to enterprises (CED-Q 2011).

CIC: CIC is the government department responsible for managing Canada's immigration and multiculturalism programs. According to its website, CIC (CIC 2011):

- screens and approves for admission, immigrants, foreign students, visitors and temporary workers who help Canada's social and economic growth;
- resettles, protects and provides a safe haven for refugees;
- helps newcomers adapt to Canadian society and become Canadian citizens;
- manages access to Canada to protect the security and health of Canadians and the integrity of Canadian laws; and
- helps Canadians and newcomers to participate fully in the economic, political, social and cultural life of the country.

CIDA: CIDA is the Canadian government's primary channel for the provision of development assistance with the aim of reducing poverty in developing countries in support of Canada's

wider foreign policy objectives. The agency works with and provides funding to Canadian and foreign non-governmental organizations, multilateral agencies and governments in developing countries (CIDA 2011).

DFO: DFO "delivers programs and services that support sustainable use and development of Canada's waterways and aquatic resources" (DFO 2011). It is also responsible for the Canadian Coast Guard. DFO mandates include:

- Work with security forces to ensure the safe and secure use of Canada's waterways.
- Help with ship-to-shore communication, navigation, and clear passageways for safe water travel.
- Study (scientific research), conserve and protect aquatic ecosystems.
- Manage the commercial, recreational and Aboriginal fisheries.
- Provide services to fishermen, such as issuing licences.
- Maintain a network of harbours.
- Provide high-quality hydrographic data, products and services.
- Respond to ship-sourced oil spills.
- Develop and promote the wise use of technology to ensure the long-term health of Canada's waters.

HC: HC is responsible for "helping Canadians maintain and improve their health". With this objective in mind, HC "manages health care costs by communicating health risks and promoting healthy lifestyles", and provides "surveillance, prevention, control and research of disease outbreaks across Canada and around the world. The Department also monitors health and safety risks related to the sale and use of drugs, food, chemicals, pesticides, medical devices and certain consumer products across Canada and around the world" (HC 2011).

PWGSC: PWGSC is the main common service provider to other organizations in the Government of Canada. It provides services such as accommodation, real property, purchasing, banking, information technology and translation. The department is "Canada's largest payroll and pension administrator … [and its] largest owner and manager of office space" (PWGSC 2011a).

The organizations in the study were not chosen randomly, but rather because they are different from one another in many different ways. This meant that one could expect significant variations in the measurement of independent variables related to risk management. Given the small sample size (n = 6), the findings cannot be considered statistically significant, but nevertheless, the sample can be considered representative of organizations in the Government of Canada. For this reason, the sample is deemed sufficient for the purposes of an exploratory study and the development of future testable hypotheses.

4.3 Variables

This section presents the variables and control measure used in this thesis. In order to analyse how organizations practise risk management, a set of variables was measured to compare and contrast risk management activities. These variables include a dependent and independent variables in a causal relationship that is hypothesized to explain risk management practices in the organizations. The following sub-sections present the dependent variable, its construct, sources and scoring, followed by the control measure for the dependent variable. The last sub-section presents the five independent variables that influence the way risk is managed in an organization, their construct, scoring and sources.

4.3.1 Dependent Variable

a. Construct

The dependent variable in this study is “corporate risk management practices”. This categorical variable measures the presence and alignment of corporate risk management practices in the six organizations in the sample with best practices described in ISO 31000. In order to gather data for the dependent variable, the researcher developed a tool based on ISO 31000 as a yardstick against which risk management in an organization can be assessed. While the IRMF does not say that organizations should follow ISO 31000 – in fact the IRMF preceded ISO 31000 by 8 years – as the current “standard” ISO 31000 is a useful tool to measure risk management practices. Appendix A, “Data Collection Tools”, provides the detailed breakdown of the

dependent variable into its constituent measures. The measures are made up of suggested best practices or indicators in ISO 31000 and include groups of best practices under such headings as "understanding the organization and its context", "risk identification", "risk treatment" and "monitoring and review". These best practices provided the indicators to measure risk management practices in an organization.

b. Sources

The data sources for the dependent variables values include Departmental Performance Reports (DPR) 2009-2010, Reports on Plans and Priorities (RPP) 2010-2011, and risk management frameworks, policies, corporate risk profiles (CRP), guidelines, tools, training materials, and communications material on risk management provided by the organizations in the sample. References for these sources can be found in the bibliography. Each organisation's DPR 09-10 and RPP 10-11 are public documents available via TBS' website (Treasury Board of Canada Secretariat 2011a).

Other documentary sources above (frameworks, policies, CPRs, guidelines, etc.), while not classified documents, are not public documents and had to be requested from the organizations in the sample. While branch or program-level risk management documentation was provided in some cases by the organizations in the sample, and was reviewed by the researcher, it did not inform the dependent variable, as these documents were deemed to be not necessarily representative of corporate risk management practices in the organization. Data for the "Framework" element of the dependent variable was scored based on each organizations' risk management frameworks and policies (CED-Q 2010, *Cadre de gestion des risques*; CIC 2010, *Citizenship and Immigration Canada Integrated Risk Management Framework*; CIC 2010, *Citizenship and Immigration Canada Policy on Integrated Risk Management*; CIDA 2009, *Integrated Risk Management at CIDA*; CIDA 2010, *Managing Risk at CIDA: 2010 to 2020*; DFO 2010, *Policy on Integrated Risk Management for Fisheries and Oceans Canada*; DFO 2010, *The Integrated Risk Management Programme: Vision, Strategy & Next Steps*; HC 2000; HC 2010, *Integrated Risk Management Framework*; PWGSC 2010, *Integrated Risk Management Policy*) and to a lesser extent from the risk management sections of the respective DPRs and RPPs (CED-Q 2010, *Departmental Performance Report 2009-2010*; CED-Q 2010 *Report on Plans and*

Priorities 2010-2011; CIC 2010, *Departmental Performance Report 2009-2010*; CIC 2010, *Report on Plans and Priorities 2010-2011*; CIDA 2010, *Departmental Performance Report 2009-2010*; CIDA 2010, *Report on Plans and Priorities 2010-2011*; DFO 2010, *Departmental Performance Report 2009-2010*; DFO 2010, *Report on Plans and Priorities 2010-2011*; HC 2010, *Departmental Performance Report 2009-2010*; HC 2010, *Report on Plans and Priorities 2010-2011*; PWGSC 2010, *Departmental Performance Report 2009-2010;* PWGSC 2010, *Report on Plans and Priorities 2010-2011*). The other documentary data sources – CRPs, guidelines, tools, training materials, and communications material on risk management – informed the "Process" element of the independent variable.

The second type of source used was interviews with risk management specialists in the respective organizations. Through these interviews the researcher was able to fill gaps in the data and confirm or clarify findings described in sections 5.1.1 and 5.2.4 of Chapter 5. Interview questions can be found in Appendix B "Interview Questionnaires".

c. Scoring

Based on the results of documentary analysis and, where necessary, with additional follow-up through the interviews, the organizations in the sample were assigned a quantitative score from 0 to 3 for each of the indicators in each of the 20 measures of the dependent variable. Scores were assigned as follows:

> 3 – There is strong evidence of the presence or implementation of this indicator of best practice within the organization. Documents describe in detail a process, or explicit links are provided to another well-developed organizational process, which explains how this practice is implemented in the organization.
> 2 – There is some evidence of the presence or implementation of this indicator of best practice. It is discussed in the documents, but not in such a way that provides the reader with a clear understanding of its importance or process for its implementation.
> 1 – There is little evidence of the presence or implementation of this indicator of best practice. Documents may mention it with no explanation, discussion of its importance or link to additional sources of information.

0 – Evidence of this specific practice is absent.

In certain cases an organization could receive a score of 2.5, 1.5 or 0.5. Such scores were assigned when the evidence in the documentary sources exceeded the requirements for one category but fell short of the higher category. For example, if one takes indicator C-3. "the way in which conflicting interests are dealt with" (see Annex A "Dependent Variable Tool" for full list of indicators) an organization could receive a score of 1 for simply acknowledging in documents that conflicting interests may arise. A score of 2 would be assigned if the documents give more information on how these conflicting interests should be dealt with (example: through discussions during the policy review process). A score of 1.5 would be given if the documents acknowledge that conflicting interests may arise and should be dealt with, but stop short of explaining how they should be dealt with.

The score of each dependent variable measure for the organization is the average of the indicators in that measure. The scores for all indicators were equally weighted, as there is no information in ISO 31000 on which to base a different weight for each indicator. Possible scores range from 0 to 60.

4.3.2 MAF Scores

This study used MAF assessment round VII (2009) (Treasury Board of Canada Secretariat 2011d) scores for the risk management area of management as a validation measure for the dependent variable. As the major yearly assessment of risk management in departments and agencies of the Government of Canada, one would expect that MAF scores and the dependent variable used in this thesis should be somewhat correlated. The scores were established by TBS for the four lines of evidence to assess risk management in an organization:

1. Senior management directs, participates in and provides oversight of the organization's Risk Management approach;
2. Organization is implementing its Risk Management approach;
3. Risk Management explicitly informs corporate decision-making, planning and reporting; and

4. Quality assurance of risk information and continuous improvement in Risk Management. (Treasury Board of Canada Secretariat 2011d)

The table below explains the ratings for each line of evidence.

Table 4.1: MAF Assessment Rating Scale
Source: Treasury Board of Canada Secretariat 2011d

Rating	Definition
4. Strong	• No deficiencies in any of the Lines of Evidence; and • Sustained performance for the Area of Management that exceeds TBS expectations and suggests continued strong performance.
3. Acceptable	• No significant deficiencies in any of the Lines of Evidence; and • Meets TBS expectations.
2. Opportunity for Improvement	• Moderate deficiencies, or deficiencies in some of the Lines of Evidence listed for the Area of Management; and • Evidence of attention to the deficiencies and progress.
1. Attention Required	• Significant deficiencies, or deficiencies in most of the Lines of Evidence listed for the Area of Management; and/or • Inadequate attention to the deficiencies.

4.3.3 Independent Variables: Construct, Scoring and Sources

This study has identified five independent variables that are believed to influence how an organization manages risk. These were established through a review of variables used in other studies on risk management (Bozeman and Kingsley 1998, Bozeman and Bretschneider 1994), and through consultations with risk management practitioners in the Government of Canada. The five variables are: (1) size of department (gross budget); (2) size of department (human resources); (3) number of people dedicated to corporate risk management; (4) primary policy instrument; and (5) type of risk prioritized. These variables are discussed in further detail below as hypothesized relationships between the independent variables and the dependent variable to be tested by this thesis.

(1) Size of department (gross budget): The budget figure used for this variable is the total planned gross budget for the Government of Canada fiscal year 2010-2011 in the RPP. This

figure was considered to be more relevant to risk management because it is forward-looking and therefore uncertain. In the case of PWGSC, where a significant proportion of its budget is allocated to cost-recovery activities, and CED-Q, where some of its contributions are repayable, the figure used for this independent variable was the total forecasted expenditures without taking into account potential recovery of funds. These expenditures, despite a reasonable expectation of recovery of funds at some time in the future, increase the financial and operational risks to the organization.

The hypothesized relationship between an organization's budget and the way an organization manages risk is twofold. First, the larger the budget, the larger the financial risk to the government of something going seriously wrong in the organization. Second, an organization with a larger budget could potentially allocate more financial resources to risk management. One could therefore expect greater alignment of risk management practices with best practices as the total gross budget of an organization increases.

(2) Size of department (FTEs): This variable measured the number of people working in an organization. The unit used is a "full-time equivalent" (FTE). The source of the information is each organization's respective RPP 10-11.

As is the case for previous independent variable "budget", one might expect that as the level of human resources increases in an organization the greater the alignment of risk management practices with recognized best practices.

(3) People dedicated to corporate risk management (RM FTEs): This variable measured the number of people dedicated to corporate risk management. The unit of measure is also an FTE. It only takes into account positions filled as of May 2011. Each organization has a person whose primary responsibility is to be the focal point for risk management in the organization. The researcher asked this individual to provide this information during the interview and in follow-up emails (See Appendix B "Interview Questionnaires" for interview questions). In some cases, the corporate risk management unit may have had vacancies that had never yet been filled. These positions were not considered. There were no cases reported by the organizations in the sample of short-term vacancies in corporate risk management positions, but many plan to

create more positions sometime in the future. This variable is expressed as a percentage of the overall FTEs in the organization.

This variable was chosen because "implementing risk management" in an organization is a significant undertaking. One could therefore hypothesize that if an organization assigns more human resources to this task, it should have an effect on how risk management is implemented and aligned with best practices.

(4) Primary Policy Instrument: Each organization has a unique and explicitly stated mandate. This variable measures and classifies the mandate of each organization based on the level of coerciveness of the primary policy instrument used. The variable uses a scale of coerciveness first developed by C. Hood (1983) as defined below:

> 1. *Nodality*: According to L. A. Pal, "nodality conveys the idea that government dispenses and collects information simply by virtue of being at the center of a social network… The use of Nodality relies on relatively passive modes of information gathering and dissemination, without reliance on reward or threat." (Pal 1992, p.144) Nodality is the least coercive of the policy instrument types Hood's scale. An example of the use of this type of the Nodality policy instrument from the sample of organizations for this thesis is the information that CED-Q makes public as a service and a form of business support to enterprises in Quebec (e.g. information on Government of Canada programs that provide financial support to businesses).
>
> 2. *Treasure*: Hood sees "treasure" as the use of "anything that can be freely exchanged" (Hood 1983, p.40) by government. Generally speaking, and for the purposes of this thesis, "treasure" policy instruments are those that provide funding to an organization or individual. The use of the treasure policy instrument is the provision of grants and contributions (G&Cs), for example by CIDA to recipient organizations, individuals, foreign governments, etc.
>
> 3. *Authority*: Legal authority is "the ability to command and prohibit, command and permit" (Hood 1983, p. 54). An example of such a policy tool is the setting of fishing quotas by DFO. Pal notes that "instruments that rely on the resource of authority are more coercive than those based on nodality and treasure, because they operate with the support, however veiled, of sanctions" (Pal 1992, p. 55).

4. *Organization*: "Organization" describes activities which a government department or agency carries out itself using its own resources. In contrast, when the government chooses to use nodality, treasure and authority policy instruments, it is working through an intermediary to achieve its objective (Pal 1992, p. 160). Examples of such "organization" activities include the Coast Guard, which is under the responsibility of DFO, or indeed all the services that PWGSC provides to departments and agencies, for example, real estate services, payroll services, etc.

Measurement of the Mandate variable was performed at the program activity level of the organization's Program Activity Architecture. Using the description of the activity in the RPPs (10-11) and DPRs (09-10), each activity was categorized according the primary policy instrument used to carry out this activity. The percentage for each policy instrument represents the cumulative budget (as a percentage of the organization's overall budget) of program activities primarily using that policy instrument. The sum of scores for policy instruments used by the organization total 100.

An organization's mandate is closely linked to its environment and thus its internal and external environments. In one of its principles of risk management, ISO 31000 states: "Risk management is aligned with the organization's external and internal context and risk profile." (ISO 31000:2009, p. 8) If this principle holds true, one would expect to observe variations in risk practices implemented by organizations depending on their respective mandates. One could hypothesize that the alignment of an organization's risk management practices increases with the level of coerciveness of the policy instrument used, as organizations which make use of more coercive policy instruments take on a larger burden share of risk management and therefore need to be more "careful" when it comes to risk management. This idea will be discussed in further detail in Chapter 5.

(5) Type of risk prioritized: Not all risks are viewed as equally important by an organization. Risks can also be classified into different categories. This variable will measure which type of risk is seen as most important (i.e., given the most attention) by an organization. The four types of risk considered are: (i) reputation and credibility, (ii) operational and policy delivery, (iii) financial, and (iv) compliance (legal/regulatory).

This taxonomy is the one used by the UK's HM Treasury (HM Treasury 2006, p. 13). The organizations in the sample rank their corporate risks using a matrix or "heat map". The results of this ranking exercise are usually found in the organization's CRP. The percentages in each category of risk were assigned as follows: If an organization lists 10 corporate risks in its CRP, then the number 1 risk receives a score of 10, the number 2 risk, a score of 9, the number 3 risk, a score of 8 and so on. If an organization lists 12 corporate risks, then the number 1 risk received a score of 12. Each corporate risk is then classified by type of risk. The score for each type of risk is the cumulative score per risk type, expressed as a percentage of the cumulative score for all risks. Some corporate risks were considered to cover more than one type of risk, based on the information available in the CRPs. In these cases, the score was evenly distributed between the categories of risk that applied to the corporate risk in question. The sum of scores for types of risks prioritized by the organization total 100.

If, as stated above, risk management is tailored to the environment or context of an organization, one could ask the question: is it tailored to manage specific kinds of risks? Or are the same practices used by organizations to manage different types of risks? This independent variable was selected to test that hypothesized relationship.

4.4 Interviews

As part of the data collection and validation process for this thesis, interviews were conducted with individuals responsible for corporate risk management in four of six organizations in the sample. These four interviews, which lasted roughly an hour each, were conducted at the respective organizations in April 2011. The interviews were an opportunity to validate the findings and seek further clarification, and for the risk management specialist to comment on the results of the documentary analysis. The interview questionnaires had been provided in advance, by email, to the corporate risk management focal point. The table below summarizes the interview schedules.

Table 4.2: Interview Schedule Details

Organization	Date	Time	Place
CIDA	April 26, 2011	10:00 am – 11:00 am	CIDA, 200 Prom. du Portage, Gatineau, QC
CIC	April 21, 2011	11:00 am – 12:00 am	CIC, 365 Laurier Ave W., Ottawa, ON
DFO	April 14, 2011	3:00 pm – 4:00 pm	DFO, 200 Kent St., Ottawa, ON
HC	April 18, 2011	2:00 pm – 3:00 pm	HC, 200 Eglantine Driveway, Tunney's Pasture, Ottawa, ON

In the case of CED-Q, the corporate risk management focal point was provided with the interview questionnaire before an interview scheduled for April 20, 2011 at CED-Q in Montreal, QC. But instead of a face-to-face interview, the corporate risk management focal point offered to provide answers to the questionnaire in writing by email. Upon reviewing the written answers provided by CED-Q on April 21, 2011, the researcher determined that no further follow-up was necessary (except for the measurement of number of FTEs dedicated to corporate risk management. This was the case for all organizations in the sample.)

No interview was conducted with PWGSC, as nobody in the corporate risk management unit was available for an interview during April 2011. The interview questionnaire was sent to PWGSC as part of the interview request. Information to some questions was provided by PWGSC in emails, but most questions remained unanswered. The impact of not formally interviewing PWGSC is that some of the data collected through the documentary analysis was not validated. However, given the level of detail in the documents provided by PWGSC, this gap in information was not considered to be a significant issue as far as data validity, when available, is concerned. More detailed information on interview questionnaires is available in Appendix B - "Interview Questionnaire". The full summaries of the interviews are not provided in the Appendices. The reasons for this are twofold:

1. The information collected during the interview is fully reflected in the raw data results; and

2. Agreement by risk management specialists in the respective organizations to be interviewed as part of the research for this thesis did not include agreement to be quoted in the thesis.

Prior to undertaking the interviews for this study, the researcher sought approval from the University of Ottawa's Ethics Research Board to conduct interviews with human subjects. Requirements for approval from the Board included an extensive application form describing the project, the proposed research, and the individuals (or in this case the positions of the individuals) to be interviewed. The submission also included French and English versions of interview questionnaires, recruitment letters (request for interview), consent forms and the thesis proposal. The application form submitted to the Ethics Research Board and the subsequent approval certificate are included in Appendix G - "Research Ethics Board Documents". It should be noted that the application form seeks approval to use a survey and conduct interviews with many individuals per organization in the sample. In the end, no survey was used and only one interview was conducted in each organization because of a reduction in scope of the originally proposed thesis.

4.5 Data Collection and Presentation

4.5.1 Process

The raw data for this thesis were collected between December 2010 and April 2011 from the sources described in sections 4.3.1 and 4.3.3 above. The primary method for data collection was documentary analysis. Subsequent interviews and email exchanges helped clarify findings. In the case of the dependent variable, data were collected using the data collection tool in Appendix A - "Dependent Variable Data Collection Tool". Each of the "best practice" indicators (numbered in the data collection tool) was assigned a score from 0 to 3. This score was determined by analyzing documents provided by the organizations in the sample. Each of the 20 measures (letters from "A" to "T" in the data collection tool) represents the average score of the set of member indicators under that measure. The two "elements" ("Framework" and "Process") are the cumulative scores of all the measures under each element. Finally, the total dependent variable score is the cumulative of both element scores. The raw data scores are available in

Appendix C – "Raw Data Scores". The raw data scores are described in the next subsection. The analysis of the data collected is presented in Chapter 5 "Data Analysis".

4.5.2 Raw Data

The full raw data scores analysed as part of this thesis can be found in Appendix C – "Raw Data Scores". For the dependent variable, scores from 0 to 3 were assigned to 123 risk management indicators from ISO 31000. Table 4.3 below demonstrates the process for calculating averages for measures of the dependent variable. In the table, the rows numbered 1 to 5 contain the scores assigned to each organization (columns) following the documentary analysis to search for evidence of the ISO 31000 best-practice (indicator) described in the leftmost column. The set of "Accountability" indicators leads to the overall measure of the "Accountability" measure corresponding to the 5 indicators (rows). "Accountability" scores are represented by the simple average of the five indicator scores for each organization.

Table 4.3: Measures for the Dependent Variable – Accountability.
Source: Appendix C, Table C1.

	CED-Q	CIC	CIDA	DFO	HC	PWGSC
D. Accountability						
1. identifying risk owners that have the accountability and authority to manage risks	2	2.5	2.5	3	3	3
2. identifying who is accountable for the development, implementation and maintenance of the framework for managing risk	3	3	3	3	3	3
3. identifying other responsibilities of people at all levels in the organization for the risk management process	3	3	2.5	3	3	3
4. establishing performance measurement and external and/or internal reporting and escalation processes	0	1	3	3	3	3
5. ensuring appropriate levels of recognition	0	0	0	0	0	0
Average Scores	1.60	1.90	2.20	2.40	2.40	2.40

4.5.3 Data Collection Issues and Gaps

The data collection for this thesis was successful overall, but it did face certain limitations, issues, challenges and gaps as summarized below. The major limitation of the data collected for this thesis is the reliance on mostly documentary sources. The use of a survey was considered as

it would have surely resulted in very interesting data on risk management practices in the organizations in the sample. However, the use of a survey was abandoned, as it proved too difficult to obtain authorizations at the appropriate level in organizations. The dependent variable sought to measure the alignment of corporate risk management practices in an organization with ISO best practices. Through a documentary analysis, only those processes which have been documented and described were measured by the researcher. There are other risk management practices being implemented in organizations that are not, or not yet, documented in an organization's corporate documents, and could be described as informal. These were sometimes captured during the interview process, and in a few cases, some scores in the dependent variable were adjusted. However, this was rare as the researcher considered that to ensure a consistent standard for measurement, only documented practices should be measured.

A second challenge faced by the data collection exercise was accessing the necessary documents to collect the data. While some documents, such as RPPs and DPRs are publicly available on TBS' website (Treasury Board of Canada Secretariat 2011, *TBS Website*), others, in fact practically all documents related to risk management in an organization are not publicly available. This being said, none of the documents used in this thesis are classified (e.g., secret), however, they must be specifically requested from the organizations. Furthermore, while every organization in the sample had a CRP, some had organizational risk management frameworks (e.g., CED-Q), others risk management policies, guidelines, tools, etc (e.g., CIDA, DFO). The challenge laid in the fact that there was no way for the researcher to know in advance what documents a given organization had. In most cases this resulted in multiple requests for documents from the organizations in the sample as one document made reference to another that had not been provided. Indeed, it is possible that a document containing interesting data that could have informed the variable scores was never provided to the researcher, resulting, arguably, in lower scores – especially on the dependent variable – for an organization.

While data collection for the independent variables was somewhat more straightforward (most data were obtained from public documents and direct interview questions) defining useful and measurable independent variables was challenging. The lack of previous empirical studies on risk management practices in governments meant that the choice of independent variables in

this study was based on the limited literature available, an interpretation of ISO 31000 and discussion with the thesis committee. Some independent variables had to be dropped as they proved either too unstable, or too difficult to measure, or both. One such example is an independent variable entitled "risk appetite" which aimed to measure an organization's risk appetite at the corporate level. A tool developed by the UK's HM Treasury (HM Treasury 2006) was to be used to measure risk appetite. However, some organization respondents felt that it would not capture a true picture, and that risk appetite was too unstable a concept to be useful. Despite this, risk appetite, as a snapshot at a particular point in time and measured using a survey could be an important explanatory factor in how and why an organization manages risk a certain way.

The measurement of the RM FTE, or FTEs dedicated to risk management variable posed somewhat of a challenge as the organizations viewed "positions dedicated to corporate risk management" differently. In most cases, organizations referred to the number of people working in the corporate risk management focal point group, also assigning percentages of FTEs for positions shared between different groups (usually director level positions). However, in one case, CIDA, the corporate risk management focal point chose to include other positions in the corporate audit group and the corporate fiduciary risk assessment group that focused on corporate risk management activities. In order to ensure that measurement was performed equally across all organizations, the researcher followed-up by email with organizations in the sample to indicate how other organizations were counting FTEs dedicated to corporate risk management, and to give each organization an opportunity to revise its numbers if desired.

Beyond the challenges faced during the data collection process, there is one known gap. In one case, PWGSC, no CRP was available. At the time of writing, PWGSC's previous CRP was no longer available and the latest CRP had yet to receive approval, and therefore, could not be used for the purposes of this study. The data needed for the measurement of the dependent variable were drawn from other corporate risk management documents provided by PWGSC. However, the fact that no CRP was available resulted in gaps in the independent variables data. For example, no data was collected on PWGSC's "type of risk prioritized" variable. The fact that nobody was available for a face-to-face interview at PWGSC also had a potential impact on the measurement of the RM FTE variable. Had more time been allocated to discussing the best way

to measure this variable with PWGSC, the researcher suspects that the number of RM FTEs may have been revised by PWGSC. The current figure ("6 RM FTEs", Appendix C, Table C5) was established by the researcher through a search on the Government of Canada's electronic directory, and represents the number of people working in the corporate risk management office of PWGSC. When the figure was submitted to PWGSC by email, it was not disputed.

4.6 Analysis Methods

The primary objective of the data analysis was to look for possible associations between independent variables and the dependent variable, ultimately leading to the development of a testable hypothesis. Given the exploratory nature of this study and the fact that it does not attempt to test a hypothesis, the small *n* was not deemed to be a significant obstacle.

The data analysis was carried out in two steps. The first step was an exploratory data analysis (EDA) that relied heavily on visual analysis of the graphic interpretation of the data collected. The second step was a confirmatory statistical analysis, which mined the data collected for potential statistical correlations between the independent variables and the dependent variable. These two steps are described in greater detail below.

4.6.1 Exploratory Data Analysis

The EDA provided an appropriate means of exploring the data in the context of a hypothesis building exercise such as the one carried out in this thesis as it allowed the researcher to identify potential relationships between the independent variables and the dependent variable, which could be confirmed by the subsequent statistical analysis, thus reinforcing the findings.

J. W. Tukey said of EDA:

> "No catalogue of techniques can convey a willingness to look for what can be seen, whether or not anticipated. Yet this is at the heart of exploratory data analysis… The picture-examining eye is the best finder we have of the wholly unanticipated." (Tukey 1980, p. 24)

In order to be able to visualize the data collected and search for potential patterns in the data, the researcher produced over 150 charts (multivariable line charts, scatter plots, bar graphs and pie charts). The analysis focused on the search for patterns in independent variable or indicator values / dependent variable pair. But, as part of the EDA, charts were also produced for independent variable or indicator / dependent measure pairs in order to be able to drill down into the data visually as a way to search for potential explanations for patterns observed at the cumulative dependent variable level.

4.6.2 Confirmatory Statistical Analysis

The second step in the data analysis was a statistical analysis through the use of the Pearson product-moment correlation coefficient, or Pearson's *r* (Rodgers and Nicewander 1988). This approach was chosen as it facilitated the search for potential linear correlations between raw scores and means in the data collected for organizations in the sample. The formula for *r* is:

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}}.$$

Pearson's *r* calculates the correlations between two variables expressed as a value that varies from -1 to 1. An *r*= 1 represents a perfect linear correlation between the vectors of n elements each, X and Y, and *r*= -1 a perfect negative correlation between X and Y. The calculation of Pearson's *r* proved to be particularly useful in the context of this thesis for two reasons: first, it allowed the researcher to confirm or invalidate the findings of the EDA; second, it revealed negative correlations between two variables which were not as easy to identify through EDA.

The *r* values were calculated using StatPlus (AnalystSoft 2011), an add-on for Excel for Mac. The data analysed by StatPlus are those contained in the summary raw data Tables C2-C6 in Appendix C. The full results of the StatPlus analysis can be found in Appendix D - "Complete Correlation Coefficient Table".

Chapter 5: Data Analysis, Report Results

This chapter presents the results of the data analysis. First, it presents an analysis of the dependent variable, followed by the data on the independent variables, and finally an analysis of independent variable / dependent variable pairs. The data analysis seeks to answer two main research questions:

1. Do risk management practices vary from one organization to another?
2. If so, why do risk management practices vary?

For each question, this chapter first presents the findings of the data analysis followed by a discussion of the results observed.

5.1 Question 1: Do risk management practices vary?

5.1.1 Findings

Table 5.1 presents each organization's dependent variable score, with a possible range from 0 to 60. The last two columns display the average score for the dependent variable, as well as the mean absolute deviation (MAD) across all organizations. The MAD is used as a measure of the statistical dispersion in scores, and thus, variations in risk management practices in organizations.

Table 5.1: Dependent Variable Scores

	CED-Q	CIC	CIDA	HC	DFO	PWGSC	Average	MAD
D. Var. Score	22.60	33.80	42.77	43.82	49.50	49.80	40.38	8.12

The range in dependent variable score is from 22.60/60 (37.6%) to 49.80/60 (83%) or 45.4 percentage points. In other words, the difference in alignment of the six organizations in the sample's corporate risk management practices against ISO 31000 best practises is 45.4 percentage points, which is considerable. A MAD of 8.12 for an average score of 40.38 also confirms the significant variance in the dependent variables.

5.1.2 MAF Scores and the Dependent Variable

The MAF assessment round VII scores for risk management are not considered an independent variable but rather used as a control for the dependent variable. The results of the MAF assessment round VII are presented in the table below (See also Appendix C – Table C5).

Table 5.2: MAF Assessment Round VII Results – Risk Management
Source: Treasury Board of Canada Secretariat 2011, *MAF website*

Organization	Senior management is accountable	Implementation	Integration	Continuous Improvement	MAF Cumulative Score
CED-Q	3	2	2	3	10
CIC	4	3	3	3	13
CIDA	3	3	3	4	13
HC	3	3	3	3	12
DFO	3	3	3	4	13
PWGSC	3	3	4	4	14

Charts 5.1 and 5.2 below compare the MAF scores and the dependent variable scores.

Chart 5.1: Total Cumulative Dependent Variable Score vs. Cumulative MAF Scores Chart

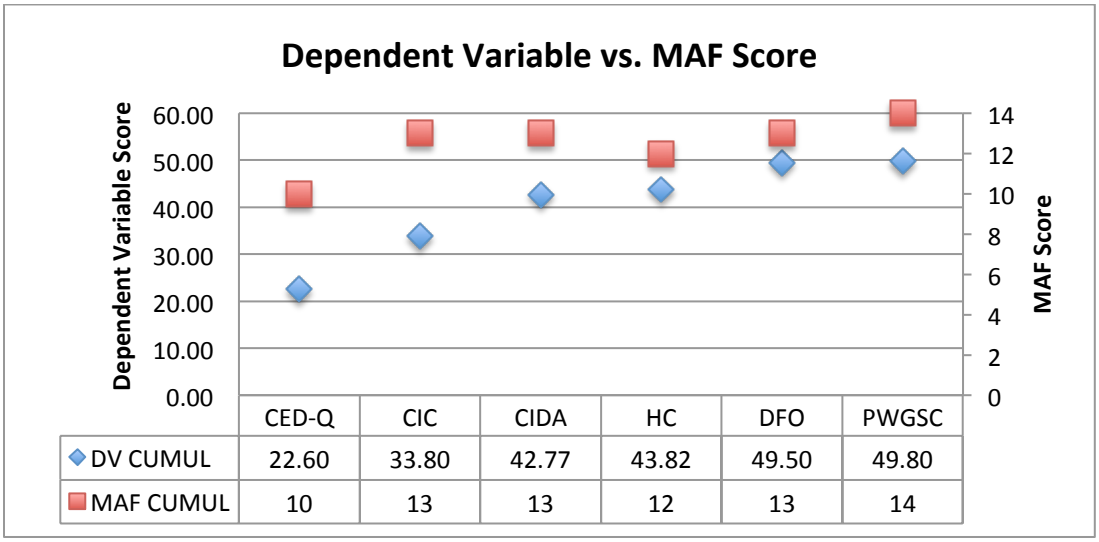
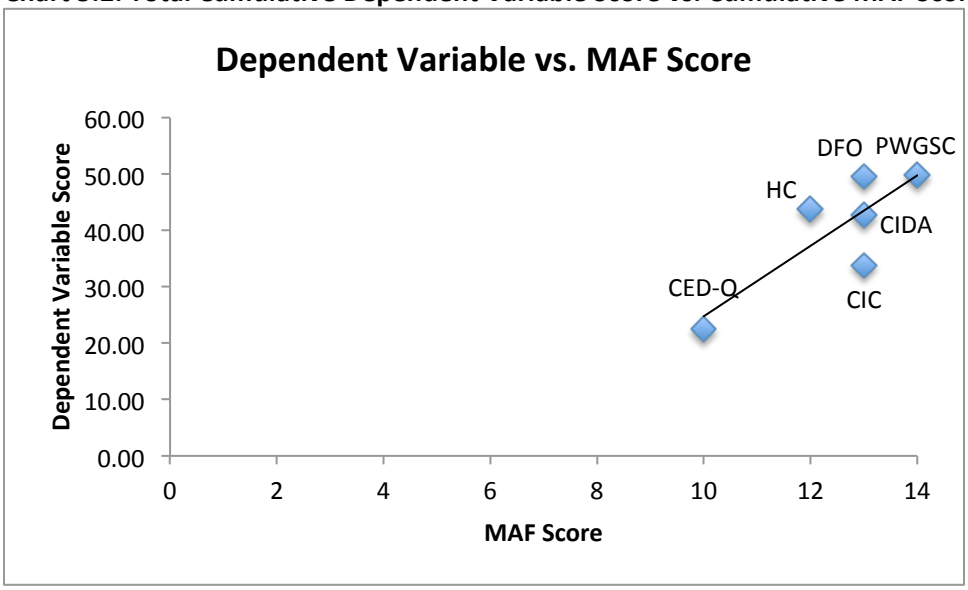


Chart 5.2: Total Cumulative Dependent Variable Score vs. Cumulative MAF Scores Scatter Plot



Charts 5.1 and 5.2 reveal that, overall, the two measures generally follow a similar pattern, an observation confirmed by a strong *r* correlation coefficient of 0.75. The fact that the two independent assessments of risk management in the six organizations follow a similar pattern tends to confirm the findings of the dependent variable.

The dependent variable scores vary from 37.6% to 83% (45.4 percentage point spread), and the MAF scores vary from 62.5% to 87.5% (25 percentage point spread). Obviously, the two assessments were not looking for the same things, which could explain some of the difference in variation of scores. The MAF assessment may be somewhat biased as it is essentially public servants assessing the work of other public servants, and one might hesitate to give colleagues a bad mark. But more importantly, as has been repeated since the beginning of this paper, the objective of this study was not to assess the effectiveness of risk management practises in the organizations in the sample, but the variation of such practices. The MAF on the other hand, while not explicitly identifying the effectiveness of risk management practices as the object of its assessment, because of the assessment's methodology – the organizations provide answers that demonstrate that they are implementing risk management as per the IRMF – it does assess how effectively an organization is implementing integrated risk management. Therefore, since risk management practices vary significantly across the organizations, but the effectiveness of risk management in the organizations varies less (according to TBS), this would seem to confirm the basic premise of the ISO 31000 and 2010 TBS Framework for the Management of Risk, which could be described as risk management practices do not need to be homogenous to be

effective. This apparently holds true for the six organizations in the sample.

5.1.3 Discussion

The findings of the previous section provide answers to the first question this thesis sought to answer: Do risk management practises vary from one organization to another? On the basis of both the MAF scores data and the dependent variable data, the indication is that the answer to the question is: yes, risk management practices do vary significantly from one organization to another. This is supported by the comparison of the average dependent variable score and the MAD (see table 5.1 above).

A closer look at what varies less (MAD < 0.4) at the measure level of the dependent variable is also of interest. A complete table with average scores and MAD scores for each dependent variable measure can be found in Appendix C , Table C2. For a number of these measures, and most notably "Accountability" (average = 2.15; MAD = 0.27 and "Establishing the risk management policy" (average = 1.94; MAD = 0.39), the drivers for greater homogenization may be found outside the area of risk management. "Accountability" has been a focus for many years in the Government of Canada, and even more so under recent Conservative governments. "Establishing the risk management policy" refers to basic elements of any policy document such as an organization's rationale for developing a policy, links to organizational objectives, etc. These are relatively standard across the government and therefore one would expect these practices to vary less.

Other measures such as "Recording the risk management process" (average = 0.68; MAD = 0.25) also have MAD score that indicate little variation, but given the low average score, we can observe that, on average, the organizations in the sample are all not very strongly aligned with known best practices. We could conclude that this specific aspect of risk management hasn't received much attention in the Government of Canada as a whole given the low degree of alignment of practices with ISO 31000 best practices.

5.2 Question 2: Why do risk management practices vary?

This section seeks to answer the second research question "why to risk management practices vary?" But before doing so, the organizations' mandates, and the results of measurements for the independent variables are presented.

5.2.1 Organizations in Sample and Independent Variables

The organizations in the sample were selected as they represent a wide range of operating budgets and number of employees (measured in Full-Time Equivalents or FTEs) and cover all four of TBS's programming sectors. Table 5.3 below summarizes the results for the independent variables used in this study. It should be noted that the "RM FTEs" and "RM % FTEs" are in fact one single independent variable. The variable is presented here in its raw form ("RM FTEs) and in the form used for analysis and comparison ("RM % FTEs). The smallest organization in terms of both annual (2010-2011) gross budget ($463 million) and FTEs (426) in the sample is CED-Q. On the opposite end, the largest organization is PWGSC with 13,656.5 FTEs and an annual (2010-2011) gross budget of $6.4 billion. It should be noted however that of PWGSC's 2010-2011 budget, the organization expects to recover $3.5 billion, as client departments reimburse PWGSC for services provided.

Table 5.3: Summary Information
Source: Organizations' RPP 2010-2011 and Interviews

Organization	Gross Budget ($)	FTEs	RM FTEs	RM % FTEs	Primary Policy Instrument	Type of risk prioritized
CED-Q	463,350,000	426	1	0.23%	Treasure	Operational & Policy Delivery
CIC	1,561,000,000	4015	2.1	0.05%	Treasure	Reputation and Credibility
CIDA	3,247,997,000	1870	8	0.43%	Treasure	Operational & Policy Delivery
DFO	1,992,200,000	11030	2.5	0.02%	Organization	Operational & Policy Delivery
HC	3,448,500,000	9745	2	0.02%	Organization	Operational & Policy Delivery
PWGSC	6,423,800,000	13656.5	6	0.04%	Organization	N/A

5.2.2 Primary Policy Instrument

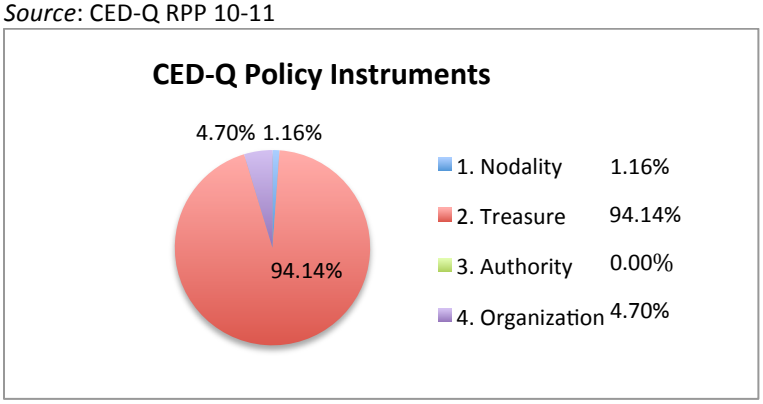
Each organization in the sample has a unique mission, which it fulfills through a combination of policy instruments. The descriptions below present the organization's mission and responsibilities, and primary policy instrument. In the cases where no responsibilities are listed, the information was not available on the organization's website or DPR and RPP. The pie charts below illustrate the organization's distribution of the primary policy instruments (see also section 4.3.3).

CED- Q

Mission: To promote the long-term economic development of the regions of Quebec by giving special attention to those where slow economic growth is prevalent or opportunities for productive employment are inadequate. (CED-Q 2011, *CED-Q website*)

Primary Policy Instrument: Treasure (dominant)

Chart 5.3: CED-Q Policy Instruments Distribution
Source: CED-Q RPP 10-11



CIC

Mission: 1. To develop and implement policies, programs and services that: facilitate the arrival of persons and their integration into Canada in a way that maximizes their contribution to the country while protecting the health, safety and security of Canadians; maintain Canada's humanitarian tradition by protecting refugees and people in need of protection; enhance the values and promote the rights and responsibilities of Canadian citizenship; and reach out to all Canadians and foster increased intercultural understanding and an integrated society with equal opportunity for all, regardless of race, ethnicity and religion.

2. To advance global migration policies in a way that supports Canada's immigration and

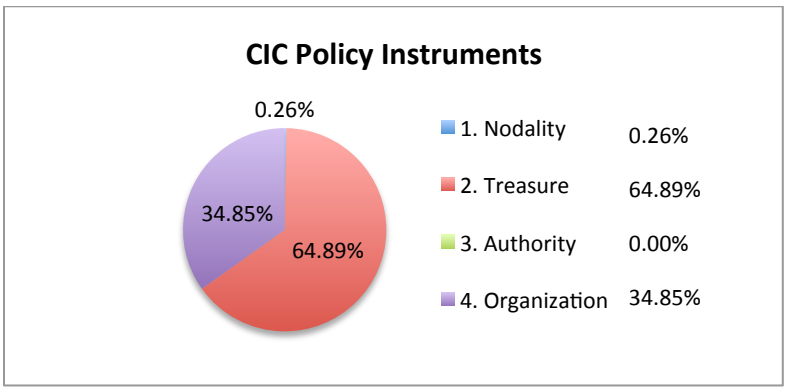
humanitarian objectives. (CIC 2011, *CIC website*)

Responsibilities: CIC selects foreign nationals as permanent and temporary residents and offers Canada's protection to refugees. The Department develops Canada's admissibility policy, which sets the conditions for entering and remaining in Canada; it also conducts, in collaboration with its partners, the screening of potential permanent and temporary residents to protect the health, safety and security of Canadians. (CIC 2011, *CIC website*)

Primary Policy Instrument: Treasure (Dominant). While one might expect that given its mandate CIC might make more use of the "organization" policy instrument, CIC's Integration program, which accounts for nearly 60% of its overall budget is primarily implemented through the use of grants and contributions.

Chart 5.4: CIC Policy Instruments Distribution

Source: CIC RPP 10-11



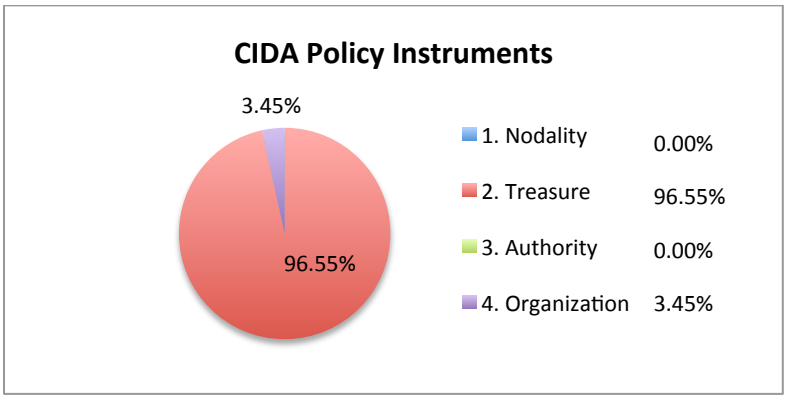
CIDA

Mission: CIDA's mission is "to lead Canada's international effort to help people living in poverty by achieving real economic, social, environmental, and democratic progress in Africa, Asia, and the Americas." (CIDA 2010, *RPP 10-11*)

Responsibilities: CIDA is the government's principal organization responsible for managing the bulk of Canada's development assistance program. Its principal goal is to reduce poverty, and support sustainable development in a manner consistent with Canadian foreign policy. (CIDA 2011, *CIDA website*)

Primary Policy Instrument: Treasure (dominant).

Chart 5.5: CIDA Policy Instruments Distribution
Source: CIDA RPP 10-11

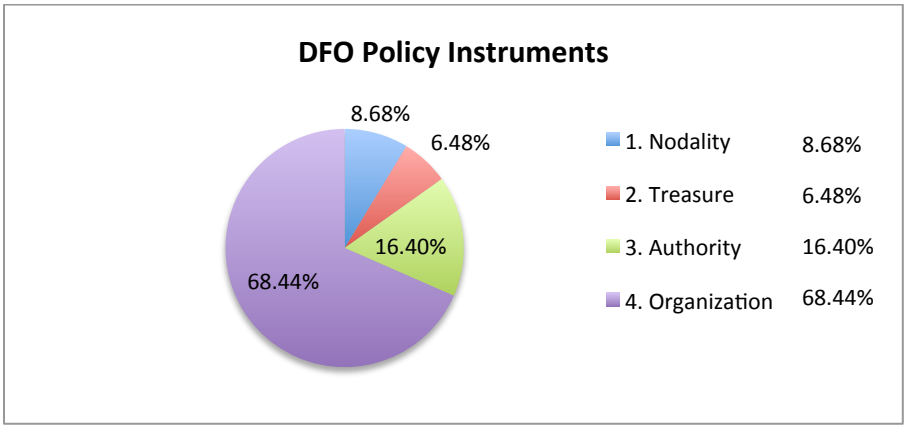


DFO

Mission: "DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social, and economic interests in oceans and fresh waters." (DFO 2010, *RPP 10-11*)

Primary Policy Instrument: Organization (dominant)

Chart 5.6: DFO Policy Instruments Distribution
Source: DFO RPP 10-11



HC

Mission: "HC helps Canadians maintain and improve their health. It is committed to improving the lives of all Canadians and to making this country's population among the healthiest in the world, as measured by longevity, lifestyle and effective use of the public health care system." (HC RPP 10-11)

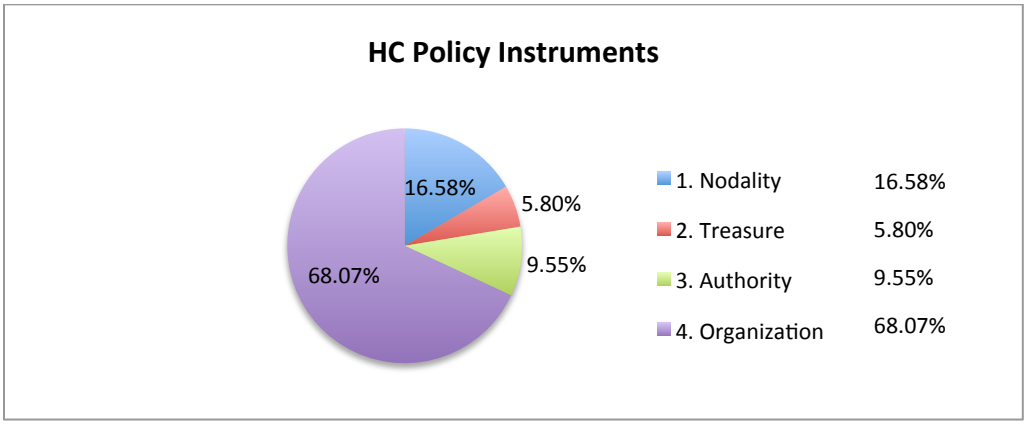
Responsibilities: "First, as a regulator, HC is responsible for the regulatory regimes governing the safety of products (…) and controlled substances, public health on aircraft, ships and

other passenger conveyances, and helps manage the health risks posed by environmental factors such as air, water, radiation and contaminants. The Department is also a service provider. Improving the health of Aboriginal people is a shared responsibility among the federal, provincial, and territorial governments, and Aboriginal partners. HC administers the Canada Health Act, which embodies national principles to ensure a universal and equitable publicly funded health care system." (HC 2010, *RPP 10-11*)

Primary Policy Instrument: Organization (dominant)

Chart 5.7: HC Policy Instruments Distribution

Source: HC RPP 10-11



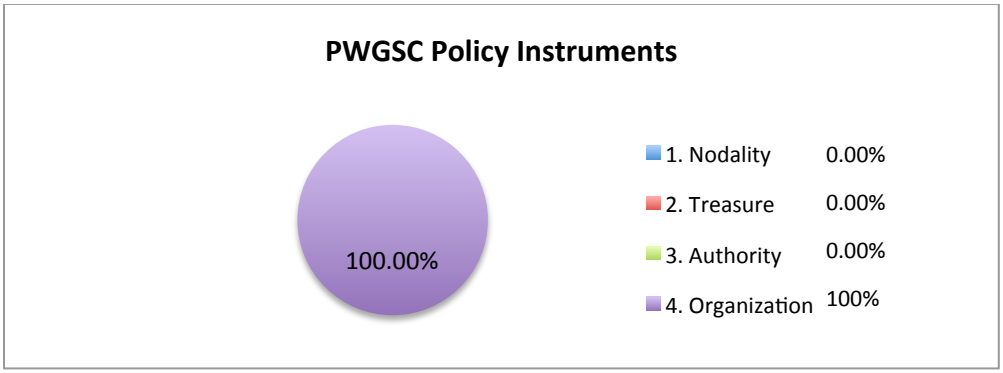
PWGSC

Mission and responsibilities: "PWGSC plays a key role in the daily operations of the Government of Canada as its principal banker, accountant, central purchasing agent, linguistic service provider and authority, office space portfolio manager and enabler of access to government services online." (PWGSC 2010, *RPP 10-11*)

Primary Policy Instrument: Organization

Chart 5.8: PWGSC Policy Instruments Distribution

Source: PWGSC RPP 10-11

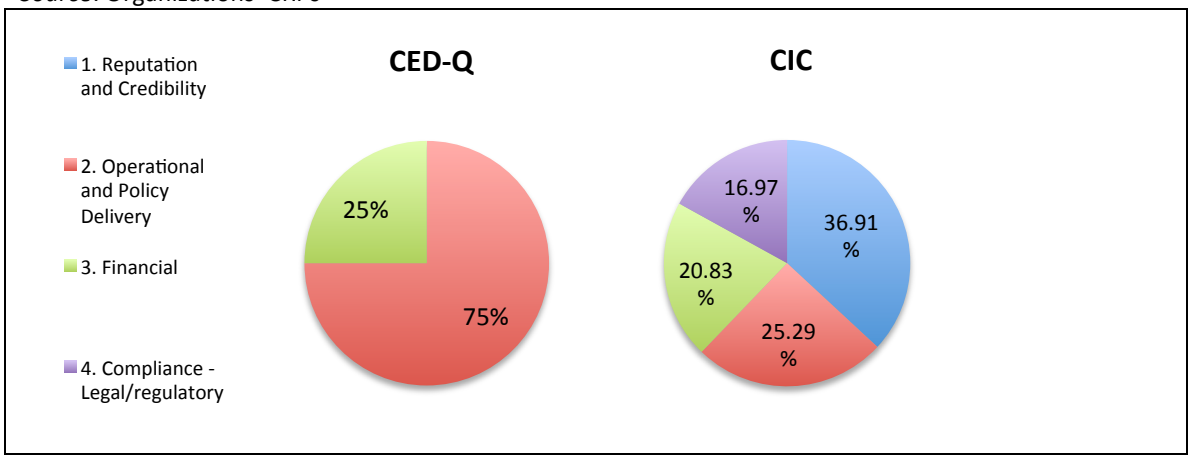


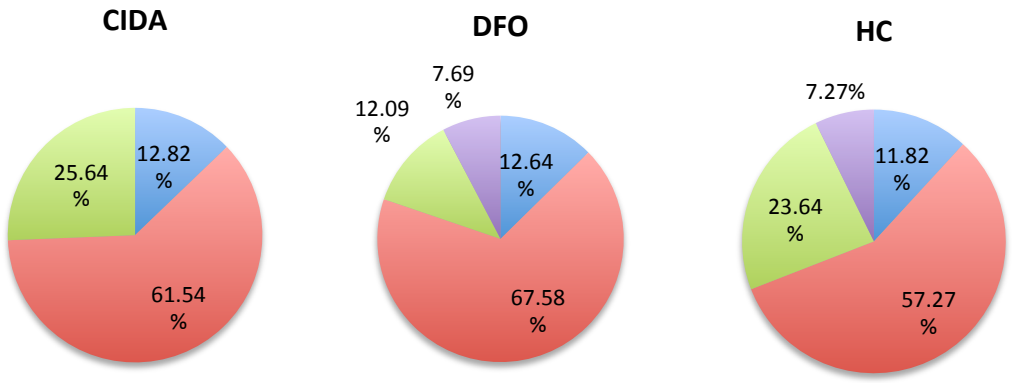
5.2.3 Type of Risk Prioritized

The fifth independent variable that was measured as part of this thesis (sixth column of Table 5.3 above), is the "type of risk prioritized" by each organization as per the description in section 4.3.3, item (5). Chart 5.9 below indicates that all organizations in the sample prioritize their type of risks to fall within the Operational and Policy Delivery category, with one exception: CIC. As noted in Chapter 4, no data on this variable were available for PWGSC.

It should be noted that while CIC is the only organization that prioritizes Reputation and Credibility risks over Operational and Policy Delivery risks, the latter risk ranks second as a proportion of the type of prioritized risk. Among the organizations in this sample (PWGSC excluded), CIC also has the most uniform distribution across all four categories and the single largest Compliance-Legal and Regulatory share (16.97%) of the organizations. Also noteworthy is organizations that have prioritized some Compliance-Legal and Regulatory risks in their CRPs. These are CIC (16.97%), DFO (7.69% and HC (7.27%). All three of these organizations are responsible for administering an Act of Parliament, unlike the other three organizations in the sample, which likely explains why risks related to legal and regulatory compliance are prioritized at the corporate level.

Chart 5.9: Categories of risk prioritized
Source: Organizations' CRPs





PWGSC data not available.

It is equally interesting to note that the limited importance afforded to legal and regulatory compliance risks by the departments responsible for Acts does not reflect the higher level of attention these risks received in academic literature. There are a number of potential explanations for this. Perhaps the government feels that it is adequately prepared – i.e. the current risk response has reduced the level of residual risk to an acceptable level. A more likely explanation is that other corporate risks would have a cascading effect on the organization's ability to respond to the crisis and therefore receive priority attention. Finally, a more cynical point of view is that there is only so much a government can do through regulation and controls to prepare for the unthinkable, yet foreseeable. A case in point is, again, the ongoing nuclear crisis in Japan. While unthinkable, the tsunami that hit the northeast coast of Japan was foreseen (Krolicki, DiSavino and Fuse 2011). The potential impact was also known following disasters such as the meltdowns in Three Mile Island and Chernobyl. Yet, in what was arguably one of the best-prepared countries in the world to respond to this type of crisis, the Government of Japan now must deal with what is evidently a major mismanagement of regulatory and compliance risks.

5.2.4 Findings

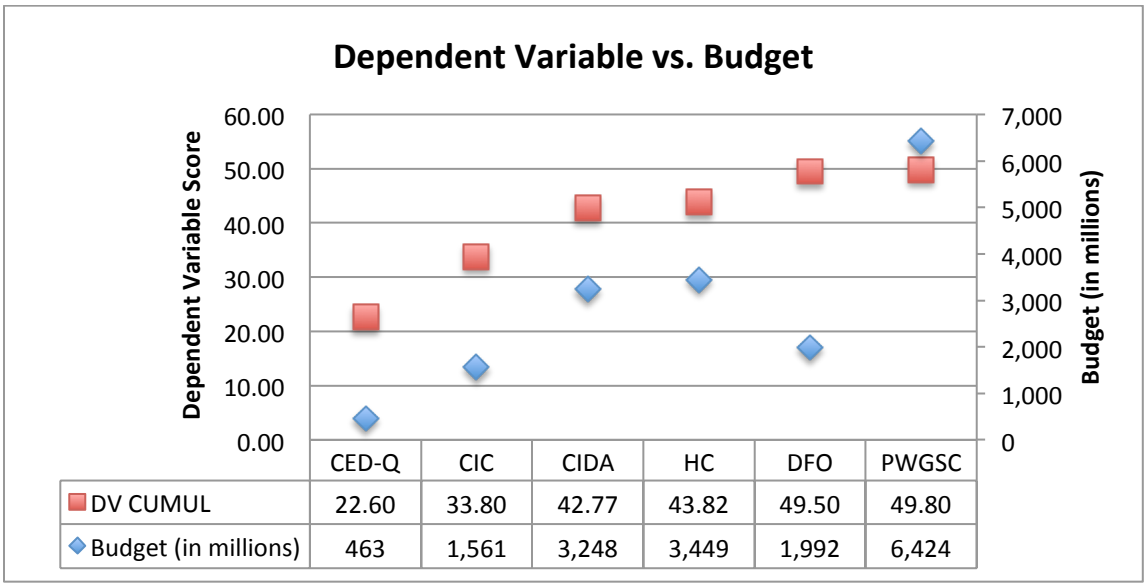
The previous section demonstrated that risk management practices vary from one organization to another in the sample. The next step is to determine if the independent variables provide any explanation as to why risk management practices, as evidenced in the data, vary. To achieve this, we look for patterns and correlations between the dependent variable and the

independent variables by asking five sub-questions to augment our second question for this section: “Why do risk management practices vary”?

Charts 5.10 through 5.19 below provide the results of the EDA that is used to address the sub-questions. For each research sub-question, charts illustrate the independent variable / dependent variable pair. In cases where the EDA yielded informative findings at the element level of the dependent variable (Framework and Process) the results of the analysis are also included in this section. Also for each sub-question, correlation coefficients (*r* values) are presented to confirm or invalidate the findings.

Sub-question 1: Does a higher budget result in better alignment of Risk Management practices with ISO best practices?

Chart 5.10: Total Cumulative Dependent Variable Score vs. Budget Chart



	CED-Q	CIC	CIDA	HC	DFO	PWGSC
DV CUMUL	22.60	33.80	42.77	43.82	49.50	49.80
Budget (in millions)	463	1,561	3,248	3,449	1,992	6,424

Chart 5.11: Total Cumulative Dependent Variable Score vs. Budget Scatter Plot

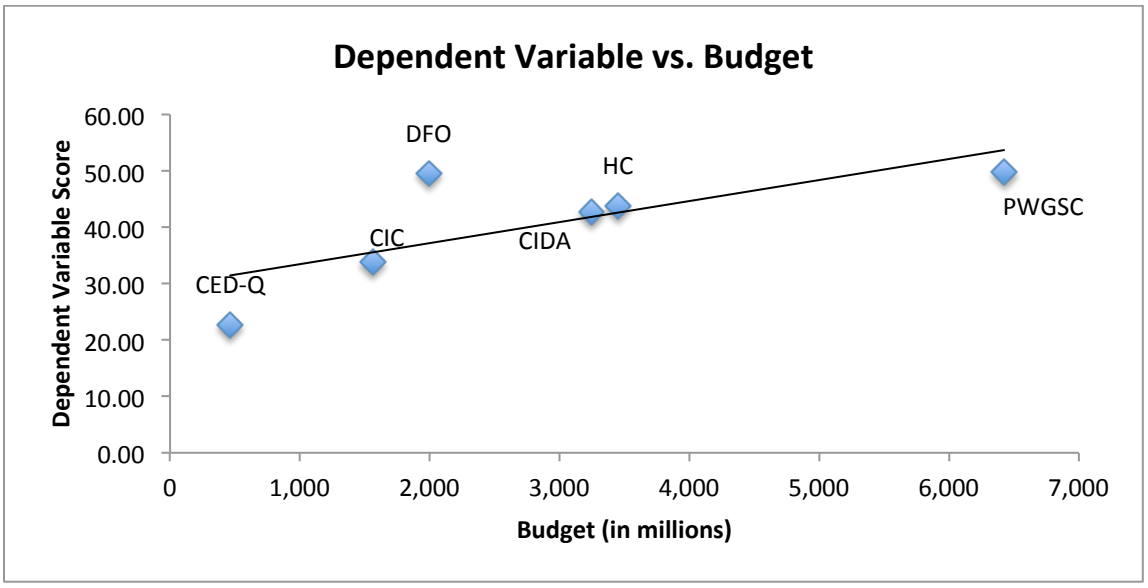


Table 5.4: Dependent Variable vs. Budget Correlation Coefficient

Variable vs. Variable	*r*	*r Standard Error*
Gross Budget vs. DV - DV CUMUL	0.58532	0.16435

Chart 5.10 serves to illustrate how an organization's dependent variable (ISO best practices proxy) score varies as with budgets. One notes that while there are significant differences between DFO, CIDA, HC and PWGSC's budgets (DFO's budget is 31% of PWGSC's budget), their dependent variable scores do not differ significantly (11.25 percentage point spread). The *r* value for this variable pair in table 5.4 above indicates that there is a correlation between the variables (r=0.58) albeit weak. The relationship between an organization's budget and its risk management practices therefore merits more research as the data point towards a possible correlation.

Sub-question 2: Do higher FTEs result in increased alignment of RM practices with ISO best practices?

Chart 5.12: Total Cumulative Dependent Variable Score vs. FTEs Chart

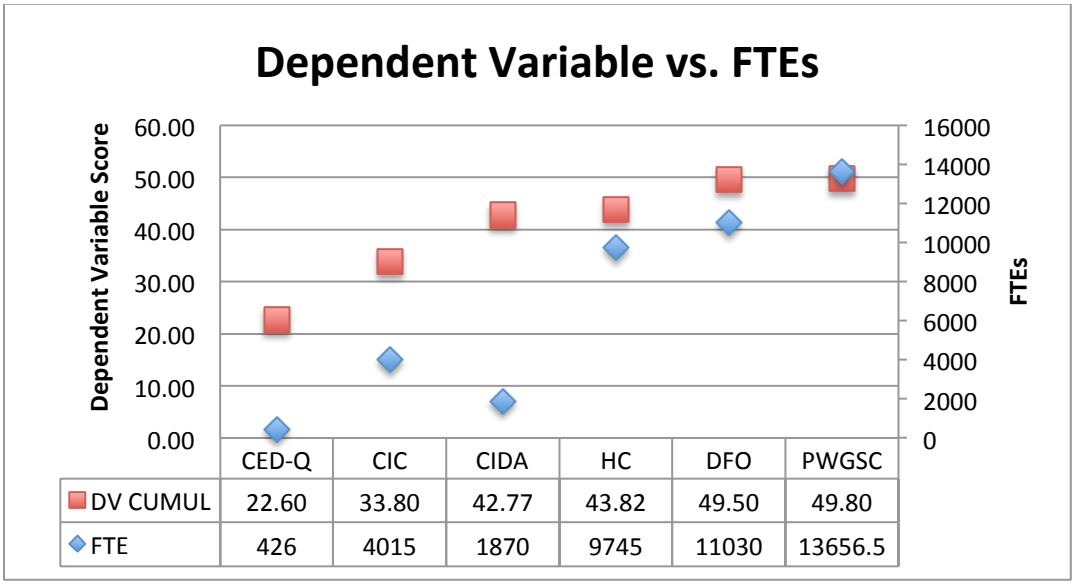


Chart 5.13: Total Cumulative Dependent Variable Score vs. FTEs Scatter Plot

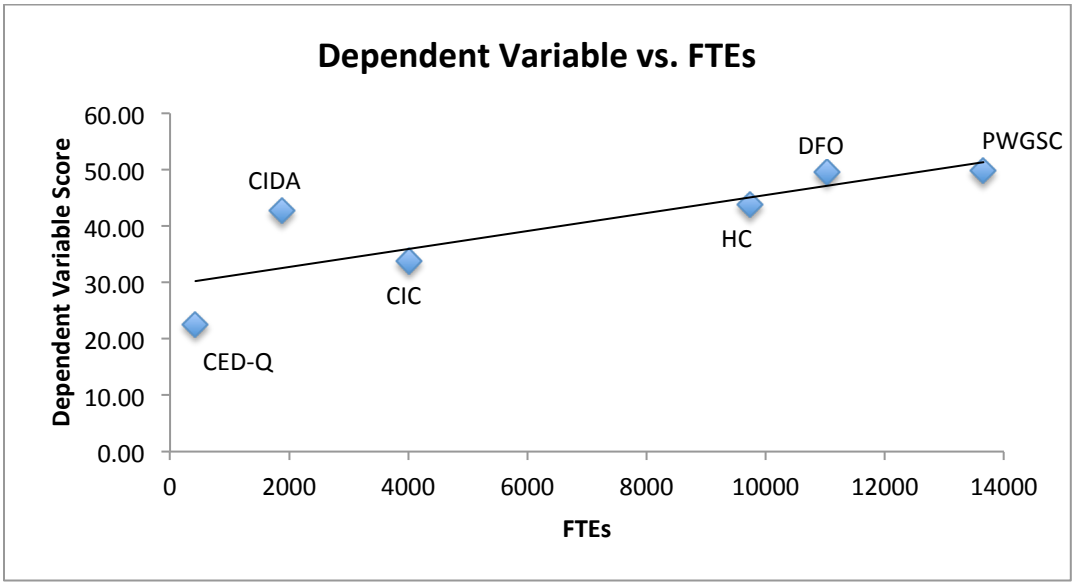


Table 5.5: Dependent Variable vs. FTE Correlation Coefficient

Variable vs. Variable	*R*	*r Standard Error*
FTE vs. DV - DV CUMUL	0.73574	0.11467

Charts 5.12 and 5.13 above illustrate how an organization's corporate risk management practices vary as the total number of FTEs in an organization increases. Table 5.5 above provides the *r* value for the variable pair in the charts above. When the dependent variable score is compared to the number of FTEs in an organization, higher relative FTEs follow a similar pattern to higher dependent variable scores. The scatter plot confirms this apparent pattern. These observations are supported by the high relative *r* correlation coefficient. With $r = 0.735$, there is a strong correlation between the number of FTEs in the organizations and the organization's corresponding alignment of risk management practices with ISO 31000 best practices.

Sub-question 3: Do higher FTEs dedicated to RM result in better alignment of organization's RM practices with ISO best practices?

Chart 5.14: Total Cumulative Dependent Variable Score vs. RM % FTEs Chart

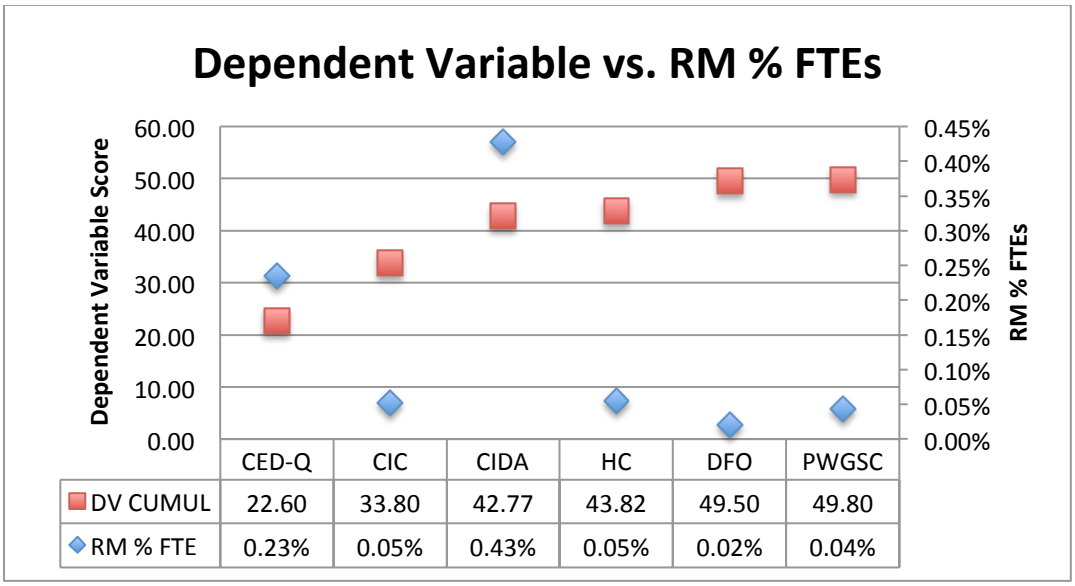
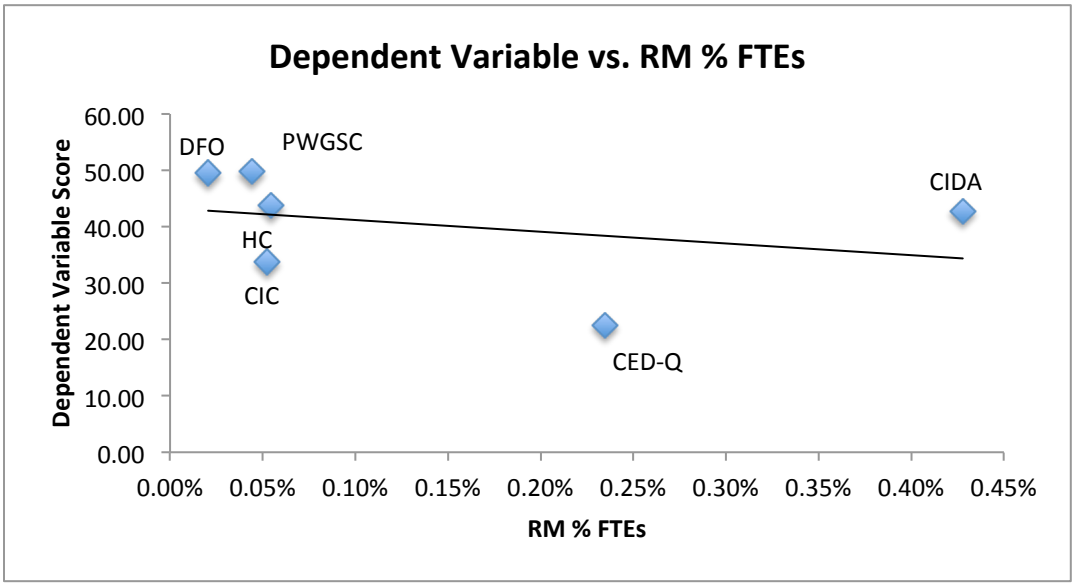


Chart 5.15: Total Cumulative Dependent Variable Score vs. RM % FTEs Scatter Plot



Charts 5.14 and 5.15 above illustrate how an organization's dependent variable score varies as the proportion of total number of FTEs dedicated to corporate risk management activities (expressed as a percentage of the total FTEs in the organization) changes. For the purposes of this analysis, the number of RM FTEs are expressed as a percentage of the total FTEs in the organization to make this measure comparable from one organization to another. No clear pattern is apparent but a potential negative correlation, albeit very weak, emerges as increases in the RM % FTE variable seem to correspond to a downward trend in all three charts. The *r* value in Table 5.6 below confirms the negative correlation between the dependent variable and RM % FTEs.

Table 5.6: Dependent Variable vs. RM % FTE Correlation Coefficient

Variable vs. Variable	*r*	*r Standard Error*
RM % FTE vs. DV - DV CUMUL	-0.24988	0.23439

Sub-question 4: Does an organization's primary policy instrument influence the alignment of RM practices with ISO best practices?

Chart 5.16: Total Cumulative Dependent Variable Score vs. Primary Policy Instrument

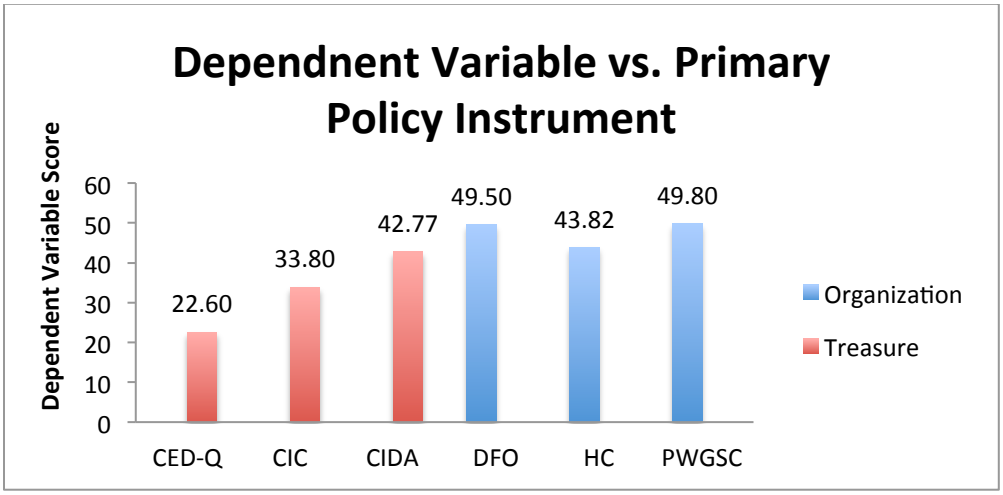


Chart 5.16 compares the primary policy instrument variable and the dependent variable scores. Only two primary policy instruments are represented in the charts because all six organizations in the sample primarily used either the "organization" or "treasure" policy instruments. Policy instruments "authority" and "nodality" did not rank first for any of the organizations in the sample. For this reason a bar graph was deemed more useful for the EDA than a line chart or a scatter plot.

When one compares the average dependent variable scores of the organizations in the "Organization" and "Treasure" categories (see Table 5.7 below) it is clear that organizations that prioritize the Treasure policy instrument score significantly lower (24.4 percentage points), on average, on the dependent variable scores.

Table 5.7: Average Dependent Variable Scores vs. Primary Policy Instrument

Primary Policy Instrument	Average Dependent Variable Score (/60)	Average Dependent Variable Score %
Organization	47.71	79.5%
Treasure	33.06	55.1%

The calculation of variable pair correlation coefficients does not allow for the categorization of

organizations by primary policy instrument as is the case in the chart 5.16, but rather the *r* values express the correlation between the use of a given policy instrument and the dependent variable scores. Despite the fact that the pairwise correlation coefficients do not analyse the same thing as the graphic analysis of the data, they do nonetheless confirm the observed patterns. The reason for looking at these additional pairwise coefficients despite "Authority" and "Nodality" policy instruments not ranking first for any of the organizations in the sample is to determine whether or not a variation in the use of a given policy instrument, while not being the primary policy instrument, is correlated to the dependent variable. Table 5.8 presents the *r* values for the "authority policy instrument / dependent variable" pair and "nodality policy instrument / dependent variable" pair. In the case of the "authority policy instrument" the *r* value reveals a weak correlation between its use by an organization and the dependent variable. As for the use of the "nodality policy instrument" it does not appear to be correlated to the dependent variable.

Table 5.8: Authority and Nodality vs. Dependent Variable Correlation Coefficients

Variable vs. Variable	*r*	*r Standard Error*
POL INSTR - Authority vs. DV - DV CUMUL	0.61259	0.15618
POL INSTR - Nodality vs. DV - DV CUMUL	0.42608	0.20461

The *r* values in table 5.9 suggest that there is a positive correlation between the dependent variable and the use of the organization policy instrument, and a negative correlation between the dependent variable and the use of the treasure policy instrument.

Table 5.9: Organization and Treasure vs. Dependent Variable Correlation Coefficients

Variable vs. Variable	*r*	*r Standard Error*
POL INSTR - Organization vs. DV - DV CUMUL	0.62697	*0.15173*
POL INSTR - Treasure vs. DV - DV CUMUL	-0.68868	*0.13143*

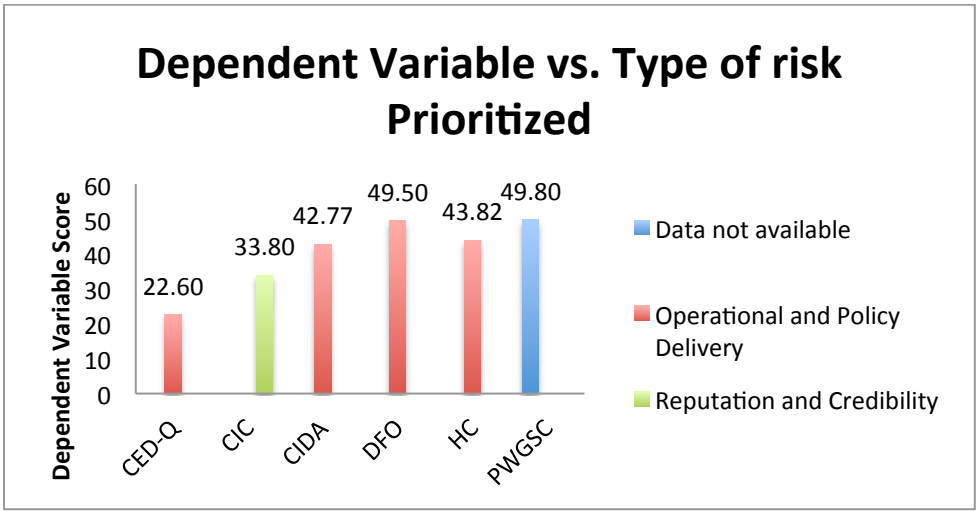
Not only does this statistical analysis confirm the observation that organizations in the "organization" category score higher on the dependent variable score but the strong correlation of the of the "organization policy instrument" variable and the dependent variable suggests that the more use an organization makes of the "organization" policy instrument, the stronger the alignment of its corporate risk management practices with ISO 31000 best practices. The

opposite statement can be made in the case of the use of the "treasury" policy instrument: the more an organization relies on the "treasure" policy instrument, the lesser its corporate risk management practices find themselves aligned with ISO 31000 best practices.

Finally, on the coerciveness scale, Organization policy instruments are considered more coercive than Treasure policy instruments. The findings therefore point towards a positive correlation between the level of coerciveness and alignment of corporate risk management practices with best practices.

Sub-question 5: Does an organization's priority risk influence the alignment of RM practises with ISO best practices?

Chart 5.19: Total Cumulative Dependent Variable Score vs. Type of Risk Prioritized



Charts 5.19 above compares the "type of risk prioritized" variable, and the dependent variable scores. The fact that only one organization prioritized reputation and credibility risks (CIC) whereas the others prioritized operational and policy delivery risks makes it difficult to determine whether a pattern exists. Data for PWGSC were not available in this case. If one compares the average dependent variable scores of organizations that prioritize operational and policy delivery risks (see table 5.10 below), it does not appear that there is a significant difference (less than 10 percentage points).

Table 5.10: Average Operational Policy and Delivery vs. Reputation and Credibility Score

	Op. & Pol. Del. Average	Rep. & Cred. Average
Dep. Var. Score	33.80 (56.3%)	39.67 (66.1%)

While all five organizations for which the data was available prioritized either Operational and Policy Delivery risks or Reputation and Credibility risks, this thesis did collect data on four types of risks. Therefore *r* values could be calculated to look for potential relationships between variations in each of the four types of risks measured and the dependent variable. Table 5.11 presents the *r* values, which represent a potential correlation between variances in the level of priority given to each type of risk and the dependent variable cumulative score.

Table 5.11: Type of Risk Prioritized vs. Dependent Variable Correlation Coefficients

Variable vs. Variable	*r*	*r Standard Error*
PRIO RISK - Ops and Policy Delvry vs. DV - DV CUMUL	-0.18167	*0.24175*
PRIO RISK - Rep. & Cred. vs. DV - DV CUMUL	0.02700	*0.24982*
PRIO RISK - Financial vs. DV - DV CUMUL	-0.45723	*0.24369*
PRIO RISK - Compliance vs. DV - DV CUMUL	0.04670	*0.23848*

The *r* values for the Type of risk prioritized / Dependent Variable pair ($-0.5 < r < 0.5$) support the above observation that there does not seem to be a correlation between these variables.

5.2.5 Summary of Findings

Table 5.12 summarizes the findings described in the previous section. The variable pairs are given a rank from 1 to 5 based on the relative strength of their correlation with 1 being the strongest correlation of the five variable pairs and 5 being the weakest correlation.

Table 5.12: Summary of observations

Variable vs. Variable	*Correlation Strength rank*	*r*
Gross Budget vs. DV - DV CUMUL	3	0.58
FTE vs. DV - DV CUMUL	1 (strongest)	0.73
RM % FTE vs. DV - DV CUMUL	4	-0.25
POL INSTR vs. DV - DV CUMUL	2	0.62 for Organization -0.68 for Treasure
PRIO RISK vs. DV - DV CUMUL	5 (weakest)	-0.45 for Financial -0.18 for Op. & Pol. Del. 0.027 for Rep. & Credibility 0.046 for Compliance

Overall the FTE variable emerges as the independent variable most strongly correlated to the dependent variable followed by the type of policy instrument variable. The budget variable also seems to display a correlation to the dependent variable, although somewhat less, while the type of risk prioritized and the number of FTEs dedicated to risk management – the two weakest correlations of the variable pairs – do not appear to have a significant influence on risk management practices in the organizations in the sample.

5.2.6 Discussion

Total budget: The gross budget variable displayed some correlation with the dependent variable. While the *r* value suggests a correlation, the graphical analysis suggests that this lower *r* value could be in large part due to one major outlier: DFO (small budget, high score on the dependent variable). One could advance the hypothesis that in the case of the organizations in the sample, simply having access to more financial resources contributes to the organization's capacity to align with risk management best practices. It should also be noted that the smallest organization (CED-Q) and the largest organization (PWGSC) both in terms of financial and human resources, rank respectively lowest and highest in terms of alignment with ISO 31000 for the dependent variable score, the cumulative element scores and 13 out of 20 of the measures. If one only considers the two extremes of the sample in terms of budget and total FTEs (CED-Q and PWGSC), the fact that they are the respective extremes in 13 out of 20 measures further strengthens an apparent pattern.

Total FTEs: An interesting result is that the alignment of an organization's risk management practices with suggested best practices varies with the total number of FTEs in the organization, especially in terms of corporate risk management processes. Future research can further investigate the relationship between total FTEs and risk management practices in an organization, but a preliminary hypothesis would be that, the larger an organization is in terms of people – implying that more people in the organization are "managing risk" as part of their everyday work – the greater the need to strengthen frameworks and processes at the corporate level to ensure that risks are being managed consistently across the organization. Also, as with the gross budget variable, it may be a case of the more resources an organization has at its disposal – in this case human resources – the greater its capacity to align with best practices. It should be finally noted that the gross budget and total FTE of the organizations in the sample are themselves somewhat correlated with an *r* value of 0.70.

It must be noted that because the "gross budget" and "total FTE" variables both refer to an organization's level of resources, there is a chance that the fact that these two independent variables are themselves correlated ($r = 0.70$) means that the fact that the dependent variable seems to be correlated with both independent variables may be somewhat misleading. In other words there is a risk of collinearity. If this were indeed the case, the data collected for this thesis does not allow the analysis to determine which of the two independent variables (budget or FTEs) is in fact correlated with the dependent variable. This being said, an organization's total budget and total FTEs are not perfectly correlated. While CED-Q and PWGSC are respectively the smallest and the largest organizations in the sample in terms of both budget and FTEs, the other organizations appear in a different order in the scatter plots for budget and FTEs (charts 5.11 and 5.13 above). Also, without being able to determine which exactly of the two independent variables truly has the strongest influence on the dependent variable, there does appear to be a clear relationship between an organization's total resources and the alignment of its corporate risk management practices with ISO best practices.

RM % FTEs: Comparing the independent variables and the dependent variable produced some surprises and some interesting results. One surprise is the fact the data appears to show that increasing the percentage of staff dedicated to corporate risk management activities does not lead to better alignment with ISO 31000 best practices. This seems counter-intuitive. More surprising is the apparent slight negative correlation between the RM % FTE variable and the

independent variable. This negative correlation may be a result of the small n, or it could be the a result of the issues with the measurement of the RM FTE variable as previously discussed. Regardless, we cannot simply conclude that there is no relationship between RM FTEs and corporate risk management practices. Because of the difficulties experienced in measuring this variable, and simply because it seems to go without saying that the level of resources are dedicated to performing a task should have an influence on how that task is performed, the relationship between these two variables warrants more attention from future research. What we have learned from this thesis is that a more rigorous methodology for measuring the variable should be defined before attempting to measure it. The experience related in this thesis should support the development of a better-defined future methodology.

Perhaps an even more compelling reason for future research to examine this variable pair, is the indication from the data collected for this thesis that there may be a negative correlation between the two variables. This suggests that dedicating more resources to corporate risk management could in fact lead to a weaker alignment of corporate risk management practices with ISO 31000 best practices. Should this be the case, the implications would be far reaching and the reasons for this need to be explored.

Primary policy instrument: Perhaps the most interesting result of the data analysis is that the type of policy instrument prioritized by an organization appears to have a significant impact on risk management practises at the corporate level. This correlation is suggested both by the EDA and the correlation coefficient. The policy instrument variable tells us something about the type of organization we are dealing with and how it carries out its mandate. The three organizations in the "Treasure" category rely heavily on grants and contributions (G&Cs) – almost entirely in the case of CED-Q and CIDA. As for DFO, HC and PWGSC in the "Organization" category, they rely more on their internal capacity to carry out activities contributing to the fulfillment of their mission. This variable pair tells us two things: (1) organizations that manage large grants and contributions programs are less aligned with suggested risk management best practises at the corporate level (less so than their counterparts that can be described as "direct implementers"); and (2) the more an organization relies on its own capacity to carry out its mandate (i.e. stronger reliance on more coercive policy instrument), the stronger the alignment of corporate risk management practices with best practices; the more it carries out its mandate through

implementing agencies which it funds, the weaker the alignment of corporate risk management practices with best practices.

Potential explanations of this observed result include the fact that when an organization uses G&Cs, it externalizes some of its risk related to the management of the funds and the projects supported by those funds. These risks are shared by organizations that receive the funding, whereas direct implementation organizations retain a larger burden share of the risks associated with their program activities. One could therefore conclude that if more of an organization's risks are externalized, there is a lesser need for stringent risk management practises at the corporate level.

Another explanation is that G&Cs are generally managed as projects by the different programs in the organization. The organizations in the Treasure category generally have detailed project management guidelines that include important information on risk management related to the management of G&Cs, instead of including it in corporate risk management documents as is the case with other organizations. Project management guidelines were not used to inform the dependent variable in this study because they were not considered corporate risk management documents as they do not apply to all branches of the organizations despite containing important risk management information.

Type of risk prioritized: The independent variable on priority risk proved to be less informative than expected. This is likely due in large part to the fact that four of the five organizations for which the data was available are relatively homogenous in the types of risks prioritized. If, as previously demonstrated, risk management practices vary significantly from one organization to another, while the type of risk prioritized does not, we could conclude that there is no correlation between these two variables. However, given the small *n* of this study, this variable cannot be entirely discounted. What is interesting about this independent variable is how, despite being very different organizations with very different mandates and means of fulfilling their mandates, the types of risks that these organizations focus on at the corporate level differ little. It would be interesting for future research to look at this issue across a larger number of organizations to determine whether or not this proves to be a constant characteristic across departments and agencies in the Government of Canada.

Chapter 6: Conclusion

6.1 Summary

6.1.1 Risk Management in the Public Sector

The fact that everyone manages risk is now widely accepted. So much so that during the interviews for this thesis, when the researcher asked the corporate risk management focal point in one of the organizations in the sample how many people were dedicated the corporate risk management (RM FTE variable), the first answer was: “everyone in this organization is involved in corporate risk management”. Our understanding of risk has also greatly evolved over time, and especially in the last 30 years. In the case of governments, risk has evolved from a synonym for hazard or disaster, to the now internationally accepted ISO definition “ the effect of uncertainty on outcomes” (ISO 31000:2009). The new standard applies to any “public, private or community enterprise, association, group or individual”, and to “any type of risk, whatever its nature, whether having positive or negative consequences”. Rather than “promote uniformity of risk management across organizations”, the standard recognizes that risk management “will need to take into account the varying needs of a specific organization, its particular objectives, context, structure, operations, processes, functions, projects, products, services, or assets and specific practices employed” (ISO 31000:2009, p.1). As the understanding of what risk is has evolved, so have the approaches to managing it. From control mechanisms to avoid a negative outcome, the field of risk management now has a set of suggested principle-based best practices summarized in ISO 31000 that emphasize the need to tailor approaches to an organization’s unique situation. Of course, the publication of ISO 31000 is by no means the end of the discussion around risk management or the evolution of how risk is defined and managed, but it is a major milestone in that evolution. Definitions and practices will evolve as our world and our understanding of it changes. But one thing is certain: as long as the future remains uncertain, we will continue to manage risk as we work towards our objectives.

In 2010, TBS released the Framework for the Management of Risk – the Government of Canada’s most recent effort to update its government-wide approach to risk management and to align the framework and definitions with international standards as defined in ISO

31000:2009 on risk management. The 2010 Framework, and a suite of guides and tools, replaced both the 2001 IRMF and 2004 Implementation Guide (TBS 2010, p.1). With this latest Framework, the Government of Canada has changed its approach from a one-size-fits-all framework and guidelines on the implementation of risk management to a principle-based flexible approach to allow "departments and agencies to tailor management solutions to their mandate and objectives" (TBS 2010, p.1). It is too early to determine what impact these new guides and tools will have on the way departments and agencies manage risk. The first sources of information to assess a potential shift will become available as organizations update and publish their CRPs over the course of the coming year.

Despite all the progress in the field of risk management and the omnipresence of risk, our understanding of how and why government organizations manage risk is somewhat fragmentary as the literature review demonstrated. This is not because the risks managed by governments are unimportant. On the contrary, governments are responsible for managing risks that if not properly managed, pose the greatest threats to our societies.

This thesis aimed to start filling some of the gaps in our understanding of *how* and *why* risk is managed by governments and in this particular case, in six organizations in the Government of Canada. As previously noted, it does not propose to discuss how risk *should* be managed – much has been written about that, and an army of risk management consultants stand at the ready to tell governments how they *should* practise risk management – nor which organizations manage risks more effectively. Rather, this thesis seeks to measure the differences between risk management practices in the organizations in the sample and build hypotheses that could be used in future research to explain why organizations manage risk the way they do, and why risk management practices will differ from one organization to another even within the same government. Ultimately this will lead to the creation of a "feedback loop" whereby our better understanding of how and why these organizations manage risk, will allow us to improve our suggestions for how these organization *should* manage risk more effectively.

6.1.2 Findings of the thesis

To determine "if" and "how" risk management practices vary in the organizations in the sample, this thesis measured and analysed a dependent variable, "corporate risk management practices". Analysis of the dependent variable provided an answer to the first research question: "do risk management practices vary"? The answer, which was not a foregone conclusion given the common policy framework for all organizations in the sample, is "yes: risk management practices vary from one organization to another in the Government of Canada". This conclusion is supported by the fact that dependent variable scores ranged from 22.60 to 49.80 out of a possible total of 60 points, and that for an average dependent variable score of 40.38 the MAD is 8.12.

This thesis also sought to start building explanations as to "why" risk management practices vary from one organization to another. In order to answer this question, 5 independent variables were measured: an organization's (1) gross budget, (2) Full Time Equivalents (FTEs), (3) the percentage of total FTEs dedicated to corporate risk management (RM % FTE), (4) primary policy instrument, and (5) the type of risk prioritized. These five independent variables were paired with the dependent variable in order to look for patterns and correlations in the variable pairs. The analysis revealed that there is little or no correlation between the type of risk prioritized by an organization or the number of FTEs dedicated to corporate risk management activities and corporate risk management practices. However, because of difficulties in measuring the RM FTE variable and because intuitively there would seem to be a relationship between these independent variables and the dependent variable, a potential relationship cannot be discounted and should be explored by future research preferably in a larger sample of organizations.

The analysis found a strong positive correlation between the levels of resources (financial and human) an organization manages and its corporate risk management practices. The correlation was slightly stronger in the case of human resources than in that of financial resources.

The data analysis also revealed a correlation between an organization's primary policy instrument and its corporate risk management practices. The use of four types of policy instruments was measured, but two proved to be most widely used by organizations in the

sample: “organization” and “treasure”. Organizations that primarily used the “organization” policy instrument received higher scores on the dependent variable, where as organizations which relied more heavily on “treasure” policy instruments consistently scored lower on the dependent variable.

6.1.3 Limitations and Effects on Findings

Sample size: The first, and likely most important limitation of this study was the small sample size. However, as this was an exploratory study, the small *n* was not considered to be a barrier to the formulation of hypotheses for future research. Analysis methods were adjusted for the small *n* for example the limits for *r* correlation coefficients were intentionally set high.

Measurement instruments: Another limitation was the choice of measurement instruments. The fact that the use of a survey was not possible meant that data collection relied heavily on documentary analysis. This meant that the types of questions one could hope to answer through data collection were limited.

Shortage of previous studies: One of the major challenges faced by this thesis was that, as a result of a lack of previous studies on this specific topic, there was no predefined methodology for collecting or analysing the data. The methodology for measuring the variables was defined and developed for this thesis, and in some cases, most notably for RM FTEs, posed some challenges for data collection and interpretation. The development of measurement instruments was also partly influenced by the data sources to which the researcher had access (for example documentary sources instead of survey data).

Reliance on reports that may convey biased portrait: The documentary sources on which this thesis relied for data were all produced by the organizations themselves. One might consider that they convey a biased portrait of risk management in the organization. However, the documents used as data sources are not reports on risk management, but rather internal documents aimed at the organizations themselves that provide policy and operational guidance of how the organization manages risk. Unlike the answers to TBS for the MAF assessments,

these documents are not intended to convince an external party of the effectiveness or robustness of risk management practices in the organization. They are tools that the organization itself uses to manage risk. For these reasons, the documents used were not considered to be biased.

Lack of blinding: One potential issue that arises from the methodology for this thesis is the lack of blinding. Indeed, the author developed the research questions and the data collection tools. The author also collected, analyzed and interpreted the data. Ideally, as part of a blind study, different individuals would have performed these steps. The first reason for this study being non-blinded is simply linked to available resources. The data collection component of the research process was extremely time consuming and therefore having another researcher collect the data was not an option. To compensate for this potential source of bias, the author was very careful to base scores on the indicators only on what was clearly present in the documentary sources. If through personal experience or other means, the author knew of information related to risk management practices that was not clearly stated in the documents, this information was not taken into account in the scoring of the indicators.

Exclusion of program risks: As mentioned at the beginning of this thesis, the analysis of risk management in the organization that make up the sample only focused on their corporate risks. As a result the thesis did not cover program-level risks and one could consider that the analysis does not cover the full range of risks or even types of risks managed by each organization. One reason for setting this limit was simply a question of limiting the scope of the thesis. A second reason was that this study looked at variation in risk management practices despite homogenizing factors (TBS policies, frameworks, etc.) Corporate risk management practices could be compared from one department to another as each organization has a corporate risk profile where it identifies its corporate risks. Program level risks, because of their great variety, would have presented a much greater challenge in terms of defining a common basis upon which they could be compared. This being said, future studies could focus on a case study of a single organization and how it manages different types of risk across the organization.

Examining plans and aspirations rather than actions: By using an organization's risk management policies, frameworks, guidelines, tools, etc. The data collected for this thesis

represents and organization's plans and aspiration rather than actual actions. Examining the actual actions of an organization in terms of risk management would undoubtedly be very useful and interesting. This was not necessary given the two research questions. It would however, have been necessary had this thesis set out to assess the effectiveness of risk management in an organization. There is a risk though, that an organizations plans and aspirations do not correspond at all to its actions. Even if this were the case, examining plans and aspirations is interesting and relevant as these plans and aspirations are, as was hypothesized in this thesis, tailored to an organization's particular needs. While it was beyond the scope of this thesis to look at actual actions and the effectiveness of risk management in an organization, the thesis used a control measure – the MAF scores on risk management – that *is* an assessment of the effectiveness of risk management in an organization. As discussed in Chapter 5 "Data Analysis", the MAF scores and the dependent variable scores were correlated ($r = 0.75$) suggesting that for the organizations in the sample, their plans and aspirations were not completely divorced from their actions.

Potential appearance of conflict of interest: The author is also an employee of CIDA, one of the organizations in the sample. This could lead to a potential appearance of conflict of interest. It should however be noted that the author's work at CIDA is not related to corporate risk management. In order to ensure that the author's work did not interfere with the scoring of CIDA's dependent variable scores, the author ensured that scores were assigned solely on the contents of the documentary sources. Because the thesis does not assess the effectiveness of organizations in managing risk, there was never any pressure, explicit or implicit, external or self-imposed, to score CIDA higher or lower on any of the indicators. In fact, the author's status as a public servant in the Government of Canada benefitted the thesis as it allowed the author easier access to risk management specialists in the Government of Canada.

The challenge of summarizing risk management practice: As an exploratory study, this thesis sought to cover as much as possible within a well-defined scope. Nonetheless, the dependent variable – corporate risk management practices – is in a sense a summary of risk management practice in an organization. Of course, risk management in an organization can hardly be summarized as a score out of 60. The reality is much more complex. But for all its limitations, the fact that ISO 31000 became available at the time that the methodology was being

developed provided an opportunity to develop a new measurement tool that produced very interesting results. The use of ISO 31000 as the foundation of an assessment instrument was successful and proved to be useful.

6.2 Implications for Future Research

Based on the findings in this thesis, a number of hypotheses can be advanced. The first hypothesis relates to the gross budget / dependent variable pair and the FTE / dependent variable pair, or otherwise formulated, the relationship between the level of resources an organization manages and its corporate risk management practices. Thus:

> *Hypothesis 1: The more financial and human resources a government organization manages, the more its corporate risk management practices are aligned with best practices.*

Future research should also test a potential relationship between the coerciveness of the primary policy instrument used by an organization and the alignment of its corporate risk management practices with best practices. While the data collected tend to indicate the direction of that potential relationship (i.e. a positive correlation between the level of coerciveness and the alignment of risk management practices) the fact that only two types of primary policy instruments were represented in the sample, make a stronger hypothesis difficult to advance based on the findings of this thesis. Nonetheless, the findings on the primary policy instrument / dependent variable pair lead to the formulation of the following hypotheses that should be tested:

> *Hypothesis 2: In government organizations, there is a positive correlation between the degree of coerciveness of the primary policy instrument used by an organization and the alignment of corporate risk management practices with best practices.*

The finding in the case of the priority risk / dependent variable pair makes it harder to formulate a hypothesis based on this variable pair. However, this finding may simply be the result of the

small sample size or insufficient data. Future research should nonetheless explore the potential relationship between these two variables in a much larger sample.

Finally we consider the RM % FTE / dependent variable pair. As previously discussed, because of the small sample size and the challenges in measuring the RM % FTE variable, one could be tempted to dismiss this variable pair. However, because this variable pair resulted in an unexpected negative correlation, and because of the significance and potential implications of a negative correlation between these two variables proving to be true, future research should also look at this variable pair in a much larger sample.

This thesis has laid the foundation, from a methodological standpoint and by proposing hypotheses to be tested in the future, for further research into how and why government organizations manage risk. Ideally, this will ultimately lead to a better understanding of how governments *should* manage risk – an activity in which all citizens have a significant stake.

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Appendices

A. Dependent Variable Data Collection Tool

In order to collect the data for the dependent variable used in this thesis ("corporate risk management practices") the researcher developed a data collection tool based on ISO 31000 to measure the presence, and if present, the strength of risk management practices. All of the information contained in the basic data collection tool below is directly copied from ISO 31000:2009 (pp. 8 – 21). Some of the original text from ISO 31000:2009 was slightly edited and new numbering was assigned for ease of use. The terminology used in the legend below ("elements", "sub-elements" and "best-practices") is not from ISO 31000:2009 but was adopted by the researcher for this thesis to facilitate the description and analysis of the data collected.

Dependent Variable Measurement Tool

(Based on ISO 31000)

***Index*:**

3 - Strong evidence of presence/practice
2 - Some evidence of presence/practice
1 - Little evidence of presence/practice
0 - Evidence of that specific practice is absent

Legend:

ELEMENT

Measures

Best-practices (indicator)

FRAMEWORK

	Score
A. Mandate & Commitment. Management should:	
1. define and endorse the risk management policy	
2. ensure that the organization's culture and risk management policy are aligned	
3. determine risk management performance indicators that align with performance indicators of the organization	
4. align risk management objectives with the objectives and strategies of the organization	
5. ensure legal and regulatory compliance	
6. assign accountabilities and responsibilities at appropriate levels within the organization	
7. ensure that the necessary resources are allocated to risk management	
8. communicate the benefits of risk management to all stakeholders	
9. ensure that the framework for managing risk continues to remain appropriate	
FRAMEWORK DESIGN	
B. Understanding of the organization and its context	
Evaluating the organization's external context may include	

1. the social and cultural, legal, regulatory, financial, technological, economic, natural and competitive environment, whether international, national, regional or local	
2. key drivers and trends having impact on the objectives of the organization	
3. relationships with, and perceptions and values of, external stakeholders	
Evaluating the organization's internal context may include,	
4. governance, organizational structure, roles and accountabilities	
5. policies, objectives, and the strategies that are in place to achieve them	
6. capabilities, understood in terms of resources and knowledge (e.g. capital, time, people, processes, systems and technologies)	
7. information systems, information flows and decision making processes (both formal and informal)	
8. relationships with, and perceptions and values of, internal stakeholders and the organization's culture	
9. standards, guidelines and models adopted by the organization	
10. the form and extent of contractual relationships	
C. Establishing risk management policy	
1. the organization's rationale for managing risk	
2. links between the organization's objectives and policies and the risk management policy	
3. accountabilities and responsibilities for managing risk	
4. the way in which conflicting interests are dealt with	
5. commitment to make the necessary resources available to assist those accountable and responsible for managing risk	
6. the way in which risk management performance will be measured and reported	
7. commitment to review and improve the risk management policy and framework periodically and in response to an event or change in circumstances	
8. The risk management policy should be communicated appropriately	
D. Accountability	
1. identifying risk owners that have the accountability and authority to manage risks	
2. identifying who is accountable for the development, implementation and maintenance of the framework for managing risk	
3. identifying other responsibilities of people at all levels in the organization for the risk management process	
4. establishing performance measurement and external and/or internal reporting and escalation processes	
5. ensuring appropriate levels of recognition	
E. Resources	
The organization should allocate appropriate resources for risk management. Consideration should be given to the following:	
1. people, skills, experience and competence	
2. resources needed for each step of the risk management process	
3. the organization's risk processes, methods and tools to be used for managing risk	
4. documented processes and procedures	
5. information and knowledge management systems	
6. training programmes	
F. Establishing internal communication and reporting mechanisms	

The organization should establish internal communication and reporting mechanisms in order to support and encourage accountability and ownership of risk. These mechanisms should ensure that:	
1. key components of the risk management framework, and any subsequent modifications, are communicated appropriately	
2. there is adequate internal reporting on the framework, its effectiveness and the outcomes	
3. relevant information derived from the application of risk management is available at appropriate levels and times	
4. there are processes for consultation with internal stakeholders	
5. These mechanisms should include processes to consolidate risk information where appropriate from a variety of sources, taking into account its sensitivity	
G. Establishing external communication and reporting mechanisms	
The organization should develop and implement a plan as to how it will communicate with external stakeholders. This should involve:	
1. engaging appropriate external stakeholders and ensuring an effective exchange of information	
2. external reporting to comply with legal, regulatory, and governance requirements	
3. providing feedback and reporting on communication and consultation	
4. using communication to build confidence in the organization	
5. communicating with stakeholders in the event of a crisis or contingency	
6. These mechanisms should include processes to consolidate risk information where appropriate from a variety of sources, taking into account its sensitivity.	
H. Implementing the framework for managing risk	
The organization should:	
1. define the appropriate timing and strategy for implementing the framework	
2. apply the risk management policy and process to the organizational processes	
3. comply with legal and regulatory requirements	
4. ensure that decision making, including the development and setting of objectives, is aligned with the outcomes of risk management processes	
5. hold information and training sessions	
6. communicate and consult with stakeholders to ensure that its risk management framework remains appropriate	
I. Monitoring and review of the Framework	
In order to ensure that risk management is effective and continues to support organizational performance, the organization should	
1. measure risk management performance against indicators, which are periodically reviewed for appropriateness	
2. periodically measure progress against, and deviation from, the risk management plan	
3. periodically review whether the risk management framework, policy and plan are still appropriate, given the organizations' external and internal context	
4. report on risk, progress with the risk management plan and how well the risk management policy is being followed	
5. review the effectiveness of the risk management framework	
J. Continual Improvement of the Framework	

Based on results of monitoring and reviews, decisions should be made on how the risk management framework, policy and plan can be improved. These decisions should lead to improvements in the organization's management of risk and its risk management culture.	
PROCESS	
K. Communication and consultation with external and internal stakeholders should take place during all stages of the risk management process	
A consultative team approach may:	
1. help establish the context appropriately	
2. ensure that the interests of stakeholders are understood and considered	
3. help ensure that risks are adequately identified	
4. bring different areas of expertise together for analyzing risks	
5. ensure that different views are appropriately considered when defining risk criteria and in evaluating risks	
6. secure endorsement and support for a treatment plan	
7. enhance appropriate change management during the risk management process	
8. develop an appropriate external and internal communication and consultation plan	
ESTABLISHING THE CONTEXT	
L. External Context	
The external context can include, but is not limited to	
1. the social and cultural, political, legal, regulatory, financial, technological, economic, natural and competitive environment, whether international, national, regional or local	
2. key drivers and trends having impact on the objectives of the organization	
3. relationships with, perceptions and values of external stakeholders	
M. Internal Context	
This can include, but is not limited to:	
1. governance, organizational structure, roles and accountabilities	
2. policies, objectives, and the strategies that are in place to achieve them	
3. capabilities, understood in terms of resources and knowledge (e.g. capital, time, people, processes, systems and technologies)	
4. the relationships with and perceptions and values of internal stakeholders and the organization's culture	
5. information systems, information flows and decision making processes (both formal and informal)	
6. standards, guidelines and models adopted by the organization	
7. form and extent of contractual relationships	
N. Establishing the context of the risk management process	
1. defining the goals and objectives of the risk management activities	
2. defining responsibilities for and within the risk management process	
3. defining the scope, as well as the depth and breadth of the risk management activities to be carried out, including specific inclusions and exclusions	
4. defining the activity, process, function, project, product, service or asset in terms of time and location	

5. defining the relationships between a particular project, process or activity and other projects, processes or activities of the organization	
6. defining the risk assessment methodologies	
7. defining the way performance and effectiveness is evaluated in the management of risk	
8. identifying and specifying the decisions that have to be made	
9. identifying, scoping or framing studies needed, their extent and objectives, and the resources required for such studies	
O. Defining risk criteria	
When defining risk criteria, factors to be considered should include the following:	
1. the nature and types of causes and consequences that can occur and how they will be measured	
2. how likelihood will be defined	
3. the timeframe(s) of the likelihood and/or consequence(s)	
4. how the level of risk is to be determined	
5. the views of stakeholders	
6. the level at which risk becomes acceptable or tolerable	
7. whether combinations of multiple risks should be taken into account and, if so, how and which combinations should be considered	
RISK ASSESSMENT	
P. Risk Identification	
1. should include risks whether or not their source is under the control of the organization	
2. should include examination of the knock-on effects of particular consequences, including cascade and cumulative effects.	
3. Should consider a wide range of consequences even if the risk source or cause may not be evident	
4. consider possible causes and scenarios that show what consequences can occur	
5. should apply risk identification tools and techniques that are suited to its objectives and capabilities, and to the risks faced	
6. People with appropriate knowledge should be involved in identifying risks	
RISK TREATMENT	
Q. Risk treatment involves a cyclical process of:	
1. assessing a risk treatment	
2. deciding whether residual risk levels are tolerable	
3. if not tolerable, generating a new risk treatment	
4. assessing the effectiveness of that treatment	
R. Preparing and implementing risk treatment plans	
The information provided in treatment plans should include:	
1. the reasons for selection of treatment options, including expected benefits to be gained	
2. those who are accountable for approving the plan and those responsible for implementing the plan	
3. proposed actions	
4. resource requirements including contingencies	
5. performance measures and constraints	
6. reporting and monitoring requirements	

7. timing and schedule	
S. Monitoring and Review	
Responsibilities for monitoring and review should be clearly defined	
Monitoring and review process should:	
1. ensuring that controls are effective and efficient in both design and operation	
2. obtaining further information to improve risk assessment	
3. analyzing and learning lessons from events (including near-misses), changes, trends, successes and failures	
4. detecting changes in the external and internal context, including changes to risk criteria and the risk itself which can require revision of risk treatments and priorities	
5. identifying emerging risks	
T. Recording the Risk Management Process	
Decisions concerning the creation of records should take into account	
1. the organization's needs for continuous learning	
2. benefits of re-using information for management purposes	
3. costs and efforts involved in creating and maintaining records	
4. legal, regulatory and operational needs for records	
5. method of access, ease of retrievability and storage media	
6. retention period	
7. sensitivity of information	

B. Interview Questionnaires

This appendix is a compilation of all questions sent to the organizations in the sample. Some of the questions (for examples questions 1, 2 and 18) were included in the questionnaires to all 6 organizations. Others were only included if relevant to the organization or to fill a specific gap in the data. The questionnaire for each organization contained from 8 to 12 questions depending on the organization.

As noted in section 4.4 "Interviews" of this thesis, only four interviews were conducted, with CED-Q answering the questions sent to them in writing. Nobody at PWGSC was available for an interview in the timeframe allocated for interviews (mid-March to May 2, 2011).

Interview Questions:

1. Can you briefly describe the risk management cycle as implemented by (name of organization)?

2. What are the strengths and weaknesses of the RM processes at (name of organization)?

3. To what extent would you say that RM is integrated into all management processes at (name of organization)?

4. Does (name of organization) provide training on RM to employees and managers? Generally speaking, what does the training cover?

5. How does (name of organization) monitor the performance of risk treatment plans?

6. How does (name of organization) communicate with internal and external stakeholders in the RM process throughout the RM cycle?

7. Can you briefly describe the risk treatment (sometimes called "mitigation") process at (name of organization)?

8. Can you briefly describe the monitoring and review of the RM process at (name of organization)?

9. How does (name of organization) determine and allocate the necessary level of resources (human and financial) to RM activities?

10. How many FTEs are dedicated to RM at (name of organization)?

11. Would you say that "Program Activity x" is *primarily* implemented using G&Cs or direct service provision by (name of organization)?

12. Do you know (in total $) how big (name of organization) Grants & Contributions programs are?

13. How is the “precautionary principle” applied at (name of organization)?

14. The Economic Action plan is often cited as an experience, which has allowed (name of organization) to implement better RM practices. How have these practices been integrated? Have these practices been maintained? What has been the noticeable (measurable) impact of this?

15. The CRP generally does not contain information on the risk response or risk treatment options. Where is this type of information found?

16. Does (name of organization) have a defined/established process to monitor the CRP, its effectives ness, and make adjustments when necessary?

17. Can the risks in the CRP be classified in terms of “importance” (i.e. level of attention required)?

18. Has TBS’ new approach to RM (Framework and related tools) influenced the way your organization implements RM?

C. Raw Data Tables

This appendix presents the raw data collected for this thesis for both the dependent and independent variables, as well as MAF scores used as a validation measure for the dependent variable. Table C1 and C2 present the raw data scores for the dependent variable. Tables C3, C4 and C5 present the raw data for the independent variable, and Table C6 presents MAF assessment scores for each of the organizations in the sample.

Table C1: Dependent Variable raw scores

FRAMEWORK	CED-Q	CIC	CIDA	DFO	HC	PWGSC
A. Mandate & Commitment. Management should:	1.67	1.67	2.72	2.67	2.11	2.78
1. define and endorse the risk management policy	3	1.5	3	3	3	3
2. ensure that the organization's culture and risk management policy are aligned	1	2	3	2	1	3
3. determine risk management performance indicators that align with performance indicators of the organization	0	0	3	2	0	3
4. align risk management objectives with the objectives and strategies of the organization	2	1.5	3	3	3	3
5. ensure legal and regulatory compliance	1	3	2.5	3	2.5	3
6. assign accountabilities and responsibilities at appropriate levels within the organization	3	3	3	3	3	3
7. ensure that the necessary resources are allocated to risk management	2	0	2	2	1.5	2
8. communicate the benefits of risk management to all stakeholders	2	1	2	3	2	3
9. ensure that the framework for managing risk continues to remain appropriate	1	3	3	3	3	2
FRAMEWORK DESIGN						
B. Understanding of the organization and its context	0.9	1.75	2.45	2.85	2.4	2.6
Evaluating the organization's external context may include						
1. the social and cultural, legal, regulatory, financial, technological, economic, natural and competitive environment, whether international, national, regional or local	3	3	3	3	3	3
2. key drivers and trends having impact on the objectives of the organization	3	2	3	3	3	2.5
3. relationships with, and perceptions and values of, external stakeholders	0	2	1.5	3	2	3

	CED-Q	CIC	CIDA	DFO	HC	PWGSC
Evaluating the organization's internal context may include,						
4. governance, organizational structure, roles and accountabilities	1	3	3	3	3	3
5. policies, objectives, and the strategies that are in place to achieve them	0	3	3	3	3	2
6. capabilities, understood in terms of resources and knowledge (e.g. capital, time, people, processes, systems and technologies)	0	1	2	3	2	3
7. information systems, information flows and decision making processes (both formal and informal)	0	0	1	3	1	1.5
8. relationships with, and perceptions and values of, internal stakeholders and the organization's culture	0	1	2	3	3	3
9. standards, guidelines and models adopted by the organization	1	2.5	3	3	3	3
10. the form and extent of contractual relationships	1	0	3	1.5	1	2
C. Establishing risk management policy	1.38	1.64	2.38	2.50	2.13	1.63
1. the organization's rationale for managing risk	3	2.5	3	3	3	3
2. links between the organization's objectives and policies and the risk management policy	1.5	1	3	3	3	2
3. accountabilities and responsibilities for managing risk	3	3	2.5	3	3	3
4. the way in which conflicting interests are dealt with	0	0	0	0	0	0
5. commitment to make the necessary resources available to assist those accountable and responsible for managing risk	1.5	1	2	2	1	1.5
6. the way in which risk management performance will be measured and reported	0	3	3	3	2.5	1.5
7. commitment to review and improve the risk management policy and framework periodically and in response to an event or change in circumstances	0	1	3	3	3	1
8. The risk management policy should be communicated appropriately	2	1.5	2.5	3	1.5	1
D. Accountability	1.60	1.90	2.20	2.40	2.40	2.40
1. identifying risk owners that have the accountability and authority to manage risks	2	2.5	2.5	3	3	3
2. identifying who is accountable for the development, implementation and maintenance of the framework for managing risk	3	3	3	3	3	3
3. identifying other responsibilities of people at all levels in the organization for the risk management process	3	3	2.5	3	3	3
4. establishing performance measurement and external and/or internal reporting and escalation processes	0	1	3	3	3	3
5. ensuring appropriate levels of recognition	0	0	0	0	0	0

	CED-Q	CIC	CIDA	DFO	HC	PWGSC
E. Resources	1.58	0.00	2.58	2.58	1.50	2.50
1. people, skills, experience and competence	1	0	2.5	3	2	2
2. resources needed for each step of the risk management process	2	0	2	2.5	1	3
3. the organization's risk processes, methods and tools to be used for managing risk	1.5	0	3	3	1.5	3
4. documented processes and procedures	3	0	3	3	1.5	3
5. information and knowledge management systems	0	0	2	1	0	1
6. training programmes	2	0	3	3	3	3
F. Establishing internal communication and reporting mechanisms	1.4	1.6	2.4	3	2.8	2.4
The organization should establish internal communication and reporting mechanisms in order to support and encourage accountability and ownership of risk. These mechanisms should ensure that:						
1. key components of the risk management framework, and any subsequent modifications, are communicated appropriately	1	1.5	2	3	3	1
2. there is adequate internal reporting on the framework, its effectiveness and the outcomes	1	2.5	3	3	3	2
3. relevant information derived from the application of risk management is available at appropriate levels and times	1	1	2	3	3	3
4. there are processes for consultation with internal stakeholders	2	2	2	3	2	3
5. These mechanisms should include processes to consolidate risk information where appropriate from a variety of sources, taking into account its sensitivity	2	1	3	3	3	3
G. Establishing external communication and reporting mechanisms	0.33	1.17	2.25	1.92	2.00	2.42
The organization should develop and implement a plan as to how it will communicate with external stakeholders. This should involve:						
1. engaging appropriate external stakeholders and ensuring an effective exchange of information	0	1	2	2	2	3
2. external reporting to comply with legal, regulatory, and governance requirements	2	2	3	3	3	2
3. providing feedback and reporting on communication and consultation	0	1	2	2.5	1	1.5
4. using communication to build confidence in the organization	0	1	2.5	1	2	3

	CED-Q	CIC	CIDA	DFO	HC	PWGSC
5. communicating with stakeholders in the event of a crisis or contingency	0	1	2	0	2	2
6. These mechanisms should include processes to consolidate risk information where appropriate from a variety of sources, taking into account its sensitivity.	0	1	2	3	2	3
H. Implementing the framework for managing risk	1.25	1.17	2.75	2.92	2.50	2.67
the organization should:						
1. define the appropriate timing and strategy for implementing the framework	0	0	3	2.5	0	1
2. apply the risk management policy and process to the organizational processes	1	2	3	3	3	3
3. comply with legal and regulatory requirements	2	2	2.5	3	3	3
4. ensure that decision making, including the development and setting of objectives, is aligned with the outcomes of risk management processes	1.5	1	3	3	3	3
5. hold information and training sessions	3	0	3	3	3	3
6. communicate and consult with stakeholders to ensure that its risk management framework remains appropriate	0	2	2	3	3	3
I. MONITORING AND REVIEW OF THE FRAMEWORK	0	2.1	2.5	2.8	2.6	2.8
In order to ensure that risk management is effective and continues to support organizational performance, the organization should						
1. measure risk management performance against indicators, which are periodically reviewed for appropriateness	0	1	2	2	3	3
2. periodically measure progress against, and deviation from, the risk management plan	0	1	3	3	3	3
3. periodically review whether the risk management framework, policy and plan are still appropriate, given the organizations' external and internal context	0	3	1.5	3	3	3
4. report on risk, progress with the risk management plan and how well the risk management policy is being followed	0	2.5	3	3	2	2
5. review the effectiveness of the risk management framework	0	3	3	3	2	3
J. CONTINUAL IMPROVEMENT OF THE FRAMEWORK	0	1.5	3	1.5	3	3
1. Based on results of monitoring and reviews, decisions should be made on how the risk management framework, policy and plan can be improved. These decisions should lead to improvements in the organization's management of risk and its risk management culture.	0	1.5	3	1.5	3	3
Framework Cumulative Scores	**10.11**	**14.49**	**25.23**	**25.13**	**23.44**	**25.19**

PROCESS	CED-Q	CIC	CIDA	DFO	HC	PWGSC
K. Communication and consultation with external and internal stakeholders should take place during all stages of the risk management process	1.50	1.56	2.25	3.00	2.50	2.69
A consultative team approach may						
1. help establish the context appropriately	1	1	3	3	3	3
2. ensure that the interests of stakeholders are understood and considered	0	1	2	3	3	3
3. help ensure that risks are adequately identified	2	2	3	3	2	3
4. bring different areas of expertise together for analyzing risks	3	2	1	3	3	3
5. ensure that different views are appropriately considered when defining risk criteria and in evaluating risks	3	2	2	3	2	3
6. secure endorsement and support for a treatment plan	2	3	3	3	3	3
7. enhance appropriate change management during the risk management process	1	0	2	3	1	2
8. develop an appropriate external and internal communication and consultation plan	0	1.5	2	3	3	1.5
ESTABLISHING THE CONTEXT						
L. External Context	1.67	3.00	2.00	3.00	3.00	3.00
The external context can include, but is not limited to						
1. the social and cultural, political, legal, regulatory, financial, technological, economic, natural and competitive environment, whether international, national, regional or local	3	3	2	3	3	3
2. key drivers and trends having impact on the objectives of the organization	2	3	2	3	3	3
3. relationships with, perceptions and values of external stakeholders	0	3	2	3	3	3
M. Internal Context	0.57	1.93	2.36	2.50	1.64	2.57
This can include, but is not limited to:						
1. governance, organizational structure, roles and accountabilities	1	3	2.5	3	2	3
2. policies, objectives, and the strategies that are in place to achieve them	0	2	3	3	2	3
3. capabilities, understood in terms of resources and knowledge (e.g. capital, time, people, processes, systems and technologies)	2	1	3	2.5	1	3
4. the relationships with and perceptions and values of internal stakeholders and the organization's culture	0	1.5	1	2	1	2

	CED-Q	CIC	CIDA	DFO	HC	PWGSC
5. information systems, information flows and decision making processes (both formal and informal)	0	2	1	3	1	2
6. standards, guidelines and models adopted by the organization	1	3	3	3	3	3
7. form and extent of contractual relationships	0	1	3	1	1.5	2
N. Establishing the context of the risk management process	1.78	2.17	1.56	2.78	1.72	2.28
1. defining the goals and objectives of the risk management activities	0	3	3	3	3	3
2. defining responsibilities for and within the risk management process	3	3	3	3	2	3
3. defining the scope, as well as the depth and breadth of the risk management activities to be carried out, including specific inclusions and exclusions	0	2	0	2	1	1.5
4. defining the activity, process, function, project, product, service or asset in terms of time and location	3	3	3	3	0	2
5. defining the relationships between a particular project, process or activity and other projects, processes or activities of the organization	1	3	3	2	3	3
6. defining the risk assessment methodologies	3	3	2	3	3	2
7. defining the way performance and effectiveness is evaluated in the management of risk	3	1.5	0	3	2	2
8. identifying and specifying the decisions that have to be made	3	1	0	3	1.5	3
9. identifying, scoping or framing studies needed, their extent and objectives, and the resources required for such studies	0	0	0	3	0	1
O. Defining risk criteria	0.71	1.93	2.07	2.43	1.79	2.36
When defining risk criteria, factors to be considered should include the following						
1. the nature and types of causes and consequences that can occur and how they will be measured	0	3	3	2	2	3
2. how likelihood will be defined	0	3	3	3	3	3
3. the timeframe(s) of the likelihood and/or consequence(s)	0	1.5	0	3	1	1
4. how the level of risk is to be determined	3	3	3	3	3	3
5. the views of stakeholders	1	2	1.5	3	2.5	2
6. the level at which risk becomes acceptable or tolerable	1	1	3	2	1	3
7. whether combinations of multiple risks should be taken into account and, if so, how and which combinations should be considered	0	0	1	1	0	1.5

	CED-Q	CIC	CIDA	DFO	HC	PWGSC
RISK ASSESSMENT						
P. Risk Identification	1.00	2.67	1.75	2.83	2.00	2.83
1. should include risks whether or not their source is under the control of the organization	3	3	3	3	3	3
2. should include examination of the knock-on effects of particular consequences, including cascade and cumulative effects.	0	2.5	1	3	1	2
3. Should consider a wide range of consequences even if the risk source or cause may not be evident	0	3	2	3	1	3
4. consider possible causes and scenarios that show what consequences can occur	0	2.5	0	2	1	3
5. should apply risk identification tools and techniques that are suited to its objectives and capabilities, and to the risks faced	1	2	3	3	3	3
6. People with appropriate knowledge should be involved in identifying risks	2	3	1.5	3	3	3
RISK TREATMENT						
Q. Risk treatment involves a cyclical process of:	2.00	1.50	2.50	2.50	2.38	3.00
1. assessing a risk treatment	1	2	3	3	3	3
2. deciding whether residual risk levels are tolerable	3	1	3	3	1.5	3
3. if not tolerable, generating a new risk treatment	2	1	1	3	2	3
4. assessing the effectiveness of that treatment	2	2	3	1	3	3
R. Preparing and implementing risk treatment plans	1.14	2.50	1.57	1.71	1.79	2.43
The information provided in treatment plans should include:						
1. the reasons for selection of treatment options, including expected benefits to be gained	0	1	1	2	0	2.5
2. those who are accountable for approving the plan and those responsible for implementing the plan	3	3	3	3	2	3
3. proposed actions	3	3	3	1	3	3
4. resource requirements including contingencies	0	1.5	0	1	1	3
5. performance measures and constraints	0	3	1	1	1.5	3
6. reporting and monitoring requirements	2	3	2	2	2.5	1
7. timing and schedule	0	3	1	2	2.5	1.5
S. MONITORING AND REVIEW	1.40	1.63	1.20	2.40	3.00	2.60
Responsibilities for monitoring and review should be clearly defined						
Monitoring and review process should:						

	CED-Q	CIC	CIDA	DFO	HC	PWGSC
1. ensuring that controls are effective and efficient in both design and operation	2	1	1	2	3	3
2. obtaining further information to improve risk assessment	1	2	1	3	3	3
3. analyzing and learning lessons from events (including near-misses), changes, trends, successes and failures	1	2	1	3	3	1
4. detecting changes in the external and internal context, including changes to risk criteria and the risk itself which can require revision of risk treatments and priorities	3	1.5	2	2	3	3
5. identifying emerging risks	0	1.5	1	2	3	3
T. RECORDING THE RISK MANAGEMENT PROCESS	0.71	0.43	0.29	1.21	0.57	0.86
Decisions concerning the creation of records should take into account						
1. the organization's needs for continuous learning	1	0	1	3	1	3
2. benefits of re-using information for management purposes	2	3	1	2.5	3	3
3. costs and efforts involved in creating and maintaining records	0	0	0	1	0	0
4. legal, regulatory and operational needs for records	1	0	0	2	0	0
5. method of access, ease of retrievability and storage media	1	0	0	0	0	0
6. retention period	0	0	0	0	0	0
7. sensitivity of information	0	0	0	0	0	0
Process Cumulative Scores	**12.49**	**19.31**	**17.54**	**24.37**	**20.38**	**24.61**
Dependent Variable Cumulative Scores	**22.60**	**33.80**	**42.77**	**49.50**	**43.82**	**49.80**

Table C2: Dependent Variable Measure Scores, Average Scores and MAD Scores

Dependent Variable Measure	CED-Q	CIC	CIDA	DFO	HC	PWGSC	Average Score	MAD
A. Mandate and Commitment	1.67	1.67	2.72	2.67	2.11	2.78	2.27	0.45
B. Understanding of the organization and its context	0.90	1.75	2.45	2.85	2.40	2.60	2.16	0.56
C. Establishing risk management policy	1.38	1.64	2.38	2.50	2.13	1.63	1.94	0.39
D. Accountability	1.60	1.90	2.20	2.40	2.40	2.40	2.15	0.27
E. Resources	1.58	0.00	2.58	2.58	1.50	2.50	1.79	0.76
F. Establishing int. comm. & report. mechanisms	1.40	1.60	2.40	3.00	2.80	2.40	2.27	0.51
G. Establishing ext. comm. & report. mechanisms	0.33	1.17	2.25	1.92	2.00	2.42	1.68	0.62
H. Implementing the framework for managing risk	1.25	1.17	2.75	2.92	2.50	2.67	2.21	0.67
I. Monitoring and review of the framework	0.00	2.10	2.50	2.80	2.60	2.80	2.13	0.72
J. Continual improvement of the framework	0.00	1.50	3.00	1.50	3.00	3.00	2.00	1.00
K. Communications. with int & ext. stakeholders	1.50	1.56	2.25	3.00	2.50	2.69	2.25	0.48
L. External Context	1.67	3.00	2.00	3.00	3.00	3.00	2.61	0.52
M. Internal Context	0.57	1.93	2.36	2.50	1.64	2.57	1.93	0.55
N. Establishing the context of the risk management process	1.78	2.17	1.56	2.78	1.72	2.28	2.05	0.36
O. Defining risk criteria	0.71	1.93	2.07	2.43	1.79	2.36	1.88	0.42
P. Risk Identification	1.00	2.67	1.75	2.83	2.00	2.83	2.18	0.60
Q. Risk treatment involves a cyclical process of:	2.00	1.50	2.50	2.50	2.38	3.00	2.31	0.38
R. Prep. and impl. of risk treatment plans	1.14	2.50	1.57	1.71	1.79	2.43	1.86	0.40
S. Monitoring and Review	1.40	1.63	1.20	2.40	3.00	2.60	2.04	0.63
T. Recording the risk management process	0.71	0.43	0.29	1.21	0.57	0.86	0.68	0.25

Independent Variables – Raw Data

Table C3: Primary Policy Instrument – Raw Data

Org	Primary Policy Instrument	Nodality	Treasure	Authority	Organization
CED-Q	Treasure	1.16%	94.14%	0.00%	4.70%
CIC	Treasure	0.26%	64.89%	0.00%	34.85%
CIDA	Treasure	0.00%	96.55%	0.00%	3.45%
DFO	Organization	8.68%	6.48%	16.40%	68.44%
HC	Organization	16.58%	5.80%	9.55%	68.07%
PWGSC	Organization	0.00%	0.00%	0.00%	100.00%

Table C4: Type of Risk Prioritized – Raw Data

Org	Type of Risk Prioritized	Second Risk Prioritized	Rep. & Cred.	Ops. and Policy Delivery	Financial	Compliance
CED-Q	Ops. and Policy Delivery	Financial	0.00%	75.00%	25.00%	0.00%
CIC	Rep. & Cred.	Ops. and Policy Delivery	36.91%	25.29%	20.83%	16.97%
CIDA	Ops. and Policy Delivery	Financial	12.82%	61.54%	25.64%	0.00%
DFO	Ops. and Policy Delivery	Rep. & Cred.	12.64%	67.58%	12.09%	7.69%
HC	Ops. and Policy Delivery	Financial	11.82%	57.27%	23.64%	7.27%
PWGSC	ND	ND	ND	ND	ND	ND

Table C5: Gross Budget, FTEs, and RM FTEs – Raw Data

Org	Gross Budget	FTE	RM FTE
CED-Q	463,350,000	426	1
CIC	1,561,000,000	4015	2.1
CIDA	3,247,997,000	1870	8
DFO	1,992,200,000	11030	2.5
HC	3,448,500,000	9745	2
PWGSC	6,423,800,000	13656.5	6

Table C6: MAF Assessment Round VII - Risk Management – Scores

Organization	Senior management is accountable	Implementation	Integration	Continuous Improvement	MAF Cumulative
CED-Q	3	2	2	3	10
CIC	4	3	3	3	13
CIDA	3	3	3	4	13
DFO	3	3	3	4	13
HC	3	3	3	3	12
PWGSC	3	3	4	4	14

D. Complete Correlation Coefficient Table

This appendix presents the complete results of the correlation coefficient calculations performed by StatsPlus for Excel for Mac for all variable pairs for this study. Because of the way the data table needs to be presented for StatsPlus to perform the calculations, most variable pairs were not relevant for this study. The interesting and relevant variable pairs have been highlighted in the table below:

Table E1: Complete Correlation Coefficient Table

Variable vs. Variable	*R*
DV CUMUL vs. DV FW CUMUL	0.9607
DV CUMUL vs. DV PROCESS CUMUL	0.89195
DV PROCESS CUMUL vs. DV FW CUMUL	0.73138
FTE vs. DV CUMUL	0.73574
FTE vs. DV FW CUMUL	0.62386
FTE vs. DV PROCESS CUMUL	0.79137
FTE vs. Gross Budget	0.70594
FTE vs. POL INSTR - Authority	0.51327
FTE vs. POL INSTR - Nodality	0.42083
FTE vs. POL INSTR - Organization	0.98453
FTE vs. POL INSTR - Treasure	-0.97556
FTE vs. PRIO RISK - Compliance	0.03816
FTE vs. PRIO RISK - Financial	-0.81603
FTE vs. PRIO RISK - Ops and Policy Delvry	-0.50338
FTE vs. PRIO RISK - Rep. & Cred.	-0.21126
Gross Budget vs. DV CUMUL	0.58532
Gross Budget vs. DV FW CUMUL	0.64521
Gross Budget vs. DV PROCESS CUMUL	0.38706
Gross Budget vs. POL INSTR - Authority	-0.11693
Gross Budget vs. POL INSTR - Nodality	-0.01122
Gross Budget vs. POL INSTR - Organization	0.70443
Gross Budget vs. POL INSTR - Treasure	-0.57714
Gross Budget vs. PRIO RISK - Compliance	-0.34669
Gross Budget vs. PRIO RISK - Financial	-0.70365
Gross Budget vs. PRIO RISK - Ops and Policy Delvry	-0.70925
Gross Budget vs. PRIO RISK - Rep. & Cred.	-0.33499
MAF CUMUL vs. DV CUMUL	0.7568
MAF CUMUL vs. DV FW CUMUL	0.69336
MAF CUMUL vs. DV PROCESS CUMUL	0.72992
MAF CUMUL vs. FTE	0.61714
MAF CUMUL vs. Gross Budget	0.71242
MAF CUMUL vs. POL INSTR - Authority	0.07061
MAF CUMUL vs. POL INSTR - Nodality	-0.14289
MAF CUMUL vs. POL INSTR - Organization	0.58864
MAF CUMUL vs. POL INSTR - Treasure	-0.48825

MAF CUMUL vs. PRIO RISK - Compliance	0.18598
MAF CUMUL vs. PRIO RISK - Financial	-0.64961
MAF CUMUL vs. PRIO RISK - Ops and Policy Delvry	-0.69543
MAF CUMUL vs. PRIO RISK - Rep. & Cred.	0.27202
MAF CUMUL vs. RM FTE %	-0.23723
POL INSTR - Authority vs. DV CUMUL	0.61259
POL INSTR - Authority vs. DV FW CUMUL	0.4838
POL INSTR - Authority vs. DV PROCESS CUMUL	0.71697
POL INSTR - Authority vs. POL INSTR - Nodality	0.77099
POL INSTR - Authority vs. POL INSTR - Treasure	-0.61745
POL INSTR - Nodality vs. DV CUMUL	0.42608
POL INSTR - Nodality vs. DV FW CUMUL	0.36824
POL INSTR - Nodality vs. DV PROCESS CUMUL	0.44698
POL INSTR - Organization vs. DV CUMUL	0.62697
POL INSTR - Organization vs. DV FW CUMUL	0.50092
POL INSTR - Organization vs. DV PROCESS CUMUL	0.7244
POL INSTR - Organization vs. POL INSTR - Authority	0.41202
POL INSTR - Organization vs. POL INSTR - Nodality	0.37277
POL INSTR - Organization vs. POL INSTR - Treasure	-0.96596
POL INSTR - Treasure vs. DV CUMUL	-0.68868
POL INSTR - Treasure vs. DV FW CUMUL	-0.5535
POL INSTR - Treasure vs. DV PROCESS CUMUL	-0.79037
POL INSTR - Treasure vs. POL INSTR - Nodality	-0.58312
PRIO RISK - Compliance vs. DV CUMUL	0.0467
PRIO RISK - Compliance vs. DV FW CUMUL	-0.1785
PRIO RISK - Compliance vs. DV PROCESS CUMUL	0.40549
PRIO RISK - Compliance vs. POL INSTR - Authority	0.24069
PRIO RISK - Compliance vs. POL INSTR - Nodality	0.21468
PRIO RISK - Compliance vs. POL INSTR - Organization	0.09507
PRIO RISK - Compliance vs. POL INSTR - Treasure	-0.14948
PRIO RISK - Compliance vs. PRIO RISK - Financial	0.14012
PRIO RISK - Compliance vs. PRIO RISK - Ops and Policy Delvry	-0.16301
PRIO RISK - Compliance vs. PRIO RISK - Rep. & Cred.	0.90684
PRIO RISK - Financial vs. DV CUMUL	-0.45723
PRIO RISK - Financial vs. DV FW CUMUL	-0.36469
PRIO RISK - Financial vs. DV PROCESS CUMUL	-0.52929
PRIO RISK - Financial vs. POL INSTR - Authority	-0.11199
PRIO RISK - Financial vs. POL INSTR - Nodality	0.15884
PRIO RISK - Financial vs. POL INSTR - Organization	-0.83194
PRIO RISK - Financial vs. POL INSTR - Treasure	0.69835
PRIO RISK - Financial vs. PRIO RISK - Ops and Policy Delvry	0.70545
PRIO RISK - Financial vs. PRIO RISK - Rep. & Cred.	0.30119
PRIO RISK - Ops and Policy Delvry vs. DV CUMUL	-0.18167
PRIO RISK - Ops and Policy Delvry vs. DV FW CUMUL	-0.1114
PRIO RISK - Ops and Policy Delvry vs. DV PROCESS CUMUL	-0.26487
PRIO RISK - Ops and Policy Delvry vs. POL INSTR - Authority	0.40701
PRIO RISK - Ops and Policy Delvry vs. POL INSTR - Nodality	0.35894
PRIO RISK - Ops and Policy Delvry vs. POL INSTR - Organization	-0.60131
PRIO RISK - Ops and Policy Delvry vs. POL INSTR - Treasure	0.39345
PRIO RISK - Ops and Policy Delvry vs. PRIO RISK - Rep. & Cred.	-0.149
PRIO RISK - Rep. & Cred. vs. DV CUMUL	0.027
PRIO RISK - Rep. & Cred. vs. DV FW CUMUL	-0.1238
PRIO RISK - Rep. & Cred. vs. DV PROCESS CUMUL	0.26798
PRIO RISK - Rep. & Cred. vs. POL INSTR - Authority	-0.00152

PRIO RISK - Rep. & Cred. vs. POL INSTR - Nodality	-0.03203
PRIO RISK - Rep. & Cred. vs. POL INSTR - Organization	-0.17411
PRIO RISK - Rep. & Cred. vs. POL INSTR - Treasure	0.1525
RM FTE % vs. DV CUMUL	-0.24988
RM FTE % vs. DV FW CUMUL	-0.02456
RM FTE % vs. DV PROCESS CUMUL	-0.5739
RM FTE % vs. FTE	-0.72177
RM FTE % vs. Gross Budget	-0.20361
RM FTE % vs. POL INSTR - Authority	-0.44289
RM FTE % vs. POL INSTR - Nodality	-0.47334
RM FTE % vs. POL INSTR - Organization	-0.79479
RM FTE % vs. POL INSTR - Treasure	0.81183
RM FTE % vs. PRIO RISK - Compliance	-0.5446
RM FTE % vs. PRIO RISK - Financial	0.51416
RM FTE % vs. PRIO RISK - Ops and Policy Delvry	0.43897
RM FTE % vs. PRIO RISK - Rep. & Cred.	-0.18036

Correlation Coefficients Matrix

Sample size	6	*Critical value (2%)*	3.74695													
		DV FW CUMUL	*DV PROCESS CUMUL*	*DV CUMUL*	*POL INSTR - Nodality*	*POL INSTR - Treasure*	*POL INSTR - Authority*	*POL INSTR - Organization*	*PRIO RISK - Rep. & Cred.*	*PRIO RISK - Ops and Policy Delvry*	*PRIO RISK - Financial*	*PRIO RISK - Compliance*	*Gross Budget*	*FTE*	*RM FTE %*	*MAF CUMUL*
DV FW CUMUL	**Pearson Correlation Coefficient**	*1.*														
	R Standard Error															
	t															
	p-value															
	H0 (2%)															
DV PROCESS CUMUL	**Pearson Correlation Coefficient**	*0.73138*	*1.*													
	R Standard Error	*0.11627*														
	t	*2.14493*														
	p-value	*0.09854*														
	H0 (2%)	*accepted*														
DV CUMUL	**Pearson Correlation Coefficient**	*0.9607*	*0.89195*	*1.*												
	R Standard Error	*0.01926*	*0.05111*													
	t	*6.9218*	*3.94542*													
	p-value	*0.00229*	*0.01688*													
	H0 (2%)	*rejected*	*rejected*													
POL INSTR - Nodality	**Pearson Correlation Coefficient**	*0.36824*	*0.44698*	*0.42608*	*1.*											
	R Standard Error	*0.2161*	*0.20005*	*0.20461*												
	t	*0.79214*	*0.99935*	*0.94194*												
	p-value	*0.47261*	*0.37418*	*0.39956*												
	H0 (2%)	*accepted*	*accepte*	*accepted*												

POL INSTR - Treasure	**Pearson Correlation Coefficient**	*-0.5535*	*-0.79037*	*-0.68868*	*-0.58312*	*1.*										
	R Standard Error	*0.17341*	*0.09383*	*0.13143*	*0.16499*											
	t	*-1.32919*	*-2.58025*	*-1.89966*	*-1.43559*											
	p-value	*0.25453*	*0.06131*	*0.13029*	*0.22445*											
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*											
POL INSTR - Authority	**Pearson Correlation Coefficient**	*0.4838*	*0.71697*	*0.61259*	*0.77099*	*-0.61745*	*1.*									
	R Standard Error	*0.19148*	*0.12149*	*0.15618*	*0.10139*	*0.15469*										
	t	*1.1056*	*2.057*	*1.55009*	*2.42126*	*-1.56991*										
	p-value	*0.33092*	*0.10882*	*0.19605*	*0.07266*	*0.19152*										
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*										
POL INSTR - Organization	**Pearson Correlation Coefficient**	*0.50092*	*0.7244*	*0.62697*	*0.37277*	*-0.96596*	*0.41202*	*1.*								
	R Standard Error	*0.18727*	*0.11881*	*0.15173*	*0.21526*	*0.01673*	*0.20756*									
	t	*1.15753*	*2.10158*	*1.60957*	*0.80346*	*-7.46817*	*0.90437*									
	p-value	*0.31147*	*0.10347*	*0.18278*	*0.46674*	*0.00172*	*0.41694*									
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*rejected*	*accepted*									
PRIO RISK - Rep. & Cred.	**Pearson Correlation Coefficient**	*-0.1238*	*0.26798*	*0.027*	*-0.03203*	*0.1525*	*-0.00152*	*-0.17411*	*1.*							
	R Standard Error	*0.24617*	*0.23205*	*0.24982*	*0.24974*	*0.24419*	*0.25*	*0.24242*								
	t	*-0.24953*	*0.5563*	*0.05401*	*-0.0641*	*0.30861*	*-0.00303*	*-0.35362*								
	p-value	*0.81524*	*0.60765*	*0.95952*	*0.95197*	*0.77302*	*0.99773*	*0.74148*								
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*								
PRIO RISK - Ops and Policy Delvry	**Pearson Correlation Coefficient**	*-0.1114*	*-0.26487*	*-0.18167*	*0.35894*	*0.39345*	*0.40701*	*-0.60131*	*-0.149*	*1.*						
	R Standard Error	*0.2469*	*0.23246*	*0.24175*	*0.21779*	*0.2113*	*0.20859*	*0.15961*	*0.24445*							
	t	*-0.2242*	*-0.54936*	*-0.36949*	*0.76912*	*0.85594*	*0.89117*	*-1.50514*	*-0.30137*							
	p-value	*0.83359*	*0.61198*	*0.73049*	*0.48472*	*0.44028*	*0.4232*	*0.20674*	*0.77815*							
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*							
PRIO RISK - Financial	**Pearson Correlation**	*-0.36469*	*-0.52929*	*-0.45723*	*0.15884*	*0.69835*	*-0.11199*	*-0.83194*	*0.30119*	*0.70545*	*1.*					

	Coefficient															
	R Standard Error	*0.21675*	*0.17996*	*0.19773*	*0.24369*	*0.12808*	*0.24686*	*0.07697*	*0.22732*	*0.12558*						
	t	*-0.78334*	*-1.24768*	*-1.02824*	*0.32177*	*1.95135*	*-0.22539*	*-2.99875*	*0.63171*	*1.99067*						
	p-value	*0.47721*	*0.28021*	*0.36195*	*0.76374*	*0.12277*	*0.83272*	*0.03999*	*0.56188*	*0.11736*						
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*						
PRIO RISK - Compliance	**Pearson Correlation Coefficient**	*-0.1785*	*0.40549*	*0.0467*	*0.21468*	*-0.14948*	*0.24069*	*0.09507*	*0.90684*	*-0.16301*	*0.14012*	*1.*				
	R Standard Error	*0.24203*	*0.20889*	*0.24945*	*0.23848*	*0.24441*	*0.23552*	*0.24774*	*0.04441*	*0.24336*	*0.24509*					
	t	*-0.36283*	*0.88719*	*0.09351*	*0.43961*	*-0.30236*	*0.49596*	*0.19101*	*4.3031*	*-0.33044*	*0.28304*					
	p-value	*0.73509*	*0.4251*	*0.92999*	*0.68292*	*0.77745*	*0.64594*	*0.85782*	*0.01261*	*0.75765*	*0.79119*					
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*rejected*	*accepted*	*accepted*					
Gross Budget	**Pearson Correlation Coefficient**	*0.64521*	*0.38706*	*0.58532*	*-0.01122*	*-0.57714*	*-0.11693*	*0.70443*	*-0.33499*	*-0.70925*	*-0.70365*	*-0.34669*	*1.*			
	R Standard Error	*0.14593*	*0.21255*	*0.16435*	*0.24997*	*0.16673*	*0.24658*	*0.12594*	*0.22195*	*0.12424*	*0.12622*	*0.21995*				
	t	*1.68902*	*0.83956*	*1.44381*	*-0.02244*	*-1.41344*	*-0.23548*	*1.98495*	*-0.71105*	*-2.01215*	*-1.98059*	*-0.73923*				
	p-value	*0.16648*	*0.44841*	*0.22228*	*0.98317*	*0.23041*	*0.8254*	*0.11813*	*0.51632*	*0.11452*	*0.11872*	*0.5008*				
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*				
FTE	**Pearson Correlation Coefficient**	*0.62386*	*0.79137*	*0.73574*	*0.42083*	*-0.97556*	*0.51327*	*0.98453*	*-0.21126*	*-0.50338*	*-0.81603*	*0.03816*	*0.70594*	*1.*		
	R Standard Error	*0.1527*	*0.09343*	*0.11467*	*0.20573*	*0.01207*	*0.18414*	*0.00768*	*0.23884*	*0.18665*	*0.08352*	*0.24964*	*0.12541*			
	t	*1.5965*	*2.58898*	*2.17267*	*0.92782*	*-8.8802*	*1.19613*	*11.23774*	*-0.43228*	*-1.16516*	*-2.82359*	*0.07638*	*1.9934*			
	p-value	*0.18561*	*0.06075*	*0.09552*	*0.40602*	*0.00089*	*0.2977*	*0.00036*	*0.68782*	*0.3087*	*0.04765*	*0.94279*	*0.117*			
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*rejected*	*accepted*	*rejected*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*			
RM FTE %	**Pearson Correlation Coefficient**	*-0.02456*	*-0.5739*	*-0.24988*	*-0.47334*	*0.81183*	*-0.44289*	*-0.79479*	*-0.18036*	*0.43897*	*0.51416*	*-0.5446*	*-0.20361*	*-0.72177*	*1.*	
	R Standard Error	*0.24985*	*0.16766*	*0.23439*	*0.19399*	*0.08523*	*0.20096*	*0.09208*	*0.24187*	*0.20183*	*0.18391*	*0.17585*	*0.23964*	*0.11976*		
	t	*-0.04914*	*-1.40159*	*-0.51614*	*-1.0747*	*2.78073*	*-0.98795*	*-2.61924*	*-0.36674*	*0.97711*	*1.19892*	*-1.29869*	*-0.41593*	*-2.08561*		
	p-value	*0.96317*	*0.23366*	*0.63298*	*0.34302*	*0.04978*	*0.37911*	*0.05885*	*0.73239*	*0.38384*	*0.29673*	*0.26386*	*0.69881*	*0.10535*		
	H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*		
MAF CUMUL	**Pearson Correlation Coefficient**	*0.69336*	*0.72992*	*0.7568*	*-0.14289*	*-0.48825*	*0.07061*	*0.58864*	*0.27202*	*-0.69543*	*-0.64961*	*0.18598*	*0.71242*	*0.61714*	*-0.23723*	*1.*
	R Standard	*0.12981*	*0.11681*	*0.10681*	*0.2449*	*0.1904*	*0.24875*	*0.16338*	*0.2315*	*0.12909*	*0.1445*	*0.24135*	*0.12311*	*0.15478*	*0.23593*	

Error														
t	*1.92445*	*2.13571*	*2.31566*	*-0.28874*	*-1.11893*	*0.14157*	*1.45632*	*0.56536*	*-1.93554*	*-1.70891*	*0.37857*	*2.03042*	*1.56863*	*-0.48839*
p-value	*0.12662*	*0.09957*	*0.08152*	*0.78713*	*0.32582*	*0.89427*	*0.21902*	*0.60204*	*0.12502*	*0.16265*	*0.72425*	*0.11216*	*0.19181*	*0.65084*
H0 (2%)	*accepted*	*accepte*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*	*accepted*

E. Research Ethics Board Documents

This appendix contains the application form submitted to the University of Ottawa's Research Ethics Board for approval to proceed with the proposed research for this thesis. It also contains the certificate issued by the Ethics Research Board confirming approval to proceed with the research.

Research Ethics Board Project Submission Form

This form must be used by all University of Ottawa researchers submitting to the Research Ethics Board (REB) for ethical review of their projects involving participation of human beings, excluding those from the Faculty of Medicine who must submit to the Ottawa Hospital Research Ethics Board. Such research includes, without limitation, projects involving questionnaires, individual interviews, focus groups, testing of equipment, physical endurance tests, etc. For research based on secondary use of data or for courses requiring independent data collection by students (course outlines), please use one of the other forms available on the Ethics Web site at:

http://web9.uottawa.ca/services/rgessrd/ethics/application_dwn.asp

Please answer all the questions. The REB will not review incomplete applications. For your information, "N/A" and "SEE ANNEX" (without any explanation) are not considered acceptable answers. The original of the submission form should be written on one side of the page only.

SECTION A: GENERAL INFORMATION

Title of the Research Project:

Risk Management in Public Sector Organizations

1. Principal Investigator (or Supervisor)
Note: If this is a 4th year, Master's or Doctorate project, indicate your supervisor's name and coordinates here**:**

Name: David Dewar	
Department: School of Political Studies	**Faculty: Social Sciences**
Address: XXX	
Phone Number: XXX	**Fax Number: XXX**
E-Mail: XXX	

Title: ☒ **Professor** ☐ **Doctor** ☐ **Miss** ☐ **Ms.** ☐ **Mrs.** ☐ **Mr.**
☐ **Other:** _____

Preferred language of correspondence: ☐ **French** ☒ **English**

Documentation Requirements and Checklist

Proposals will be considered for review by the ethics office only when all relevant documents are included. Please check all applicable documents on the checklist below and provide them in the following order. **Please do not staple your documents together**.

Full REB Review	**Minimal Risk / Expedited Review**	**Documentation required:**
2 copies	4 copies	☐ Research Ethics Board Project Submission Form **(mandatory)**
2 copies	4 copies	☐ Research proposal **(mandatory)**
2 copies	4 copies	☐ Recruitment text to participants, parents, community representative **(mandatory)**
2 copies	4 copies	☐ Consent form or information letter on Faculty letterhead **(mandatory)**
2 copies	4 copies	☐ Assent form for children (if applicable)
2 copies	4 copies	☐ Written permission from participating institution (if applicable)
2 copies	4 copies	☐ Interview guide, questionnaire, or other instrument (if applicable)
2 copies	4 copies	☐ Debriefing form (if applicable)
2 copies	4 copies	☐ Thesis committee's approval (if applicable)
2 copies	4 copies	☐ Other (specify)

If you cannot provide all relevant documents at the time of submission, please explain:

Written Permission from Participating Institution: One or more organizations in the Canadian Federal government will be asked to participate (i.e. allow the researcher to interview a number of employees from that organization) to evaluate success of risk mangaement practices in that institution. Consent from that or those organizations is not available at this time as identifying the organization(s) to be studied is one of the first steps in the research following the approval of the ethics board submission. In order to identify the organizations preliminary interviews need to be carried out with risk management specialists at Treasury Board and across a number of government organizations to select the

orgnaization that best meets the criteria (see research proposal for criteria) for potential successful implementation of risk management practices.

All other documents not in cluded in this application package do not apply to this research project.

Note: In the event that you have requested Minimal Risk or Expedited Review (see question 5 of the present form) and it is subsequently determined that full REB review of your proposal is needed, you will be required to provide 9 additional copies of the submission form, and (as applicable) recruitment texts, consent and assent forms, and information letters.

2. Co-investigator (or Student investigator /4th year, Master's and Doctoral levels):
Note: Please provide a permanent postal and email address for future correspondence.

Name: Christopher Loan	
Department:	**Faculty: Telfer School of Management**
Address: XXX	
Phone Number: XXX	**Fax Number:**
E-Mail: XXX	

Title: ☐ **Professor** ☐ **Doctor** ☐ **Miss** ☐ **Ms.** ☐ **Mrs.** ☒ **Mr.**
☐ **Other:** _____

Note: Additional space for co-investigators and students is provided at the end of this form.

3. Funding information:
Did you ask for funding? ☐ Yes ☒ No
If yes, name of funding agency:
U of O RE # or Cost Centre or Funding Agency Reference #:
Status of funding: ☐ Received ☐ Pending
Expected date of completion of the project:

4. Type of Research:
☐ Professor's research
☐ Doctorate thesis**
☒ Master's thesis**
☐ 4th year project
☐ Other (Specify)

**** Note:** Students conducting research for their **Master's or Ph.D. thesis** should append their **thesis committee's approval**. The REB will not evaluate

thesis-related proposals before the thesis committee has evaluated the project.

5. Do you wish to have your project considered for:
☐ Expedited Review*** ☒ Minimal Risk Review*** ☐ Full REB review

*** If you wish to have your project considered for expedited or minimal risk review, please complete the appropriate section below entitled *Eligibility for Minimal Risk or Expedited Review*. **The remaining sections of this submission form must also be completed.**

SECTION B: SUMMARY OF THE RESEARCH PROTOCOL

6. Submit also (separately) the research proposal, which should not exceed five pages (excluding references).

a) Rationale: Briefly describe the purpose, hypothesis(es) and objectives of the proposed project **(not exceeding 150 words)**.

The purpose of the proposed research is to take a new look at risk management in the public sector in light of theoretical developments in the field of public sector governance and risk as a whole. The basic hypothesis is that institutional factors prevent a government department from implementing sound risk management across all of its corporate functions (i.e. beyond programming branches) and thus prevent the public sector from taking advantage of all the identifiable benefits of risk management. This hypothesis is largely based on the assumption that risk management, as a management tool, cannot be concieved and implemented in the public sector in the same way as it has been implemented in the private sector. The objective of the project is to propose ways of fostering a genuine culture of risk taking in the public sector by identifying best practices and obstacles.

b) Methodology: Briefly describe chronologically all procedures in which the research participants will be involved in (e.g. paper and pencil tasks, interviews, surveys, questionnaires, physical endurance tests, etc). **Note:** Please append a copy of all questionnaires, interview guides or other test instruments.

Participants in this research project will be interviewed in person or by phone.

c) Participants: Describe the number of participants being recruited and their characteristics **(age group, gender, affiliation etc.).** Also, If the research involves only women or men, or only Francophones or Anglophones, or any other particular group while excluding another, indicate why such exclusion is appropriate for the study.

Participants will be specialists or practitioners in risk management employed by the Canadian government. They will all be adults, with no regard to gender or affiliation, etc. Interviews will be conducted in French or in English depending on the interviewee's preference.

d) If the research involves only one particular group while excluding another, for example only women or men or only Francophones or Anglophones, indicate why such exclusion is appropriate for the study.

No exclusions apply.

7. Recruitment:

a) List all locations where participants will be recruited.

Participants will be recruited in their place of work i.e. organizations of the Canadian Federal Government.

b) When, how, and by whom will participants be recruited? Note: Please append a copy of any poster(s), advertisement(s), telephone scripts or letter(s) of information to be used for recruitment.

Participants will be recruited by the recruited by the co-investigator (Christopher Loan) with the support of the main investigator (David Dewar). Emails will be sent. Text of email is attached.

c) Are there any supervisory relationships between the researchers and the participants (e.g. professor-student; manager-employee).

☐ Yes ☒ No

If yes, please describe:

d) Will you be asking participating organizations to provide names of potential participants?

☐ Yes ☒ No

If yes, how will the participants' permission be obtained to provide their names to the researcher?

e) Are participants recruited in an organization or in other premises where permission is required to access the potential participants or premises?

☐ Yes ☒ No

If yes, how will you obtain permission to access the premises? **Note:** Please append written permission by participating organization(s).

f) Will minors (0-17 years old) be asked to participate in the research?

☐ Yes ☒ No

If yes, please specify the age group(s):

Consent from the parent or guardian is normally required if the child is less than eighteen years of age. This consent form must be submitted. If you are seeking an exception to this requirement, please explain:

In addition to parental/guardian consent, the child must also confirm his or her agreement to participate. This is normally done in writing with an assent form, drafted in age-appropriate language and must be submitted in addition to the parental/guardian consent form. If a child's unwritten concurrence is to be sought, researchers must nevertheless obtain and document the child's unwritten assent. If applicable, please explain below why *unwritten* assent of the child is necessary and the measures to be taken to obtain and document such unwritten assent.

8. Selection of participants:

a) Are inclusion or exclusion criteria, in addition to those identified in question 6d, necessary for the research methodology?

☐ Yes ☒ No inclusion or exclusion criteria are necessary. All those who wish to participate will be included in this research project.

If yes, explain how the screening of potential participants will be carried out and how the excluded candidates will be notified. **Note:** Please append a copy of any selection test or questionnaire, if applicable.

b) Is there a risk of negative reaction on the part of excluded candidates, or any other inconveniences for the excluded candidates?

☐ Yes ☒ No

If yes, describe the nature of such risks or inconveniences, and the measures taken to minimize or mitigate these risks or inconveniences. **Note:** Please append any script or material used, if applicable.

9. Participation:

a) What will participants be asked to do and where will the research take place? If you are interviewing participants, please indicate where the interviews will take place.

Interviews will take place at a place mutually agreed upon such as the participant or the co-investigator's place of work (as the interviews will be related to the participants' work) or any other mutually agreed upon public location (e.g. coffee shop)

b) How often will they be asked to participate (i.e. how many sessions)?

One session. The co-investigator will request permission to contact the participant again by telephone should he have any follow-up questions or require clarifications.

c) How long will each session (including interviews and questionnaires) take?

Approx. 1 hour.

d) Will participants be compensated?

☐ Yes ☒ No

If yes, please provide details.

e) If participants choose to withdraw, how will you deal with compensation?

f) Will scientific instruments involving direct or indirect physical contact (e.g. electrodes, sensory devices, remote sensory devices, etc.) be used?

☐ Yes ☒ No

If yes, provide a description of the apparatus, its function and how it will be used. **Note:** Please also submit any questionnaire or other material distributed or administered to the participants.

SECTION C: RISKS AND BENEFITS OF THE PROPOSED RESEARCH

10. Risks and Benefits:

a) Proportionality of harms and benefits:
Your research project may cause negative reactions or inconveniences to the research participants. Each person reacts differently to experiences. It is important to foresee possible negative reactions or inconveniences to prevent any practical problems when obtaining free and informed consent.

Indicate if the participants might experience any of the following potential risks:

Physical (e.g. muscle pain, tiredness, weakness, nausea, etc.)
☐ Yes ☒ No

Psychological or emotional (e.g. self-image issue, loss of confidence, anxiety or stress, regret for disclosing personal information, boredom, disruption of family routines, etc.)
Note: Depending on the level of risk, the REB may ask that a list of resources be submitted to the participant in the consent form so he/she knows where to go for help. ☐
Yes ☒ No

Legal or social repercussions for participating or not participating in the study (e.g. possibility of marginalization, risk of being judged by peers or

employer, risk of being sued, etc.) ☐
Yes ☒ No

Economic or other type of inconveniences (e.g. expenses incurred for participation, long travel to research site, time consumed, etc.) ☐
Yes ☒ No

Are any possible risks to participants greater than those the participants might encounter in their everyday life? ☐
Yes ☒ No

b) **Please describe any other risks you can foresee but which are not mentioned above**:

c) **If you answered yes to any of the above, please explain the risk(s).**

d) **Indicate the measures taken to minimize or mitigate such risk(s).**

e) **Describe the potential benefits of the study (e.g. to the participants, society, science, etc.), and how these benefits outweigh the risks.**

SECTION D: THE INFORMED CONSENT PROCESS

11. Free and Informed Consent:

a) Describe the process that you will use to obtain free and informed consent of the research participants or of authorized representatives of participants who are not legally competent to give consent or who are mentally incompetent, including a description of who will be obtaining consent and a script of what they will say. **Note:** The Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) states that many individuals who are not legally competent are still able to express their wishes in a meaningful way. These individuals must still be given an opportunity to express their wish to participate or not (they have the final right), either verbally or non-verbally or via an assent form, as the case may be. See question 7f for more information on the assent form.

An email will be sent to participants' work email address describing the research project and requesting an interview. They will respond in writing indicating that they consent to such an interview. They will also be sent sample questions/topics to be discussed at the interview. They will be given the opportunity to give their input on the questions/topics or withdraw at anytime. They will also be given the option of remaining anonymous or requesting that parts or all of the interview not be used to inform the research project. All exchanges between participants and the co-investigator prior to and following the interviews will be documented in writing.

b) Is the researcher or the person recruiting and conducting the consent process in a position of authority or trust towards potential participants?

☐ Yes ☒ No

If yes, please explain what measures will be taken to minimize the possibility of coercion.

c) If dealing with specific cultural, social, or ethnic groups, please describe the measures you have taken to adapt the research protocol and consent process to the divergent values, traditions, privacy issues, and modes of communication of the target group. In cases where there will be verbal consent rather than written, explain why this is so, and describe the alternative means that will be used to document consent.

None of the above situations apply.

d) Describe how the participants will be informed of their right to withdraw from the project.

Participants will be informed in writing as part of the exchange of emails in preparation for the interview.

e) Indicate if information and consent documents, questionnaires, interview guides etc. will be translated for participants who may be more comfortable understanding one of Canada's official languages (or other language, if applicable). Note: Generally, Canada-wide studies must be presented in both official languages. If your study is not a Canada-wide study and is being conducted in one official language only, then one of your inclusion criteria should be that the participant must be proficient in the language in which your study is being conducted. Please also submit translated versions of your documents where applicable.

Interviews will be conducted in either French or English. All documents will be bilingual. Co-investigator is fluently biligual.

f) If you do not plan to translate your documents, explain the reasons why not.

N/A

SECTION E: ANONYMITY AND CONFIDENTIALITY

12. Anonymity:

a) Will anonymity of research participants be ensured during the conduct of the research and in publications?

☒ Yes ☐ No

If yes, how will anonymity of research participants be ensured during the conduct of the research and in publications?

Their anonymity will be protected if this is requested (although this is not likely). Only three individuals will know that a given participant has participated in the project: the main investigator, the co-investigator and the participant. To ensure anonymity of those participants who ask to remain anonymous all documents related to the interview for that participant will be identified by a randomly generated number. The list of numbers and participants will be kept in a secure locked location in a government of Canada office (co-investigator's place of work).

b) Will public disclosure of the research results be limited to pooled data only?

☐ Yes ☒ No

If no, how will the anonymity of participants be protected?

No reference will be made to the participant's identity or position.

c) If participants are interviewed, state whether the interviewees will be quoted, and if so, how the anonymity of participants will be ensured.

☐ Interviewees will not be quoted.

☒ Interviewees will be quoted but all personally identifying information will be removed or altered **and** contents of quote will not be revelatory of individual identities.

If other measures are used (e.g. use of pseudonym or number), please provide details:

d) Will you quote from written comments?

☐ Yes ☒ No

If yes, explain how anonymity will be ensured.

e) If you are quoting interviewees, will they be given the opportunity to review their transcripts?

☒ Yes ☐ No

If yes, clearly explain the procedure.

Transcripts will be sent vis email to the participant for review and approval. This will be part of the documentation of exchanges described above.

f) If anonymity is not to be guaranteed, explain why. Note: This fact must be mentioned on the consent form or information sheet given to the participant.

13. Confidentiality of data

a) Who will conduct the data collection?

The co-investigator

b) By what means will data be collected (e.g. tape-recorded interview, paper questionnaire, etc)?

Recorded audio interview

c) Who will have access to collected data (principal investigator, co-investigator, graduate student, etc.)? Note: All the people who have access to

the data must sign the present submission form, with the exception of research assistants.

The principal investigator and the co-investigator.

d) Describe the procedures to be used to ensure confidentiality of data both during the conduct of the research and in the release of its findings.

The data will be stored on the co-investigator's personal password protected computer.

e) Explain where each item (i.e. written records, electronic data, audio/video tapes, transcripts, questionnaires, etc.) will be stored. Note: Generally, data must be kept in the principal investigator's/supervisor's office.

All records will be kept in the co-investigator's office (secure Government of Canada location).

f) For how long will data be conserved (indicate maximum period of conservation)? Note: Most publishers request that data be conserved for a period of 5 to 10 years after time of publication, but this can vary according to the guidelines specified in your field of study. Health Canada requires that all clinical trial data be kept by the Principal Investigator for a period 25 years as outlined in Health Canada's Food and Drug Regulations, Division 5 – Drugs for Clinical Trials involving Human Subjects, Section C.05.012.

Data will be conserved for 5 years.

g) What will be done with the data, mentioned in item e) above, at the end of storage? Provide detail of their final disposal (e.g. shredding, deletion etc.).

All electronic files will be deleted and all paper documents shredded.

h) Are there any plans for secondary use of data? As stated in the TCPS "secondary use of research data" is understood to be "the use in **research of data contained in records collected for a purpose other than the research itself." Note:** Projects making use of secondary data must also be submitted for REB approval using the form available at:

http://web9.uottawa.ca/services/rgessrd/ethics/application_dwn.asp

☐ Yes ☒ No

If yes, provide details.

i) Are there any plans for dissemination of the research results to participants? If so, how?

At the participants' request, a copy of the final thesis will be circulated.

SECTION F: SIGNATURES

The University of Ottawa and its investigators and students whose research projects involve the participation of human beings as research subjects must comply with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans *(TCPS), the University of Ottawa's guidelines, and other relevant guidelines and legislation. This is both a collective and an individual responsibility.*

Signature of Principal Investigator/Supervisor and Co-investigators / students attesting that:

a) the Principal Investigator/Supervisor and all Co-investigators/students:
- **i) have reviewed the protocol contents;**
- **ii) agree with the protocol as submitted;**
- **iii) will adhere to the research protocol and documentation (including the consent form, etc.) as approved by the REB;**
- **iv) agree to comply with requests made by the ethics office during the life of this research;**

b) the information contained in this form is complete and accurate;

c) the conduct of the proposed research will not commence until ethical certification has been granted;

d) the Principal Investigator/ Supervisor will notify the REB in a timely manner of any changes in the project and of any adverse events/experiences encountered by participants;

e) the investigators understand and agree that they are responsible for the ethical conduct of this research project, including that of research assistants, students and any other persons under their supervision.

Signature of the Principal Investigator (or Supervisor):		Date:

Signature of the Co-investigator (or Student):		Date:

Print and mail (in sufficient copies) with additional material to:

Protocol Officer for Ethics in Research
Research Grants and Ethics Services
University of Ottawa
Tabaret Hall (159)
Ottawa, Ontario K1N 6N5

Sheet for extra names of co-investigators and students

Co-investigators and students (4th year, Master's and Doctoral levels):
Note: Part-time professors and students should give a permanent postal address and email address for future correspondence.

Name and title:	**Department/School:**	**Signature:**
Address:	**Faculty:**	
	E-mail:	
	Phone:	
	Fax:	
Name and title:	**Department/School:**	**Signature:**
Address:	**Faculty:**	
	E-mail:	
	Phone:	
	Fax:	
Name and title:	**Department/School:**	**Signature:**
Address:	**Faculty:**	
	E-mail:	
	Phone:	
	Fax:	
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	E-mail:	
	Phone:	
	Fax:	
Name and title:	Department/School:	Signature:
Address:	Faculty:	
	E-mail:	
	Phone:	
	Fax:	

Eligibility for Minimal Risk or Expedited Review

Your project may qualify for Minimal Risk Review or for Expedited Review.

Further information is provided at

http://web9.uottawa.ca/services/rgessrd/ethics/minimal_risk.asp

Investigators are strongly encouraged to contact the Protocol Officer for assistance and guidance in this determination prior to submitting their project for review.

In order for the project to be eligible for a minimal risk review, you must be able to check all of the 'Health and Safety of Participants' and 'Participants' boxes.

Research Methodology	Participants
☐ Questionnaires	☒ Fully competent adults
☒ Interviews	☒ No involvement of vulnerable populations
☐ Software evaluation	☒ No involvement of aboriginal or vulnerable ethnic communities
☐ Other (please state):	☒ No captive populations
	☒ No possibility of coercion
Health and Safety of Participants	
☒ No sensitive questions likely to evoke painful memories	
☒ No likelihood of inducing embarrassment, fear, stress or anxiety in participants	

(Please return to question 5).

In order for the project to be eligible for Expedited Review, you must be able to check one of the following boxes.

☐ Project has been reviewed and approved by a TCPS-compliant Research Ethics Board at a
Canadian university or hospital, including University of Ottawa affiliated hospitals.

If yes, please **complete this form** and provide complete copies of the documentation submitted to, and approved by, the other organization and the REB approval certificate. The REB will not review incomplete applications.

☐ Minor revision or substantive replication of a project previously approved by the REB of the University of Ottawa.

If yes, please provide the following information:

i) Title of previously approved project:
ii) Ethics file number:
iii) Please explain how the project for which REB approval is now being sought differs from the previously approved project (append additional page if required):

☐ Involves secondary use of research data that cannot be linked to individuals (as stated in the TCPS "secondary use of research data" is understood to be "the use in research of data contained in records collected for a purpose other than the research itself"). Please use separate form available at:

http://web9.uottawa.ca/services/rgessrd/ethics/application_dwn.asp

Ethics Board Approval Certificate

File Number: 02-10-23 **Date (mm/dd/yyyy):** 08/27/2010

Université d'Ottawa University of Ottawa
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Ethics Approval Notice

Social Science and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

First Name	Last Name	Affiliation	Role
David	Dewar	Social Sciences / Political Science	Supervisor
Christopher	Loan	School of Management / School of	Student Researcher

File Number: 02-10-23

Type of Project: Master's Thesis

Title: Risk Management in the Public Sector

Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
08/27/2010	08/26/2011	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions/ Comments:
N/A

550, rue Cumberland 550 Cumberland Street
Ottawa (Ontario) K1N 6N5 Canada Ottawa (Ontario) K1N 6N5 Canada

http://www.[redacted]
http://www.recherche.uottawa.ca/deontologie/index.html

File Number: 02-10-23 **Date (mm/dd/yyyy):** 08/27/2010

Université d'Ottawa University of Ottawa
Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

This is to confirm that the University of Ottawa Research Ethics Board identified above, which operates in accordance with the Tri-Council Policy Statement and other applicable laws and regulations in Ontario, has examined and approved the application for ethical approval for the above named research project as of the Ethics Approval Date indicated for the period above and subject to the conditions listed the section above entitled "Special Conditions / Comments".

During the course of the study the protocol may not be modified without prior written approval from the REB except when necessary to remove subjects from immediate endangerment or when the modification(s) pertain to only administrative or logistical components of the study (e.g. change of telephone number). Investigators must also promptly alert the REB of any changes which increase the risk to participant(s), any changes which considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project and safety of the participant(s). Modifications to the project, information/consent documentation, and/or recruitment documentation, should be submitted to this office for approval using the "Modification to research project" form available at:
http://www.rges.uottawa.ca/ethics/application_dwn.asp

Please submit an annual status report to the Protocol Officer 4 weeks before the above-referenced expiry date to either close the file or request a renewal of ethics approval. This document can be found at:
http://www.rges.uottawa.ca/ethics/application_dwn.asp

If you have any questions, please do not hesitate to contact the Ethics Office at extension [redacted] or by e-mail at: [redacted].

Signature:

[redacted]

Sheena Sumarah

Assistant to the Director

For Barbara Graves, Chair of the

Social Sciences and Humanities REB

550, rue Cumberland 550 Cumberland Street
Ottawa (Ontario) K1N 6N5 Canada Ottawa Ontario K1N 6N5 Canada
http://www.[redacted]
http://www.recherche.uottawa.ca/deontologie/index.html