

# Planning to improvise? The role of reasoning in the strategy process: Evidence from Malaysia

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**Abstract** Planning and improvisation are depicted as alternate decision-making orientations in the strategy process literature, executed by two parallel cognitive contexts: rational *or* intuitive, but can rationality and intuition be harmonized in the strategy process? Strategic managers may not have to choose to either plan or improvise, rather there is a need to shift the focus of research from such trade-offs to paradoxical thinking. Drawing on survey data from Malaysian research-intensive firms, we investigate how strategy develops through managers' strategic reasoning under key external (market turbulence) and internal (centralization, manager level) contingencies. In

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contrast to common assumptions in the management literature, we find that *both* rational and intuitive reasoning can drive planning *and* improvisation for firms in emerging economies, with additional positive moderation effects under centralization and manager level. Firms that achieve high levels of both planning and improvisation concurrently are characterized by significantly greater rationality relative to the high planning group and the high improvisation group. The findings extend strategy process research, highlighting how firms in emerging economies differ from theory derived from developed economies.

**Keywords** Emerging economy · Planning · Improvisation · Reasoning · Malaysia · Strategy process

The two polar approaches to strategy development that emerge from strategy process theory are *planning*, defined as “the ability to anticipate and respond to the market environment in order to direct a firm’s resources and actions in ways that align the firm with the environment” (Slotegraaf & Dickson, 2004: 373), and *improvisation*, defined as intuition guiding action in a spontaneous way (Crossan & Sorrenti, 1997; Cunha, Cunha, & Kamoche, 1999). Their conceptual definitions imply that firms either plan *or* improvise, but do not engage in both simultaneously (Nemkova, Souchon, & Hughes, 2012). Extant literature supports the contention that their origins are uniquely different, with rational reasoning underpinning strategic planning (Wolf & Floyd, 2017) and intuitive reasoning forming a basis for improvisation (Cunha, Kamoche, & Cunha, 2002). This is illustrated by de Wit and Meyer (2010) who, for instance, contended that rationally inclined managers favor the strategic planning perspective. However, rational reasoning could indeed factor in driving improvisation and, likewise, intuition could factor into increased planning; but this interplay remains poorly understood (Hodgkinson, Hughes, & Arshad, 2016) with insufficient knowledge of the internal and external conditions that might moderate the relationships between managers’ reasoning and strategy development (e.g., Akinci & Sadler-Smith, 2012).

An important question to be considered then is *can rationality and intuition be harmonized in the strategy process?* Their treatment in the literature suggests not, as “...no consensus has yet developed within the field of strategic management on how to balance deliberateness and emergence” (de Wit & Meyer, 2010: 72). Yet, given the academic ambivalence towards planning in recent times (Wolf & Floyd, 2017) and the study of improvisation being very much in its infancy (Magni, Proserpio, Hoegl, & Provera, 2009) there remains a need for both a richer and more coherent understanding of both strategic planning and organizational improvisation; particularly in emerging economies. While firms and their strategies in emerging economies differ from their counterparts in developed economies (Ahlstrom, Levitas, Hitt, Dacin, & Zhu, 2014) there remains limited research concerning their strategy development practices (Hodgkinson et al., 2016; Wright, Filatotchev, Hoskisson, & Peng, 2005); a knowledge void that we seek to address.

Malaysian research-intensive organizations represent an exciting laboratory for examining the strategy process. For example, with emerging economies such as Malaysia, Singapore, Taiwan and Thailand implementing major initiatives to spur economic growth (Ahlstrom, Young, Chan, & Bruton, 2004), these organizations have

a pivotal role to play if such countries are to move beyond the middle-income trap toward high-value industrialization (Todd & Peetz, 2001). For instance, in Taiwan, research-intensive firms have become an important production source for global high-technology products (e.g., Chi, Huang, & Lin, 2009) in line with pro-market reforms for greater innovation (Chari & Banalieva, 2015). Thus, research-intensive firms operating in high technology, biotechnology, information technology, and telecommunications industries provide an appropriate research setting to explore viable strategy making in emerging economies for firms that are seeking rapid growth (Ahlstrom et al., 2004). Understanding of strategy practices in this context is now a necessity as the adaptation of business practices may open new external opportunities and/or development of internal capabilities necessary to succeed in more developed market environments (Wright et al., 2005).

To this end, this paper conducts multiple regression analysis on survey data drawn from 280 Malaysian private firms to shed light on the strategic reasoning-strategy development relationship under the key contingencies of market turbulence, centralization, and manager level. Additional analysis is presented by means of an ANOVA test to uncover significant differences across high planning, high improvisation, and high planning *and* high improvisation groups. The findings reveal that both rational and intuitive reasoning can generate planning and improvisation, refuting established logic that these decision-making orientations are mutually exclusive (e.g., de Wit & Meyer, 2010), with positive moderation effects reported under the internal contingencies of centralization and manager level. Overall, this article makes three contributions. First, we examine how rational and intuitive reasoning contribute to the development of strategic planning and improvisation to address the uncertainties facing contemporary managers (Wolf & Floyd, 2017). Second, we respond to calls for research to understand how improvisation can be generated (Nemkova et al., 2012) alongside planning, which is necessary to explore viable strategy making in emerging economies (Hodgkinson et al., 2016). Third, we contribute to the Mintzbergian perspective of strategy process by considering how strategy materializes through managers' cognitive context (cf. Thomas & Ambrosini, 2015) in an emerging economy.

This study is structured as follows: first, the deliberate versus emergent debate in strategy development is outlined, which leads to the development of the study hypotheses. Next, the methods employed are explained and the analysis and results are presented. This is followed by a discussion of the contributions made to theory and practice. Finally, conclusions are drawn in light of this study's limitations, with avenues for future research highlighted.

## **Strategy process: The deliberate versus emergent debate**

While there has been an unprecedented decline in planning research over the last decade (Wolf & Floyd, 2017), the study of organizational improvisation has emerged as a key theoretical lens for studying the strategy process (Kyriakopoulos, 2011). We consider the theoretical origins of these two alternative orientations.

Strategic planning is a process involving a fixed sequence of steps, from strategy formulation and implementation to evaluation and control (Wolf & Floyd, 2017). This encompasses a logical, sequential, analytic and deliberate set of procedures including

systematic analysis, the generation and evaluation of options, precise implementation plans, and systems for monitoring and controlling the strategy (Bailey, Johnson, & Daniels, 2000). Such strategies are described by Mintzberg (1994: 109) as extrapolated from the past or copied from others, in which “those with a calculating style fix on a destination and calculate what the group must do to get there.” Nevertheless, strategic planning remains dominant in practice (Thomas & Ambrosini, 2015), playing an important role in the strategy process including how organizations formulate major problems, set objectives, analyze alternatives, and choose strategy (Wolf & Floyd, 2017).

However, the strategy process may not be rational and deliberate, rather when the environment is unstable and turbulent, short-term adaptability is argued to be more favorable (Cyert & March, 1963). Mintzberg (1994) posited that the most successful strategies are visions, not plans. This represents a move away from an original grounding in rational-design process toward including emergence in the foreground (Wolf & Floyd, 2017). Here, strategy evolves from successful experiments that converge gradually into viable patterns (Mintzberg, 1994). Improvisation is an illustration and is identified as a conscious act that enables the manipulation of firms’ emergent actions (Hadida, Tarvainen, & Rose, 2015). While strategy might be deliberate, realizing the specific intention of managers, it may also be emergent (Mintzberg, 1994); organizations are, however, likely to favor one “epistemology” over the other (de Wit & Meyer, 2010) and thus be either more (or less) deliberate or emergent.

This highlights both (deliberate) planning and (emergent) improvisation as alternative approaches to strategy development that can be positioned “as two ends of a continuum” (Mintzberg & Waters, 1985: 257), with their underlying reasoning archetypes described as “a clear-cut thesis and antithesis” (de Wit & Meyer, 2010: 40). This supports the contention in the strategy literature that cognitive context (i.e., strategic reasoning) shapes strategists’ perception and diagnosis of strategic issues, or in other words strategy development (Thomas & Ambrosini, 2015). This, in turn, would suggest that rationality and intuition, and by association planning and improvisation, cannot be harmonized in the strategy process. Therefore, we seek to investigate this relationship between cognitive context (rational and intuitive reasoning) and strategy development (planning and improvisation) in the strategy process of firms in Malaysia.

In the Asian cultural context, high levels of collectivism and power distance, and traditional respect for age, hierarchy and authority have led to long-tenured managers dominating decision-making, which in turn has fostered a bias towards deliberate, rational, and centralized strategy development (Tsai, Hung, Kuo, & Kuo, 2006). This has traditionally been compounded by the prevalence of conflict avoidance among lower-levels of organizational members (Chi et al., 2009) reducing emergent decision-making from the bottom-up. Despite the seeming dominance of rational-planning in Asian business practices, it has recently been established that emergent improvisation is also being pursued by firms in Asia (Hodgkinson et al., 2016). This is evidenced in China, where rapid and unannounced changes in policies and regulations typically eclipse the original intent of a firm’s long-term plans (Ahlstrom & Bruton, 2002). There is logic as to why firms in emerging economies might require both deliberate and emergent qualities in their strategy development, particularly if we consider that such firms have been observed to experience higher turbulence and greater frequency of surprising events relative to their counterparts in developed economies (Zheng & Mai, 2013). However, it remains unclear as to how firms that have traditionally held a

predilection toward planning (Tsai et al., 2006) can generate viable strategies that comprise emergent and deliberate qualities, as is deemed necessary in the strategic management literature (e.g., Mintzberg & Waters, 1985). Therefore, understanding how deliberate planning can be reconciled with emergent improvisation is fundamental to establishing viable strategy making in emerging economies (Hodgkinson et al., 2016).

The origin of this new understanding may be found in the role of strategic reasoning, which at its most basic is the cognitive context that directs the form strategy development will take within organizations (de Wit & Meyer, 2010). Typically, extant studies have accepted that a traditional and dominant mind-set exists within emerging economy institutions, one in which "...decision-making is highly systematic with management using mechanisms such as structured coordination of business activities, quantifiable budgets and detailed analysis of trends to justify future developments" (Filatotchev, Wright, Uhlenbruck, Tihanyi, & Hoskisson, 2003); or in other words, rational reasoning guiding planning. However, the role of intuitive reasoning and the potential interplay that exists between different reasoning perspectives and different strategy development actions (such as planning and improvisation) have yet to be investigated within an emerging economy context.

## Hypotheses development

### Strategic reasoning

Urbany and Montgomery (1998) contended that strategic reasoning is a rational act of strategic foresight (to look ahead and reason back), and Montgomery, Moore, and Urbany (2005: 138) defined reasoning as "the assessment and consideration of competitors that serves as an input into the firm's decision making." While strategic reasoning is a process undertaken within the mind of the manager, "firm" strategic reasoning is almost anthropomorphic in nature. Eipstein, Pacini, Denes-Raj, and Heire (1996) contended that decision-making is executed by two parallel cognitive contexts: rational or intuitive. The former operating at the conscious level is slow and more deliberate likely involving a reasonable amount of information search and analysis of alternative courses of action, while the latter operates at the preconscious level and is rapid, automatic, intuitive, and subject to emotional influences (Leaptrott, 2006; Leybourne & Sadler-Smith, 2006).

These two pure archetypes form opposing poles of debate: the former resembles that of the scientist, while the latter resembles jazz music, and represent "two diametrically opposed positions" with one emphasizing deliberateness over emergence (i.e., strategic planning) and the other emphasizing emergence over deliberateness (i.e., organizational improvisation) (de Wit & Meyer, 2010: 63). Importantly for the positioning of Hypotheses 1 and 2, both reasoning perspectives acknowledge the existence of the other but the former discards anything that "emerges" as not strategy, while the latter contends that deliberateness is not suitable for strategy development (de Wit & Meyer, 2010). Thus, theory suggests that planning is bereft of intuitive reasoning, and vice versa, improvisation is bereft of rational reasoning. As such, reliance on intuitive reasoning guide's managers toward improvising and away from planning, while rational reasoning increases the instances of planning. Yet, there remains very

little evidence of the link between different strategic reasoning contexts and different strategy development approaches with taken-for-granted assumptions about their mutual exclusivity driving consensus in strategy process theory (e.g., Crossan & Sorrenti, 1997; Cunha et al., 1999; Leaptrott, 2006; Leybourne & Sadler-Smith, 2006; Weick, 1998). Adhering to established logic we hypothesize:

**Hypothesis 1a** Rational reasoning is positively related to planning.

**Hypothesis 1b** Rational reasoning is negatively related to improvisation.

**Hypothesis 2a** Intuitive reasoning is positively related to improvisation.

**Hypothesis 2b** Intuitive reasoning is negatively related to planning.

### **Market turbulence**

Market turbulence is defined as the rate of change in the composition of customers and their preferences (Jaworski & Kohli, 1993). The move to more pro-market reforms in Asian economies has contributed to greater market competition (Chari & Banalieva, 2015), thus generating increased market turbulence as more firms seek to compete for market share through innovation. An important issue at the root of the debate about the relevance of rationality and planning is the role of such turbulence (Sadler-Smith & Shefy, 2004).

Planning involves logical, sequential, analytic, and deliberate sets of procedures, owing to multiple strategic options being generated and systematically evaluated (Bailey et al., 2000); this takes a period of time to then lead to decision-making. The routinized rules and procedures of planning may, therefore, not be salient for the materialization of strategy in turbulent environments (Thomas & Ambrosini, 2015) and this has driven sustained criticism of the planning perspective; which is suggested to be redundant in such environments (Mintzberg, 1994). Hence, increasing time pressures evoked by high market turbulence is expected to reduce the need for rational planning. In contrast, a means of managing turbulence where “thinking outside of the box” is often needed can be achieved by relying upon intuition (Crossan & Sorrenti, 1997; Sadler-Smith & Shefy, 2004). This allows information to be synthesized quickly and effectively for the purposes of decision-making that otherwise might be hindered by more formalized procedures. Intuition is a capacity for attaining direct knowledge or understanding without the apparent intrusion of rational thought or logical inference (Sadler-Smith & Shefy, 2004). High levels of market turbulence thus make extemporaneous action a frequent and valuable practice (Cunha et al., 1999), as evidenced by managers’ adoption of intuitive decision-making in “complex” business scenarios (Burke & Miller, 1999).

In low turbulence environments, then, it is more rational to follow a planning approach as there are less time pressures and demands to respond quickly, thus implying that planning is the more appropriate response. In contrast, high turbulence environments require flexibility and faster strategic responses, such that emergent improvisation is favored; in such cases we expect that intuitive managers would

respond by pursuing even greater levels of improvisation at the organizational level. Accordingly, we hypothesize:

**Hypothesis 3a** The relationship between rational reasoning and planning is moderated by market turbulence: when turbulence is high, the positive relationship is weak; as turbulence decreases the relationship becomes stronger.

**Hypothesis 3b** The relationship between intuitive reasoning and improvisation is moderated by market turbulence: when turbulence is high, the positive relationship is strong; as turbulence decreases, the relationship becomes weaker.

## Centralization

It would be expected that firms characterized by centralized decision-making will seek to maintain control and consistency over strategic direction enhancing the rational reasoning-planning relationship. This is consistent with the prevalence of family control in Asia, often through a patriarchal owner at the top of the organization (Ahlstrom et al., 2004), where strategic decision-making is not devolved across the organization but located in the upper echelons of the firm. The strategy process here is thus expected to be characterized by the traditional dominant mind-set in Asia that favors deliberateness (Filatotchev et al., 2003). It is, therefore, suggested that rational reasoning will be fostered under a climate of centralized decision-making and bureaucracy, increasing the propensity for planning as seen across emerging economies (Tsai et al., 2006).

In contrast, decentralization and informalized rules and procedures tend to promote greater flexibility that is, the ability of the organization to adapt to changes in its environment (Krohmer, Homburg, & Workman, 2002). Here, an adequate number of simple rules and sufficient individual freedom allows organizational members and managers to undertake their tasks with the minimum of bureaucratic constraints that would otherwise slow decision-making (Slevin & Covin, 1997). Consequently, this view suggests improvisation emerges from below a necessary condition for emergent actions (Mintzberg, 1994). Therefore, centralization or the degree of hierarchical authority within an organization is expected to impede organizational agility. Improvisation relies on speed, eschewing the need for rational-design and its time consuming nature. To improvise successfully is suggested to be dependent on a minimal organizational structure that promotes an experimental culture (Cunha et al., 1999), on the premise that organizational rules and procedures may stifle organizational improvisation (Cyert & March, 1963). Therefore, we hypothesize:

**Hypothesis 4a** The relationship between rational reasoning and planning is moderated by degree of centralization. When the structure is centralized, the positive relationship is strong; as the structure becomes decentralized, the relationship becomes weaker.

**Hypothesis 4b** The relationship between intuitive reasoning and improvisation is moderated by degree of centralization. When the structure is decentralized, the positive relationship is strong; as the structure becomes centralized, the relationship becomes weaker.



## Manager level

Leaptrott (2006) suggested that rational planning is more likely present at the top level of organizational decision-making. Top management plan, command, ratify initiatives and provide direction based on a set of assumptions about conditions in the business environment (Floyd & Lane, 2000) informed by logical, sequential, analytic analysis. However, the opportunity costs and time costs of information generation and interpretation are often cited as fundamental flaws in the traditional planning approach (Mankins & Steele, 2006), particularly when decisions need to be made within limited timeframes. This puts the role of manager level in the spotlight. While managers in general may aspire to behave rationally they do so within cognitively-circumscribed limits (Hodgkinson, Sadler-Smith, Burke, Claxton, & Sparrow, 2009). This is particularly the case for managers below the top management team (e.g., senior managers, general managers, project managers, etc.) where managerial decision-making has been described as a continuous activity to mediate between divergent inputs, situational demands, and the existing strategy during implementation (Floyd & Lane, 2000; Mankins & Steele, 2006).

Intuitive reasoning is a means to deal with excessive information-processing demands at lower levels of management, arriving at faster decisions based on instinct rather than analysis (Hodgkinson et al., 2009). Improvised actions by lower level managers subsequently become necessary to deal with unexpected events during the realization of strategy (Floyd & Lane, 2000; Kyriakopoulos, 2011). Therefore, managers residing below the top management team are less likely to engage with planning (Thomas & Ambrosini, 2015). Hence, intuitive reasoning may only facilitate improvised decision-making when enacted by lower level managers to nourish adaptability, guide adaptation, facilitate learning, and revise and adjust strategy (Floyd & Lane, 2000). While in ratifying, recognizing, and directing strategic initiatives, top management decisions are dependent on rational reasoning (Floyd & Lane, 2000). Thus, we hypothesize:

**Hypothesis 5** The relationship between rational reasoning and planning is moderated by managerial level: for top management, the positive relationship is strong; for senior managers, the relationship becomes weaker.

**Hypothesis 6** The relationship between intuitive reasoning and improvisation is moderated by managerial level: for senior managers, the positive relationship is strong; for top management, the relationship becomes weaker.

The hypotheses are summarized in diagrammatic form in Fig. 1.

## Research method

### Data generation

Mail survey data are generated from a sample of 1081 research-intensive Malaysian private organizations randomly selected from The Federation of Malaysian



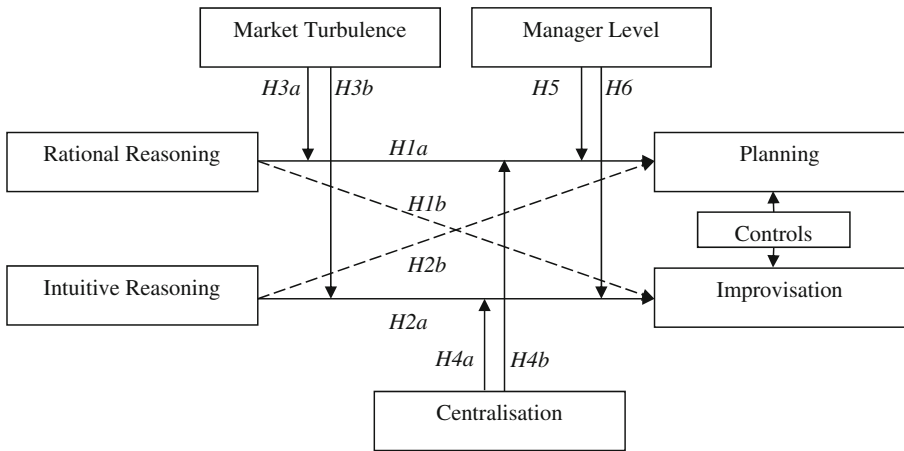


Fig. 1 Conceptual model

Manufacturer directory, Malaysia Biotech Corporation directory, MSC Status directory and MESDAQ directory of Malaysian organizations. Research-intensive organizations are categorized into four industries, namely high technology (32.8%), biotechnology (8.6%), information technology/information communication technology (51.6%), and telecommunications (7%). The average age of the respondent organizations is 16.62 years with average sales turnover at US\$171.95 m. Nearly half of the respondent organizations have been in operation for over 10 years, with over two-thirds of the respondent organizations having operated in their current industry for 5 years or more. Sampled at the SBU level, a range of senior decision-makers were targeted as key informants in recognition that the strategy process involves multiple levels of management (Thomas & Ambrosini, 2015). Specifically, the study sample included top management (e.g., Chief Executive Officer/Managing Director/Chief Operating Officer) comprising 57% of respondents, with senior decision-makers (e.g., executive and general managers, senior project managers) comprising the remaining 43% of respondents. To capture manager level for the purposes of hypothesis testing, all top management respondents were coded as “1” and those at senior management level coded as “2.”

To ensure acceptable face and content validity, pre-testing the questionnaire through a panel of eight scholars and 12 managers led to the modification of some questionnaire items. For survey administration the tailored design method and its five-stage protocol was adopted as recommended by Dillman, Smyth, and Christian (2014). Two hundred ninety-one responses were obtained yielding a response rate of 27%. In order to avoid confounding results, 163 firms that were included had either ceased operation or had significant missing data in relation to the model under investigation and so were eliminated from the analysis, which focused on the remaining 128 firms. Non-response bias is examined for between early and late respondents, and statistical comparisons between groups reveal no significant differences.

**Study measures**

Measures of rational and intuitive reasoning were adopted from the rational-experiential inventory (REI) (Eipstein et al., 1996; Leybourne & Sadler-Smith,

2006). The REI was adopted due to its high reliability, as highlighted in previous studies. The REI is a 32 item-scale, 19 of which measure rational reasoning and the other 12 measure characteristics of intuitive reasoning. To reduce questionnaire length, 20 items were adopted including 14 items measuring rational reasoning and six items measuring intuitive reasoning. Twelve items were not used due to similarity to other measures and in response to feedback from the pre-test phase. Measures of organizational improvisation and planning were created by the research team based on the definition of the constructs and the work of Nemkova et al. (2012) and Bailey et al. (2000). Items adapted from Jaworski and Kohli (1993) were used to assess centralization and market turbulence. A seven-point Likert-type scale was adopted for all items. Manager level was captured by a single-item and assessed by asking the respondent to identify their role/position within their current organization. As determinants of strategic decision models respondent age, tenure, and industry experience are included as control variables (e.g., Hodgkinson et al., 2016).

All measures (except manager level as this is bivariate) were subjected to confirmatory factor analysis (CFA) in LISREL 8.8 and demonstrate acceptable model fit:  $\chi^2 (df) = 293.86 (215)$ ; RMSEA = .05; CFI = .96; IFI = .96; NNFI = .96. Measurement item properties are presented in Table 1 and construct robustness and descriptive statistics are presented in Table 2.

### Common method variance (CMV)

Data were collected for this study through a single informant survey of research-intensive Malaysian organizations. However, the limitation of this approach is that method bias may explain some of the results. To combat this issue we implemented a number of pre-implementation safeguards in the survey. First, the guidance of Podsakoff, MacKenzie, Lee, and Podsakoff (2003) and Spector and Brannick (1995) for limiting CMV were followed: different response formats were used across questions; confidentiality and anonymity assurances were given to respondents to reduce apprehension and risks of providing socially desirable responses; emphasis was placed on there being no “right” or “wrong” answers, placing emphasis on providing genuine answers; the measurement scales were placed in random order; non-idealized responses and wording neutrality were adopted; questionnaire length was reduced; and detailed instructions for its completion were provided. Second, we followed the advice of Conway and Lance (2010) for limiting CMV: we avoided conceptual overlap in items used to measure the focal constructs by ensuring clear definitions were used and measurement items clearly addressed and measured their respective constructs (and as defined). Third, upon completion of the pre-test phase any items that were too closely worded or similar were also removed.

Though careful attempts were made to limit method bias we also examine for its presence with a series of post-hoc tests. First, a Harman single-factor test (Podsakoff et al., 2003) is conducted with all measure items specified to load onto a single construct. Under CFA the results demonstrate unacceptable model fit:  $\chi^2 (df) = 1496.14 (230)$ ;  $\chi^2/df = 6.50$ ; RMSEA = .21; CFI = .57; IFI = .58; NNFI = .53. The  $\chi^2/df$  ratio and RMSEA exceed recommended thresholds, while model fit indices are far below the .90 threshold. Thus far, these statistics imply a lack of common method bias in the data.

**Table 1** Measurement item properties

Construct <sup>a</sup>	Measurement item	Standardized factor loading	<i>t</i> -value
Rational reasoning	Thinking is not my idea of fun.	.77	9.91
	The notion of thinking abstractly is not appealing to me.	.81	10.75
	Simply knowing the answer rather than understanding the reasons for the answer to a problem is fine with me.	.74	9.36
	I don't reason well under pressure.	.65	7.86
	The idea of relying on thought to make my way to the top does not appeal to me.	.67	8.18
	Learning new ways to think doesn't excite me very much.	.85	11.58
Intuitive reasoning	My initial impressions of situations are almost always right.	.77	10.09
	I trust my initial feelings about decisions.	.92	13.45
	I believe in trusting my hunches on decisions.	.90	12.95
Centralization	I am a very intuitive person.	.87	12.25
	There can be little action taken in the organization until a superior makes a decision.	.56	6.40
	A person who wants to make his/her own decisions would be quickly discouraged in the organization.	.71	8.49
	Even small matters have to be referred to someone with more authority for a final decision.	.89	11.26
Market turbulence	Any decision a person in the organization makes has to have his/her boss's approval.	.66	7.77
	Customers' preferences change quite a bit over time.	.51	5.40
	Our customers tend to look for new products all the time.	.71	7.51
Organizational improvisation	We witness demand for our products and services from customers who never bought them before.	.79	8.35
	...make a strategic plan and execute it at the same time.	.73	9.04
	...engage in spontaneous actions to create strategy within time pressures.	.85	11.03
Planning	...make intuitive judgments for taking actions.	.82	10.60
	...explored a wide variety of approaches to a problem.	.70	8.15
	...planned ahead rather than reacted to a situation.	.75	8.78
	...created multiple courses of action during planning.	.74	8.64

<sup>a</sup> All items anchored by 7-point agreement scales (1 = "Strongly disagree" to 7 = "Strongly agree") with the exception of planning (1 = "Not at all" to 7 "To a great extent")

As a second examination into this problem, a marker variable test is conducted (Lindell & Whitney, 2001). This test is used to evaluate error attributable to CMV by

**Table 2** Construct robustness and descriptive statistics

	$\alpha$	CR	AVE	X1	X2	X3	X4	X5	X6	X7
X1 Rational reasoning	.88	.89	.57	.75 <sup>a</sup>						
X2 Intuitive reasoning	.92	.92	.76	-.03	.87 <sup>a</sup>					
X3 Centralization	.79	.80	.51	.38**	.01	.71 <sup>a</sup>				
X4 Market turbulence	.71	.72	.46	-.04	.11	-.12	.68 <sup>a</sup>			
X5 Organizational improvisation	.84	.85	.65	.29**	.18*	.25**	.27**	.81 <sup>a</sup>		
X6 Planning	.77	.77	.53	.19*	.22*	.17 <sup>†</sup>	.33**	.54**	.73 <sup>a</sup>	
X7 Manager level	n/a	n/a	n/a	-.05	-.07	-.29**	.21*	-.20*	-.09	n/a
Mean				5.39	4.53	4.57	5.26	5.34	5.43	1.43
Standard deviation				1.12	1.20	1.21	.89	.93	.84	.50

$\alpha$  Cronbach alpha, CR Construct reliability, AVE Average variance extracted, n/a Not applicable as single item variable

\*\*  $p \leq .01$ , \*  $p \leq .05$ , <sup>†</sup>  $p \leq .10$

<sup>a</sup> Numbers on the diagonals are square root of AVE

estimating and accounting for a common method-related correction (Hughes, Morgan, Ireland, & Hughes, 2014). A marker variable should not be theoretically related or correlated to any other items measured. The number of years the firm had been competing in its industry is chosen as an appropriate marker variable, and non-significant correlations ( $p > .10$ ) are found between this variable and all other measurement items. Conway and Lance (2010) discouraged use of this remedy for common method bias, however, due to problems of correlation estimation. We use this technique in line with Hughes et al. (2014) and focus on how the *covariance* between variables is affected by the common method as this is what would be directly affected by CMV and is what underlies a CFA within LISREL 8.8 (using maximum likelihood estimation). Following the prescriptions of Hughes et al. (2014) and Lindell and Whitney (2001), a modified covariance matrix is created and substituted in to the original CFA instead of the original covariance matrix. This allows a direct comparison to be made between the original results and those obtained after adjusting for CMV. The changes in the CFA results appear non-significant as the differences between the original CFA and the CMV-adjusted CFA are marginal:  $\chi^2 (df) = 288.39 (215)$ ; RMSEA = .05; CFI = .98; IFI = .98; NNFI = .98. ( $\Delta\chi^2 = 5.47$  [decrease];  $\Delta df = 0$ ;  $\Delta CFI, \Delta IFI, \Delta NNFI = .02$  [positive improvement]). Notwithstanding the inherent limitations of the tests conducted, the test results and pre-implementation measures taken to guard against CMV provide confidence that CMV will not be an explanatory factor in the results found in hypothesis testing.

## Empirical results

Multiple regression analysis is used to test the hypotheses in SPSS Statistics 22. In undertaking the regression analysis, a 3-step sequence is followed. The control variables and the direct effects of rational and intuitive reasoning are first tested onto

planning and improvisation in sequence. The moderating variables are subsequently introduced followed then by the interaction terms. Interaction terms were created from the mean-centred products of each interacting variable so as to reduce potential multicollinearity problems. For parsimony, we do not show the beta values for all variables at each stage in our results tables; suffice to say that none of the results changed significantly as variables are introduced into the regression equation. In testing the moderation effects of manager level we deviate away from the multiplicative approach taken by treating this variable as bivariate and not a scale. The results are shown in Table 3.

Hypothesis 1 proposed that (a) rational reasoning would have a positive direct effect on planning, but (b) negatively influence improvisation. The results support H1a with regard to the rational reasoning-planning relationship, but the findings refute the relationship claimed between rational reasoning and improvisation H1b since this is found to be significant positive. Similarly, H2a proposed that intuitive reasoning would positively influence improvisation but H2b would have a negative relationship with planning. Support for H2a is found with a significant positive direct relationship between intuitive reasoning and improvisation. However, H2b is refuted, since a direct significant positive relationship is also found, such that intuitive reasoning drives planning.

Hypothesis 3 proposed a (a) negative moderation effect of market turbulence on the rational reasoning-planning relationship, while suggesting a (b) positive moderation effect on the intuitive reasoning-improvisation path. While the statistical direction of each moderation path is as expected the results are non-significant and as such H3 is unsupported.

We find partial support for Hypothesis 4. Hypothesis 4a proposed a positive moderation effect of centralization on the rational reasoning-planning relationship, and this was indeed found to be the case supporting H4a. However, drawing on expectations from improvisation literature, H4b suggested that high centralization would decrease the strength of the intuitive reasoning-improvisation relationship and while the direction found supports this claim, the moderation effect is non-significant and H4b is therefore unsupported.

For Hypotheses 5 and 6 we explored the moderating role of manager level and specifically proposed that (H5) the rational reasoning-planning relationship would be stronger for top managers than senior management and that (H6) the intuitive reasoning-improvisation relationship would be stronger for senior management and weaker for top management. While the direction of the path for H5 is found, the results are non-significant and H5 is not supported. However, H6 is found to be significant positive and is therefore supported, but cautioned due to the insignificant *F*-value found.

### Endogeneity analysis

The occurrence of events likely to be labeled as market turbulence might be subject to endogeneity issues. Thus, to give our study robustness we tested market turbulence for endogeneity. A crucial assumption of regression analysis is that the right-hand side variables are uncorrelated with the error term. If this assumption is violated, both ordinary least squares estimators (OLS) and weighted least squares may be biased

**Table 3** Direct and moderation effects

Regression models	Hypotheses	Dependent variable			
		Planning		Improvisation	
		Standardized coefficients	<i>t</i> -value	Standardized coefficients	<i>t</i> -value
Direct effects and control variables					
Respondent age		.15	1.18	.21	1.76 <sup>†</sup>
Tenure		-.07	-.59	-.19	-1.59
Industry experience		-.04	-.24	-.04	-.30
Rational reasoning	H1a, H1b	.20	2.32*	.31	3.65**
Intuitive reasoning	H2a, H2b	.22	2.50**	.18	2.14*
<i>R</i> <sup>2</sup>		.10		.16	
Adjusted <i>R</i> <sup>2</sup>		.06		.12	
<i>F</i> -value		2.58*		4.52**	
Interaction variables (Multiplicative)					
Market turbulence		.35	4.24**	.30	3.74**
Centralization		.12	1.33	.17	1.91 <sup>†</sup>
<i>R</i> <sup>2</sup>		.22		.26	
Adjusted <i>R</i> <sup>2</sup>		.17		.22	
<i>F</i> -value		4.81**		5.99**	
Interaction effects—rational reasoning					
× Market turbulence	H3a	-.10	-1.13		
× Centralization	H4a	.19	2.23*		
<i>R</i> <sup>2</sup>		.27			
Adjusted <i>R</i> <sup>2</sup>		.21			
<i>F</i> -value		4.84**			
Interaction effects—intuitive reasoning					
× Market turbulence	H3b			.03	.39
× Centralization	H4b			-.02	-.29
<i>R</i> <sup>2</sup>				.26	
Adjusted <i>R</i> <sup>2</sup>				.20	
<i>F</i> -value				4.62**	
Interaction effects of management level <sup>a</sup>					
Top management					
Rational reasoning	H5	.19	1.53		
Intuitive reasoning	H6			.11	.88
<i>R</i> <sup>2</sup>		.05		.05	
Adjusted <i>R</i> <sup>2</sup>		.00		.00	
<i>F</i> -value		.92		.99	
Senior management					
Rational reasoning	H5	.14	.98		
Intuitive reasoning	H6			.28	2.04*
<i>R</i> <sup>2</sup>		.07		.11	

**Table 3** (continued)

Regression models	Hypotheses	Dependent variable			
		Planning		Improvisation	
		Standardized coefficients	<i>t</i> -value	Standardized coefficients	<i>t</i> -value
Adjusted $R^2$		.00		.03	
<i>F</i> -value		1.01		1.47	

\*\*  $p \leq .01$ , \*  $p \leq .05$ , †  $p \leq .10$

<sup>a</sup> Tested through a split sample approach as the variable is bivariate

and inconsistent. There are a number of cases where some of the right-hand side variables are correlated with the error term. Typical examples occur when (1) there are endogenously determined variables on the right-hand side of the equation, or (2) right-hand side variables are measured with error.

In this study the effects of market turbulence on planning and improvisation and the self-selection of firms in this form of environment might be a cause of endogeneity and we apply two endogeneity tests to confer robustness to our regression results. For simplicity, we will refer to variables that are correlated with the residuals as *endogenous*, and variables that are not correlated with the residuals as *exogenous* or *predetermined*. The standard approach in cases where right-hand side variables are correlated with the residuals is to estimate the equation using *instrumental variables* regression. The idea behind instrumental variables is to find a set of variables, termed *instruments* that are both: (1) correlated with the explanatory variables in the equation, and (2) uncorrelated with the error term. These instruments are used to eliminate the correlation between right-hand side variables and the disturbances.

In order to test market turbulence for endogeneity, we first apply a two-stage least squares (TSLS) estimation to models for both planning and improvisation, respectively. As the name suggests, there are two distinct steps in a two-stage least squares. In the first step, TSLS finds the portions of the endogenous and exogenous variables that can be attributed to the instruments. This stage involves estimating an OLS regression of each variable in the model (in this case market turbulence) on the set of instruments (all the other remaining variables). The second stage is a regression of the original equation, with all of the variables replaced by the fitted values from the first-step regressions. The coefficients of this regression are the TSLS estimates. In order to test for market turbulence endogeneity after the TSLS estimation we apply the Durbin (1954) and Wu-Hausman (Hausman, 1978; Wu, 1974) tests of endogeneity. We use Stata 14 to perform the tests, where we treat market turbulence as endogenous and the remaining variables as instruments for market turbulence. Therefore, the null hypothesis becomes: market turbulence is exogenous, while the alternative hypothesis becomes: market turbulence is endogenous. The results of the tests can be seen in Table 4. Both test results do not reject the null hypothesis that market turbulence is exogenous at the high significance level of 1%. Accordingly, market turbulence can be concluded to not be endogenous in this case.



**Table 4** Endogeneity results

Test	Calculated critical values	<i>p</i> -values
Planning		
Durbin	.33**	.56
Wu-Hausman	.33**	.57
Improvisation		
Durbin	.73**	.39
Wu-Hausman	.72**	.40

\*\*  $p \leq .01$ 

### Additional analysis

An ANOVA test is used to better understand the conditions behind respondent firms that exhibit high levels ( $> 6.00$ ) of planning ( $n = 17$ ), improvisation ( $n = 20$ ), and *both* planning and improvisation ( $n = 25$ ). The results are presented in Table 5. A key finding of the analysis is that there is clear evidence of far greater rationality prevalent in the high planning *and* improvisation group relative to the high planning group. No other significant differences are found between the three groups, but anecdotally based on the mean values presented, a high degree of both planning and improvisation appears to likely rely on higher intuition, greater market turbulence, more centralization, and with younger managers that have less tenure with the company. Respondents reporting the lowest degree of intuition favor a planning-based approach, while those exhibiting the highest levels of improvisation in their decision-making approach rely on greater levels of rationality *and* intuition. Being able to balance, hold, or exploit both forms of reasoning simultaneously appears to lead to situations where organizations can exploit both planning and improvisation to high degrees, harmoniously.

**Table 5** ANOVA results

	Group (Mean [SD])			<i>F</i> -value	Tukey test ( $p \leq .05$ )
	High planning	High improvisation	High planning and improvisation		
Rational reasoning	5.03 (1.40)	5.63 (.88)	5.97 (1.35)	2.97*	HP < HPI
Intuitive reasoning	4.53 (1.32)	4.45 (1.57)	5.06 (1.38)	1.58	
Market turbulence	5.24 (.76)	5.20 (.70)	5.68 (.95)	2.37 <sup>†</sup>	
Centralization	4.51 (1.46)	4.49 (1.29)	5.08 (1.03)	1.63	
Respondent age	42.76 (12.14)	42.75 (9.87)	41.64 (10.33)	.08	
Tenure	10.29 (11.66)	8.25 (6.94)	6.18 (4.49)	1.43	
Industry experience	13.94 (11.12)	12.70 (9.58)	13.2 (7.04)	.09	

\*\*  $p \leq .01$ , \*  $p \leq .05$ , <sup>†</sup>  $p \leq .10$

## Discussion

Can rationality and intuition be harmonized in the strategy process? This question is grounded in the belief that these reasoning perspectives are diametrically opposed, leading to very different approaches to strategy development: planning *or* improvisation. While support for their mutual exclusivity has gained consensus in the strategy literature, this has been challenged by a small number of scholars including Hadida et al. (2015) and Truman (1996) who suggested, for instance, that improvisation is a conscious, rational act and need not be considered merely as the product of intuition in the absence of rationality. Indeed, Nemkova et al. (2012) argued that planning and improvisation can co-exist but there has been no clear indication of how.

Extant international business research has often assumed that a single traditional mind-set dominates business practices in emerging economies, resulting in a bias towards rational deliberate planning; though it has been acknowledged that there is likely to be heterogeneity among the mind-sets of managers (Filatotchev et al., 2003). The findings highlight that while improvisation can be a result of the intuitive cognitive context of managers (as one would expect), it can also be a rational decision to quickly deviate from the current course to ensure fit remains with environmental and organizational contingencies. This view of the strategy process deviates from that depicted in Mintzbergian thinking and the strategy literature (de Wit & Meyer, 2010). Specifically, rather than viewing emergent decision-making as being solely driven by intuitive reasoning, improvisation can be deliberate and informed by rational reasoning (see Hadida et al., 2015). Improvisation is, therefore, not bereft of rationality. The additional insights provided by the ANOVA certainly imply that those firms adept at improvisation are reliant on both intuition *and* rationality.

Though rational reasoning leads to planning as theorised, inputs into planning may also reflect managerial “gut feelings,” “hunches,” or “vibes” (Akinci & Sadler-Smith, 2012), that is, intuition guides planning spontaneously. While managers may seek rationality through objective inputs into the planning process (Hodgkinson et al., 2009), due to their cognitively-circumscribed limits they may at times have to rely on intuitive reasoning to inform the planning process. Here, the intuitive system automatically searches its memory banks for related events, including their emotional accompaniments (Akinci & Sadler-Smith, 2012), to feed into the planning process (as opposed to rational systematic analysis). Thus, both reasoning perspectives can generate planning *and* improvisation in the strategy process contributing novel integration of reasoning theory to strategy process research (Wolf & Floyd, 2017). Specifically, all managers regardless of their reasoning bias are able to engage with both planning and improvisation in strategy development. Moreover, rational reasoning appears to be central for firms to realize significant levels of both in emerging economies. This contradicts established logic derived from studies in developed economies and points towards how firms from emerging economies differ in their strategic-reasoning and strategy development relative to counterparts in developed economies (Ahlstrom et al., 2014).

Further evidence is provided to question the assumption inherent in management literature that improvisation increases, while planning decreases, under turbulence. Consistent with recent studies (e.g., Hodgkinson et al., 2016; Kyriakopoulos, 2011), there is a danger in assuming that improvisation only has a part to play under high levels of turbulence (e.g., Cunha et al., 1999); contrary to this, improvisation does not

increase under conditions of turbulence. Established logic would also suggest that rational planning decreases in turbulent conditions (Auahene-Gima & Murray, 2004). Yet, again contrary to consensus, the rational reasoning-planning relationship does not significantly weaken under such environmental conditions. An explanation for this may be found in the emerging economy characteristic of centralization, which minimizes the lead time in decision-making associated with rational planning and in turn, affords greater speed to respond to conditions of turbulence.

We do note that the intuitive reasoning-improvisation path is strongest at the senior management level and interpret that it is not the external environmental condition that influences this relationship, but rather the type of activities undertaken. Specifically, senior managers appear to contribute to the strategy process through greater intuitive reasoning and improvisation to “manage” contradictory requirements, relative to top management where rational-design is more likely present; though we note that even at the top level of management planning is not always driven by rationality. This contributes to research on the micro-foundations of strategy materialization, which has so far been lacking (Thomas & Ambrosini, 2015).

Collectively, the findings extend the study of strategy process and highlight how insights from the study of firms in emerging economies can challenge the validation of strategic management theory typically derived from developed economies. Specifically, if we follow the theorization of Wright et al. (2005) and ask, is strategy process theory suited to the characteristics and actions of firms in emerging economies? The answer appears to be “no,” as the relationships uncovered between intuitive reasoning and planning, and between rational reasoning and improvisation should not hold if we adhere to established logic (e.g., de Wit & Meyer, 2010); yet, they do. This challenges the validation of strategy process theory when extended to an emerging economy context.

### Managerial relevance

While centralization and hierarchy may support long-range planning and deliberate decision-making among middle-income economies (Tsai et al., 2006), more emergent improvisation can encourage creativity, new ideas, and novel practices necessary in the move toward innovation and innovative organizational processes (Alvarez, Barney, & Newman, 2015). There is, however, a danger of managers favoring improvisation at the expense of planning when environmental turbulence is high. The lack of moderation from market turbulence onto both planning and improvisation implies that this need not be the case. Though counter-intuitive, we advise managers of East Asian organizations to go against the default intuitive response to turbulence (i.e., increasing improvisation) and not abandon planning. Rather, rationality *and* intuition should guide managers toward the decision-making approach that provides the best opportunity to achieve organizational goals (be it planning or improvisation, or both). This will require managers to embrace more sophisticated conceptions of reasoning (Hodgkinson et al., 2009) when approaching the strategy process in their firms.

Accordingly, planning coupled with improvisation may allow managers to act before everything is fully understood, increasing speed of response to an evolving reality which in turn can assist rapid growth (Ahlstrom et al., 2004). This, however, may be impeded by an identified lack of skilled labor and weak research funding structure in Malaysia, though Malaysian industrial policy is seeking to address this (Ahn & York,

2011). In this context, research-intensive firms need to exploit high levels of both planning and improvisation concurrently by pursuing significantly greater rationality in strategy development, which will prevent a reliance on only planning or only improvisation that occurs at lower levels of rationality. Yet, if a strategy process capability that combines planning and improvisation will be essential to economic development, how can this be achieved?

A shift from the traditional dominance of deliberateness toward the integration of planning and improvisation will require the use of *disruptive rationality* alongside greater intuitive reasoning; pointing to the need for more sophisticated conceptions of reasoning in Asian business practice. We, therefore, join the call for Asian firms to encourage experimentation, allow risk-taking, and drive the use of new and disruptive approaches in the strategy process (e.g., Guo, Su, & Ahlstrom, 2016). More specifically, while firms from emerging economies favor high-tenure managers (Chi et al., 2009) and notwithstanding the non-significant results for the control variables (age, tenure, and experience), the additional ANOVA analysis lends weight to the contention that firms should actually favor younger, less tenured managers in order to fully exploit both planning and improvisation. There is then a need to diversify management teams, contrary to common business practices in Asia. Adapting business practices in this manner appears an appropriate though major initiative to spur economic growth through viable strategy development for firms in emerging economies.

### Limitations and future research

The research findings must be considered in light of the study limitations. First, a cross-sectional design is used and does not allow causality to be asserted from the data. Second, judgments about key study constructs, although qualified, have been reported by a single informant. Though no common method problems were found it is recognized that data generated from multiple informants within the same organization would be preferred. Third, drawing data from Malaysian research-intensive firms limits the generalizability of the findings to populations markedly different to the industry contexts examined here. Fourth, we have gathered information on decision-making via a survey, but accept that as reasoning is complex it could be better captured through alternative research strategies (e.g., observation or simulation); this could provide a useful avenue for future research to better understand strategic decision models of Asian firms.

To extend strategy process research further it appears important to examine why managers in Malaysia seem to be able to hold and exploit paradoxical reasoning given that traditional findings from Western managers imply a dominance of one over the other. Is it a product of extensive global competitive threats? Are there cultural issues at play? Our guidance to managers to embrace complex reasoning processes is therefore tempered by the need for research to better understand how this can be achieved. Another fruitful future research avenue would be to develop the strategic reasoning-strategy development interplay over time and at different organizational levels, since greater market turbulence, more centralization, and organizations with younger managers of lower tenure appear to realize higher levels of both planning and improvisation, but the temporal nature of these relationships is not captured in the present study and warrants investigation.

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