Received 8 January 2015
Revised 29 May 2015
Accepted 9 October 2015

Measuring employee perception of performance management system effectiveness

Conceptualization and scale development

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Abstract

Purpose – Concerns about the effectiveness of performance management systems (PMS) have long-driven researchers and practitioners to explore ways of measuring it. It is imperative for organizations to understand, how employees perceive the effectiveness of their PMS, for positive employee outcomes. Hence, the purpose of this paper is to explore the operationalization of the construct "employee perception of PMS effectiveness" (PMSE). An evidence of construct validity for the "two-factor PMS effectiveness" measure with perceived "PMS accuracy" and "PMS fairness" as its two factors is provided. In addition, a scale to measure "employee perception of PMS accuracy" is developed.

Design/methodology/approach – Mixed-methods research methodology.

Findings – Findings confirmed the possible existence of the two-factor PMSE construct, with PMS accuracy and fairness as its factors. Construct validity is established through its correlations with important outcome variables. The development of a valid and reliable 12-item scale for perceived PMS accuracy (Cronbach α value = 0.83) is an additional key contribution.

Research limitations/implications – The research presents opportunities for future empirical studies to examine the influence of PMS accuracy and effectiveness on employee outcomes (engagement, retention, etc.). Researchers may also cross-validate the PMSE measure in different socio-cultural contexts.

Practical implications – The perceived PMS accuracy and effectiveness measures can serve as powerful investigative tools to measure employee perceptions regarding PMS. It can help organizations identify and correct the shortcomings in their existing PMS.

Originality/value – This is the first paper to offer a cogent conceptualization and operationalization of employee perceptions of PMS accuracy and effectiveness. Hence, it has key implications for academics and practitioners.

Keywords Performance management, Effectiveness, Fairness, Accuracy, Appraisal

Paper type Research paper

Introduction

Exhaustive research is needed to comprehend the effectiveness of performance management systems (PMS) in organizations, particularly from employee perspectives (Dewettinck and van Dijk, 2013; Mishra and Farooqi, 2013; Simmons, 2002). There has been a gradual evolution from performance appraisal systems (PAS) to PMS in practice (Sharma *et al.*, 2008), and academics and practitioners make extensive use of the term "PMS effectiveness" (PMSE). They seem to presume the existence of relevant concepts and operational measures, which either do not exist or have not been properly defined. Hence, research in this area is at a standstill (Andersen *et al.*, 2014). PMSE is crucial for organizations to be successful (Wendt, 2014; Blizzard, 2014; Cooke, 2008). Practitioner literature cautions that PMS is likely to fail if employees doubt its credibility. More than organizational reality, PMSE is determined by employee perceptions regarding its accuracy and fairness (Luthra and Jain, 2012). The new breed of PMS needs to put

Employee Relations
Vol. 38 No. 2, 2016
pp. 224-247

0142-5455
DOI 10.1108/ER-01-2015-0006

employee in the steering mode (Trosten-Bloom *et al.*, 2014); however, there is a lack of clarity regarding employee perceptions of PMSE.

Even recent studies lack this clarity. Dewettinck and van Dijk (2013) measured PMS fairness by operationalizing it as employees' perceived fairness of appraisal outcomes. This was measured by an adaptation of Tang and Sarsfield-Baldwin's (1996) "fairness of performance planning and evaluation system" scale. PMSE was measured using Dewettinck's (2008) "motivational effect of performance review" scale. "Appraisal" and "review" are two different phases of PMS. However, these researchers used "appraisal fairness" and "motivational effect of review" as surrogates for "PMS fairness" and "PMSE". This is a major limitation of their research, which results from a lack of tools to measure PMSE. Similarly, Haines and St-Onge (2012) studied PMS effectiveness using a scale that measured its desirable outcomes like performance improvement and employee retention. They confounded PMSE with its desirable outcomes and did not measure PMSE as such. Rao (2007) developed a scale to map the factors that increase PMSE. Likewise, Biron *et al.* (2011) stated that senior manager's involvement, clear communication and rater training influence PMSE. These studies looked at PMSE facilitators; however, they fell short of suggesting ways to measure PMSE.

Mayer and Davis (1999) studied the effect of appraisal on trust. But the scales that they used to measure PAS "accuracy" and "outcome instrumentality" captured aspects of "procedural justice" and "distributive justice". Pearce and Porter (1986) examined employees' views regarding appraisal accuracy, fairness and effectiveness under the common label "perceptions of appraisal system operation and organizational impact". Based on a literature review, Dickinson (1993) suggested that appraisal accuracy and fairness are the two most persuasive indicators of its effectiveness. He advised researchers to develop multi-item scales for their measurement, instead of using the previous single-item measures. The utility of performance management research conducted in the past has been diluted due to measurement inconsistencies and lack of a theoretical basis in the development of idiosyncratic measures of seemingly the same construct with different names. The common discrepancies include the confounding of distinctive constructs, such as fairness with accuracy. Indeed, "accuracy" and "fairness" need to be conceptualized and operationalized as distinct, yet related, entities that together reflect effectiveness in this context (Keeping and Levy, 2000). Specifically, employee perception of PMSE has not been adequately conceptualized and operationalized in extant literature (Biron *et al.*, 2011; Cawley *et al.*, 1998).

Hence, employee perceptions regarding PMS accuracy and fairness were investigated in the current study. The literature suggests that these two constructs together indicate PMSE in organizations (Dickinson, 1993; Boice and Kleiner, 1997; Murphy and DeNisi, 2008). Specifically, a scale to measure employee perception of PMS accuracy, as distinct from their perception of PMS fairness was developed. Further, the likelihood of the existence of a two-dimensional construct of employee perception of PMSE was evaluated empirically with perceived accuracy and fairness as its factors. Supporting statistics and analyses have been provided. It is hoped that these research findings will be of key significance to managers and scholars interested in performance management and employee perceptions regarding its effectiveness.

Literature review

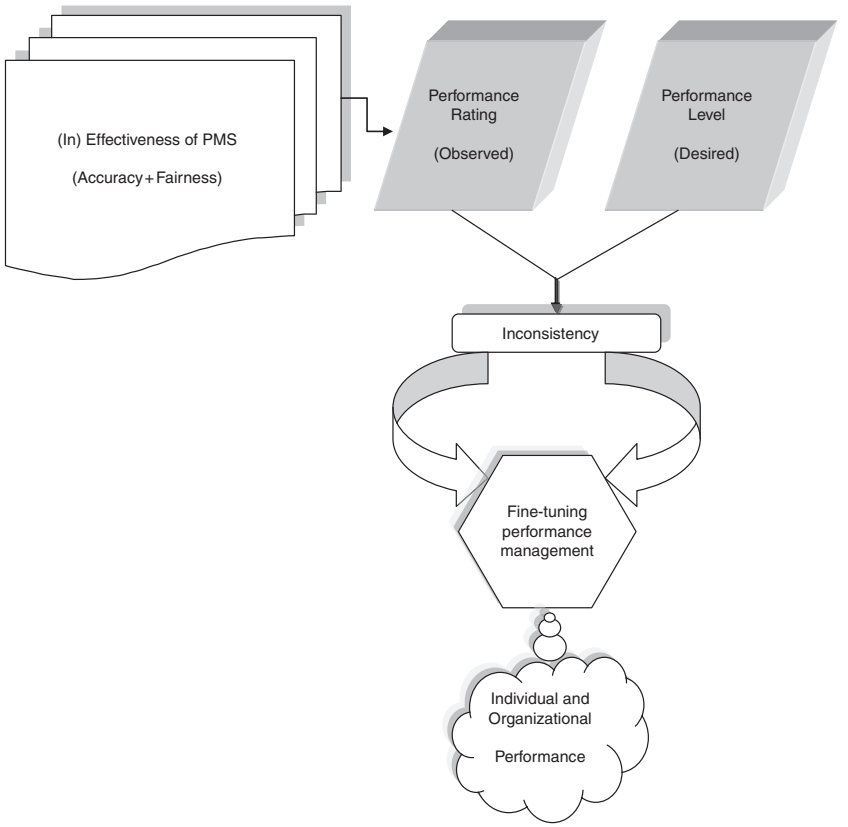
Measures of PMS effectiveness have not been well conceptualized in literature and warrant further research (Biron *et al.*, 2011; Thurston and McNall, 2010). Research has recently initiated reflections on "performance management" in preference to "appraisal"

(DeNisi and Smith, 2014). For the current study, PMS is defined as being comprised of four primary stages: performance planning; feedback and coaching; review; and outcomes (Bernthal, 1996). There is a need to do much in scholarship to inform practice about effective performance management. PMS involves wide-ranging activities, with appraisal being its focal point (DeNisi, 2000). "Appraisal" is a managerially authorized event conducted once or twice annually. It involves employees' performance evaluations through the assignment of quantitative scores. Despite a shift in practice from "appraisal" to "PMS", the academic focus is moving in a similar direction but at a snail's pace (Claus and Briscoe, 2009; DeNisi and Pritchard, 2006). The terms "performance management" and "appraisal" are often used interchangeably (Furnham, 2004; Lawler, 2003; Gosselin *et al.*, 1997), but these definitions suggest that appraisal is an important element of PMS (Biron *et al.*, 2011). Performance management is a more evolved form of appraisal (Bretz *et al.*, 1992). Thus, an approach that may be used to explore PMSE involves understanding employees' perceptions about appraisal through the review of pertinent appraisal literature (Selden and Sowa, 2011). Employees' acceptance of appraisal is a better way of evaluating its effectiveness than the conventional measures like rater errors (Tziner *et al.*, 2000). Mostly, research has looked at appraisal effectiveness through the lens of performance measurement quality or appraisers' perceptions. However, lately there has been a shift from measurement focus in appraisal context to appraisee or broadly, employee focus from performance management perspective (Jawahar, 2007).

Conceptualization of employee perception of PMS effectiveness

PMSE concerns the level to which a PMS meets its intended objectives; therefore, it is very difficult to measure (Boland and Fowler, 2000). Lawler (2003) defined PMSE as its ability to influence employees' performances and the differentiation between high and low performers. PMSE reduces the gap between desired and observed performance. Scholars worldwide have suggested various frameworks for performance management. However, the performance management/appraisal model proposed by Murphy and DeNisi (2008) provides the basis for integrating all existing frameworks (Figure 1). They suggested that the acceptance of PMS by employees is a significant factor for its success and that effective PMS are the ones that the employees perceive as being accurate and fair.

Researchers have defined appraisal as a mechanism used for performance management (Erdogan, 2002). Walsh and Fisher (2005) delineated that effective appraisals are valid, reliable, bias free and relevant. Lee (1985) defined appraisal effectiveness as the accuracy of performance ratings and observations, plus the ability to improve employee performance. Appraisals occur in complex social systems. Employees' positive perceptions about appraisals matter much more for their effectiveness than their design (Pearce and Porter, 1986). Their beliefs about appraisal accuracy and fairness can be used to map its effectiveness (Evans and McShane, 1988). Taylor *et al.* (1995) measured appraisal accuracy through two items asking how accurate the appraisal was and whether the assessment showed employees' real performance levels. They measured appraisal fairness using a single item that asked whether the appraisal was fair. Landy *et al.* (1978) indicated that such perceptions are correlated with awareness of goals, evaluation frequency and the supervisor's knowledge about the subordinate's duties. Cawley *et al.* (1998) defined appraisal effectiveness as how well it operated as a tool for performance assessment. Due to lack of tools, they measured it through employees' participation in appraisals. However, they advised future researchers to study appraisal



Source: Created by authors based on Murphy and DeNisi (2008)

Figure 1. Performance management model

effectiveness using "perceived appraisal accuracy" and "perceived appraisal fairness" as separate indicators of its effectiveness. Levy and Williams (2004) purported that employee perceptions about appraisal are the best criteria to evaluate its effectiveness as even the most psychometrically valid appraisals would be ineffective if they were unacceptable to employees.

Folger and Konovsky (1989) argued that the organizational fairness literature has not updated research in the appraisal context. Thurston and McNall (2010) investigated the underlying structure of employee fairness perceptions about appraisal. They argued the existence of four distinct, yet highly correlated appraisal fairness dimensions: procedural, distributive, interpersonal and informational. Based on the "due process" model by Folger *et al.* (1992) accuracy does not call for a common objective reality between the appraiser and the appraisee but rather a common vision of acceptable standards and information relevant to evaluate performance. Likewise, fairness does not need detailed accounting of employees' work outputs, but rather a mutual sense of inter-personal treatment, reward allocation and explanation of decisions. There is a need to study fairness perceptions in the performance management context (Narcisse and Harcourt, 2008; Jawahar, 2007; Kavanagh *et al.*, 2007) to take critical decisions (Gupta and Kumar, 2013).

Earlier performance management research has largely focused on better ways to evaluate performance, without considering the broader management objective of improving performance. PMS cannot be expected to be effective unless employees respond to these in the ways intended. For effectiveness, such systems need to be perceived as fair in terms of distribution of outcomes (distributive justice), processes followed to arrive at distributions (procedural justice) and clarity of communication mechanisms (interactional justice) (DeNisi and Pritchard, 2006). Hence, building upon extant research, "the employee perception of the PMS accuracy scale" and empirically validated "perceived PMSE" measure, with perceived PMS accuracy and fairness as its two factors was developed. Psychometric analyses showed that the measures are reliable and valid.

Researchers have defined "effectiveness" in two ways:

(1) Achievement of intended objectives (e.g. Wojtczak, 2000/2002; Shany, 2012).

(2) "Doing the right things" (e.g. Drucker, 2006; West, 1999).

Vlãsceanu *et al.* (2007) defined "effectiveness" as a measure of the success of a system in the achievement of specific goals. They suggested that "effectiveness" is different from "efficiency", which is measured as the ability to achieve objectives with minimal waste of resources or effort. Drucker (2006) suggested that "efficiency" is "doing things right" and "effectiveness" is "doing the right things". Erlendsson (2002) confirmed that "efficiency" is about performing tasks with reasonable effort (i.e. "doing things the right way") and "effectiveness" is about meeting objectives (i.e. "doing the right things"). Graves (2010) advocated that a good way to describe "effective" is "efficient on purpose". However, "effective" is more than "efficient" and efficiency is itself a dimension of effectiveness. Hence, a broader definition could be "doing the right things in the right way".

Researchers defined training effectiveness as the extent to which training "meets its objectives". However, they advised that to measure effectiveness, there is a need to differentiate between shorter-term outputs that can be linked to specific objectives of a system and the longer-term outcomes or impacts of a system (Descy and Westphalen, 1998; West, 1999). "Effectiveness" has been defined in various ways in different contexts, which means that no single definition is decisive. However, all the definitions seem to agree that it is difficult to discuss the effectiveness of a system (Hamilton and Chervany, 1981) without understanding its objectives. The critical point is that "effectiveness" is always context specific (Cohen, 1993). Again, it makes sense to say that "if the right things are done in the right way" then a system shall surely be effective or successful in meeting its intended objectives. The two streams of research converge on the "definition of effectiveness" and the existing literature on "PMSE". Therefore, to measure "employee perception of PMSE", the focus was on "doing the right things" (accuracy), and "doing things the right way" (fairness) in the PMS context.

PMS signifies more than a list of particular practices aimed at evaluating employees' performances. Rather, it is an integrated process aimed at setting goals, measuring and reviewing the achieved goals, providing continuous feedback and rewarding performance (Den Hartog *et al.*, 2004; Mone *et al.*, 2011). While PMS can be designed to achieve several diverse objectives, it is, basically, a strategic and tactical tool. Its intended objectives can be summarized into two main categories:

(1) Strategic objectives: to assist top management in achieving strategic business objectives. Hence, to align employees' goals with organizational goals for the reinforcement of behaviours that contribute towards the attainment of organizational goals.

(2) Tactical objectives: to deliver useful and valid input for performance-based rewards, compensation decisions or recognition; thereby, giving employees clear signals about what is valued by the organization. To equip managers with relevant information to provide their subordinates with continuous feedback regarding their skills and weaknesses for employee development and performance improvement (Biron *et al.*, 2011).

It is noticeable that PMSE may, in turn, lead to long-term outcomes or impacts, such as employee motivation, engagement and retention (Selden and Sowa, 2011; Kuvaas, 2006; Gruman and Saks, 2011; Gupta and Kumar, 2013). Keeping in mind the suggestions made by researchers who have developed effectiveness measures in various contexts (as noted above), "right things" or "intended specific objectives" of PMS needed to be distinguished from their long-term outcomes. Therefore, in the operationalization of perceived PMSE measures from employees' perspectives, the focus was only on its two "specific objectives", namely, strategic and tactical.

The scale development and validation process

Review of literature indicated absence of a standardized instrument which can be used or adapted to measure PMS accuracy. Hence, exploratory and confirmatory factor analyses were conducted to develop a psychometrically valid measure of "employee perception of PMS accuracy" distinct from their perception about its fairness. Further, confirmatory factor analysis (CFA) was conducted to adapt the organizational justice scale developed by Colquitt (2001) as a measure of "employee perception of PMS fairness". Finally, the existence of a two-factor (accuracy and fairness) construct of PMSE was empirically confirmed (Figure 2).

For scale development and validation purposes, well-established guidelines by DeVellis (2012), Worthington and Whittaker (2006), Hinkin (1995) and Churchill (1979) were followed.

A measure for PMS accuracy on the basis of prior scholarly work (e.g. Kuvaas, 2006; Bernthal, 1996; Giles and Mossholder, 1990; Stone *et al.*, 1984) was developed. The reliability of the newly developed scale was found to be 0.83 based on the Cronbach α value. As suggested by Clark and Watson (1995), the aim was to articulate the construct unmistakably and comprehensively. How other scholars had conceptualized and operationalized comparable concepts in equivalent or disparate contexts (detailed earlier) was observed, and meticulous statistical analyses to establish scale reliability and validity were conducted.

Item generation (qualitative)

Employee perception of PMSE needs to be explored further. Extant literature and empirical evidence are insufficient to generate novel insights into the construct. Therefore, the process started with exploratory qualitative research through thematic analysis of interview data, which entailed the discovery of repetitive patterns of meaning (themes) across a data set, such as multiple interviews (Braun and Clarke, 2006). A purposive sampling technique (Yin, 2011) was used to determine the sample. For perceptual studies, it is better to ask the individuals themselves to examine their perceptions (Cannell and Kahn, 1976). The sample was drawn from organizations representing both manufacturing and service industries in India. The respondents had worked for at least one year with the same organization. In view of the sample size used by previous researchers, and the thematic analysis requirements, the

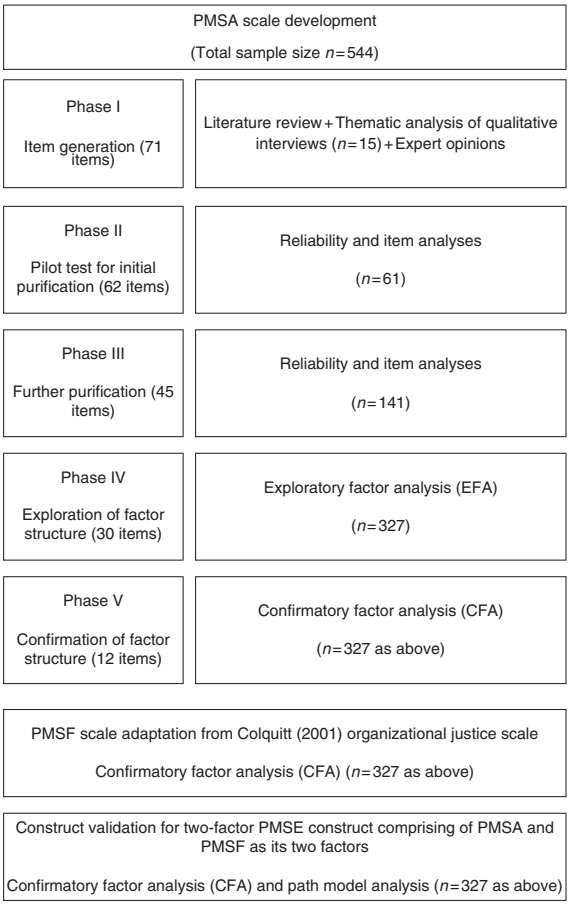


Figure 2.
Scale development and validation process

theoretical saturation and the practical considerations (Baker and Edwards, 2012; Bonde, 2013), the sample size was 15 (Table I). The respondents worked at junior management levels.

The inductive thematic analysis, at the latent or interpretive level, was conducted to identify the overarching themes using the process outlined by Braun and Clarke (2006). It was carried out using the qualitative analyses software Atlas.ti 7.0. The data were collected from primary sources, and verbatim notes were taken during the interviews. The data were stored in the form of interview records for each interviewee. As recommended by Riessman (1993), interview data were concurrently transcribed and the initial ideas noted down:

> For latent thematic analysis, the development of the themes themselves involves interpretative work, and the analysis that is produced is not just descriptive, but is already theorized (Braun and Clarke, 2006, p. 84).

Reliability and validity (Cargan, 2007) are major issues in qualitative surveys in which master data are picked up for longer durations. Telephonic interviews for data

Characteristics	Phase I (Qualitative) *n*	%	Phase II (Pilot) *n*	%	Phase III *n*	%	Phases IV and V *n*	%
Sample size	15	–	61	–	141	–	327	–
Industry								
Service	9	60	45	73.77	115	81.56	252	77.06
Manufacturing	6	40	16	26.23	26	18.44	75	22.94
Gender								
Male	14	93	44	72.13	116	82.27	264	80.73
Female	1	7	17	27.87	25	17.73	63	19.27
Education								
Bachelors	7	46.67	31	50.82	38	26.95	93	28.44
Masters	8	53.33	30	49.18	103	73.05	234	71.56
Designation								
Manager/Deputy/Assistant Manager	8	53.33	10	16.39	107	75.89	237	72.48
Executive/ Officer	7	46.67	51	83.61	34	24.11	90	27.52
Average age (in years)	32		31		31.8		30.6	
Average total work experience (in years)	5		5.6		6		6.3	
Average experience with current organization (in years)	3		3.1		3.2		3.5	

Table I.
Sample descriptions

accumulation were used, which took less time. Scheduling the interviews at the respondents' convenience helped to cut the likelihood of their frustration and, therefore, the possibility of misleading data. Validity issues related to data accuracy were taken care of by asking significant questions that facilitated truthful responses. A semi-structured interview protocol was developed. This was designed on the basis of gaps identified from academic and practitioner literature. The order of questions per interview was managed to aid similarity in the interviewing format while asking relevant questions to each respondent at the suitable time to ensure higher validity (Zulawski and Wicklander, 2001). The literature review corroborated and validated the findings of this study: that organizations may increase PMSE by improving its accuracy (correctness) and fairness (justice). Initial coding was logically generated for use with remarkable elements of the entire data set. Initial ideas were generated during the transcription and data immersion stages to code the data segments. The evident repeated patterns in the data were attended to in the search for themes. Different codes dealing with similar aspects of the data were put into prospective themes. The refining of these themes continued, thereafter, to depict the "overall story". The emergent themes are noted below.

PMS effectiveness (PMSE). This theme represents employee perception of PMSE. Respondents articulated an effective PMS through their perceptions about its accuracy and fairness:

> Respondent 5: You have to be fair, you have to put yourself in the shoes of the other person and see how he has taken up the task and how he has performed it, and how good he could have done it than the other or than you could have performed it. So, basically being fair and accurate makes it very effective.

PMS accuracy. This indicates employee perception of the correctness of PMS through the alignment of the employees' and the organization's goals; clarity about goals, performance standards and skills/behaviours required at different levels; clear linkage

of goals with business needs (e.g. market potential for sales); performance evaluation against planned standards; proper evaluation of employee strengths; regular feedback about performance; facilitation of employee development; and clear linkage between performance and PMS outcomes (rewards and recognition).

Respondents emphasized PMSE through its accurateness by underlining the attributes that together add to PMS accuracy:

> Respondent 2: An effective PMS is […] that is, aligned to the company's goals and also ensures taking into account employees' aspirations. So a PMS that leads to attainment of the company's goals at one end and employee development at the other end […] would be an effective PMS.
>
> Respondent 3: An effective PMS […] is one which is able to evaluate the strengths and add adequate skills […] is able to justify our efforts in the organization […] one might not be well versed with matrices to calculate performance. In different divisions where the evaluation of performance is difficult, whereas we put in a lot of effort […] efforts should be justified in our performance rating from [the] performance review.
>
> Respondent 5: You have to make the other person understand what which criterion is about. So, when we tell that person, it's not what he is doing – it's not just what he is supposed to do and how he would be judged upon it. It is also important that you make him realize that this particular thing […] if he performs it this way […] he achieves the goals.
>
> Respondent 7: In the beginning itself, there is confusion related to the goals to be set, either they are not set properly or they are not being followed. Maybe what a supervisor or employer can do is […] they can have regular check-ups, if it is the period of one year, maybe they can have objectives for every quarter, so that it can be judged whether the set goals are being followed […] is the employee right on target or there is something he needs to work on.

PMS fairness. This signifies the employee perception of PMS fairness through justice/righteousness in all aspects of PMS. Respondents expressed that PMS fairness forms another significant dimension of its effectiveness:

> Respondent 5: So, you will have to keep an open mind, and […] basically try to understand how that person is working and how he is handling day-to-day issues, and what are the issues he is handling. Based on that, you have to develop a very […] very transparent performance management system and you need to clearly convey to each employee and make every employee understand what each point stands for, and how he would be rated on that particular point. So, it should be fair, transparent and well understood by the manager and the employees.
>
> Respondent 6: PMS should be fair in all aspects. There should not be any partiality.

In compliance with the psychometric test development process, an inductive approach was used (Hinkin, 1995) to initially generate an exhaustive list of 71 statements (items) for the PMS accuracy scale. Conducting open-ended interviews with representative subjects drawn from a target-respondent population is helpful groundwork for item generation. It can add to the authenticity and contribute to the validity of a newly developed scale (Dawis, 1987). Along with the literature review, insights obtained from thematic analysis were used to create a pool of items. Aiken and Marnat (2009) emphasized that in psychological testing the procedure developed by Rensis Likert is the most popular because of its simplicity and versatility. Likert scales yield higher reliability coefficients with fewer scale items than those constructed by other methods (e.g. the Thurstone method) (Edwards, 1983; Edwards and Kenney, 1946). Item responses were collected on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). High scores indicated a high perceived accuracy of PMS.

In order to deal with social desirability concerns, few of the items had reversed scoring. The item-generation guidelines suggested by DeCoster (2005) were followed to ensure that the statements were straightforward, simple and not double-barrelled. Face validity is very important for any newly developed measure (Aiken and Marnat, 2009); therefore, the appearance of the preliminary questionnaire, designed by the authors, matched the specific purpose of measuring PMS accuracy. The initial number of items was expected to reduce during the subsequent reliability and item analyses stages. Two expert opinions were sought *vis-à-vis* the relevance, clarity and coverage for each item. The inter-rater agreements, specifically with respect to item relevance, strengthened the inter-rater reliability. Nine items were dropped post-review by the experts while some were modified and reworded. To make certain that the 62-item test resembled an instrument that had been designed to assess PMS accuracy; the experts were requested to scrutinize the test items once again. Their compliance helped to establish the content validity of the measures (Aiken and Marnat, 2009, p. 98).

"Employee perception of PMS accuracy" scale development and validation (quantitative)

In the first exploratory round of the test-construction process, 62 items were administered as a pilot test on a sample of 61 respondents (Table I) from diverse backgrounds (as recommended by Katz, 1976), given that the pilot test sample size had to be above or equal to 30 (Costello and Osborne, 2005; Johanson and Brooks, 2010). The data were collected through personal and electronic surveys. We conducted the reliability and item analyses (DeVellis, 2012) for preliminary scale responses, using the statistical package for social sciences. The deletion of 17 items resulted in a considerable improvement of the reliability coefficient Cronbach α value (Cronbach, 1951). We retested the resulting scale of 45 items on a sample of 141 respondents (Table I). The Cronbach α value was further enhanced through the removal of 15 items at this stage of scale purification, which left a scale of 30 items. Factor analysis assists in uncovering the factors deemed to be the hypothetical causes that account for inter-item correlations in a construct (Reise *et al.*, 2000, p. 294). Hence, exploratory and confirmatory factor analyses were carried out to gain insights into the latent structure of the construct. We conducted exploratory factor analysis (EFA) and reliability analysis for the 30-item scale on the basis of data collected from 327 diverse respondents: professionals who represented both private and public sectors in India (Table I).

The Kaiser-Meyer-Olkin measure for sample adequacy was statistically significant and had a value of 0.839 (above 0.5), which confirmed the suitability of the data for factor analysis (Kaiser, 1960). Researchers have argued that principal component analysis is not the true method for factor analysis (Costello and Osborne, 2005); therefore, EFA was conducted using the maximum likelihood method along with varimax rotation. Orthogonal rotation was used as the literature did not provide strong evidence for inter-factor correlation (DeVellis, 2012). The decision regarding factor and item retention was based on simultaneous examination of factor loadings (DeVellis, 2012), eigenvalues (Kaiser, 1974), communalities (Worthington and Whittaker, 2006) and scree plot (Cattell, 1966). Factors with fewer than three items were dropped (Yong and Pearce, 2013). This resulted in the extraction of four factors (comprising 12 items) with eigenvalues greater than 1, communalities greater than 0.4 and high-factor loadings (values above 0.5) (Costello and Osborne, 2005). The four-factor model explained 52.99 per cent variance:

> No psychometric instrument can be of value unless it is a consistent, or reliable, measure […] one of the first things that need to be determined about a newly constructed test is whether it is sufficiently reliable (Aiken and Marnat, 2009, p. 87).

Hence, the internal consistency (reliability) analysis was conducted for the 12-item scale. This resulted in a Cronbach α value of 0.83, which was above the recommended value of 0.80 (Nunnally, 1978). This confirmed the reliability of the measure (mean = 4.622; standard deviation (SD) = 0.396). All the 12 items had an item-total correlation of more than 0.30 and an SD of more than 0.4 (Churchill, 1979) (Table II).

The 12-item test was further subjected to a CFA using analysis of moment structures (AMOS) to validate the proposed item structure that emerged from the exploratory phase (Hinkin, 1995). The measurement model for "PMS accuracy" confirmed the four-factor structure comprising 12 items. This further strengthened the verification for construct validity, besides expert opinions and internal consistency analyses (Aiken and Marnat, 2009). The measurement model showed a good fit with acceptable values for model fit indices: comparative fit index (CFI) = 0.995, root mean square residual (RMR) = 0.006, root mean square error of approximation (RMSEA) = 0.027, normed χ^2 (χ^2/df) = 1.231 (model χ^2 = 59.083, degrees of freedom (df) = 48, $p \leqslant 0.01$). The values met the cut-off criteria for various fit indices: CFI $\geqslant$ 0.90, RMR nearly 0, RMSEA $\leqslant$ 0.08, $1 \leqslant \chi^2/\text{df} \leqslant 3$. The standardized factor loadings were above 0.5 (Table III) and all were significant at $p \leqslant 0.01$. Moreover, the co-variances

Table II.
Item statistics for PMS accuracy (PMSA) scale

Item no.	Mean	SD	Item-total correlation	Communalities
PMSA1	4.7339	0.4695	0.5564	0.495
PMSA2	4.7431	0.4514	0.5403	0.474
PMSA3	4.7615	0.4547	0.5578	0.634
PMSA4	4.7370	0.4613	0.5742	0.639
PMSA5	4.7523	0.4598	0.5387	0.473
PMSA6	4.7431	0.4713	0.4471	0.421
PMSA7	4.7095	0.4809	0.4590	0.530
PMSA8	4.7401	0.4664	0.4805	0.548
PMSA9	4.7615	0.4410	0.4625	0.446
PMSA10	4.7706	0.4693	0.4523	0.686
PMSA11	4.7920	0.4824	0.4531	0.509
PMSA12	4.7768	0.4657	0.3923	0.504

Table III.
Factor loadings for PMS accuracy (PMSA) scale

	Rotated factor matrix Factor			
Item no.	1 PPA	2 FCA	3 PRA	4 OUA
PMSA1	0.731			
PMSA2	0.599			
PMSA3	0.596			
PMSA4		0.724		
PMSA5		0.579		
PMSA6		0.577		
PMSA7			0.700	
PMSA8			0.695	
PMSA9			0.624	
PMSA10				0.808
PMSA11				0.687
PMSA12				0.677

Notes: Extraction method, Maximum likelihood; Rotation method, Varimax with Kaiser normalization

between the factors were below 0.8 (Kline, 2010; Kenny, 2014), which ascertained the convergent and discriminant validity for the factors of PMS accuracy. This established that this instrument possessed sound psychometric properties and was a standardized measure of "employees" perceptions of PMS accuracy' (see the Appendix).

On the basis of expert consultation and literature review, the four factors were suitably labelled. Three items were grouped under the label "performance planning accuracy" (PPA) ($\alpha = 0.77$); three items were grouped under "feedback and coaching accuracy" (FCA) ($\alpha = 0.74$); three items were grouped under "performance review accuracy" (PRA) ($\alpha = 0.75$); and three items were grouped under "outcomes accuracy" (OUA) ($\alpha = 0.79$).

The newly developed "employee perception of PMS accuracy" scale assesses the extent to which the employee perceives that the PMS provides an exact basis for financial/non-financial recognition of employee performance to accurately enhance relevant performance (through relevant behaviours/skills) that contributes value to the organization. This definition has been adapted from Mayer and Davis' (1999, pp. 125-128) conceptualization of "PAS accuracy" on the basis of results obtained during the scale construction process. Accordingly, "PMS accuracy" factors are conceptualized as noted below.

"PPA" is the degree to which the employee perceives that the performance planning phase of PMS ensures the alignment of the employee's performance goals (through relevant behaviours/skills) with the organizational goals.

"FCA" is the degree to which the employee perceives that the feedback and coaching phase of PMS ensures the alignment of the employee's delivered performance with the planned performance through regular feedback and coaching throughout the year.

"PRA" is the degree to which the employee perceives that the annual performance review phase of PMS measures the alignment of the employee's annual performance with the planned performance through an assessment of the employee's performance against planned goals (behaviours/skills).

"OUA" is the degree to which the employee perceives that the outcomes phase of PMS ensures that the performance-based rating, compensation, reward and/or recognition are clearly tied to the employee's annual performance review.

"Employee perception of PMS fairness" scale adaptation

To resolve complications arising out of inconsistent measurement of the organizational justice construct, Colquitt (2001) explored its dimensionality on the basis of seminal works. Following Greenberg's (1993a, b) guidelines, he developed a measure of organizational justice, which can be tailored to specific contexts. He provided empirical confirmation that justice can be best conceptualized as comprising four distinct yet highly correlated factors: procedural (fairness of procedures); distributive (fairness of outcomes); interpersonal (fairness/quality of interpersonal treatment); and informational (fairness of explanations). Hence, based on existing literature and thematic analysis findings, "employee perception of PMS fairness" was conceptualized as employee perception of organizational justice pertaining to PMS (Colquitt, 2001; Thurston and McNall, 2010). This construct was operationalized by taking into account its four-factor structure and was measured by using an adaptation of Colquitt's (2001) scale. To validate this scale, a CFA was conducted using AMOS. The CFA resulted in a measurement model for "PMS fairness" with 18 items and four factors (procedural (PRF), distributive (DIF), interpersonal (IPF) and informational (INF)), as anticipated. Fit statistics showed a reasonably good fit, with CFI = 0.929, RMR = 0.003, RMSEA = 0.073, $\chi^2/\mathrm{df} = 2.750$ ($\chi^2 = 343.701$, $\mathrm{df} = 125$, $p \leqslant 0.01$). The standardized

factor loadings were more than 0.5 and significant at $p \leqslant 0.01$. The co-variances between factors were less than 0.8. This helped to establish construct reliability ($\alpha = 0.93$) and validity for this adapted measure of PMS fairness (mean = 4.042; SD = 0.225).

Empirical validation of the two-factor construct "employee perception of PMSE"

Based on existing literature and thematic analysis findings, "employee perception of PMSE" was conceptualized as employee perceptions about its accuracy and fairness (Murphy and DeNisi, 2008; Levy and Williams, 2004; Dickinson, 1993). We performed a CFA for empirically confirming the possibility of the existence of the two-factor construct. CFA resulted in a good fit measurement model for "PMSE" with "PMS accuracy" and "PMS fairness" as its sub-constructs (Figure 3). The model fit indices were: CFI = 0.985, RMR = 0.003, RMSEA = 0.077, $\chi^2/\mathrm{df} = 2.909$ ($\chi^2 = 55.280$, df = 19, $p \leqslant 0.01$). The standardized factor loadings were greater than 0.5 and all were significant at $p \leqslant 0.01$. Moreover, the co-variances between the two factors were less than 0.8. The Cronbach α value for the "PMSE" construct was 0.842.

The argument regarding the existence of the "two-factor PMSE" construct was further strengthened through testing the construct validity; that is, the theoretical relationship between "perceived PMSE" and variables expected to be related to it (Cronbach and Meehl, 1955; DeVellis, 2012). As resource constraints prohibited the use of separate samples, the 327 respondents who had participated in the scale construction survey also answered the survey questions for construct validation. The variables included on a theoretical basis were organizational commitment (OC) and job satisfaction (JS). Employees' JS bears a significant relationship to their perceptions regarding performance management (Dailey and Kirk, 1992). Locke (1976) defined JS as a positive emotional state resulting from one's job experiences. Employees desire that the PMS includes assessable performance standards, transparency and a rigorous review mechanism. Fair performance evaluations and correct performance feedback constitute major predictors of JS (Lindholm, 1999).

Employees' perception about PMS is also related to their OC (Heslin and VandeWalle, 2011; Masterson *et al.*, 2000). Mathieu and Zajac (1990) defined OC as the psychological attachment of an employee to the organization. Paul and Anantharaman (2004) asserted that commitment-based human resource practices, like PMS, hold an affirmative relationship with OC. Equity Theory (Adams, 1965) suggested that employees provide

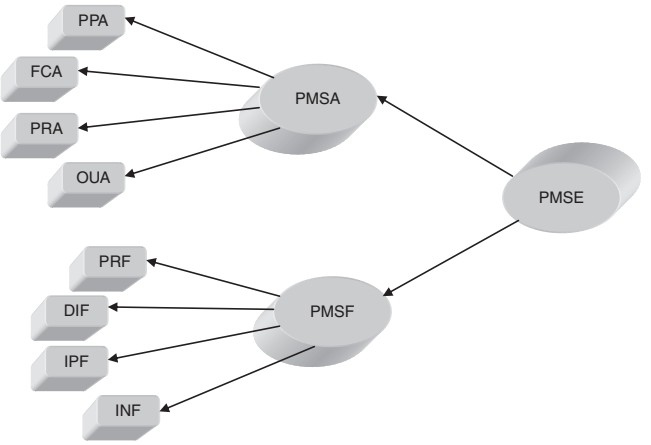


Figure 3.
The two-factor construct of PMS effectiveness (PMSE)

input to the organization in the form of work effort and, in turn, receive output from the organization. Employees compare their ratio of input-to-output to that of other employees, which impacts their feelings of equity. Such outputs, like pay or promotion, are decided on the basis of PMS. Hence, it was conjectured that employee perception of PMSE (accuracy and fairness) will result in an equity perception of their input/output balance and lead to enhanced JS and OC. Goal-setting theory also provides a strong rationale for the formulation of hypotheses. A "goal" may be defined as an aim of an action, which may have an internal aspect like "an idea" or an expert aspect "like a sale/job/performance level" (Locke, 1996, p. 118). For the goal to invoke positive employee outcomes, the necessary conditions include: an employee's goal acceptance; explicit/specific goals; difficult but realistic goals; and regular feedback about progression towards the goals (Locke, 1996). Hence, the perception of PMSE (accuracy and fairness) is likely to create these conditions and influence employees' JS and OC.

Therefore, two hypotheses were posited:

H1. Employee perception of PMSE is positively related to their JS.

H2. Employee perception of PMSE is positively related to their OC.

We measured OC through a seven-point bipolar 15-item scale, developed by Angle and Perry (1981). The instrument comprises two sub-scales. The first measure is "value commitment": the employees' commitment to support organizational goals. The second measure is "commitment to stay": the employees' commitment to retain organizational membership. JS was measured through a five-point bipolar 10-item scale, developed by Macdonald and MacIntyre (1997). Means, SDs and correlations among variables for PMSE, JS and OC are reported in Table IV. The correlations between the measures supported the construct validity of the two-dimensional PMSE construct. Employees' perceived PMSE is correlated positively and significantly ($p \leqslant 0.01$) with both JS and OC.

Harman's single factor test was used to deal with common method bias (Podsakoff *et al.*, 2003) as survey respondents had responded to all measures at a given time using a single survey instrument. A factor analysis was conducted together with all variable items used in this study to test whether a suspiciously large variance was claimed by a particular factor. Results confirmed the non-existence of a single factor accounting for major variance and, therefore, lack of a common method bias. Correlation analysis was followed by the path model analyses using structural equation modelling and partial least squares techniques encompassing maximum likelihood estimation. Fit tests were used to test the two-path models. Model 1 was based on the relationships between "perceived PMSE" factors (accuracy and fairness) as two separate constructs and JS along with OC as outcome variables. Model 2 was based on the relationships between "perceived PMSE" (as a two-factor construct comprising accuracy and fairness

	1	2	3
1. PMSE	(0.84)		
2. JS	0.212**	(0.91)	
3. OC	0.232**	0.335**	(0.93)
Mean	4.332	4.299	4.322
SD	0.253	0.401	0.407

Notes: $n = 327$. Values in parentheses are reliability indices (Cronbach's α). **$p \leqslant 0.01$(two-tailed)

Table IV. Correlation matrix for construct validity of PMS effectiveness

sub-constructs) and JS together with OC as outcome variables. The models were contrasted on the basis of latent variable model fit criteria (Arbuckle and Wothke, 1999; MacCallum and Austin, 2000). Model comparison analysis (Table V) suggested that the path Model 2 be accepted. This provided additional empirical validation for the existence of a two-factor "employee perception of PMSE" construct.

Discussion

The current study broadens the scholarship on performance management in significant ways. The limitation of previous studies, which used confounded measures for accuracy and fairness in the performance management context, has been overcome by using their psychometrically valid measures. For this, a scale was developed to measure "employee perception of PMS accuracy" and its distinctiveness from "employee perception of PMS fairness" was underscored. Rigorous statistical analyses (as elaborated earlier) were carried out to establish its psychometric properties.

Further, the existence of a two-factor "employee perception of PMSE" construct with "perceived PMS accuracy" and "perceived PMS fairness" as its factors was confirmed. The findings also confirmed the construct validity of this measure. The argument that PMS accuracy and fairness together indicate PMSE holds true even in the light of recommendations made by researchers who studied effectiveness in disparate contexts. Organizations need a PMS that gets everyone working together in pursuit of the right objectives in the right way (Engler, 2014). PMS accuracy implies the extent to which PMS provides an exact basis for recognition of employee performance to accurately enhance performance that contributes value to the organization. In the PMS context, this is equivalent to "doing the right thing", which is exactly what researchers have opined a PMS ought to do. Besides, PMS fairness implies the righteousness of PMS ensured through procedural, distributive, interpersonal and informational justice. In the PMS context, this is synonymous with "doing things the right way". Together, PMS accuracy and fairness indicate that a PMS "does the right things in the right way" (i.e. it is effective in meeting its intended objectives).

The use of self-report measures may lead to common method bias (Podsakoff *et al.*, 2003). Hence, Harman's single factor test was used to tackle any such situation. Nevertheless, past research suggests the absence of a common method bias in the use of self-report data for performance management research. Self-report measures are considered the most logical way for measuring employee perceptions in the PMS context (Keeping and Levy, 2000) as employees are in the best position to describe their experiences (Chang *et al.*, 2013). These arguments support the choice of these self-report measures for probing employee perceptions about PMS. Moreover, the psychometric properties of the "PMS accuracy" scale and the "two-factor measure of PMSE" indicate that these can be useful for both research and practitioner activities.

Table V. Model fit indices for path Model 1 and 2

Fitness criteria	Model 1	Model 2
χ^2	130.173	14.589
df	60	12
χ^2/df	2.170	1.216
RMR	0.013	0.005
CFI	0.981	0.998
RMSEA	0.060	0.026

Future research implications

The current study has key implications for both research and practice. First, there is a need for further theory building in the field of performance management (Den Hartog *et al.*, 2004), and the current study allows additional insights for building frameworks for the extension of existing theories on performance management. Second, it presents future researchers with an opportunity to provide an additional assessment of the predictive validity of employees' perceived "PMS accuracy" and "PMSE" measures by examining their relationships with a range of employee and organizational outcomes in different socio-cultural and national contexts. Third, a measure for "employee perception of PMSE" opens up exciting vistas for future research. The measure can be used to untangle the relationship between PMS and organizational performance. It can be used to detect why even meticulously designed PMS are effective in one firm but not in another. Fourth, an examination of the influence of "perceived PMSE" on employee outcomes (i.e. motivation, engagement, performance and retention) can yield rich insights that future studies may embark upon. For richer insights, future researchers can investigate the strength of relationships between the various factors of PMS accuracy, fairness and effectiveness measures and a range of employee outcomes.

Managerial implications

Practitioners have designed the best PMS from the organizational perspective, but these are still not perceived as being effective by employees. Lack of knowledge about the specific faults associated with different facets of performance management often makes a firm assume that the complete system is ineffective and thus redundant. Old systems are replaced by new without any understanding of the root causes behind their failure (Thurston and McNall, 2010). There are bright prospects of improving PMS and making these "potentially transformative for organizations" (Walsh and Fisher, 2005). This is specifically required in the Indian context to reduce employee scepticism towards performance management (Amba-Rao *et al.*, 2000; Pareek and Rao, 2003). The perceived "PMS accuracy" and "PMSE" measures can serve as powerful investigative tools to measure "employee perceptions regarding PMS". This information can be used by management to map and contrast employee perceptions with those of their own. It can help organizations to identify and correct the shortcomings in their existing PMS. Such an understanding can assist in designing and implementing PMS that are acceptable to both the firm and its employees. In particular, the use of PMSE measures developed in this study can allow practitioners with access to information about the multiple intervention points in a PMS to tweak it to make it effective. It can facilitate realization of the attributes that form effective PMS to augment employee outcomes, such as engagement and retention (Saks, 2006; Selden and Sowa, 2011; Kuvaas, 2006).

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Appendix. PMS accuracy scale items

Using the response scale below, indicate your agreement or disagreement with each item

1	2	3	4	5	6	7
Strongly disagree	Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree

Sl no.	Statements	1	2	3	4	5	6	7
1	The performance plan based on PMS gives a clear idea of what is expected of me to meet organizational goals							
2	The performance plan helps me focus my efforts through identification of goals (and/or behaviours/skills) relevant to meet organizational goals							
3	My manager and I update my goals as business goals change							
4	The ongoing feedback during the performance cycle gives an accurate evaluation of how I am performing against planned performance							
5	During the year my areas for improvement are clearly pointed out to me							
6	I get the coaching I need during the year to achieve my goals (and/or improve my behaviours/skills) to achieve planned performance							
7	Annual feedback during performance review is an accurate representation of the ongoing feedback during the performance cycle							
8	My goals (behaviours/ skills) are accurately rated as part of the review process							
9	My annual performance review is very objective in assessment of my annual performance against planned performance							
10	Performance review results in an accurate performance rating							
11	My PMS outcomes (compensation, reward and/or recognition) are linked to my performance rating							
12	My annual performance review is directly related to my PMS outcomes (compensation, reward and/or recognition)							

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