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Understanding the concept of subjectivity in performance evaluation and its effects on perceived procedural justice across contexts

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Abstract

This study explores the notion of subjectivity in performance evaluation as a multidimensional concept, including *ex ante* specified and *ex post* subjective evaluation, which are determined at different phases of an evaluation period. This distinction is important as these subjectivity types have different purposes and varying impacts on organisational outcomes. Based on a survey of 160 Vietnamese middle managers, we uncover their assorted impacts on perceived procedural justice across contexts of formalisation and job autonomy. As such, this study seeks to offer important insights on the literature of subjective evaluation and organisational justice.

Key words: Management accounting; Organisational justice; Procedural justice perceptions; Subjectivity in performance evaluation

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1. Introduction

Subjective evaluation – which refers to supervisors' discretion in evaluating their subordinates' performance – plays an important role in a performance

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evaluation system because it can address imperfections in objective measures and capture more broadly employees' contribution (Baker *et al*., 1994; Bol, 2008; Höppe & Moers, 2011). It also influences organisational outcomes, such as fairness (Voußem *et al*., 2016), feedback quality (Alves & Lourenço, 2021), trust and motivation (Van Rinsum & Verbeeten, 2012). Hence, it has been of great interest among management accounting researchers as a part of comprehensive performance evaluation systems (Gibbs *et al*., 2004; Moers, 2005).

Prior research explores subjective evaluation in various ways. Many studies refer to the concept of subjectivity in a general sense (e.g., Alves & Lourenço, 2021; Tran *et al*., 2021); some others acknowledge multiple aspects of supervisor discretion, yet often focus on certain aspects separately. For instance, Bellavance *et al*. (2013) explore the use of subjective performance measures and *ex post* flexibility on the weighting of multiple measures, while Bol *et al*. (2015) focus on *ex post* discretionary adjustment in response to uncontrollable events. Bicudo de Castro (2017) takes a different approach and proposes two concepts of subjectivity: rule-driven and supervisor-driven subjective evaluation. Despite growing empirical research on the topic, scholars still acknowledge imperfections in the literature on subjective evaluation and its construct measurements. Since different facets of subjective evaluation serve different purposes, and potentially have different impacts on organisational outcomes, it is critical to capture more comprehensively the notion of subjectivity in performance evaluation.

This paper aims to address the gap in prior literature on subjective evaluation. In particular, we present two specific types: *ex ante* specified and *ex post* subjective evaluation, which refer to the discretion determined at different phases of the performance evaluation process. The underlying argument for this distinction is that the performance evaluation process is not only relevant at the end of an evaluation period when performance needs to be assessed, it is also exercised at the beginning of the period when performance criteria and measures are selected and attributed different weights, and targets are set (Aranda *et al*., 2019; Bol, 2008). It is noteworthy that prior research has separately investigated these two aspects of subjective evaluation (Bol *et al*., 2015; Höppe & Moers, 2011; Kelly *et al*., 2015); this study distinguishes itself by defining more explicitly these forms, their empirical interpretation and construct measurement.

To further validate these two concepts, we attempt to explore their varying impacts on justice perceptions, because despite justice being an important outcome of performance evaluation, there are conflicting views on whether subjectivity helps or hinders justice perceptions regarding the performance evaluation system. Moreover, we explore the effects of subjective evaluation types across contexts, through examining their relationships with procedural justice perceptions under different conditions of formalisation and job autonomy. These two contextual factors are components of organisational

structure and job design, and they potentially influence the effectiveness of subjective evaluation. The theoretical models are empirically tested based on a survey on 160 Vietnamese middle managers who are subjects of performance evaluation.

The study makes several contributions to the literature. First, it contributes to the growing research on subjectivity in performance evaluation (e.g., Alves & Lourenço, 2021; Bellavance *et al*., 2013; Bicudo de Castro, 2017; Tran *et al*., 2021). The study reintroduces two aspects of subjectivity: specified *ex ante* and *ex post* subjective evaluation, paying specific attention to their improved definitions, precise specifications and instrument measurements. Furthermore, it seeks to clarify their distinctiveness by exploring their effects on perceived justice across contexts. Second, the paper extends the research stream on management control system from subordinates' viewpoints by examining their behavioural consequences, for instance, feedback quality and trust in the supervisor (Alves & Lourenço, 2021), or motivation (Van Rinsum & Verbeeten, 2012). Specifically, it explores how subjective evaluation influences procedural justice perceptions across contexts of formalisation and job autonomy. As such, it is also a reply to the calls of Woods (2012) and Van Rinsum and Verbeeten (2012) to examine benefits and costs of subjective evaluation in various monitoring systems. Finally, the study extends the literature on organisational justice by examining how procedural justice perception is shaped in relation to management control practices (e.g., Hartmann & Slapničar, 2012). As a practical implication, our findings suggest that organisations should exercise caution when designing and allowing different forms of subjectivity in performance evaluation.

In the following section, we review literature on subjective evaluation, and its impacts on procedural justice perceptions across different contexts. We discuss research methods in Section 3, and data analysis in Section 4. The paper concludes with a discussion of findings, implications, limitations and future research opportunities.

2. Theoretical background and hypotheses

2.1. Subjectivity in performance evaluation

Subjectivity in performance evaluation refers to a supervisor's judgement and discretion regarding his/her subordinates' performance and their actions leading to that performance (Bushman *et al*., 1996; Gibbs *et al*., 2004; Moers, 2005). It can be exercised in many ways, for instance, through the use of non-financial, non-quantifiable measures (e.g., work attitude, interpersonal skills) (Bellavance *et al*., 2013; Hartmann *et al*., 2010). A supervisor may also have the flexibility to make adjustments to (financial and non-financial) performance assessments and bonuses (Bol *et al*., 2015; Kelly *et al*., 2015; Woods, 2012). Subjective evaluation is commonly used in addition to or as a substitute for

financial measures (e.g., revenues and profit) and quantified non-financial measures (e.g., customer satisfaction ratings) (Baker *et al*., 1994). It is considered a useful complementary management tool in a performance evaluation system, especially when objective measurements are inaccurate or unavailable (Gibbs *et al*., 2004; Golman & Bhatia, 2012; Kren & Tyson, 2009).

As subjective evaluation comprises an array of forms that serve different incentive purposes and have varying impacts on organisational outcomes and employees' perceptions (Bellavance *et al*., 2013), it is important to have an in-depth understanding of the concept of subjectivity. Some early research defines three dimensions of subjectivity: the use of subjective performance measures, *ex post* flexibility in the weighting of multiple measures, and *ex post* subjective adjustments based on factors other than measures specified *ex ante* (Bellavance *et al*., 2013; Bol, 2008; Gibbs *et al*., 2004); however, few studies actually provide deep insights into all those aspects of subjective evaluation. Kelly *et al*. (2015) and Bol *et al*. (2015) focus on supervisor's discretion to make *ex post* adjustments to remove the impact of uncontrollable events. Bicudo de Castro (2017) separates supervisor's idiosyncrasies from features of the performance evaluation system and examines two concepts: rule-driven and supervisor-driven subjective evaluation. In the meanwhile, some studies only examine the concept of subjective evaluation at a general level by determining only the presence of supervisor's discretion in performance evaluation and/or general weighting of such assessments (e.g., Alves & Lourenço, 2021; Tran *et al*., 2021). Despite the growing number of studies, there still remains inconsistency and incompleteness in the literature on subjective evaluation.

Furthermore, there is still room to improve the measurement instrument of the subjectivity construct. Specifically, the two scales of subjectivity in Bellavance *et al*. (2013) are criticised for being too similar to each other. Similarly, the two aforementioned subjectivity concepts posited by Bicudo de Castro (2017) somewhat overlap with each other, and it is not clearly identified in the construct measurements whether they are rule-driven or supervisor-driven. For instance, one of the supervisor-driven subjective evaluation items is the degree of discretion supervisors have in conducting the evaluation; however, the item does not clearly describe the underlying latent construct of supervisor-driven evaluation, nor does it distinguish it from rule-driven evaluation. Overall, we argue that the scales for subjective evaluation still exhibit some validity concerns and therefore need further development.

With these issues in mind, we build on prior literature and seek to clarify the multiple aspects of subjective evaluation. Performance evaluation is an integrated process including setting targets and evaluation criteria, making adjustments and deciding on assessment outcomes. Therefore, subjective evaluation is not only relevant at the end of a period when determining final assessments and rewards; it is also pre-determined at the beginning of the period when selecting performance criteria and measures, attaching weights to the chosen measures and setting targets (Aranda *et al*., 2019; Bol, 2008).

Accordingly, the study identifies two forms of subjective evaluation: *ex ante* specified subjective evaluation and *ex post* subjective evaluation. It is not novel to separate these forms of subjective evaluation; nevertheless, our study distinguishes itself by explicitly defining these forms, their features, measurements and examining their varying impacts on procedural justice perceptions.

Specifically, we define *ex ante* specified subjective evaluation as a supervisor's discretion which is set at the beginning of a period and to some extent linked to pre-specified targets and incentive contracts. It includes the use of subjective measures on non-quantifiable non-financial aspects of performance (e.g., work attitudes and interpersonal skills) as there are no explicit measures for them (Bellavance *et al*., 2013; Moers, 2005). It can also refer to the supervisor's discretion in assessing subordinates' overall performance (whether they do a good job), based on the supervisor's opinions on a combination of measures (Bauch *et al*., 2021; Ittner *et al*., 2003; Prendergast & Topel, 1993). *Ex post* subjective evaluation is defined as discretionary evaluation that is not explicitly specified in the appraisal system. It allows supervisors to *ex post* incorporate additional relevant information to make whatever adjustments they see fit (including no adjustment at all) to realised (financial and non-financial) performance assessments and compensation (Bol *et al*., 2015). It can refer to the flexibility in the weighting of the evaluation criteria or *ex post* adjustments based on factors other than measures specified *ex ante* (Bol, 2008; Bol *et al*., 2015; Kelly *et al*., 2015; Woods, 2012). It can also be exercised in the form of goal adjustments; for instance, supervisors can use their discretion to adjust initially set targets downward, which is equivalent to making upward evaluation adjustments (Arnold & Artz, 2015; Kelly *et al*., 2015; Libby & Lindsay, 2010).

2.2. *Perception of procedural justice*

Procedural justice perception represents a critical outcome of a performance evaluation system (Latham *et al*., 2005; Lau & Tan, 2006; Libby, 1999) and is one of four indicators for assessing the system's quality (Baird *et al*., 2020; Brown *et al*., 2010). It refers to perceived fairness regarding processes applied in making evaluation decisions such as performance ratings and bonuses (Adams, 1965; Greenberg, 1987). Prior research has documented that perceived procedural justice is positively correlated with performance (Zainuddin & Isa, 2019) and favourable behaviours – for instance, interpersonal trust (Kim & Park, 2017) and commitment (Lau & Moser, 2008). It is considered even more important than perceived fairness of individual outcomes because of the protections that fair procedures offer (Begley *et al*., 2006; Schminke *et al*., 2002). We argue that focusing on procedural justice perceptions is fitting in our research, because the use of subjective evaluation specified *ex ante* or *ex post* relates to how the evaluation process is designed and implemented; hence it relates to justice perceptions regarding the system.

Leventhal (1980) states six principles for fair evaluation procedures: (1) consistency, (2) correctability, (3) accuracy, (4) bias suppression, (5) ethicality and (6) representativeness. Consistency means that the procedures should be applied consistently across personnel and time. Correctability means that there should be some grievance system for correcting poor decisions. Accuracy refers to the collection of accurate information and valid facts for making decisions. Bias suppression relates to neutral, impartial and bias-free procedures. Ethicality means that procedures should conform to standards of ethics and morality. Lastly, representativeness aims to ensure that the concerns of all groups affected by the decision are taken into account.

2.3. *Effects of subjective evaluation on procedural justice perceptions*

Fairness is one of the crucial outcomes of performance evaluation systems, because it is considered as a key explanatory factor in the influence of performance evaluation practices on employees' subsequent behaviours such as motivation and commitment (Lau & Oger, 2012). This section discusses how two forms of subjective evaluation, in varying ways, induce both benefits and costs that consequently have contradictory impacts on perceived procedural justice.

Ex ante specified subjective evaluation can have mixed effects on the principles of procedural justice perceptions. On the one hand, it can enable supervisors to assess employees' efforts on job aspects that are value-enhancing but cannot be addressed by objective measures (Feltham & Xie, 1994; Holmstrom & Milgrom, 1991; Woods, 2012). Therefore, it can help capture a complete picture of their performance (Murphy & Oyer, 2003; Voußem *et al.*, 2016). It is particularly useful in measuring middle managers' complex performance, including their leadership and personnel development skills. *Ex ante* subjective evaluation can make the evaluation process appear more accurate, thereby leading to a higher level of perceived justice (Bol & Smith, 2011; Lau & Moser, 2008).

On the other hand, *ex ante* subjectivity can create uncertainty about performance evaluation criteria because it lacks formally defined targets (Marginson *et al.*, 2014; Van Rinsum & Verbeeten, 2012). It can harm the perceived 'accuracy' and prevent subordinates from verifying fairness of evaluation procedures, consequently deteriorating perceived procedural justice (Bol, 2008; Fortin, 2008). Second, supervisors may give compressed evaluations and lenient ratings to minimise the time and effort invested in the performance evaluation process and/or to avoid confrontations with subordinates (Bol, 2011; Harris, 1994; Moers, 2005). They might also unintentionally give distorted ratings because certain events or performance aspects are more salient than others (Tan & Jamal, 2001). Consequently, subjective judgements may not be representative of subordinates' performance (Tan & Jamal, 2001). More

importantly, when employees become aware of the biases, they might perceive the evaluation procedures as less fair.

Similarly, prior literature provides evidence on both benefits and costs of *ex post* subjective evaluation. On the benefit side, it can help reduce deficiencies caused by objective metrics (Murphy & Oyer, 2003; Voußem *et al*., 2016). As supervisors observe their subordinates' performance during evaluation periods, they can make *ex post* adjustments to correct for noisy objective measures (Woods, 2012). Furthermore, *ex post* subjective evaluation can filter out effects of uncontrollable factors that influence the subordinates' performance. *Ex post* subjectivity, therefore, restores the alignment of employees' effort and outcomes (Woods, 2012), enhancing procedural justice perceptions via increased 'accuracy' and 'correctability' (Kelly *et al*., 2015).

On the cost side, *ex post* subjective evaluation, which is vague and unknown in advance, can generate perceived uncertainty regarding the evaluation procedures to a greater degree than *ex ante* subjective evaluation. More critically, it may open the door for undesirable behaviours on the part of both evaluators and evaluatees. Supervisors may act on their personal preferences and give inflated ratings to subordinates they consider likeable, and lower ratings to those they find less likeable (Carmona *et al*., 2014; Kaplan *et al*., 2007). They may also use their discretion to make *ex post* downward adjustments to objective assessments to encourage some subordinates to leave (Woods, 2012). Subordinates may engage in influencing activities to win a supervisor's favour for their ratings (Higgins *et al*., 2003; Levy & Williams, 2004). Such activities compromise a bias-free and consistent process, and consequently, they can act to the detriment of perceived justice.

Taken together, we argue that it is not possible to predict explicit directions on the relationships between the two types of subjectivity and perceived procedural justice, because each type, for different reasons, can both increase and decrease the chances of achieving processes that are perceived as fair. Hence, we choose not to develop hypotheses about their direct relationships; rather, in the following section, we consider the contexts that help unravel the relationships.

2.4. *Moderating role of formalisation and job autonomy*

The previous section has suggested that context may explain the way subjective evaluation is perceived (Hartmann & Slapničar, 2012; Lind & van den Bos, 2002). Consistent with this view, studies have found that the quality of performance evaluation systems depends on multiple factors, such as system design characteristics (van Veen-Dirks *et al*., 2021), goal and task difficulty (Kelly *et al*., 2015), as well as trust (Maas *et al*., 2012). This study focuses on moderating effects of formalisation and job autonomy as two characteristics of management control systems and potential sources of procedural justice. Figure 1 summaries the set of hypotheses presented.

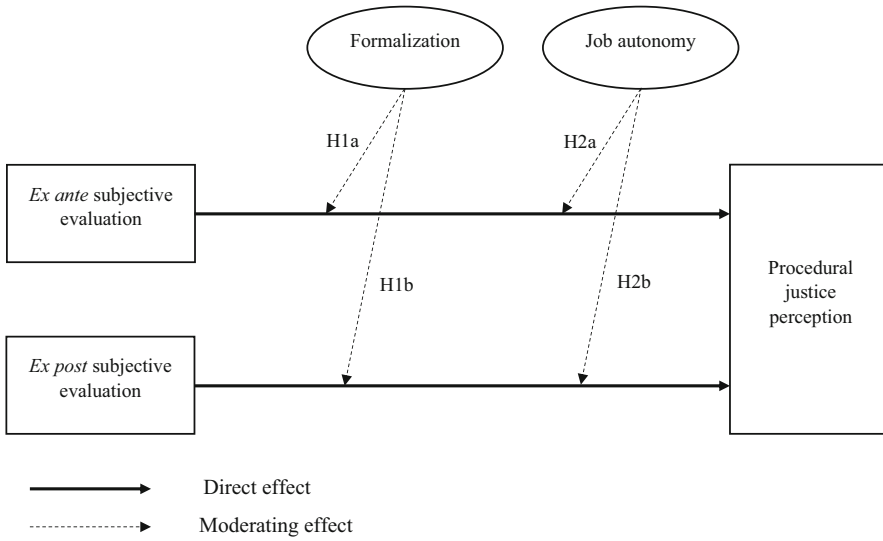

Figure 1 Illustration of the hypothesis testing.

2.4.1. Formalisation

Formalisation, a main element of organisational structure, has been and continues to be an important construct in management research (Stuart & Prawitt, 2012). The current study focuses on the formalisation of performance evaluation systems; this formalisation is reflected in the degree to which evaluation processes are prescribed and communicated to employees (Machin, 1979). As formalisation generally brings uniformity to decision-making processes, improves the consistency of management decisions (Aryee *et al.*, 2004; Stuart & Prawitt, 2012) and, in turn, influences individual perceptions (Adler & Borys, 1996; Brody *et al.*, 2003; Stuart & Prawitt, 2012), we expect it can influence how subjective evaluation is exercised and perceived by those evaluated.

To recap, we have argued that *ex ante* specified subjective evaluation may, on the one hand, enhance employees' procedural justice perceptions, because it can capture their difficult-to-measure effort and broader aspects of their performance. In contrast, it is usually vague and prone to a number of biases. Considering firms with a high level of formalisation, a performance evaluation system that is clearly prescribed can act as a coordinative device articulating performance criteria and goals. Thus, employees are more likely to understand what they are expected to achieve and to perceive the system as being transparent (Lau, 2015). Furthermore, a high level of formalisation can enable supervisors to follow pre-defined procedures and deliver consistent judgements

across subordinates and time (Bicudo de Castro, 2017; Lau & Buckland, 2001). There is less room for leniency and compression in the ratings; hence, the negative side of *ex ante* specified subjective evaluations on justice can be eliminated via increased 'accuracy' and 'consistency'. Put differently, formalisation may make *ex ante* subjective evaluation seem more fair and less biased to those evaluated (Grey & Garsten, 2001).

In contrast, in less formalised systems, standards for performance evaluation are loosely determined, and employees are more likely to be evaluated informally, rather than by traceable procedures (Hartmann & Slapničar, 2012). That strengthens ambiguities due to the absence of explicit performance procedures. It is also detrimental to the 'consistency' of subjective judgements across subordinates and periods because more compression bias can arise due to less differentiation (Lau & Buckland, 2001; Moers, 2005). However, the informal evaluation sometimes requires richer selection of communication, including informal social interaction, which may enable high-quality information exchange between supervisors and subordinates, thus improving the perceived 'accuracy' of the system (Hartmann & Slapničar, 2012; Wang & Dyball, 2019). Overall, it is unclear whether the effect of *ex ante* subjective evaluation on perceived procedural justice remains positive or turns negative under low formalisation. Therefore, we posit the following hypothesis:

H1a: Formalisation moderates the relationship between ex ante specified subjective evaluation and procedural justice perceptions. In particular, the relationship is positive only under high formalised systems.

As for *ex post* subjective evaluation, we find no supporting arguments for the moderating effect of formalisation on its relationship with procedural justice perception. First, *ex post* subjective evaluation may be strongly negatively correlated with formalisation; specifically, low formalised organisations may allow for more *ex post* subjective evaluation (e.g., more flexibility over evaluation criteria or weighting of performance measures), and vice versa. Hence, examining their interaction perhaps yields no significant insights on procedural justice perception. Second, even when *ex post* subjective evaluation is established as part of formalised evaluation systems (Arnold & Artz, 2015; Höppe & Moers, 2011), the option to use this form of discretion is very much under supervisors' control. For instance, in case of uncontrollable events, supervisors can either choose to make discretionary adjustments to restore the alignment of subordinates' efforts and compensation, or choose not to make such adjustments to encourage the subordinates' future adaptive efforts to deal with the tough situations (Bol *et al.*, 2015). Hence, consistent with Bol *et al.* (2015) and Gibbs *et al.* (2004), we predict that supervisors make use of *ex post* subjective evaluation based on their personal *ad hoc* judgements rather than documented policies and facts. We propose the hypothesis in the null form:

H1b: Formalisation does not moderate the relationship between ex post subjective evaluation and procedural justice perceptions.

2.4.2. Moderating effects of job autonomy

Job autonomy refers to the degree of freedom employees have over their work, in terms of determining the procedures to perform work and making related decisions (Hackman & Oldham, 1980; Lind *et al.*, 1990). A high level of job autonomy leads to a range of positive outcomes, including employees' well-being (Taipale *et al.*, 2011), innovative behaviour (Wang & Cheng, 2010) and self-efficacy (Nauta *et al.*, 2010; Ng *et al.*, 2008; Sousa *et al.*, 2012). Since job autonomy relates to the degree of discretion employees have over their work arrangements and also the availability of prescribed work guidance, we predict that subjective evaluation may work differently in fostering perceived justice for jobs with different levels of autonomy.

High autonomy is usually associated with complex jobs that require employees to take greater control over their work and to deal with changing business conditions (Chung-Yan, 2010). Likewise, it is common for jobs requiring creativity to provide employees with the opportunity to explore new ideas and develop them (Garg & Dhar, 2017; Slåtten & Mehmetoglu, 2011). In such cases, *ex ante* subjective measures are useful to obtain a broad picture of employees' complex performance and encourage them to be more creative while also allowing them to take initiative to deal with complex situations (Grabner, 2014). However, such *ex ante* subjective evaluation may not be sufficient when unforeseen events are more likely to occur, and a supervisor should consider the changes throughout the period when giving assessments. As the accuracy of the evaluation system is jeopardised by the lack of completeness, we suggest that *ex ante* subjective evaluation adversely affects procedural justice perceptions of individuals under high job autonomy.

Conversely, employees who work in low autonomy roles generally have pre-defined tasks, and restricted arrangements to fulfil their jobs (Chung-Yan, 2010; Humphrey *et al.*, 2007; Langfred & Moye, 2004). We expect performance evaluation criteria to be clearly defined in advance to ensure their perceptions of procedural justice. Therefore, the use of *ex ante* specified subjective evaluation might act as a complementary tool to objective measures; however, it may give rise to uncertainty, compression and leniency bias which is aforementioned above. Taken together, we do not state a directional hypothesis for the relationship between *ex ante* specified subjective evaluation and procedural justice for low autonomy jobs, since it is not possible to specify a positive or negative effect. We posit the following hypothesis:

> *H2a: Job autonomy moderates the relationship between ex ante specified subjective evaluation and procedural justice perceptions. In particular, the relationship is negative only under high autonomy.*

We argue that *ex post* subjective evaluation may foster greater perceived justice in high autonomy jobs, because it can allow supervisors to account for uncontrollable and unforeseen events that are more likely to happen in such

roles (Bol *et al.*, 2015). It is also useful to correct for deficiencies in prescribed performance measures, because some relevant performance information is unavailable or unobservable *ex ante* (Bol & Smith, 2011; Höppe & Moers, 2011; Woods, 2012). In short, *ex post* subjective evaluation is necessary to ensure the alignment between employees' competence and their outcomes for high autonomy jobs; thus, employees may have to be less concerned about the uncertainty and potential bias that can arise from *ex post* discretion. Therefore, we expect that the negative effect of *ex post* subjective evaluation on justice, due to uncertainty and bias, will be countered by the possibility for 'correctability'. Put differently, *ex post* subjective evaluation is positively associated with procedural justice perception for high autonomy jobs.

As discussed earlier, employees whose autonomy is low generally have little freedom to determine their work arrangements (Chung-Yan, 2010; Humphrey *et al.*, 2007; Langfred & Moye, 2004); thus, their performance evaluation criteria should be explicitly specified in advance. Hence, *ex post* evaluation may appear less fair in low autonomy contexts, because it may give rise to complaints about bias (due to supervisors' personal preferences and subordinates' influence activities). Accordingly, we suggest the hypothesis:

H2b: Job autonomy moderates the relationship between ex post subjective evaluation and procedural justice perception. In particular, the relationship is positive for high autonomy jobs, and negative for low autonomy jobs.

3. Research methods

3.1. Sample selection

The study was conducted in Vietnam – an emerging economy that has been exposed to market competition and international management control system practices for the last two decades (Phuong & Richard, 2011); hence, the effectiveness of performance evaluation practices is worth examining (Yang *et al.*, 2015). This context also meets previous calls for more accounting research in emerging economies and the greater convergence of accounting practices worldwide (Ezzamel & Xiao, 2011).

Given the perceptual and private nature of the constructs in this study, we conducted a survey to collect empirical data, with the initial sample drawn from the Vietnam Chamber of Commerce and Industry (VCCI) membership database. We selected respondents from firms with a minimum of 20 employees to increase the chance that they had proper performance evaluation processes. The respondents were limited to middle managers (e.g., division managers, department managers) in their role as subjects of the performance evaluation, and subjective evaluation was a relevant and crucial element in measuring their multidimensional performance.

3.2. Data collection

We administered the survey in accordance with guidelines from the tailored design method by Dillman *et al.* (2009). A draft version of the questionnaire was pre-tested with several academics and professional practitioners in order to obtain constructive feedback regarding its comprehensibility and construct validity (Bedford & Speklé, 2018). Feedback was solicited from multiple perspectives to improve survey length, wording, question order and navigation.

The survey instrument was web-based. We sent personalised emails to each manager with an invitation letter and an anonymous link to the online questionnaire. The invitation letter introduced the overall purposes of this research and emphasised the importance of the recipient's participation. It also emphasised that the responses would be treated confidentially and that only aggregate results of the survey would be published and used solely for academic purposes. After the first e-mail invitations were sent in June 2017, participants were reminded about the survey twice (two and four weeks after the first invitation), as recommended by Dillman *et al.* (2009). From the 700 invitations, we obtained 160 complete sets of answers after removing three with missing data (for a response rate of 23%).

3.3. Measurement of variables

Given the study's specific aim, we developed measurement instruments for the two concepts of subjective evaluation, based on contemporary research measurement guidelines (Bedford & Speklé, 2018; MacKenzie *et al.*, 2011). The scale development was created following theoretical definitions of the constructs and a comprehensive review of prior literature on subjective evaluation (Hinkin, 1995). Measurements for other constructs relied on previously validated instruments from the existing literature.

3.3.1. Ex ante specified subjective evaluation (Exante)

Ex ante specified subjective evaluation is defined as a supervisor's discretion prescribed at the beginning of a period. It refers to the use of subjective measures on difficult-to-measure job aspects (Bellavance *et al.*, 2013; Moers, 2005) and supervisor discretion in evaluating subordinates' overall performance (Bauch *et al.*, 2021; Ittner *et al.*, 2003; Prendergast & Topel, 1993). In accordance with this definition, the construct of *ex ante* subjectivity was measured by two items. The first item (*Exante1*) was adapted from Bellavance *et al.* (2013) to reflect the use of subjective measures related to non-quantifiable, non-financial aspects of performance. Unlike their work, we did not list all subjective measures that could be possibly used; rather, we followed the format of Hartmann *et al.* (2010) and focused only on the general inclusion of subjective measures. Leadership and communication skills – two important and

commonly used measures for evaluating middle managers' performance – are listed as examples. The second item (*Exante2*), adapted from Govindarajan and Gupta (1985), Kruis and Widener (2010) and Hartmann *et al.* (2010), asked the respondents to indicate the importance of supervisor discretion in assessing the overall performance of their unit/department. A five-point Likert scale was used (1 = 'not important' to 5 = 'very important').

3.3.2. *Ex post subjective evaluation (Expost)*

Ex post subjective evaluation refers to discretionary evaluation or adjustments that are not specified in advance (Bol, 2008; Bol *et al.*, 2015; Kelly *et al.*, 2015; Woods, 2012). In line with our conceptual definition, we measured *ex post* subjective evaluation with the three-item instrument adapted from Bellavance *et al.* (2013) and two items we developed ourselves. The items adapted from Bellavance *et al.* (2013) focused on *ex post* flexibility in the weighting of multiple performance measures. These captured whether the participants knew *ex ante* the exact weightings of performance measures (*Expost1*), and whether their supervisors clearly communicated such weightings (*Expost2*). Coding was reversed for these two items. However, they were dropped from the scale because of low loadings (more details on the analysis are presented in the following section). Item *Expost3* measured the degree to which the participants' superior could change the weighting of the multiple measures without their knowledge. We also developed two additional scale items, based on our review of the subjectivity literature. Item *Expost4* was adapted from Bol (2008) and Ittner *et al.* (2003) to capture a supervisor's discretion in changing evaluation criteria without the respondent's knowledge. Item *Expost5* was expected to capture supervisors' *ex post* evaluation in determining employee bonuses, since discretionary adjustment was commonly applied not only in performance evaluation but also in compensation decisions (Bol, 2008; Bol *et al.*, 2015; Höppe & Moers, 2011; Woods, 2012). Responses on these items were rated on a five-point Likert scale (from 1 = 'strongly disagree' to 5 = 'strongly agree').

3.3.3. *Procedural justice perception (Procj)*

Following the approach by Greenberg and Colquitt (2013), direct measurements were used for the procedural justice perception as this is the dependent variable in the study. Direct measurement is an approach that entails directly asking about justice perceptions, rather than asking about attributes of fair processes. We measured procedural justice perception with a three-item Likert scale adopted from Hartmann and Slapničar (2012) and McFarlin and Sweeney (1992). The respondents were asked whether they trusted the fairness of three aspects of the performance evaluation system: evaluation decisions, salary and bonus determination, and promotion decisions.

3.3.4. Formalisation (Form)

Formalisation was measured using a four-item Likert scale adopted from Podsakoff *et al.* (1993) and Cohn and Turyn (1980). The respondents indicated the degree to which their duties and goals were well written and documented, and whether they were expected to follow prescribed rules. Moreover, they were asked whether performance appraisals were based on written standards. Responses were rated on a five-point Likert scale from 'strongly disagree' (1) to 'strongly agree' (5), with higher scores showing higher levels of formalisation.

3.3.5. Job autonomy (Auto)

Job autonomy was measured with a three-item instrument adapted from Hackman and Oldham (1980), Iverson and Roy (1994) and Morgeson *et al.* (2005). The items addressed the extent to which the managers had freedom in determining how they did their job and made decisions related to it. A five-point Likert scale from 'strongly disagree' (1) to 'strongly agree' (5) was used, with higher scores showing higher levels of job autonomy.

3.3.6. Control variables

We controlled for company sector, size, ownership and the respondents' work experience as these characteristics may be associated with the main variables. We controlled for sector by a categorical measure indicating ten industries (e.g., manufacturing, service). For company size, we utilised a dummy variable, where the rating scale was '1' for medium-sized companies (20–50 employees) or '2' for large-sized companies (more than 50 employees). For ownership, we indicated whether the organisation was state-owned (1) or owned by others (2). Lastly, work experience was measured as the natural logarithm of the number of years the respondents had worked at the company (due to its high kurtosis and skewness).

3.4. Analysis

We performed exploratory factor analysis (EFA) to examine whether underlying factors corresponded to the theoretical constructs. Factors were determined using maximum likelihood as the extraction method and promax rotation. The first EFA test (which is not included in the paper) revealed five factors corresponding to the five main constructs of the study; however, there were two items (*Expost1* and *Expost2*) with low loadings. EFA was performed again after removing them, showing five distinct factors loading on their respective constructs with no cross-loadings greater than 0.2 (presented in Table 1). Only item *Auto3* had a factor loading of 0.557, which is still considered an acceptable practical significance given our sample size (Hair

Table 1
Descriptive statistics and results of the exploratory factor analysis of the main constructs

			Factor loading after promax rotation				
Construct	Mean	SD	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Subjective evaluation by your supervisor about your leadership skills, social skills. (*Exante1*)	3.60	0.946	–0.011	–0.005	0.027	**0.685**	0.004
Subjective evaluation by your supervisor about your unit's performance. (*Exante2*)	3.63	0.936	0.013	0.001	–0.003	**1.002**	0.012
My supervisor could change the weights of measures to evaluate my performance without my knowledge. (*Expost3*)	2.53	1.110	0.076	–0.019	**0.836**	0.040	0.004
My supervisor could change the weights of measures to determine my bonus without my knowledge. (*Expost4*)	2.58	1.096	–0.024	0.014	**0.803**	0.048	0.020
My supervisor could change evaluation criteria without my knowledge. (*Expost5*)	2.42	1.031	–0.072	0.041	**0.761**	–0.065	–0.061
I have full confidence in the fairness of the appraisal process. (*Procj1*)	3.71	0.806	0.031	**0.824**	–0.027	0.037	–0.048
I have full confidence in the fairness of the salary and reward system. (*Procj2*)	3.64	0.813	0.023	**0.925**	–0.025	–0.040	0.023
I have full confidence in the fairness of the employee promotion process. (*Procj3*)	3.49	0.854	–0.053	**0.780**	0.079	–0.001	0.049
There are clear, written goals and objectives for my job. (*Form1*)	3.60	0.877	**0.892**	–0.067	0.079	–0.031	0.095
My duties, authority and accountability are documented. (*Form2*)	3.70	0.889	**0.907**	0.036	0.096	–0.002	–0.026
In this organisation, performance appraisals	3.58	0.858	**0.680**	0.080	–0.136	0.001	–0.037

(continued)

Table 1 (continued)

Construct	Mean	SD	Factor loading after promax rotation				
			Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
are based on written standards. (*Form3*)							
All supervisors are expected to follow the rules which precisely define each manager's responsibilities. (*Form4*)	3.82	0.717	**0.762**	–0.036	–0.093	0.038	–0.049
I have a great deal of freedom in the way I do my job. (*Auto1*)	3.69	0.890	–0.059	0.059	–0.069	0.114	**0.652**
I have a great deal of freedom in what I do in my job. (*Auto2*)	3.68	0.873	–0.049	–0.081	0.025	–0.063	**0.841**
I can make decisions related to my job almost all the time. (*Auto3*)	3.85	0.711	0.147	0.080	0.006	–0.035	**0.557**

Factor loadings for all main survey constructs are presented in bold. The loading of *Exante2* is greater than one, which is acceptable when the oblique rotation method is used (Jöreskog, 1999; Kock, 2010).

et al., 2014, p. 115), while other factor loadings exceeded 0.6. The factors with an eigenvalue larger than one criterion were generated for subsequent analyses.

Furthermore, confirmatory factor analysis (CFA) was carried out to verify convergent and discriminant validity. According to Hinkin (1995), CFA is extensively used in scale development because it can provide an accurate confirmatory test of measurement models. The results of CFA indicate a good fit of the model, with Chi-square of 90.377, a degree of freedom of 79, $p = 0.179$; a comparative fit index (CFI) of 0.990, and root-mean-square error of approximation (RMSEA) of 0.030 (Hair *et al.*, 2014, p. 584).

We also assessed quality of the scales by addressing their dimensionality, reliability and validity (Bedford & Speklé, 2018). As shown in Table 2, all Cronbach's alpha values exceed the recommended cut-off point of 0.70, reflecting a satisfactory level of construct reliability (Hair *et al.*, 2014, p. 125).

Convergent validity of the main constructs was assessed using construct reliability or composite reliability (CR) and average variance extracted (AVE) (Hair *et al.*, 2014, p. 605). Table 2 shows that all CR values exceed 0.7, which meets the acceptable level of 0.6. Also, AVE values are higher than 0.5, except for job autonomy which has an AVE of 0.469; however, this is close to being acceptable. According to Fornell and Larcker (1981), the convergent validity of a construct is still adequately assessed by CR alone even with an AVE < 0.5.

Table 2
Correlation matrix and construct quality

Construct	Cronbach's alpha	CR	AVE	1	2	3	4	5
1. *Exante*	0.818	0.825	0.704	**0.839**				
2. *Expost*	0.844	0.844	0.644	0.222***	**0.803**			
3. *Form*	0.886	0.878	0.647	–0.155*	–0.319***	**0.685**		
4. *Auto*	0.717	0.725	0.469	–0.019	–0.073	0.218***	**0.804**	
5. *Procj*	0.876	0.881	0.714	–0.006	–0.134*	0.547***	0.145*	**0.845**

Note: Diagonal elements (in bold) represent the square root of the AVE.
*, **, *** Significant at $p < 0.10$, 0.05, and 0.01, respectively, two-tailed.

Hence, the results provide support for the convergent validity of the constructs. Moreover, discriminant validity is satisfactory as the AVE of each construct exceeds the squared correlations between the intended construct and other constructs in the model (Fornell & Larcker, 1981). Overall, these results confirm that the aforementioned factors capture unique constructs and are valid indicators of the underlying constructs in the paper (Anderson & Gerbing, 1988).

Because our data depended entirely on respondents' perceptions, it could raise concerns about common method bias (Podsakoff *et al.*, 2003); thus, two relevant tests were conducted. First, Harman's one-factor test was performed by conducting an EFA with an unrotated factor solution. The result shows that the first factor accounts for 23.3 percent of the variance. It is well below the threshold of 50 percent, suggesting that no single factor emerges to explain half of the overall variance (Podsakoff *et al.*, 2003). Second, we conducted a common latent factor (CLF) test and compared equal constrained and zero-constrained models. The test finds no significant differences between the two models ($p > 0.05$), indicating no sign of common method variance (Gaskin & Lim, 2017). Overall, the results suggest that common method bias is not a significant threat to our data (Podsakoff & Organ, 1986; Widener, 2007).

Additionally, a non-response bias test was conducted by comparing early and late respondents in terms of several variables (gender, experience, company size and ownership). The results revealed no differences in the variables at the 5 percent significance level, indicating no threat of non-response bias. According to Van der Stede *et al.*, 2005, p. 673), 'even when response rates are low, the results are still generalisable if there is low non-response bias'. Finally, following Bedford and Speklé (2018) and Henseler *et al.* (2016), variance inflation factors (VIF) were assessed in collinearity tests for all the models. Results show that all VIF values were around 1.0 and 1.1, well below the threshold of 3, suggesting that multicollinearity is not a concern for our analyses.

4. Results

To test the interactions, we used PROCESS macro v3.5, a regression-based analysis developed by Hayes (2018). It is a convenient computation tool for testing moderation (and mediation) effects, and typically produces the same results as a structural equation modelling (SEM) program (Hayes *et al*., 2017). Hence, it has been widely used in many disciplines, including management accounting (e.g., Chong and Wang, 2019). Furthermore, the Johnson–Neyman technique (1936) included in PROCESS can be used to identify moderating effects across the entire range of moderator variables; thus, it is useful in producing plots of interactions of continuous variables like those in our study (Spiller *et al*., 2013).

Four moderation analyses were performed with Model 1 in PROCESS, one for each hypothesis. A confidence interval (CI) of 90% and 5,000 bootstrap samples were used to evaluate the significance of the tests. Specifically, an interaction effect is statistically significant when confidence intervals excluded zero and *p*-values were satisfactory. Significant interactions were followed up with simple slope analysis (Aiken & West, 1991) and the Johnson–Neyman technique included in PROCESS. Specifically, simple slope analysis presents conditional effects of two types of subjectivity on perceived procedural justice at three points of the moderators (mean value and ±1 standard deviation (SD) above and below the mean). The Johnson–Neyman technique adds further specificity by identifying the regions of significance across all levels of the moderator values.

Hypothesis H1a predicts that formalisation moderates the relationship between *ex ante* specified subjective evaluation and procedural justice perceptions, such that it is only positive under high formalisation. The results in Panel A of Table 3 show that the model is overall significant ($F(7,152) = 10.7951$, $p < 0.001$). The interaction of *ex ante* specified subjectivity and formalisation exhibits a significant effect on perceived procedural justice, indicating the moderating role of formalisation (coefficient: 0.1352, $p < 0.1$, 90% CI = 0.0146–0.2557). The conditional effect of *ex ante* subjective evaluation on procedural justice (Table 3, Panel B) demonstrates that *ex ante* subjectivity is positively related to procedural justice only at one SD above the mean of formalisation (coefficient: 0.1672, $p < 0.5$). When formalisation is at the mean or one SD below the mean, the *ex ante* subjectivity–justice relationship is not significant. Johnson–Neyman analysis (presented in Appendix I) further supports this finding. It illustrates the relationship between *ex ante* specified subjectivity and procedural justice with different values of formalisation (in the first column) based on deviations from the mean (Hayes & Matthes, 2009; Johnson & Neyman, 1936). Approximately 16.9 percent of the values are in the region of significance, and the boundary of the region for formalisation is 0.5765 SD above the mean. In conclusion, these results indicate

Table 3
Results for the interaction between *ex ante* subjectivity and formalisation (H1a) using PROCESS macro

Panel A: Regression results for H1a

	Coeff.	SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
Intercept	0.6761	0.4918	1.3747	n.s	−0.1378	1.4901
Exante	0.0380	0.0679	0.5595	n.s	−0.0744	0.1503
Form	0.5467	0.0691	7.9071	0.0000	0.4322	0.6611
Exante × *Form*	0.1352	0.0728	1.8560	0.0654	0.0146	0.2557
Control variables						
Experience	−0.0083	0.0819	−0.1011	n.s	−0.1439	0.1273
Sector	−0.0076	0.0207	−0.3643	n.s	−0.0419	0.0268
Size	−0.2740	0.1758	−1.5583	n.s	−0.5650	0.0710
Ownership	−0.0589	0.1651	−0.3567	n.s	−0.3322	0.2144

$R = 0.5762$, $R^2 = 0.3321$, $F(7, 152) = 10.7951$, $p < 0.001$

Panel B: Conditional effects of *ex ante* subjective evaluation on perceived procedural justice at three levels of formalisation

	Coeff.	Boothstrap SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
−SD (−0.9556)	−0.0912	0.1106	−0.8244	n.s	−0.2743	0.0919
Mean (0)	0.0380	0.0679	0.5595	n.s	−0.0744	0.1503
+1 SD (0.9556)	0.1672	0.0816	20.478	0.0423	0.0321	0.3023

Notes: The main variables are centred in the PROCESS models. Bootstrap sample size: 5,000. Coeff.: coefficient; SE: standard error; CI: confidence interval; LL: lower limit; UL: upper level; SD: standard deviation; n.s: not significant.

that *ex ante* subjectivity positively affects perceived procedural justice only for high levels of formalisation, thereby confirming H1a.

Meanwhile, no significant interaction is found between *ex post* subjective evaluation and formalisation on procedural justice (coefficients: –0.0244, not significant, see Table 4); H1b is confirmed. Noticeably, *ex post* subjective evaluation and formalisation are strongly negatively associated (Table 2), confirming our argument rejecting the moderating role of formalisation. Further, we do not find a significant interaction of *ex ante* specified subjective evaluation and job autonomy (coefficients: 0.0413, not significant, see Table 5); therefore, H2a is not supported.

Hypothesis H2b predicts that job autonomy moderates the relationship between *ex post* subjective evaluation and procedural justice perception. Results from Panel A of Table 6 indicate a significant model ($F(7,152) = 2.0529$; $p = 0.05$), and a positive and statistically significant interaction between *ex post* subjectivity and job autonomy (coefficient: 0.1673, $p < 0.1$, 90% CI = 0.0208–0.3137). The significant interaction is followed up with simple slope analyses and the Johnson–Neyman technique. In Panel B of

Table 4
Results for the interaction between *ex post* subjectivity and formalisation (H1b) using PROCESS macro

	Coeff.	SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
Intercept	0.6122	0.4995	1.2255	n.s	−0.2145	1.4389
Expost	0.0406	0.0742	0.5473	n.s	−0.0822	0.1635
Form	0.5585	0.0738	7.5660	0.0000	0.4363	0.6806
Expost × *Form*	−0.0244	0.0691	−0.3534	n.s	−0.1387	0.0899
Control variables						
Experience	−0.0065	0.0831	−0.0783	n.s	−0.1440	0.1310
Sector	−0.0121	0.0209	−0.5803	n.s	−0.0468	0.0225
Size	−0.2644	0.1782	−1.4841	n.s	−0.5593	0.0304
Ownership	−0.0339	0.1674	−0.2026	n.s	−0.3110	0.2432
$R = 0.5594$; $R^2 = 0.3129$; $F(7,152) = 9.8873$; $p < 0.000$						

Notes: The main variables are centred in the PROCESS models. Bootstrap sample size: 5,000. Coeff: coefficient; SE: standard error; CI: confidence interval; LL: lower limit; UL: upper level; n.s: not significant.

Table 5
Results for the interaction between *ex ante* subjectivity and job autonomy (H2a) using PROCESS macro

	Coeff.	SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
Intercept	0.7762	0.5912	1.3129	n.s	−0.2022	1.7546
Exante	0.0046	0.0767	0.0605	n.s	−0.1223	0.1315
Auto	0.1582	0.0876	1.8051	0.0730	0.0132	0.3032
Exante × *Auto*	0.0413	0.0835	0.4940	n.s	−0.0970	0.1795
Control variables						
Experience	0.0296	0.0978	0.3030	n.s	−0.1323	0.1916
Sector	−0.0289	0.0246	−1.1719	n.s	−0.0696	0.0119
Size	−0.2202	0.2100	−1.0487	n.s	−0.5678	0.1273
Ownership	−0.1625	0.1995	−0.8146	n.s	−0.4926	0.1676
$R = 0.2212$; $R^2 = 0.0489$; $F(7,152) = 1.1176$; model is not significant						

Notes: The main variables are centred in the PROCESS models. Bootstrap sample size: 5,000. Coeff.: coefficient; SE: standard error; CI: confidence interval; LL: lower limit; UL: upper level; n.s: not significant.

Table 6, *ex post* subjectivity is negatively associated with procedural justice perception only when job autonomy is moderate to low (at the mean and one SD below the mean) (coefficient: – 0.1443 and – 0.2926 respectively, $p < 0.1$). Under higher job autonomy, the use of *ex post* subjective evaluation is not significantly associated with procedural justice perception. Further, the

Table 6
Results for the interaction between *ex post* subjectivity and job autonomy (H2b) using PROCESS macro

Panel A: Regression results for H2b

	Coeff.	SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
Intercept	0.8318	0.5763	1.4434	n.s	−0.1219	1.7856
Expost	−0.1443	0.0810	−1.7802	0.0770	−0.2784	−0.0102
Auto	0.1523	0.0846	1.7996	0.0739	0.0122	0.2923
Expost × *Auto*	0.1673	0.0885	1.8903	0.0606	0.0208	0.3137
Control variables						
Experience	0.0183	0.0959	0.1904	n.s	−0.1404	0.1769
Sector	−0.0301	0.0240	−1.2584	n.s	−0.0698	0.0095
Size	−0.2135	0.2055	−1.0389	n.s	−0.5536	0.1266
Ownership	−0.1816	0.1933	−0.9393	n.s	−0.5015	0.1383
$R = 0.2939$; $R^2 = 0.0864$; $F(7,152) = 2.0529$; $p = 0.05$						

Panel B: Conditional direct effects of *ex post* subjective evaluation on perceived procedural justice at three levels of job autonomy

	Coeff.	Boothstrap SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
−1 SD (−0.8869)	−0.2926	0.1151	−2.5433	0.0120	−0.4831	−0.1022
Mean (0)	−0.1443	0.0810	−1.7802	0.0770	−0.2784	0.0102
+1 SD (0.8869)	0.0041	0.1105	0.0372	n.s	−0.1788	0.1870

Notes: The main variables are centred in the PROCESS models. Bootstrap sample size: 5,000. Coeff.: coefficient; SE: standard error; CI: confidence interval; LL: lower limit; UL: upper level; SD: standard deviation; n.s: not significant.

Johnson–Neyman test (Appendix II) shows the region of significance for values equal and below – 0.1230 SD below the mean, with approximately 41.3 percent of the values in the region of significance. Overall, the results partially support H2b. Lastly but notably, none of the control variables shows significant effect on justice in all of the models (Table 3–6).

5. Discussion and conclusions

The study responds to the need for more comprehensive understanding of subjective evaluation. This is necessary given the inconsistency and ambiguity surrounding the literature on subjectivity in performance evaluation (Bellavance *et al.*, 2013; Bicudo de Castro, 2017). Some studies present subjective evaluation in a general sense (e.g., Alves & Lourenço, 2021; Tran *et al.*, 2021), and some others focus extensively on some certain aspects of subjective evaluation (Bellavance *et al.*, 2013; Kelly *et al.*, 2015). This study, in contrast,

presents *ex ante* specified and *ex post* subjective evaluation, which are determined at two phases of the performance evaluation system. It puts an emphasis on providing precise specifications and measurement of the two concepts and clarifying their empirical interpretation. The paper further examines the impacts of these forms of subjectivity on employees' procedural justice perception – an important outcome of performance evaluation systems, which in turn leads to desirable work behaviours.

Specifically, the study investigates the impacts of two subjectivity concepts on perceived procedural justice across contexts of formalisation and job autonomy. The analysis of 160 Vietnamese middle managers supports our views regarding the distinctiveness of *ex ante* and *ex post* subjective evaluation and their varying impacts on perceived procedural justice. It shows that the relationship between *ex ante* specified subjective evaluation on procedural justice perceptions is different depending on the level of formalisation; specifically, it is only significant and positive under a higher level of formalisation. The finding highlights the role of a formal design of the performance evaluation system in ensuring accurate and consistent assessments, so that *ex ante* subjective evaluation is deemed fair by those evaluated. Meanwhile, we do not find a moderating effect of formalisation in the relationship between *ex post* subjective evaluation and procedural justice perceptions. This aligns with our expectation that the use of *ex post* subjective evaluation is to a great extent under the control of supervisors, such that they may choose whether to make the *ex post* adjustments following their own incentive purposes and personal *ad hoc* judgements (Bol *et al.*, 2015); put differently, the justice effect of this subjectivity type is not influenced by the system design. Taken together, our findings on the importance of formalised systems are in line and provide further explanations for the argument of Bicudo de Castro (2017) that subjective evaluation is more positively associated with desirable outcomes when it is driven by performance evaluation rules than when it is driven by idiosyncratic use of supervisors.

We find that the effect of *ex ante* specified subjective evaluation on perceived procedural justice does not differ between individuals with higher and lower job autonomy. However, we find a significant interaction effect between *ex post* subjective evaluation and job autonomy on procedural justice perceptions. *Ex post* evaluation weakens procedural justice for low or medium job autonomy. In jobs in which employees have less freedom over work arrangements, they tend to expect the evaluation criteria to be pre-determined, so they are more certain about the procedures and standards. Any *ex post* subjective evaluation could make the process appear less transparent and more biased; hence, it negatively affects their perceived justice. As for high job autonomy, we predicted that *ex post* subjective evaluation enhances perceived justice because it can remove the effect of unforeseen events and better capture employees' performance. We assumed employees would care less about the potential bias and ambiguities that can arise from their supervisor's *ex post* discretion.

However, the result does not support our prediction, which implies that the bias-free principle is important for favourable procedural justice perceptions, as concerns over bias seem to cancel out the positive effect of *ex post* subjective evaluation for individuals in high autonomy jobs.

The primary contribution of the study is therefore more insight into the literature on subjective evaluation by distinguishing and clarifying two aspects of subjective evaluation. Moreover, this study provides a focused, theoretically informed discussion of benefits and costs of two subjective evaluation aspects in relation to various monitoring systems, responding to the research call by Woods (2012) and Van Rinsum and Verbeeten (2012). Second, the findings extend the research stream on the behavioural effects of subjective evaluation or management control system in general (Alves & Lourenço, 2021; Tran *et al*., 2021; Van Rinsum & Verbeeten, 2012). Third, they also contribute to the literature on organisational justice by extending the work of Hartmann and Slapničar (2012) and Maas *et al*. (2012), that how justice perceptions are perceived is not only the result of the management control system *per se*, but it also depends on employees' different situations, and the interaction of such factors. Furthermore, the findings are beneficial for organisations because they emphasise the role of a formalised and unbiased system for subjective evaluation to be deemed fair by those evaluated.

Some limitations of the study must be mentioned. First, the scale of *ex ante* subjective evaluation only has two items; thus, we believe future research could improve the construct scale and its validity. Second, the confidence level of 90 percent is used to support or reject our hypotheses. This can be justified given that the test power is usually lower for interaction effects than the main effects (Durand, 2013; Marshall, 2007). Hence, decreasing the confidence level is a common practice to avoid Type 1 errors (Petitti, 2001) in many studies examining moderation (e.g., Bellavance *et al*., 2013; Hartmann & Slapničar, 2012; Kelly *et al*., 2015). Furthermore, as our hypotheses are neatly connected with prior literature, it is probably not too courageous to make such conclusions about the moderating effect of formalisation and job autonomy (Durand, 2013). Finally, we did not discuss in detail the setting of Vietnam where the survey was conducted, thus caution needs to be taken when making any generalisations to other contexts. Future research could address impacts of economic situations (e.g., transitional economy) or institutional environment characteristics (e.g., egalitarianism and desire for social harmony) of Vietnam or other Asian economies on the phenomena of subjective evaluation and justice perceptions.

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Appendix I

Johnson–Neyman analysis values – conditional effect of *ex ante* subjective evaluation on perceived procedural justice at values of formalisation

Conditional formalisation (Form)	Effect	SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
−3.0538	−0.3749	0.2510	−1.4935	0.1374	−0.7902	0.0405
−2.8118	−0.3421	0.2340	−1.4621	0.1458	−0.7294	0.0451
−2.5698	−0.3094	0.2171	−1.4251	0.1562	−0.6688	0.0499
−2.3277	−0.2767	0.2004	−1.3809	0.1693	−0.6083	0.0549
−2.0857	−0.2440	0.1838	−1.3276	0.1863	−0.5481	0.0602
−1.8437	−0.2113	0.1674	−1.2620	0.2089	−0.4883	0.0658
−1.6017	−0.1786	0.1513	−1.1801	0.2398	−0.429	0.0719
−1.3597	−0.1458	0.1356	−1.0755	0.2838	−0.3702	0.0786
−1.1176	−0.1131	0.1204	−0.9395	0.3490	−0.3124	0.0861
−0.8756	−0.0804	0.1060	−0.7586	0.4493	−0.2558	0.095
−0.6336	−0.0477	0.0927	−0.5145	0.6076	−0.2010	0.1057
−0.3916	−0.0150	0.0810	−0.1846	0.8538	−0.1490	0.1191
−0.1495	0.0178	0.0719	0.2472	0.8051	−0.1012	0.1367
0.0925	0.0505	0.0662	0.7624	0.4470	−0.0591	0.1600
0.3345	0.0832	0.0650	1.2800	0.2025	−0.0244	0.1908
0.5500	0.1123	0.0679	1.6549	0.1000	0.0001	0.2247
0.5765	0.1159	0.0685	1.6929	0.0925	0.0026	0.2292

(continued)

Appendix I (continued)

Conditional formalisation (Form)	Effect	SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
0.8185	0.1486	0.0760	1.9562	0.0523	0.0229	0.2744
1.0606	0.1814	0.0865	2.0969	0.0377	0.0382	0.3245
1.3026	0.2141	0.0990	2.1616	0.0322	0.0502	0.3780
1.5446	0.2468	0.1129	2.1850	0.0304	0.0599	0.4337
1.7866	0.2795	0.1278	2.1874	0.0302	0.0680	0.4910

SE: standard error; CI: confidence interval; LL: lower limit; UL: upper level.

Appendix II

Johnson–Neyman analysis values – conditional effect of *ex post* subjective evaluation on perceived procedural justice at values of job autonomy

Conditional job autonomy (Auto)	Effect	SE	*t*-value	*p*-value	LL 90% CI	UL 90% CI
−2.4665	−0.5569	0.2359	−2.3609	0.0195	−0.9472	−0.1665
−2.2534	−0.5212	0.2183	−2.3882	0.0182	−0.8824	−0.1600
−2.0404	−0.4856	0.2009	−2.4174	0.0168	−0.8180	−0.1532
−1.8273	−0.4499	0.1838	−2.4484	0.0155	−0.7541	−0.1458
−1.6143	−0.4143	0.1671	−2.4801	0.0142	−0.6908	−0.1378
−1.4013	−0.3787	0.1508	−2.5104	0.0131	−0.6283	−0.1290
−1.1882	−0.3430	0.1353	−2.5351	0.0123	−0.5670	−0.1191
−0.9752	−0.3074	0.1207	−2.5460	0.0119	−0.5072	−0.1076
−0.7621	−0.2718	0.1075	−2.5280	0.0125	−0.4497	−0.0939
−0.5491	−0.2361	0.0961	−2.4557	0.0152	−0.3952	−0.0770
−0.3360	−0.2005	0.0874	−2.2928	0.0232	−0.3452	−0.0558
−0.1230	−0.1648	0.0822	−2.0054	0.0467	−0.3009	−0.0288
−0.0611	−0.1340	0.0810	−1.6549	0.1000	−0.2681	0.0001
0.0901	−0.1292	0.0811	−1.5929	0.1133	−0.2634	0.0050
0.3031	−0.0936	0.0843	−1.1094	0.2690	−0.2331	0.0460
0.5161	−0.0579	0.0914	−0.6336	0.5273	−0.2092	0.0934
0.7292	−0.0223	0.1015	−0.2194	0.8266	−0.1903	0.1458
0.9422	0.0134	0.1139	0.1173	0.9068	−0.1752	0.2019
1.1553	0.0490	0.1279	0.3832	0.7021	−0.1626	0.2606
1.3683	0.0846	0.1430	0.5920	0.5547	−0.1520	0.3212
1.5814	0.1203	0.1589	0.7571	0.4502	−0.1426	0.3832
1.7944	0.1559	0.1754	0.8892	0.3753	−0.1343	0.4461

SE: standard error; CI: confidence interval; LL: lower limit; UL: upper level.