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The link between formality and procedural fairness: The influences of precision, sensitivity and role clarity

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Abstract

This study investigates the complex and not straight-forward association between formality and procedural fairness. It examines the mediating roles of precision of performance measures, sensitivity of performance measures and role clarity. Using survey responses of functional managers of Australian manufacturing firms, the study finds that the link between formality and procedural fairness is mediated by sensitivity of performance measures and role clarity. Role clarity also mediates the link between sensitivity of performance measures and procedural fairness. Our study contributes to the literature by identifying two important factors through which formal performance evaluation can enhance procedural fairness, which is a source of performance motivation.

KEYWORDS

formality, precision of performance measures, procedural fairness, role clarity, sensitivity of performance measures

JEL CLASSIFICATION

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1 | INTRODUCTION

This study investigated the roles of precision and sensitivity of performance measures and role clarity in the link between the formal use of performance evaluation systems and procedural fairness. Performance evaluation systems are essential in guiding and motivating employees to perform. Procedural fairness is a desirable outcome of the use of performance evaluation systems because it positively influences employee attitude toward work and subsequent behaviour (Folger & Cropanzano, 1998; Lau, 2015; Lind & Tyler, 1988; Siegel et al., 2005; Tyler & Blader, 2000). Subordinates are cognisant of procedural fairness and hold their superiors and organisations accountable for a fair treatment in performance evaluation processes (Lau & Moser, 2008).

Formality in the use of performance evaluation systems (formality hereafter) refers to the degree of objectivity that superiors apply in performance evaluation systems (Hartmann & Slapničar, 2009, 2012; Moers, 2005). While the link between formality and procedural fairness is theoretically intuitive, this relationship is complex and not straight-forward. Hartmann and Slapničar (2009) found that the link between formality and procedural fairness is dependent on the degree of contractability, defined as the ability to measure outputs (Grossman & Hart, 1986). In situations where the ability to measure outputs is low, the link between formality and procedural fairness is positive. A state of low contractability demands that superiors apply extra effort to explicate performance targets, measure performance clearly, and give rewards based on clear allocation rules than in jobs with easily contractible outputs (Hartmann, 2007). This explanation indicates that when their job outputs are difficult to measure, subordinates will perceive efforts of superiors to be more objective as procedurally fair. This finding seems contradictory to the conventional wisdom that low formality (informal measurement and evaluation) is more desirable when performance outputs are difficult to measure, so as to better capture employees' *true* performance.

Hartmann and Slapničar (2012) demonstrated that formality is also positively associated with procedural fairness when task uncertainty is low. A low level of task uncertainty results in a relatively more stable relationship between effort and job outcome because there is little variability in job requirements. In this scenario, increased formality will translate into a heightened level of procedural fairness. Drawing from Hartmann (2007), when there is low task uncertainty, efforts of superiors to provide quantitative and written targets, quantitative and objective performance measures, and a formulaic determination of reward, will be perceived by subordinates as procedurally fair. Hartmann and Slapničar (2009, 2012) motivated the authors to further examine the complex relationship between formality and procedural fairness by investigating the impact of contractability and task uncertainty on the link between formality and procedural fairness in a different context of the manufacturing industry.

This study proposes that the positive influence of formality on procedural fairness stems from formality enhancing the precision and sensitivity of performance measures and role clarity for subordinates. The rationale for the mediating roles for precision and sensitivity of performance measures stems from the literature on performance evaluation which identifies subordinates' perception of controllability as an important factor in procedural fairness (Hoppe & Moers, 2011; Voußem et al., 2016). This study examines how different levels of contractability in quantitative versus qualitative functions influence the precision and sensitivity of performance measures. Examining the mediating effects of precision and sensitivity in different job functions will also enable us to understand the differential effects of formality on job functions found in prior research. Importantly, the psychology literature suggests that perceived control is more important than actual control (Kosslyn & Rosenberg, 2007; Shapiro et al., 1996) because 'believing in control can help one gain control' (Kosslyn & Rosenberg, 2007, p. 533).

To examine the mediating roles of precision and sensitivity of performance measures, this study adopts the notion of conditional controllability, which occurs when subordinates 'are evaluated on the basis of all information that provides insights into their actions' (Antle & Demski, 1988, p. 716). Two core ideas of conditional controllability are the information content of performance measures (Ittner & Larcker, 2002; Lambert, 2001) and that agents can affect the statistical pattern of performance measures (Antle & Demski, 1988; Budde, 2009; Holmstrom, 1979).

Informed by conditional controllability principle, Hartmann and Slapničar's (2009) observation of the moderating role of contractability in the positive association between formality and procedural fairness, could be attributed to formality being perceived by subordinates as increasing the information content of performance measures. An increase in information content induces accuracy of performance measures, which reflects the accuracy principle of procedural fairness. Hartmann and Slapničar's (2012) finding of the moderating role of low task uncertainty

in the relationship between formality and procedural fairness, could be due to formality creating a perception that subordinates can affect the statistical pattern of performance measures. Affecting this pattern of performance measures creates a view that outputs of performance measures can be corrected, which exhibits the correctability principle of procedural fairness.

Thus, conditional controllability is a design characteristic of performance measures (Ghosh, 2005; Gibbs et al., 2009; Merchant, 2006; Moers, 2000). Perceptions of controllability are *jointly* determined by two separate dimensions – precision of performance measures (precision hereafter) and sensitivity of performance measures (sensitivity hereafter) (e.g., Bisbe et al., 2007; Burkert et al., 2011; Fischer, 2010; Moers, 2006). Precision reflects the first core idea of controlled controllability of information content and sensitivity manifests the second core idea of subordinates affecting the statistical pattern of performance measures. Subordinates perceive performance measures are controllable: (1) when there is precision in performance measures, meaning performance measures are distorted by uncertain, uncontrollable events to a lesser extent (Merchant, 1985; Merchant & Van der Stede, 2007); and (2) when there is sensitivity, meaning subordinate decisions and actions influence performance measures to a larger extent (Merchant, 1989; Simons, 2005).

This study examines precision and sensitivity individually as mediating variables in the relationship between formality and procedural fairness because they are influenced by different factors and have different consequences. According to Fischer (2010, p. 36), controllability is shaped by authority. To illustrate, a sales manager has authority to select a course of action to make sales, hence, perceives a high level of sensitivity. However, such authority may have little effect on precision as the sales measure may be influenced by uncontrollable factors, including the interdependency with production and logistics functions. In short, the sales manager may perceive dissimilar levels of precision and sensitivity of the sales measure. Gibbs et al. (2004) thus state that the relative importance (weight) of performance measures should be a decreasing function of their noise (precision) and an increasing function of their sensitivity to subordinate effort or decisions. However, the extant literature provides little empirical evidence on differential effects of precision and sensitivity.

Formality also helps clarify subordinates' perception of their responsibility and authority. Role clarity refers to individuals' perceived clarity regarding their work responsibility and authority (Rizzo et al., 1970). Reflecting the not straight-forward link between formality and procedural fairness, this study also hypothesises that the association between precision and sensitivity, on the one hand, and procedural fairness, on the other hand, is through role clarity. Burkert et al. (2011) demonstrated the link between perceived controllability and role clarity.[1] When subordinates perceive that a controllability principle was being applied, they found more clarity in the role expectations imposed on them by their superiors. Further, they observed that role clarity mediated the relationship between controllability and managerial performance. This study thus replicates an aspect of Burkert et al. (2011) but also extends research by investigating the influence of role clarity in the links between formality and procedural fairness, and between precision and sensitivity, on the one hand, and procedural fairness, on the other. Thus overall, this study aims to enrich our understanding of the complex and non-straightforward link between formality and procedural fairness by examining the roles of precision, sensitivity and role clarity.

The data for this study were collected from a survey of 119 functional managers in the Australian manufacturing industry. Our path analysis revealed that formality is positively associated with precision, sensitivity and role clarity. The association between formality and procedural fairness is positively mediated by sensitivity and role clarity, but not by precision. Our results also indicate that sensitivity influences procedural fairness through role clarity. The additional

[1]Burkert et al. (2011) studied role ambiguity, defined as the 'discrepancy between the amount of information a person has and the amount he requires to perform his role adequately' (Kahn, 1974, p. 59). Lau (2015) states that role clarity is the opposite of role ambiguity.

analysis further shows that: (1) the relationship between formality and precision is stronger in qualitative functions than in quantitative job functions; (2) the relationship between formality and sensitivity is stronger in a higher task-uncertainty context than in a lower task-uncertainty context; and (3) the relationship between formality and role clarity is stronger in the high formality subgroup than in the low formality subgroup.

This study's first contribution is an improved understanding of the complex and not straight-forward link between formality and procedural fairness. First, it reveals that superiors' efforts to be objective in performance evaluation and determination of rewards (formality) results in subordinates perceiving that they are able to influence their performance and rewards to a greater extent (sensitivity), which then leads to a higher level of procedural fairness. Second, sensitivity enhances role clarity which then also heightens procedural fairness. Third, when task uncertainty is high, formality impacts on sensitivity more so than when task uncertainty is low. The preceding two observations demonstrate that sensitivity is salient in the link between formality and procedural fairness. The second contribution is theoretical and relates to the concept of controllability. While prior studies have studied traditional controllability and as a single concept (e.g., Burkert et al., 2011, 2017; Ghosh, 2005), this study mobilised conditional controllability (Antle & Demski, 1988) and demonstrates that sensitivity and precision may have little conceptual overlap because they do not necessarily have identical effects (Burkert et al., 2011) and therefore examinable as distinct concepts with different effects.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature and develops the hypotheses. Section 3 outlines the research method. Section 4 presents the findings and Section 5 discusses the findings, limitations of the study and suggestions for future research.

2 | HYPOTHESES DEVELOPMENT

2.1 | Formality and procedural fairness

This study is based on the theoretical proposition that formality satisfies fairness principles. The concept of formality reflects the extent to which superiors provide subordinates quantitative and written targets, quantitative and objective performance measures, and formulaic determination of reward. Hartmann and Slapničar (2009) explained that formality is a three-dimensional concept, which can be applied in target-setting, performance metrics and reward determination. In target setting, a high level of formality will see superiors set performance targets that are in quantitative and written terms (high level of objectivity) whereas a low level of formality will have superiors apply performance targets as qualitative and not formally communicate to subordinates (high level of subjectivity). In high formality, superiors will use performance metrics that are more objective and in quantitative form while in low formality, more subjective measures expressed in qualitative terms will be deployed. Superiors will more likely determine rewards based on formulae when formality is high, and they will use more untraceable personal judgement when formality is low. In summary, formality manifests in different degrees on a continuum where the highest level is reflected by superiors relying strictly on explicit procedures (Gibbs et al., 2004; Locke & Latham, 1990), quantitative measures and objective information (Moers, 2005) whereas the lowest level shows superiors total relying on implicit procedures, qualitative measures and subjective judgement.

Procedural fairness is the judgement on the fairness of the means or of the rules and processes that superiors use to make decisions in performance evaluation processes (Lau & Moser, 2008). It is fostered by adherence to six principles: (1) consistency (procedures should be

consistent across persons and across time); (2) correctability (procedures should include mechanisms for correcting poor decisions); (3) accuracy (procedures should be based on valid facts, information and opinions); (4) bias suppression (procedures should be neutral and impartial); (5) ethicality (procedures should uphold standards of ethics and morality); and (6) representativeness (procedures should be representative of all groups' concerns) (Colquitt & Jackson, 2006; Leventhal, 1980). With performance evaluation systems, procedural fairness is determined by assessing employee experiences with performance ratings, bonus payments, or other rewards and benefits against the six criteria (Voußem et al., 2016). If employees perceive that the criteria were upheld, performance evaluation systems will be considered fair.

Formality can have a positive impact on subordinates' procedural fairness. Sholihin et al. (2011) point out that procedural fairness reflects all aspects of the organisation's procedures that are used by superiors to evaluate the subordinates' performance to communicate performance feedback and, to determine the subordinates' rewards such as promotion and pay increases. High formality is likely to be perceived by subordinates as superiors try to provide consistent and traceable criteria, which then act as a system-reference. Subordinates are more likely to perceive a greater likelihood of consistent evaluation process across team members who are in similar situations as they are than when there is not a system-reference in place (Principle 1). Lau and Buckland (2000) revealed that budget-related performance criteria (which is high in formality) are perceived by subordinates as superiors' attempt to provide 'precise' and 'honest' performance feedback. Thus, this study suggests that high formality assists employees in correcting errors and improving performance (Principle 2). In addition, standard procedures and evaluation criteria enhance objectivity in decision-making and suppress bias pertaining to subjective judgement (Merchant & Van der Stede, 2007) (Principle 4). Such objectivity illustrates superiors' desire to provide accurate direction and guidance to subordinates, who will perceive fairness in the process (Principle 3).

However, high formality may be rigid and not possible for highly uncertain tasks (Hartmann & Slapničar, 2012). With highly uncertain tasks, subordinates face a high level of uncertainty about the extent by which their efforts are recognised as outcomes in performance measures. Informed by conditional controllability, highly uncertain tasks could compromise sensitivity of performance measures, that is, whether employees can affect the statistical pattern of performance measures. Woods (2012) states that performance measures that are low in sensitivity are not completely informative about subordinate performance and need subjective adjustment by superiors. These discretionary adjustments will account for qualitative and uncertain factors, in order to provide a fair performance evaluation. However, both Woods (2012) and Moers (2005) found that superiors also made adjustments for reasons other than to improve objective measures. For instance, downward adjustments to unexpectedly high performances that are deficiently measured were used to encourage the departure of certain subordinates. Likewise, downward adjustments by supervisors appear to be avoided to preclude negative consequences for both subordinates and themselves. This sort of adjustments suffers from judgmental biases and result in evaluations that reflect superiors' personal favouritism and are not optimally aligned with organisational objectives (Bol & Smith, 2011; Ghosh & Lusch, 2000; Hartmann & Slapničar, 2012). It adversely impacts subordinate motivation (Prendergast & Topel, 1993) and redirect subordinates' effort toward influencing superiors' evaluation of their performance (Milgrom, 1988; Prendergast & Topel, 1993). It is at odds with the fairness principles of consistency, accuracy and ethicality. As such, Moers (2005) advises that subjective adjustments to outcomes of performance measures be relied upon only when high formality in performance measures result in deficient formal measures. Thus overall, it is the study's supposition that higher formality will have a stronger positive impact on procedural fairness than lower formality. However, as the studies by Hartmann and Slapničar (2009, 2012) demonstrated, the link between formality and procedural fairness is complex and not straight-forward and based

on the discussions here, precision and sensitivity of performance measures could be two variables in this relationship (Hartmann & Slapničar, 2012).

2.2 | Conditional controllability

Accounting scholars acknowledge that employees' perceived controllability is critical in the use of performance evaluation systems (Burkert et al., 2011; Merchant & Otley, 2006; Merchant & Van der Stede, 2007). When managers perceive that their performance is evaluated free from the impacts of uncontrollable events and that they have control over their performance output, they are likely to invest effort in working to achieve their performance targets.[2] In contrast, when managers believe they have little control over the performance results, they are likely to engage in dysfunctional behaviours, such as gaming the systems.

As stated, this study adopts the notion of conditional controllability, which is when subordinates 'are evaluated on the basis of all information that provides insights into their actions' (Antle & Demski, 1988, p. 716). There are two recognised principles of controllability – traditional controllability principle and conditional controllability principle. Traditional controllability is evident when subordinates 'are held accountable only for what they can control' (Merchant & Van der Stede, 2007, p. 533). Conditional controllability is different from traditional controllability because the latter 'stipulates that managers should be able to literally control a measure instead of merely influencing its statistical distribution', whereas the former focuses on whether performance measures provide useful information content, rather than whether managers can literally control the measures (Fischer, 2010, p. 20). Subordinates perceive greater controllability: (1) when performance measures are distorted by uncertain, uncontrollable events to a lesser extent (Merchant, 1985; Merchant & Van der Stede, 2007); and (2) when they believe their decisions and actions influence their performance measures to a larger extent (Merchant, 1989; Simons, 2005). In other words, perceived conditional controllability is determined by precision (lack of noise in performance measures) and sensitivity (being able to influence performance measures by one's own actions) (Banker & Datar, 1989; Bisbe et al., 2007; Burkert et al., 2011).

Woods (2012) observed the impact of a low level of formality on precision and sensitivity. Woods noted that supervisors made adjustments to the measurement outputs when they perceived deficiencies in the objective measures. 'For example, one manager received values of 4, 3, 3, and 4 on the four objective measures. That manager's supervisor then adjusted the measures +1, 0, 0, and 0, respectively, yielding adjusted scores of 5, 3, 3, and 4' (Woods, 2012, p. 406). He then concluded that performance measures that are low in precision are less informative about performance and superiors can make adjustments to correct this deficiency. Measures that are high in sensitivity are informative about employee performance and therefore do not need subjective adjustment from supervisors. Thus, subjective adjustments to performance measures depend on the levels of precision and sensitivity of measures. These discretionary adjustments supplement formality in performance measures because they help rectify the deficiency of objective measures (Bol & Smith, 2011; Du et al., 2012), although subjective evaluations as discussed in subsection 2.1 are not to be relied upon by themselves. The implication for our study is that formality and its links to perceptions of precision and sensitivity continue to be worthy of research.

[2]There are scholars who suggest that managers should not be completely shielded from uncontrollable factors, so that they are motivated to invest effort in developing strategies to effectively overcome the effects of uncontrollable factors (Burkert et al., 2011, 2017; Huffman & Cain, 2000). These strategies are reflected in employees sharing ideas and making suggestions to solve work related problems to their colleagues (Burkert et al., 2017). Giraud et al. (2008) confirmed that indeed there are managers who desire to neutralise the influence of other managers and superiors on their performance.

2.3 | The mediating role of precision of performance measures

2.3.1 | Formality and precision of performance measures

This study predicts that formality enhances precision of performance measures. Superiors' attempt to set explicit, traceable and quantitative performance evaluation criteria will be perceived by subordinates as an attempt to increase the information content of performance measures, evaluation and rewards. It will be perceived by subordinates as seeking to minimise, if not remove, noise in information from uncontrollable factors. While the use of subjective measures could account for uncontrollable factors (Govindarajan, 1984), accounting for these uncontrollable factors could also heighten noise and introduce distortions (Marginson et al., 2014) and may not help subordinates better perform their jobs (Milgrom, 1988; Prendergast & Topel, 1993). In contrast, the use of objective measures could be perceived by subordinates as a desire by superiors to attenuate the impact of uncontrollable internal factors such as inconsistent judgement, favouritism or other sources of bias of superiors that are associated with subjective measures. Thus, a higher level of formality will result in a higher level of precision (Chow & Van der Stede, 2006). In contrast, a lower level of formality that places more reliance on the use of implicit and ambiguous performance criteria, is likely to result in lack of reliable and consistent information (Burkert et al., 2011; Chow & Van der Stede, 2006). Thus overall, we argue that the association between formality and precision is positive.

2.3.2 | Precision of performance measures and procedural fairness

Precision of performance measures leads to procedural fairness. A higher level of precision will increase perceived consistency in measurement and evaluation across persons and across time (Principle 1), reduce noise that unfairly affects evaluation of subordinates' performance (Principle 2), and allows them to receive more accurate performance information (Principle 3). It will ease subordinates' concern of an unfair evaluation even if their performance is influenced by uncontrollable factors to some extent (Principle 5 on ethicality). Therefore, a higher level of precision will enhance procedural fairness.

Based on the above discussion on the positive relationship between formality and precision, and the positive relationship between precision and procedural fairness, the following hypothesis is proposed:

H1 The relationship between formality and procedural fairness is positively mediated by precision of performance measures.

2.4 | The mediating role of sensitivity of performance measures

2.4.1 | Formality and sensitivity of performance measures

We also predict that formality can enhance sensitivity of performance measures. When superiors set objective and quantified performance targets and evaluation criteria, subordinates will be in a good position to plan for the resources and actions to influence and achieve performance targets. Further, because feedback is essential for subordinates to learn from their mistakes and improve performance, a high level of formality is more likely to provide explicit and consistent feedback on their performance (Hartmann & Slapničar, 2009), thus helping them influence performance outcomes. When there are uncontrollable factors, the use of subjective measures does not necessarily enable subordinates to better influence measurement outputs (Moers, 2005).

On the contrary, it could increase the degree of uncertainty relating to targets because it is not explicit nor clear what will be accounted for in the measures (Solhaug & Stølen, 2011). Therefore, overall, formality enhances sensitivity. This is consistent with prior literature that states that the use of quantitative performance measures as evaluation criteria provides employees with a better sense of control over their performance appraisal (Lau, 2015).

2.4.2 | Sensitivity of performance measures and procedural fairness

An ability to influence the statistical distribution of performance outcomes generates procedural fairness. A heightened perception of sensitivity reduces subordinate concern that their performance will be affected by a biased performance evaluation (Principle 2). It allows subordinates to correct errors through high-quality feedback (Principle 4), enabling them to improve their performance (Principle 5). Therefore, a higher level of sensitivity will result in higher procedural fairness. Based on the above discussion on the positive relationship between formality and sensitivity, and the positive relationship between sensitivity and procedural fairness, the following hypothesis is proposed:

H2 The relationship between formality and procedural fairness is positively mediated by sensitivity of performance measures.

2.5 | The mediating role of role clarity

2.5.1 | Formality and role clarity

Role clarity is defined as the extent to which employees clearly understand the duties, tasks, objectives, and expectations of their work roles (Katz & Kahn, 1978). Classical theory states that when there is role clarity, employees will know what authority they have to decide, what they need to accomplish, and how they will be judged (Rizzo et al., 1970). According to Hall (2008), there are two aspects of role clarity: goal clarity (the extent to which the outcome goals and objectives of the job are clearly stated and well defined) and process clarity (the extent to which individuals are certain about how to perform their job) (Sawyer, 1992).

Role clarity has been shown to be influenced by formality. Hartmann et al. (2010) observed that the use of objective performance measures in evaluation systems enhanced employees' perception of goal clarity, which is a dimension of role clarity (Hall, 2008; Rizzo et al., 1970; Sawyer, 1992). Indeed, according to role theory, employees' perceived role clarity is attributed primarily to their superiors (Panaccio & Vandenberghe, 2011) who are responsible for interpreting, implementing and enforcing organisational procedures. Applying role theory, superiors are assigned the role to communicate behaviour expectations to subordinates (Kahn et al., 1964). Superiors' use of written, explicit and objective rules and quantitative measures can enhance subordinates' awareness of their responsibilities, thus enhancing their role clarity. Supporting this view is Lau (2015) who demonstrated that the use of performance measures like product lead times, which are explicit and quantitative, enhanced role clarity. In contrast, the use of qualitative and personal judgement may lead to role ambiguity as qualitative goals are often vague (Lau & Sholihin, 2005; Locke & Latham, 1990) and less informative for subordinates in regard to their tasks and responsibilities. Moreover, use of subjective performance measures can lead to ambiguity in job expectations because superiors rely on personal observations and judgements. By definition, subjective performance measures tend not to be specific on performance targets and processes, which could then compromise subordinates' perceptions of goal clarity (Marginson et al., 2014; Van Rinsum & Verbeeten, 2012; Voußem et al., 2016).

Formality also enhances process clarity, another dimension of role clarity through the feedback function (Burkert et al., 2011). Pre-set (i.e., formal and explicit) measures and procedures allow a comparison against actual performance helping employees know whether they are performing on the right track or whether they have achieved the desired outcomes. As discussed earlier, formal evaluation increases feedback quality (Hartmann & Slapničar, 2009). Since feedback assists employees in correcting errors, it also helps employees better understand their roles. Moreover, Janssen and van Yperen (2004) stated that formal requirements were perceived by employees as important because their organisations either accord them emphasis or consider them as minimum requirements that must be achieved. Hence, the use of formal performance goals and measures provides a robust guide to clarify employees' roles.

2.5.2 | Role clarity and procedural fairness

In line with the fairness principles, this study anticipates that role clarity will positively influence procedural fairness. First, role clarity implies that subordinates will have consistent and accurate information on their responsibilities and goals. They can reasonably predict what are expected of them, how they should perform and what rewards they will receive because of their performance (Rizzo et al., 1970). There will be less room for misinterpretation, confusion and misunderstanding. This will result in perceptions that the performance evaluation process is relatively accurate, transparent and understandable (Lau, 2015). Thus, subordinates are likely to perceive equity in the system, which indicates a high level of procedural fairness. Second, role clarity enhances employees' ability to correct wrong decisions made by either superiors or subordinates. With role-related information, employees will have a better ability to identify errors in the performance evaluation process. This ability allows them to bring the errors to their superiors' attention and take steps to correct them. Accuracy, transparency, understandability of the process and importantly, a sense of being treated with respect by superiors are significant elements that impact on procedural fairness (He & Lau, 2012; Sholihin & Pike, 2009). Indeed, Lau (2015) examined the link between the use of non-financial (quantitative) measures in performance evaluation and procedural justice and learned that role clarity fully mediated the relationship between the use of non-financial measures and procedural fairness. This finding indicates that employees' procedural fairness may also be impacted by formality because it clarifies their roles.

Based on the above discussion on the positive relationship between formality and role clarity, and the positive relationship between role clarity and procedural fairness, the following hypothesis is proposed:

H3 The relationship between formality and procedural fairness is positively mediated by role clarity.

2.6 | Precision and sensitivity of performance measures and role clarity

This study predicts that precision and sensitivity of performance measures will enhance role clarity. An important role of strategic performance measurement systems is to translate organisations' strategies into actionable performance measures, and in so doing communicate and clarify the strategies across different levels within the organisations (e.g., Franco-Santos et al., 2012). Recall that a high level of precision means that employees think that there are clear and specific performance measures. It helps communicate to subordinates what they need to do in order to achieve their assigned objectives and contribute to overall organisational objectives. It also helps clarify their work's expected outcomes and the ways to achieve them (Lau, 2015; Long et al., 2011). In contrast, a low level of precision would lead to subordinates not being clear on what their superiors expect them to do (Burkert et al., 2011).

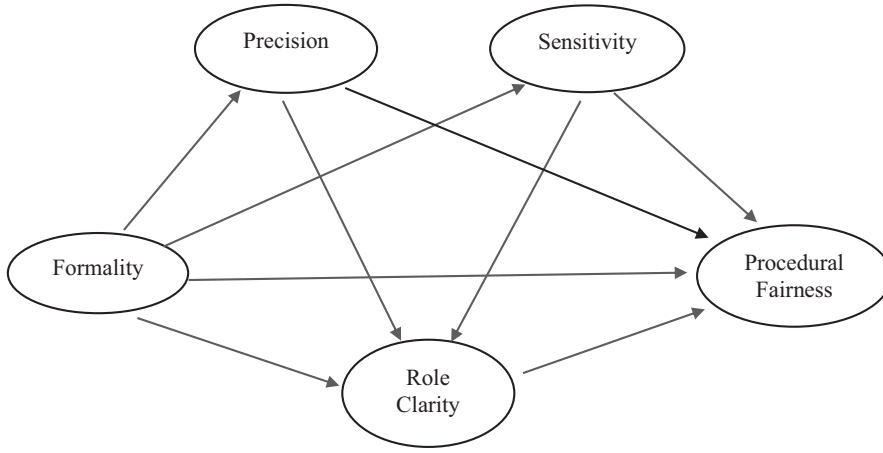

FIGURE 1 Conceptual model.

When there is a strong degree of sensitivity, subordinates believe that they are able to influence performance outcomes. It is proposed that as a result, subordinates will then think that they have a better knowledge of their roles and a better sense of how to plan and perform their tasks. For instance, when a production manager is told that his/her performance will be measured and evaluated based on the levels of production volume and product cost per unit, he/she will perceive ability to influence volume and cost. This, in turn, will help articulate his/her responsibility to manage production volume and product costs.

The above discussions on precision and sensitivity and their impact on role clarity, are consistent with the extant literature that state that applying a controllability principle enhances role clarity due to a decrease in uncertainty (Birnberg et al., 2007; Burkert et al., 2011). Thus, our discussion shows a positive association between precision and role clarity and a positive association between role clarity and procedural fairness. It also shows a positive association between sensitivity and role clarity and a positive association between role clarity and procedural fairness. Thus, the final set of hypotheses follows:

H4a The relationship between precision and procedural fairness is positively mediated by role clarity.
H4b The relationship between sensitivity and procedural fairness is positively mediated by role clarity.

Figure 1 summarises the proposed influences of the intervening variables of precision, sensitivity and role clarity in the link between formality and procedural fairness.

3 | RESEARCH METHOD

3.1 | Sample selection and data collection

To test our hypotheses, data were collected from 119 functional managers of Australian manufacturing firms using a survey questionnaire. This method allowed access to a larger sample and ensured anonymity of potential participants, which were selected from large Australian manufacturing firms with 100 or more employees and annual turnover of more than AU$10 million. Functional managers provide the most knowledgeable sample to respond to the survey (Marshall, 1996). They are at the middle rung of the organisational hierarchy and in their roles,

TABLE 1 Descriptive demographic statistics.

Variables	Frequency	Min	Max	Mean	SD
Panel A					
Job tenure (years)	119	1	35	11.7	7.87
No. of employees in the department	117[a]	1	1000	76.0	158.5
Age of respondent	118[a]	29	66	47.2	8.5
	N			**Per cent**	
Panel B					
Managerial functions					
Manufacturing/production	29			24.40	
Human resources	26			21.80	
Sales and marketing	36			30.30	
Others[b]	28			23.50	
Total	119			100	

[a]Missing responses in the demographic questions.

[b]Others include engineering, IT, logistics, maintenance, procurement, strategic development functions, or having dual responsibilities.

they receive from superiors and send to subordinates, prescriptions and proscriptions on role expectations. The manufacturing industry was chosen because prior management accounting studies on procedural fairness (e.g., Lau, 2015; Lau & Tan, 2005) of the Australian manufacturing industry did not provide conclusive evidence on the factors influencing procedural fairness. This study responds to inconclusive insights on the Australian manufacturing industry by investigating the role of formality, precision, sensitivity and role clarity in enhancing procedural fairness. Finally, large firms are likely to put in place performance evaluation procedures because 'it is probable that only large organizations with significant managerial expertise and resources will have the motivation and the means to develop them' (Lau, 2015, p. 150).

We identified 668 functional managers based on information from Dun & Bradstreet database. One person in each function within the same firm was targeted and up to six managers in each firm were selected. The participants were required to have a minimum one-year experience in their current position so that they are familiar with their performance evaluation systems and able to provide reliable information. Following Dillman's (2000) tailored survey method, we called the target participants to verify their job titles and mail addresses. Managers who declined participation were removed from the mailing list. The final sample contained 651 managers from 223 firms. Three weeks after the first mail-out, reminder letters and supplementary questionnaires were sent. Of the 651 questionnaires sent, 120 were completed and returned. One participant was removed from the sample as s/he had less than one-year experience in the current position. This results in a total of 119 usable responses and a 19.29% response rate, which is at par with response rates in prior management accounting studies, such as Burkert et al. (2011) (12.6%) and Hall (2008) (22.5%).

Table 1 presents the demographic information of the participants who, on average, were 47 years old, with 11.7-year experience in their current positions and had about 76 employees in his/her functional area. The numbers of participants in manufacturing/production, human resources and other categories were similar, while the number of participants in the sales and marketing function category was slightly higher (30.30%).

To test for non-response bias, an independent two samples *t*-test was performed through SPSS v25. Of the 119 useable responses, 64 early-responses and 55 late-responses were identified based on the cut-off date. No significant differences were found between the two samples for all variables of interest.

3.2 | Measurement of constructs

The construct of formality is adopted from Hartmann and Slapničar (2009),[3] which contains three aspects of a performance evaluation system: target setting, performance measurement and rewards (Hartmann & Slapničar, 2009) (see Appendix for all measurement items). For target-setting, two items (FORM1 and FORM2) measured the extent of formality that superiors set subordinates' work objectives. Items are anchored by a 5-point[4] Likert scale, from '1 = express work objectives implicitly and in qualitative terms' to '5 = express work objectives explicitly and in quantitative terms'. For performance measurement, two items (FORM3 and FORM4) measured the extent of formality in using information when evaluating their subordinates' achievement, from '1 = evaluated performance based on superior's judgment and in qualitative terms' to '5 = based on information systems and in quantitative terms'. Two items (FORM5 and FORM6) measured the extent of formality that superiors determine subordinates' rewards (fixed pay and bonus), from '1 = determine pay based on superior's judgment and in qualitative terms' to '5 = determine pay based on systematic information and in quantitative terms'. All six items have factor loadings above 0.5 and explained approximately 51.43% of construct variance. The construct has a satisfaction level of composite reliability of 0.809 and Cronbach's α of 0.796. The results are presented in Tables 2–4.

Procedural fairness is measured by four items (PF1–PF4) developed by McFarlin and Sweeney (1992) on a 5-point Likert scale. Participants were asked to rate the extent to which they agreed with the fairness in target setting, performance, pay and the entire performance evaluation system, from '1 = completely disagree' to '5 = completely agree'. Similar to prior studies (e.g., He & Lau, 2012; McFarlin & Sweeney, 1992), this construct shows high level of validity with a composite reliability of 0.897 and a Cronbach's α of 0.847, and all four items are loaded on a single factor with factor loadings above 0.7 and account for 69.55% of variance.

Precision and sensitivity constructs were adopted from Moers (2006) and Burkert et al. (2011).[5] Precision (PRE1–PRE4) captured the extent to which managers perceive their performance measures are free of noise, such as 'my performance measures are precise, that is, the influence of uncontrollable factors is minimal'. Participants were asked to rate the degree of agreement on statements, ranging from '1 = strongly disagree' to '7 = strongly agree'. Sensitivity (SEN1–SEN4) captured the extent to which manager perceive they can influence the performance measures through their actions, such as 'with my actions I can influence my performance measures'. The four items of sensitivity have factor loadings above 0.852, a composite reliability of 0.926 and a Cronbach's α of 0.893; and the four items of precision have factor loadings above 0.798, a composite reliability of 0.904 and Cronbach's α of 0.859. Total variances explained by these two factors are 71.96% and 72.03%, respectively.

The construct of role clarity is adopted from Rizzo et al. (1970). It consists of six items on a 7-point Likert scale. Participants were asked to rate their levels of agreement in relation to their planned goals and objectives, clear explanation, responsibilities, performance expectations, authorities and workloads. The scale is anchored from '1 = strongly disagree' to '7 = strongly agree'. This construct has been well tested in prior research, including Chenhall and Brownell (1988), and He and Lau (2012). All six items loaded on to a single factor with 63.08% variance explained, have factor loadings from 0.523 to 0.874, and a composite reliability of 0.908 and a Cronbach's α of 0.877.

[3]In Hartmann and Slapničar's (2009), the participants were required to rank the degree of importance (out of 100%) of performance measures, which were categorised into four Balanced Scorecard perspectives. The percentages were then used to derive a weighted average factor score to represent each aspect. However, this weighting process is not adopted in the current study due to the lack of assurance that all business organisations have, and only have four perspectives, given that contemporary organisations may also measure their external performance, such as social environmental performance, and/or inter-organisation efficiency.

[4]Survey questionnaire contained 5-point and 7-point Likert scales constructs. This approach was also adopted in prior studies, such as Lau and Sholihin (2005).

[5]Prior studies used the construct of controllability as a second-order formative construct of precision and sensitivity (Burkert et al., 2011, 2017). Theoretically, sensitivity and precision are two unique dimensions of controllability with satisfactory levels of discriminant validity.

TABLE 2 Construct factor loadings.

Items	Formality	Procedural fairness	Role clarity	Precision	Sensitivity
FORM1	**0.741**	0.356	0.370	0.277	0.137
FORM2	**0.631**	0.095	0.136	0.204	0.079
FORM3	**0.780**	0.252	0.230	0.201	0.170
FORM4	**0.664**	0.254	0.195	0.150	0.137
FORM5	**0.673**	0.325	0.244	0.291	0.064
FORM6	**0.699**	0.308	0.224	0.112	0.155
PF1	0.375	**0.864**	0.506	0.237	0.461
PF2	0.342	**0.824**	0.378	0.287	0.335
PF3	0.391	**0.888**	0.508	0.310	0.502
PF4	0.193	**0.729**	0.425	0.263	0.294
RC1	0.379	0.511	**0.874**	0.320	0.459
RC2	0.436	0.622	**0.838**	0.283	0.468
RC3	0.218	0.401	**0.867**	0.186	0.418
RC4	0.251	0.415	**0.864**	0.171	0.476
RC5	0.168	0.321	**0.727**	0.283	0.468
RC6	0.099	0.231	**0.523**	0.244	0.294
PRE1	0.211	0.281	0.205	**0.798**	0.307
PRE2	0.174	0.185	0.265	**0.824**	0.302
PRE3	0.368	0.327	0.282	**0.885**	0.389
PRE4	0.220	0.283	0.287	**0.841**	0.465
SEN1	0.120	0.377	0.432	0.352	**0.856**
SEN2	0.256	0.458	0.517	0.411	**0.911**
SEN3	0.088	0.357	0.457	0.334	**0.852**
SEN4	0.135	0.503	0.495	0.430	**0.861**
Eigenvalues	3.086	2.782	3.785	2.881	2.878
% of Variance	51.43	69.55	63.08	72.03	71.96
KMO	0.775***	0.8***	0.819***	0.772***	0.794***

Note: FORM = formality, PF = procedural fairness, RC = role clarity, PRE = precision, SEN = sensitivity.

***$p < 0.001$.

The bold figures highlight the factor loadings are significantly higher than the other loadings.

Hartmann and Slapničar (2012) found that low task uncertainty moderates the relationship between formality and procedural fairness, so we captured task uncertainty as one of control variables in our study. In particular, we used three items to capture the task analysability dimension of task uncertainty, which reflect employees' perception about their job requirements and information needed to perform their jobs (Hartmann & Slapničar, 2012; Kren, 1992).[6] The participants were asked to indicate their level of agreement on three statements on a 7-point scale: (1) 'I am always clear about what is necessary to perform well on my job'; (2) 'I have

[6]While Hartmann and Slapničar (2012) captured the two dimensions of task analysability and task diversity of task uncertainty, given their focus on the relationship between effort and output, their analysis was based on the items associated with task analysability only. Their items although not identical to ours are quite similar. Theirs include: (1) 'there is a clearly known way to do the major types of tasks I normally encounter'; (2) there is a clearly defined body of knowledge of subject matter which can guide me when doing my job; (3) there is an understandable sequence of steps that can be followed when doing my work; and (4) to do my work, I can rely on established procedures and practices. The three items that we used were labelled by Kren (1992) as job-related information. However, as shown the four items that Hartmann and Slapničar (2012) used for task analysability closely overlap Kren's (1992) for job-related information.

TABLE 3 Construct reliability and validity tests.

Latent variable	Indicators	Min	Max	Mean	SD	No. of case	Convergent validity		Internal consistency reliability		Discriminant validity
							Loadings > 0.7	AVE > 0.5	Composite reliability	Cronbach's α	HTMT > 0.9[a]
Formality	FORM1	1	5	3.176	1.142	119	0.741	0.490	0.851	0.796	No
	FORM2	1	5	3.235	0.976	119	0.632				
	FORM3	1	5	2.731	1.098	119	0.780				
	FORM4	1	5	2.815	0.970	119	0.664				
	FORM5	1	5	2.807	1.162	119	0.673				
	FORM6	1	5	3.076	1.101	119	0.699				
Procedural Fairness	PF1	1	5	3.521	0.924	119	0.861	0.686	0.897	0.847	No
	PF2	1	5	3.042	1.024	119	0.826				
	PF3	1	5	3.429	0.904	119	0.887				
	PF4	1	5	3.193	0.955	119	0.732				
Precision	PRE1	1	7	3.378	1.449	119	0.798	0.701	0.904	0.859	No
	PRE2	1	7	3.294	1.318	119	0.824				
	PRE3	1	7	3.437	1.559	119	0.884				
	PRE4	1	7	3.479	1.449	119	0.841				
Sensitivity	SEN1	2	7	5.353	1.089	119	0.856	0.758	0.926	0.893	No
	SEN2	3	7	5.681	0.898	119	0.911				
	SEN3	2	7	5.605	0.981	119	0.852				
	SEN4	2	7	5.361	1.098	119	0.861				
Role Clarity	RC1	2	7	5.420	1.423	119	0.874	0.628	0.908	0.877	No
	RC2	1	7	4.672	1.512	119	0.836				
	RC3	1	7	5.916	1.112	119	0.865				
	RC4	2	7	5.824	1.042	119	0.861				
	RC5	1	7	5.664	1.272	119	0.730				
	RC6	1	7	5.134	1.582	119	0.530				

[a]All HTMT values are well below the threshold of 0.9, thus, all constructs' discriminant validity has been established. The actual HTMT values are presented in Table 4.

TABLE 4 Discriminant validity.

	Formality	Procedural fairness	Precision	Sensitivity	Role clarity
Panel A. Construct correlations and square root of average variance extracted					
Formality	**0.700**[a]				
Procedural fairness	0.401	**0.828**			
Precision	0.249	0.323	**0.837**		
Sensitivity	0.152	0.483	0.474	**0.870**	
Role clarity	0.364	0.545	0.299	0.546	**0.792**
Panel B: Heterotrait–Monotrait Ratio (HTMT)					
Formality					
Procedural fairness	0.448				
Precision	0.339	0.379			
Sensitivity	0.202	0.546	0.493		
Role clarity	0.368	0.610	0.361	0.616	

Note: The cut-off value of HTMT is 0.9 (Hair et al., 2017, p. 119). A HTMT value that is below 0.9 shows the discriminant validity between two constructs. The above HTMT ratios are all below 0.9.

[a]Bold values indicate the square root of average variance extracted (AVE).

adequate information to make optimal decisions to accomplish my performance objectives'; and (3) 'I am able to obtain the strategic information necessary to evaluate important decision alternatives' (Burney & Widener, 2007; Kren, 1992). The results reveal the mean scores of the three statements are 5.34, 4.88 and 4.87, respectively. Such high scores indicate that the managers face relatively low task uncertainty. These three statements load on to a single factor with satisfactory factor loadings from 0.870 to 0.926, a composite reliability of 0.927, Cronbach's α of 0.882.

We established the constructs' discriminant validity by examining Fornell–Larcker criterion and Heterotrait–Monotrait Ratio (HTMT) and present the results in Table 4. While Fornell–Larcker is commonly used in accounting studies, HTMT is said to be the most robust test for discriminant validity (Bedford & Spekle, 2018). An HTMT value below 0.9 indicates the discriminant validity between two constructs has been established (Hair et al., 2017, p. 119). Given that the HTMT values of the five key variables in our model are well below 0.9, we conclude that these constructs are distinctive. However, the HTMT value of task uncertainty and role clarity is 0.932 (i.e., the two constructs are highly correlated), we excluded task uncertainty from our main path analysis.

3.3 | Examination of potential biases

Harman's one-factor test, and marker variable method indicated that common method bias is not a concern in this study. In Harman's (1967) single factor test through SPSS v25, all indicators of the constructs loaded on a single factor and the explained variance is 30.13%, less than the threshold of 50%. In the marker variable method (Lindell & Whitney, 2001) using SmartPLS 3, all constructs are linked to a marker variable. The results show no significant associations between the constructs of interest and the marker variable. Collectively, all constructs used in this study are of good quality.[7]

[7]We also performed a confirmatory factor analysis (CFA) in Amos 25 for each of the construct to further test the quality of measurement instruments. CFA results show all factor loadings are significant at $p < 0.001$ and above 0.5 cut-off as suggested by Weißenberger and Angelkort (2011, p. 170). Goodness-of-fit index for the CFA model suggests an overall good fit model, including the chi-square statistic adjusted for the degrees of freedom (χ^2/df = 1.707), the root mean square error of approximation (RMSEA = 0.077), the comparative fit-index (CFI = 0.888), the incremental fit index (IFI = 0.890) and the Tucker–Lewis index (TLI = 0.872).

4 | RESULTS

A partial least squares approach of structural equation modelling (PLS-SEM) was used to test the hypotheses. As pointed out by Hartmann and Slapničar (2012, p. 25), 'PLS' requirements regarding the sample size and the distribution of variables are less stringent than of the alternative method of estimation'. Compared with the covariance-based techniques of SEM, PLS-SEM provides more robust estimations of the structural model for small samples and not normally distributed datasets (Ringle et al., 2009). Hypotheses are tested in SmartPLS 3 through bootstrapping procedures with 1000 sample replications (Hartmann & Slapničar, 2009).

4.1 | Main analysis

We conducted our analysis of the hypotheses through a step-wise fashion recommended by Hayes (2009), which is also consistent with Hartmann and Slapničar (2009) (Baron & Kenny, 1986; Hartmann & Slapničar, 2009).[8] First, we tested the direct relationship between formality and procedural fairness (Stage 1), we then examined how this direct relationship altered with the introduction of mediating variables of perceived precision, perceived sensitivity and role clarity (H1–H4) (Stage 2). The results of direct relationship model indicate a significant positive direct relationship between formality and procedural fairness ($\beta = 0.418$, $t = 5.502$, $p < 0.001$, one-tailed) (see Table 5), which is line with our expectation.

When precision (PRE) is introduced into the model, the path between formality (FORM) and precision (PRE) is significant ($\beta = 0.304$, $t = 3.644$, $p < 0.001$, one-tailed) (see Table 5 and Figure 2), however, the path between precision (PRE) and procedural fairness (PF) is insignificant ($\beta = 0.046$, $t = 0.514$, $p = 0.299$, one-tailed), which suggest the relationship between formality and procedural fairness is not mediated by precision ($\beta = 0.014$, $t = 0.466$, $p = 0.314$, one-tailed). In addition, we examined the confidence interval to determine the existence of significant mediation (Hayes, 2009; Preacher et al., 2007). The confident interval for precision (H1) contains zero (LLCL = −0.038 and ULCL = 0.061), suggesting a non-significant mediation. Thus, H1 is not supported.

H2 predicts that the relationship between formality and procedural fairness is positively mediated by sensitivity. As reported in Table 5 and Figure 2, the results indicate that the path between formality (FORM) and sensitivity (SEN) is significant ($\beta = 0.178$, $t = 2.007$, $p = 0.019$, one-tailed), and the path between sensitivity (SEN) and procedural fairness (PF) is also significant ($\beta = 0.259$, $t = 3.157$, $p = 0.001$, one-tailed). After incorporating sensitivity, the direct association between formality and procedural fairness remains significant ($\beta = 0.231$, $t = 2.734$, $p = 0.003$, one-tailed). According to Baron and Kenny (1986), an indirect association is established when three conditions are met: (1) the independent variable significantly accounts for the variations in the presumed mediator; (2) the variations in the mediator significantly account for the variations in the dependent variable; and (3) when the mediator is incorporated, the previously significant association between the independent variable and dependent variable is reduced (Baron & Kenny, 1986). Therefore, a partial mediation exists when the initial direct relationship between the independent variable (FORM) and the dependent variable (PF) significantly decreases in strength but still exists (Burkert et al., 2011, p. 152). The indirect effect of formality on procedural fairness through sensitivity is 0.046, which is significant ($t = 1.847$, $p = 0.033$, one-tailed) and close to the meaningful threshold of an absolute amount of 0.05 (Lau & Moser, 2008, p. 67).

[8]To further test the structural models, we also performed the structural equation modelling (SEM) with the maximum likelihood (ML) technique using Amos 25, which show similar findings and have good model fit indices, including the chi-square statistic adjusted for the degrees of freedom (χ^2/df; 1.643), the root mean square error of approximation (RMSEA: 0.074), the comparative fit-index (CFI: 0.863), the incremental fit index (IFI: 0.867) and the Tucker–Lewis index (TLI: 0.844).

TABLE 5 Results for H1–H4.

	Stage 1	Stage 2						
Paths	**Direct relationship: PF**	**H1: Mediator PRE**	**H2: Mediator SEN**	**H3: Mediator RC**	**H4a: Mediator RC**	**H4b: Mediator RC**	**PF (with mediators)**	**Confidence intervals [LLCL, ULCL]**
FORM	0.418*** (5.502)	0.304*** (3.644)	0.178* (2.007)	0.262*** (3.769)			0.231** (2.734)	
PRE					0.013 (0.144)		0.046 (0.514)	
FORM→PRE							0.014 (0.466)	[−0.038, 0.061]
SEN						0.497*** (6.060)	0.259*** (3.157)	
FORM→SEN							0.046* (1.847)	[0.013, 0.092]
RC							0.315*** (4.013)	
FORM→RC							0.082** (2.572)	[0.033, 0.134]
PRE→RC							0.004 (0.139)	[−0.046, 0.051]
SEN→RC							0.156*** (3.148)	[0.085, 0.248]

Note: The table shows the path coefficients (*t*-values). FORM = formality, PF = procedural fairness, PRE = prevision, SEN = sensitivity, RC = role clarity. All *p*-values are one-tailed. *$p<0.05$, **$p<0.01$, ***$p<0.001$.

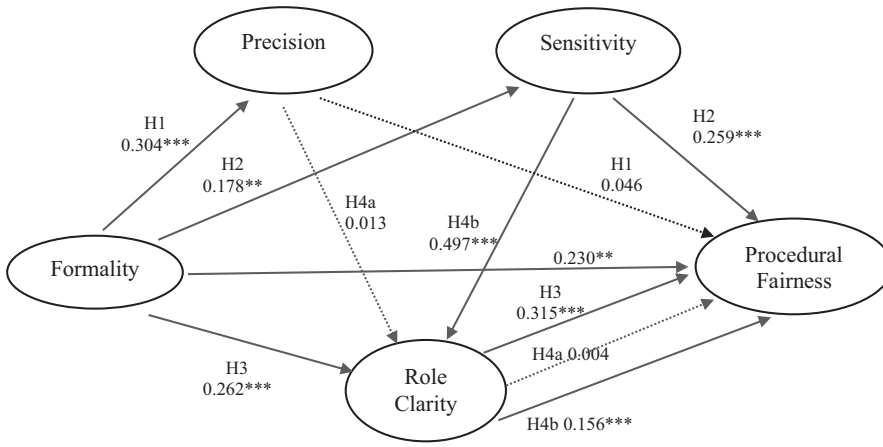

FIGURE 2 Structural model results. * Significant at $p<0.05$, ** Significant at $p<0.01$, *** Significant at $p<0.001$. Dash line --------- = not significant path, solid line —— = significant path.

Furthermore, the confident interval for sensitivity does not contain zero (LLCL = 0.013 and ULCL = 0.092), suggesting a significant mediation. Therefore, the results suggest that sensitivity partially mediates the relationship between formality and procedural fairness. Thus, H2 is supported.

H3 predicts the relationship between formality and procedural fairness is positively mediated by role clarity. The path between formality (FROM) and role clarity (RC) is positive and signifi-

cant ($\beta = 0.262$, $t = 3.769$, $p < 0.001$, one-tailed), and role clarity (RC) is also positively associated with procedural fairness (PF) ($\beta = 0.315$, $t = 4.013$, $p < 0.001$, one-tailed). The indirect effect is 0.082 and significant ($t = 2.572$, $p = 0.007$, one-tailed). The confident interval does not contain zero (LLCL = 0.033 and ULCL = 0.134). Thus, H3 is supported.

H4a and H4b predict the relationships between precision and procedural fairness and, sensitivity and procedural fairness are positively mediated by role clarity. As reported in Table 5 and Figure 2, the results show precision (PRE) is not significantly associated with role clarity (RC) ($\beta = 0.013$, $t = 0.144$, $p = 0.445$, one-tailed) whereas sensitivity (SEN) is significantly associated with role clarity (RC) ($\beta = 0.497$, $t = 6.06$, $p < 0.001$, one-tailed), and the path of role clarity (RC) to procedural fairness (PF) is also significant ($\beta = 0.315$, $t = 4.013$, $p < 0.001$, one-tailed). Hence, the path of precision to procedural fairness through role clarity is not significant, H4a is rejected. The indirect effect of sensitivity on procedural fairness through role clarity is 0.156 and significant ($t = 3.148$, $p = 0.001$). Further, the confident interval does not contain zero (LLCL = 0.085 and ULCL = 0.248). Thus, the mediating effect of role clarity on the path of sensitivity to procedural fairness is significant. H4b is supported.

4.2 | Additional analysis

To gain a better understanding of the relationships among the variables of interest, we conducted additional analyses examining the impacts of several factors, including managerial functions, the level of task uncertainty, participants' experience in their current positions and their ages. Abernethy and Brownell (1997) and Moers (2005) suggested that functional areas, such as manufacturing and sales/marketing are likely to adopt more quantitative measures and objective information, while supporting functions, such as human resources, information technology, strategic development and research and development, are likely to adopt more qualitative measures and superiors often use subjective judgement. Hartmann and Slapničar (2009) labelled the difference in the ease of measuring functions' measurable outputs as contractability. Contractability was proposed to be different in their study of bank managers, who were either doing front-office or back-office functions. Front-office functions which include granting loans and hiring deposits, are different from back-office functions that fulfilled reporting requirements and provided legal counsel, because the former have direct financial consequences that are measurable and verifiable whereas the latter do not. Given its implications on managers' perceptions, we also examined whether participants' managerial functions have an impact on the hypothesised relationships among the variables of interest.

The 119 participants were split into two groups based on their responsibility areas: (1) quantitative functions (i.e., sales and marketing, manufacturing and production, logistics functions), which contain 72 responses; and (2) qualitative functions (i.e., human resources, engineering, strategic management, IT and other supporting functions), which contain 47 responses. Path models for each group were drawn and similar testing procedures were applied. We conducted SmartPLS Multi-group Analysis (MGA) comparing the results of the hypotheses between the two groups.

The results are presented in Table 6. The only significant difference between the quantitative and qualitative function groups is the association between formality (FORM) and precision (PRE) ($\beta_{\text{difference}} = 0.337$, $p = 0.001$, one-tailed). The association is not significant in the quantitative functions ($\beta = 0.171$, $t = 1.324$, $p = 0.093$, one-tailed) but significant in the qualitative functions ($\beta = 0.508$, $t = 4.837$, $p < 0.001$, one-tailed). This can be interpreted to mean that higher level of formality of performance evaluation systems in the qualitative functional areas has a stronger impact on managers' perception of precision of performance measures than in those quantitative functional areas.

TABLE 6 Multi-group analysis – managerial function.

	Quantitative functions (72 cases)			Qualitative function (47 cases)			Difference	
	β	*t*	*p*-Value	*β*	*t*	*p*-Value	*β*	*p*-Value
Panel A: Direct relationship								
FORM→PF	0.560	8.315	0.000	0.330	0.983	0.160	0.230	0.427
Panel B: Mediation via PRE and SEN (H1, H2)								
FORM→PRE	0.171	1.324	0.093	0.508	4.837	0.000	0.337	0.010
PRE→PF	0.069	0.478	0.317	0.108	0.392	0.348	0.039	0.219
FORM→SEN	0.252	2.962	0.002	0.163	0.815	0.208	0.089	0.323
SEN→PF	0.407	3.065	0.001	0.440	2.408	0.008	0.033	0.204
FORM→PRE/ SEN→PF	0.442	4.799	0.000	0.157	0.730	0.233	0.284	0.449
Panel C: Mediation via RC (H3)								
FORM→RC	0.441	5.249	0.000	0.381	2.594	0.005	0.060	0.323
RC→PF	0.459	4.368	0.000	0.504	4.262	0.000	0.045	0.182
FORM→RC→PF	0.339	2.849	0.002	0.120	0.576	0.282	0.219	0.414
Panel D: Mediation via RC (H4a, H4b)								
PRE→RC	0.034	0.278	0.391	0.146	1.097	0.137	0.112	0.132
RC→PF	0.445	3.866	0.000	0.342	1.910	0.028	0.103	0.345
PRE→RC→PF	0.013	0.083	0.467	0.182	0.774	0.220	0.169	0.125
SEN→RC	0.531	5.046	0.000	0.572	5.714	0.000	0.041	0.196
SEN→RC→PF	0.304	2.189	0.015	0.206	0.833	0.203	0.098	0.314

Note: All *p*-values are one-tailed. FORM = formality, PF = procedural fairness, PRE = precision, SEN = sensitivity, RC = role clarity.

Task uncertainty may also influence the hypothesised path relationships (e.g., Hartmann & Slapničar, 2012), though excluded from the main path analysis due to a lack of discriminant validity. We examine its potential effects as part of additional analysis. Like Hartmann and Slapničar (2012), we dichotomised the sample into higher and lower task uncertainty subgroups (higher TU vs. lower TU) using the mean score of 5.031. The higher task uncertainty group contains 56 cases, and the lower task uncertainty subgroup contains 63 cases. The PLS-MGA results are presented in Table 7.

Panel B shows that the association between formality and precision is significant in the higher-TU group ($\beta = 0.428$, $t = 3.099$, $p < 0.001$, one-tailed), and that this association is stronger than that in the lower-TU group ($\beta = 0.221$, $t = 1.157$, $p = 0.124$, one-tailed), despite the difference between two subgroups was not statistically significant. Likewise, the association between formality and sensitivity is significant in the higher-TU group ($\beta = 0.289$, $t = 2.436$, $p = 0.008$, one-tailed) but not significant in the lower-TU group ($\beta = -0.060$, $t = 0.43$, $p = 0.334$, one-tailed). The difference between the two subgroups is significant ($\beta = -0.349$, $p = 0.03$, one-tailed). These findings are in line with our prediction that formality enhances precision and sensitivity and does so differentially.

To gain more understanding of the effects of different degrees of formality, we also divided our sample into high-formality and low-formality groups using the median value of 3.[9] The results presented in Table 8 show that formality is significantly associated with role clarity in the high-formality group ($\beta = 0.415$, $t = 4.314$, $p = 0.000$, one-tailed) but not significant in the

[9]We also attempted to compare the hypothesised effects between the very high formality (score ≥ 4) and very low formality (score ≤ 2) groups. Each group only has 14 cases, which is too small to run a meaningful comparison test.

TABLE 7 Analysis of task uncertainty – higher vs. lower task uncertainty.

	Higher task uncertainty (56 cases)			Lower task uncertainty (63 cases)			Difference	
	β	*t*	*p*-Value	*β*	*t*	*p*-Value	*β*	*p*-Value
[Stage 1] Panel A: Direct relationship								
FORM → PF	0.463	4.484	0.000	0.334	2.388	0.009	0.129	0.193
[Stage 2] Panel B: Mediation via PRE and SEN (H1, H2)								
FORM → PRE	0.428	3.099	0.001	0.221	1.157	0.124	−0.207	0.158
PRE → PF	−0.063	0.364	0.365	0.162	1.211	0.113	0.225	0.155
FORM → SEN	0.289	2.436	0.008	−0.060	0.430	0.334	−0.349	0.030
SEN → PF	0.190	1.412	0.079	0.251	1.637	0.051	0.062	0.360
FORM → PRE → PF	−0.027	0.336	0.369	0.036	0.694	0.244	0.063	0.222
FORM → SEN → PF	0.055	1.143	0.127	−0.015	0.409	0.341	−0.070	0.104
Panel C: Mediation via RC								
FORM → RC	0.323	2.121	0.017	0.367	2.360	0.009	0.044	0.400
RC → PF	0.221	1.451	0.074	0.326	2.987	0.001	0.105	0.287
FORM → RC → PF (H3)	0.072	1.178	0.120	0.120	1.896	0.029	0.048	0.271
Panel D: Mediation via RC								
PRE → RC	−0.037	0.191	0.424	0.001	0.006	0.498	0.038	0.435
RC → PF	0.221	1.451	0.074	0.326	2.987	0.001	0.105	0.287
PRE → RC → PF (H4a)	−0.008	0.159	0.437	0.000	0.005	0.498	0.008	0.436
SEN → RC	0.293	1.925	0.027	0.324	2.124	0.017	0.031	0.883
SEN → RC → PF (H4b)	0.065	1.020	0.154	0.106	1.446	0.074	0.041	0.333

Note: All *p*-values are one-tailed. FORM = formality, PF = procedural fairness, PRE = prevision, SEN = sensitivity, RC = role clarity.

low-formality group ($\beta = 0.088$, $t = 0.521$, $p = 0.302$, one-tailed), and this difference is statistically significant ($\beta = 0.327$, $p = 0.039$, one-tailed). As such, the mediating effect of role clarity is only significant in the high-formality group.[10]

We further analysed the potential effects of participants' age and work experience in both SmartPLS 3 and Amos 25 but no significant impact on the hypothesised relationships was detected. Furthermore, a separate moderation model was analysed to test the potential moderating effects of precision and sensitivity on the relationship between formality and procedural fairness. The results reveal that sensitivity positively moderates the relationship between formality and procedural fairness ($\beta = 0.255$, $t = 3.196$, $p < 0.003$) whereas there is no moderating affect found for perceived precision ($\beta = 0.049$, $t = 0.607$). This finding suggests formality leads to procedural fairness when there is a higher level of sensitivity. Sensitivity is a function of formality. When sensitivity is strong, managers will think that the use of formal performance evaluation is more supportive and favourable in reflecting subordinates' interest, and as such, formality has a stronger influence on procedural fairness. In other words, with a stronger sense of sensitivity, the association between formality and procedural fairness is stronger, and vice versa.

[10]We thank one of the reviewers for this suggestion to analyse the impact of different degrees of formality on the variables examined in this study.

TABLE 8 Analysis of formality – high-formality vs. low-formality.

	High formality (64 cases)			Low formality (55 cases)			Difference	
	β	*t*	*p*-Value	*β*	*t*	*p*-Value	*β*	*p*-Value
Panel A: Direct relationship								
FORM→PF	0.173	0.998	0.159	−0.008	0.045	0.482	0.182	0.230
Panel B: Mediation via PRE and SEN (H1, H2)								
FORM→PRE	0.178	1.091	0.138	0.461	3.364	0.000	−0.283	0.073
PRE→PF	0.134	1.011	0.156	0.076	0.496	0.310	0.058	0.382
FORM→PRE→PF	0.024	0.641	0.261	0.035	0.460	0.323	−0.011	0.465
FORM→SEN	0.394	4.499	0.000	0.122	0.563	0.287	0.272	0.092
SEN→PF	0.188	1.418	0.078	0.320	2.324	0.010	−0.132	0.244
FORM→SEN→PF	0.074	1.249	0.106	0.039	0.543	0.294	0.035	0.358
Panel C: Mediation via RC (H3)								
FORM→RC	0.415	4.314	0.000	0.088	0.521	0.301	0.327	0.039
RC→PF	0.321	2.559	0.005	0.321	2.153	0.016	0.000	0.492
FORM→RC→PF	0.133	2.081	0.019	0.028	0.427	0.335	0.105	0.120
Panel D: Mediation via RC (H4a, H4b)								
PRE→RC	−0.084	0.726	0.234	0.122	0.771	0.220	−0.206	0.148
PRE→RC→PF	−0.027	0.584	0.280	0.039	0.715	0.238	−0.066	0.154
SEN→RC	0.428	3.304	0.001	0.485	4.276	0.000	−0.057	0.374
SEN→RC→PF	0.137	1.846	0.033	0.156	1.883	0.030	−0.019	0.422

Note: This table summarises the results of PLS-MGA. All *p*-values are one-tailed. FORM = formality, PF = procedural fairness, PRE = prevision of performance measures, SEN = sensitivity of performance measures, RC = role clarity.

5 | DISCUSSION AND CONCLUSIONS

This study investigated the complex and not straight-forward link between formality in superiors' use of performance evaluation systems and subordinates' procedural fairness by examining the intervening variables of precision, sensitivity, and role clarity, and controlling variables of contractability and task uncertainty. Our results show that: (1) formality is positively associated with subordinates' procedural fairness through (i) sensitivity of performance measures and (ii) role clarity; (2) the link between sensitivity and procedural fairness is through role clarity; (3) the influence of formality on precision of performance measures is more important for qualitative functions than for quantitative functions, (4) the influence of formality on precision and sensitivity is stronger for subordinates who face higher task uncertainty than lower task uncertainty; (5) the function of role clarity on the relationships between formality and procedural fairness is relevant in conditions of relatively high levels of formality, and (6) the direct relationship between formality and procedural fairness is stronger when there is a higher level of sensitivity.

The study's results indicate that formality in the use of performance evaluation systems can foster employee perceptions that procedures used in performance evaluations by superiors are unbiased, representative, transparent, correctable, ethical and consistent with contractual codifications (Luo, 2008). However, as Hartmann and Slapničar (2009, 2012) found, this relationship is influenced by a number of factors and is not straight forward. This study deepens this understanding of a complex and an indirect relationship by demonstrating that it is through sensitivity and role clarity that formality is linked to procedural fairness. Applying role theory, formality is a process where superiors communicate to subordinates their performance expectations (Kahn et al., 1964). Superiors' energy to apply objectivity and quantification on performance expecta-

tions minimises favouritism and variability (Moers, 2005). Thus, subordinates are more likely to think that with their efforts, they can influence performance measures. In addition, subordinates will have a clearer idea of their duties, tasks, objectives and expectations of their work roles (role clarity). This study's results add further support to the position that superiors' actions on performance evaluation systems become evaluative standards that mould how subordinates perceive the parameters of their roles (Burkert et al., 2011). The results are also consistent with prior studies that show that the impact of performance evaluation systems on performance outcomes tend to be indirect through individual cognition and role expectations (Burney & Widener, 2007; Hall, 2008).

Revealing the complexity in the link between formality and procedural fairness and, similar to Hartmann and Slapničar (2009, 2012) which found that the relationship between formality and procedural fairness is strengthened by the degree of task uncertainty and task contractability, this study provides additional insights. First, the role of task uncertainty in the link between formality and procedural fairness cannot yet be assumed. Contrary to Hartmann and Slapničar (2012) who found that the link is strengthened in conditions of low task uncertainty, our study found the opposite, viz that this link becomes more pronounced in conditions of high task uncertainty.

Second, this relationship is also heightened when the degree of sensitivity of performance measures is higher. Thus, this study provides support for two competing hypotheses on the roles of sensitivity as both mediating and moderating factors in the relationship between formality and procedural fairness. Hayes (2013) illustrated that it is mathematically possible for the same variable to simultaneously mediate and moderate a given predictor-criterion relation. However, according to Karazsia and Berlin (2018), the MacArthur approach to moderation precludes this possibility on temporal grounds – a moderator must precede the predictor temporally, whereas a mediator must come after the predictor temporally. Applied to this study, while previous studies focus on controllability (precision and sensitivity) as an independent variable (e.g., Burkert et al., 2011, 2017), our study demonstrated that formality is a predictor to sensitivity, which at that point in time should have acted as a mediator to the formality and procedural fairness relationship. It also sets a new baseline for sensitivity, which in a subsequent period would act as moderator to the formality-procedural fairness link. This study thus also emphasises the value in embedding a feedback aspect in formality to further enhance sensitivity of performance measures and role clarity, which then lead to procedural fairness, an established antecedent to positive employee mindsets and behaviour. Overall, this study's findings indicate that sensitivity and role clarity are critical elements to improve subordinates' procedural fairness. These are important findings that suggest that studies on the relationship between formality and procedural fairness should refocus on the role of formality in increasing sensitivity of performance measures and role clarity.

Our results also reveal that formality has a significant positive influence on precision, that is, that there will be less noise and variability in performance measures. However, precision does not influence procedural fairness. Moreover, formality differentially influences precision in two groups of managerial functions. Specifically, the influence is significant in qualitative functions, but not significant in quantitative functions. This is a reasonable finding because formally defined measures and procedures are usually available in quantitative functions, such as marketing, production and logistics. Hence, superiors' formal approach will not necessarily further enhance precision in these functions. In contrast, an informal or subjective approach is usually adopted in qualitative functions (Abernethy & Brownell, 1997). Put differently, in functions where there is low contractability (Hartmann & Slapničar, 2009), a higher level of formality assists in providing subordinates with clearer evaluative standards because they are less noisy and variable.

Further, formality differentially influences precision according to the levels of task uncertainty. The impact of formality on precision of performance measures is more pronounced when the level of task uncertainty is higher than when the level is lower. Noting that the link between

formality and procedural fairness is not through precision, this finding nonetheless clarifies that formality impacts on precision in conditions of high task uncertainty. Our additional analysis on task uncertainty thus provides more insights into the differential effects of formality on precision and sensitivity. When facing higher task uncertainty, superiors' effort to deploy more objective and quantitative measurement has a stronger influence on both the information content of performance measures and subordinates' perceived ability to influence their performance measures. When facing lower task uncertainty, the deployment of formal and quantitative measurement is assumed, and as such, higher formality does not enhance the precision and sensitivity of performance measures.

According to the conditional controllability principle which informed this study, subordinates should be evaluated based on information that provides insights into their actions and whether subordinates can influence performance outcomes (Antle & Demski, 1988). Our study indicates that formality enhances the information content of performance measures applied to qualitative functions. In conditions of higher levels of task uncertainty, formality tempers noise and variability in information, and also improves the ability of subordinates to influence outcomes. Recall that formality manifests in different degrees on a continuum. Our study reveals that on balance, it may be wise for superiors to rely more on explicit procedures (Gibbs et al., 2004; Locke & Latham, 1990), quantitative measures and objective information (Moers, 2005) than on implicit procedures, qualitative measures and subjective judgement (Bol & Smith, 2011) in functions with low contractability and conditions of high task uncertainty. This study's results are different from Hartmann and Slapničar (2009) who found that contractability moderates the link between formality and procedural fairness. We believe that this may be attributable to how contractability, defined as the ability to measure outputs by Grossman and Hart (1986), was operationalised. Hartmann and Slapničar (2009) measured contractability by attributing to front-office functions high contractability because these functions contributed to the financial outcomes of banks, and low contractability to back-office functions as they did not contribute directly to banks' financial results. This study, on the other hand, focused on quantitative (high contractability) versus qualitative (low contractability) functions. This study's results are also different from Hartmann and Slapničar (2012) who found that task uncertainty moderates the link between formality and procedural fairness. Our finding is that high(er) levels of task uncertainty positively influence the link between formality and precision although the link between precision and procedural fairness is not significant. Moreover, the association between formality and procedural fairness through sensitivity is heightened when task uncertainty is high. Overall, the findings on the conditioning role of task uncertainty indicate that a refocus on the role of formality in performance evaluation systems is warranted. Indeed, our study also showed that a high level of formality enhances role clarity and that a low level does not.

This study has four theoretical and practical contributions. The first theoretical contribution is providing a better understanding of the complex and not straight-forward link between formality and procedural fairness. First, it revealed how formality is linked to procedural fairness through sensitivity and role clarity. Second, sensitivity enhances role clarity, which means that sensitivity is salient in the link between formality and procedural fairness. Third, precision is not relevant in the link between formality and procedural fairness. However, formality influences precision in conditions of low contractability and high task uncertainty. The second theoretical contribution relates to the concept of controllability. Sensitivity and precision were shown to have little conceptual overlap especially since they do not necessarily have identical effects (Burkert et al., 2011). In future studies, these constructs could be studied as distinct concepts with different effects. The third practical contribution focuses on how formality predicts perceived sensitivity and role clarity. Given their critical role in the link between formality and procedural fairness, superiors may want to engage in a periodic dialogue with subordinates on an optimal level of formality that maximises subordinates' perceptions of sensitivity and role

clarity. Lastly, superiors should also focus on how to enhance formality in qualitative functions and conditions of high task uncertainty given formality's positive impact on precision of performance measures. Our study's findings suggest that such focus is redundant in quantitative functions because outputs in quantitative functions immediately provide formal and accurate feedback. There will be less attribution by subordinates in these functions to their superiors' use of formality as a source of precise information on their performance measurement and evaluation (Sitkin & George, 2005). It appears that subordinates will favour efforts towards formality in a situation of high level of task uncertainty because such efforts improve the information content of performance measures.

This study is subject to at least three limitations. The first relates to a potential bias in the self-administered survey method. While tests of biases show that bias did not impact the data, it is still plausible that the study's participants were magnanimous in their responses. Second, the study did not examine the effect of procedural fairness on employee performance although this link has been the subject of previous research which showed the positive effects on performance of procedural fairness. Third, the study did not examine the level of environmental uncertainty and its impacts on the variables in the model.

Given the interesting role of sensitivity in the formality-procedural fairness link as both moderator and mediator in this study, future studies could replicate this study across a number of contexts including the manufacturing sector, and across time from the same settings to better appreciate its likely dual roles. Future research may also examine impacts of formality in a highly uncertain environment. Contractability as a concept is relevant in our study as well as Hartmann and Slapničar's (2009). However, how it was operationalised appears to drive the different results. A future study could develop a new measurement instrument for assessing contractability to enable consistent application and direct comparison across studies.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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REFERENCES

Abernethy, M.A. & Brownell, P. (1997) Management control systems in research and development organizations: the role of accounting, behavior and personnel controls. *Accounting, Organizations and Society*, 3, 233–248.

Antle, R. & Demski, J.S. (1988) The controllability principle in responsibility accounting. *The Accounting Review*, 63, 700–718.

Banker, R.D. & Datar, S.M. (1989a) Sensitivity, precision, and linear aggregation of signals for performance evaluation. *Journal of Accounting Research*, 27, 21–39.

Baron, R.M. & Kenny, D.A. (1986) The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.

Bedford, D. & Spekle, R.F. (2018) Construct validity in survey-based management accounting and control research. *Journal of Management Accounting Research.*, 30(2), 23–58.

Birnberg, J.G., Luft, J. & Shields, M.D. (2007) Psychology theory in management accounting research. In: Chapman, C.S., Hopwood, A.G. & Shields, M.D. (Eds.) *Handbook of management accounting research*, Vol. 1. Amsterdam: Elsevier, 121.

Bisbe, J., Batista-Foguet, J.M. & Chenhall, R.H. (2007) Defining management accounting constructs: a methodological note on the risks of conceptual misspecification. *Accounting, Organizations and Society*, 32, 789–820.

Bol, J.C. & Smith, S.D. (2011) Spillover effects in subjective performance evaluation: bias and the asymmetric influence of controllability. *The Accounting Review*, 86, 1213–1230.
Budde, J. (2009) Variance analysis and linear contracts in agencies with distorted performance measures. *Management Accounting Research*, 20(3), 166–176.
Burkert, M., Fischer, F.M. & Schaffer, U. (2011) Application of the controllability and managerial performance: the role of role perceptions. *Management Accounting Research*, 22, 143–159.
Burkert, M., Fischer, F.M. & Schaffer, U. (2017) The relationship between lack of controllability and proactive work behaviour: an empirical analysis of competing theoretical explanations. *Accounting and Business Research*, 47, 144–171.
Burney, L.L. & Widener, S.K. (2007) Strategic performance measurement systems, job-relevant information, and managerial behavioral responses – role stress and performance. *Behavioral Research in Accounting*, 19, 43–69.
Chenhall, R.H. & Brownell, P. (1988) The effect of participative budgeting on job satisfaction and performance: role ambiguity as an intervening variable. *Accounting, Organizations and Society*, 13, 225–233.
Chow, C.W. & Van der Stede, W.A. (2006) The use and usefulness of nonfinancial performance measures. *Management Accounting Quarterly*, 7(3), 1–9.
Colquitt, J. & Jackson, C. (2006) Justice in teams: the context sensitivity of justice rules across individual and team contexts. *Journal of Applied Social Psychology*, 36, 868–899.
Dillman, D.A. (2000) *Mail and internet surveys: the tailored design method*, 2nd edition. New York, NY: John Wiley & Sons.
Du, F., Tang, G. & Young, S.M. (2012) Influence activities and favoritism in subjective performance evaluation: evidence from Chinese state-owned enterprises. *The Accounting Review*, 87(5), 1555–1588.
Fischer, F.M. (2010) *The application of the controllability principle and managers' responses: a role theory perspective*. Wiesbaden: Springer Science & Business Media.
Folger, R. & Cropanzano, R. (1998) *Organizational justice and human resource management*. Thousand Oaks, CA: Sage Publications.
Franco-Santos, M., Lucianetti, L. & Bourne, M. (2012) Contemporary performance measurement systems: a review of their consequences and a framework for research. *Management Accounting Research*, 23, 79–119.
Ghosh, D. (2005) Alternative measures of managers' performance, controllability, and the outcome effect. *Behavioral Research in Accounting*, 17, 55–70.
Ghosh, D. & Lusch, R.F. (2000) Outcome effect, controllability and performance evaluation of managers: some field evidence from multi-outlet businesses. *Accounting, Organization and Society*, 25, 411–425.
Gibbs, M., Merchant, K.A., van der Stede, W.A. & Vargus, M.E. (2004) Determinants and effects of subjectivity in incentives. *The Accounting Review*, 79, 409–436.
Gibbs, M., Merchant, K.A., van der Stede, W.A. & Vargus, M.E. (2009) Performance measure properties and incentive system design. *Industrial Relations*, 48(2), 237–264.
Giraud, F., Langevin, O. & Mendoza, C. (2008) Justice as a rationale for the controllability principle: a study of managers' opinions. *Management Accounting Research*, 19, 32–44.
Govindarajan, V. (1984) Appropriate of accounting data in performance evaluation: an empirical examination of environmental uncertainty as an intervening variable. *Accounting, Organizations and Society*, 9, 125–135.
Grossman, S.J. & Hart, O.D. (1986) The costs and benefits of ownership: a theory of vertical and lateral integration. *Journal of Political Economy*, 94, 691–719.
Hair, J.F., Hult, G.T.M., Ringle, C.M. & Sarstedt, M. (2017) Assessing PLS-SEM results part III. In: Fargotstein, L. (Ed.), *A primer on partial least squares structural equation modeling (PLS-SEM)*, 2nd edition (pp. 137–189). Thousand Oaks, CA: SAGE Publications, Inc.
Hall, M. (2008) The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. *Accounting, Organizations and Society*, 33, 141–163.
Harman, H.H. (1967) *Modern factor analysis*. Chicago, IL: University of Chicago Press.
Hartmann, F., Naranjo-Gil, D. & Perego, P. (2010) The effects of leadership styles and use of performance measures on managerial work-related attitudes. *European Accounting Review*, 19, 275–310.
Hartmann, F. & Slapničar, S. (2009) How formal performance evaluation affects trust between superior and subordinate managers. *Accounting, Organizations and Society*, 34, 722–737.
Hartmann, F. & Slapničar, S. (2012) The perceived fairness of performance evaluation: the role of uncertainty. *Management Accounting Research*, 23, 17–33.
Hartmann, F.G.H. (2007) Do accounting performance measures indeed reduce managerial ambiguity under uncertainty? *Advances in Management Accounting Research*, 16, 159–180.
Hayes, A.F. (2009) Beyond Baron and Kenny: statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408–420.
Hayes, A.F. (2013) *Introduction to mediation, moderation, and conditional process analysis: a regression-based approach*. New York, NY: Guildford.
He, J.Q. & Lau, C.M. (2012) Does the reliance on nonfinancial measures for performance evaluation enhance managers' perceptions of procedural fairness? In: Davila, A., Epstein, M.J. & Manzoni, J.-F. (Eds.) *Performance measurement*

and management control: global issues (Studies in managerial and financial accounting), Vol. 25. Bingley: Emerald Group Publishing Limited, pp. 363–388.
Holmstrom, B. (1979) Moral hazard and observability. *Bell Journal of Economics*, 10(1), 74–91.
Hoppe, F. & Moers, F. (2011) The choice of different types of subjectivity in CEO annual bonus contracts. *The Accounting Review*, 86(6), 2023–2046.
Huffman, C. & Cain, L.B. (2000) Effects of considering uncontrollable factors in sales force performance evaluation. *Psychological Marketing*, 17, 799–833.
Ittner, C. & Larcker, D.F. (2002) Determinants of performance measures choices in worker incentive plans. *Journal of Labor Economics*, 20, 58–90.
Janssen, O. & van Yperen, N.W. (2004) Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal*, 47, 368–384.
Kahn, R.L. (1974) Conflict, ambiguity and overload: three elements in job stress. In: McLean, A.A. (Ed.) *Occupational stress*. Springfield, IL: Charles C. Thomas Publisher, pp. 47–61.
Kahn, R.L., Wolfe, D.M., Quinn, R.P., Snoek, J.D. & Rosenthal, R.A. (1964) *Occupational stress: studies in role conflict and ambiguity*. New York, NY: Wiley.
Karazsia, B.T. & Berlin, K.S. (2018) Can a mediator moderate? Considering the role of time and change in the mediator-moderator distinction. *Behavior Therapy*, 49, 12–20.
Katz, D. & Kahn, R.L. (1978) *The social psychology of organizations*, 2nd edition. New York, NY: John Wiley & Sons, Inc.
Kosslyn, S.M. & Rosenberg, R.S. (2007) *Psychology in context*. New Delhi: Pearson Education.
Kren, L. (1992) Budgetary participation and managerial performance: the impact of information and environmental volatility. *The Accounting Review*, 87(3), 511–526.
Lambert, R.A. (2001) Contracting theory and accounting. *Journal of Accounting and Economics*, 32, 3–87.
Lau, C.M. (2015) The effects of nonfinancial measures on role clarity, procedural fairness and managerial performance. *Pacific Accounting Review*, 27, 142–165.
Lau, C.M. & Buckland, C. (2000) Budget emphasis, participation, task difficulty on managerial performance: the effect of diversity within culture. *Accounting and Business Research*, 30, 37–55.
Lau, C.M. & Moser, A. (2008) Behavioral effects of nonfinancial performance measures: the role of procedural fairness. *Behavioral Research in Accounting*, 20, 55–71.
Lau, C.M. & Sholihin, M. (2005) Financial and nonfinancial performance measures: how do they affect job satisfaction? *The British Accounting Review*, 37, 389–413.
Lau, C.M. & Tan, S.L.C. (2005) The importance of procedural fairness in budgeting. *Advances in Accounting*, 21, 333–356.
Leventhal, G.S. (1980) What should be done with equity theory? New approaches to the study of fairness in social relationships. In: Gergen, K., Greenberg, M. & Willis, R. (Eds.) *Social exchange: advances in theory and research*, pp. 27–55. New York, NY: Plenum Press.
Lind, E.A. & Tyler, T.R. (1988) *The social psychology of procedural justice*. New York, NY: Plenum Press.
Lindell, M.K. & Whitney, D.J. (2001) Accounting for common method variance in cross-sectional designs. *Journal of Applied Psychology*, 86, 114–121.
Locke, E.A. & Latham, G.P. (1990) *A theory of goal setting and task performance*. Prentice Hall, NJ: Englewood Cliffs.
Long, C.P., Bendersky, C. & Morrill, C. (2011) Fairness monitoring: linking managerial controls and fairness judgment in organizations. *Academy of Management Journal*, 54, 1045–1068.
Luo, Y. (2008) Procedural fairness and interfirm cooperation in strategic alliances. *Strategic Management Journal*, 29(1), 27–46.
Marginson, D., McAulay, L., Roush, M. & van Zijl, T. (2014) Examining a positive psychological role for performance measures. *Management Accounting Research*, 25(1), 63–75.
Marshall, M.N. (1996) Sampling for qualitative research. *Family Practice*, 13, 522–525.
McFarlin, D.B. & Sweeney, P.D. (1992) Distributive and procedural justice as predictors of satisfaction with personal and organizational outcomes. *Academy of Management Journal*, 35, 626–637.
Merchant, K.A. (1985) Budgeting and the propensity to create budgetary slack. *Accounting, Organizations and Society*, 10, 201–210.
Merchant, K.A. (1989) *Rewarding results: motivating profit center managers*. Boston, MA: Harvard Business School Press.
Merchant, K.A. (2006) Measuring general managers' performance. *Accounting, Auditing and Accountability Journal*, 19(6), 893–917.
Merchant, K.A. & Otley, D.T. (2006) A review of the literature on control and accountability. In: Chapman, C.S., Hopwood, A.G. & Shields, M.D. (Eds.) *Handbook of management accounting research*, Vol. 2. Amsterdam: Elsevier Ltd.
Merchant, K.A. & Van der Stede, W.A. (2007) *Management control systems: performance measurement, evaluation and incentives*, 2nd edition. Harlow: Prentice Hall.
Milgrom, P. (1988) Employment contracts, influence activities, and efficient organization design. *Journal of Political Economy*, 96(1), 42–60.

Moers, F. (2000) *The role of performance measure characteristics in the design of incentive systems: an empirical analysis*. Maastricht: METEOR, Maastricht University School of Business and Economics.

Moers, F. (2005) Discretion and bias in performance evaluation: the impact of diversity and subjectivity. *Accounting, Organizations and Society*, 30, 67–80.

Moers, F. (2006) Performance measure properties and delegation. *The Accounting Review*, 81(4), 897–924.

Panaccio, A. & Vandenberghe, C. (2011) The relationships of role clarity and organization-based self-esteem to commitment to supervisors and organizations and turnover intentions. *Journal of Applied Social Psychology*, 41, 1455–1485.

Preacher, K.J., Rucker, D.D. & Hayes, A.F. (2007) Addressing moderated mediation hypotheses: theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42, 185–227.

Prendergast, C. & Topel, R.H. (1993) Discretion and bias in performance evaluation. *European Economic Review*, 37, 355–365.

Ringle, C.M., Gotz, O., Wetzels, M. & Wilson, B. (2009) *On the use of formative measurement specifications in structural equation modeling: a Monte Carlo simulation study to compare covariance-based and partial least squares model estimation methodologies*. Maastricht: METEOR Research Memoranda RM/09/014, Maastricht University.

Rizzo, R., House, R.J. & Lirtzman, S.I. (1970) Role conflict and ambiguity in complex organizations. *Administrative Science Quarterly*, 15, 150–163.

Sawyer, J.E. (1992) Goal and process clarity: specification of multiple constructs of role ambiguity and a structural equation model of their antecedents and consequences. *Journal of Applied Psychology*, 77, 130–142.

Shapiro, D.H., Jr., Schwartz, C.E. & Astin, J.A. (1996) Controlling ourselves, controlling our world: psychology's role in understanding positive and negative consequences of seeking and gaining control. *American Psychologist*, 51(12), 1213–1230.

Sholihin, M. & Pike, R. (2009) Fairness in performance evaluation and its behavioural consequences. *Accounting and Business Research*, 39, 397–413.

Sholihin, M., Pike, R., Mangena, M. & Li, J. (2011) Goal-setting participation and goal commitment: examining the mediating roles of procedural fairness and interpersonal trust in a UK financial services organisation. *The British Accounting Review*, 43, 135–146.

Siegel, P.A., Post, C., Brockner, J., Fishman, A.Y. & Garden, C. (2005) The moderating influence of procedural fairness on the relationship between work-life conflict and organizational commitment. *Journal of Applied Psychology*, 90, 13–24.

Simons, R. (2005) *Levers of organization design: how managers use accountability systems for greater performance and commitment*. Boston, MA: Harvard Business School Press.

Sitkin, S.B. & George, E. (2005) Managerial trust-building through the use of legitimating formal and informal control systems. *International Sociology*, 20, 307–338.

Solhaug, B. & Stølen, K. (2011) Uncertainty, subjectivity, trust and risk: how it all fits together. In: Meadows, C. & Fernandez-Gago,, C. (Eds.), *International Workshop on Security and Trust Management*. Berlin, Heidelberg: Springer.

Tyler, T.R. & Blader, S.L. (2000) Cooperation in groups: procedural justice, social identity and behavioural engagement (Psychology Press, Philadelphia, PA). Woods, A., 2012, Subjective adjustments to objective performance measures: the influence of prior performance. *Accounting, Organizations and Society*, 37, 403–425.

Van Rinsum, M. & Verbeeten, F.H.M. (2012) The impact of subjectivity in performance evaluation practices on public sector managers' motivation. *Accounting and Business Research*, 42(4), 377–396.

Voußem, L., Kramer, S. & Schäffer, U. (2016) Fairness perceptions of annual bonus payments: the effects of subjective performance measures and the achievement of bonus targets. *Management Accounting Research*, 30, 32–46.

Weibenberger, B. & Angelkort, H. (2011) Intergration and management accounting systems: the mediating influence of a consistent financial language on controllership effectiveness. *Management Accounting Research*, 22(3), 160–180.

Woods, A. (2012) Subjective adjustments to objective performance measures: the influence of prior performance. *Accounting, Organizations and Society*, 37, 403–425.

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APPENDIX: CONSTRUCT MEASUREMENT ITEMS

Formality	
FORM1	My superior expresses my job objectives __. (implicitly–explicitly)
FORM2	My superior casts my objectives in ___ terms. (qualitative–quantitative)
FORM3	My superior evaluates my performance based on ___. (judgement–system)
FORM4	My superior discusses my performance in ___ terms. (qualitative–quantitative)
FORM5	My pay is based on ___. (judgement–system)
FORM6	My pay is based on ___ objectives. (qualitative–quantitative)
Procedural fairness	
PF1	The procedures used to communicate performance feedback are fair
PF2	The procedures used to determine pay rise are fair
PF3	The procedures used to evaluate my performance are fair
PF4	The procedures used for promotion are fair
Precision	
PRE1	There is no noise in my performance measurement as uncertain or uncontrollable factors do not have an impact on my performance measures
PRE2	There is no distortion in my performance measurement that might be caused by uncontrollable factors
PRE3	My performance measures are precise, that is, the influence of uncontrollable factors is minimal
PRE4	My performance measures are not blurred by factors that I cannot control
Sensitivity	
SEN1	With my actions I can influence my performance measures
SEN2	My effort has an impact on my performance measures
SEN3	My performance measures do depend on my actions
SEN4	With my effort I can influence the measures according to which my performance is evaluated
Role clarity	
RC1	I am clear about the planned goals and objectives
RC2	I am given clear explanation
RC3	I know my responsibilities
RC4	I know what is expected of me
RC5	I am certain about my authority
RC6	I can divide my time properly