

# Are subjective business performance measures justified?

Subjective  
business  
performance  
measures

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603

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## Abstract

**Purpose** – The purpose of this paper is to operationalize the subjective measures of business performance and assessing their justification for use in place of objective measures of business performance.

**Design/methodology/approach** – The study is based on a sample survey of 171 companies listed on Bombay Stock Exchange, India. A cross-sectional descriptive research design has been used. Exploratory factor analysis was used to assess the factor structure and dimensionality of objective and subjective measures of business performance. The psychometric properties of these measures and their interrelationship have been assessed through confirmatory factor analysis.

**Findings** – The study finds a strong positive correlation between subjective business performance and objective business performance. The study finds it justified to use the subjective measures of business performance.

**Research limitations/implications** – Response bias may have crept in because of self-reported measure used for the study. Future researchers may cross-verify the subjective perception of respondents with data available from the records of the firms. Second, the study focuses only on financial and operational indicators of performance. The future studies may widen the scope of business performance by incorporating the interests of other stakeholders like suppliers, government, environment and society in general.

**Practical implications** – The strategy researchers confronting the challenge of adopting appropriate measures of business performance can use either or both of subjective and objective performance measures, as suggested in this study. The study has suggestions for strategic decision makers regarding measurement of business performance in terms of financial as well as operational indicators.

**Originality/value** – The study operationalizes and validates two measures of performance, namely, subjective business performance and objective business performance. The study contributes to the strategic management literature by providing evidence for association between objective and subjective measures of performance.

**Keywords** Business performance, Performance measurement, Objective performance, Subjective performance

**Paper type** Research paper

Actions and efforts of manager are driven by the performance measurement system of an organization. Performance measurement plays a vital role in translating an organization's strategy into desired behaviors and results (Chenhall and Langfield-Smith, 1998; Kaplan and Norton, 2001; Lillis, 2002; Bourne *et al.*, 2003; Silvestro, 2014). It communicates expectations, monitors progress, provides feedback, and motivates employees through performance-based rewards (Ittner and Larcker, 1997; Banker *et al.*, 2000; Chenhall, 2003; Stede *et al.*, 2006; Saidi-Mehrabad *et al.*, 2011; Teeratansirikool *et al.*, 2013). Performance measurement is not an end in itself, but a tool for more effective management and has strategic implications regarding the resource deployment and utilization (Tangen, 2004; Gruber *et al.*, 2010).

Global economy has witnessed tremendous changes in almost all segments of business environment (Bititci *et al.*, 2000; Yusuf, 2002; Cocca and Alberti, 2010;



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Yadav *et al.*, 2014). Environmental forces demand greater responsiveness from a business and force the firms to change their traditional management philosophy (Cocca and Alberti, 2010). In this scenario, top level managers have to realign their management as well as measurement practices – to assess the customer needs and preferences, track competitor's actions, evaluate the impact of technology development, bring necessary product and process innovation, incorporate cost effectiveness and to raise the level of organizational effectiveness (Chandler and Hanks, 1993; Bititci *et al.*, 1997; Ghalayini, *et al.*, 1997; Kaplan and Norton, 2001).

As far as measurement of business performance is concerned, the treatment of the performance construct is perhaps one of the thorniest issues confronting the academic researcher today (Venkatraman and Ramanujam, 1986; Hoffman *et al.*, 1991; Cardinaels and Veen-Dirks, 2010). Literature in the field of business management and organizational performance reveals that there is no consensus among the researchers regarding the measurement of performance (March and Sutton, 1997; Richard *et al.*, 2009; Vij and Bedi, 2012; Silvestro, 2014). Subjective as well as objective measures have been used by researchers for measuring performance. However subjective measure of performance are more commonly used (Naman and Slevin, 1993; Jarvis *et al.*, 2000; Wiklund and Shepherd, 2005; Wall *et al.*, 2004; Wood, 2006; Ellis, 2006; Clercq *et al.*, 2010; Kraus *et al.*, 2012; Santos and Brito, 2012). Subjective measures are generally relative whereas objective measures are absolute (Wall *et al.*, 2004). The users of subjective measures of performance often rely upon the positive correlations between subjective and objective measures of performance. Only a few studies (i.e. Dess and Robinson, 1984; Pearce *et al.*, 1987; Venkatraman and Ramanujam, 1987; Covin *et al.*, 1994; Dawes, 1999; Wall *et al.*, 2004) have empirically examined the relationship between objective and subjective measures of performance (Table I). These are firm level studies mostly based upon financial indicators and conducted in USA and other developed countries. There is a need to test these relationships in other contexts also. The present study is an endeavor to fill this gap; by conducting a study in the Indian context.

The first phase of conception of business performance centers on the use of simple outcome-based accounting indicators such as profitability and growth (Johnson, 1983; Dess and Robinson, 1984; Capon *et al.*, 1990; Parnell and Wright, 1993). These

Study	Variables	Sample	Result
Dess and Robinson (1984)	Sales growth, ROA and overall performance	26 US manufacturing firms	Correlation ranging between 0.44 and 0.61
Pearce <i>et al.</i> (1987)	Sales, ROS, ROA, overall performance	42 US manufacturing firms	Correlation ranging between 0.45 and 0.92
Venkatraman and Ramanujam (1987)	Sales growth, net income growth and ROI	86 companies out of Fortune 1,000 companies in the year 1984	Convergent validity ranging between 0.42 and 0.51
Covin <i>et al.</i> (1994)	Sales growth	68 US manufacturing firms	Correlation = 0.44
Dawes (1999)	ROI and ROA and financial performance	45 Australian firms (23 manufacturing and 22 non-manufacturing)	Correlation ranging between 0.48 and 0.86
Wall <i>et al.</i> (2004)	Profit and productivity	80 UK manufacturing firms	Correlation ranging between 0.37 and 0.65

**Source:** Compiled by authors

**Table I.**  
Studies measuring the relationship between objective and subjective measures of performance

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accounting-based financial measures started losing their significance because of blames that these measure are static; difficult and complex to understand; too financial; present short term view; are mainly internal rather than externally focused; provide little indication of future performance; have little regard for competitors and customers; unclear as to linkage between activity measures and strategic objectives of the enterprise (Keegan *et al.*, 1989; Neely *et al.*, 1995; Bourne *et al.*, 2003; Antic and Sekulic, 2006).

Kaplan and Norton (2008) explained how to effectively manage both strategy and operations by linking them tightly in a closed-loop management system. The purpose of performance measurement changed from the static assessment of economic performance of a business to the dynamic and futuristic paradigm (Barnabe, 2011; Saidi-Mehrabad *et al.*, 2011). The new approach not only provides for enhancing the efficiency and effectiveness of managerial actions (Kumar and Gulati, 2009; Yadav *et al.*, 2014) but also assesses the needs and possibilities of shifting, as the organization's circumstances change, from traditional business practices to the modern and innovative technological methodologies (Silvestro, 2014). This means redefining the traditional methods of performance measurement from the broader perspective of strategic management (Cocca and Alberti, 2010).

As a direct reaction to the numerous limitations of traditional performance measurement systems and environmental challenges, performance measurement has undergone a genuine revolution regarding the reorientation from traditional to contemporary performance measures (Bourne *et al.*, 2003; Marr and Schiuma, 2003; Matic, 2012). Large amount of effort has been focused at design and implementation of new performance measurement systems (Kennerley and Neely, 2002; Yadav *et al.*, 2014). Multiple frameworks have been introduced as a result of these initiatives, e.g. performance pyramid (Cross and Lynch, 1989), the performance measurement matrix (Keegan *et al.*, 1989), the results and determinants framework (Fitzgerald *et al.*, 1991), SMART pyramid (Lynch and Cross, 1991), balanced scorecard (BSC) (Kaplan and Norton, 1992, 1996), the macro process model (Brown, 1996), performance prism (Neely and Adams, 2001; Neely *et al.*, 2002), and closed-loop management system (Kaplan and Norton, 2008). Most of these frameworks focus not only on financial aspects of performance but also on non-financial aspects (e.g. customers, employees, society, etc.), emphasizing that non-financial aspects of performance are the key drivers of the financial results (Neely *et al.*, 2002; Marr, 2005; Houck *et al.*, 2012; Matic, 2012; Waal and Kourtit, 2013; Silvestro, 2014).

So far as operationalization of performance measures is concerned, apart from the dimensionality, another challenge is the selection of the kind of measure, i.e. objective vs subjective measures. Business performance can be defined as the overall index of the ability of the firm to satisfy its stakeholders, measured in terms of financial as well as operational indicators, using primary data to measure "subjective business performance", secondary data to measure "objective business performance", or both.

Subjective measures are capable of making cross-industry comparison (Gupta and Govindarajan, 1984; Covin *et al.*, 1994; Dawes, 1999; Brewer, 2006), but can have problems with common source bias, social desirability, and supervisor biases (Fulk *et al.*, 1985; Heneman, 1986; Campbell, 1990; Hawkins and Hastie, 1990; Stede *et al.*, 2006). Administering an objective measure is a more ambitious task than administering a subjective measure as key informants generally feel reluctant to release sensitive information to outsiders (Dess and Robinson, 1984; Sandberg and Hofer, 1987; Cooper, 1993; Dawes, 1999; Tang and Tang, 2012). They are generally inclined to provide subjective

evaluation of their firm performance (Sapienza *et al.*, 1988; Wiklund, 1999; Wiklund and Shepherd, 2005). In case of small scale industry, where published data is not available and respondents are generally reluctant to release objective fact and figures to outsiders, subjective measurement through primary sources of data collection is only viable option for measurement of business performance (Wall *et al.*, 2004; Alasadi and Abdelrahim, 2008). Managers' subjective views regarding comparative performance (in comparisons to industry or immediate competitors) may reveal important supplementary information (Porter, 1985; Venkatraman and Ramanujam, 1986; Birley and Westhead, 1990; Brush and Vanderwerf, 1992; Delaney and Huselid, 1996), e.g. whether the growth pattern of a firm deviates substantially from industry or it is simply pulled along by market trends (Porter, 1985; Thomas *et al.*, 2008). Subjective measures may be more appropriate than objective measures for comparing profit performance in cross-industry studies. This is because profit levels can vary considerably across industries, obscuring any relationship between the independent variables and company performance. Subjective measures might be more appropriate in this situation because managers can take the relative performance of their industry into account when providing a response (Gupta and Govindarajan, 1984; Covin *et al.*, 1994; Dawes, 1999; Brewer, 2006). Therefore, we propose:

- H1.* Subjective measures of business performance can be used as replacement of objective measures of business performance.

### Sample and procedure

For the purpose of the study, we took a purposive sample of senior-level managers in decision making roles (key informants), from companies listed with Bombay Stock Exchange (BSE), India and having their registered office in North India. The data were collected in 2012-2013. Out of the key informants from 203 companies, who participated in the survey, responses of 171 were finally used for this study. Other respondents' responses were incomplete or they were found outliers during data cleaning. Profile of the sample is shown in the Table AI.

Subjective business performance has been operationalized in terms of ten financial and operational indicators identified from the literature (Table AII). Objective business performance has been measured using archival data of six financial/operational indicators (Table AIII).

The measurement and validity of the proposed business performance scales have been examined based upon the guidelines suggested by Churchill (1979), Dunn *et al.* (1994), Hinkin (1995) and Verbeke (2000). Exploratory factor analysis (EFA) has been applied to assess the factor structure and dimensionality of the proposed scales. Confirmatory factor analysis (CFA) validates the emergent factor structure and dimensionality. The psychometric properties of the instrument have been examined through standardized regression weight (SRW), composite reliability (CR) and average variance extracted (AVE).

### Measuring subjective business performance

To operationalize subjective business performance, a ten-item seven-point scale was developed. Seven-point scale provides a wide range of flexibility to respondents for comparing the business performance with major competitor ranging from 1 to 7 (where 1 = much more than worse than our competitor, 2 = more than worse than our competitor, 3 = worse than our competitor, 4 = almost similar, 5 = better than our competitor, 6 = more than better than our competitor, 7 = much more than better than

our competitor). Respondents were asked to compare the performance of their firm with their major competitor, over the past three years. The relative performance was measured on different aspects of business, namely, sales growth, market share, return on investment, service quality, customer satisfaction, employee satisfaction, product innovation, process innovation and product quality (see Table AII). The scale was tested for the content validity by seeking the opinion of the experts. The instrument was pre-tested, and no challenge was reported by the respondents. Venkatraman and Ramanujam (1986) suggest that researchers should collect data on indicators of business performance and explicitly test the dimensionality of their conceptualization of business performance.

To assess the dimensionality of the construct “subjective business performance”, EFA with principal components method and promax rotation has been employed. Different dimensions of subjective performance – from the perspective of different stakeholders – can be correlated with each other. Therefore, to obtain a correlated factor structure, without imposing the unnecessary conditions of orthogonality (Kim and Mueller, 1978), oblique rotation with promax technique has been applied. The results of EFA reveal a KMO score of 0.888 and *p*-value of 0.000 for the Bartlett’s test of sphericity, which affirms the correlation between different indicators of the construct and indicates the appropriateness of the dataset for the application of factor analysis. The pattern matrix (Table II) reveals two factors. The first component contains the items employee turnover; employee satisfaction; customer satisfaction; service quality; product quality; product innovation; and process innovation. These indicators reflect the non-financial aspects of the firm performance. So this factor has been named as “Subjective Non-financial Performance”. Three items – return on investment;

Kaiser-Meyer-Olkin measure of sampling adequacy				0.888
Bartlett’s test of sphericity	Approx. $\chi^2$			1,598.62
	df			45
	Sig.			0.000
Pattern matrix <sup>a</sup>				
Item	Item code	Component		
		Factor loadings	Factor loadings	
Employee turnover	P7	0.896		
Customer satisfaction	P5	0.877		
Employee satisfaction	P6	0.872		
Process innovation	P9	0.869		
Product innovation	P8	0.855		
Product quality	P10	0.780		
Service quality	P4	0.772		
Return on investment	P3		0.937	
Sales growth	P1		0.920	
Market share	P2		0.903	
Eigenvalue and total explained variance				
Component	Name of factor	Eigenvalue	% of explained variance	Cumulative % of explained variance
Component 1	Subjective non-financial performance	6.38	63.82	63.82
Component 2	Subjective financial performance	1.33	13.36	77.18

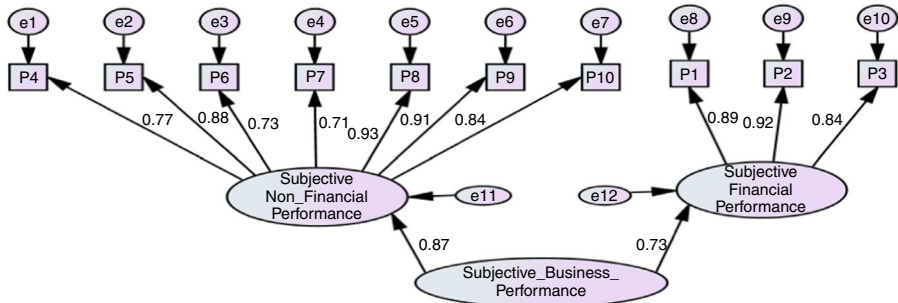
**Notes:** Extraction method: principal component analysis; rotation method: promax with Kaiser normalization. <sup>a</sup>Rotation converged in 3 iterations

**Table II.**  
Factor structure for  
subjective business  
performance

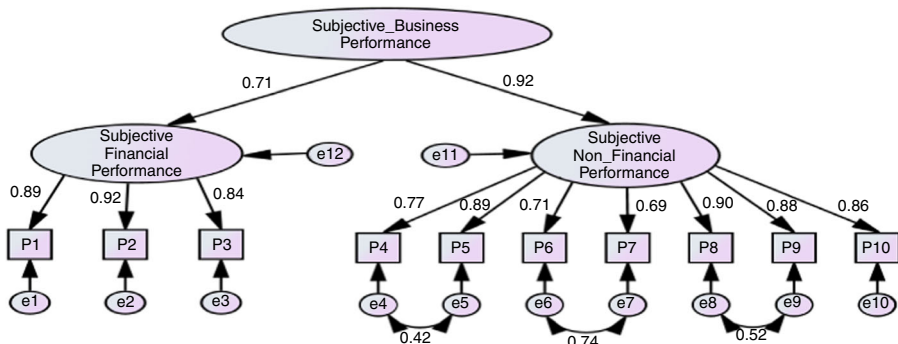
sales growth, and market share forms the second factor. It has been named as “Subjective Financial Performance”. Return on investment and sales growth measure firms’ past performance (Santos and Brito, 2012). However, the third item, i.e. market share can’t be treated as financial indicator of performance in strict sense but it directly impacts the sales volumes and profitability (Buzzell *et al.*, 1975; Venkatraman and Ramanujam, 1986; Santos and Brito, 2012). The observed data also proves correlation of this item with return on investment and sales growth. Therefore, the presence of this item under the dimension “Subjective Financial Performance” has been accepted for further analysis. These two factors are able to capture 77.18 percent of total variance. The factor loadings of all the items are more than 0.70, indicating good convergent validity.

To validate the emergent factor structure, these dimensions of subjective business performance were subjected to second-order CFA using maximum likelihood criterion (Figure 1).

The psychometric properties (Normed  $\chi^2 = 6.547$ ; GFI = 0.812; AGFI = 0.695; NFI = 0.864; CFI = 0.882; RMR = 0.066; and RMSEA = 0.181) of the model revealed a poor fit. High modification indices (MI) were found between employee satisfaction (P6) and employee turnover (P7), between customer satisfaction (P5), and service quality (P4), and between product innovation (P8) and process innovation (P9). These MIs suggest that there is a high degree of correlation between these pairs of items and the value of  $\chi^2$  will decrease significantly by freeing these relationships. Therefore, the restriction of fixed parameter estimations was removed and these paths were allowed to be estimated, as per the approach suggested by Hair *et al.* (2008). Figure 2 shows the revised CFA model for subjective business performance.



**Figure 1.**  
CFA model for subjective business performance



**Figure 2.**  
Revised model for subjective business performance

The psychometric properties of revised model (Normed  $\chi^2 = 0.876$ ; GFI = 0.970; AGFI = 0.947; NFI = 0.983; CFI = 1.000; RMR = 0.022; RMSEA = 0.000) support a good model fit. All SRWs were significant and above 0.50. AVE of 0.67 and CR of 0.80 for the model prove the convergent validity. Thus, the “subjective business performance” scale is validated.

### Measuring objective business performance

Objective business performance has been operationalized and measured in terms of six financial/non-financial indicators identified from the literature (see Table AIII). These include sales growth, asset growth, return on sales (ROS), return on assets (ROA) return on net worth (RONW), and earnings per share (EPS). Archival data from the annual reports of the companies has been used. Sales growth and asset growth were assessed using compounded annualized growth rate for the last three years (2010-2013). For other indicators, average of the figures for last three years (2010-2013) was taken.

Standardized scores (Z-scores) for all these items were used to minimize the distance between and within these indicators. The Z-score transformation standardizes variables to the same scale, producing new variable with a mean of 0 and standard deviation of 1. To analyze the factor structure of the construct, EFA with principal component analysis, using promax rotation was applied (Table III). Values of KMO and Bartlett’s test indicated the suitability of data for factor analysis. Factor structure (Table III) reveals two dimensions of “objective business performance”. The items ROA, RONW, ROS, and EPS loads on the first dimension. It has been named “Profitability” and represents the objective financial performance. The second dimension consists of two indicators – sales growth and asset growth. This factor has been named “Growth”, and represents the operational (non-financial) indicators.

CFA (Figure 3) was applied to validate the above factor structure. The psychometric properties of the model (Normed  $\chi^2 = 2.12$ ; GFI = 0.967; AGFI = 0.914; NFI = 0.939;

Kaiser-Meyer-Olkin measure of sampling adequacy		0.747	
Bartlett’s test of sphericity	Approx. $\chi^2$	237.80	
	df	15	
	Sig.	0.000	
Pattern matrix <sup>a</sup>			
		Component	
Item	Item code	Factor loadings	Factor loadings
Return on asset	ROA	0.862	
Return on sales	RONW	0.759	
Earnings per share	EPS	0.751	
Return on net worth	ROS	0.722	
Sales growth	SG		0.799
Asset growth	AG		0.771
Eigenvalue and total explained variance			
Component	Name of factor	Eigenvalue	% of explained variance
Component 1	Profitability	2.69	44.88
Component 2	Growth	1.16	19.34
			Cumulative % of explained variance
			44.88
			64.22

**Table III.**  
Factor structure for  
objective business  
performance

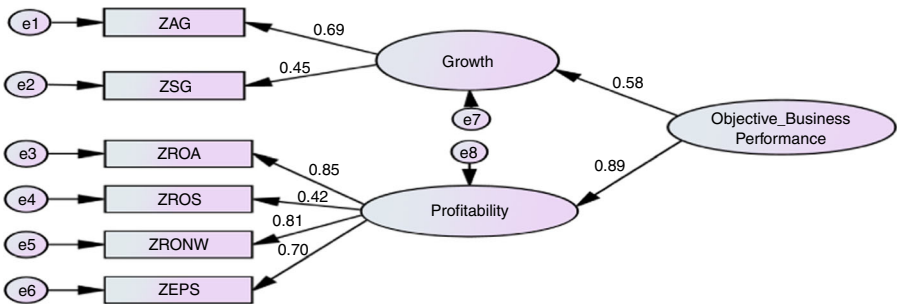
**Notes:** Extraction method: principal component analysis; rotation method: promax with Kaiser normalization. <sup>a</sup>Rotation converged in 3 iterations

CFI = 0.966; RMR = 0.044; and RMSEA = 0.081) indicated a good model fit. All SRWs were found significant at 1 percent level. The AVE score of 0.56 and CR of 0.71, satisfy the convergent validity of the measure. Thus, objective business performance scale is validated.

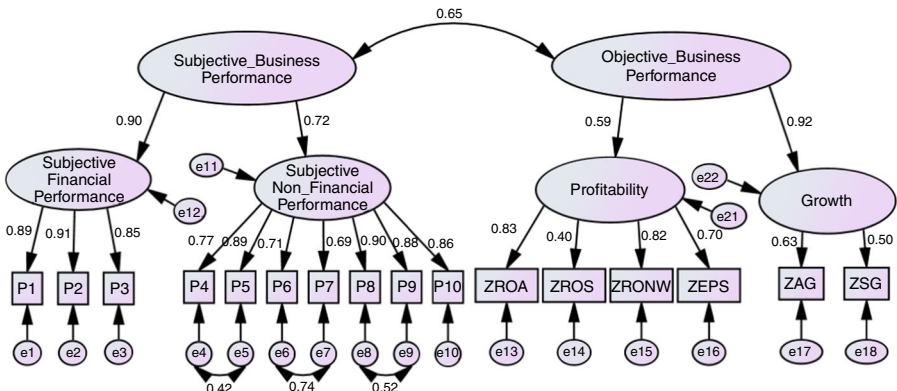
After validating subjective business performance and objective business performance, we moved on to find the extent of association between subjective business performance and objective business performance. The strength of correlation between these constructs can help us answer the question whether one of these can be used as replacement of the other or not.

Using the validated subjective and objective measures of business performance, a measurement model (Figure 4) was tested to study the extent of co-variance between the two constructs. The model fit indices (Normed  $\chi^2 = 1.355$ ; GFI = 0.918; AGFI = 0.884; NFI = 0.936; CFI = 0.982; RMR = 0.063; RMSEA = 0.046) indicated a good model fit. The significantly high positive correlation (0.65 at 1 percent level of significance) between these constructs suggests that these constructs are positively associated with each other. However these measures cannot be used as substitute of each other, as they are not perfectly correlated. Therefore, the hypothesis that subjective measures of business performance can be used as replacement of objective measures of business performance is rejected.

To assess the degree of correlation in different organizational contexts, we applied multi- group moderation analysis with maximum likelihood criterion (using AMOS 19.0) on



**Figure 3.**  
CFA model for  
objective business  
performance



**Figure 4.**  
Measurement model:  
subjective and  
objective business  
performance



the measurement model of subjective and objective business performance. We tested size of firm (in terms of annual turnover) and nature of industry (manufacturing vs service) as moderating variables, using  $\chi^2$  difference test. Constrained and unconstrained models were run to measure whether or not the relation between subjective and objective business performance changes as a function of organizational contexts (Baron and Kenny, 1986; Aiken *et al.*, 1991; Vij and Farooq, 2014b).

Table IV shows the results for moderation analysis.  $\chi^2$  difference statistic of 26.4 (with 14 df) and 26.7 (with 14 df) were significant at 1 percent level of significance and reject the claim of group invariance. It implies that the degree of relationship between subjective and objective measure of business performance is affected by the size of the firm and nature of industry. The relationship is more pronounced in larger firms than in smaller firms and in service firms than in manufacturing firms, respectively. However, the degree of correlation between subjective and objective measures of business performance is high (varying between 5.57 and 7.06) in all types of firms under consideration.

### Conclusion and implications

The foregoing analysis and discussion makes it amply clear that both subjective and objective measures of business performance are capable for measuring the performance of an organization. Neither of the subjective or the objective measure of business performance is superior to the other; as both are considering financial as well as operational indicators. However, high degree of correlation found in this study supports the use of subjective business performance measures for making cross-industry comparison and draw the attention of the decision makers towards factors that are crucial for building capabilities for the achievement of strategic goals of an organization.

The study finds a high degree of positive correlation between subjective business performance and objective business performance, in line with some previous researches (e.g. Dess and Robinson, 1984; Pearce *et al.*, 1987; Venkatraman and Ramanujam, 1987; Covin *et al.*, 1994; Dawes, 1999; Wall *et al.*, 2004). Based upon the challenges of gathering objective data for financial and operational indicators on the one hand; and

#### *Size of firm as moderator*

Parameters	Unconstrained model	Constrained model	Model differences	$p$ -value of $\chi^2$ difference	Degree of correlation between subjective and objective business performance	
					Large firms	Small firms
$\chi^2$	264.9	291.3	26.4	0.003*	0.612	0.557
df	192	206	14			

#### *Nature of industry as moderator*

Parameters	Unconstrained model	Constrained model	Model differences	$p$ -value of $\chi^2$ difference	Degree of correlation between subjective and objective business performance	
					Manufacturing firms	Service firms
$\chi^2$	289.3	316	26.7	0.003*	0.616	0.706
df	192	206	14			

**Note:** \*Significant at 1 percent level

**Table IV.**  
Results of  
multi-group  
moderation analysis

drawbacks of using objective data in certain situations on the other, the study finds it justified to use the subjective measures of business performance (as there is strong correlating between subjective and objective measures).

The use of subjective business performance in strategic management research is justified and may be recommended in situation warranted by non-availability of archival data. However, we do not suggest replacement of objective business performance by subjective business performance measures. Rather, decision should be made on the basis of research problem in hand, the context in which the study is being conducted and the purpose for which performance needs to be measured.

The findings of the study have implication and suggestion for the practitioners. The study suggests that strategic decision makers should measure business performance in terms of financial as well as operational indicators. The behavior of employees is driven by the kind of performance measurement criteria. The managers should include operational indicators, in addition to the financial indicators, if they want to cater to the needs of all important stakeholders, namely, owners, employees, and customers. The success of the firm, which comes from sustainable competitive advantage, does not emerge from financial success rather the seed of success lies in better customer and employee satisfaction, superior quality, and ability of the firm in developing new and innovative products and processes. Therefore, operational indicators should be integral part of all performance measurement metrics.

The findings also have implications for researchers in the field of strategy. The study operationalizes and validates two measures of performance, namely, subjective business performance and objective business performance. The strategy researchers confronting the challenge of adopting appropriate measures of business performance can use either or both of the theses measures, as per the needs of their research. If the secondary data on performance parameters suggested under objective business performance measures is available from the public domain, researchers can rely upon it. However, in situations where researchers find it very difficult to have access to the actual performance of companies because of reluctance of the managers to share sensitive data or because of poor reporting by the firms, they may rely upon subjective business performance measures suggested in this study.

The study contributes to the strategic management literature by providing evidence for association between objective and subjective measures of performance. However, we do not claim generalization, as the study is restricted to the Indian context only. Second, the opinion of the firms not participating in the survey may be significantly different from the responding firms and non-response bias may have crept in. Third, the study is based upon the response of a single key informant from each organization. An average response of multiple key informants, about the perceived relative performance, could have been a better choice.

Though the definition of business performance incorporates operational indicators in addition to financial indicators, the future studies may widen the scope of business performance by incorporating the interests of other stakeholders like suppliers, government, environment, and society in general. Researchers may focus their attention on the dimensionality of the business performance measures in different contexts. Cross-cultural validity of constructs operationalized in the current study may also be studied by future researchers.

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## Appendix

Criteria	Category	No. of respondents $n = 171$	% of respondents
Size of firm (in terms of turnover)	More than INR 5 billion	87	51
	Up to INR 5 billion	84	49
Size of firm (in terms of number of employees)	More than 250	141	82
	Up to 250	30	18
Age of the firm	More than 15 years	158	92
	Up to 15 years	13	8
Nature of the firm	Manufacturing	123	72
	Service	48	28

**Table AI.**  
Sample profile

**Table AII.**  
Operationalization of  
“subjective business  
performance”

Item	Item code	Item taken from
Sales growth	P1	Butler <i>et al.</i> (1997), Matsuno <i>et al.</i> (2002), Antoncic and Hisrich (2004), Wiklund and Shepherd (2003, 2005), Cardinaels and Veen-Dirks (2010) Clercq <i>et al.</i> (2010), Kraus <i>et al.</i> (2012), Matic (2012) and Tang and Tang (2012)
Market share	P2	Matsuno <i>et al.</i> (2002), Antoncic and Hisrich (2004), Stede <i>et al.</i> (2006), Clercq <i>et al.</i> (2010), Matic (2012), Tang and Tang (2012) and Teeratansirikool <i>et al.</i> (2013)
Return on investment	P3	Matsuno <i>et al.</i> (2002), Song <i>et al.</i> (2005), Antic and Sekulic (2006), Stede <i>et al.</i> (2006), Clercq <i>et al.</i> (2010), Santos and Brito (2012), Tang and Tang (2012) and Teeratansirikool <i>et al.</i> (2013)
Service quality	P4	Wiklund and Shepherd (2003), Antic and Sekulic (2006), Purbey <i>et al.</i> (2007), Stede <i>et al.</i> (2006), Matic (2012), Yildiz and Karakaş (2012) and Silvestro (2014)
Customer satisfaction	P5	Butler <i>et al.</i> (1997), Neely <i>et al.</i> (2002), Wiklund and Shepherd (2003), Marr (2005), Antic and Sekulic (2006), Stede <i>et al.</i> (2006), Purbey <i>et al.</i> (2007), Gonzalez-Benito <i>et al.</i> (2009), Cardinaels and Veen-Dirks (2010), Matic (2012), Santos and Brito (2012), Yildiz and Karakaş (2012) and Silvestro (2014)
Employee satisfaction	P6	Butler <i>et al.</i> (1997), Neely <i>et al.</i> (2002), Antic and Sekulic (2006), Stede <i>et al.</i> (2006), Cardinaels and Veen-Dirks (2010), Matic (2012), Santos and Brito (2012), Teeratansirikool <i>et al.</i> (2013), Silvestro (2014) and Vij and Farooq (2014a)
Employee turnover	P7	Antic and Sekulic (2006), Stede <i>et al.</i> (2006), Houck <i>et al.</i> (2012) and Santos and Brito (2012)
Product innovation	P8	Wiklund and Shepherd (2003), Marr (2005), Stede <i>et al.</i> (2006), Matic (2012), Tang and Tang (2012), Yildiz and Karakaş (2012) and Kartalis <i>et al.</i> (2013)
Process innovation	P9	Wiklund and Shepherd (2003), Marr (2005), Matic (2012) and Tang and Tang (2012)
Product quality	P10	Laura <i>et al.</i> (1996), Wiklund and Shepherd (2003), Antic and Sekulic (2006), Stede <i>et al.</i> (2006), Matic (2012), Yildiz and Karakaş (2012), Kartalis <i>et al.</i> (2013) and Silvestro (2014)

**Table AIII.**  
Items selected for the  
measurement of  
“objective business  
performance”

Item	Item code	Item taken from
Return on asset	ROA	Dess and Robinson (1984), Pearce <i>et al.</i> (1987), Capon <i>et al.</i> (1990), Dawes (1999), Zahra and Garvis (2000), Antoncic and Hisrich (2004), Awang <i>et al.</i> (2009), Soiminen <i>et al.</i> (2012), Al-Matari <i>et al.</i> (2014) and Schepers <i>et al.</i> (2014)
Return on sales	ROS	Pearce <i>et al.</i> (1987), Capon <i>et al.</i> (1990), Antoncic and Hisrich (2004), Awang <i>et al.</i> (2009), Soiminen <i>et al.</i> (2012) and Al-Matari <i>et al.</i> (2014)
Earnings per share	EPS	Rockmore and Jones (1996), Luftig and Ouellette (2012), De-Wet (2013) and Al-Matari <i>et al.</i> (2014)
Return on net worth	RONW	Capon <i>et al.</i> (1990), Antoncic and Hisrich (2004) and Al-Matari <i>et al.</i> (2014)
Sales growth	SG	Dess and Robinson (1984), Venkatraman and Ramanujam (1987), Capon <i>et al.</i> (1990), Covin <i>et al.</i> (1994) Zahra and Garvis (2000), Antoncic and Hisrich (2004), Kuivalainen <i>et al.</i> (2004) and Al-Matari <i>et al.</i> (2014)
Asset growth	AG	Capon <i>et al.</i> (1990), Morris <i>et al.</i> (2007) and Cooper <i>et al.</i> (2008)

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