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Strategic Management Process and the Importance of Structured Formality, Financial and Non-Financial Information

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Abstract:

The strategic management literature points out that there is a high multiplicity in the form and structure of the strategic management processes within organizations. By contrast, writers on management accounting tend to focus on the structure and formality of strategic activities and call for a balance of financial and non-financial information to support the two strategic processes of strategy development and strategy implementation. The purpose of this paper is to examine whether such assumptions hold in practice. The empirical part of the study draws on questionnaire responses by Greek firms. The results indicate that: 1) Greek firms are equally structured and formal for both strategic decision making processes of strategy development and implementation, 2) there is no significant difference in the use of financial and non-financial information for strategy development and 3) there is significant difference in the evaluation of financial information and non-financial information for strategy implementation.

Key Words: *Strategic Decision Making Process, Structured Formality, Financial and non-Financial Information, Management Accounting*

JEL Classification : *G34, M10*

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1. Introduction

It is well known that researchers and scholars have proposed different approaches of strategy and there is an ongoing debate between them about strategic processes characterisations. For instance, there are a lot of researchers arguing that firms in their Strategic Management (SM) process should adopt a rational perspective and the structures of the two sub processes of Strategy Development and Implementation should only be formal and based on structured procedures that rely on a mix of financial and non-financial information to support strategic decision making.

In contrast, others believe that strategic decision making, especially in our days of globalization, severe competition, continuous shortening of the products' life cycle, and sudden and quick organizational changes, is a very multifaceted and complex process influenced by a variety of organizational, political, socioeconomic, and environmental factors that make structured formality an attainable concept. Any company trying to impose formality in its strategic management process will lead itself to lower performance and great losses.

However, while the Strategic Management (SM) literature supports different and opposing approaches to the firm's strategic decision making process, the majority of the evidences from the Managerial Accounting (MA) scientific field tend to support the formal structured approach of the strategic making process. The aim of this paper is to investigate (a) whether Strategic Development and Implementation processes followed by Greek firms are based or not on formal structured procedures and (b) whether the use of the financial and non-financial information in these two stages of Strategic Development and Implementation are of equal importance for the Greek firms.

The following section presents the theoretical background of the two perspectives with respect to the strategic management process as well as the approach held by the management accounting field about the role of financial and non-financial information in this decision making process. At the end we form the hypotheses that are going to be tested empirically. Section three outlines the research method adopted for the empirical testing of the hypotheses proposed. Section four presents the empirical analysis and results. Finally, the paper concludes with a discussion of findings and with directions for future research.

2. Theoretical Background

2.1 Strategic Decision Making Process

To assess the perspective adopted in the accounting literature concerning the role of information in firms' strategic activities, it is essential to consider the distinction between prescriptive (or normative) and descriptive notions of strategy as found in the strategic management literature.

The prescriptive strategy literature considers strategy as a formalized statement of intent or plan which identifies objectives and intended actions. Organizations are assumed to engage in strategic choice making in an economically rational manner within the constraints of limited information, cognitive biases and causal ambiguity (Amit and Schoemaker, 1993; Barney, 1992; Ginsberg, 1994; Peteraf, 1993; Phelan and Lewin, 2000; Reed and De Fillippi, 1990). Strategy is seen as consciously identified, proactive and formulated prior to decisions and actions.

Porter (1980, 1985), for example, views strategy as the positioning of the firm within its competitive environment and proposes the building of a sustainable competitive advantage as a way of protecting the firm against competitive forces. He develops several strategic tools (the five forces industry analysis, the value chain analysis, and the concept of generic strategies) for analyzing and determining a firm's position in competitive markets and argues that firms should build sustainable competitive advantage by consciously choosing a specific strategic position, developing unique activities and determining how they fit within a 'chain' of value-adding activities (Porter, 1996, 2001).

Others describe how a firm's competitive advantage is based on its strategic resources, assets and capabilities (Cool and Dierickx, 1994; Barney, 1986; Peteraf, 1993; Peteraf and Salancik, 1978; Prahalad and Hamel, 1990; Břečková and Havlíček, 2013). Strategic thinking underpins rational economic propensities concerning resource distribution decisions and organizational conduct and outcomes (Oliver, 1997; Sabherwal and King, 1992; Teece and Pisano, 1994; Havlíček *at al* 2013).

Prescriptive conceptions of strategy presuppose the deployment of formal management information systems. The achievement of objectives requires the analysis of data which feeds into decision-making processes. If strategic decision-making is a structured and planned endeavor, it will draw on information that is formally prepared for identifying internal and external opportunities and threats without denying the possibility of strategic innovation (Barney, 1986; Mahoney and Pandian, 1992; Schoemaker and Amit, 1994). They assume that managers formally

analyse competitive forces and purposively assess resource allocations and utilization as part of strategy development. The implementation of strategies would likewise entail extensive analysis of economic, quantitative and qualitative information. Ultimately, seeking to achieve sustainable competitive advantage is seen as an outcome of discretionary managerial choices and strategic resource accumulation and use, which is dependent on the output and deployment of effectively designed management information systems (Conner, 1991; Grant, 1996).

On the other hand, descriptive views of strategy see a role for interactions between management, employees and the environment where strategic processes are considered to be complex and to exist in a state of continuous instability with consequences that sometimes depart from those that may have been initially planned. Strategy is regarded as organizationally grounded and decision-making processes and implementation are considered to be complex, dynamic and multi-faceted (Smircich and Stubbart, 1985; Hamel and Prahalad, 1994; Bourgeois and Eisenhardt, 1988).

Organizational activities are taken to be shaped by diverse interests including enterprise specific forces as well as institutional pressures (Quinn, 1978, 1980). Strategies are not necessarily viewed as being developed top down and new patterns of action are considered to emerge in a diffused manner partly through grass root decision-making (Mintzberg and McHugh, 1995). The task for managers within this perspective is to create a context for strategy formation and to detect patterns that emerge and help them take shape (Mintzberg, 1979). A balance is sought between thought and action, control and learning, and stability and change. Information sources are diverse and not necessarily derived from formalized systems. Communication of information affecting strategic processes is non-uniform and information form and exchange can be highly unstructured (Goold and Quinn, 1990).

2.2 Management Accounting Approaches on Strategic Decision Making

While the strategic management literature shares different approaches of the strategic decision making process, writings on strategic aspects of accounting have tended to adopt a more one-sided view.

The literature addressing the links between strategy and management accounting systems is relatively recent, emerging only since the 1980s (Langfield-Smith, 2005). While reviews of the accounting-strategy literature have been presented elsewhere (see Chenhall, 2005; Langfield-Smith, 2005; Nyamori et al., 2001; Roslender and Hart, 2003), the purpose of this section is to consider the conceptual basis upon which strategy has been associated with accounting systems.

Some researchers believe that the relationship between strategic decision making and accounting practice would be understood as reflective actions of the complexity of organizational uncertainties and social processes which determine their relationships (Archer and Otley, 1991; Burns and Vaivio, 2001; Granlund, 2001; Hoque and Alam, 1999; Hopwood, 2000; Lord, 1996; Mouritsen, 1999; Roberts, 1990; Roslender, 1995; Tomlinson, 1990; Thalassinos *et al* 2013). Here decision-making activities and managerial action are seen as dynamic, multi-level and context-specific rather than planned, structured and sequential (Bhimani and Langfield-Smith, 2007).

However, most of the accounting writings on strategic aspects of accounting, the so called 'strategic management accounting-SMA', regard strategy in deterministic and rationalistic terms and present accounting prescriptions designed to support corporate strategic actions (Kaplan and Norton, 2004; Ward, 1993; Wilson, 1995, 1999). Within the SMA literature, strategy development and implementation are viewed as formal endeavours to which strategically oriented management accounting practices can contribute (Bhimani and Langfield-Smith, 2007).

The focus is on information deployment (Brouthers and Roozen, 1999; Dixon and Smith, 1993) and there is a presumption that non-financial information is needed to capture the decision relevance of strategic options alongside established financial information analyses. There are studies which indicate that senior accounting officers within organizations play a growing role in the provision of information for strategic decision-making (Bhimani and Keshtvarz, 1999) and that they are increasingly engaged in strategic corporate activities (Guilding et al., 2000; Guilding and McManus, 2002).

Palmer (1992), for example, suggests that the task of integrating the SMA system into organizational strategic management processes places the responsibility upon management accountants to identify the organization's strategic orientation and to prepare the necessary supportive decision-making information. Simmonds (1981, 1982) supports this view suggesting that SMA should seek to promote management accounting information which relates to such factors as competitive position, pricing, costs and volume. Knowledge about competitors is considered to enable managerial decisions which take account of possible competitor responses.

Shank and Govindarajan (1988, 1989 and 1992) have also drawn on the Porter's frameworks of value chain analysis, cost driver analysis and competitive advantage analysis to advocate the analysis of cost data for developing superior strategies to enable enterprises to achieve sustainable competitive advantage. Shank (1996) further demonstrates the manner in which aspects of strategic cost management need inter-linking financial and non-financial information to enable a comprehensive and

balanced assessment of strategic issues of importance. Finally, Bushman (2007) argues that management accountants use both financial and non-financial information to support strategic decision making.

In summary, the prescriptive SMA literature has presumed strategic activities to be largely formal and structured and has advocated the balanced deployment of financial and non-financial information in the development and implementation of strategy. The approaches of strategic decision making that view strategy development and implementation as emergent, unstructured and in continual change have only selectively been integrated within the SMA literature (Bhimani and Langfield-Smith, 2007). A question for this investigation is whether strategy development and implementation activities in practice are structured and formal, and whether financial and non-financial information are equally important across strategy development and implementation activities. To empirically assess this, the following hypotheses are presented:

H1: Strategy development and implementation tend to be structured and formal, rather than unstructured and informal.
H2: Financial information is as important as non-financial information for strategy development.
H3: Financial information is as important as non-financial information for strategy implementation.

The next section of the paper presents the method used to test these propositions.

3. Research Methods

3.1 Sample and Data Selection

A survey was undertaken to gather all the appropriate data by use of a structured questionnaire. The target population comprised the senior accounting officers within large Greek firms (those employing more than 250 employees). In order to achieve sufficient sample size and generalization of the result the initial sample for this study consisted of the total population of 587 large Greek companies. The population was drawn from a database compiled by ICAP, which is a well-known and reliable source of data for Greek companies. The size limitation was introduced for the reason that small and medium firms present some difficulties and mostly these companies do not have the appropriate strategic and management accounting tools (Chenhall and Langfield-Smith, 1998).

A pre-test was performed to establish content validity (Zikmund, 2003). The instrument was pre-tested through in-depth discussions with academics and professionals. Five senior accounting officers along with six academics participated in the pre-testing process. To ensure that the senior accounting officers of the sample firms were willing to complete the questionnaire and to maximize response rate, two research assistants spent two weeks telephoning all 587.

It should be mentioned that due to time constraints or company privacy concerns many senior accounting officers declined to participate. 299 companies stated that it was against their policy to respond to research questions. The questionnaire was sent only to those 288 senior accounting officers who agreed to participate in the survey (mailed or e-mailed, depending on their preference). A cover letter explaining the study objectives was attached and a stamped return envelope was enclosed. Follow-up letters were sent approximately three weeks after the initial mailing.

A total of 193 questionnaires were returned, which corresponds to a 67.01 per cent overall response rate. Of these, five questionnaires were discarded because they were not appropriately completed. Consequently, 188 questionnaires retained for analysis (a response rate of 65.27 per cent). A brief presentation of the demographic characteristics is given in Appendix A (Table A7).

Generally speaking, researchers normally work at a 95 percent level of certainty. This actually means that with a total population of 587 firms the minimum sample size should be around 220 instead of 193 firms (Saunders, Lewis and Thornhill, 2000, p.156). Although the smaller size could be considered as one of the limitations of this research, we could defend it on the grounds stated by the famous scholar Shelby Hunt who states that non-response bias does not consist of a base rule for rejecting a manuscript, unless there are serious differences between respondents and non-respondents, therefore results are unreliable (Hunt, 1990).

To test whether our respondents were different from the non-respondents, we examined if there are any differences in the mean of all variables used in this study between early and late respondents. The rationale behind such an analysis is that late respondents (i.e. sample firms in the second mailing) are more similar to the population, from which they were drawn, than the early respondents (Armstrong and Overton, 1977). No statistically significant differences were found, thus suggesting that non-response bias is not a serious issue in the study.

3.2 Measurement of Variables

The survey questionnaire used consists of three sections:

Section one measures the importance of structured formality of the strategic decision making process. Respondents are asked to indicate the importance (and thus formality) they place on each of the activities measuring separately the two processes of strategic decision making. Four items measure the importance (and thus formality) of the strategy development process (adopted from Boyd's and Reuning – Elliott's, (1998) research on formality in strategic planning) and five the formality of strategy implementation process (adopted from Glaister *et al*., 2008).

Section two consists of thirteen questions (items) that measure the importance of financial (5 items) and non-financial (8 items) indicators' use as information for strategy development and implementation. Respondents are asked to indicate the importance of each indicator's use as information for the strategy development and strategy implementation process. The financial indicators were adopted from Widener (2006) and the non-financial indicators from the Poincelot and Wegmann (2006).

In both sections a five point Likert scale was used, where 1= unimportant, 2=of little importance, 3=moderately important, 4=important and 5= very important. Finally, in section three there are questions about the respondents' demographic characteristics (e.g. gender, age, level of education, position into the firm).

3.3 Normality of Data and Reliability and Validity of the Constructs

All techniques of multivariate data analysis typically assume normal distribution. In our case all items are normally distributed and hence are acceptable for further analysis because their skewness and kurtosis values are below 2 and 7 respectively (West et al., 1995).

Moreover, it is well known that survey research, if not properly conducted, can provide misleading results with measurement errors representing one of the most significant sources of bias. While however, measurement errors are almost inevitable, the extent to which these errors affect the findings is a function of what particular efforts (a priori) and what checks (a posteriori) have been undertaken, in order to minimize and assess the potential bias. On this account construct validation is particularly relevant. In effect it involves a multifaceted process comprising two basic steps. The first, *content validity* requires the identification of a group of measurement items which are deemed to represent the construct of interest.

The second step, *construct validity*, seeks to establish the extent to which the empirical indicators actually measure the construct. These issues are dealt with in

Appendix 1. All analyses (see Appendix 1 for detailed description of procedures and results) provide reasonable confidence that the measures used are valid and reliable.

4. Results

4.1 Basic Statistics

Table 4.1 gives the basic statistics for the first-order factors "Structured formality of the strategic development process", "Structured formality of the strategic implementation process", "Importance of financial information to strategic development process", "Importance of non-financial information to strategic development process", "Importance of financial information to strategic implementation process" and "Importance of non-financial information to strategic implementation process".

As we can see, all the factors are characterized 'important' as the mean values are greater than four. The most important factor is the "importance of financial information to strategic implementation process" with a value of 4.53, while the less important is the factor "importance of financial information to strategic development process" with a value of 4.11.

The coefficient of variation in all cases, except the "importance of financial information to strategic development process" is less than the cut -off point of <15%. Deductively, we can say that the structured formality of the two strategic decision making processes, of strategy development and strategy implementation are important, which means that, according to the respondents, structured formality exists in both strategic decision making processes of their firms. The same applies to the other two variables, the importance of financial and non-financial information for both processes of strategic development and strategic implementation. In other words, the respondents believe that financial and non-financial information are important for the two processes of strategy development and strategy implementation.

Table 4.1: Basic Statistics

Factor	Mean	Std. Deviation	Coefficient of Variation	Median	Mode
Structured formality of the strategic development	4.45	0.31	6.96%	4.50	4.50

process					
Structured formality of the strategic implementation process	4.43	0.33	7.44%	4.00	4.40
Importance of financial information to strategic development process	4.11	0.73	17.76%	4.00	4.20
Importance of non-financial information to strategic development process	4.16	0.48	11.53%	4.12	4.13
Importance of financial information to strategic implementation process	4.53	0.27	5.96%	4.60	4.40
Importance of non-financial information to strategic implementation process	4.36	0.27	6.19%	4.37	4.00

4.2 Testing of Hypotheses

Concerning hypothesis one (H1), we could say that above results of table 4.1 lead us to the conclusion of accepting it, because in both cases (i.e., structured formality of strategy development and structured formality of strategy implementation) the mean value of all the respondents' answers was above the value of 4 (where in the 5 point Likert scale 4=important). More analytically, for all the activities composing the strategic development process the respondents, on average, indicated an importance of 4.45, and thus a corresponding structured formality for these activities. The same with all the activities of the strategic implementation process, with a mean of 4.43. Consequently, the answers of all respondents, on average, were, more or less, the same for both processes of strategic management process (4.45 for strategy development and 4.43 for strategy implementation).

For testing the relative importance of financial and non-financial information in strategy development and implementation (H2 and H3) ANOVA analysis was undertaken and more specifically the paired-samples T-test. With this technique we can compare the medium value of evaluation between financial and non financial

information so much for Strategy Development as much as for Strategy Implementation.

Table 4.2: Paired -Samples T-test

	Mean	Std. Deviation	t	Sig. (2 tailed)
Strategy Development				
Financial information	4.16	0.53	-1.091	0.078
Non financial information	4.11	0.48		
Strategy Implementation				
Financial information	4.53	0.27	6.453	0.000
Non financial information	4.36	0.27		

The results in table 4.2, support *hypothesis 2* (H2) because there is no statistically important difference between the two means (sig.=0.078>0.05) concerning the value of financial information and non-financial information for strategy development. In other words, no significant differences were found in the importance of financial and non-financial information for strategy development.

On the contrary, *hypothesis 3* (H3) is rejected because there is a statistically important difference between the two means, concerning the value of the relative importance of financial information and non-financial information for strategy implementation. The t–value is statistically significant at 5% level (sig.=0.000<0.05).

Financial information, as comes up from the results, is more important than non financial information in both cases (i.e., the mean value is 4.16 vs. 4.11 for strategy development and 4.53 vs. 4.36 for strategy implementation). Also, while not proposed, it is noted that the average importance of financial information for strategy implementation (4.53) is significantly higher than for strategy development (4.16).

5. Conclusion

The aim of this paper was to investigate whether strategy development and implementation activities used in practice are formal structured processes, and whether financial and non-financial information are of equal importance across strategy development and implementation activities.

The statistical results confirm that strategy development and implementation were relatively formally structured processes in the companies investigated. However, while financial and non-financial information were considered equally important for both strategy development and implementation, the companies surveyed placed greater importance on financial information for strategy implementation.

The tendency to use more structured and formal processes supports the rational perspectives of the strategy and management accounting literature. However, it could be argued that formality may be more commonly associated with companies of the size selected for this study (only large companies). The finding may also be partially due to accountants' participation in strategic processes being related to the more structured aspects of strategy development and implementation.

Balanced scorecard approaches emphasize the value of integrating financial and non-financial measures in the implementation of strategy (Kaplan and Norton, 1996, 2001, 2004). However, the companies surveyed here appear to place a stronger emphasis on financial measures for strategy implementation, but this bias was not found for strategy development. A possible explanation is that non-financial information is regarded as being of equal relevance in conceptualizing strategic pursuits but controls to monitor the implementation of these strategies continue to place heavier reliance on financial monitors. This may be due to accountants' traditional preferences for financial information provision (Armstrong, 1987; Armstrong and Jones, 1992; Jones et al., 1993; Roslender, 1995, 1996). It could also stem from accountants being more likely to participate in strategy implementation rather than strategy development, as has been reported in various surveys (Bhimani and Keshtvarz, 1999; Guilding et al., 2000).

Further understanding of the outcoming results may come up if we try to identify the differences of the two strategic decision making processes of development and implementation from the strategic management literature. According to David (2010):

The strategy development process is, mainly, an intellectual process trying to conceptualize (format and formulate) strategy, whereas the implementation process is mainly an operational process. In this sense the strategy development process (a) involves a relatively small number of senior managers, (b) is a highly intellectual process demanding high degree of intuition and capabilities of analysis and, mainly,

synthesis (c) is focused, mainly, on the effectiveness of the strategic alternatives proposed (i.e., whether or not will be able to reach the desired long-term objectives for the whole firm), (d) uses the same tools and techniques, which are the same for all types and sizes of firms, and (e) just distributes strategic resources to the whole company.

On the contrary, the strategy implementation process (a) involves the coordination of many different groups of employees as well as many different individuals, (b) is involved with the everyday running of the business and demands, mainly, leadership capabilities for the motivation of all human resources of the firm, (c) is focused, mainly, on the efficiency (increase of productivity & profitability of each specific department, division, SBU, and the whole corporation) of the implemented strategies, (d) uses different tools and techniques for different types and sizes of firms, and (e) tries to manage efficiently the strategic and non-strategic resources and capabilities in each separate productive and non-productive unit of the firm in such a way as to reach, mainly, the specified short-term annual objectives.

This is another reason why implementation process uses mainly financial information for the annual performance measurement of the each firm' s separate units, using mainly the traditional (or 'formal' according to Anthony, 1965) control systems (cost systems, budgeting, financial measures of short-term performance, etc). There are many empirical evidences proving this assertion in many countries, including Greece (e.g. Henri, 2006; Langfield-Smith, 1997; Andrews, 1971; Ansoff, 1965; Anthony, 1965).

In general, respondents indicated that the process of strategy development and implementation were differentiated and relatively structured and formalized. Strategic processes were planned and deliberate and there was no indication of ad-hoc and spontaneous processes shaping strategy development and implementation, which provides support for P1. Some strategic decisions concerning corporate plans were tied to annual planning cycles which played an important role in the development of business unit strategies.

APPENDIX: Measures and Construct Validation Results

Content Validity

Content validity refers to the agreement that exists among scholars about whether or not a scale is measuring what is supposed to measure. In our case most of the scales employed have been adopted from existing and validated scales used in the extant literature. However, the questionnaire was translated in to the Greek language, and thus, there was a discussion with professionals (academics and practitioners), in order to eliminate any wording problems (such as biased, ambiguous, inappropriate or double meaning items) and verify whether or not the questions were correctly translated and easily understood.

Construct Validity

Construct validity shows whether or not the chosen items are true measures of each construct (Straub, 1989). Construct validity, according to Cao and Dowlatshahi (2005), can be assessed by examining the measurement properties of all constructs used, namely (a) Unidimentionality, (b) Reliability, and (c) Validity (Convergent and Discriminant validity). We tested the construct validity of our measures by employing confirmatory factor analysis (CFA) using AMOS. Unlike the traditional and more commonly used exploratory factor analysis (EFA), CFA contains inferential statistics that allow for hypothesis testing regarding the construct validity of a set of measures, leading to a stricter and more objective interpretation of validity than does EFA (Gerbing and Anderson, 1988).

(a)Unidimentionality

Unidimensionality in our case means that, for example, the set of indicators that measure the construct "Importance of financial information", relate exclusively to this construct and not to another, say, "Importance of non-financial information".
Two sets of statistics were used for the verification of the unidimensionality hypothesis: (a) the significance of the factor loadings, that is the estimated correlation between a particular item and the latent construct it represents (see Table A1 to A3), and (b) the overall acceptability of the measurement model in terms of the model's fit to the data, using a X^2 test and adjunct fit indexes (see Table A4):

Table A1: Structured Formality of the Strategic Management Process

Constructs	Items	First order factor loading	Second order factor loading	Average Variance extracted
Structured formality of the strategic development process			**0.764**	**0.550**
	Mission statement	0.812		
	Long term goals	0.696		
	Annual goals	0.593		
	Defined set of procedures	0.847		
Structured formality of the strategic implementation process			**0.811**	**0.510**
	Defined responsibilities to individuals	0.638		
	Strict time limits on reviews	0.815		
	Formal presentation	0.706		
	Decisions compulsory	0.721		
	Regular scheduled reviews	0.696		

Table A2: Importance of Financial and Non-Financial Information to the Strategic Development Process

Constructs	Items	First order factor loading	Second order factor loading	Average Variance extracted
Importance of financial information			**0.846**	**0.580**
	Profit	0.746		
	Return on investment	0.779		
	Sales	0.841		
	Return on assets	0.663		
	Financial targets	0.785		
Importance of non-financial information			**0.893**	**0.630**
	Public image	0.787		
	Employee satisfaction	0.754		
	Employee commitment level	0.842		
	Customer satisfaction	0.667		
	Competitor comparisons	0.889		
	Product quality	0.858		
	Degree of technology evolution	0.936		
	Market share	0.587		

Table A3: Importance of Financial and Non-Financial Information to the Strategic Implementation Process

Constructs	Items	First order factor loading	Second order factor loading	Average Variance extracted
Importance of financial information			**0.991**	**0.570**
	Profit	0.724		
	Return on investment	0.756		
	Sales	0.858		
	Return on assets	0.680		
	Financial targets	0.822		
Importance of non-financial information			**0.923**	**0.610**
	Public image	0.731		
	Employee satisfaction	0.783		
	Employee commitment level	0.819		
	Customer satisfaction	0.727		
	Competitor comparisons	0.905		
	Product quality	0.813		
	Degree of technology evolution	0.851		
	Market share	0.614		

We notice that all first and second order loadings are significant at $p<0.01$.

Table A4: Overall Model Fit Indices

Indices	Recommended value [a] (cut-off limits)	Structured formality of the strategic management process (Development and Implementation)	Importance of financial and non financial information for strategic development process	Importance of financial and non financial information for strategic Implementation process
Chi- square	------	67.6	14.72	160.23
P- value	>0.05	0.005	0.000	0.003
d.f	------	26	64	64
χ^2/d.f	**$1 < \chi^2/d.f < 3$**	**2.6**	2.3	2.5
GFI	0.90	0.93	0.91	0.92
AGFI	0.83	0.88	0.87	0.86
RMSEA	<0.08	0.054	0.079	0.075
CFI	>0.90	0.93	0.92	0.93

[a]Hair et al. (1995)

All three constructs are second-order measurement models. A second-order model of say, structured formality of the strategic decision making process, is based on a hierarchical structure in which structured formality is assumed to affect more specific strategic management process dimensions (i.e., the structured formality of strategy development process and the structured formality of strategy implementation process) which in turn are measured by the specific items (questions).

The unidimentionality of these three constructs, structured formality of the strategic decision making process, importance of financial and non-financial information for strategic development process, and the importance of financial and non-financial information for strategic implementation process, was supported by our data as manifested by the overall acceptability of the three respective measurement models, in terms of the six fit indexes (p-value, χ^2/d.f, GFI, AGFI, RMSEA, and CFI) which exceed all the cut-off limits (see column 2 of table A4).

(b) Reliability

With respect to *reliability*, we computed the composite reliability estimates (Fornell and Larker, 1981) which are directly analogous to the commonly used coefficient alpha statistics. As shown in Table A5 all are quite satisfactory (well above the customary cut-off level of 0.70) thus providing confidence that the individual items

used are all consistent in their measurements and reliable. In addition all coefficients exceeded Nunnally's (1978) recommended 0.80 cut-off level:

Table A5: Composite Reliability

Factor	**Composite reliability**
Structured formality of strategy development process	0.830
Structured formality of strategy implementation process	0.840
Financial information for strategy development process	0.875
Non Financial information for strategy development process	0.929
Financial Information for strategy implementation process	0.842
Non Financial Information for strategy implementation process	0.925

(c) Convergent and Discriminant Validity

Convergent validity was examined by computing the indexes of average variance extracted (see tables A1 to A3), that is the amount of construct variance relative to measurement error. An average variance extracted of at least 0.50 (i.e., 50 percent) provides support for convergent validity (Gerbing and Anderson, 1988; Fornell and Larcker, 1981).

Discriminant validity is the degree to which the measures of different concepts are distinct (Suh and Han, 2002). In order to check the discriminant validity we can examine whether the correlations between the constructs are lower than the square root of the average variance extracted (Kim et. al., 2008). The results for discriminant validity test are presented in the table A6 and prove the distinctness of each separate construct, since its square root of the average variance extracted is greater than its correlation coefficients of all other constructs:

Table A6: Discriminant Validity Test

	1.	2.	3.	4.	5.	6.
1. Structured formal development	**0.742**[a]					
2. Structured formal implementation	0.159	**0.714**[a]				
3. Financial for strategy development	0.064	0.098	**0.716**[a]			
4. Financial for strategy implementation	0.142	0.141	0.661	**0.754**[a]		
5. Non Financial for strategy development	0.040	0.065	-0.024	0.061	**0.794**[a]	
6. Non Financial for strategy implementation	0.380	0.425	0.004	0.163	0.165	**0.781**[a]

[a] square root of the average variance extracted

Table A7: Demographic Characteristics

	Mean	St. Deviation	Statistics			
Position			CEO: Finance Manager:	21.3% 19.1%	Senior accountant: Information Technology:	48.3% 11.3%
Education			High school:	14.9%	University: Postgraduate:	49.4% 35.6%
Sex			Male: 75.3%		Female: 24.7%	
Age of respondent	43.79	8.70				
Experience	16.15	6.41				
Establishment Date	1977	28.40				
Total Number of employees	426	332	251-500 501-1000	78.7% 19.2%	>1000	2.1%

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