

**The Effects of Nonfinancial Performance Measures on
Role Clarity, Procedural Fairness and Managerial Performance**

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ABSTRACT

This study investigates the processes by which the use of nonfinancial measures for performance evaluation affects role clarity, procedural fairness and job performance. As nonfinancial measures are (1) not constrained by the annual reporting period, and (2) need not be expressed in monetary terms, a large variety of measures reflecting a broad spectrum of performance over different time periods are possible. There are several possible consequences. First, as more measures are possible, they are less aggregate. Second, they are easier to tailor to the individualized situations. Third, measures tailored to individualized situations may provide clearer indications of input-output relationships of tasks. Fourth, longer-term measures are possible if needed. These consequences are likely to influence employee role clarity and perception of procedural fairness and ultimately job performance. We therefore hypothesize that nonfinancial measures are likely to affect managerial performance indirectly through the improvement of employee role clarity and the enhancement of procedural fairness. The results, based on a sample of 149 managers from the United Kingdom, indicate that (1) nonfinancial measures are significantly related to role clarity; (2) the effects of nonfinancial measures on procedural fairness are indirect via role clarity, and (3) role clarity is the dominant intervening variable on the relationship between nonfinancial measures and managerial performance.

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Introduction

The purpose of this study is to investigate the processes by which nonfinancial measures affect three important employee outcome variables, namely, role clarity, procedural fairness and managerial performance. Few topics in management accounting have generated as much interest today as the use of nonfinancial performance indicators. This topic has been the focus of much discussion not only among management accounting researchers, but has also caught the attention of management accounting practitioners. Indeed, the level of attention and enthusiasm toward this topic found in the practitioners' literature may be unprecedented as practitioners have often regarded research ideas as impractical. However, with respect to nonfinancial performance indicators, there appears to be acceptance by some practitioners.

While nonfinancial measures are not new, the introduction of such measures to evaluate employee performance may be new to those employees who have previously been evaluated solely by financial measures. The use of nonfinancial measures, such as employee turnover, innovations, and employment of new technology may incorporate the measurement of many aspects of employee performance which were previously not included in performance evaluation. How would employees react to such nonfinancial measures? Would the use of such measures provide greater clarity in their roles? Would they perceive the use of such measures as fair procedurally? Above all, how would such measure affect their performance? The precise manner in which such measures affects employee attitudes and performance has remained unclear. Practitioners appear be guided more by anecdotal evidence and the normative literature than systematic empirical evidence. There is a therefore a need to ascertain systematically whether the benefits attributable to nonfinancial measures in the normative and practitioner literature are real.

Clarity of employee role (role clarity/ambiguity) and fairness of organisational procedures (procedural fairness) may be the key variables to explain the effects of nonfinancial measures on employee performance. Role clarity and role ambiguity are associated with the level of uncertainty for employees. Role clarity is associated with less uncertainty. In contrast, role ambiguity increases uncertainty. Organizations can rely on clearly specified performance measures to evaluate their employees' performance. Alternatively, they may evaluate their employees' performance with ambiguous performance measures. Employees may respond differently to different levels of clarity of the performance measures used to evaluate their performance.

Rizzo et al. (1970, p.155) state that role ambiguity (the opposite of role clarity) is determined by a lack of "existence or clarity of behavioural requirements, often in terms of inputs from the environment which would serve to guide behaviour, and provide knowledge that the behavior is appropriate". The performance measurement system is probably the most important variable in codifying such behavioral requirements. It indicates to subordinates whether their actions result in favorable or unfavorable outcomes. Kahn et al. (1964) suggest that not knowing or understanding how individuals are evaluated and uncertainty about the ways superiors evaluate subordinates work, are a great source of role ambiguity (lack of clarity) for subordinates. The presence of clear performance measures may reduce such uncertainty and hence increase role clarity. Hence, the extent of clarity or ambiguity of employee roles is therefore likely to be governed primarily by the clarity of the performance measures. Kaplan and Atkinson (1998, pp.681-682) explain the importance of performance measures in influencing employee role clarity as follows: "The performance measurement system send powerful signal to the employee about what is important in the job. Therefore, the management accountant, who is usually a central figure in designing these performance measurement systems must have a clear understanding of...the individual's role in the organization when designing these systems...Clarity and understanding reflect the important technical characteristics of the performance measurement system." Hence, if measures are clear, they ought to result in clear role requirements for managers. Given the

importance of performance measures in influencing employee role clarity and the increased use of nonfinancial measures for performance evaluation today, it would be beneficial to investigate systematically if the use of such measures for performance evaluation would enhance employee role clarity.

Fairness may be another important variable in explaining the relationship between nonfinancial measures and managerial performance. Kaplan and Atkinson (1998, p.682) note that “there are important behavioral consideration that the performance measurement system must reflect. First and above all, the individual must believe that the system is *fair*...Absent this belief, the motivational potential of incentive compensation will be lost.” Lind and Tyler (1988, pp.11, 201) similarly consider fairness “a major social concern” because “the research ...shows that when procedures are fair, the organization can expect to see greater employee satisfaction, less conflict and more obedience to procedures and decisions.” Hence, unless employees perceive nonfinancial measures as fair, the performance evaluation process would be undermined as employees are likely to reject performance evaluation procedures that are unfair. In contrast, if employees perceive nonfinancial measures as fair, they are likely to respond positively to them.

This study therefore seeks to undertake a systematic empirical evaluation of the effects of nonfinancial measures on employee role clarity, perception of procedural fairness and job performance. It also attempts to ascertain the *processes* by which these effects occur. Figure 1 depicts the model employed to study these effects. It proposes that the effects of nonfinancial measures may be indirect through the enhancement of (1) employee role clarity, and (2) employee perception of procedural fairness. These two intervening variables, in turn, are likely to positively affect employee job performance.

Insert Figure 1 here

The next section of the paper presents the theoretical justification for the hypotheses developed for investigation. This is followed by a description of the method employed for the study. The results are then presented. The final section discusses the conclusions and limitations of the study.

Hypothesis development

Nonfinancial measures and role clarity (ambiguity) (see H1 in Figure 1)

Managers' role clarity is likely to be influenced by the types of measures used to evaluate their performance. Performance measures may be categorized as financial (e.g., profit, return on equity, overhead variances) or nonfinancial (e.g., customer satisfaction rate, defect rate, setup time). These two categories may differ considerably and hence are likely to influence the clarity of employee roles in the organizations.

Because of the requirements to produce general purposes statements which demonstrate accountability to many different groups of stakeholders of organizations, financial reports and their related performance measures such as profit, sales and costs have traditionally focused on (1) what can be measured objectively, (2) what can be quantified in financial terms, and (3) financial outcomes (Ittner and Larcker 1998; Fisher 1992). With respect to time horizon, because of the need to produce periodic financial reports, financial measures are generally short-term measures corresponding to monthly, quarterly or annual reporting periods (Kaplan 1984). Such preoccupations with objectivity, financial outcomes and short-term horizon could be at the expense of the accuracy and completeness of information measured, what need to be measured and what is most useful to managers. Consequently, financial measures may generally be (1) too aggregate, (2) too narrow, and (3) too myopic to capture comprehensively employee effort and performance in

broader and longer term settings (Kaplan 1983, 1984; Kaplan and Norton 2001). Performance evaluations based on such criteria may be problematic.

In contrast, because of their very nature, nonfinancial measures are generally less closely tied to the annual financial reporting cycle. Hence, there may be less pressure on time horizon. There may also be fewer constraints from accounting standards and regulation. With less stringent requirement on time of reporting, it is possible to develop both short and long-term measures to suit the situations. With less stringent requirements on objectivity and monetary outcomes, an infinite variety of measures are possible. With financial measures, accountants are confronted with the difficulty in quantifying into monetary terms costs and benefits that are nonfinancial in nature such as the benefits of employee training programs. The use of nonfinancial measures expressed in broader (nonmonetary) terms provide opportunities for a wide variety of performance measures to be developed to suit the unique situations of each business unit or the individualized circumstances of each individual employee. For instance, for the customer perspective, customer satisfaction rate, customer retention rates, number of customer complaints, number of new customers acquired are possible. For the internal business perspective, measures such as setup time, cycle time, reject rates, distance parts moved, space occupied, number of parts per product may be used. For the learning and growth perspective, measures such as number of employees trained, employee satisfaction and retention rates, number of innovations and new product launches are possible indicators. Such a wide diversity of possible measures also facilitates a greater focus on the *causes* as opposed to the outcomes of managerial actions.

With financial measures, both Fisher (1992) and Ittner and Larker (1998) argued that they are *not actionable*. For instance, typical internal financial measures such as labor or overhead efficiency variances are not only difficult to interpret, they are also too aggregate to provide insights into the root causes and solutions to problems. While they may indicate labor or machines are being utilized efficiently or inefficiently, their causes may be attributable to a number of different problems originating from different departments. This may make it onerous to connect the variance to specific problem, specific action taken in the past and specific individual. Such information is therefore not actionable at operating level. Using them to identify responsibilities may also cause confusion, frustration and resentment.

In contrast, nonfinancial measures such as setup time, defect rate and number of on-time deliveries are more meaningful to operating managers because they connect results directly to actions taken. Problems are highlighted so that managers know where to focus their attention on. For instance, in inventory management, instead of directing managers' attention to manage inventory carrying costs, nonfinancial measures such as setup time and batch size focus operating managers' attention directly on the inventory problem, which is a lack of responsiveness caused by long setup time. Using setup time as a measure compels operating managers to search for solutions to compress internal cycle time. Reduction in setup time improves responsiveness, eliminates the reasons to carry inventories, reduces inventory carrying costs and ultimately improves managerial performance. The clearer connection between managers' actions to reduce set up time and their effects (reduction in setup time) also makes it easy for operating managers to see how their effort is related to the results and which results they are responsible for. Such close associations between efforts and results are likely to result in greater role clarity for operating managers. Accordingly, we propose

H1 The use of nonfinancial measures as performance evaluation criteria is positively related to managers' role clarity.

Nonfinancial measures and procedural fairness (see H2 in Figure 1)

There are two forms of fairness - distributive fairness and procedural fairness. Concepts of distributive fairness are based on the principle of equity. The allocation of benefits and costs within a group should be proportional to the contributions of group members. This occurs when the inputs and outputs from a relationship are equal. In contrast, procedural fairness has been referred to as

the judgments about the fairness of the “means” (Folger and Konovsky 1989, 115; Tang and Sarsfield-Baldwin 1996, 25) or of the “rules and processes” (Greenberg and Folger 1983, 236) superiors use to make decisions. Lind and Tyler (1988, 1) define it as the “judgments that *procedures* and *social processes* are just and fair.”

Procedural fairness is the concept of interest in this study. In situations involving conflict of interest, people cannot have things their own ways. They rely on other for fair treatment. Their perceptions of how fair are the procedures used by others to make decisions are critical to their judgments of how fair they are being treated. What make procedures fair? The literature suggests several fairness criteria. These were summarized by Leventhal (1980), Leventhal et al. (1980) and Lind and Tyler (1988) to include (1) completeness and accuracy of information, (2) adoption of a long term perspective, (3) correctability of incorrect decisions, (4) retention of control over decisions, (5) consideration of the interests of all parties, and (6) the manner in which people are treated. In the context of performance evaluation, employees will judge performance evaluation procedures as fair if such procedures (1) lead to performance appraisals which are based on complete and accurate information; (2) reflect their long term interests, (3) contain some provisions to appeal against and rectify unfair appraisals; (4) reflect performance within their control, (5) protect their interests, and (6) indicate polite and dignified treatment of individuals. The following sections explain why nonfinancial measures are likely to satisfy these fairness criteria.

The aforementioned mentioned characteristics of nonfinancial measures (broad, long term and cause-focused) are likely to enhance employee judgments of procedural fairness. Such measures allow a broader spectrum of performance to be measured over a longer term horizon. Financial measures are limited to what can be measured objectively and quantifiable in financial terms. This includes tangible assets but exclude most intangible assets. Kaplan and Norton (2001) suggest that intangible assets seldom have monetary value. Instead, their values are indirect and dependent on organizational context. For instance, investment in employee training may improve profit but only indirectly through improvement in service quality, higher customer satisfaction and increased sales. Given this measurement problem, the benefits of managers’ effort expended to improve intangible assets (e.g. investments in improving employees’ skills and customer relationships, innovative products and services, high quality and responsive operating processes) are generally excluded by financial measures. Nonfinancial measures provide the means to overcome such inaccuracies. They measure intangible assets in nonmonetary terms. This allows intangible to be valued and managed and ensures that managers’ effort and performance in improving intangible assets are accurately reflected.

Nonfinancial measures may also be more accurate in measuring performance that is spread over several years. The benefits arising from operating managers’ effort to enhance organizational long term viability in areas such as improvements in product quality, investment in employee training, innovation, future technologies and capabilities are generally not realizable within the annual financial reporting cycle. Shank and Govindarajan (1994) suggest that *costs* of quality improvement program (investment in prevention and appraisal effort) are generally measurable in financial terms and reflected immediately by financial measures. In contrast, the resulting *benefits* (reduction in internal and external failures) are not only difficult to quantify, but are only realizable over several periods subsequent to the year of investment. Because financial measure may be constrained by the annual financial reporting cycle, their use here may be problematic. In contrast, nonfinancial measures are unconstrained by time considerations. They may therefore measure employee long term performance more precisely. For instance, the continuous monitoring of nonfinancial measures over several years to ascertain if there are favorable long term trends in improvements of defect rates, first pass yields and customer satisfaction rates is a viable alternative to cover the time lag between efforts and results. Employee performance evaluations based on such measures are likely to be more complete and accurate. Since accuracy and completeness of information are fundamental fairness criteria (Leventhal 1980), employees may perceive the use of such measures as fair procedurally.

Employee procedural fairness judgments may also be influenced by time period considerations. The Self Interest Theory of procedural fairness suggests that people are fundamentally concerned with self interests and seek to maximize personal gains (Lind and Tyler 1988). However, they know that they may gain more *in the long term* if they engage in social interactions. Consequently, they are prepared to delay short term gratification in order to secure the larger long term gain. Hence, the *long term* effects and benefits of group procedures may matter more to them than any possible short term losses. This suggests that procedural fairness judgment is influenced by long term rather than short term considerations. Because of their link to the short term financial reporting cycle, financial measures are generally related to short term outcomes (Kaplan and Norton 2001). In contrast, nonfinancial measures, free from the pressure of the monthly or annual reporting cycles, are unconstrained by time considerations. They are therefore be far more useful as a means for communicating long term organizational goals, strategies, expectations and results among organizational members. This allows employees to understand not only their roles and how they can contribute to the organizational future, but more importantly, how their association with their organizations will be paid off in long term. They may therefore view long term nonfinancial measures as fair procedurally.

Procedural fairness judgments may also be enhanced if there are provisions for unfair decisions to be rectified (Leventhal 1980; Lind and Tyler 1988). Empirically, Greenberg (1986) found that the ability to challenge or rebut evaluations was a significant determinant of procedural fairness judgments. Because nonfinancial measures are measured in nonmonetary terms, they may be interpreted in a more flexible and subjective manner than financial numbers. Additionally, nonfinancial measures such as setup time, number of complaints, customer satisfaction and retention rates may also be easier for operating managers to understand than aggregate financial measures such as efficiency variances (Johnson 1992; Fisher 1992). Given that (1) employees are likely to have a better understanding of the appraisal criteria, and (2) the appraisals are subject to flexible interpretations, there is likely to be a greater exchange of information between the subordinates and the superiors. The subordinates may also be in a better position to seek explanations about their performance appraisals and to submit alternative interpretations. This increases the likelihood for unfair appraisals to be properly discussed, explained and rectified.

The use of nonfinancial measures as evaluation criteria may also provide employees with a better sense of control over their performance appraisals as well as a belief that their interests are protected. Leventhal (1980, 44) considered control an essential fairness criterion and defined it as the ability of procedures to “reflect the basic concerns, values, and outlook of important subgroups in the population of individuals affected by the allocation process.” Hence, even though people have surrendered the final decision making to other, they still need to have some control over how they are being dealt with (Thibaut and Walker 1975). They also want their interests to be protected. With financial measures, employees may find it difficult to see the connection between their actions and financial outcomes such as variances. Most variances may have several causes. For instance, labor efficiency variance could be caused by underskilled labor, inefficient scheduling or poor equipment maintenance. These are not all directly controllable by specific individuals. In contrast, because of the flexibility and the variety of nonfinancial measures which may be created in nonmonetary terms, it is generally easier for superiors to develop measures which are better reflections of the individualized situations of their subordinates. Individualized measures such as setup time, reject rates, number of complaints and on-time deliveries are more meaningful to employees than more aggregate financial measures. Consequently, they may have a better sense of control over what need to be done to obtain favorable performance appraisals.

They may also regard the development of individualized measures as benevolent action by superiors who care about their interests. The Group Value theory of procedural fairness suggests that procedural fairness judgments may be strongly influenced by the manner in which people are treated (Lind and Tyler 1988). This theory proposes that humans are affiliative creatures who value group membership. They are therefore sensitive to the way they are treated because such treatments are a reflection of their status within the group. Procedures which enhance their importance in the

group are perceived as fairer than procedures which demean their importance in their group. In the context of performance evaluation, financial measures may be perceived as too impersonal. Their use to evaluate employees may be seen as a reflection of a mentality to assume that employees are not unique or important; they are all the same, and can be evaluated indiscriminately by inflexible numbers (Harrison 1992, 1993). In contrast, as discussed above, because of the variety of nonmonetary terms, nonfinancial measures could be tailored made for individual employees to reflect their individualized situations. Employees evaluated by such measures may feel that they are treated with dignity and respectfully as unique individuals by their superiors. Consequently, they may perceive higher procedural fairness in nonfinancial measures use. Based on the above discussion, it is possible to conclude that the use of nonfinancial measures as employee performance evaluation criteria is likely to be perceived as fair procedurally (see H2 in Figure 1).

H2 The use of nonfinancial measures as performance evaluation criteria is positively related to the level of procedural fairness.

Role clarity, procedural fairness and managerial performance (see H3 and H4 in Figure 1)

The above discussion suggests that the clarity of performance measures is likely to enhance employee role clarity. Role clarity, in turn, is also likely to affect procedural fairness and managerial performance. The literature in organisational behavior has established that role clarity has favorable behavioral consequences (e.g., Cohen 1959; Rizzo et al., 1970; Smith, 1957; Tang & Sarfield-Baldwin, 1996).

Classical theory suggests that there ought to be a specified set of tasks or responsibilities for every position in an organisational structure. Such specification of duties, or formal definition of role requirements, serves a number of purposes. It holds subordinates accountable for their performance and provides them with guidance and direction. If individuals do not know what authority they have, what they are expected to accomplish, and how they will be judged, they are likely perceive the process as unfair and may perform poorly. (Rizzo et al., 1970). In contrast, the clearer the individuals' role, the more clear-cut success and failure will be. There will be less leeway for misinterpretation and hence, less confusion, misunderstanding, suspicions and mistrust in the workplace. Kaplan and Atkinson (1998, pp.681-682) similarly note that "to be effective, managers must have a clear understanding of the measured performance variables for their job, (2) how their behavior affects the measured performance variables, and (3) how the measured performance variables translate into individual rewards. If managers do not have a clear image of this causal process, the incentive compensation system will lose its ability to motivate or influence decision-making behavior."

Role theory similarly states that role *ambiguity*, that is, the lack of a specified set of tasks or responsibilities for every position in an organisational structure, may result in coping behavior by the role incumbent. This may take the form of defence mechanisms, which distort the reality of the situations (Kahn et al., 1964). Subordinates may feel uncertain as to what they ought to be focusing their attention on. They may perceive the organisation's procedures as unfair. The fundamental pride that individuals possess about their work may disappear. They may adopt inefficient and ineffective courses of action (Kahn et al., 1964) and perform poorly. Consequently, role ambiguity may be associated with unfavourable behavioural outcomes including lower level of procedural fairness and job performance. In contrast, role *clarity* ought to result in individuals not having to rely on a trial and error approach to determine the expectations of superiors (Rizzo et al., 1970). This implies that there should be fewer surprises in evaluations, and thus a lower likelihood of perceptions of injustice. Employees who are clear about their roles and what is expected from them, are therefore likely to perceive the system as fair and equitable. It follows that high role clarity will result in a higher level of procedural fairness. Managers with greater role clarity will be more aware of what their roles and responsibilities are and what their superiors expect from them. They will know what to aim for, which plans and what task strategies to adopt, and above all, where they should direct their attention, time and effort. This is likely to improve job performance.

Goal theory similarly supports the importance of clarity of performance criteria. This theory suggests that human action is directed by conscious goals and intention and that the clarity of performance criteria and goals reduces ambiguity, minimizes misinterpretation and interpretive leeway as to the exact meaning of criteria and expectation, and consequently decreases performance variance. Vague objectives often result in individuals being uncertain as to what is really required of them, and can have unfavorable behavioral consequences (Bryan & Locke, 1967). Locke and Latham (1991, p.240) suggest that “the setting of clear and specific goals... is assumed to enhance role clarity and harmony.” They explain as follows: A core aspect of goal theory is that goals that are specific...lead to a higher level of performance than vague goals...Our explanation is that the ambiguity of...goals allows people to give themselves the benefit of the doubt in evaluating their performance; thus a wide range of performance levels may be interpreted as being compatible with doing one’s best. In contrast, in the case of a specific...goal only beating a single high score is compatible with success. (Locke and Latham, 1991, pp.29-30).

Hence, goal clarity is a key aspect of the goal theory because of its ability to provide managers with a *clearer* picture of what they were to achieve than did vague and general objectives. According to Locke and Latham (1991, p.95), “goals, *especially if they are clear and specific*, direct the individual attention to relevant behaviors or outcomes and even affect how information is processed.” They attribute the benefits of goals in general and the specificity of goals in particular goals as follows:

Goals have two directional effects...First, they orient the individual toward goal-relevant activities and away from goal-irrelevant ones. Second, they activate stored knowledge and skills that the individual possesses that are perceived as relevant to the task....While the difficulty of the goal should be most logically to effort and arousal, the specificity of the goal should have the most effect on direction of attention and direction of effort. *Goal specificity should also raise performance level on a task* (Emphasis added)(Locke & Latham, 1991, pp. 86,92).

Based on the above discussion, it is reasonable to conclude that employees who have clear understanding of their roles in the organizations are likely to perceive their performance evaluative process as fairer and perform better than those employees whose performance measures cause ambiguity in their roles. Hence, we propose:

H3 Role clarity is positively related to procedural fairness.

H4 Role clarity is positively related to managerial performance.

Procedural fairness and managerial performance (see H5 in Figure 1)

The above discussion suggests that nonfinancial measures may be associated with the enhancement of employee perceptions of the fairness of their organization’s performance evaluation procedures. The enhancement of employee fairness perceptions, in turn, may be associated with improved managerial performance. There are several theoretical explanations for this proposition. These are based on the premise that individuals prefer fair to unfair procedures.

First, there is the instrumental prediction, which is based on self-interest theory (Thibaut & Walker, 1975). According to this theory, people are concerned with receiving desired results such as better pay, promotion and favourable rulings. Hence, they prefer fair procedures because such procedures allow them to achieve fair outcomes. They are therefore likely to respond favourably to fair procedures.

Second, there is the group-value prediction, which is based on the assumption that people value their relations with social entities, be they individuals, groups or organisations (Lind & Tyler, 1988). They value these relationships not merely for economic but also for social and

psychological reasons. Fair procedures made group members feel accepted, respected and valued. People who are treated with fair procedures feel that they are being dealt with in a dignified and respectful way, thereby bolstering their sense of self-identity and self-worth. Such treatment is likely to reaffirm individuals' feelings of attachment to the group relationships. This may lead to higher level of performance.

Hence, irrespective of which explanation is preferred, there is theoretical support for the proposition that procedural fairness is associated with favorable behavioral responses. Tang and Sarfield-Baldwin (1996, p.30) argue that "if managers can apply rules fairly and consistently to all employees and reward them based on performance and merit without personal bias, then employees will have a positive perception of procedural fairness, which may lead to higher satisfaction, commitment and involvement". Empirically, these effects were found in legal, political as well as organizational settings (Leventhal 1980; Lind & Tyler, 1988; Thibaut & Walker, 1975). Based on an extensive review of the procedural fairness literature, Lind and Tyler (1988, p.179) conclude as follows:

The general finding...has been that procedural justice is a remarkable potent determinant of affective reactions to decision making and that procedural justice has especially strong effects on attitudes about institutions and authorities. These findings lead us to suspect that, in addition to job satisfaction and evaluations of leaders in organizations, a number of other organizational attitudes are affected by procedural justice judgments...we believe that attitudes toward the organization as a whole, including such things as organizational commitment, loyalty and work group cohesiveness, are strongly affected by procedural justice judgments. Fair procedures, we hypothesize, are a critical aspect of the quality of work life, and are well-nigh essential to good employer-employee relations. Organizations that ignore procedural justice concerns run the risk of engendering...lower performance.

Based on the above discussion, we propose:

H5 Procedural fairness is positively associated managerial performance.

Intervening effects of role clarity and procedural fairness on nonfinancial measures and managerial performance (see H6 in Figure 1)

The discussion above suggests that nonfinancial measures are likely to be associated with the enhancement of role clarity (H1) and procedural fairness (H2). Both role clarity (H4) and procedural fairness (H5), in turn, are likely to be associated with improvement in managerial performance. These relationships suggest that the effects of nonfinancial measures on managerial performance may be indirect through (1) role clarity, and (2) procedural fairness. Hence, we propose:

H6 The effects of nonfinancial measures on managerial performance are indirect through (1) role clarity, and (2) procedural fairness.

Intervening effects of role clarity on nonfinancial measures and procedural fairness (H7)

Recall that hypothesis H3 states that the use of nonfinancial measures as performance evaluation criteria is associated with employees' perception of procedural fairness. However, the discussion in the preceding few sections also suggests that nonfinancial measures may be positively associated with employee role clarity (see H1 in Figure 1). Role clarity, in turn, may be associated with favorable procedural fairness (see H3 in Figure 1). Hence, apart from the direct effect as hypothesized in H3, the relationships between nonfinancial measures and procedural fairness may also include indirect effect via role clarity. Accordingly, we propose:

H7 The effects of nonfinancial measures on procedural fairness are indirect through role clarity.

Method

A survey questionnaire was employed to collect the required data. The sample was drawn from functional (departmental) heads of large manufacturing organizations located in the United Kingdom and listed on the online *Kompass* database. The manufacturing sector was selected to provide some degree of control over the type of sector and to keep the sample to a manageable size. As the development and implementation of new nonfinancial indicators may be a complex, time consuming and costly process, it is probable that only large size organizations with significant managerial expertise and resources will have the motivation and the means to develop them (Kaplan & Atkinson, 1998). Both Ezzamel, (1990) and Libby and Waterhouse (1996) suggest that as firm size increases, accounting and control procedures tend to become more sophisticated and specialised. For these reasons, only organizations with a minimum of 100 employees and a minimum annual turnover of UK£75 million were selected.

One hundred and forty two organizations were identified. Attempts were made to contact them to obtain the names of their functional heads so that the questionnaires could be mailed directly to the intended participants. Functional (departmental) heads were selected to provide some degree of control over the level of seniority of the participants. The selection across different functional areas allow conclusions to be generalised to different functional areas of the organizations, and is consistent with prior management accounting studies (e.g., Hopwood, 1972; Otley, 1978; Brownell, 1982).

Only 103 organizations were willing to provide the names needed. In order to ensure that the results would not be biased by the control system of any particular organization, a maximum of four names were obtained from each organization. As a consequence of these selection criteria, a total of 296 functional heads' names were obtained. The questionnaire, together with a covering letter assuring confidentiality of responses, was mailed to each manager.

A total of 158 responses were returned, constituting a response rate of 53.5%. Of these, nine were incomplete. This resulted in a total of 149 useable responses. The approach suggested by Oppenheim (1992) was employed to check for non-response bias. The sample was split in half based on the dates the responses were returned. T-tests were undertaken for the variables used in the study. No significant differences in the means of the early and late responses were found. These results suggest that nonresponse bias may not be a problem.

The demographic data indicate that the average functional head was 45 years of age. They had spent an average of nine years in their areas of responsibility. The average number of employees under their control was 125. These demographic data suggest that the respondents were, in general, highly responsible and experienced managers.

Measurement instruments

Nonfinancial measures: The instrument we use to measure nonfinancial measures is based on that developed by Lau and Moser (2008). As their study was directed at the behavioral outcomes of *employees'* performance evaluation, the instrument reflects *employee* performance evaluation rather than *organizational* performance evaluation. Hence, the wording of the instrument is based on Hopwood (1972) instrument as follows: "When your superior is evaluating *your* performance, how much importance do you think he or she attaches to the following items?"

Nonfinancial measures are based on the three perspectives of the Balanced Scorecard (Kaplan and Atkinson, 1998). The three perspectives are customer, internal business, and learning and growth perspectives. Five items are used to measure each perspective. Table 1 presents a list of the 15 items used in the study. The scale is anchored from "1-never important" to "7-always

important”. A factor analysis of all the 15 items was undertaken and the rotated results presented in Table 1. The 15 items loaded satisfactorily into three factors which correspond with the three Balanced Scorecard perspectives. All factors loadings are above the recommended benchmark (>0.5); all eigenvalues are above 1; all explain a high proportion of the variances. A reliability analysis was also undertaken for all three perspectives. The cronbach alphas are all above 0.8. These results suggest that the items are unidimensional and have high internal consistency within each respective perspective.

Insert Table 1 here

Role clarity (ambiguity): For this variable, we employed the instrument developed by Rizzo et al. (1970). It comprises six items, each with a seven-point scale. This instrument has been used extensively in the organizational literature (e.g., Jackson & Schuler, 1985; Van Sell et al., 1981) as well as in management accounting research (e.g., Chenhall and Brownell, 1988). Respondents were asked to rate whether they had clear goals and explanations, whether they knew they had allocated their time correctly, whether they knew their responsibilities, what was expected and how much authority they possessed. The factor analysis results in Table 2 indicate that only one factor is extracted. The eigenvalue is 4.33 and the proportion of variance explained is 72.2 percent. The factor loadings for all six items are relatively high ranging from 0.763 to 0.905. The reliability test also produces a very high cronbach value of 0.92.

Insert Table 2 here

Procedural fairness: Employee perceptions of fairness in evaluation procedures are measured by an instrument developed by McFarlin and Sweeney (1992). The instrument comprises four items, each with a five-point Likert-type scale. The managers were asked to rate the fairness of the procedures employed by their organizations to evaluate performance, communicate feedback, determine pay rises, and determine promotions. The factor analysis results in Table 2 indicate that all four items loaded satisfactorily on the single factor extracted. The factor loadings are all in excess of 0.8. The eigenvalue is 2.82 and the portion of variance explained is 70.4%. The cronbach alpha is 0.859. Based on these psychometric properties, the sum of the scores of the four items is employed as the measure of procedural fairness.

Managerial Performance: This variable was measured by the nine dimensional, seven-point instrument developed by Mahoney et al. (1963). This instrument has been used successfully and extensively in numerous management accounting studies (e.g., Brownell 1982; Govindarajan 1986; Kren, 1992; Lau et al. 1995). It measures the manager’s overall performance level as well as performance across the eight sub-dimensions of planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and representing. In order to ensure that the overall performance score is a reflection of the subdimensions’ scores, a regression analysis of the eight specific dimensions of performance against the overall performance was undertaken. The resulting R^2 indicates that the eight subdimensions jointly accounted for 57.7% of the variations in overall performance. This is higher than the 55% benchmark suggested by Mahoney et al. (1963). Accordingly, and consistent with prior studies, the performance score for our study is based on the overall performance of the respondents. The descriptive statistics for the variables used in this study are presented in Table 3.

Insert Table 3 here

Results

This study investigates the process by which nonfinancial measures based performance evaluations affects managerial performance. This involves the decomposition of the total effects into direct and indirect effect and the evaluation of these effects. Structural equation modelling is an appropriate technique here because apart from its ability to model relationships among multiple predictors and criterion variables and provide overall tests of model fit and individual parameter estimate test simultaneously, it is also able to evaluate the relative importance of the various direct and indirect links among variables and as such helps in the understanding of the causal mechanism among variables.

Hypotheses H1 to H5.

Before tests are undertaken for the structural models, the correlations of the different bivariate relationships in Figure 1 are calculated and presented in Table 4. These results represent the zero-order correlations (total effects) of the observed variables. The zero-order correlations are all highly significant ($p < 0.01$) and in the predicted directions for the relationships between (i) nonfinancial measures and role clarity ($p < 0.01$, $r = 0.411$ for H1); (ii) nonfinancial measures and procedural fairness ($p < 0.01$, $r = 0.290$ for H2); role clarity and procedural fairness ($p < 0.01$, $r = 0.486$ for H3); role clarity and managerial performance ($p < 0.01$, $r = 0.453$ for H4); and procedural fairness and managerial performance ($p < 0.01$, $r = 0.346$ for H5). Apart from the overall nonfinancial measures model, similar analyses are undertaken for each of the Balanced Scorecard perspectives (customer, internal business, and learning & growth). Except for the internal business perspective model, the results are similarly significant and in the predicted directions. Hence hypotheses H1 to H5 are all supported except for the internal business perspective.

Insert Table 4 here

Hypotheses H6 to H7.

Hypothesis H6 states that the relationships between *nonfinancial measures* and *managerial performance* are indirect through (1) role clarity, and (2) procedural fairness. Hypothesis H7 states that relationships between *nonfinancial measures* and *procedural fairness* are indirect through role clarity. The results in Table 4 indicate that the zero-order correlations are highly significant ($p < 0.01$) and in the predicted directions for the relationships between nonfinancial measures and managerial performance ($p < 0.01$, $r = 0.276$); and for the relationship between nonfinancial measures and procedural fairness ($p < 0.01$, $r = 0.290$). Note that the zero-order correlation coefficients presented in Table 4 represent the *total* effects of the respective pair of relationships based on the observed variables (Pedhazur, 1982). These total effects can be decomposed into direct effects and indirect effects based on the path coefficients of the various relationships in Figure 1.

Structural equation modelling based on *AMOS Version 17* is used for analysis. Four separate models are used – the overall nonfinancial measures model, the customer perspective model, the internal business perspective model, and the learning & growth perspective model. Table 5 presents the relative fit indices for each of the four models. These fit indices are above or very close to the benchmarks of 0.9 recommended by Bentler (1995). Overall, these fit indices indicate that the structural models employed to test the hypotheses are good fits of the data.

Insert Table 5 here

The results of the structural models are presented in Tables 6 to 9. Table 6 presents the standardized direct effects, standardized indirect effects and standardized total effect for the overall

nonfinancial model. These results can be interpreted as follows. With respect to the relationship between nonfinancial measures and managerial performance, the total effect of 0.276 (see Table 6) is decomposed into a direct effect of 0.08 and an indirect effect of 0.197. The indirect effect can be analyzed further based on the path coefficients of the relationships in Figure 1. The results are as follows:

Path 1	NF – RC – MP	0.436 x 0.331	0.144
Path 2	NF-RC-PF-MP	0.436 x 0.524 x 0.169	0.039
Path 3	NF-PF-MP	0.084 x 0.169	<u>0.014</u>
Total indirect effects			<u>0.197</u>

Insert Tables 6 to 9 here

Path (1) indicates the indirect effect exclusively through role clarity. For the overall nonfinancial model, the indirect effect through this path is 0.144. According to Pedhazur (1982, p.617) and Bartol (1983, p.809), an indirect effect in excess of a magnitude of 0.05 may be considered meaningful. Since the indirect effect is above the meaningful threshold, the effect through role clarity is therefore meaningful.

Path (2) indicates the indirect effect of nonfinancial measures via both role clarity and procedural fairness. This path indicates that nonfinancial measures affected role clarity which, in turn, influenced procedural fairness, which then, affected managerial performance. Hence, this path is also due to the influence of role clarity. Combined with path (1), these two paths account for most of the indirect effects. The final path, Path (3), demonstrates the indirect effect exclusively via procedural fairness. The indirect effect is 0.014. Compared with the effects via role clarity, it is substantially smaller.

Similar analyses are undertaken for the customer perspective model, the internal business perspective model and the learning and growth perspective model. The results indicate that for all three models, the total indirect effects are all above the meaningful threshold of 0.05 (Pedhazur, 1982; Bartol, 1983). Path (1) indicates that indirect effects through role clarity (0.152 for customer, 0.082 for internal business, and 0.139 for learning & growth). These indirect effects via role clarity are not only above the 0.05 meaningful threshold and the strongest path, but the effects are several times those of Path (3). Path (3) indicates the indirect effect exclusively via procedural fairness. For all cases, this is the weakest path and below the meaningful threshold of 0.05. Hence Hypothesis H6 is supported for role clarity but not for procedural fairness.

Hypothesis H2 states that nonfinancial measures are related to procedural fairness. Hypothesis H7 states that the effect of nonfinancial measures on procedural fairness is indirect via role clarity. Table 6 indicate that the relationship between nonfinancial measures and procedural fairness has a total effect of 0.312 which is highly significant ($p < 0.01$). A decomposition of this effect produces a direct effect of 0.084 and an indirect effect of 0.228. As both of these effects are above the 0.05 meaningful threshold, they are both meaningful. The indirect effect is, however, substantially stronger than the direct effect. Similar results are found for the other three models. Hypotheses H2 and H7 are therefore both supported.

Conclusions

This study attempts to address several research issues. First, it seeks to ascertain if the use of nonfinancial measures for employee performance evaluation is associated with favorable employee work-related outcomes including increased role clarity, greater procedural fairness and improved job performance. Second, it investigates the processes by which these effects occur. Specifically, it seeks to ascertain (1) if the effects of nonfinancial measures on procedural fairness is indirect via role clarity; and (2) if the effects of nonfinancial on managerial performance is indirect through role clarity and procedural fairness.

Four models were developed to test these hypotheses. The first is based on an aggregate of the three nonfinancial perspective of the Balanced Scorecard. The other three are based on the each of the respective perspectives including customer, internal business and learning & growth. Structural equation modelling technique is employed to test the hypotheses of these models.

The results are as follows. First, nonfinancial measures are associated with favorable employee work-related outcomes including increased role clarity, enhanced procedural fairness and improved job performance. Second, the use of nonfinancial measures as performance evaluation criteria has a highly significant and substantial positive direct effect on employee role clarity. Third, the use of nonfinancial measures also has a significant effect on procedural fairness. However, while the direct effect is meaningful, it is much smaller than than via role clarity. A substantial and meaningful proportion of the total effect is indirect through role clarity. Fourth, nonfinancial measures have a significant effect on managerial performance. A very substantial portion of this effect is indirect via role clarity and procedural fairness. In terms of the relative strength of the two intervening variables, role clarity is the dominant variable. The indirect effect of role clarity (0.228) is almost three times the size of those of procedural fairness (0.084).

These results lead to several conclusions. The use of nonfinancial measures for performance evaluation has several beneficial outcomes including increased role clarity, enhanced procedural fairness and improved job performance. Nonfinancial measures have a strong effect on employee role clarity. Role clarity, in turn, has a strong effect on both procedural fairness and managerial performance. The role of procedural fairness is less important than was hypothesized. It does not have substantial explanatory power on its own and its effects are substantially through role clarity. Hence, nonfinancial measures are associated with a high level of procedural fairness and managerial performance mainly because of the greater role clarity engendered.

From a theoretical perspective, role theory and goal setting theory may dominate in explaining the behavioral consequences of nonfinancial performance evaluation procedures. Together, these two theories suggest that employee attitudes and performance are affected by the clarity of performance criteria. From a practical perspective, our results suggest that the design and implementation of evaluation systems based on nonfinancial measures may lead to the development of clear goals and targets which engenders higher levels of role clarity, and ultimately, other favorable behavioral consequences including higher managerial performance.

There are several limitations in this study. First, our sample comprised mainly functional heads of large manufacturing companies. Generalisation of the results to other levels of management and to other sectors must therefore be undertaken with caution. Second, only two intervening variables, namely role clarity and procedural fairness, were investigated. Hence, the model developed here may be incomplete. Further research which incorporates other potential intervening variables may enhance our understanding of the behavioral implications of different types of performance measures. Notwithstanding the above limitations, the empirical evidence uncovered in this study may contribute to the current debate in performance indicators. A greater understanding of how performance measures affect employee work related attitudes and behaviors may enable their advantages to be exploited to the fullest extent possible.

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Figure 1

Nonfinancial performance measures, role clarity, procedural fairness and performance

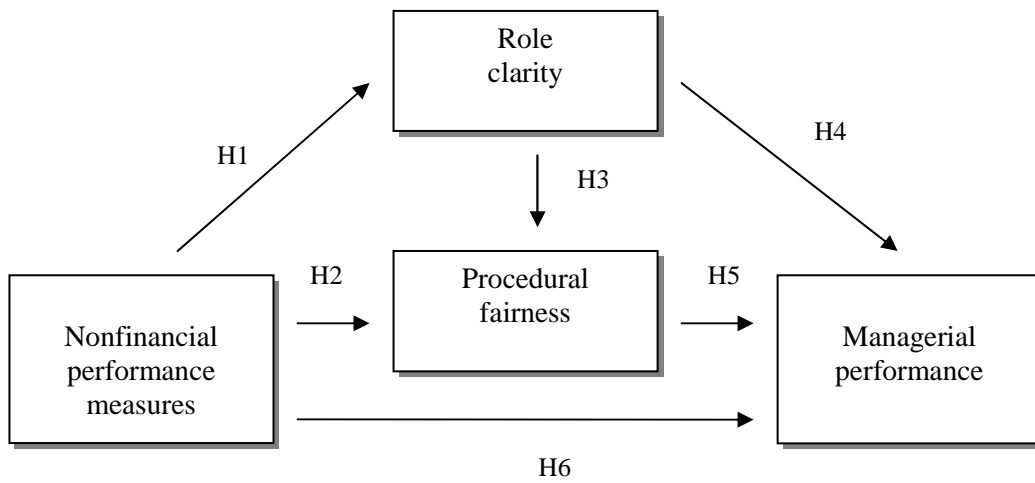


Table 1
Nonfinancial measures:
Factor analysis results and cronbach alphas

Items	Internal processes	Customer	Learning and growth
<i>Rotated factor loadings</i>			
Employee satisfaction rate			0.721
Number of employees trained			0.694
Employee turnover rate			0.840
Number of innovations			0.729
Adoption of new technology			0.789
Quality of manufacturing output	0.872		
Defect rates	0.852		
Setup times	0.890		
Manufacturing cycle time	0.900		
Inventory level	0.691		
Number of new customers acquired		0.662	
Response time to customers		0.828	
Number of customer complaints		0.847	
Number of overdue deliveries		0.742	
Customer satisfaction rate		0.855	
Eigenvalue	4.12	3.54	3.18
Variance explained	27.4%	23.6%	21.2%
Cronbach alpha	0.927	0.899	0.847

Table 2
Factor analysis results and cronbach alphas

Items	Role clarity	Procedural fairness
Factor loadings		
1	0.841	0.834
2	0.872	0.864
3	0.763	0.831
4	0.867	0.826
5	0.905	
6	0.842	
Eigenvalue	4.331	2.815
Variance explained	72.18%	70.37%
Cronbach alpha	0.921	0.859

Table 3
Descriptive statistics

Variable	Mean	Std Dev	Theoretical range		Actual range	
			Min	Max	Min	Max
Nonfinancial measures	68.59	18.08	15	105	16	103
Customer	25.30	7.45	5	35	5	35
Internal business	21.62	9.43	5	35	5	35
Learning and growth	21.67	5.72	5	35	5	33
Role clarity	32.20	6.44	6	42	11	42
Procedural fairness	13.75	2.91	4	20	6	20
Managerial performance	5.60	0.73	1	7	4	7

Table 4
Correlation matrix among independent and dependent variables

	Customer	Internal business	Learning & growth	Role clarity	Procedural fairness	Managerial performance
Nonfinancial	0.829**	0.846**	0.688**	0.411**	0.290**	0.276**
Customer		0.519**	0.461**	0.370**	0.255**	0.198*
Internal business			0.348**	0.205*	0.131	0.127
Learning & growth				0.481**	0.369**	0.407**
Role clarity					0.486**	0.453**
Procedural fairness						0.346**

**p<0.01 (2-tailed); *p<0.05 (2-tailed);

Table 5
Relative fit indices

Models	NFI	IFI	TLI	CFI
Nonfin (Aggregate)	0.93	0.98	0.96	0.98
Customer	0.92	0.98	0.98	0.98
Internal business	0.89	0.94	0.91	0.93
Learning & growth	0.89	0.95	0.93	0.95

Table 6
Standardized direct, indirect and total effects: Nonfinancial (aggregate) model

Independent variable	Dependent variable	Standardized direct effects	Standardized indirect effects	Standardized total effects
Nonfinancial	Role clarity	0.436	-	0.436
Nonfinancial	Fairness	0.084	0.228	0.312
Role clarity		0.524	-	0.524
Nonfinancial	Performance	0.080	0.197	0.276
Role clarity		0.331	0.088	0.419
Fairness		0.169	-	0.169

Table 7
Standardized direct, indirect and total effects: Customer perspective measures

Independent variable	Dependent variable	Standardized direct effects	Standardized indirect effects	Standardized total effects
Customer	Role clarity	0.418	-	0.418
Customer	Fairness	0.101	0.216	0.317
Role clarity		0.518	-	0.518
Customer	Performance	-0.006	0.208	0.202
Role clarity		0.363	0.092	0.455
Fairness		0.177	-	0.177

Table 8
Standardized direct, indirect and total effects: Internal business perspective measures

Independent variable	Dependent variable	Standardized direct effects	Standardized indirect effects	Standardized total effects
Internal	Role clarity	0.232	-	0.232
Internal	Fairness	0.029	0.128	0.157
Role clarity		0.553	-	0.553
Internal	Performance	0.030	0.110	0.140
Role clarity		0.355	0.097	0.452
Fairness		0.175	-	0.175

Table 9
Standardized direct, indirect and total effects: Learning and growth perspective measures

Independent variable	Dependent variable	Standardized direct effects	Standardized indirect effects	Standardized total effects
Learn growth	Role clarity	0.553	-	0.553
Learn growth	Fairness	0.192	0.251	0.443
Role clarity		0.454	-	0.454
Learn growth	Performance	0.247	0.196	0.443
Role clarity		0.251	0.058	0.309
Fairness		0.129	-	0.129

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