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The Role of Levers of Control to Manage Strategic Uncertainty and to Enhance Innovation and Performance Dwi Ratmonoa, Department of Accounting, Faculty of Economics and Business, Universitas Diponegoro, Indonesia, Email: adwi.ratmono2@gmail.com The findings provided by the management control system (MCS)- strategy stream of research remain ambiguous and sometimes contradictory (Henri, 2006a; Langfield-Smith, 2007; Tessier and Otley, 2012; Martyn et al, 2016). Thus, Langfield-Smith (2007) and Martyn et al. (2016) suggested that future MCS-strategy research should focus on the empirical investigation of Simons' levers of control (LOC) theory to explain these inconclusive findings. In responding to this suggestion, this study was carried out to examine the role of LOC in managing strategic uncertainty and enhancing organisational innovation and performance. While prior studies treated Simon's LOC separately, this study attempts to focus on the balanced use of mechanistic and organic MCS as 'a control package'. Using a mail survey, data were collected from the manufacturing firms listed in the Indonesian Stock Exchange (IDX). The results show that there is no significant relationship between the level of strategic uncertainty and the intensive use of LOC. As expected, it was found that there is a positive effect of the use of LOC on organisational innovation and performance. Key words: strategic uncertainty, levers of control, organisational innovation, organisational performance Introduction Over the past 20 years there has been a growing interest in research that examines the relationship between management control system (MCS) and strategy (Langfield-Smith, 2007; Tessier&Otley, 2012; Heinecke et al, 2016; Martyn et al, 2016). Much of this research rests on the hypotheses that MCS should be designed explicitly to support the strategy of the business, in order to enhance competitive advantage and encourage superior performance (Dent, 1990; Simons, 1987, 1990; Curtis et al, 2017). Previous researchers focused on the matching or fit between MCS design and business strategy. Henri (2006a), Langfield-Smith (2007), Arjalies and Mundy (2013), and Baird et al (2019) pointed out that the findings provided by this previous MCS-strategy stream of research remain ambiguous and sometimes contradictory. Henri (2006a) argued that these ambiguous results can be attributed to the limited attention devoted to the dynamic tension resulting from different uses or roles of MCS. The work of Simons (Simons, 1990; 1991; 1994; 1995a; 2000), Henri (2006a), Curtis et al (2017) and Baird et al (2019) argued that there are two roles of MCS: (i) the traditional role of MCS in strategy implementation (MCS as a diagnostic tool) and (ii) the more active role MCS in new strategy formulation (MCS as an interactive role). Henri (2006a) further argued that to get a more complete understanding of the relationship between MCS and strategy, the integration in the theoretical and empirical analyses of both traditional and more active role of MCS is required. Martyn et al. (2016) and Curtis et al. (2017) argued that Simons' theory offers one possible explanation for the apparent inconsistencies in the MCS literature. Langfield-Smith (2007) and Kruis et al. (2016) also emphasised that future MCS-strategy research should focus on the empirical investigation of Simons' levers of control ((hereafter LOC) theory. Langfield-Smith (2007), Martyn et al. (2016) and Curtis et al. (2017) argued that Simons' theory is significant as it may contribute some explanations to the contradictory evidence of previous MCS research. In addition, Bisbe and Otley (2004) also pointed out that Simons' framework can contribute to explaining the contradictory findings regarding the direction and significance of the effects of formal MCS on successful innovation as reported in the prior literature. Based on Simons' propositions, this study argues that the researcher must integrate all four control systems (i.e. belief system, boundary system, diagnostic control system, and interactive control system) as "a control package" (Bisbe and Malagueno, 2009, Baird et al. 2019). In fact, according to Simons (1995a, p. 153; 2000, p.303-304), the power of these levers in implementing strategy does not lie in how each system is used alone, but rather in how the forces create a dynamic tension. Their collective power lies in tension generated by each control system. Based on the above Simons' arguments, the manager must use all four control systems to manage inherent organisational tensions. The importance of researching MCS as a package is also stated by Otley (2016), because the MCS component does not operate separately and only a few elements of MCS are accounting- based controls that are interconnected with broader control (such as administrative and cultural controls). However, the concept of package is not taken seriously in most MCS empirical studies even though this concept is very fundamental for design of future studies (Otley, 2016). There is limited previous LOC research that examines empirically Simons' proposition of the use of MCS as 'a control package'. Thus, this study extends previous research on LOC theory by focusing on the Simons' propositions. Hence, the objectives of this study are to examine the relationships between: (i) strategic uncertainty and the use of LOC, and (ii) the use of LOC and organisational innovation and performance. Specifically, this study attempts to investigate formally the relation between a balance between different uses of MCS, dynamic tension, and organisational capabilities or performance, an important area for future research as suggested by Mundy (2010, p. 516). There are four main contributions of this study. First, this study contributes to MCS literature by focusing on the use of four control systems in LOC as 'a control package'. This study contributes by responding to the Bisbe and Malagueno (2009), Martyn et al (2016) and Baird et al (2019) suggestion that future research should examine the issue of overall control package and tensions among different styles of use of MCS. Second, this study also contributes to explain inconsistent findings of previous research that have examined the relationship between MCS use and innovation (Bisbe and Otley, 2004; Baird et al, 2019). This study integrates mechanistic and organic controls' concept in a theoretical framework and analysis to explain this mixed finding. Finally, this study contributes by answering the debate opened by Henri (2006a, p. 548) concerning the role of MCS as a capability which is valuable, distinctive, and imperfectly imitable. This study also examines LOC theory in Indonesia setting which has different characteristics of MCS (see Efferin and Hopper, 2007). Thus, this study contributes to MCS-strategy literature about the generalisation of LOC theory in the different contexts. Literature Review and Hypotheses Development MCS and Levers of Control Theory Simons (2000, p.4) defined MCS as the formal, information-based routines and procedures managers use to maintain or alter patterns in organisational activities. Simons argued that it is not the identification of control associated with particular strategies that are important, but the distribution of management attention among controls. Simons has developed a coherent model of control systems called the levers of control (LOC) framework (Simons 1995; 2000). This framework consists of four

control systems: beliefs, boundary, diagnostic, and interactive. Beliefs systems are the explicit set of organisation definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organisation (Simons 1995; 2000).. Boundary system communicates the actions that employees should avoid. Diagnostic control systems are the essential management tools for transforming intended strategies into realised strategies: they focus attention on goal achievement for business and for each individual within the business (Simons, 2000). Diagnostic control systems allow managers to measure outcomes and compare results with preset profit plans and performance goals. A firm's critical success factors are embedded in its diagnostic system. Interactive control system is different than diagnostic control system. It gives the manager tools to influence the experimentation and opportunity-seeking that may result in emergent strategies. While the diagnostic system allows managers to manage results on an exception basis, an interactive system is forward-looking and characterised by active and frequent dialogue among top managers. Interactive control systems are used to stimulate search and learning, allowing new strategies to emerge as participants throughout the organisation respond to perceived opportunities and threats. Relationship between strategic uncertainty and the use of LOC LOC theory proposes a model in which strategic uncertainty acts as an antecedent of the use of MCS. Strategic uncertainties are the emerging threats and opportunities that could invalidate the assumptions upon which the current business strategy is based (Simons 2000, p.215). Strategic uncertainties are related to changes in competitive dynamic and internal competencies that must be understood if the business is to successfully adapt over time. By definition, strategic uncertainties are unknowable in advance and emerge unexpectedly over time. Strategic uncertainties may relate to changes in new technology, competitor actions, customer preferences, government regulation, or any number of potential threats and opportunities (Simons, 2000). LOC theory also stated that when an organisation faces a high level of strategic uncertainty, the managers will emphasise more the code of conduct in order to align the employee behaviour with organisational goals (Simons, 1994, 1995a, 2000). Empirical research shows that interactive control systems are effective in a firm's facing various types of risk and uncertainty, including competitive, market, and technological risk and environmental uncertainty. Bisbe and Otley (2004) and Baird et al. (2019) conclude that firms that face high degrees of innovation risk and uncertainty have higher performance when a control system is used interactively. Simons (1991) found that uncertainties related to product technology, new product introductions, and market competitions are associated with the use of interactive controls. Widener (2007) and Kruis et al (2015) showed that strategic uncertainties are the driver of the use of a control system in an interactive manner. Based on the above arguments, it can be argued that the higher the level of strategic uncertainty faced by the organisation, the more intensive the use of LOC. Each system has different role in reducing the information gap in such a condition. Hence, the following hypothesis was proposed: H1: There is a positive relationship between the level to which firms face strategic uncertainties and the use of level of levers of control. Relationship between of the use of LOC and organisational innovation Innovation is considered by many scholars and managers to be critical for firms to compete effectively in domestic and global markets, and one of the most important components of a firm's strategy (Davila, 2000; Bisbe and Otley, 2004, Henri, 2006a, Kruis et al, 2017; Baird et al., 2019). Innovation is not a random process but a structured one in which it has a clear stage (Davila, 2000). The role of MCS in the innovation process is a guidance to form a cognitive model as well as communication and action patterns (Davila, 2005). According to Rogers's diffusion of innovation theory (Rogers, 1962), MCS can be used as a communication integration tool that affects the innovation-decision process. In this section, it is argued that to enhance their innovation, organisations must use LOC intensively in which each system has a different role that complements each other. LOC theory states that beliefs system is used by the manager to search opportunities in order to achieve organisational core values (Simons, 1995a). Belief systems are a positive energy lever that gives inspiration to employees to explore and innovate. However, belief systems alone are not effective if not supported by the boundary system. Opportunities searching in the innovation process can make business risks if there is no boundary system (Simons, 1995a). LOC theory argues that MCS should reconcile tension between growth (which is stimulated by belief systems) and control (which is conducted by boundary systems). Innovation to increase growth must be balanced with control effort to get profitable growth (Simons, 2000; Baird et al., 2019). Thus, the use of belief and boundary systems simultaneously can increase innovation in the appropriate strategic domain. In the management of inherent organisational tension between creative innovation and predictable goal achievement, interactive use of MCS supports the development of ideas and creativity (Henri, 2006a). Managers use interactive control systems to build internal pressure to break out of narrow search routines, stimulate opportunity-seeking, and encourage the emergence of new strategic initiatives (Simons, 1995). Henri (2006a) argues that there is a natural fit between the requirements of the organisational innovation and organic use of control systems. The need for interaction and the information processing capacity necessary for the capabilities, are likely to be fostered by an interactive use of MCS. In providing an agenda and a forum for the regular face-to-face debate and dialogue, an interactive use of MCS allows top management to send signals that stimulate and concentrate organisational attention toward top management preferences (Simons, 1995a). By fostering organisational dialogue and debate, and encouraging information exchange, interactive use contributes to knowledge dissemination that is needed by organisational members during innovation-decision process (Roger, 1962). Hence, an interactive use of MCS contributes to expanding the organisation's information processing capacity and fostering interaction among organisational actors. Consequently, an interactive use of MCS fosters the deployment of organisational innovation. However, interactive use of the control system alone will not be effective to increase organisational innovation. Henri (2006a) and Baird et al. (2019) argues that interactive use must be balanced by diagnostic use of control systems to ensure that the positive effect of its on innovation can be achieved. In some circumstances, the potential benefit of interactive use may vanish due to insufficient diagnostic use to set boundaries and to highlight effectiveness issues (Henri, 2006a: 537). This can produce a loss of direction, wasted energy and a disruption of continuity (Chenhall and Morris, 1995). The use diagnostic and interactive control systems simultaneously creates dynamic tensions that can increase organisational innovation. It is expected that an organisation must use all four control system simultaneously and intensively to increase organisational innovation. The four systems are nested and work simultaneously but for different purposes. Simons (1995a) and Baird et al. (2019) provided empirical evidence that the most innovative firms used their MCS more intensively than did their less innovative counterpart. Hence, the following hypothesis was formulated: H2: There is a positive relationship between the use of levers of control and organisational innovation. Relationship between organisational innovation and performance The strategic management literature has long considered innovation to be one of the major determinants of long-term organisational performance (Bisbe and Otley, 2004; Baird et al., 2019). In particular, innovation is considered to be one important way that organisations can effectively adapt to changes in the market, technology, and competition as well as effectively take preemptive action to influence the environment. Following the resource-based view of the firm (Barney, 1991), unique resources and capabilities lead to a sustained competitive advantage, which in turn contributes to performance differences among firms. The resource- based view of the firm explains the competitive advantage as rent generation from heterogeneous and immobile resources. Innovation can help generate new valuable, rare and inimitable resources within the firm that are costly to imitate (Barney, 1991; Wernerfelt, 1984). Henri (2006a) and Baird et al (2019) also argues that innovation constitutes organisational capabilities that are valuable, hard to duplicate, and non-substitutable. Innovation is considered to be one of the key drivers of organisational transformation and strategic renewal by manipulating resources into new value creating strategies (Hitt et. al., 2001). Previous empirical studies that examine the relationship between organisational innovation and performance, document empirical evidences that this relation is positive (e.g. Damanpour, 1991; Damanpour and Evan, 1984; Roberts, 1999; Weerawardenaa et al., 2006; Baird et al., 2019). These studies provide evidence of a positive effect of innovation on organisational performance measured in several proxies such as growth, returns, profitability, and stock valuations. Thus, the following hypothesis was developed: H3: There is a positive relationship between organisational innovation and performance. Figure 1: Theoretical Model H1 H2 H 3 Strategic (+) Levers of (+) Organisational (+) Organisational Uncertainty Control Innovation Performance Research Methodology Sample and Response Rate To examine the theoretical model, a single industry was selected to minimise the effect of environmental heterogeneity (Moores and Yuen, 2001). The firms selected in the final sample must fulfill two criteria: (i) firms listed on the Indonesian Stock Exchange (IDX) under the manufacturing industry in the code 31-55, and (ii) firms are required to have archival data available in IDX Statistics 2017-2019 to enable non-response bias analysis. Based on these criteria, the target population consisted of 134 manufacturing firms listed in the

Indonesian Stock Exchange (IDX). Data was collected through a mail survey. Target respondents are the controller for each sample firm. Their functional roles within the firms as information analysers and data providers, make them the best possible candidates to supply information about MCS and financial conditions. Moreover, controllers are getting more and more involved in the strategic planning process. Thus, the survey process resulted in 48 usable responses or 36.36% responses rate (see Table 1). A low response rate is a common problem found in surveys. Table 1: Sample and Response Rate Target Population 134 Undelivered mail (2) Total delivered questionnaires 132 Total returned questionnaires 50 Incomplete responses (2) Usable responses (final sample) 48 Response rate= (48/132)*100% 36.36% Definition and measurement of variables Strategic uncertainty is defined in terms of the sources of that uncertainty that are considered important by management to maintain the competitiveness of its adopted strategy (Daft et al., 1988). This construct was measured using six items with a 5 point scale instrument developed by Riyanto (1997). Strategic uncertainty was assessed by the respondents' perception of uncertainty associated with competitors, customers, and economy. Following Simons (1995a, 2000), levers of control are defined as the formal, information-based routines and procedures managers use to maintain or alter pattern in organisational activities. These four control systems were measured using an instrument developed by Henri (2006a) and Widener (2007) which consists of 17 items. This construct was measured by a composite score of all four control systems. Organisational innovation is defined as the implementation of an internally generated or a borrowed idea that was new to the organisation at the time of adoption (Damanpour and Evan, 1984). This construct captures four types of innovation: product, production process, managerial, and marketing innovations. The instrument developed by Santos-Vijande and Alvarez-Gonzales (2007) was adapted to measure organisational innovation. Organisational performance is defined as the degree of goal attainment along several dimensions, both financial and non-financial (i.e. Bisbe and Otley, 2004). Organisational performance was assessed using a multi-dimensional instrument developed by Govindrajan (1988) which consists of six items. Result and Discussion Characteristic of Sample Firms Characteristics of sample firms are presented in Table 2. Table 2: Description of the Sample Firms N Mean Std. Dev. Min. Max. Asseta 48 6,183.08 15,372.13 70 88,938.00 Equitya 48 2,736.87 7,111.31 -7,880 39,894.00 Salesa 48 6,473.73 15,847.25 109.00 98,526.06 Net Profita 48 619.2 1,750.41 -1,495 10,040.0 Return on Assetb 48 8.95 12.22 -14.00 41.00 Return on Equityb 48 17.33 55.73 -155.00 324.00 Degree of foreign ownershipb 48 41.66 35.96 0.00 99.00 a In billion Rupiah b In percentage Test of Non-response Bias Two procedures were taken to ensure that a non-response bias was not a problem in this study. First, responding and non-responding firms were compared in term of their characteristics (as proxied by several financial indicators). As shown in Table 3, the results of the t -test reveal that there was no significant different in characteristics between these two groups. Table 3: Result of Non-Response Bias Test: t-test for different means of several financial accounts Financial Accounts Responding firms (n=48) Non-responding firms (n=84) t-statistic p-value Asseta 6,183.08 2,279.50 1.704 0.094 Equitya 2,736.87 798.70 1.853 0.070 Salesa 6,473.73 2,290.30 1.783 0.080 Net profita 619.21 172.80 1.727 0.090 Return on Assetb 8.95 21.65 -0.575 0.566 Return on Equityb 17.33 5.78 1.469 0.144 a In billion Rupiah b In percentage Second, early and late respondents (as proxies for non-respondents) were compared for all research constructs. Late respondents were defined as the those that have returned the questionnaires after the second follow-up. Results of the t -test show that there was no significant difference in the mean scores between early and late respondents (see Table 4). Hence, it can be reasonably concluded that the results in Table 3 and 4 support the absence of a non-response bias. Table 4: Result of Non-response Bias Test: t-test for different means of research constructs Constructs Early respondents (n=17) Late respondents (n=31) t- statistic p- value Strategic Uncertainty 2.97 3.00 -0.464 0.644 Levers of Control 3.86 3.97 -0.101 0.920 Organisational Innovation 3.26 3.44 -0.678 0.501 Organisational Performance 3.05 3.23 -0.733 0.468 Validity and reliability of variables To establish the validity of research variables, content and construct validity were assesed by several methods. Content validity was established through: (i) the use of existing and validiting scales, and (ii) pre-test of the questionnaire. Construct validity was assessed through: (i) confirmatory factor analysis (Table 5), and discriminant validity was assessed by correlation matrix (see Table 7). Table 5: Convergent Validity and Reliability Constructs Factor Loadings Range Cronbach Alpha Strategic Uncertainty 0.50-0.86 0.85 Levers of Control Use 0.67-0.91 0.97 Organisational Innovation 0.74-0.88 0.95 Organisational Performance 0.66-0.93 0.92 CFA in Table 5 was utilised to asses the convergent validity of the construct. For convergent validity, Hair et al. (2010) provide guidelines that the individual standardised factor loadings should be at least 0.50 and preferably 0.70. Results in Table 5 show the convergent validity for all constructs. Table 6 also shows that Cronbach Alpha coefficients for all constructs exceed the cut-off level of 0.70 (Nunnally, 1967). Overall, based on CFA, Cronbach Alpha, and other tests, all constructs reflect strong validity and reliability. Descriptive Statistics and Correlation Matrix The descriptive statistics for research variables is presented in Table 7. The mean score of strategic uncertainty construct is 2.92 with a standard deviation of 1.01. This means that the responding firms face a moderately low strategic uncertainty. The mean score of the use LOC is 3.94 with a standard deviation of 0.83. This score means that the responding firms use LOC highly and intensively. Meanwhile, the organisational innovation construct has a mean score of 3.38 with a standard deviation of 0.88. This result shows that the innovation level of Indonesian firms is moderate. The mean of organisational performance is 3.16 with a standard deviation of 0.84. This statistic shows that performance of the responding firms is moderately above their firm's targets. Table 6: Descriptive Statistics of Research Constructs Constructs Mean Std. Dev. Minimum Maximum Strategic Uncertainty 2.92 1.01 1.00 5.00 Levers of Control 3.94 0.83 1.50 5.00 Organisational Innovation 3.38 0.88 1.00 5.00 Organisational Performance 3.16 0.84 1.17 4.67 Table 7 presents a correlation matrix among variables. Surprisingly, the coefficient correlation between strategic uncertainty and levers of control is negatively significant (r=-0.299). Meanwhile, the correlation coefficient between levers of control and organisational innovation is positive (r=0.592) and significant. There is a positive relationship also between organisational innovation and organisational performance as shown by the correlation coefficient of 0.590. Although there is no hypothesis of the relationship between the use of levers of control and organisational performance, the results reveal that there is a positive relationship between these two constructs with correlation coefficient of 0.667. Table 7: Correlation Matrix of Research Variables (Pearson)a Strategic Uncertainty Levers of Control Organisational Innovation Organisational Performance Strategic Uncertainty 0.97 -0.299** -0.239 -0.264 Levers of Control -0.299** 0.85 0.592*** 0.667*** Organisational Innovation -0.239 0.592*** 0.95 0.590*** Organisational Performance -0.264 0.667*** 0.590*** 0.94 a The diagonal of the matrix is the Cronbach Alpha for each variables. The remainders of this table is the bivariate correlation coefficients. *** Correlation is significant at the 0.01 level (2-tailed) ** Correlation is significant at the 0.05 level (2-tailed) Results of Hypotheses Testing Test of SEM Assumptions Structural Equation Modeling (SEM) was used as a statistical tool to test the hypotheses due to its abilty to test the the presence of multiple dependence relationship simultaneously (Hair et al., 2010). In addition, SEM allows the assessment of the goodness of fit of the research model. Data were analysed with the AMOS 21.00 software program. Several checks were performed in this study to evaluate basic assumptions in SEM: (i) Normality Table 8 presents the result of the normality test for the main variables. Hair et al. (2010) suggest that skewness and kurtosis greater than 3.00 with a critical ratio (c.r.) greater than ± 2.58 show that there are univariate normality problems with the data. As shown in Table 9, there are no univariate normality problems for all variables. Moreover, there is also no multivariate non-normality since its kurtosis is 1.617 with a critical ratio of 0.814. Thus it can be concluded that there are no univariate and multivariate non-normality problems in this study. Table 8: Assessment of Normality Assumptions Variable Min Max skew c.r. Kurtosis c.r. Strategic Uncertainty 1 .000 5 .000 .334 .946 -.498 -.704 Levers of Control 1.500 5.000 -.841 -2.380 .164 .232 Organisational Innovation 1.000 5.000 -.431 -1.220 -.262 -.370 Organisational Performance 1.167 4.667 -.431 -1.219 -.830 -1.173 Multivariate 1.627 .814 (ii) Outliers To identify outlier within the final data, Mahalanobis distance technique which compared Mahalanobis d-squared with Mahalanobis table was used. The highest of Mahalanobis d-squared is 12.449 which is less than 13.815 (Mahalanobis table with df=2 and probability=0.001). This indicates that there is no outliers problem in the data. (iii) Multicollinearity To assess the multicollinearity problem, the Spearman rho correlation matrices was examined to detect correlation coefficients greater than 0.90. As reported in Table 8, the correlation coefficients range between -0.243 (strategic uncertainty and organisational innovation) and 0.563 (levers of control and organisational innovation), which suggests there is no multicollinearity problem in the data. Overall, the above tests show that the basic assumptions of SEM have been fulffilled. Baseline SEM Model and Hypotheses Testing This section reports the results of SEM: (i) to assess the goodness of fit of the model as a whole, and (ii) to evaluate the results of the structural model (hypotheses testing). Due to the small sample size of 48 observations,

the constructs are treated as manifest variables using the composite technique. In this technique, a latent construct is represented as a single composite made up of the means of survey items. In other words, responses to the survey items are averaged to form the final score for the variable. This tecnique is appropriate when using SEM with small sample sizes since composite indices reduce the number of parameters that are estimated (Widener, 2007). The Chi-square, p-value of the Chi-square, the Chi-square divided by the model degrees of freedom (CMINDF), the goodness of fit index (GFI), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and Tucker-Lewis Index (TLI) were used as indicators of goodness of fit. An insignificant Chi-square, a CMINDF ratio less than 5, a CFI and GFI close to 1, and an RMSEA of less than 0.08 indicate good fit (Hair et al., 2010). The evaluation of the goodness of fit of the base model was estimated based on Figure 1.The results show that the model is of poor fit with significant chi-square (chi-square=13.299 with p-value=0.004) and RMSEA 0.270 (see Table 9). Thus, there is a need to re-specify and re- estimate the model based on Modification Indices (MI). As large values of MI are a sign of model misfit, it is then possible to re-specify and re-estimate the model based on MI but it has to be done on solid underlying theory and arguments (Henri, 2006). Table 9: Result of Baseline SEM model Path Expected Sign Path Coefficient p-value Strategic Uncertainty → Levers of Control + -0.299 0.052 Levers of Control → Organisational Innovation + 0.592 0.000 Organisational Innovation → Organisational Performance + 0.590 0.000 Fit indices of the model Chi-square 13.299 p-value 0.004 Df 3 CMINDF 4.433 GFI 0.891 CFI 0.802 RMSEA 0.270 An examination of the MI indicates there is a need to correlate the residuals of levers of control and organisational performance. The argument to correlate the residuals of levers of control and organisational performance is as follows: The ability of organisation to balance the four of control systems in the levers of control may represent a capability which is valuable, distinctive, and imperfectly imitable. Thus, the appropriate use of levers of control is a source of competitive advantage. Henri (2006) argued that the ability to reach a balance between two opposing uses of MCS, simultaneously trying to stimulate innovation while searching for predictable achievements, represents a source of competitive advantage. Henri (2006a) provided empirical evidence of a positive relationship between the use of levers of control and organisational performance. Because there is a strong argument for a positive relationship between the use of levers of control and organisational performance, it is justifiable to correlate the residuals of these two variables. Re-specified SEM model The result of the respecified model is presented in Table 10. The model is reasonably well- fitting with insignificant chi-square, a CMINDF ratio less than 5, and a CFI and GFI close to 1. Only RMSEA is a marginally poor fit with 0.085. All other indicators provide evidence of the goodness of fit of the model. Table 10: Result of Re-specified SEM model Path Expected Sign Path Coefficient p-value Strategic Uncertainty → Levers of Control + -0.191 0.133 Levers of Control → Organisational Innovation + 0.584 0.000 Organisational Innovation → Organisational Performance + 0.329 0.011 Fit indices of the model Chi-square 2.681 p-value 0.262 Df 2 CMINDF 1.340 GFI 0.973 CFI 0.987 RMSEA 0.085 Hypothesis 1 states that there is a positive relationship between the extent to which firms face strategic uncertainties and the use of level of levers of control. The result displayed in Table 10 shows that the regression coefficient of this relationship is negative (-0.191) and insignificant (p-value=0.133). Therefore, hypothesis 1 is not supported. Hypothesis 2 states that the intensive use of levers of control is positively associated with a higher degree of organisational innovation. As shown in Table 11, this hypothesis receives strong support with a regression coefficient of 0. 584 and significant at 0.01 level. Hypothesis 3 states that organisational innovation is positively associated with organisational performance. Table 10 shows that the regression coefficient of this path is positive (0.329) and statistically significant at 0.05 levels. Thus, hypothesis 3 is supported. Altenative SEM model Although the re-specified model presented in Table 10 is reasonably well-fitting, there is no assurance that it is only the model. Thus, it is needed to compare the re-specified model to the alternative model to rule out alternative model specifications. The results of the correlation matrix in Table 8 indicate a positive correlation between the use of levers of control and organisational performance. Although this relationship is not hypothesised in this study, the result suggests levers of control is related to organisational performance. This is consistent with Henri (2006a) and Baird et al. (2019) who argued that the ability to manage dynamic tensions resulted through the use LOC, is a source of competitive advantage. Based on resource-based view logic, Henri (2006) provides empirical evidence that the use of LOC has a direct and positive impact on organisational performance. Based on this argument, an alternative SEM model was proposed that added a path from LOC and organisational performance. The results are presented in table 11. Table 11: Result of Alternative SEM Model Path Expected Sign Path Coefficient p-value Strategic Uncertainty → Levers of Control + -0.299 0.062 Levers of Control → Organisational Innovation + 0.592 0.000 Levers of Control → Organisational Performance ? 0.300 0.019 Organisational Innovation → Organisational Performance + 0.489 0.000 Fit indices of the model Chi-square 0.531 p-value 0.767 Df 2 CMINDF 0.266 GFI 0.994 CFI 1.000 RMSEA 0.000 Table 11 shows that the use of LOC has a direct positive relationship with organisational performance. Moreover, the result also shows that the alternative model is better fitting than re-specied model in table 10 for all of indicators. Therefore, the final empirical model can be depicted as follows (Figure 2): Figure 2: Final Empirical Model Organisational 0.59*** Innovation Strategic -0.29 Levers of Uncertainty Control 0.30** 0.49*** Organisational Note:*** significant at 0.01 level ** significant at 0.05 level Performance In summay, the results show that Hypothesis 1 concerning a positive effect of strategic uncertainty and the use of levers of control is not supported. Meanwhile, Hypotheses 2 and 3 of positive relationships among the use of levers of control, organisational innovation, and performance receives strong supports. Lastly, although there is no specific hypothesis concerning this path, empirical evidence shows a direct positive relationship between the use of LOC and organisational performance. Due to the goodness-of-fit for the direct effect model (Table 14) being better than the re-specified model (Table 11), it can be inferred that organisational innovation is not a complete mediating variable (Hair et al, 2010, p.767). However, after adding a direct path of levers of control to organisational performance, the indirect effect of levers of control on performance through organisational innovation is still statistically significant individual paths (see Table 14 and Figure 2). This means that organisational innovation is a partial mediating variable (Hair et al, 2010, p.769). Although the direct effect of the use of LOC (0.49) on organisational performance is higher than the indirect effect of it through organisational innovation (0.59*0.30=0.177), organisational innovation, as a partial mediating variable, still has a subtanstial portion of total effect (0.177 of 0.667). Therefore, organisational innovation is still an important variable explaining the relationship between the use of levers of control and organisational performance. Discusssion The result of this study shows that there is no empirical evidence for a positive relationship between the level of strategic uncertainty and the use of levers of control. This finding is not consistent with Simons' (1995, 2000) levers of control theory and empirical evidence documented by Widener (2007). The descriptive statistics reported in Table 2 show that the means of strategic uncertainty and the use of levers of control were 2.92 and 3.94 respectively. This indicates that organisations use LOC intensively although they perceive a moderately low strategic uncertainty condition, suggesting the level of strategic uncertainty does not act as an antecedent of the use of levers of control. The results of this study provide empirical evidence of a positive effect of the use of levers of control and organisational innovation. This means that the more intensive use of levers of control, the higher the organisational innovation. Therefore, organisation must use all four control systems intensively and simultaneously to enhance organisational innovation. This result supports Simons' (1995, 2000) proposition that the four systems are nested and work simultaneously and complementary to contribute to innovation. The result of this study shows a positive effect of the intensive use of LOC in organisational innovation and also suggests that organisations need both mechanistic and organic control (Burns and Stalker, 1961) to enhance organisational innovation. Based on Simons' theory, mechanistic and organic controls are represented by the diagnostic and interactive use of control systems respectively. On the other hand, the belief and boundary systems act as the foundation for the diagnostic and interactive control systems to operate effectively (Simons, 1995, 2000). The result of this study provides empirical evidence that the use of one control system alone would not be effective to enhance organisational innovation. Each system has a different role but complement each other to contribute to organisational innovation. The findings of this study could also tentatively explain why Henri (2006a) did not provide a significant relationship between dynamic tension and innovativeness variables. This insignificant relationship maybe due to Henri (2006a) ignoring the belief and boundary systems as an integral part of levers of control (Baird et al, 2019). Hence, it is important that the four control systems are examined as 'a control package' because the increased use of one control system enhances the benefits attained from increasing the use of the other systems (Tuomela, 2005; Widener, 2007; Mundy, 2010; Baird et al, 2019). By using levers of control as theoretical foundation, this study suggests the need for organisations to use both mechanistic and organic controls to enhance

innovation. The findings of this study support Baird et al's (2019) argument that researchers should focus on the Simons' theory of different styles' use of formal MCS as explanations for inconsistent findings of previous research. Hypothesis 3, which states a positive relationship between organisational innovation and performance is also supported by empirical evidence of this study. This fnding is consistent with empirical evidence documented by Bisbe and Otley (2004) and Baird et al (2019). This finding supports the resources-based view (Barney, 1991), that innovation is one of the major determinants of long-term organisational performance. Innovation constitutes an organisational capability that is valuable, hard to duplicate, and non-substitutable. Therefore, organisational innovation is a source of competitive advantage that contributes positively to performance. The findings of this study provide further evidence to explain the inconclusive finding of Bisbe and Otley's (2004) with their hypothesis that innovation is the mediation variable of the relationship between interactive use of MCS and performance. Bisbe and Otley (2004, p. 730) explain that the limitations of their study are a limited scope of control systems and product innovation type. By following their suggestions that future research should capture the different style of MCS use and extend to other types of innovation, the empirical model depicted in Figure 2 provides evidence that innovation is a partial mediating variable between the use of MCS and organisational performance. This study also provides empirical evidence of the direct positive effect of the use of LOC on organisational performance. The result supports Henri's (2006a), Mundy's (2010), and Baird et al's (2019) arguments about the ability to balance different use of control systems as an organisational capability that leads to higher performance. When combined together, controlling and enabling uses of MCS create dynamic tensions that produce unique organisational capabilities and competitive advantages (Henri, 2006a; Widener, 2007; Mundy, 2010; Baird et al, 2019). Managers use the four systems to balance the requirement for control with the need for innovation and learning. Meanwhile, the organisation's inability to balance different uses of MCS is associated with slower decision making, wasted resources, instability and, ultimately, lower performance (Bisbe et al., 2007; Henri, 2006a). Mundy (2010) also argues that an imbalance among the levers can lead to unintended consequences. The direct positive effect of the use of MCS on organisational performance suggests that the ability to balance between controlling (diagnostic) and enabling (interactive) use of MCS is a unique capability. In this case, the ability to reach a balance between two opposing uses of MCS which simultaneously, try to stimulate innovation while searching for predictable achievements represents a capability that is valuable, distinctive, and imperfectly imitable. This capability is a source of competitive advantage that leads to higher organisational performance. Conclusion The findings of this study show that organisations tend to use LOC intensively including in a low uncertainty condition. The findings also support Simons' theory that the intensive use of LOC contributes positively to organisational innovation and performance. Moreover, the findings also support Henri's (2006a) argument that the ability to balance the dynamic tensions resulting from the LOC use is a source of competitive advantage. There are several potential limitations of this study, similar to most empirical survey-based studies. First, this study is cross-sectional in its nature. The nature of this research design does not allow for the assessment of strict cause-effect relationship as in experimental-based research. Therefore, the empirical evidence of causality of this study must be considered consistent with the underlying theory. Second, the sample of this study was selected from manufacturing firms. Thus, generalising the results to firms in other industries should be done cautiously. The replication of this study with larger sample sizes in industries other than manufacturing could refine the findings of this study. Enlarged sample size could the possibility for the use of better structural equation modeling estimation. There are some issues that should be addressed in further LOC research. First, future research could further investigate the moderator effect of organisational culture on the relationship between strategic uncertainty and LOC. Efferin and Hopper (2007) provide empirical evidence that the MCS practice of Indonesian companies was affected by cultural values. Second, future quantitative empirical research should focus on how the balanced use of MCS facilitates the creation of dynamic tensions and organisational capabilities. Third, this study provides empirical evidence that although in a low uncertainty condition, Indonesian manufacturing public companies use MCS intensively. This decision maybe has a negative effect to consume management attention (see Widener, 2007). Future research should also investigate the 'cost of control' issue related to the intensive use of MCS. 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