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On the Measurement of Business Performance in  
Strategy Research: A Comparison of Approaches

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Strategy Research: A Comparison of Approaches

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Abstract

Based on the conceptualization of business performance (in financial and/or operational terms), and the use of two commonly used data sources (primary and/or secondary), a classificatory scheme highlighting ten different measurement approaches is developed. The benefits and limitations of each of these approaches are discussed with a view to urge strategy researchers towards (i) adopting a comprehensive conceptualization of performance through the incorporation of both financial and operational criteria; and (ii) collecting data from multiple data sources to enhance the quality of operationalization. Additionally, key methodological issues in relation to each approach are noted.



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'Performance'--being a central theme for both normative and descriptive research in strategic management--is of interest to both academic scholars and practitioners. While prescriptions for improving and managing organizational performance are widely available (see, for instance Nash, 1983), the academic community has been preoccupied with discussions and debates around issues of terminology, levels of analysis (i.e., individual, work-unit, and business, as a whole), and conceptual bases for assessment of performance. Organizational effectiveness, which is a concept broader than organizational performance, has been a subject of extensive writing (see especially Campbell, 1977; Connolly, Conlon & Deutsch, 1980; Goodman & Pennings, 1977; Hannan, Freeman & Meyer, 1976; Kirchoff, 1977; Steers, 1975; 1977). With the volume of literature on this topic continually increasing, there appears to be little hope of reaching any agreement on basic terminology, and definitions. As Kanter and Brinkerhoff noted, "Some leading scholars have expressed impatience with the very concept of 'organizational effectiveness,' urging researchers to turn their attention to more fruitful fields" (1981; p. 321).

The option to move away from defining "effectiveness" or "performance" is not a real one for strategy researchers. Hence, it is necessary that we continue to direct our attention to this topic so that we can move towards arriving at some consensus. However, the purpose of this paper is not to suggest alternative ways of defining this fuzzy concept nor to discuss conceptual issues underlying organizational performance (interested readers are directed to a recent discussion by Ford & Schellenberg, 1982). Instead, the focus is on the measurement of

performance once the conceptual definition has been decided upon by the researcher.

More specifically, the aim is to provide a classificatory scheme to enable strategy researchers to compare and contrast the different approaches to the measurement of business performance, prior to choosing a particular measurement approach. In addition, salient methodological issues relevant to each measurement approach are highlighted.

Our perspective here is not a multi-disciplinary one, but is restricted to the concerns of the strategic management discipline. Since organizational performance is a complex topic, a multi-disciplinary perspective is unlikely to move the discussion on measurement beyond highlighting the fundamental differences in terminology and assumptions existing among the various disciplines. We acknowledge, as Hofer (1983) noted that "...it seems clear that different fields of study will and should use different measures of organizational performance because of the differences in their research questions." (For a comprehensive discussion on the 'determinants' of organizational performance from a multi-disciplinary perspective, readers are directed to Lenz, 1981.)

We use the term 'business performance' deliberately to underscore the perspective of the strategic management discipline and to distinguish it from broader notions of 'organizational performance'--which has been conceptualized using many differing perspectives such as the goal approach (Etzioni, 1964), the systems resource approach (Yuchtman & Seashore, 1967) and the process approach (Steers, 1977).

Consequently, this paper focuses on the measurement of business performance in strategic management research with a view to comparing and contrasting the different available approaches. It is intended to complement recent discussions on the operationalization of key strategic management concepts such as organizational strategy (Ginsberg, 1984; Snow & Hambrick, 1980), business-level strategies (Hambrick, 1980), diversification patterns (Pitts & Hopkins, 1982) and organizational slack (Bourgeois, 1981).

#### Alternate Approaches for the Measurement of Business Performance

Most conceptualizations of business performance have generally tended to focus on financial performance indicators such as sales level, sales growth, profitability and stock price. This is in line with a prevalent view that business strategies are aimed at enhancing the economic value of the firm (or, business). However, there are increasing concerns that operational performance indicators such as market share position, new product introduction, product quality, operating efficiency, societal welfare, etc. should also be considered to broaden the concept of business performance.

On the other hand, sources of data on these characteristics of business performance have either been primary (e.g., data collected directly from organizations) or secondary (e.g., data from publically available records). Using the conceptualization of business performance and data sources as two basic, but different dimensions of the overall process of business performance measurement, a four-celled classificatory scheme (shown in Figure 1) is developed.

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INSERT FIGURE 1 ABOUT HERE  
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Figure 1 presents four "within cell" approaches (numbered 1 through 4) and six "across cell" approaches--covering two adjacent cells (labeled A through F). These together represent ten basic alternate approaches available for measuring business performance. Measurement approaches encompassing more than two cells can be depicted as combinations of these basic approaches and are not treated separately. These measurement approaches are briefly discussed below under two general headings--'within-cell' and 'across-cell' approaches.

#### Within-Cell Approaches

As Figure 1 indicates, four of the ten approaches are restricted to operationalizations within a particular cell. For example, in Cell 1, the operationalizing scheme for business performance entails collecting only financial performance data from secondary sources (e.g., Beard & Dess, 1981; Rumelt, 1974), while in Cell 2, the focus is on eliciting financial data directly from target organizations (e.g., ROI in PIMS-based studies). In Cells 3 and 4, the focus is on operational indicators collected from secondary sources (e.g., market share data in Schendel & Patton, 1978) and primary sources (e.g., data on market share positions in PIMS-based studies) respectively. It is readily apparent that these four approaches have a limited and narrow perspective on the concept of business performance. Hence, it is encouraging to note that only a few attempts at operationalizing business performance in strategy research have been restricted to these "within cell" approaches.

### Across-Cell Approaches

The other six approaches for measuring business performance (which cut across two adjoining cells of the matrix) represent significant improvements in the degree and quality of operationalization. For example, the approach represented as (A) has a marked measurement focus, since it attempts to check for the degree of consistency in the operationalization between two different data sources. Viewing the different sources of data as distinct 'methods' within Campbell and Fiske's (1959) Multi-Trait-Multi-Method (MTMM) framework, convergent validity requirements of measurement can be addressed.

Convergent validity, when assessed by employing two 'maximally different methods' (such as the two data sources depicted in Figure 1), enhances the quality of operationalization, especially since there is a widespread belief that managers, in general, are likely to overrate their performance. An illustration of the use of this approach (A) can be seen in a study by Venkatraman and Ramanujam (1985a). Data on three performance indicators--sales growth, profit growth, and ROI--collected from two different data sources--primary assessments by executives, and published data--were found to be significantly correlated, thus providing support for the convergent validity of measures.

In contrast, the approach represented as (B) in Figure 1 reflects theoretical considerations in the sense of attempting to operationalize an enlarged conceptualization of business performance by collecting data on both financial and operational criteria from secondary sources. An illustration of this measurement approach (B) can be seen in Schendel and Patton's (1978) development of a simultaneous-equation model of

corporate strategy focusing on multiple performance criteria such as return on equity (ROE), market share, and efficiency. Financial measures (i.e., ROE) and operational measures (i.e., market share and efficiency) were assembled from the COMPUSTAT data base, which is a widely-used secondary data source for strategy research (see Glueck & Willis, 1979), and other secondary data sources on the brewing industry.

The measurement approach labeled (C) is analogous to (A) except that the focus is on operational indicators rather than financial indicators, with the aim of assessing the degree of method-convergence. However, a review of various operationalizations of performance in strategic management research indicates that researchers have not yet adopted such an approach. Although the required analytical procedure is the same as one adopted by Venkatraman and Ramanujam (1985a) in scheme (A), the task of obtaining secondary data on operational indicators like market share, which are largely free of aggregation biases and definitional problems, is an uphill one.

The measurement approach denoted as (D) is similar to (B), with a focus on both financial and operational indicators, but with data obtained from primary sources. Bourgeois' (1980) study and Gupta and Govindarajan's (1984) study, which collected perceptual primary data on both financial and operational indicators of performance and the broader conceptualization of performance in the PIMS data base (see Woo & Willard, 1983) are illustrations of this approach.

The measurement approach termed (E) calls for collecting data on financial indicators from secondary sources and on operational indicators from primary sources. Such an approach is appropriate when a

broader conceptualization of business performance is needed for addressing the specific research questions, but data on financial performance may not be forthcoming from primary sources due to reasons of confidentiality, sensitivity, etc. On the other hand, measurement approach (F), the converse of (E), which calls for financial data from primary sources and operational data from secondary sources, although conceptually a feasible one, is unlikely to be employed. This is mainly because if financial data are forthcoming from primary sources, it is also likely that operational data could be obtained from the same source than look elsewhere and be concerned with issues such as compatibility, level of analysis, etc.

#### A Comparison of Alternative Approaches

A classificatory scheme such as the one presented in Figure 1 is only partially useful, unless it serves as the basis to compare and contrast the different measurement approaches as also develop a set of recommendations to assist strategy researchers in the process of operationalizing business performance. Towards this end, a summary of key benefits and limitations of the ten measurement approaches developed in the previous section is provided in Table 1. Additionally, it lists key methodological issues and illustrative studies adopting these measurement approaches.

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INSERT TABLE 1 ABOUT HERE  
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An analysis of Table 1 further highlights that the four "within-cell" approaches are limited either in terms of their coverage

of the domain (i.e., financial indicators or operational indicators) or in terms of the use of a single data source (i.e., primary or secondary). The limitations of these approaches become apparent when they are compared with the "across-cell" approaches to measuring business performance. Consequently, one of these approaches is to be considered only if none of the "across-cell" approaches can be adopted.

Stated differently, the "across-cell" approaches--labeled, (A) through (E) [omitting (F) for reasons indicated earlier]--should be first considered. Table 1 highlights that approaches (A) and (C) have the benefits of providing a systematic basis to assess "method convergence" using different data sources, while approaches (B) and (D) seek to enlarge the conceptualization of business performance within the context of one type of data source. Key methodological issues arising in the context of using one of these "across-cell" approaches are highlighted below, while Table 1 lists additional issues.

#### Use of Different Data Sources through (A) or (C)

The use of different data sources implies a fundamental motivation to examine the degree of convergence between data from alternate sources. A key data-analytic issue, then, is: How does one examine the degree of convergence? The most popular approach is to examine the magnitude and the level of statistical significance of association (i.e., correlation) between the two sets of data. Such an approach underlies Campbell and Fiske's (1959) criterion for convergent validity in the MTMM matrix, viz., that the correlation (i.e., validity) coefficients should be "sufficiently large" and statistically different from zero.



An analysis of the degree of association between two measures, while providing an indication of the degree to which the two measures covary, does not address the issue of substitutability or interchangeability of measures. This is important since researchers examining convergence between measures to assess the quality of their operationalization may elect to use one or the other, but not necessarily both, when subsequently examining theoretical relationships. Consequently, evaluating the equivalence of different operationalizations emerges as a key issue.

The interchangeability of alternate measures can be assessed in at least two ways. One calls for checking whether the two measures are not only correlated but also proportional to each other. A positive correlation between the two measures is a necessary but not a sufficient condition for the interchangeability of measures. Smyth, Boyes, and Peseau in their study employing alternate measures of firm size note "that irrespective of whether alternative measures of firm size are perfectly correlated in their actual values or in their logarithms the measures may only be interchanged under the restrictive condition that the measures are proportional to each other" (1975; p. 7, emphasis added).

The other method calls for employing the two measures as alternate operationalizations within the same measurement model. By evaluating the measurement model with the restricted condition of equivalence of measures and comparing it with an unrestricted model, the appropriateness of the equivalence criterion can be ascertained (see Venkatraman

& Ramanujam, 1985b for an empirical evaluation of the equivalence of Likert-type and Guttman-type scales in strategic planning research).

If the interchangeability condition is not satisfied, the researcher is faced with the task of deciding between the alternative operationalizations. While one could base the decision on researchers' gut-feel and intuition about the data quality, a more systematic approach is to examine the level of measurement error in the different operationalizations. This can be analyzed using structural equation models (see Joreskog & Sorbum, 1979 for an overview of this approach and Bagozzi, 1980 for illustrations of comparing levels of measurement error in different operationalizations). An illustration which is more relevant to the present discussion using the same methodology can be seen in Venkatraman and Ramanujam (1985a)--where the relative superiority of data from one source over corresponding data from the other source was systematically evaluated for different dimensions of business economic performance.

But, what can be inferred if convergence between different operationalizations is not observed? Does it imply that the obtained data on performance is "inferior" or does it reflect differences in other aspects such as the definition of performance or the level of aggregation? Researchers can pursue at least two different courses at this stage. One is a methodological option of decomposing the variance in measurement into trait, method, and random error components (Joreskog & Sorbum, 1979). This aids in identifying if systematic biases due to method differences contribute to the lack of convergence. The other option is a conceptual one, which attempts to see if definitional

differences or aggregation problems could have contributed to the observed result. By pursuing both options simultaneously, significant improvements can be made for subsequent efforts at business performance measurement. Other significant methodological issues in the context of employing these two approaches, viz., (A) or (C) are noted in Table 1.

Use of a Broader Conceptualization of  
Business Performance Through (B) or (D)

The adoption of measurement approach (B) or (D) reflects a need to conceptualize business performance in terms broader than economic performance. Here, the key issue relates to the dimensionality of the business performance construct. Researchers, recognizing the complexity of business performance have generally conceptualized it in multi-dimensional terms. But, in research settings, the operationalizations of business performance have largely tended to be uni-dimensional.

When measurement approach (B) or (D) is adopted, it is necessary to be particularly sensitive to the issue of dimensionality of business performance. This is mainly because a uni-dimensional composite of a multi-dimensional concept such as business performance tends to mask the underlying relationships among the different subdimensions. More specifically, strategy researchers' attention need not be repeatedly drawn to the conflicting nature of performance dimensions such as long-term growth and short-term profitability, and the associated problems of combining them into one composite dimension of performance. Schendel and Patton (1978) highlight the need to make differential resource allocations depending upon the desired performance criterion, viz.,

ROE, market share, or efficiency, while Kirchoff and Kirchoff (1980) provide an empirical illustration of the dilemma of pursuing differential (and sometimes, conflicting) strategies to achieve long-term and short-term performance criteria.

The dimensionality issue is more formally addressed in a recent study by Woo and Willard (1983) through a factor-analytic framework and using performance data from the PIMS program. An analysis of 14 indicators, which cover both financial and operational facets of business performance, yielded four primary dimensions--(i) profitability/cash flow; (ii) relative market position; (iii) change in profitability and cash flow; and (iv) revenue growth. While Woo and Willard's (1983) study established the multi-dimensional nature of business performance when conceptualized using financial and operational indicators, Venkatraman and Ramanujam (1985a) reported that even within the domain of financial performance, indicators such as sales growth, net income growth, and ROI should not be combined to form one composite dimension.

The implication of the above discussion is that researchers should seek to collect data on business performance either using an a priori classification which recognizes the dimensionality issue or explicitly test the dimensionality of their conceptualization of business performance. This is especially critical in view of the enlarged domain of business performance envisaged when including both financial and operational aspects of business performance through approaches (B) or (D). Other methodological issues to be considered in using these two approaches are noted in Table 1.

### Discussion and Suggestions

If strategic management discipline is to make significant advances, a key issue pertains to how "success" or "performance" is conceptualized and measured in research studies. The development of both descriptive and normative theories of strategy (focused on both content and process issues) must be firmly rooted in explaining differences in performance. Towards this end, this paper has developed a classificatory scheme to highlight major approaches for measuring business performance. Irrespective of whether business performance is conceptualized broadly or narrowly, at the corporate-level or at the business-level, in absolute or relative terms the available measurement approaches can be described using two distinguishing characteristics, viz., (i) whether the concept's domain includes either or both of the financial and operational criteria, and (ii) whether the data are obtained from either or both sources--i.e., primary and secondary. Additionally, in discussing the benefits and limitations of the alternative approaches (summarized in Table 1), key methodological issues were noted.

Suggestions for future attempts at operationalizing business performance can be grouped into three categories. First, operationalizing business performance exclusively based on financial or operational indicators using data collected from a single source should be avoided to the extent possible. However, in cases where the use of one of the "across cell" approaches is not possible, attention to some of the methodological issues listed in Table 1 could enhance the quality of operationalization. Second, when "across cell" approaches are adopted, some attention should be directed towards understanding the

reasons for non-convergence (if observed) with a view to refining the concept for subsequent use. Such an orientation will provide a cumulative perspective and serve towards improving the quality of our operationalizations of business performance. Third, (and perhaps an ideal one), multiple combinations of "across cell" approaches should be adopted. While this may appear to be too "idealistic" in the context of a single research study, where operationalizing business performance may be only a small part of the research scope, it is not inconceivable to adopt this approach when research studies attempt to build upon and extend prior work within a particular stream.

#### Summary

Although problems of a conceptual nature continue to underly much of the discussions on organizational performance, its use as a key construct in strategy research studies has not been on the decline. Strategic management researchers, in their quest for establishing performance implications of strategic behavior of businesses, continue to measure business performance using a wide array of operationalizing schemes. Since systematic approaches to measurement generally lead to superior operationalizations, this paper sought to classify and also highlight the advantages and limitations of these different measurement approaches. Based on this classification some suggestions were offered for adopting "preferred approaches" for the measurement of business performance.

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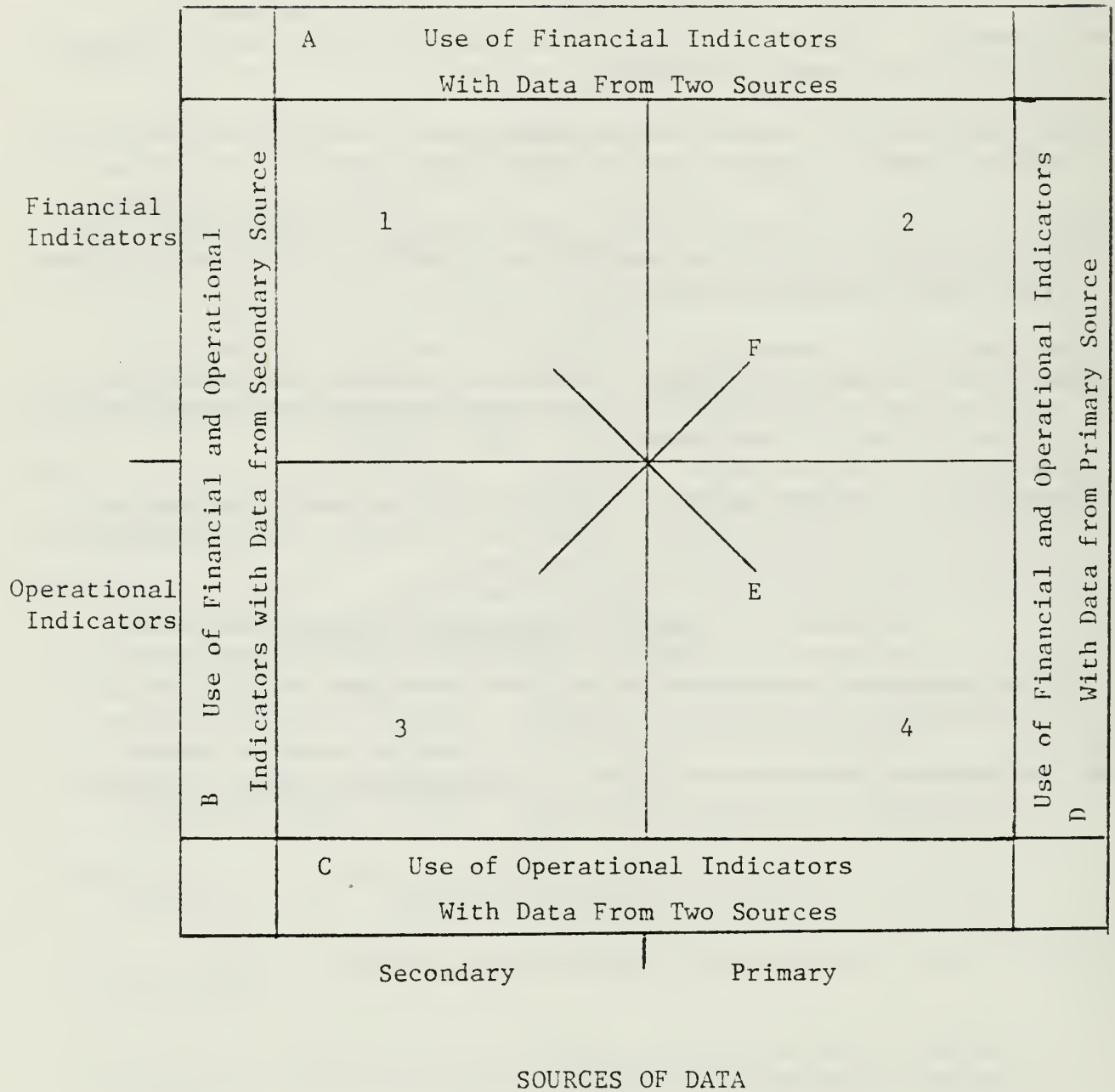
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FIGURE 1

A Scheme for Classifying Alternate Approaches for Measuring Business Performance



Note:

- E - Use of financial data from secondary sources and operational data from primary sources
- F - Use of operational data from secondary sources and financial data from primary sources

TABLE 1

BENEFITS AND LIMITATIONS OF ALTERNATIVE APPROACHES FOR MEASURING BUSINESS PERFORMANCE

CATEGORY	LABEL	DESCRIPTION	BENEFITS	LIMITATIONS	KEY METHODOLOGICAL CONSIDERATIONS WHEN USING THIS APPROACH	ILLUSTRATIVE STUDIES REFERENCE
Approaches to Performance Measurement (Refer Figure 1) "Within Cell"	1	Financial data from secondary sources	<p>(a) Provides data on financial aspects, which may not be otherwise available;</p> <p>(b) Can be used especially in single/dominant business type sample, and in "within-industry" studies.</p> <p>(c) Possibility of employing stock-market indicators of performance.</p>	<p>(a) Differences in accounting policies may limit its use for comparison purposes (unless stock-market indicators are adopted)</p> <p>(b) Cannot be meaningfully used at SBU level due to 'aggregation' problems.</p>	<p>(a) Examine the feasibility of using stock-market indicators as well as the measure of return on value added (ROVA) in view of its 'invariance' across industrial contexts, as noted by Hofer (1983)</p> <p>(b) Use Industry-relative performance when multiple industries are included in the sample.</p> <p>(c) Assess differences in accounting policies when feasible.</p>	<p>Rumelt (1974)</p> <p>Montgomery and Singh (1984)</p> <p>Bettis &amp; Hall (1983)</p>
	2	Financial data from primary sources	<p>(a) Provides self-reported financial data with less problems of external interpretation and aggregation of data;</p> <p>(b) Can be used at both corporate and SBU level of analysis.</p>	<p>(a) Data is likely to be biased;<sup>1</sup></p> <p>(b) Complete data may not be available due to confidentiality reasons.</p>	<p>(a) Choose target respondents based on specific criteria (position, function, etc.)</p> <p>(b) Use multiple respondents to examine the extent of systematic bias as well as minimize measurement error.</p>	<p>Dess &amp; Robinson (1984)</p> <p>(PIMS-based studies' use of ROI<sup>2</sup> measure)</p>

1 Although in an isolated study (Venkatraman & Ramanujam, 1985a), positive and statistically significant association between perceptual (primary) and secondary data on three performance indices were observed, the possibility of bias cannot be completely ruled out, and should be specifically tested in each study.

2. All the PIMS-based strategy studies are not separately listed. For a review see Ramanujam and Venkatraman (1984)

TABLE 1 (continued)

CATEGORY	LABEL	DESCRIPTION	BENEFITS	LIMITATIONS	KEY METHODOLOGICAL CONSIDERATIONS WHEN USING THIS APPROACH	ILLUSTRATIVE STUDIES REFERENCE
Approaches to Performance Measurement "Across Cell"	A	Financial data from <u>both</u> primary and secondary sources	(a) Provides scope for assessing convergent validity to enhance the "quality" of measurement.	(a) Compatible data from two different data sources may not be readily available; (b) Cannot be meaningfully done when research studies are designed at the SBU level due to problems of obtaining secondary data; (c) Operational aspects of performance are not covered.	(a) Check for definitional consistency; (b) Identify reasons for non-convergence, if observed and reconceptualize the concept, if necessary. (c) Examine substitutability/interchange ability of one measure for the other. (d) Use industry referent measures in multi industry studies. (e) Evaluate the feasibility of using stock-market measures or ROVA	Venkatraman and Ramanujan (1985a)
	Approaches "Within Cell"	4	Operational data from primary sources	(a) Provides some basis to include considerations of performance in the research design; (b) Less likely to be influenced by reasons of confidentiality, sensitivity, etc.	(a) Data is likely to be biased; (b) Relationship to financial performance not known.	(a) Choose target respondents based on specific criteria (position, function, etc.) (b) Use multiple respondents to examine the extent of systematic bias as well as minimize measurement error.
(continued)		3	Operational data from secondary sources	(a) Provides performance data when financial data may either be not available or may be inappropriate.	(a) Problems of data availability on various indicators to develop the requisite measures; (b) Some operational data may be industry-specific and may not lend itself to multi industry studies. (c) Relationship to financial performance not known.	(a) Use industry as the reference point for developing measures, (b) Attempt to define concepts such as market-share, efficiency, etc. as consistently as possible across industries.

TABLE 1 (continued)

CATEGORY	LABEL	DESCRIPTION	BENEFITS	LIMITATIONS	KEY METHODOLOGICAL CONSIDERATIONS WHEN USING THIS APPROACH	ILLUSTRATIVE STUDIES REFERENCE
Approaches to Performance Measurement (continued)	B	Business performance viewed in terms of both financial and operational indicators, with data from secondary sources	<p>(a) Provides a more comprehensive operationalization of business performance;</p> <p>(b) Enables one to examine the relationship between financial and operational aspects of performance.</p>	<p>(a) Inability to validate operationalizations across different data sources;</p> <p>(b) Cannot be meaningfully used at an SBU level of analysis.</p>	<p>(a) Define financial and operational indicators in industry-relative terms;</p> <p>(b) Assess differences in accounting policies;</p> <p>(c) Address the dimensionality issue both theoretically and empirically.</p>	Schendel and Patton (1978)
	C	Operational data from both primary and secondary sources	<p>(a) Provides scope for assessing convergent validity of operationalization using two different methods;</p>	<p>(a) Data availability may prove to be a key limitation;</p> <p>(b) Financial aspects of performance are not considered, and the relationships between financial and operational indicators are not known.</p>	<p>(a) Check for definitional consistency;</p> <p>(b) Identify reasons for non-convergence, if observed; and</p> <p>(c) Examine substitutability/interchangeability of operationalizations.</p>	
"Across Cell"	D	Business performance viewed in terms of both financial and operational indicators, with data from primary sources	<p>(a) Provides a more comprehensive operationalization of business performance;</p> <p>(b) Enables one to examine the relationship between financial and operational aspects of performance also</p> <p>(c) Can also be adopted at the SBU level;</p>	<p>(a) Inability to validate operationalizations across different data sources;</p>	<p>(a) Choose target respondents based on specific criteria;</p> <p>(b) Define indicators in industry-relative terms;</p> <p>(c) Address the dimensionality issue both theoretically and empirically</p> <p>(d) Use multiple respondents to examine systematic bias due to position, level, etc., as well as minimize measurement error.</p>	<p>Burgeois (1980)</p> <p>Gupta and Govindarajon (1984)</p> <p>Woo and Willard (1984)</p>

TABLE 1 (continued)

CATEGORY	LABEL	DESCRIPTION	BENEFITS	LIMITATIONS	KEY METHODOLOGICAL CONSIDERATIONS	ILLUSTRATIVE STUDIES REFERENCE
Approaches to Performance Management (continued)	E	Financial data from secondary sources and operational data from primary sources.	(a) Provides a scheme to enlarge the conceptualization of business performance, when financial data may not be forthcoming due to reasons of confidentiality	(a) Limited use at an SBU-level of analysis;	(a) Address the dimensionality issue both theoretically and empirically	
	F	Operational data from secondary sources and financial data from primary sources.	Unlikely option since if financial data are available through primary sources, it is equally likely that operational data may also be available from the same sources.			



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