Decision-Making Under Uncertainty: Investment Choices of Public Sector Decision-Makers in the Czech Municipalities

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Abstract
Risk aversion has been widely considered as a factor in public management decision making, yet it raises complex issues concerning how the intrinsic risk attitudes of decision-makers might interact with meso-level influences on behaviour within organisational decision-making contexts to produce risk averse choices. Motivated by these challenging issues, and mindful of the potentially harmful effects of risk aversion in constraining the development of public sectors and services across an enlarging Europe still reeling from the effects of the global financial crisis, this study explored how public sector decision makers in the Czech Municipalities select between risky, risk neutral and risk averse decision options. The survey of 136 mayors showed respondents to be generally risk averse across scenarios involving different contexts and sizes of budget. Based on this evidence, we suggest public management debate on the enlarging Europe should take the problematic construct of general risk aversion very seriously as a constraint on public sector development to which institutional solutions must be found.

Keywords: investment decision-making, Czech local government, risk aversion, intrinsic risk attitude

Introduction
At present, the Czech Municipalities are seeking service improvements despite tough financial constraints (Provazníková, 2009). Its challenges are not confined to service provision alone. Since 2009, youth unemployment has emerged as a governmental concern right across southern and eastern Europe, and the Czech government is looking to regional projects spearheaded by local government to alleviate the situation (Janíčko 2012). This creates a powerful rationale for exploring how Mayors within the Municipalities allocate resources, especially in terms of project investment choices in the face of risk.

Although decision making under risk has been studied extensively from a number of different approaches in different countries and settings (Machina, 1987a), extant literature provides no information on public sector decision makers in the Czech Republic. Moreover, empirical research on risk-based decision-making for public sector decision makers worldwide is very limited. Most studies involve individuals with limited decision experience rather than elite decision-makers whose settled decision-making patterns ought to matter most to academic researchers (Coleman, 2006; Rohrmann, 2005). Furthermore there is continued disagreement over whether ‘intrinsic risk attitude’ even exists (Schoemaker, 1993), as well as concerning how it may compete or interact with various meso-level organisational factors to produce behaviour (Machina, 1987b; Dohmen et al., 2005; Coleman, 2006). These disagreements impede efforts to validate problems of risk aversion that may be widespread for many types of organisation. Best practice in risk management is evolving to encourage organisations to harness the power of ‘risk appetite’ and ‘risk tolerance’ as tools that can improve the quality of risk-taking for public sector (HM Treasury, 2006) and all types of organisations (Institute of Risk Management, 2011). Yet before this can happen, problems of risk aversion relating to individual psychology, to organisational culture, to managerial incentivisation, and to various other situational pressures on risk-taking need to be highlighted in the various contexts where they arise.

In order to address these gaps in the literature and to enhance knowledge of decision making under risk in the public sector, this research aimed to explore how very senior public sector decision makers in the Czech Municipalities consider risk within their investment choices. This seems badly need in view of the scale of finances involved. Czech
public spending was 44.5% of GDP in 2012. More than 25% of Czech government spending is at sub-central levels, with much of that distributed across 6,245 Municipalities that are commonly considered too small to be capable of efficient service provision (Smidova 2011, pp.12-13). Our approach was to map out risk attitude for different investment scenarios and to then scope these influences upon investment choices. To begin we provide a brief review of literature which (firstly) justifies our approach by situating it within decision-making under uncertainty literature, and which (secondly) places our research in broader context by explaining how factors other than intrinsic risk attitude commonly impact risk choices for public sector decision-makers – in particular by contributing to the perennial problem of public sector risk aversion. The final section provides concluding remarks and suggests further research.

Risk As A Factor In Decision Making

Discretionary non-routine decision-making entails ‘muddling through’ under uncertainty. Where the epistemological conditions for calculative rationality go unmet, as is so often the case in the messy social world where urgent decisions must be taken in information poor environments, decades of risk analysis literature tells us our decisions rely on heuristics – especially those relating to trust, emotion and intuition (Zinn, 2008). The problem with this is highlighted by the fact that heuristics literature has from the beginning (e.g. Tversky & Kahnemann, 1974) discussed the interchangeability of the terms ‘heuristics’ and ‘biases’. Uses of heuristics are usually unconscious and spontaneous. This is often helpful. Yet heuristics equate with biases insofar as they provide poor substitutes for logic and anticipation in linking decisions to outcomes, resulting in easily and often precipitate poor outcomes. Patterns of trust established within organisations or across wider institutional fields, as well as human emotionality and intuition, are inherently complex things likely to vary widely with person, time and place, and their potential for misuse is immense (Lewis & Weigert, 1985; Earle, 2010). Establishing psychological generalisations for patterns of decision-making under uncertainty is therefore no easy or uncontroversial matter. Yet it is vital as decision-makers need support from academia to be able to know and reflect on their decision biases. We suggest that what they require most is practical guidance which reduces the complexity of decision-making by offering as many psychological generalisations as are reasonably possible without this being misleading – and so this paper seeks to establish clear and actionable insight along these lines.

Even the preferred terminologies that emerge within communities of practice to refer to decision-making under uncertainty can influence the acceptability of risk within decision-making. Literature advocating ‘uncertainty management’ as opposed to risk management urges us to consider that thinking decisions through in terms of uncertainty rather than risk can help guard against needless threat framing that can produce risk aversion (Ward, 2005). Thinking in this vein, Dowie (1999) has famously argued that the word ‘risk’ is not just harmful but quite unnecessary in many decision scenarios where ‘probability’ and ‘utility’ are sufficient terms for decision-making purposes.

Yet no matter how hard we might try to banish the negatively connoted term ‘risk’ from decision-making, decision analysis literature emphasises that our decision preferences under uncertainty can articulate underlying ‘risk attitudes’ (Schultz et al., 2010) which matter if we are to have a full understanding of individual decision-making behaviour (Tversky and Kahneman, 1981). It is often suggested that decision makers are generally risk averse (Coleman, 2006; Leitch, 2010; Ward, 2005). Where theorists differ is on the question of the extent to which these behavioural patterns arise from individual propensities. The individual difference approach to studying risk (e.g. Hillson and Murray-Webster, 2011) finds valida-
tion in longstanding psychometric literatures dealing with ‘sensation seeking’ and related constructs (e.g. Zuckerman, 1994) which indicate some biosocially explicable stability in risk taking attitudes for individuals across life domains. Further support for risk attitude as a decision motivator comes from the controversial risk homeostasis literature which argues that we vary our behaviours to maintain preferred ‘target levels’ of risk (Wilde, 2001). The adoption of a specific risk attitude seems to depend on a range of conscious, situational, subconscious and affective factors (Hillson, 2008). Gender (Byrnes et al., 1999) and various other demographic factors (Coleman, 2009; Dohmen et al., 2005; Donkers et al., 2001) are important differentiating factors. There is also much scope for debate concerning whether psychoanalytic, humanistic and other psychology literatures (some with highly disputed scientific credentials) can explain variations in risk attitude. Various psychometric measures, based on latent constructs derived from such theories, purport to measure risk attitude. Yet their validities and reliabilities remain controversial. A good example of this is ‘postmaterialist value orientation’ whose initial scale development was informed by the humanist supposition that risk aversion will be greater for individuals who have experienced low levels of ‘formative security’ during adolescence (Van Deth & Scarbrough, 1998). This humanist perspective seems to provide a particularly valuable theoretical framework for understanding why generations of Czech decision-makers who have grown up under communism and have lived through the protests, public suicides, and waves of emigration precipitated by the Soviet occupation of 1968–1991, should maintain risk averse decision stances even though these national traumas have long since abated. Some authors argue that risk preference is itself a stable personality trait (March and Shapira, 1987). According to Coleman (2009), studies of real-world decision making explain up to a quarter of variations in risk attitude by personality traits. However, other experts doubt these links (Leitch, 2010; Slovic, 1972). The general consensus from most studies, however, is that risk attitude varies across life domains and decision contexts (Slovic, 1964, Schoemaker, 1990; March and Shapira, 1992; Pennings and Smidts, 2000; Dohmen et al., 2005; Leitch, 2010). What may often matter more than personality is how decisions are ‘framed’. Kahneman and Tversky (1979; 1981) showed in their prospect theory and framing effect research that individuals have different risk attitudes when dealing with gains and losses. Decision makers tend to be risk averse when choosing between alternatives of potential gain. However, people become risk preferring for alternatives presented as losses.

**Public Sector Risk Aversion**

Although the experience within and across countries has varied, since the 1980s there has been significant development in public sector risk management (Hood & Kelly, 1999; Hood & Rothstein, 2000; Hood, 2002; HM Treasury, 2004; Fone & Young, 2005). The reasons for this development are many and varied and have often been driven by specific national factors. Common, however, to many national imperatives has been the desire of central governments to make their public sector more ‘entrepreneurial’. Notwithstanding any debate regarding the suitability of this approach in the public sector, risk taking is, almost inevitably, seen as a corollary of entrepreneurship and, consequently, this has raised the profile of risk management within the public domain. However, any drive for a more private sector approach to managing risk in the public sector has to be studied in the context of the long-held argument that civil servants and other public sector employees are typified by risk aversion when compared to those in the private sector (Drucker, 1985; Painter, 1997; Donkers et al., 2001; Dohmen et al., 2005; National Audit Office, 2006; Australian National Audit Office, 2009). This traditional public sector attitude to risk is often expressed in pejorative terms; however, this depreciatory approach frequently ignores the fundamental differences
between the public and private sectors. This paper is not the place to rehearse that particular debate, but central to any deliberation on differences in risk attitude is the extent to which public officials, whether elected or otherwise, are exposed to public scrutiny. As Bozeman & Kingsley (1998) argue, risk taking is much less likely when those taking the risk are exposed to the full glare of accountability. Any discussion on perceived public sector risk aversion needs, therefore, to be set in that context of transparency and accountability. Another aspect of the post-1980s public management landscape has been the growth in interest in modernisation and innovation (Bovaird and Löffler, 2003; Flynn, 2007). In a risk context, modernisation and innovation, especially financial innovation, may often be viewed with suspicion by many in the public sector as it may introduce higher than normal levels of uncertainty into what has traditionally been a risk-averse environment. There is, however, an apparent contradiction in that public sector decision makers are expected to be innovative, but at the same time demonstrate balanced and well-managed risk taking. This presents them with the challenge of how they can construct a system to fully exploit risk management in its widest sense, yet still comply with rules and regulations relating to the risks they are allowed to take. Power (2004, p.14) identifies these risk-aversion concerns of professionals vis-a-vis financial innovation pressures:

This trend is resulting in a dangerous flight from judgement and a culture of defensiveness that create their own risks for organisations in preparing for, and responding to, a future they cannot know.

In the context of post-crisis austerity, Asenova et al. (2012) have found, at least in a Scottish local authority context that, despite a shift towards a more innovative policy approach, risk mitigation is still driven by compliance with statutory regulations. In other words, the authorities’ focus is on minimising the risk of their non-compliance with regulations, rather than on minimising the risks per se. Although the authors make no claims beyond the confines of their case studies, their findings reinforce the view that a ‘Weberian’ context of rule-based, uncertainty avoidance attitudes to risk may still predominate. This is reinforced, again in a UK context, by Hood et al. (2013) and their research into the use of more innovative ways of financing weather-related risks in parts of the public sector. Despite the theoretical suitability of mechanisms such as weather derivatives, the uncertainty, lack of knowledge and, perhaps, the pejorative connotations of the very word ‘derivatives’ have resulted in public bodies ignoring their use in favour of tried-and-tested, but perhaps less financially efficient, mechanisms such as insurance. Furthermore, the collapse of the Icelandic banks in 2008, when UK local authorities had almost £1Billion (some of it borrowed) invested there, has led to tougher scrutiny and guidance in relation to where and in what products local authorities can safely invest (House of Commons Communities and Local Government Committee, 2009).

Whilst it could be hypothesised that risk attitude, from a public management perspective, equates to widespread problems of ‘risk aversion’ that are irreducible to individual psychology and instead stem from common pressures on public officials and managers, Bellante and Link (1981) offer an alternative perspective. In effect, they suggest that given the greater degree of job security that has traditionally been found in the public sector, the sector attracts individuals who are inherently risk averse. Admittedly, their results were tentative and were based on a secondary analysis of panel study data and, importantly, were, derived at a time when public sector employment was more secure that today. However, more recent research by Hartog et al. (2002) and Buurman et al (2009), both looking at Holland, Guiso and Paiella (2008), at Italy, and Pfeifer (2010), at Germany, all conclude that public
sector employees are, by nature, more risk averse than those in the private sector. These authors provide some insightful empirical evidence that it may not simply be the organisational context that influences risk attitude. If that, indeed, is an important variable, it would raise serious questions as to the extent to which political and managerial initiatives to make the public sector more innovative and balanced in its risk attitude are likely to succeed.

**Risk Aversion In Czech Public Sector Context**

If we are to situate this problem of risk aversion in a Czech public sector context, then a prime consideration is that complex stakeholder demands must be resolved at the interface between public managers and elected politicians (Bhatta, 2003) against a backdrop of insufficient resources and decreasing state subsidies (Provazníková, 2009). So far the Ministry of Finance of the Czech Republic (2004) has only responded to this challenge by producing a single risk management guidance document for Czech public sector decision makers. This document maps likely internal and external risk environments for Czech public bodies as follows:

**Table 1: Overview of main risks for Czech public sector decision makers**

<table>
<thead>
<tr>
<th>Internal risks</th>
<th>External risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resources qualification</td>
<td>Political, legal and regulatory</td>
</tr>
<tr>
<td>Ethical behaviour of employees</td>
<td>Financial</td>
</tr>
<tr>
<td>Attitude towards risk</td>
<td>Demographical</td>
</tr>
<tr>
<td>Organisational and regulatory structure</td>
<td>Environmental and natural disaster</td>
</tr>
<tr>
<td>Communication</td>
<td>Military and terrorism</td>
</tr>
<tr>
<td>Organisational culture</td>
<td>Global environment</td>
</tr>
</tbody>
</table>

Source: Adapted from the Ministry of Finance of the Czech Republic, 2004.

Considered as a cultural artefact, perhaps what is most interesting about this list is its lack of attention to ‘reputation’, which was one of the top-ranked risk categories in the Zurich Municipal risk survey (2012) of UK public sector leaders and which was ranked first in a (2011) Aon risk survey of respondents selected mainly from the public sector. This omission might seem surprising given that the Czech public sector suffers from poor reputation stemming in large measure from corruption and inefficiency. According to the latest Corruption Perceptions Index (Transparency International 2011) the Czech public sector is ranked 57th, far behind most European countries. The low public trust which it elicits is reflected in the Global Competitiveness Report (World Economic Forum, 2011) which presents corruption and inefficient government bureaucracy as the most problematic factors for doing business in the Czech Republic. These problems have also been underscored by the Ministry of Interior of the Czech Republic (2007) in
its detailing of weaknesses in levels of efficiency, transparency and corruption prevention as major shortcomings of the Czech public sector.

According to the Czech Security Information Service annual report (2012), corruption affects all levels of public administration but is growing in particular within small municipalities. Dvořáková (2005) explains this trend in terms of political leaders’ attitudes towards corruption, responsibility and morale, lack of professional ethics and insufficient economic security. Besides corruption, the Czech public sector and in particular the Czech municipalities are performing poorly at enhancing innovation, implementing new technologies, cooperating with the private sector and performing efficiently in day-to-day management (Ministry of Interior of the Czech Republic, 2007). Moreover, the municipalities rarely use quality management tools such as EFQM, ISO norms, CAF, balanced scorecards or benchmarking. From the 1990s until 2009 approximately only 4% of municipalities implemented these quality management instruments (Špaček and Neshybová, 2010).

Innovation is often suggested to be closely related to risk attitude, owing to a general tendency to either like or dislike ‘risk and innovation’ together (Marshall and Ojiako 2010). Tendencies to think within these cognitive paradigms may underlie the better known tendency for risk averse decision makers to be less innovative (Bhoovaraghavan et al., 1996; Pennings and Smidts, 2000) as well as for such individuals to be more drawn towards public sector employment (Bhatta, 2003). This link between risk aversion and failure to innovate has long been noted within the context of the UK government’s risk programme of the early 2000s (National Audit Office, 2004), leading to a tendency to equate the management of risk with the management of innovation (HM Treasury, 2006; Zurich Municipal, 2011). Yet impetus for a parallel development in the Czech Republic so far appears absent. The guidance on risk management produced by the Ministry of Finance (2004) instead defined risk as threat to be reduced or avoided, thus setting the scene for a purely negative public management view of risk which might contribute to both risk and innovation aversion.

Research method

Mayors of small municipalities number over 6,000 in the Czech Republic and are the most influential decision makers within the municipalities. Mayors enjoy broad-ranging decision-making powers relating to housing, transport and communications, protection and development of health care, education and training, cultural development, and protection of public order (Act No. 128/2000 Coll.). Much of this power arises from the ability of municipalities to independently manage their budgets and allocate funding. Mayors in cooperation with municipal bodies can also establish municipal enterprises and foundations, use municipal real estate and other property to further develop their municipalities, and they can publish generally binding regulations for their municipalities (Lacina and Vajvoda, 2000; Marek et al., 2004).

Availability of contact information arises under “Act No. 106/199 Coll” of the Czech
Republic which demands free access to information in local self-administration authorities. This has enabled a database of all municipalities, including email addresses of mayors, to be made available online (Živé obce, 2012). 1,244 Mayors representing municipalities with between 1,000 and 10,000 inhabitants were contacted with email questionnaires. In such municipalities the de facto discretionary decision-making powers of mayors are relatively high. Such mayors are not excessively limited by the municipal council, board and office. In fact they often execute the duties of boards and of chief administrative officers. 

The questionnaire was divided into four sections: (1) background demographics; (2) questions on investment choices with variations in the size of the budget; (3) questions on investment choices with variations in decision contexts, and (4) questions about factors that can influence investment choices. The following table provides a list of all variables collected from the mayors:

**Table 2: Variables collected from mayors**

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
<th>Variable name</th>
<th>Type of response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1.</td>
<td>1.</td>
<td>Population of municipality</td>
<td>&lt;1,000; 1,000-5,000; 5,001-10,000; &gt;10,000</td>
</tr>
<tr>
<td>1. 2.</td>
<td>2.</td>
<td>Age</td>
<td>&lt;30; 30-50; &gt;50</td>
</tr>
<tr>
<td>1. 3.</td>
<td>3.</td>
<td>Gender</td>
<td>Male, female</td>
</tr>
<tr>
<td>1. 4.</td>
<td>4.</td>
<td>Previous job</td>
<td>In public sector, in private sector</td>
</tr>
<tr>
<td>2. 5.</td>
<td>5.</td>
<td>Investment choice 1</td>
<td>p= 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 5% for sure and 10% with p or 0% with 1-p)</td>
</tr>
<tr>
<td>2. 6.</td>
<td>6.</td>
<td>Investment choice 2</td>
<td>p= 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between -30% for sure and -10% with p or -50% with 1-p)</td>
</tr>
<tr>
<td>2. 7.</td>
<td>7.</td>
<td>Investment choice 3</td>
<td>p= 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between -5% for sure and 0% with p or -10% with 1-p)</td>
</tr>
<tr>
<td>2. 8.</td>
<td>8.</td>
<td>Investment choice 4</td>
<td>p= 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 30% for sure and 50% with p or 10% with 1-p)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Investment choice 5</td>
<td>p = 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between keep 70% for sure and keep 90% with p or keep 50% with 1-p)</td>
</tr>
<tr>
<td>---</td>
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<td>------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>Investment choice 6</td>
<td>p = 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 0% for sure and 5% with p or -5% with 1-p)</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>Investment choice 7 (innovation centre)</td>
<td>p = 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 0% for sure and 5% with p or -5% with 1-p)</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>Investment choice 8 (new block of flats)</td>
<td>p = 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 0% for sure and 5% with p or -5% with 1-p)</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>Investment choice 9 (promotion of the municipality)</td>
<td>p = 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 0% for sure and 5% with p or -5% with 1-p)</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>Investment choice 10 (new leisure activities centre)</td>
<td>p = 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 0% for sure and 5% with p or -5% with 1-p)</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>Investment choice 11 (proceeding with a lawsuit)</td>
<td>p = 0.3, 0.4, 0.5, 0.6, 0.7 (indifferent between 0% for sure and 5% with p or -5% with 1-p)</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>Political party opinion about the investment</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
<tr>
<td>4</td>
<td>17</td>
<td>Environmental impact of the investment</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
<tr>
<td>4</td>
<td>18</td>
<td>Transparency of the investment</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
<tr>
<td>4</td>
<td>19</td>
<td>Impact of the investment on your reputation</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>Global economic environment</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
</tbody>
</table>
Sections two and three require some explanation. In section two respondents were presented with six hypothetical investment decisions which differed only by the size of the municipal annual budget at stake including large but realistic losses and gains. For each investment decision, the respondents were offered a certain scenario with guaranteed payoff, and an uncertain scenario which gave one payoff with probability $p$ (0.3; 0.4; 0.5; 0.6; 0.7) and another payoff with probability $1-p$ (0.7; 0.6; 0.5; 0.4; 0.3). The respondents were asked to select the probability $p$ for which they were indifferent between choosing the certain and uncertain scenario. The payoffs for the certain scenario in each investment situation were set to be equal to the expected payoff of the uncertain scenario for probability $p$ equal to 0.5. Consequently, probability choices below 0.5 were considered ‘risk preferring’, and choices above 0.5 were considered ‘risk averse’. The respondents were asked to consider only the size of their municipal budget and to assume that all relevant information had been given to them. These probability scenarios were selected because they provide respondents with quite realistic decisions outcomes to consider and thus are effective in evoking the risks involved (Kunreuther et al., 2001). A similar method was previously used by Georgouso-poulou et al. (2010). However, they did not identify the indifference probability and set the probabilities arbitrarily without any link to the expected payoff which degraded the validity of their results. Probability scenarios are also commonly used by other researchers (Hershey and Schoemaker, 1985; Pennings and Smidts, 2000). Additionally, section two also included two questions with the same payoffs and probabilities but framed in different ways. Question six was framed as a possible loss while question nine was framed as a possible gain. It was hoped results would produce some insight into how Mayors may be influenced by framing effects.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Financial impact of the investment</th>
<th>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>21.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>22.</td>
<td>Durability of the investment</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
<tr>
<td>4.</td>
<td>23.</td>
<td>State subsidy expectations</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
<tr>
<td>4.</td>
<td>24.</td>
<td>Innovation impact of the investment</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
<tr>
<td>4.</td>
<td>25.</td>
<td>Public utility of the investment</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 (1 not at all influential, 10 greatly influential)</td>
</tr>
</tbody>
</table>
The investment scenarios in section three used the same approach as section two but budget stake did not vary while five different realistic investment contexts (creation of innovation centre, construction of a new block of flats, promotion of the municipality, construction of a leisure activities centre and proceeding with a lawsuit) were introduced. Respondents were informed that in each case the ‘certain’ scenario would not lead inevitably to the creation of the suggested assets. This uncertainty was introduced to better simulate real life and to allow the measure to discriminate more effectively across the spectrum of risk attitudes.

Data analysis and discussion
The 136 respondents represented an 11% response rate. 119 were Mayors who represented Municipalities populated by 1,000-5,000 inhabitants, with the remainder representing larger Municipalities containing up to 10,000 inhabitants. Only two Mayors were under 30 years old, with the remainder almost evenly split at under/over 50 years old. The gender split for respondents was found to correspond almost exactly to the 20% female Mayoral representation in small municipalities in the Czech Republic. 90 out of 136 Mayors came from private sector employment backgrounds.

The following percentage component bar chart shows responses for section two, where the preferences in the six investment cases varied only with the size of the annual municipal budget involved in the decision.

Figure 1: Investment choices according to the size of the budget

The bar chart reveals that most respondents chose the most risk averse option of \( p \) equal to 0.7 in all situations except for the first one where they mainly opted for risk neutral option. The chart also shows that in all situations less than 30% of respondents were risk
preferring (for \( p \) equal to 0.3 and 0.4). This pattern of general risk aversion was found to be statistically significant using one sample t-tests and Wilcoxon signed rank tests. This initial insight into what appears to be a very general risk averse attitude accords with the findings of a number of researchers, practitioners and professional bodies who have explored the risk attitude of public sector decision makers in different countries (Bhatta, 2003). However, it is also widely accepted that risk attitude varies across different sizes of payoffs at stake. For example, prospect theory (Kahneman and Tversky, 1979), which is considered the best descriptive model of decision making under risk (Schoemaker, 1990) argues that decision makers grow risk averse when choosing between options as potential gains increase but risk preferring for options where potential losses increase. Neither of these aspects of decision-maker utility or value function were confirmed although gains and losses fluctuating towards extreme values were involved.

The answer to our question concerning whether the decision-makers appear influenced by framing was obtained through a comparison of means and ranks for questions six and nine. The results revealed that the decision makers were slightly less risk averse when the same situation was framed in a positive way (in line with findings such as those of Highhouse & Yuce (1996) that show risk aversion to be stronger for threat framing) but the difference was not statistically significant.

Section three explored risk attitudes for unvarying budget stakes but varying investment contexts. Figure 2 shows mayors’ choices and reveals a similar pattern as previously. Most respondents chose the strongest risk averse option in all situations except for choice 10 (the leisure activities centre scenario).

**Figure 2: Investment choices according to different contexts**
These findings suggest that the view of risk attitude as context specific (Slovic, 1964; Schoemaker, 1990; March and Shapira, 1992; Pennings and Smidts, 2000; Dohmen et al. 2005; Leitch 2010) does not apply on levels of contextual specificity where we differentiate between different sorts of investment public managers may make. Even in contexts with incomparable added values such as proceeding with a lawsuit, resourcing a technology innovation centre or allocating up front capital for the construction of a new block of flats, the mayors mainly selected the risk averse options in similar proportions. As with section two results, the general risk aversion was found to be statistically significant by both parametric and nonparametric tests. This further evidence of general risk aversion may reflect an entrenched cultural pattern unresponsive even to the better investment offers that may present themselves to Czech Mayors.

Finally, descriptive statistics, independent-samples t-tests and Mann-Whitney U tests were conducted to explore whether the general risk aversion tapped by sections three and four might cluster with demographic variables captured in section one. Both parametric and non-parametric tests were performed for all investment situations. They showed that neither age, gender, previous employment in public or private sector nor size of municipality influenced the general findings. Yet a number of previous researchers have shown that such factors can influence risk attitude (Sitkin and Pablo, 1992; Byrnes et al., 1999; Donkers et al., 2001; Dohmen et al., 2005; Coleman, 2009). What our findings suggest, then, is the existence of a general pattern of risk averse investment choice common to all Czech Mayors in the smaller municipalities.

In the last section of the questionnaire, the respondents assessed the influence of ten different factors on their investment decisions. The following bar chart sets out the findings.

**Figure 3: Factors influencing investment choices**

![Bar chart showing factors influencing investment choices](chart.png)
The finding that commitment to public value mattered most is hardly surprising. The finding that investment durability ranked second might seem more surprising given the political context for investment choice which some might expect to prioritise short-term benefits likely to produce electoral advantage. However here it must be borne in mind that the political aspect of the mayor’s function usually does not play an important role in small municipalities (Lacina and Vojvoda, 2000) as indeed we now see reflected in our finding that Mayors regard party opinion as the least important influence upon their investment decision-making.

The finding that transparency was rated more important than reputational impact was notable. Corruption in small municipalities is on the rise (Czech Security Information Service, 2012). The above tendency to regard transparency as the more serious influence on investment decision-making may well reflect a mindset where reputation is viewed as a benefit arising from managing other issues (like transparency) well. Professional risk managers are themselves divided on which of these approaches to take. A tendency for risk managers to regard reputation as a benefit under circumstances where more mature systems of risk management are in place (Economist Intelligence Unit, 2005), hints that the respondents may have a keen understanding of specific issues such as transparency which can be managed to allow reputation to improve over time.

**Conclusion**

There is a long academic tradition of research into the differences in risk attitude between the public and private sectors. On a superficial level, there is a plausible argument that the key determinant of this difference is the organisational context, i.e. the nature of public bureaucracies and the existence of public and political scrutiny. Patently private sector decision makers do not operate in a scrutiny-free world, but the general acceptance that entrepreneurship entails risk taking, albeit balanced risk taking, provides them with a degree of leeway that their public sector counterparts perceive themselves not to have. Irrespective of strategic initiatives to improve the balance between risk and reward in the public sector, the evidence from a number of countries would suggest that rule-bound, compliance cultures still dominate the public sector landscape. By definition, these cultures will foster a climate of risk aversion. If we factor-in the additional element of the psychology of risk, i.e. that the public sector attracts people who are, by nature, risk averse, then we have the ‘perfect storm’ of organisational and intrinsic factors perpetuating public sector risk aversion. In any domain, this presents a serious challenge to those who would seek to promote greater risk acceptance in the public sector.

The results of this study showed that theoretical frameworks commonly used to account for how risk is handled within decision-making often do not apply in practice. What we think emerges from the study is a baseline investment decision-making propensity characterised by a strong general risk aversion. No guidance on management in terms of risk and opportunity is applied in the Czech context and thus risk is understood as something
to be avoided. Such guidance is clearly required, and ought to be written with the smaller municipalities in mind where it may be needed most.

In overview, figure three tentatively suggests a concern for the longer term which might itself be an important denominator for the general risk aversion found to exist for different sizes of budget and for varying investment contexts right across our pool of respondents. Based on these findings, the most productive directions for supporting Mayors to reduce the general problem of risk aversion might be ones that improve transparency over investment decision processes and increase confidence in investment durability. The former can be achieved quite simply by handling more decisions through public consultation and/or through committee work undertaken where public and press are invited to attend. The latter can be achieved by such measures as campaigning for and negotiating funding guarantees and/or developing ring-fencing arrangements for particular projects. Another important area for improvement may be to develop contract certainty for transfers of financial risk within PPP projects.

More generally, perhaps the quickest gains that can be made by public sectors across the enlarging Europe are the ones placed in plain sight by emerging best practice in the UK. For example, there is growing interest in adapting Simons’ (1995) ‘Four Levers of Control’ Framework to reconceptualise managerial ‘control’ within the public sector as something inherently concerned with innovation and strategic renewal. More simply, though, a sensible starting point for those immersed in risk-averse decision-making cultures is perhaps to recognise that risk management readily becomes a crucible for innovation where provision is made within risk management processes and risk registers for ‘opportunities’ as well as ‘threats’. If mayors and other public managers cannot populate their risk registers with funded opportunities they will at least be acutely aware of their absence and will have simple visual representations of the problem which can be used as a basis for measurable improvements.

This study was exploratory in its design. Its purpose was to scope a problem of general risk aversion that, in the light of the findings, certainly merits follow-up interviews with some of the contributing Mayors to ascertain whether they recognise the problem, how they perceive its causes, and what solutions they might welcome. The study also has limitations. It can also be argued that the respondents were presented with hypothetical scenarios which might fit awkwardly with their real world behaviours. In reality, all investment decisions are taken with reference to a host of conditioning factors that cannot all be tapped by questionnaires. One such factor which might be important is how Mayors perceive the strengths and limitations of their own discretionary decision-making powers. Leadership factors such as leader charisma, integrity and experience may prove important here, as may governance factors such as varying governance models within Municipal Councils and, correspondingly, varying levels of scrutiny and participation by local councillors.
References


