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Strategic Management Accounting and Control

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As business environments have become increasingly dynamic and competitive, it has become increasingly important for managers to develop coherent, internally and logically consistent business strategies and to have tools and models which provide useful information to support strategic decision-making, planning and control. In response to these needs, there have been many important developments, in both management accounting research and practice that focus on the use of accounting data and related information regarding strategy and operations for these purposes. Some of the most important developments in strategic planning and control have been: (1) the balanced scorecard, a comprehensive set of performance measures designed to assist managers in implementing competitive strategies and monitoring performance with respect to them. (2) strategic variance/profitability analysis, systems which decompose measures of budgeted versus actual net income into variances which managers can relate logically to a firm's or strategic business units (SBU's) mission and business strategy and therefore use to analyze performance from a strategic perspective. (3) profit-linked performance measurement systems, models which decompose measures of changes in profitability over time into measures of changes in constructs such as productivity and price recovery, which can be logically linked to a firm's/SBU's mission and business strategy and analyzed from those perspectives. (4) levers of control, a comprehensive framework for organizing and employing management control systems to promote strategic objectives. The models can be used for strategic planning, control and cost management.

The Design of Strategic Cost Management and Control Systems

If management accounting information systems are to be useful for strategic purposes, that is, to help managers to increase the likelihood that they can achieve their strategic goals and objectives, their designs and use must follow from firms' missions and competitive strategies. In Porter's framework, strategy should follow from an analysis of the determinants of the nature and intensity of competition: the firm's/SBU's bargaining over its consumers and suppliers, threats from new entrants and substitute products (barriers to entry and exit), and the intensity of rivalry in product markets. To generate a sustainable competitive advantage, a strategy must: establish a unique market position based on low cost leadership, product differentiation, or a workable combination of the two, with an appropriate scope of markets (broad or focused/niche); Differentiated from competitors' strategies, through unique product variety, ability to satisfy customer needs, and/or access to particular customer segments; and Employ chains of complementary, value-adding activities which are difficult for competitors to replicate.

The chosen strategy, in turn; determines the SBU's critical success factors, such as delivering superior product and service quality and achieving high price recovery for SBUs pursuing differentiation strategies, or achieving economies of scale, improving productivity and delivering threshold product and service quality at low prices for SBUs pursuing low cost leadership strategies; informs choices regarding the design of products and configuration of operations which drive costs and revenues; and for a set of performance

measures to exhibit content validity in a strategic context, then, it must measure constructs related to the mission and strategic framework, the selected strategies, the firm's/SBUs' critical success factors, and operating choice variables.

In addition, the constructs, and their measures, must be causally linked. Performance measurement systems should explicitly incorporate models of profit-generating processes, so, when managers take actions the models suggest will improve performance along one or more dimensions, the intended improvements are likely to materialize. Thus, the models should incorporate relationships over time as well as contemporaneous relationships and linkages capturing cause-and-effect relationships between constructs and measures of performance throughout the firm (horizontally and vertically; aggregated to disaggregated; across the entire value chain). Finally, the measures should also have 'good' theoretical and empirical measurement properties

Strategic Variance Analysis

Profit variances into mutually exclusive, collectively exhaustive sets of variances which capture the separate impacts of key underlying causal factors, for example, deviations between actual and budgeted sales volumes and mixes, market sizes and shares, manufacturing costs, contribution margins, and discretionary costs. Conceptualizing mission in terms of profitability and a build, hold or harvest perspective and strategy in terms of low cost leadership or product differentiation, by analyzing the variances with explicit reference to a firm's/SBU's mission and business strategy, they can determine the extent to which deviations between actual and budgeted performance are or are not consistent with the mission and strategy and identify specific dimensions of performance which need improvement. Analyzing the variances without reference to mission and strategy can be uninformative or misleading. The profit variances into effectiveness variances (market size, market share, selling prices, and product volume and mix variances) and efficiency variances (materials and labor price and efficiency, discretionary and committed cost spending variances, and/or activity-based cost variances). Those effectiveness variances are of particular importance to business units pursuing differentiation strategies and efficiency variances to units pursuing low cost, high volume strategies.

Profit-linked Performance Measurement Systems

Profit-linked models decompose measures of return-on-investment and net income into measures of productivity, price recovery, capacity utilization, and other managerially relevant dimensions of performance. Practitioners led the development efforts, with models which decompose measures of profitability into measures of productivity and price recovery. Academics have contributed by refining and extending the models from the perspectives of management accounting, business strategy and the economic theory of production, showing how the models can be used to analyze cross-sectional differences and time-series changes in performance in the context of changing competitive environments and strategies, and examining the measures' mathematical, economic and empirical properties.

Model Specification

A measure of relative profitability was defined¹ as the ratio of two total factor productivity indices, one for the period of interest t and one for the benchmark or base period

$$0: \frac{\sum_m p_m^t y_m^t}{\sum_v w_v^t x_v^t + \sum_f w_f^t x_f^t}$$

$$\text{PFTBLT}_t = \frac{\sum_m p_m^t y_m^t}{\sum_v w_v^t x_v^t + \sum_f w_f^t x_f^t} \quad (1)$$

$$\frac{\sum_m p_m^0 y_m^0}{\sum_v w_v^0 x_v^0 + \sum_f w_f^0 x_f^0}$$

where

y_m^t = actual quantity of output m sold during period t , $m = 1, 2, \dots, M$, $t = 0, 1, 2, \dots, T$,

p_m^t = selling price per unit of output m ,

x_v^t = actual quantity of variable cost input v employed, $v = 1, 2, \dots, V$,

w_v^t = price per unit of variable cost input v ,

x_f^t = actual quantity of fixed cost input f employed, $f = 1, 2, \dots, F$, and

w_f^t = price per unit of fixed cost input f .

For empirical analyses, the benchmark prices and quantities may be defined according to an organization’s performance during a suitable time period, the organization’s average performance over several periods, or the performance of a set of close competitors depending on the objective of the application and implications for interpretation.

The models are based on assumptions consistent with standard cost accounting that, in the short to medium run, the production technology can be characterized as a fixed proportions technology with input functions that can be approximated linearly within relevant ranges by standard quantities. Standard quantities for each input, based on quantities required to produce one unit of actual output (or output capacity), are denoted by:

z_v^t =standard quantity of variable cost input v , for all actual outputs y_m^t , $m=1,2,\dots,M$,

z_f^t =standard quantity of fixed cost input f , given all output capacities k_m^t , $m=1,\dots,M$, for dedicated processes or a common capacity k^t and

q_f^t =standard quantity of fixed cost input f , given standard capacity utilization rate(s) and all actual outputs y_m^t .

For empirical analyses, the standards may be specified, as in standard costing systems, to reflect engineering or managerially determined benchmarks, or defined with respect to an estimated production frontier².

PFTBLT_f factors into four measures:

1. A productivity change ratio (PFTBLT_f), due to changes in the use of variable and fixed cost inputs relative to standards, given actual outputs and capacities,
2. A capacity utilization change ratio (CAPUTL_t), due to changes in deviations between actual outputs and capacities,
3. An output mix change ratio (OUTMIX_t), due to changes in the volumes and mix of actual outputs, and
4. A price recovery change ratio (PRCREC_t), due to changes in output and input prices. The measures are defined as:

$$\frac{\sum_v W_v^t Z_v^t + \sum_f W_f^t Z_f^t}{\sum_v W_v^0 X_v^0 + \sum_f W_f^0 X_f^0}$$

PRDTVT_t = -----(2)

$$\frac{\sum_v W_v^0 Z_v^0 + \sum_f W_f^0 Z_f^0}{\sum_v W_v^0 X_v^0 + \sum_f W_f^0 X_f^0}$$

$$\frac{\sum_v W_v^0 z_v^t + \sum_f W_f^0 q_f^t}{\sum_v W_v^0 Z_v^0 + \sum_f W_f^0 Z_f^0}$$

CAPUTL_t = -----(3)

$$\frac{\sum_v W_v^0 Z_v^0 + \sum_f W_f^0 q_f^0}{\sum_v W_v^0 Z_v^0 + \sum_f W_f^0 Z_f^0}$$

$$\frac{\sum_m P_m^0 y_m^t}{\sum_m P_m^0 y_m^0}$$

OUTMIX_t = -----(4)

$$\frac{\sum_v W_v^0 z_v^t + \sum_f W_f^0 q_f^t}{\sum_v W_v^0 Z_v^0 + \sum_f W_f^0 q_f^0}$$

$$\frac{\sum_m P_m^t y_m^t}{\sum_m P_m^0 y_m^t}$$

PRCREC_t = -----(5)

The ratios are constructed so their values are driven solely by deviations between relevant variables within and between time periods — by either exogenous variables that managers must take into account in making decisions or endogenous variables that managers choose. As a result, their values move in directions that reflect actions managers must take to improve performance.

Theoretical and Empirical Relationships between the Measures, Porter’s Framework, and Operating Choice Variables

In Porter’s framework, to achieve a competitive advantage, a firm/SBU must devise a strategy to defend against, or take advantage of, the structural determinants of the nature and intensity of competition. The levels and time-paths of the ratios reflect outcomes of managers’ efforts to exploit sources of bargaining power over consumers and suppliers and to reduce threats from new entrants and substitutes, as well as the intensity of competition. Emphases on improvements in productivity and capacity utilization, shifts in product mix toward products with lower unit costs, and low price recovery are

consistent with low cost strategies. Less emphasis on productivity and capacity utilization, changes in product mix which may be more costly but serve less price sensitive consumers, and higher price recovery are consistent with differentiation. These relationships are fairly general and should hold for any industry or SBU. Operating choice variables, and their relationships to the ratios, are conceptually similar across industries but often industry-specific in terms of measurement. Within industries, the design of each SBU's products differs, depending upon the SBU's particular customer and market orientation and the configuration and characteristics of each SBU's operations should differ accordingly.

To show how a formal model of the associations between the ratios and operating choice variables could be developed and estimated, regressed the ratios on measures of three operating characteristics (hub concentration, stage length, service quality) and variables to capture the impact of events such as strikes. The coefficient estimates provided estimates of the simultaneous impacts of small changes in the operating choice variables and events on the ratios. Continental entered deregulation as a relatively high-cost, moderate-quality carrier, reducing costs but without much emphasis on exploiting bargaining power over labor, realigning its network into a hub-and-spoke system, or maintaining fare levels.

Applications for Strategic Planning and Control

The values of profit-linked performance measures are driven by variables that managers must take as given when making decisions or variables that reflect actions managers must take to improve performance and they can be systematically linked to constructs and measures involved in business strategies, critical success factors, and product and process design. As a result, the models can be useful for formulating strategies, evaluating realized strategies relative to planned strategies, and evaluating the impacts of related managerial decisions. Managers can use the models to examine the impacts of strategic choices and events on each component dimension of performance, understand the trade-offs involved more clearly, and therefore devise more coherent, internally consistent combinations of strategies and tactics. Once managers have specified and estimated a model for their specific context, they can use it to facilitate strategy formulation and implementation, and to support an on-going, evolutionary process of motivating and monitoring

progress toward strategic goals and objectives and adapting choices in response to feedback obtained (continuous improvement). Prior to choosing new strategies, managers can analyze the time-paths of the component measures and operating choice variables, computed with historical data, in conjunction with information regarding past intended strategies, events, distinctive competencies, and weaknesses, to evaluate the effectiveness of past strategies. They can determine the extent to which they have been achieving a low cost or differentiation strategy (whether explicitly formulated and intended or not), or a combination of the two, and dimensions along which performance has and has not been consistent with those strategies. The model can also be used for simulation and sensitivity analysis, to identify feasible alternative strategies and project the time-paths of the ratios and operating variables required to implement each successfully.

During implementation, managers can monitor the values of the ratios and operating choice variables over time, relative to projected targets or benchmarks, to determine the extent to which they are achieving their objectives. The measures can be employed in responsibility accounting systems, to orient performance measurement and evaluation around achieving critical success factors and strategic objectives and to motivate and reinforce behavior on the part of managers which is congruent with strategic goals. Since the ratios' values are mathematically related and anchored around one (1), the measures can be used to compare the performance of SBUs particularly to evaluate SBUs that perform similar functions or pursue common strategies (for example, a subset of SBUs engaged in manufacturing and pursuing low cost strategies or a subset pursuing differentiation strategies in related niche markets).

Cross-sectional, time-series analyses (between firms within given industries) of U.S. airlines and telecommunications firms and Spanish banks, in the context of deregulation, have yielded intuitively appealing and logically consistent substantive results. Similar analyses could be conducted for SBUs within a given firm. If the SBUs share a common production technology, the input standards could be defined according to best practice. Responsibility for aggregate measures can be assigned to SBU managers with responsibility for implementing and revising strategy, for monitoring and explaining actual results relative to the intended strategy. Responsibility for component measures can be assigned to individuals

and teams who are responsible for improving the relevant dimensions of performance and making and explaining changes in particular product and process design variables. For example, PRDVT is a weighted average of measures of changes in partial productivity (productivity by input as opposed to total factor productivity). Therefore, responsibility for individual partial productivity measures can be assigned to the relevant supervisors or plant teams. PRCREC can be expressed as a weighted average of changes in price recovery by product, so responsibility for changes by product can be assigned to product line managers and evaluated with respect to the strategy selected for each product (low cost leadership or differentiation).

Conclusion

The design and use of strategic cost management systems are oriented around the application of three basic tools: cost and revenue driver analysis, value chain analysis, and strategic positioning analysis. Important developments during the past two decades include activity-based costing and management, target costing, life-cycle costing, customer profitability and value analysis, and models for measuring and managing quality, environmental and capacity costs. These systems are designed to provide managers with relevant, accurate and timely information, by highlighting previously hidden costs, related nonfinancial data and inherent trade-offs between cost categories, so managers can identify opportunities for improvement, weigh trade-offs, set priorities, and take actions to reduce costs and increase revenues which are consistent with intended strategies. Profit-linked models can be refined in many ways to make them more useful for strategic cost management.

References

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