

THE DECISION-MAKING BEHAVIOUR OF PUBLIC PROCUREMENT OFFICERS: AN INTERPLAY BETWEEN PROCEDURAL RATIONALITY AND GROUPTHINK BIAS

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Malaysian public procurement has always been regulated by comprehensive procedures to enhance rationality in decision-making. Nevertheless, the public procurement is still plagued with recurring irregularities. This research investigates the opposing factors at play in between the individual decision-making process and the group decision-making environment. A research model was built on the notions of procedural rationality and groupthink to examine the outcome of individual procedural rationality under the influence of groupthink behaviour. The Partial Least Square-Structural Equation Modelling technique was employed to analyse 289 datasets from the Malaysian public procurement officers. The result showed that while procedural rationality is correlated strongly with groupthink, it had insignificant influence on the outcomes of groupthink - defective decision-making processes at the group level. Apparently, it fails to stop the defective decision-making process once the elements of groupthink have permeated the group. Recommendations are made for improving the composition of public procurement committees.

Keywords: groupthink; procedural rationality; procurement; structural equation

INTRODUCTION

The most distinctive property of decision-making is the notion of contemplating between choices of action or inaction. It involves cognitive processes of weighing, narrowing, and justifying choices that eventually transforms into decisions. This information processing behaviour can be performed individually as well as by a group of individuals.

Individuals often prefer a fast-track course to resolve problems due to time and resource constraints. These rough estimates are adequate if not perfect, for reaching a decision, simply because individuals are often satisficing rather than optimising (Tversky and Kahneman 1974). While satisficing enables individuals make prompt judgements, it may induce erroneous decisions (Kaufmann, Carter and Buhrmann 2010, 2012).

On the other hand, decisions jointly made by a group of individuals may produce positive as well as negative effects. While decision-making in a group setting would

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invite extensive deliberation (Eisenhardt and Bourgeois 1988), it may also produce negative effects when conformity seeking behaviour appears among the members (Janis 1982).

This situation warrants investigation especially within the public procurement environment, involving individual procurement professionals making decisions in group settings. In Malaysian public procurement, tender evaluation and awarding have never relied on individuals, but on groups or committees (MOF 2007, 2008). The Treasury Circular in 2004 for infrastructure maintenance projects required the participation of a broader group of officials at the open tender stage (MOF 2004).

The effectiveness of group deliberation as well as individual decision-making bears a significant impact on the quality of public works, goods, and services. This research investigated the opposing factors at play between individual and group decision-making, which ultimately affect the quality of deliberation.

For that, a research model was built on the notions of procedural rationality and groupthink to examine the outcome of individual procedural rationality under the influence of groupthink behaviour. The following section discusses the fundamental concepts of related constructs and their hypothetical relationships

Theoretical Background and Hypotheses

Bounded rationality

Isenberg (1984) found that senior managers oftentimes depend on intuition rather than normative ways of decision-making since information acquisition is costly and painstaking. Oftentimes, individuals with limited mental capacity are unable to collect and process all information and determine if a decision is truly rational. This constraint is conceptualised as bounded rationality (Simon 1990).

Procedural rationality in individual decision-making

To overcome this limitation, a sensible individual will therefore devise an adaptive procedure for decision-making (Simon 1976). Such a procedure is believed to enhance an individual's rationality as a problem solver for finding the most optimal solution - procedural rationality. This strategy is not about producing and analysing enormous data. Instead, experience and wisdom are employed to produce a few good enough alternatives for further investigation and analysis (Simon 1976). Procedural rationality is defined by Dean and Sharfman (1993) as 'the extent to which the decision process involves the collection of information relevant to the decision and the reliance upon analysis of this information in making the choice'. Alessandri (2008) stated that a higher level of procedural rationality demands more judgement-related information and exhaustive assessment, whereas a lower level of procedural rationality requires less mental effort in information collection and assessment.

Procedural rationality in group decision-making

The group setting is believed to be conducive for the adoption of procedural rationality. Group decisions are largely derived from comprehensive procedures (Dean and Sharfman 1996; Papadakis and Barwise 2002). These procedures allow members with different backgrounds, values and viewpoints to be challenged and debated by the others, while reconciling with their own thinking on how key issues should be construed (Bettenhausen 1991).

Simons, Pelled and Smith (1999) discovered that active deliberation was correlated positively with decision comprehensiveness, ensuring that group decisions have considered broader choices. Groups that employed procedural rationality produced

less faulty decisions and were more successful in meeting their decision objectives (Dean and Sharfman 1996). H1: Procedural rationality (PRA) is negatively related to defective decision-making (DDM) processes.

Klein and Yadav (1989) found that greater procedural rationality generates improved decision outcomes while lower procedural rationality produces poor decision outcomes and tends to bring procurement irregularities. H2: Procedural rationality (PRC) is negatively correlated with procurement irregularities (IRR).

Antecedents of procedural rationality

This research adopted three antecedents of procedural rationality identified by Kan and Khalid (2021), i.e., accountability, prior knowledge and experience. High accountability of the decision environment exerts pressure to be correct (Rausch and Brauneis 2014), thereby significantly minimising decision error (Tetlock, Skitka and Boettger 1989). Decision-makers who are responsible for their decision outcomes employ sophisticated decision-making approaches or greater procedural rationality (Kaufmann, Michel and Carter, 2009). H3: Accountability (ACC) is positively correlated with procedural rationality (PRC).

A person with prior knowledge of a product would require less time in making a decision (Bettman and Park 1980). New information can be processed with lesser thinking effort, leaving additional resources for using more sophisticated decision strategies (Johnson and Russo 1984). Riedl, Kaufmann, Zimmermann and Perols (2012) found a positive correlation between prior knowledge and procedural rationality. H4: Prior knowledge (PKW) is positively correlated with procedural rationality (PRC).

Jacoby, Chestnut and Fisher (1978) found that more experienced individuals assess more information sources, make more conservative decisions (Perkins and Rao 1990), are more discerning of information relevancy and apprehend information more comprehensively (Sanbonmatsu, Kardes and Herr, 1992). Thus, experienced decision-makers would likely employ more complex decision-making strategies or higher procedural rationality. H5: Work experience (WEX) is positively correlated with procedural rationality (PRC).

Groupthink

In the public sector, the tender assessment and awarding process is administered in committee settings. This setting however may attract a groupthink bias which was defined by Janis (1982) as ‘...a deterioration of mental efficiency, reality testing, and moral judgment that results from in-group pressures’. Under this circumstance, the committee may overestimate its power and morality, prompting closed mindedness to members’ views, imposing pressures towards concurrence-seeking and ultimately undermining the importance of deliberation.

Nevertheless, the awarding committee would decide based on the assessment made by the tender evaluation committee. The assessment process of the tender evaluation committee is conducted with high procedural rationality since it includes deliberative procedures, alternative assessment procedures and information search procedures, allowing individual members to air their dissimilar views and constructive criticism. Solomon (2006) found that aggregation of individual views and decisions, rather than deliberation to a consensus, would generate better decisions than group deliberation. H6: Procedural rationality (PRC) is negatively related to groupthink (GTK).

Antecedents of groupthink

Groupthink is largely preceded by group cohesiveness and group insulation (Janis 1982). When a group is highly cohesive, its members will 'express solidarity, mutual liking, and positive feelings about attending meetings and carrying out the routine tasks of the group'. H7: Group cohesiveness (COH) is positively related to groupthink (GTK).

Sundstrom, Meuse and Futrell (1990) found that groupthink is more prevalent in self-regulated groups where the group decisions are produced with minimum external input. As an insulated group, it relies largely on the shared views from its group members where this blended mental model unfortunately would offer a very low analytical power (Fischhoff and Johnson 1997). H8: Group insulation (INS) is positively related to groupthink (GTK).

Defective decision-making processes

Under the influence of groupthink, the members would be more concerned regarding whether a decision is made consensually rather than on how the decision is concluded (Solomon 2006). The members are unlikely to challenge their counterparts, lest such action would have contradicted their group's view. Herek, Janis and Huth (1987) operationalised this defective decision-making process as an incomplete survey of alternative and objective, failure to re-examine the originally preferred choice and initially discarded alternatives, poor information search, selective bias in processing information and failure to develop contingency plans for probable decision failures. H9: Groupthink (GTK) is positively related to defective decision-making (DDM) processes.

Procurement irregularities

Within a procurement committee, the groupthink effect is completely unintended from the standpoint of group members (Janis 1982). It is a product of the integration of the people, the cohesive sentiments and the situation, undermining the members' capabilities as competent decision-makers (Tetlock 1979), thereby causing irregularities in procurement. Procurement irregularities indicate that the outcomes of procurement decisions deviate from their objectives, which generally include cost overruns, project delays, shoddy workmanship, work abandonment, etc. (National Audit Department Malaysia 2018, 2019). H10: Groupthink (GTK) is positively related to procurement irregularities (IRR).

The public procurement system assumes that the officers have full access to market information. In fact, they depend on a little information in reaching decisions (Csáki 2006), having limited time to participate in comprehensive deliberation, willing to accept reasonably good choices (Kuchina-Musina, Morris and Steinfeld, 2020). The National Audit Department Malaysia (2017) found that the compliance in procurement procedures is relatively low in the public sector, i.e., 28%. This low compliance in procurement procedures is akin to defective decision-making processes, which inevitably contribute to procurement irregularities. H11: A defective decision-making (DDM) process is positively related to procurement irregularities (IRR).

METHOD

This research employed a quantitative approach. A research model was built on the notions of procedural rationality and groupthink and tested using partial least square-structural equation modelling (PLS-SEM) technique. The measurement items were adapted from Riedl *et al.*, (2012) for accountability (4 items) and prior knowledge (3

items) constructs. Procedural rationality (7 items) was adapted from Kaufmann *et al.*, (2012). Furthermore, insulation (3 items), cohesiveness (3 items) and groupthink (27 items) were adapted from Park (1989). In addition, defective decision-making processes (14 items) and procurement irregularities (8 items) were adapted from Moorhead and Montanari (1986) and Kan (2016), respectively. The model was validated by five experts in public procurement via semi-structured interview.

Non-probability sampling was employed as it is convenient. The secretaries of selected Malaysian local authorities were duly briefed about the purpose of research and verbal consent was solicited prior to the survey. The respondents were the officers involved in procurement decision-making in the past 12 months. In total, 1,035 self-administered questionnaires were hand-delivered and followed up with emails, of which 322 were returned. There were 289 valid responses, equivalent to a 27.9% response rate. Of these, 80.3% of respondents possessed tertiary education and thus, could comprehend the questionnaires.

FINDINGS

Assessment of the measurement model

The convergent validity and discriminant validity were determined using confirmatory factor analysis to assess the construct validity. Items with a loading value lower than the cut-off value of 0.5 were discarded (Hair, Hult, Ringle and Sarstedt, 2017). All Cronbach's alpha values exceeded the ideal value of 0.7, affirming that the model constructs were sufficiently convergent. Furthermore, the Average Variance Extracted (AVE) values had exceeded the threshold level of 0.50, indicating that these latent variables could explain more than half of the variance of the indicators. Thus, this research model demonstrated good convergent validity.

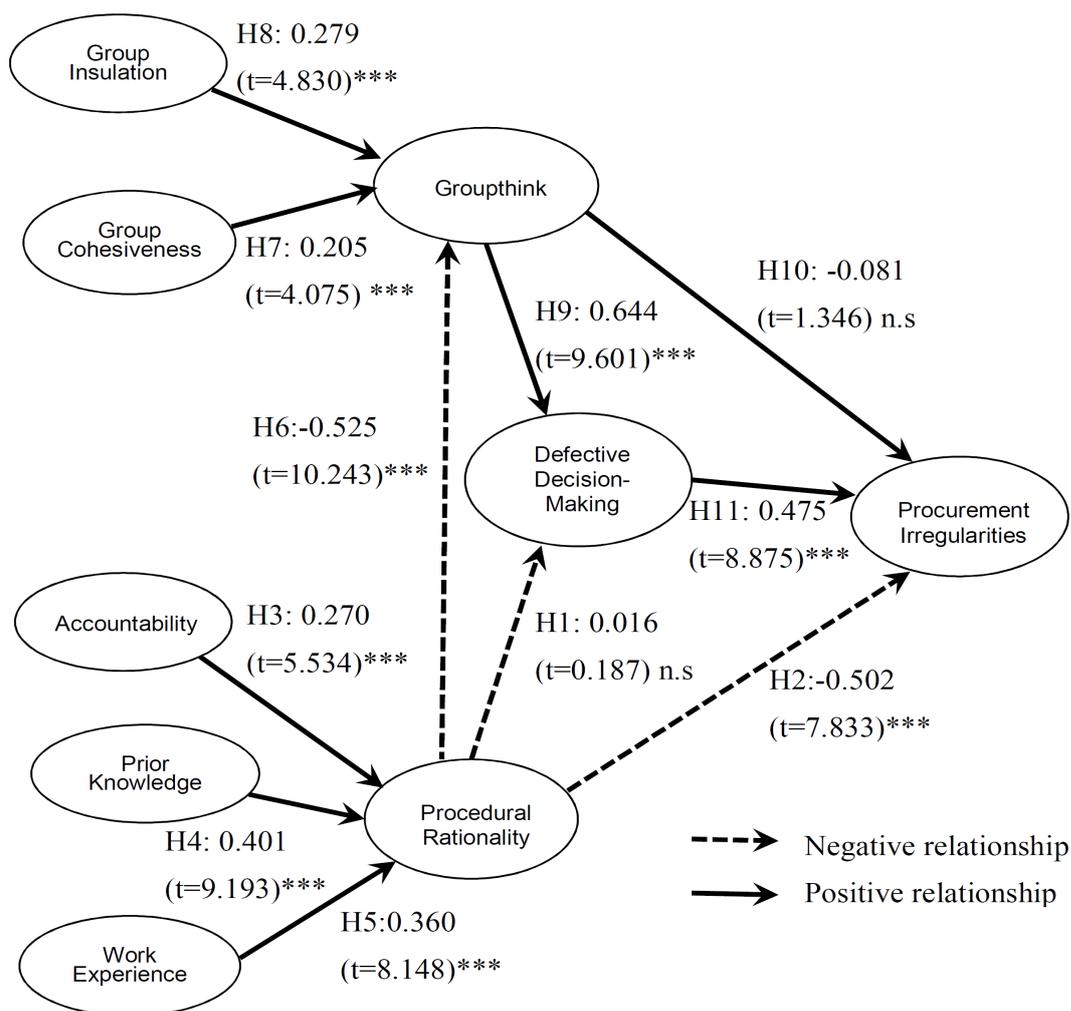
The discriminant validity was assessed via the Fornell-Larcker criterion, where the square root of the AVE in each construct should exceed the highest correlation value with any other construct (Fornell and Larcker 1981). The results show that the inter-correlation of each construct with its counterparts was less than the square root of the average variance extracted with its associated indicators. Hence, the underlying constructs were unlikely to be overlapped with other constructs (Hair *et al.*, 2017). Conclusively, the measurement model was acceptable in terms of composite reliability, convergent validity, and discriminant validity.

Assessment of the structural model

Figure 1 shows the path coefficient (β) and t-statistics (t-value) of each hypothesis. They were determined by a bootstrapping approach using 5,000 samples with 289 cases per sample. All the path relationships, except H1 and H10, recorded t-values of more than 3.090 and hence, these relationships were significant at a level of 0.1%. The overall fit of the path model was tested via PLS path analysis modelling - global fit measure (GoF).

This is the geometric mean of average communality and average R square. The baseline values for assessing the PLS model were GoFsmall = 0.10, GoFmedium = 0.25 and GoFlarge = 0.36 (Wetzels, Odekerken-Schröder and van Oppen, 2009). In this research, the GoF value was 0.500 (R square = 0.250, average AVE = 0.674) and was more than the largest cut-off value of 0.36. Hence, this model was confirmed as possessing a high explanatory power.

Figure 1: Results of path analysis



Procedural rationality was negatively correlated with groupthink (H6), showing that extensive deliberation at individual level would not only reduce individual decision bias but alleviate the irrationality behaviour at group level. The result affirmed the works of Janis (1982) that groupthink would induce defective decision-making processes in procurement committees (H9), which eventually leads to procurement irregularities (H11).

Surprisingly, while procedural rationality was strongly correlated with groupthink (H6), it had an insignificant influence on the outcomes of groupthink - defective decision-making processes at the group level (H1). Apparently, even though individual procedural rationality can prevent the symptoms of groupthink, it fails to stop the defective decision-making processes once the elements of groupthink have permeated the group. In other words, even if the individual procurement officers can maintain high procedural rationality at tender evaluation stage, they have minimal resistance to the general norm and culture of group decision-making at tender awarding stage.

Furthermore, although groupthink was positively correlated to defective decision-making processes (H9) and thereafter defective decision-making processes were also positively correlated to procurement irregularities (H11); the result surprisingly does not reveal any direct correlation between groupthink and procurement irregularities (H10).

Apparently, the existence of the groupthink phenomenon may not always contribute to procurement irregularities. On the other hand, groupthink could manifest in some unique situations (i.e., at a later stage of a decision process), producing positive effects on decision outcomes. According to Longley and Pruitt (1980), when a mature consensus is reached at the end of diligent deliberation, a dominant leader may bolster the solution in a highly biased manner. This behaviour affirms the group's decision, enabling the solution to be executed in a more committed manner despite its possible drawbacks (Janis and Mann 1977).

CONCLUSIONS

Malaysian public procurement has been built on conservative and comprehensive procedural control. It largely does not consider the influence of cognitive limitations and group decision behaviour. Individual procurement officers, however, may adopt a satisfying approach in decision-making, which inherently deviates from the axiom of rationality. On the other hand, the decision-making in group settings is also susceptible to irrational behaviours under the influence of groupthink.

This situation is worsened by the confidential nature of procurement decision-making, particularly at the tender awarding stage where the deliberation process is completely insulated from outsiders, and it may be dominated by an authoritative leader. It is important to note that once groupthink occurs, group censorship would block the recognition of the fact that groupthink is present. The members may oppose any efforts to change toward multiple advocacies.

The governing bodies of public procurement are urged to 'build back wiser', rectifying the drawback of committee composition from the cognitive and behavioural perspectives. To avoid consensus seeking, the tender awarding committee should be composed of an independent assessor. Furthermore, repetitious membership should be prohibited since this may create a veiled bonding among the committee members, where critical deliberation within the committee would be difficult.

In addition, the element of accountability should be introduced to the awarding committee. Frequently, procurement irregularities are found only at the post-contract or post-completion stage. To ensure value for money in procurement decisions, an internal audit and control system should be established at the pre-contract stage, aiming not only to prevent procurement irregularities but holding the decision-makers accountable for their decisions.

Limitations

This study focused on the decision-making processes and settings of public procurement committees. It ignored completely the influence of external factors, such as trade lobbying, political interference, and corruption, which very often, would lead to public procurement irregularities.

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REFERENCES

- Alessandri, T M (2008) Risk and procedural rationality: A behavioural theory perspective, *Journal of Strategy and Management*, 1(2), 198-217.

- Bettenhausen, K L (1991) Five years of groups research: What we have learned and what needs to be addressed, *Journal of Management*, **17**(2), 345-381.
- Bettman, J R and Park, C W (1980) Effects of prior knowledge and experience and phase of the choice process on consumer decision processes: A protocol analysis, *Journal of Consumer Research*, **7**(3), 234-24.
- Csáki, C (2006) Investigating the decision-making practice of public procurement procedures, *In: 2nd International Public Procurement Conference*, Rome, Italy.
- Dean, J W and Sharfman, M P (1993) Procedural rationality in the strategic decision-making process, *Journal of Management Studies*, **30**(4), 587-610.
- Dean, J W and Sharfman, M P (1996) Does Decision process matter? A study of strategic decision-making effectiveness, *The Academy of Management Journal*, **39**(2), 368-396.
- Eisenhardt, K M and Bourgeois, L J (1988) Politics of strategic decision making in high-velocity environments: Toward a midrange theory, *The Academy of Management Journal*, **31**(4), 737-770.
- Fischhoff, B and Johnson, S (1997) *Organisational Decision Making*, Cambridge: Cambridge University Press.
- Fornell, C and Larcker, D F (1981) Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, **18**(1), 39-50.
- Hair, J F, Hult, G T M, Ringle, C M and Sarstedt, M (2017) *A Primer on Partial Least Squares Structural Equation Modelling (PLS-SEM) 2nd Edition*, Thousand Oaks, CA.: Sage Publications Inc.
- Herek, G M, Janis, I L and Huth, P (1987) Decision making during international crises: Is quality of process related to outcome? *The Journal of Conflict Resolution*, **31**(2), 203-226.
- Isenberg, D J (1984) How senior managers think, *Harvard Business Review*, November / December, 81-90.
- Jacoby, J, Chestnut, R W and Fisher, W A (1978) A behavioural process approach to information acquisition in nondurable purchasing, *Journal of Marketing Research*, **15**(4), 532-544.
- Janis, I L (1982) *Groupthink: Psychological Studies of Policy Decisions and Fiascos, 2nd Edition*, Boston: Houghton Mifflin.
- Janis, I L and Mann, L (1977) *A Psychological Analysis of Conflict, Choice and Commitment*, New York: Free Press.
- Johnson, E J and Russo, J E (1984) Product familiarity and learning new information, *Journal of Consumer Research*, **11**(1), 542-550.
- Kan, F K (2016) *A Model for Assessing Procurement Irregularities in Decision Making Process at the Tendering Stage of Construction Projects*, Doctoral Thesis, Faculty of Built Environment, Universiti Teknologi Malaysia, Skudai.
- Kan, F K and Khalid, A G (2021) Public procurement in Malaysian local authorities: Antecedents of procedural rationality in decision making, *International Journal of Construction Supply Chain Management*, **11**(2), 121-143.
- Kaufmann, L, Carter, C R and Buhrmann, C (2010) Debiasing the supplier selection decision: A taxonomy and conceptualisation, *International Journal of Physical Distribution and Logistics Management*, **40**(10), 792-821.

- Kaufmann, L, Carter, C R and Buhrmann, C (2012) The impact of individual debiasing efforts on financial decision effectiveness in the supplier selection process, *International Journal of Physical Distribution and Logistics Management*, **42**(5), 411-433.
- Kaufmann, L, Michel, A and Carter, C R (2009) Debiasing strategies in supply management decision-making, *Journal of Business Logistics*, **30**(1), 85-106.
- Klein, N M and Yadav, M S (1989) Context effects on effort and accuracy in choice: An enquiry into adaptive decision making, *Journal of Consumer Research*, **15**(4), 411-421.
- Kuchina-Musina, D, Morris, J C and Steinfeld, J (2020) Drivers and differentiators: A grounded theory study of procurement in public and private organisations, *Journal of Public Procurement*, **20**(3), 265-285.
- Longley, J and Pruitt, D G (1980) Groupthink: A critique of Janis' theory, In: L Wheeler (Ed.) *Review of Personality and Social Psychology*, Beverly Hills, CA: Sage.
- MOF (2004) *Surat Pekeliling Perbendaharaan Bil 7 Tahun 2004: Garis Panduan Perolehan Penyelenggaraan Infrastruktur Awam Wp*, Putrajaya: Percetakan Nasional Malaysia.
- MOF (2007) *Surat Pekeliling Perbendaharaan Bil 5 Tahun 2007: Tatacara Pengurusan Perolehan Kerajaan Secara Tender Wp*, Putrajaya: Percetakan Nasional Malaysia.
- MOF (2008) *Arahan Perbendaharaan*, Kuala Lumpur: Percetakan Nasional Malaysia Berhad.
- Moorhead, G and Montanari, J R (1986) An empirical investigation of the groupthink phenomenon, *Human Relations*, **39**(5), 399 - 410.
- National Audit Department Malaysia (2017) *Laporan Ketua Audit Tahun Negara 2017 Siri 1 - Penyata Kewangan Kerajaan Persekutuan Dan Badan-Badan Berkanun Persekutuan*, Putrajaya: National Audit Department Malaysia.
- National Audit Department Malaysia (2018) *Auditor General Report 2018 Series I: Activities of Federal Government Ministries/Department and Statutory Bodies*, Putrajaya: National Audit Department Malaysia.
- National Audit Department Malaysia (2019) *Auditor General Report 2019 Compliance Auditing on Federal Government Ministries/Department*, Putrajaya: National Audit Department Malaysia.
- Papadakis, V M and Barwise, P (2002) How much do CEOs and top managers matter in strategic decision-making? *British Journal of Management*, **13**(1), 83-95.
- Park, W W (1989) *A Comprehensive Study of Janis' Groupthink Model: Questionnaire Development and Empirical Tests*, Pittsburgh: University of Pittsburgh.
- Perkins, W S and Rao, R C (1990) The role of experience in information use and decision making by marketing managers, *Journal of Marketing Research*, **27**(1), 1-10.
- Rausch, A and Brauneis, A (2014) The effect of accountability on management accountants' selection of information, *Review of Managerial Science*, **9**(3), 487-521.
- Riedl, D, Kaufmann, L, Zimmermann, C and Perols, J (2012) Reducing uncertainty in supplier selection decisions: Antecedents and outcomes of procedural rationality, *Journal of Operations Management*, **31**(1), 24-36.
- Sanbonmatsu, D M, Kardes, F R and Herr, P M (1992) The role of prior knowledge and missing information in multiattribute evaluation, *Organisational Behaviour and Human Decision Processes*, **51**(1), 76-91.
- Simon, H A (1976) From substantive to procedural rationality, In: T J Kastelein, S K Kuipers, W A Nijenhuis and G R Wagenaar (Eds.) *25 Years of Economic Theory: Retrospect and Prospect*, Boston, MA: Springer US.

- Simon, H A (1990) Bounded rationality, *In: J Eatwell, M Milgate and P Newman (Eds.) Utility and Probability*, London: Palgrave Macmillan UK.
- Simons, T, Pelled, L H and Smith, K A (1999) Making use of difference: Diversity, debate and decision comprehensiveness in top management teams, *The Academy of Management Journal*, **42**(6), 662-673.
- Solomon, M (2006) Groupthink versus the wisdom of crowds: The social epistemology of deliberation and dissent, *The Southern Journal of Philosophy*, **44**(S1), 28-42.
- Sundstrom, E, Meuse, K P D and Futrell, D (1990) Work teams: Application and effectiveness, *American Psychologist*, **45**(2), 120-133.
- Tetlock, P E (1979) Identifying victims of groupthink from public statements of decision makers, *Journal of Personality and Social Psychology*, **37**(8), 1314-1324.
- Tetlock, P E, Skitka, L J and Boettger, R (1989) Social and cognitive strategies for coping with accountability: Conformity, complexity and bolstering, *Journal of Personality and Social Psychology*, **57**(4), 632-640.
- Tversky, A and Kahneman, D (1974) Judgment under uncertainty: Heuristics and biases, *Science*, **185**(4157), 1124-1131.
- Wetzels, M, Odekerken-Schröder, G and van Oppen, C (2009) Using PLS path modelling for assessing hierarchical construct models: Guidelines and empirical illustration, *MIS Quarterly*, **33**(1), 177-195.