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RESEARCH ARTICLE

Procurement of IT Consulting Services and Firm-Specific Characteristics [1]

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Abstract

Information technology investments and the management consulting industry witnessed unprecedented growth in the last decade. This led to regulators' (SEC and Congress) allegations that consulting services that are provided by incumbent auditors may be disguised extra payments to auditors for favorable financial reporting. However, there may be alternative valid reasons for procurement of consulting. Under new legislation (proclaimed in the aftermath of spectacular failures like Enron and Worldcom), publicly traded corporations that engage professional services firms to provide both audit services and consulting services must now disclose the extent and nature of these services. Using the data made available by these new mandated disclosures and using

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the theoretical backdrop of the resource-based view (RBV), this paper examines whether investments by firms in consulting services follow predictable patterns driven by economic factors. Thus, rather than examine whether IT consulting has any ex-post value or whether procurement of consulting impairs auditor independence, this study focuses on whether investments, ex-ante, follow logical patterns consistent with microeconomic principles. Our analysis shows that procurement of IT and management consulting is consistent with the resource-based view –companies seek to develop organizational capabilities they lack as dictated by their strategic business need. In contrast to the narrow "IT Doesn't Matter" view, it can be argued that even in the current environment of IT outsourcing, firms must carefully match their IT capability (in-house or outsourced) with organizational strategy and capability to develop unique and inimitable resources as put forth by RBV. We find that companies are indeed investing consistent with fundamental tenets of financial value analysis and based on market expectations of performance. More specifically, after controlling for pressure to perform and cash availability, low margin and low turnover companies spend more on consulting services. Low-margin strategy companies expend more on consulting when their asset turnover is also low, while low-turnover strategy companies expend more on consulting when their earnings margin is also low.

Keywords: Resource-based view, Sustainable competitive advantage, Sustainable growth rate, IT consulting, Firm performance

Introduction

The last decade ushered in an era of rapid growth in the global consulting services industry. Some estimates show that the worldwide market for management consulting is worth $100 billion, having grown from less than $10 billion only a decade ago (Management Consultancies Association website, www.mca.org.uk). Other reports suggest management consulting is expected to top $125 billion by the end of 2005 (*BusinessWeek*, 2004). In addition, worldwide information technology (IT) spending (not just consulting) reached $965 billion in 2004 and is expected to increase at a compound annual growth rate of 6% from 2004 through 2008 to $1.2 trillion. In the U.S. alone, IT spending was expected to reach $416 billion by 2005 year-end (IDC Analysts, 2005). As investments in management consulting and IT have increased, so also have the number of research studies examining if and under what conditions these IT and consulting investments yield positive returns. IT and management consulting expenditures are different from IT investments in building hardware and software infrastructure. Consulting is meant to identify and build unique and non-imitable resources that enable firms to become competitive and sustain this edge, consistent with Barney (1991) and the *resource-based view* (RBV) discussed in the following paragraphs. While investment phenomena of such sustained magnitude (over a decade) invite inquiry, research to date has been held back by a lack of data sources containing all the desired (relevant) variables. As a result, the research that has been done has often arrived at inconsistent results (see Anderson et al., 2005 for an excellent review of this stream of research).

Such mixed and non-definitive findings should not be surprising for at least two reasons. First, whether investments in management consulting services yield substantial positive returns is conditioned on many environmental factors. Given that it has been difficult to establish a direct link between productivity and IT, a link between productivity and

consulting is even more tenuous, because such consulting is meant to build a set of IT-related capabilities that can deliver superior performance thus making it a multi-step linkage. Exacerbating the challenge, there is widespread disagreement regarding what are appropriate proxies for measuring productivity or other relevant economic factors. Second, there is a dearth of publicly available information that allows measurement of many of the factors that are believed to be potentially relevant. This is because companies were heretofore not required to disclose payments made to management consultants separately in their public documents (such as SEC 10K filings and annual reports). In the face of limited information, researchers have resorted to other methods such as surveys of organizations, their employees, and other observable proxies (Wright and Kittay, 2002; Wooldridge, 1997; Redman and Allen, 1993). These are precisely the ingredients for diverse research findings that do not easily articulate. Thus, while a rational market hypothesis would posit positive returns for these huge and sustained investments, empirical research has failed to definitively document this, in spite of which we have seen continuing procurement of such services by firms.

Carr (2003) contributes significantly to the discussion of IT, its performance impacts, and its non-relevance in creating competitive advantage. His article "IT Doesn't Matter," asserts that IT is a commodity that does not offer a competitive distinction; therefore it does not provide a competitive advantage and has lost its strategic value (Strassman, 2003). In making such statements, he concludes: (1) IT is ubiquitous and not scarce; and (2) it is easily replicable (often at lower prices due to rapid price deflation). In fact, Carr (2003) states:

> "What makes a resource truly strategic – what gives it the capacity to be the basis for a sustained competitive advantage – is not ubiquity but scarcity. You can gain an edge over rivals by having or doing something they can't have or do."

In our study, we show empirically that procurement of IT and management consulting is need-based, dictated by economic imperatives and consistent with extant theory in management of information systems, namely, the resource-based view of the firm (Barney, 1991). Ironically, RBV is the same theory Carr uses to argue that IT investments lack the characteristics of a "unique" resource and thus lack strategic value.

Carr's argument bears a striking similarity to RBV, which states that above-normal returns accrue to firms that have valuable, rare, inimitable, non-substitutable resources and capabilities (Barney, 1991). Naturally, this viewpoint has come under fierce criticism by many scholars in the information technology and information systems fields. The strategic and competitive advantage embedded in IT is realized only if it is deployed intelligently and innovatively to solve business problems and "create customer value at high speed, low cost and the right scale" (Broadbent, McDonald and Hunter, 2003). Skaistis (2003) echoes the same view and states that to make IT matter, firms must use IT to optimize and streamline critical business processes. Lewis (2003) states that "strategic advantage comes from how we apply IT – that is how well IT fits with our corporate strategy and business models." Obviously, their conclusions regarding the strategic relevance of IT are at odds with Carr. The difference between Carr and the others mentioned above is that Carr regards IT as mere "capital investment" in hardware and software (a narrow and restrictive definition), while the others view IT as a "capital plus business process" investment that encompasses how IT is deployed in the organization.

Whether or not IT and consulting services lead to superior performance, the fact is that procurement of IT and consulting services has increased dramatically in recent years. Why have firms increasingly invested in IT and consulting services especially in light of Carr's assertions and the contradictory findings of prior research? Specifically, is this increase in the procurement of IT consulting consistent with extant management theories? While prior research has primarily focused on whether investment in IT and/or consulting results in performance improvement, we provide evidence that consulting expenditures may be a consequence of firm performance. While we derive our hypotheses based on RBV, we will discuss how the procurement of such services is consistent with *sustainable competitive advantage* (SCA) (Porter, 1985; Coyne, 1986).

In this paper, we argue that the *sustainable growth rate* model (SGR) embodies the essence of RBV. Consequently the elements of SGR can be used to ascertain whether a company possesses the necessary organizational capabilities that align with its strategy. Given the existence or lack of valuable organizational capabilities, we are then able to make predictions derived from RBV, and we show that companies' investments in auditor-consultants are consistent with fundamental tenets of financial value analysis (using the sustainable growth model) and based on market expectations of performance. With regard to what factors lead some firms to buy more (or less) consulting services, we find that companies that under-perform in selected strategic areas spend more on consulting services. [2] This serves as an alternative explanation to regulators' (SEC and Congress) allegations that consulting services that are provided by incumbent auditors may be disguised extra payments to auditors for favorable financial reporting.

The contribution of this paper to the IS/IT literature is two-fold. First, we show that by moving away from a narrow view of IT to a broader definition that includes how IT is deployed in an organization (which requires the support of IT/management consultants), procurement of such consulting is consistent with the expectation that IT has strategic value. This finding is important to counter the increasingly popular belief set forth by Carr (2003) that IT lacks strategic value. Second, from a theoretical perspective, we contribute to RBV by testing its empirical content. This is particularly important in light of ongoing discussion of whether RBV can rise to the level of a theory (Priem and Butler, 2001a, 2001b; Barney, 2001). In their criticism of RBV, Priem and Butler (2001a), note that for RBV to be accepted as a theory, it needs to have empirical content. Barney (2001) welcomes the suggestion and notes that one way of providing empirical content to RBV is to derive empirically testable results from the theory. We have done precisely that in this paper, albeit differently from RBV-based empirical studies that link IT capability to firm performance (Santhanam and Hartono, 2003; Bharadwaj, 2000).

Our paper is also consistent with observed patterns in IT spending. As companies increasingly outsource IT functions such as network infrastructure, data center activities, and even software development (Feld and Stoddard, 2004, Gartner Research, 2006), [3]

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[2] Note that this study does not examine whether performance and consulting are simultaneously determined or whether performance improvements lag implementation of consultants' recommendations. Instead we focus on determining whether procurement of consulting services is need-based and consistent with fundamental tenets of financial value analysis.

[3] The characteristics of such outsourced applications are: (1) they are web browser enabled, (2) the user organization does not own the application but pays a per user subscription fee, (3) the hardware infrastructure is also not owned by user organization, (4) the application is installed at a

the organizational leadership (i.e., CEO, CIO, CFO etc.) must ensure that different services and components being outsourced are well articulated and correctly integrated under an overarching common framework so as to deliver productivity and value, and hence the required competitive advantage to their firms. As this paper shows, procurement of consulting services to enable such coordination, is consistent with RBV
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The remainder of this paper is organized as follows. In Section 2 we provide a brief discussion of prior research in the areas of RBV, and sustainable growth rate and show how RBV can be employed in the context of procurement of consulting services. We thereby motivate our current study and state what research questions are addressed by our study. Section 3 deals with hypotheses development. Section 4 discusses the data, its collection, and our research method. Section 5 provides the analysis of our data and a discussion of the results. We conclude in Section 6.

Prior Research and Motivation for Current Study

Prior Research

Management Consulting and Information Technology

Over the years, management consulting has had an increasing impact on the modern business organization. While there is no precise definition of what constitutes management consulting, there is a growing consensus that it involves some strategy formulation and implementation, and more recently, information technology management (Wooldridge, 1997). Some of the reasons for the growth of the management consulting industry are (1) increasing uncertainty and complexity in the business environment caused by globalization and deregulation; (2) increasing demand for reengineering business processes; (3) emergence of the credo of focusing on core competency; and most importantly (4) the competition for talent and ideas. The increasing importance of information technology and the hope and frustration of implementing IT has further fueled the growth in the management consulting industry. In recent times, consultants have moved away from the traditional role of just giving advice to actively participating in implementation of ideas and technology.

Indeed, the growth in the provision of consulting services by auditors is striking. In 1990, accounting and audit services accounted for 71% of the revenue from SEC audit clients, consulting services accounted for 12%, and tax services accounted for 17%. In 1999, only 48% of their revenues were from audit services, while consulting services accounted for 52% (Public Oversight Board, 2000). Precise estimates of the IT portion of consulting expenditures are not available; however, there are some estimates that indicate the IT related portion is non-trivial. For instance, based on a sample of 1,200 large, mid-cap, and small-cap companies, the Investor Responsibility Research Center (2002) estimates that financial information systems design and implementation (not including other IT-related consulting) alone accounted for 20% of consulting revenue. The *Wall Street Journal* (2001a, 2001b) reviewed disclosures of 307 (of S&P 500) proxy statements and estimated that in 2000, these companies paid about $900 million in audit

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secure data center or at the vendor's premises, (5) the service provider protects the data/databases, and (6) there are no additional service fees for upgrades.

fees and $2.5 billion in consulting fees, out which about $500 million was financial information systems design and implementation (about 25%). Also note that sharp increases in the consulting revenue of audit firms coincided with increased IT spending by companies (in the 1990s), indicating that much of consulting revenue was derived either through information system design, strategy for IT, implementation, or training.

Obviously, as the IT and management consulting industry has dramatically expanded in recent years, the question that yet remains unanswered is whether the spending is simply the result of a fad, or a "mistaken assumption of IT's potency" as Carr (2003) states; [4] or is the spending consistent with the economic imperatives of creating a competitive advantage – something that can be explained using extant theories in management, specifically RBV? With their intimate knowledge of client operations and industry expertise, audit firms are ideally placed to provide consulting services and help with implementation of IT projects designed to provide the required competitive edge. In the ensuing sections, we view the procurement of IT and management consulting through the RBV lens.

Resource-Based View of the Firm

According to traditional economic theory of the firm, in the normal course of business absent any market imperfections, above average returns will not accrue to any firm in any industry since such returns will be competed away by rivals or by new entrants to the industry. In the normal course of business, no single firm has any competitive advantage. However, empirically one can see that in every industry some firms enjoy above average returns while others suffer below average returns. The RBV offers an explanation for this phenomenon. Heterogeneity among firms (firm-level differences) allows some of them to enjoy above average returns (Barney, 1991, Wernerfelt, 1984, Miller, 2003). In terms of implementing a strategy to achieve above normal returns (i.e., sustained competitive advantage), Barney (1991) offers the following: "A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy." Coyne (1986) expressed a similar view, stating that there must be some difference in the product/delivery attribute of the firm relative to its competitors and its competitors cannot or will not take any action to close the gap. Clearly, RBV theory suggests building "unique"[5] resources for achieving sustainable competitive advantage. [6]

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[4] Because of speculation in some quarters that audit firms' consulting services fees may be a "reward" for favorable audit reports and not genuinely need based (Solomon 2002, National Economic Research Associates 1992), it is interesting to examine whether this speculation is accurate, just as studies of executive compensation were fueled by reports in the business press that stock options were a means of "rewarding" CEOs and others with tax deferred income which was not really performance based (e.g., Anderson et al., 2000). Whether auditors indeed provided favorable audit reports to companies that purchased large amounts of consulting is an issue beset with disagreements. Frankel et al. (2002) find a positive relation between the extent of nonaudit service fees and earnings management, Ashbaugh et al. (2003) dispute their findings. We show that procurement of consulting services is consistent with theory and economic imperatives and do not claim to resolve whether audit quality is compromised as a consequence.

[5] In this case, "unique" is meant to convey the dimensions that Barney (1991) mentions in his article, namely, valuable, rare, inimitable, and non-substitutable.

[6] Note that, in terms of achieving sustained competitive advantage, Coyne (1986) and Barney

But what are these unique, valuable resources? By definition, valuable resources are hard to find. Solutions that lead to "economizing" such as enterprise systems, technology, downsizing, etc. are not considered to have any competitive value because they are available to everyone in the industry (Porter, 1996). In fact, Carr (2003), by defining "information technology" as hardware and software, effectively argued that IT cannot create competitive advantage because hardware and software are ubiquitous and easily replicable. However, proprietary processes, subtle skills, and specific organizational competencies aligned with product market strategies may be considered to be valuable resources (Barney, 1991, Collis, 1991, Miller and Shamsie, 1996). Indeed, most research that followed the initial RBV article emphasized the importance of building organizational capabilities (Barney, 1992, Teece et al., 1997, Lado and Wilson, 1994). Barney (1992) defined organizational capabilities as organizational characteristics that "enable an organization to conceive, choose, and implement strategies." A firm makes a choice of a product market and/or financial market strategy and ensures that its resources are cleverly deployed to support its chosen strategy. [7]

Motivation for Current Study

Resource-Based View and Information Technology

According to Barney "RBV emphasizes strategic choice, charging the firm's management with the important task of identifying, developing and deploying key resources to maximize returns." In the RBV world, firms can create sustainable competitive advantage through (1) tangible resources, (2) intangible resources, and (3) organizational capabilities (Grant, 1991; Mata et al., 1995). Organizational capabilities are described as complex combinations of assets, people, and processes that organizations use to transform inputs to outputs. In an IT context, these include deployment of information technology solutions that are aligned with corporate and organization structure and strategy so as to create unique, non-imitable intangible assets that provide sustainable competitive advantage. Thus, firms often employ the services of an expert IT consultant to help exploit IT capabilities to the fullest extent and to create capabilities that they are lacking. So firms' procurement of IT consulting is in line with imperatives of shareholder value creation, and creation of competitive advantage under RBV, a view that is entirely consistent with Carr's arguments.

Shareholder Value Creation and Sustainable Growth Rate

The market value of a firm's stock is determined by its profitability and growth potential (Myers, 1977). The primary measure of profitability is *earnings per share* (EPS). The fundamental consensus market estimate of a firm's growth potential is the *price-to-earnings multiple* or simply the *price multiple*. The product of EPS and price multiple is the *market price per share* of a firm's stock. Corporate management creates shareholder value (and is rewarded for doing so) through strategic initiatives that increase one or

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(1991) emphasize the implementation of a value creating strategy that cannot be imitated by rivals.

[7] Other definitions of organizational capabilities support this notion. For example, organization routines can be considered to be a source of sustained competitive advantage (Barney 1992, Peteraf 1993, Teece et al. 1997, Lado and Wilson 1994).

both of these items (EPS and/or price multiple). The drivers of increased profitability (EPS) and future growth potential (price multiple)[8] are successful implementations of product market and financial market strategies (Palepu et al., 1997). For a definition of terms used in the study, please see Exhibit 1. A firm that demonstrates superior product market and/or financial market performance attracts more resources from the investment community. In a free market system, this is the mechanism that allocates scarce national resources. The drivers of (1) successful product market strategy are superior operations management and superior asset management, and (2) successful financial market strategy are superior debt management and superior equity management.

In a free market economy, firms that have sustained competitive advantage (i.e., companies that deliver sustained above average returns) garner scarce resources from investors. How do financial analysts and investment advisors identify companies that have sustained competitive advantage? They typically focus on the drivers of growth to direct investments. A common measure used by the analysts is the *sustainable growth rate* (SGR). [9] The SGR is the rate at which a firm can grow given its product market and financial market strategies. SGR depends upon the management of four key aspects of the organization, (1) management of operations (measured by earnings margin), (2) management of assets (measured by asset turnover), (3) management of debt (measured by leverage), and (4) management of equity (measured by reinvestment ratio). Much of financial accounting research is based upon the value relevance of accounting and financial statement measures such as the ones described above, [10] using the theoretical backdrop of SGR. Companies can improve the sustainable growth rate only if they improve its underlying components, i.e., net margin, asset turnover, leverage, and earnings retention. A conceptual figure of the sustainable growth rate is provided in Figure 1.

Sustainable Growth Rate and Resource Based View

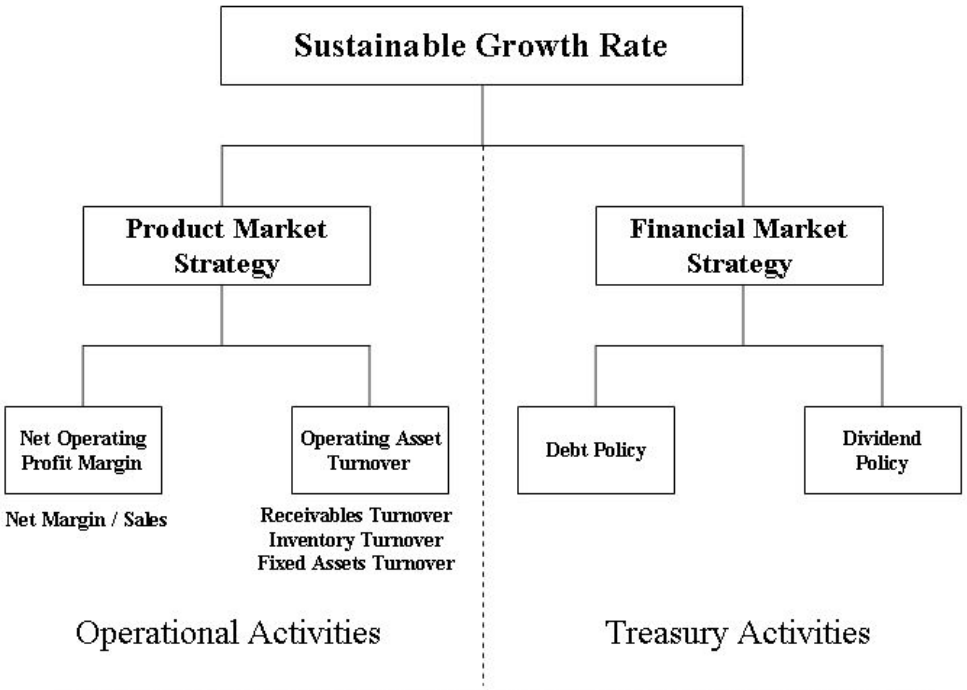
Recall that the sustainable growth rate (as defined above) is a measure of how well a company has implemented its product market and financial market strategies. Companies that have a high sustainable growth rate are those that have been able to conceive, choose and implement strategies. This is precisely what Barney (1992) states as an example of building unique resources (i.e., organizational capabilities) for

[8] Price multiple is also known as the *price-earnings ratio* (P/E ratio) and is defined as the price per share divided by the earnings per share (Penman 2001).

[9] Dolan Capital Management (2000) notes that "… SGR and the base of earnings from which it is measured are very important concepts" and "… use the components of *return on equity* (ROE) that are current such as profit margins, sales/capital spending, and interest coverage ratios to approximate true ROE. These *margin and asset turnover ratios* are the key components of classical ROE". Morningstar observes that "What the sustainable-growth rate shows, then, is a company's potential to deliver the kind of growth that will eventually increase the value of its stock" (Morningstar Course 308, 2000). Thus, it is in a firm's best interest to improve (or maintain) SGR to attract more resources from the investment community.

[10] Nissim and Penman (2001) state that "capital markets research" deals with the "information content" of financial statements for determining stock prices. The "time series-of-earnings" literature (Brown et al. 1995) covers earnings forecasts, often with valuation in mind. Lipe (1986), Ou (1990), Ou and Penman (1989), Lev and Thiagarajan (1993) and Fairfield et al. (1996), have examined the role of financial ratios in forecasting. Booth (1998) states that shareholder value depends upon increasing the productive use of assets by increasing turnover ratios, thereby increasing profit margins and profitability."

achieving sustained competitive advantage under RBV. Indeed, the organizational factors that create unique advantages for a firm—such as operational excellence, customer intimacy, or product leadership (Treacy and Wiersema ,1993) —are the same factors that lead to a superior sustainable growth rate. Therefore, it follows that companies that perform poorly in terms of the underlying components of the sustainable growth rate are lacking in the organizational factors that create a sustainable competitive advantage. According to RBV, in order to succeed, these companies will seek to build such organizational capabilities. One precursor to building unique organizational capabilities is a firm's investment in consulting services procured from auditor-consultants (see Exhibit 2).



Sustainable Growth Rate = Earnings Margin X *Asset Turnover* X *Dividend Payout*

Figure 1: Sustainable Growth Rate

Research Questions

The purpose of this research is to determine if there is a pattern of investment in consulting services that is consistent with the resource-based view of the firm. We do this by examining the drivers of sustained competitive advantage (i.e., increased profitability in terms of EPS and growth potential in terms of market-to-book value of equity) to determine whether investments follow poor performance in multiple strategic areas. The notion here is that companies that lack certain organizational capabilities will seek to build these capabilities by procuring greater amounts of consulting services. Therefore, the question we ask, as suggested by RBV is: Do firms that under-perform in their strategic areas seek significantly greater levels of consulting services than firms that enjoy above average returns? We develop testable hypotheses in the next section.

Hypotheses Development

Only a few firms excel in all areas (e.g., Wal-mart). For most firms, a successful corporate strategy may tradeoff excellence in one area for another. Discount stores (e.g., Office Depot)[11] may follow a strategy of low price (net) margins to gain high inventory and asset turnover. Purveyors of luxury goods, on the other hand (e.g., Tiffany's)[12] emphasize high price (net) margins at the cost of reduced inventory and asset turnover. However, the stock market does not reward firms that have both inferior margins and poor asset turnover. Where this occurs, senior management is under intense pressure to take corrective action. This most likely involves the building of organization capabilities that will enable the organization to "conceive, choose and implement strategies" (Barney 1992) that will result in a high sustainable growth rate. Indeed the pressure on corporate management to report enhanced performance figures has been amplified by the myriad instances of global mergers (to acquire "unique assets" such as proprietary technology, access to markets and customers, etc.) and intensified competition over the last decade. One response to the increased competition has been to invest in IT and other high-tech assets and consulting to be better prepared to compete in the global marketplace. Consistent with RBV, we argue that investment in IT and consulting services signals a commitment to building unique valuable assets that would allow firms to enjoy above average returns. The increased complexity and global nature of many corporate operations have resulted in greater demands being placed on managers to improve the public perceptions of their growth potential, as reflected in their firm's market value.

Consultants are often hired to improve the components of sustainable growth rate (product market strategies, financial market strategies, or both). Firms engage financial consultants and investment bankers, such as Morgan Stanley to implement financial market strategies, while they retain operational and IT consultants (the big audit/consulting firms) to improve operations management practices (product market strategies). Engagement of outside consultants to aid operations management impacts a firm's sustainable growth rate by (1) affecting analysts' perceptions of growth rate, (2) implementation of new technologies that results in improvement of asset turnover, and (3) implementing product development and customer management strategies that result in better earnings margins. Many of these areas of potential improvement relate to the roll-out of new IS such as enterprise resource planning, supply chain management, and customer relationship management applications implemented on networked computing platforms. Note that, for the most part, implementation of product market strategies by external consultants involves creation or matching of these with unique organizational capabilities that are aligned with a chosen strategy.

Since the bulk of consulting fees and IT fees paid to auditors relates to product market strategy implementations primarily involving improvements and advice on operational activities, we focus on the components of SGR comprising this strategy, namely earnings margin and asset turnover. A high margin (for a firm that differentiates its products from the competition) indicates successful implementation, while a low

[11] Office Depot provides an everyday low price guarantee as stated on their Web site at www.officedepot.com/renderStaticPage.do?file=/misc/satisfaction.jsp

[12] Tiffany's focuses on superior customer service, selective growth and protection of its brand image. For details see www.shareholder.com/tiffany/

earnings margin is indicative of shortcomings. Likewise, a high asset turnover for a low-cost producer indicates success, while a low asset turnover for the same needs to be addressed. The main issue addressed in this paper is whether firms acquire consulting services in a fashion consistent with strategic initiatives that increase shareholder value by improving the components of SGR. We posit that, *ceteris paribus*, companies that find themselves deficient in one (or more) of the underlying components of the sustainable growth rate will acquire greater levels of consulting services subject to availability of resources to pay for them.

Framework

Companies can follow different product market strategies: for example, within the department store industry, companies may choose to follow either a low margin/high turnover strategy (such as J.C. Penney) or a high margin/low turnover strategy (such as Nordstrom or Neiman Marcus). Some firms, particularly Wal-mart, excel in all areas (high margin and high turnover) because of their innovative use of IT-based solutions to reduce costs and drive up margins (Kalakota and Whinston, 1996). A few companies, such as Federated Department Stores, perform poorly on both dimensions and may have to choose to improve on at least one dimension. Consultants often provide IT-based solutions that may be targeted toward either margin enhancement or turnover improvement. Therefore, it becomes necessary to discuss strategically relevant groups based on corporate strategy and industry in order to categorize the firms and make fair comparisons.

We envisage four types of companies that represent the 2X2 combination of margin management and asset management. These are high margin/high asset turnover companies (HH type), high margin/low asset turnover (HL type), low margin/high asset turnover (LH type), and low margin/low asset turnover (LL type). Figure 2 depicts these subgroups. We develop hypotheses for these strategically relevant subgroups in addition to the overall hypotheses.

Margin Management	Asset Management: High	Asset Management: Low
High	High Margin High Turnover (HH) *Wal-mart*	High Margin Low Turnover (HL) *Sears, Mays*
Low	Low Margin High Turnover (LH) *J. C. Penney*	Low Margin Low Turnover (LL) *Federated Dept Stores*

Figure 2: Strategically relevant subsamples

Obviously, companies in the HH cell (e.g., Wal-mart) experience the best of times; while companies in the LL cell experience the worst of times. Companies in the HH cell may not feel the same intense need to change current operations or to seek outside help that is felt by firms in the LL cell. Companies in the LL cell are at risk of buyout or bankruptcy.

They are often desperate to obtain outside expertise and help in the form of consulting services, if they have the cash wherewithal. Companies in the HL and LH cells often will be following a tradeoff strategy: for example, trading off net margin for asset turnover and vice-versa. Some firms (e.g., Office Depot or Southwest Airlines) will establish price leadership as their comparative advantage. They accept low net margins as part of their corporate strategy. These firms, therefore, must produce (maintain) high asset turnover figures if they are to be successful (i.e., achieve superior sustainable growth rates). These firms will go to some length to ensure that turnover figures remain strong, including engagement of non-trivial consulting services.

Other firms stress leadership in service or sell only high-priced (or luxury) merchandise (e.g., Tiffany's). They accept low asset turnover as integral to their corporate strategy. These firms, therefore, must produce (maintain) high net margins to drive sustainable growth. These firms will go to some length to ensure that their net margin remains high, including actions to engage in non-trivial consulting services.

Thus, the extent of consulting expenditure depends upon a firm's earnings margin, turnover, ability to pay, and pressure to perform. We show the empirical model and variable definitions in Figure 3 and discuss the theoretical rationale for the hypotheses in the following paragraphs.

Operational Management Hypotheses

Earlier we established that the SGR and its underlying ratios indicate the degree to which a company possesses needed capabilities to compete. A company that enjoys a high earnings margin possesses the capabilities to create and preserve it, compared to a company that does not. Similarly, a company that enjoys a high turnover ratio possesses a strength that is apparently lacking in companies that do not. Clearly, firms that are deficient in either (or both) of these underlying ratios will seek to build capabilities that enable them to compete better with their rivals. Thus, based on the RBV and SGR, companies that have relatively lower earnings margins and lower asset turnover ratios will turn to IT and consulting services to build such capabilities to compete effectively. By doing so, they also seek to boost their operating margin and asset turnover ratios as a precursor to improving market value. By improving operations and asset management, a firm competes more effectively for capital resources in the stock and bond markets. Thus, our first two hypotheses relevant to *all* companies are:

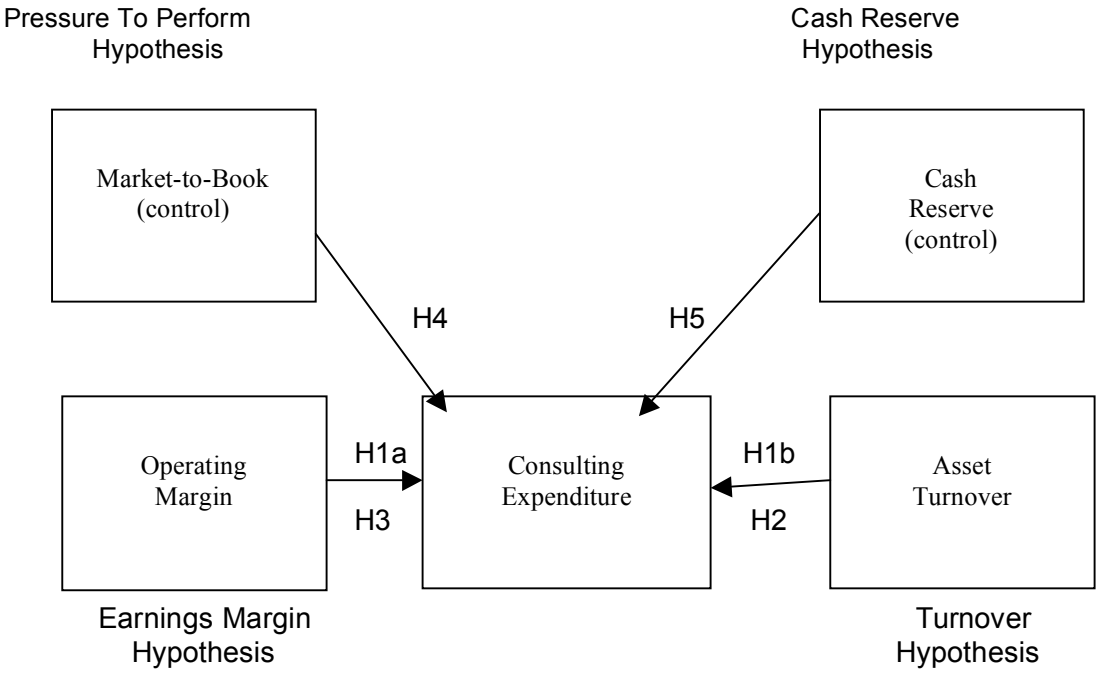
> Hypothesis 1a (Earnings Margin Hypothesis): Fees paid for consulting services will be negatively related to earnings margin.
>
> Hypothesis 1b (Turnover Hypothesis): Fees paid for consulting services will be negatively related to asset turnover.

Strategically Relevant Subgroups

We established that companies in strategically relevant subgroups may be meaningfully compared; also that most companies face the necessity of adopting a tradeoff strategy: trading off low performance on one factor for high performance on the other factor. Now we develop hypotheses for strategically relevant subgroups. The motivation for all strategically relevant subgroup hypotheses stems from our belief that RBV manifests

$$CONSULTING\ FEES = \alpha + \beta_1 * MEDIAN\ FEES + \beta_2 * EARNINGS\ MARGIN + \beta_3 * ASSET\ TURNOVER + \beta_4 * MARKET\ TO\ BOOK + \beta_5 * CASH\ POSITION + \varepsilon$$

$$CONSULTING\ FEES = \alpha + \beta_1 * MEDIAN\ FEES + \beta_2 * EARNINGS\ MARGIN + \beta_3 * FIXED\ ASSETS + \beta_4 * RECEIVABLES + \beta_5 * INVENTORIES + \beta_6 * MARKET\ TO\ BOOK + \beta_7 * CASH\ POSITION + \varepsilon$$ (Drill down regression specification)



Firm size (proxied by Sales Revenue) is also controlled for. We do this by scaling Cash Reserves, Earnings and Consulting Expenditure by Sales; the other variables in the model are ratios.

Variable	Definition
Dependent Variable	
CONSULTING FEES	the ratio of non-audit service expenditure to sales for 2001
Independent Variables	
MEDIAN FEES	the median of CONSULTING FEES (by industry category)
EARNINGS MARGIN	the ratio of earnings to sales for 2001
ASSETS TURNOVER	the ratio of sales to average total assets for 2001
MARKET-TO-BOOK	the market to book value of equity ratio at the end of 2000
CASH RESERVE	the ratio of cash at the beginning of 2001 to sales for 2001
RECEIVABLES	the ratio of sales to average receivables for the year 2001
INVENTORIES	the ratio of cost of goods sold to average inventory for the year 2001
FIXED ASSETS	the ratio of sales to average fixed assets for the year 2001

Figure 3. Empirical Model

itself clearly when capabilities are compared across strategically similar companies, (i.e., when we compare a low margin company to other low margin companies or a low turnover company to other low turnover companies).

Not all companies may be interested in building similar capabilities. While, in general, low turnover is indicative of a lack of expertise in turning over assets quickly, if it is a result of a chosen strategy (high margin – low turnover strategy), it may not be problematic. On the other hand, low turnover is extremely problematic for companies that have a low margin too. These companies need help to identify the causes of low turnover and to build superior and unique organizational/IT capabilities to rectify the situation (consistent with RBV and SGR). Thus, the strategically relevant subgroup hypotheses are:

Low Margin Group (LH *(low margin, high turnover)* **and LL** *(low margin, low turnover)* **Combinations)**
Companies in this group have low margins – either as a chosen strategy or due to underperformance – while asset turnover can be high or low (hence LH and LL). In order to be successful, these companies must excel in the other operational performance factor, asset turnover. The RBV suggests that companies in this group will procure consulting services to build or improve their asset turnover capability. Therefore, for this group we posit that investment in consulting services will be negatively associated with asset turnover. The following hypothesis is tested for low margin companies (companies in the LH and LL cells)

> Hypothesis 2 (Turnover hypothesis on subsample): For low earnings margin companies, fees paid for consulting services will be negatively related to asset turnover.

Aggregate asset turnover can be decomposed into accounts receivable turnover, inventory turnover, and fixed asset (bricks and mortar) turnover. It may be of interest to conduct a drilldown analysis into these components of asset turnover. While consultants in the short run may not necessarily be able to address and provide remedies to low fixed asset turnover, low receivables turnover and low inventory turnover solutions are frequently sought and provided (e.g., just-in-time inventory and supply chain management technology solutions). Thus the following sub-hypotheses are offered to extend Hypothesis 2.

> H2a (Receivables turnover hypothesis): For low earnings margin companies, fees paid for consulting services will be negatively related to accounts receivable turnover.
>
> H2b (Inventory turnover hypothesis): For low earnings margin companies, fees paid for consulting services will be negatively related to inventory turnover.
>
> H2c (Fixed assets turnover hypothesis): For low earnings margin companies, fees paid for consulting services will be unrelated to fixed asset turnover.

Low Turnover Group (HL *(high margin, low turnover)* **and LL** *(low margin, low turnover)* **Combinations)**
Companies in this group have low turnover as either a chosen strategy or due to underperformance while margin can be high or low. In either case, to be successful, these companies must excel in the other operational management performance factor (i.e., must have superior margins). RBV suggests that companies in this subgroup will procure consulting services to build or improve existing capabilities that relate to net margin. Thus, in this group, companies that have below average margins will tend to procure greater levels of consulting services than their counterparts that have healthy margins. The third operational strategy hypothesis is:

> Hypothesis 3 (Earnings hypothesis on subsample): For low asset turnover companies, fees paid for consulting services will be negatively related to net margin.

Control Hypotheses - Pressure to Perform and Cash Reserve Hypotheses

In addition to the three main hypotheses, we have two hypotheses that control for growth prospects and the cash position of the company. Growth and cash position are important controls necessary to distill the relationship between consulting fees and operational management factors. These controls are described in the ensuing paragraphs.

Pressure to Perform Hypothesis
Pressure to perform can be inferred from the excess of firm value over the value of assets in place. In a seminal paper, Myers (1977) suggested that firm value is comprised of value of equity/assets in-place and value of growth opportunities. The market assigns a multiple to the book value (value of equity/assets in-place) of the firm based on the expectation that the firm will take advantage of opportunities to grow, expand, or develop competitive advantage. Higher multiples are indicative of greater market expectations of the firm, and in such companies a significant portion of firm value is based on market expectation. Indeed, the sustainable growth rate attempts to measure the ability of a company to meet its growth potential. Such companies must, to retain the confidence of the investors, demonstrate their ability to exploit growth opportunities. Indeed, not meeting earnings expectations leads to an immediate and significant loss of firm value. According to the *New York Times* (June 29, 2002), firms that missed analyst estimates often lost 10% of their market value. When Cisco missed an earnings consensus estimate (declared after close of trading) by one penny on February 6, 2001, it lost about 6% of its value even before the market opened the next day. Thus, companies that have high multiples have greater pressure to perform well. Furthermore, management compensation research has shown that companies that have high market expectation for growth place more weight on stock-based compensation plans and less weight on salary and bonus adjustments (Lambert and Larcker, 1987; Gaver and Gaver, 1995) to encourage managers to identify and exploit business opportunities. These managers are under intense pressure to perform (i.e., meet or exceed market expectations) in order to maintain firm value. Indeed, in an RBV world, these firms are expected to possess unique capabilities that will propel them to succeed. Consequently, the managers of these firms are compelled to invest in the building of valuable RBV assets and perhaps also signal the same to investors. Therefore we posit that managers of companies that are under greater pressure to perform are more likely to seek outside consulting help to complement internal expertise. Thus, we state our first control hypothesis (controlling for

the growth rate) as:

> Hypotheses 4 (Pressure to perform Hypothesis): Fees paid for consulting services will be positively related to the market-to-book ratio.

Cash Reserve Hypothesis

Requisite ***cash reserves*** are necessary not only to finance payment to consultants but also to implement improvements suggested by the consultants (such as IT infrastructure). Thus, controlling for cash availability is important to distill the relationship between consulting fees and operational management factors. For example, distressed companies often do not engage the services of a consultant, not because of a lack of need, but because they do not have requisite cash. While it is true that some companies can and do finance IT and IS services through borrowing, the lack of requisite cash illustrates that these companies must carefully assess the tradeoffs of raising the required amount through different means (long-term debt, short-term debt, equity financing, etc.). All of these issues relate to their financing strategy and impact the company's cost of capital. However, in general, the greater the cash balance, the easier it is to engage consultants and implement their suggested solutions. Therefore, our second control hypothesis is:

> Hypothesis 5 (Cash reserve hypothesis): Fees paid for consulting services will be positively related to the cash reserves position of the firm.
> In the following section we discuss the data, sample, and research method.

Thereafter, we present the results and our analysis.

Data and Research Methods

Sample

We obtained expenditure data on consulting fees (including IS and other consulting services) paid to incumbent auditors (for the year 2001) from the SEC for a total of 564 firms. This type of data has only recently become available through newly mandated disclosures by the SEC. Note that the data used in this study pertains to the year 2001, which is the pre-Sarbanes Oxley period. President Bush signed the Sarbanes-Oxley Act of 2002 into law in April 2002, and the SEC wrote the related rules in 2003. Interestingly, many types of consulting services were proscribed by this act, including financial information system design and implementation. We obtained firm-specific data from income statements and balance sheets for these companies from COMPUSTAT. We used firm CUSIP (company identifier) in order to match SEC data with archival data from COMPUSTAT (for the year 2001). Seventeen companies were dropped from the SEC sample of 564 companies because their CUSIPs were unavailable. Of the remaining 547 firms, we eliminated 158 firms comprising Utilities (since their earnings margin is controlled by regulation), and Insurance, Banks, and Financial Services (because their asset bases and asset management policies are very different from manufacturing and other service industry companies). We grouped the remaining firms into four industry categories based on their primary activity. The industry categories were (1) Transportation and Healthcare (26 firms), (2) Chemicals and Allied Products (74 firms), (3) Electrical, Electronics, Engineering, and Building & Construction Materials (96 firms), and (4) Wholesale, Retail, Media, Entertainment, and Miscellaneous Services (88 firms). After accounting for missing values for the variables of interest, the final sample

consisted of 284 companies (see Table 1).

Table 1: Sample	
	Number of Companies
Initial Sample on Consulting Fees from SEC	564
Less: Companies with no CUSIP	(17)
Less: Utilities, Banks, Insurance and Financial Companies	(158)
Less: Missing data on any one of the variables	(105)
FINAL SAMPLE	284

After eliminating the middle 20% for the subsamples (partitioned into high and low margin or high and low turnover), each subsample consisted of 115 companies.

Variables

As mentioned earlier, we obtained the expenditure data (for the year 2001) on non-audit services from the SEC. Other variables obtained from COMPUSTAT were

Sales - COMPUSTAT Annual Data Item #12
Cash - COMPUSTAT Annual Data Item #1
Earnings - COMPUSTAT Annual Data Item #18
Total Assets - COMPUSTAT Annual Data Item #6
Fixed Assets - COMPUSTAT Annual Data Item #8
Receivables - COMPUSTAT Annual Data Item #2
Inventories - COMPUSTAT Annual Data Item #3
Common Shares Outstanding - COMPUSTAT Annual Data Item #25
Share Price Fiscal Year End - COMPUSTAT Annual Data Item #199
Book Value - COMPUSTAT Annual Data Item #60

We listed the dependent and independent variables in our model in Figure 3, which also specified the two regression models actually estimated. We explain all the regression variables here; noting that all variables are scaled by a measure of firm size (sales) or calculated as a ratio to eliminate potential heteroscedasticity issues. The relative expenditures for consulting services (CONSULTING FEES) served as the dependent measure in all of our analyses. The other variables served as surrogates for our hypothesized independent variables. Each is discussed in turn.

For operational management factors, we used the following variables: net operating profit margin and operating asset turnover are measured by EARNINGS MARGIN = earnings / sales and ASSET TURNOVER = sales / total assets, respectively. Drill down metrics for components of asset turnover are measured by receivables turnover (RECEIVABLES) = sales / average accounts receivable, inventory turnover (INVENTORIES) = cost of goods sold / average inventory, and fixed asset turnover (FIXED ASSETS TURNOVER) = sales / average fixed assets. The first control variable, representing pressure to perform, is measured by the market-to-book value of equity ratio (MARKET-TO-BOOK) at the end of the fiscal year 2000. Given that market expectation of growth represents the excess of market value over value of assets in place (Myers, 1977), the most frequently used measure of this expectation in previous

studies has been market-to-book ratios such as the market value of the firm to the book value (Smith and Watts, 1992, Gaver and Gaver, 1995). The second control variable, cash reserves, is measured by cash on hand (CASH RESERVE) at the beginning of the fiscal year. In addition to the above variables, the median level of spending on non-audit services computed based on the industry categories was also used as a control variable (MEDIAN FEES) to control for industry level spending. This variable is computed as MEDIAN FEES = Median of CONSULTING FEES (by industry category).

Subsamples

To enable analyses related to strategically relevant subgroups, the data was partitioned into subsamples based on net margin and asset turnover resulting in "high" and "low" sub samples. For example, the high margin (high turnover) subsample consisted of companies having net margin (turnover) above the 60th percentile (computed based on industry category), and the low margin (low turnover) subsample consisted of companies having net margin below the 40th percentile (based on industry category). We dropped companies belonging to the middle 20%. Each subsample consisted of 115 companies.

Regression Model

The regression model we used to test Hypotheses 1, 2 and 3 is as follows:

$$CONSULTING\ FEES = \alpha + \beta_1 * MEDIAN\ FEES + \beta_2 * EARNINGS\ MARGIN + \beta_3 * ASSET\ TURNOVER + \beta_4 * MARKET\ TO\ BOOK + \beta_5 * CASH\ POSITION + \varepsilon$$

The regression model we used to test the drill-down Hypotheses 2a, 2b, and 2c is as follows:

$$CONSULTING\ FEES = \alpha + \beta_1 * MEDIAN\ FEES + \beta_2 * EARNINGS\ MARGIN + \beta_3 * FIXED\ ASSETS + \beta_4 * RECEIVABLES + \beta_5 * INVENTORIES + \beta_6 * MARKET\ TO\ BOOK + \beta_7 * CASH\ POSITION + \varepsilon$$

This model is similar to models used in prior accounting studies, namely Ashbaugh et al. (2003), Frankel et al. (2002), Whisenant et al. (2003), Antle et al. (2002), Abdel-Khalik (1990), Palmrose (1986), and Simunic (1984). Most accounting studies focus on the relationship between consulting fee and audit fee or focus on whether engaging auditors as consultants compromises auditor independence. We use a similar model to ascertain whether consulting fees are systematically related to client characteristics.

Results and Analysis

Descriptive Statistics

We present descriptive statistics for the full sample in Table 2. The means and standard deviations indicate that there is sufficient variation in the sample to perform regression analysis. Variances in the four industry groups are similar to that in the full sample.

Table 2: Descriptive Statistics (N=284)			
Variable	**Mean**	**Median**	**Std dev**
CONSULTING FEES	0.0008	0.0005	0.0010
MARKET TO BOOK	4.1446	2.2145	8.8207
CASH RESERVE	0.0763	0.0284	0.1320
ASSET TURNOVER	1.5048	1.1933	1.3151
EARNINGS MARGIN	0.0537	0.0422	0.0667
TURNOVER DRILLDOWN			
RECEIVABLES	14.2299	7.6270	22.7545
INVENTORIES	17.6934	5.7230	69.9656
FIXED ASSETS	9.1265	4.0243	21.4545

Heteroscedasticity

To ensure the reliance of results obtained from the various regressions on the sub-samples, we tested for heteroscedasticity using the Breusch-Pagan test. Results indicated that while the full sample was marginally heteroscedastic, there was insufficient evidence to reject the null hypothesis of homoscedasticity in the partitions. Results of the test appear in Table 3. The above result also provides support to our theory-driven partition of the full sample into strategically relevant subsamples.

Table 3: Breusch-Pagan Test For Heteroscedasticity		
Group	**chi-square**	**p-value**
Full Sample	12.54	0.08
Sample Split by Margin		
Low Margin Group	2.90	0.72
High Margin Group	9.71	0.10
Sample Split by Turnover		
Low Turnover Group	9.23	0.12
High Turnover Group	8.75	0.13

Correlations, Collinearity And Normality

Table 4 presents pairwise correlations of independent variables from the regression model. We note that the correlations are below the threshold of 0.80 (Kennedy, 1992). The only exception was the correlation between fixed assets and total assets ($\rho > 0.80$). However, since fixed assets and total assets are not used in the same regression equation, this high correlation is not a relevant issue. In addition, we conducted a diagnostics test for multi-collinearity among the regressors (Belsley et al., 1980). Condition numbers were well below the cut-off level of 20 (the maximum condition number was 9.7), indicating that multi-collinearity is not a concern.

Table 4: Correlation Coefficients

	EARNINGS MARGIN	CASH RESERVE	ASSET TURNOVER	INVENTORIES	RECEIVABLES	FIXED ASSETS	MARKET TO BOOK
EARNINGS MARGIN	1			-	-		
CASH RESERVE	0.3923 (<.0001)	1			-		
ASSET TURNOVER	-0.1719 (0.0037)	-0.1361 (0.0218)	1				
INVENTORIES	-0.0592 (0.3206)	0.0212 (0.7227)	0.3512 (<.0001)	1			
RECEIVABLES	-0.1356 (0.0223)	-0.0708 (0.2340)	0.2719 (<.0001)	-0.0048 (0.9362)	1		
FIXED ASSETS	-0.1619 (0.0063)	-0.0902 (0.1294)	0.8156 (<.0001)	0.4176 (<.0001)	0.0537 (0.3669)	1	
MARKET-TO-BOOK	0.2082 (0.0004)	0.1205 (0.0425)	-0.0291 (0.6249)	0.0187 (0.7535)	-0.0511 (0.3913)	-0.0515 (0.3870)	1

The primary reason for scaling consulting expenditures by sales was for normalization. As a preliminary step, we checked the histogram of regression residuals to see if the assumption of normality was met and satisfied ourselves that this was true. As an additional check, we plotted histograms for the dependent and each of the independent variables in the regression model. For the dependent variable, the Kolmogorov-Smirnoff test indicated insufficient evidence to reject the null hypothesis of normality. Histograms of the independent variables in each half-sample (overall and by industry) and a histogram of the regression residuals (overall sample as well as the half-samples) visually confirmed that assumptions of normality were satisfied.

Hypotheses on the Full Sample

We present findings related to the first hypotheses in Table 5. Note that p-values are one-tailed values for MARKET-TO-BOOK, EARNINGS MARGIN, CASH RESERVE, and ASSET TURNOVER since we have prior expectations for these variables (Horwitz and Ferleger, 1980). In contrast, the reported p-values for the intercept and industry median consulting fees are two-tailed p-values.

The significant negative relationship of consulting fees to net margin and asset turnover support our earnings hypothesis and turnover hypothesis. Fees paid for consulting services are negatively related to current performance in the areas of operations management (net margin) and asset management (turnover). Therefore, operational activity measures of the sustainable growth model are negatively related to spending on consulting services. In addition, the control variables are also significant in the predicted direction. The positive relation of consulting fees to MARKET-TO-BOOK supports the pressure-to-perform hypothesis that firms that have greater pressure to perform spend relatively more on consulting services. These firms have the most to lose (in terms of investor confidence and firm value) if they fail to meet market expectation of performance. The significant positive relationship of consulting fees to cash on hand

Table 5: Relationship of Consulting Fees to Turnover and Margin Dependent Variable = CONSULTING FEES		
Independent Variable	**Coefficient (Std. Error)**	**t-statistic(p-value)**
Intercept	0.0007 (0002)	3.29*** (0.0011)
MEDIAN FEES	0.3002 (0.3406)	0.88 (0.3788)
MARKET-TO-BOOK	0.0001 (0.00002)	4.25*** (<0.0001)[a]
EARNINGS MARGIN	-0.0015 (0.0009)	-1.65** (0.0499)[a]
TURNOVER	-0.0001 (0.00004)	-3.12*** (0.0010)[a]
CASH	0.0017 (0.0004)	3.83*** (0.0001)[a]
Model F Statistic (p-value)	10.27 (< 0.0001)***	
Adjusted R^2	0.1407	
Number of Observations	284	

[a] one-tailed p-value *** Significant at 1% level ** Significant at 5% level

supports the cash reserve hypothesis that firms that have the wherewithal to pay procure more consulting services. The fit may be on the low side, but we are interested in splitting up the full sample into subsamples based on high or low earnings margin and high or low asset turnover and looking at the model fit in each subsample where we expect the R-squared values to be higher.

Hypotheses On The Subsamples

Table 6: Relationship of Consulting Fees to Turnover and Margin Low Margin Subsample - Dependent Variable = CONSULTING FEES		
Independent Variable	**Coefficient (Std. Error)**	**t-Statistic(p-value)**
Intercept	0.0002 (0.0002)	0.80 (0.4259)
MEDIAN FEES	0.6029 (0.3994)	1.51 (0.1341)
MARKET-TO-BOOK	0.0001 (00002)	6.66*** (<0.0001)[a]
EARNINGS MARGIN	-0.0024 (0.0020)	-1.24 (0.1097)[a]
ASSET TURNOVER	-0.0001 (0.00004)	-2.17** (0.0163)[a]
CASH RESERVE	0.0018 (0.0007	2.65*** (0.0047)[a]
Model F (p-value)	15.68 (<0.0001)***	
Adjusted R^2	0.3897	
Number of observations	115	

[a] one-tailed p-value *** Significant at 1% level ** Significant at 5% level

Table 6 provides data germane to the tests on the strategically relevant subgroups (i.e., Hypothesis 2 and 3). Consistent with the predictions in Hypothesis 2 (Turnover on Subsample Hypothesis), among low margin firms, asset turnover is negatively related to consulting fees. These firms are either in the distressed LL group (which indicates they are desperate for help) or at best have potentially adopted a low margin strategy (LH group) where underperformance in terms of asset turnover is not acceptable. Therefore, firms that have relatively low asset turnover will seek a relatively higher level of consulting services. Table 6 also indicates support for our control variables (pressure to perform and cash reserves).

We present results for the low turnover subsample in Table 7. As hypothesized in Hypothesis 3 (Earnings on Subsample Hypothesis), among low asset turnover companies, profit margin significantly (albeit marginally) and negatively associates with consulting fees. Low turnover companies comprise firms in the LL cell or the HL cell. Companies that are in the LL cell are distressed and therefore, are likely to seek consulting help. Companies in the HL cell have either accepted or find themselves in a low turnover strategy, and thus depend upon high margins to propel sustainable growth. For such firms, low margins are unacceptable. Therefore, low asset turnover companies, whether they are in the LL cell or the HL cell, cannot afford to have low margins too. Similar to the other regressions, the control variables are also significant and in the predicted direction in this regression.

Table 7: Relationship of Consulting Fees to Turnover and Margin
Low Turnover Subsamples - Dependent Variable = CONSULTING FEES

Independent Variable	Coefficient (Std. Error)	t-Statistic(p-value)
Intercept	0.0006 (0.0005)	1.20 (0.2322)
MEDIAN FEES	0.7141 (0.5694)	1.25 (0.2125)
MARKET-TO-BOOK	0.0001 (0.00003)	4.41*** (<0.0001) [a]
EARNINGS MARGIN	-0.0020 (0013)	-1.47* (0.0727) [a]
ASSET TURNOVER	-0.0006 (0.0004)	-1.64* (0.0520) [a]
CASH RESERVE	0.0024 (0.0007)	3.59*** (0.0003) [a]
Model F (p-value)	8.39 (<0.0001)***	
Adjusted R^2	0.2432	
Number of observations	115	

[a] one-tailed p-value *** Significant at 1% level ** Significant at 5% level *Significant at 10% level

Table 8 presents the results for Hypotheses 2a (Receivables Turnover on Subsample Hypothesis), 2b (Inventory Turnover on Subsample Hypothesis) and 2c (Fixed Assets Turnover on Subsample Hypothesis). Consistent with the prediction in hypothesis 2b, among low profit margin firms, inventory turnover significantly and negatively associates with consulting fees. As predicted in hypothesis 2a, receivables turnover significantly (albeit marginally so), and negatively associates with consulting fees. Regarding hypothesis 2c, fixed asset turnover does not significantly associate with consulting fees. These findings broadly support our hypotheses.

These findings are what would be expected of firms emphasizing low cost leadership as a corporate strategy. Having accepted low profit margins as a part of corporate strategy, these firms must make up for low margins with high sales volumes and rapid inventory turnover (e.g., Wal-Mart) and faster collection of receivables. Conversely, among firms following a high margin strategy, concessions are typically made to inventory turnover. Indeed, among high margin firms, analysis (not presented in tabular form here) reveals that inventory turnover is not significant (t=0.41; p=0.34). The results also show, as predicted, that long-term fixed asset turnover solutions are not often sought from auditor/consultants to offset low margins. Again, the control variables, pressure to perform and cash on hand, are significantly and positively related to consulting fees, as predicted.

Table 8: Relationship of Consulting Fees to Turnover and Margin Drill-down to Receivables Turnover, Inventory Turnover and Fixed Asset Turnover Low Margin Subsample - Dependent Variable = CONSULTING FEES		
Independent Variable	**Coefficient (Std. Error)**	**t-Statistic (p-value)**
Intercept	0.0001 (0.0002)	0.35 (0.7303)
MEDIAN FEES	0.7548 (0.4066)	1.86* (0.0661)
MARKET-TO-BOOK	0.0001 (0.00002)	6.85*** (<0.0001) [a]
EARNINGS MARGIN	-0.0030 (0.0020)	-1.55* (0.0623) [a]
RECEIVABLES	-0.00005 (0.00004)	-1.43* (0.0775) [a]
INVENTORIES	-0.000002 (low)	-2.12** (0.0180) [a]
FIXED ASSETS	-0.000001 (0.00002)	-0.52 (0.3004) [a]
CASH RESERVE	0.0018 (0.0007)	2.64*** (0.0048) [a]
Model F (p-value)	12.24 (<0.0001)***	
Adj R^2	0.4062	
Number of observations.	115	

[a] one-tailed p-value *** Significant at 1% level ** Significant at 5% level * Significant at 10% level

Finally, a note on the explanatory power of the regression models: In Tables 5-8, which report the regression results, two have an adjusted R^2 of about 40%. Table 5 has the lowest adjusted R^2 of about 15%. This is expected because this regression is based on the full sample. As we explained earlier in the paper, companies are better compared if they belong to the same strategic subsample. Consequently, the R^2 improves when we split the sample into high/low margin and high/low turnover. The low margin grouping has the highest adjusted R^2 of about 40% (Tables 6 and 8). Table 7, which is the regression on the low turnover subsample, has an adjusted R^2 of about 25%. These are in line with prior accounting studies on nonaudit fees (0.330 in Antle et al., 2002; 0.280 in Ashbaugh et al., 2003).

Conclusion

Prior research has focused on whether investment in IT and consulting results in performance improvement. We provide evidence that consulting expenditures may well be a consequence of firm performance. There are other actions that a firm can potentially take in order to improve performance, including firing senior management and creating a new management team, or looking for technological innovations through collaboration, etc. However, RBV suggests that underperforming firms will want to build unique organizational capabilities (which can be addressed by engaging the services of auditor-consultants), and our empirical analysis provides confirmatory evidence of this phenomenon. Specifically, we show that firm expenditure on management consulting services provided by public accounting firms can be explained by firm specific factors. These factors are (1) pressure to perform, (2) performance in the areas of operations management and asset management, and (3) availability of cash. Pressure to perform and availability of cash are significant in all subsamples. Performance measures in the areas of operations management and asset management reflect the strategies of the companies. By linking procurement of consulting services to RBV, this study tests the

theoretical underpinnings of RBV. This is especially important in the light of ongoing discussion of whether RBV can rise to the level of a theory (Priem and Butler, 2001a, 2001b; Barney, 2001). In their criticism of RBV, Priem and Butler (2001a) note that for RBV to be accepted as a theory, it needs to have empirical content. Barney (2001) welcomes the suggestion and notes that one way of providing empirical content to RBV is to derive empirically testable results from the theory. We have done precisely that in this paper. Further, as noted in the Introduction section, the "IT Doesn't Matter" view of Carr is not inconsistent with RBV; the idea is for firms to innovatively use possibly ubiquitous IT hardware and software in synchronization with existing or newly created organizational capabilities so as to create a "scarce" organizational resource that provides long term advantages.

The results of this study are important not only to managers of underperforming firms but also to firms that offer consulting services, especially IT-related management consulting. First, by showing that there is a valid explanation for seeking these types of services (using the available disclosure data), we partially alleviate the concerns arising from the alternative explanation that auditor-consultants are merely being rewarded for favorable reports (again, we point out that we do not explicitly test for this effect). The Sarbanes-Oxley Act has subsequently proscribed certain types of consulting services from being offered by auditor-consultants. The question now may arise as to how firms that feel the need to improve their performance will react. Where will they be able to procure these services? The current trend of outsourcing IT and information-related services may offer an explanation. Spin-off organizations such as Accenture (the old Andersen Consulting) or BearingPoint (formerly KPMG Consulting) or firms like Gartner Inc. that are in the business of working with client organizations to identify IT needs and help them leverage the technology to achieve business success will step into the void. Web service and application service providers will act as partners by taking up the outsourced requirements that will result from client organizations seeking to achieve even more economies in their IT related costs and operations. Second, the study provides avenues for providers of consulting services to identify and seek out potential clients. The consulting firms can even add to their portfolio of services to attract precisely these types of clients.

An extension to RBV, *Dynamic Capabilities Theory* (Teece et al., 1997) can help draw managerial implications for this study. Teece et al. (1997) complement RBV by developing a dynamic capabilities approach to firm wealth creation and assimilation. This approach is meant to explain how firms build competitive advantage in times of rapid change, similar to the Schumpeterian view of innovation-based competition that is achieved by "creative destruction" of existing competencies (Schumpeter, 1934). This dynamic capabilities perspective serves the purpose of providing implications for managerial practice, which is what we use to justify our model. This further approach emphasizes the creation of hard to imitate combinations of organizational, technological, and functional capabilities and becomes especially relevant in the turbulent environment of rapid IT innovations where the technology is available to all firms in an industry and success or failure depends on how well it is deployed. Porter (1996) points out that firms sometimes mistakenly allow tools such as total quality management and business process reengineering to take the place of strategies. What is required is a strategy that emphasizes "…a firm choosing a unique and valuable position rooted in systems of activities that are much more difficult to match…." Dynamic capability is created by getting a firm to select not just a specific technological capability, but also one that leverages this technology in the context of the firm's organizational capability, thus

providing the correct *fit*. This enables the firm to differentiate its operations from competitors and thus deliver a performance boost.

Thus, there is a convergence of viewpoints across these theories. An organization must build unique capabilities involving a match between implementation of available IT solutions and other organizational competencies. The paper draws upon theoretical perspectives that may not be new to the field of IS, but that offer rich opportunities for theory testing and empirical research in interdisciplinary research settings. We believe that such research will serve the purpose of guiding firms' investments in consulting services that build long-term competitive advantage based on complementary combinations of information technologies, organizational capabilities, and product-market strategy. In our selection of the relevant theories, we believe we identified those that are most likely to enhance understanding of such trends.

Like any research study, this one has limitations. Notably, we must point out that the data available to us does not bifurcate consulting expenses into IT-related and other consulting services. In the absence of this level of detail, we have relied upon sources that inform us that IT-related consulting forms a non-trivial component of total consulting services provided by auditor-consultants. In addition, this is a study of a cross-section of firms. Therefore any macroeconomic or environmental factors are captured by including an industry-level variable in the analysis. Further, it relates to a single year, thus the generalizability across years, geographical regions, and regulatory regimes is limited.

Second, our derivation of the empirical regression specification relies upon the premise that consulting fees lead to an enhanced sustainable growth rate, which is eventually reflected in higher performance. However, we do not test this side of the equation. Future research should direct attention on the possible simultaneity between expenditure on consulting services and performance. Is there a bi-directional relationship between the two, with spending being determined by the firm's needs and performance improvements brought about as a result of the spending on consulting services?

One problem that may face researchers here is the difficulty of assessing the influence of such expenditures on current or even future performance. As we stated in the introduction, these consulting services include the provision of IT-related investments and improvements in IT infrastructure. When the purpose of such expenditures is to automate, the observed effects may be on specific business processes and not directly relatable to performance improvements. When these consulting services take on an informating role, improving the collection and dissemination of information within an organization, they work through managers and employees to improve decision making and coordination of activities. At the highest level, when such expenditures take a transforming role, their impact depends on the firm's success in making changes to its organizational structure and motivating employees to adapt to new ways of doing business. In all cases, therefore, the measurement of performance impacts must be very carefully carried out so as to bring in intermediate or process level variables that in turn may affect bottom line firm performance. Future research may address these issues.

Finally, in the days of the dot com boom up to late 2000, it was possible that firms had earmarked budgets for consulting services. It was also possible that these same firms did not realize the expected performance improvements when the bubble burst after 2001. Further, during difficult times and times of recession, the axe usually falls on activities such as hiring, training, and consulting services—the ones under discussion in

this paper. So it is possible that the level of spending on consulting activity has not been the same in the years 2002 and later. An extension of this research can look into later spending trends.

References

Abdel-khalik, A. R. (1990) "The jointness of audit fees and demand for MAS: a self selection analysis," *Contemporary Accounting Research*, (6), pp 295-322.

Anderson, M, R. D. Banker, and S. Ravindran, (2000) "Executive Compensation in the Information Technology Industry," with Anderson, M.C., and Banker, R.D., *Management Science*, (46)4.

Anderson, M, R. D. Banker, and S. Ravindran, (2006) "Value Impacts of Year 2000 investments," forthcoming*, Management Science.*

Antle R., E. Gordon, G. Narayanamoorthy, and L. Zhou. (2002) "The Joint Determination of Audit Fees, Non-Audit Fees, and Abnormal Accruals," Yale ICF Working Paper No. 02-21; Yale SOM Working Paper No. AC-15.

Ashbaugh, H, R. LaFond, and B. W. Mayhew. (2003) "Do nonaudit services compromise auditor independence? Further evidence," *The Accounting Review* (78)3, pp 611-639.

Barney, J (1991) "Firm resources and sustained competitive advantage," *Journal of Management* (17), pp 99-120.

Barney, J. (1992) "Integrating organizational behavior and strategy formulation research: A resource based analysis," in Shrivastava, P., A. Huff and J. Dutton (eds.), *Advances in Strategic Management,* (8), JAI Press, Greenwich, CT, pp 39-62.

Barney, J. R. (2001) "Is the resource-based 'view' a useful perspective for strategic management research? Yes," *Academy of Management Review,* (26)1, pp 41-56.

Belsley, D., E. Kuh, E., and Welsch, R., (1980) *Regression Diagnostics: Identifying Influential Data and Collinearity.* Wiley, New York.

Bharadwaj, A., (2000) "A Resource-based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation," *MIS Quarterly*, (24)1, pp 169-196.

Booth, L. (1998) "What drives shareholder value," presented at the Federated Press "Creating Shareholder Value" conference, October 28.

Broadbent, M., M. McDonald, and R. Hunter. (2003) "Does IT Matter? An HBR Debate," *Harvard Business Review*, June, (Web exclusive), p 10.

Brown, S. J., W. N. Goetzmann, and S. A. Ross. (1995) "Survival," *Journal of Finance* (50) pp 853 -873.

BusinessWeek (2004) "Consulting's Long awaited bounce," http://www.businessweek.com/bwdaily/dnflash/jul2004/nf2004077_3275.htm (accessed November 8, 2005).

Carr, N. G. (2003) "IT Doesn't Matter," *Harvard Business Review,* (81)5, pp 41-51.

Collis, D. (1991) "A resource-based analysis of global competition: the case of the bearings industry," *Strategic Management Journal,* (Summer Special Issue) (12), pp 49-68.

Coyne, K. P. (1986) "Sustainable competitive advantage – what it is, what it isn't," *Business Horizons,* (29)1, pp 54-61.

Dolan Capital Management (2000) "A Primer on Equity Valuation," Website http://www.dolancap.com/research/primer.htm (accessed December 2005)

Fairfield, P. M., R. J. Sweeney, and T. L. Yohn. (1996) "Accounting classification and the

predictive content of earnings," *The Accounting Review* (71), pp 337–355.
Feld, C. S., and Stoddard, D. B., (2004) "Getting IT Right," *Harvard Business Review*, (82)2, pp 72-78.
Frankel, R. M., M. F. Johnson, and K. K. Nelson. (2002) "The relationship between auditors' fees for nonaudit services and earnings management," *The Accounting Review* (77:Supplement), pp 71-105.
Gartner Research (2006) "CRM Beyond Web 2.0 Features 'Rich Clients' and Software as a Service, "Research Report G00136868, January 17.
Gaver, J. J. and K. M. Gaver, (1995) "Compensation Policy and the Investment Opportunity Set," *Financial Management* (Spring), pp 19-32.
Grant, R. M., (1991) "The Resource Based Theory of Competitive Advantage: Implications for Strategy Formulation," *California Management Review*, (33)3, pp 114-135.
Horwitz, L., and Ferleger, L., (1980) *Statistics for Social Change*, South End Press (1st Edition), pp 220-221.
IDC Analysts for the Future, (2005) "IDC Presents Latest IT Spending Projections by Vertical Industry for the U.S. and Worldwide Markets," Press Release January 24, http://www.idc.com/getdoc.jsp?containerId=prUS00037505 (accessed April 21 2005).
Investor Responsibility Research Center (2002) "IRRC Finds Companies Pay High Proportion of Non-Audit Related Fees to Auditors," IRRC Press Release March 7.
Kalakota R., and A. B. Whinston. (1996) *Frontiers of Electronic Commerce*. Reading, MA: Addison-Wesley, pp 37.
Kennedy, P. (1992) *A Guide to Econometrics,* Cambridge, MA: MIT Press, pp 180.
Lado, A. and M. Wilson. (1994) "Human resource systems and sustained competitive advantage," *Academy of Management Review,* (19), pp 699-727.
Lambert, R. A., and D. F. Larcker, (1987) "An Analysis of the Use of Accounting and Market Measures of Performance in Executive Compensation Contracts," *Journal of Accounting Research* (Supplement), pp 85-125.
Lev, B., and S. R. Thiagarajan. (1993) "Fundamental information analysis," *Journal of Accounting Research* (31), pp 190–215.
Lewis, M. S. (2003) "Does IT Matter? An HBR Debate," *Harvard Business Review*, June, (Web exclusive), pp 12.
Lipe, R. C. (1986) "The information contained in the components of earnings," *Journal of Accounting Research,* (24), pp 37–64.
Management Consultancies Association, (2005) "The Consulting Industry," http://www.mca.org.uk/MCA/AboutUs/TheIndustry.aspx, (accessed April 21, 2005).
Mata, F., Fuerst, W., and Barney, J., (1995) "Information Technology and Sustained Competitive Advantage: A Resource Based Analysis," *MIS Quarterly*, (19)4, pp 487-505.
Miller, D. (2003) "Towards an asymmetry-based view of advantage: Towards an attainable sustainability," *Strategic Management Journal,* (24)10, pp 961-976.
Miller D. and J. Shamsie (1996) "The resource based view of the firm in two environments: the Hollywood film studios form 1936 to 1965," *Academy of Management Journal,* (39), pp 519-543.
Morningstar.com (2000) "Morningstar Investing Classroom, Course 308: Sustainable Growth Rate," http://news.morningstar.com/classroom/article/1,3163,3071-4,00.html (accessed December 2005).

Myers, S., (1977) "Determinants of Corporate Borrowing," *Journal of Financial Economics* (November), pp 147-175.
National Economic Research Associates (NERA) (1992) *Competition in European Accounting*. Lafferty Publications, Dublin, Ireland.
New York Times (2002) "Tweaking numbers to meet goals comes back to haunt executives," Section A, Column 3, Business/Financial Desk, pp 1.
Nissim, D. and S. H. Penman (2001) "Ratio analysis and equity valuation: from research to practice," *Review of Accounting Studies,* (6), pp 109 -154.
Ou, J. A. (1990) "The information content of nonearnings accounting numbers as earnings predictors," *Journal of Accounting Research* (28), pp 144–163.
Ou, J. A., and S. H. Penman. (1989) "Financial statement analysis and the prediction of stock returns," *Journal of Accounting and Economics* (11), pp 295–329.
Palepu, K.G., V. L. Bernard, and P. M. Healy. (1997) *Introduction to Business Analysis and Valuation.* South-Western College Publishing Cincinnati, OH.
Palmrose, Z-V. (1986) "The effect of nonaudit services on the pricing of audit services: further evidence," *Journal of Accounting Research* (24)2, pp 405-411.
Penman, S. H. (2001) *Financial Statement Analysis and Valuation*, McGraw-Hill/Irwin, New York.
Petaraf, M. (1993) "The cornerstones of competitive advantage: a resource-based view," *Strategic Management Journal,* (14)3, pp 179-191.
Porter, M. (1985) *Competitive advantage*. Free Press, New York.
Porter, M. (1996) "What is Strategy?" *Harvard Business Review*, (74)6, pp 61-78.
Priem, R. L. and J. E. Butler (2001a) "Is the resource-based 'view' a useful perspective for strategic management research?" *The Academy of Management Review,* (26)1, pp 22-40.
Priem, R. L. and J. E. Butler (2001b) "Tautology in the resource-based view and implications of externally determined resource value: further comments," *The Academy of Management Review,* (26)1, pp 57-66.
Public Oversight Board (2000) "The Panel on Audit Effectiveness, Report and Recommendations." August 31.
Redman, T. and P. Allen. (1993) "The use of HRM consultants:evidence from manufacturing companies in the north-east of England," *Personnel Review* (22)2, pp 39-54.
Santhanam, R., and Hartono, E., (2003) "Issues in Linking Information Technology Capability to Firm Performance," *MIS Quarterly*, (27)1, pp 125-153.
Schumpeter, J. A., (1934) *Theory of Economic Development*, Harvard University Press, Cambridge, MA.
Simunic, D. (1984) "Auditing, consulting and auditor independence," *Journal of Accounting Research* (22)2, pp 679-702.
Skaistis, B. (2003) "Does IT Matter? An HBR Debate," *Harvard Business Review*, June, (Web exclusive), p 11.
Smith, C. W., and R. L. Watts, (1992) "The Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies," *Journal of Financial Economics* (December), pp 263-292.
Solomon, D. (2002) "After Enron, a Push to Limit Accountants to...Accounting," *Wall Street Journal* (January 25) pp C1.
Strassman, P. A. (2003) "Does IT Matter? An HBR Debate," *Harvard Business Review*, June, (Web exclusive), pp. 7-9.
Teece, D. J., Pisano, G., and Shuen, A. (1997) "Dynamic Capabilities and Strategic Management," *Strategic Management Journal*, (18)7, pp 509-533
Treacy, M, and F. Wiserma (1993) "Customer intimacy and other value disciplines,"

Harvard Business Review, (71) pp 84-93.
Wall Street Journal (2001a) "Capital – The magic elixir of productivity," February 15, Section A, pp 1, Column 5.
Wall Street Journal (2001b) "Big Companies Pay Audit Firms More for Other Services," April 10, pp C1.
Wernerfelt, B. (1984) "A resource-based view of the firm," *Strategic Management Journal,* (5)2, pp. 171-180.
Whisenant, S., S. Sankaraguruswamy, and K. Raghunandan. (2003) "Evidence on the joint determination of audit and non-audit fees," *Journal of Accounting Research*. Chicago: (41)4, pp. 721
Wright, C., and J. Kittay. (2002) "But does it work? Perceptions of the impact of management consulting," *Strategic Change* (11), pp 271-278.
Wooldridge A. (1997) "Trimming the fat: a survey of management consultancy," *The Economist*, March 22 pp. 1-22.

Appendix 1

Mathematical Formulation Of Sustainable Growth Rate & Derivation Of Empirical Specification

Sustainable Growth rate (SGR) is defined as follows:

$$SGR = EarningsMargin \times AssetTurnover \times DividendPayout$$

where $EarningsMargin = \frac{NetIncome}{Sales}$;

$AssetsTurnover = \frac{Sales}{Assets}$; and

$DividendPayout = \frac{CashDividends}{NetIncome}$

The first two terms form part of product market strategy and the last term forms part of financial market strategy (see Figure 1). Since IT consulting expenses are typically incurred to improve and enhance product market strategy, we consider only net margin and asset turnover as the relevant elements of the SGR in this paper.

Since SGR is a measure of performance, we can consider the traditional input/output model for deriving the appropriate empirical specification. The basic assumption is that greater amounts of consulting services procured will lead to better performance in latter years. Based on this assumption and using the traditional (Cobb-Douglas) production function approach we state that:

$SGR = a * (CONSULTING\ FEES)^b$ where *a* is a scaling factor and *b* is the productivity impact of CONSULTING FEES.

Employing the logic that lower SGR (observed currently) will impel managers to look to consultants to improve future performance, and based on the previous equation, CONSULTING FEES can be expressed as

Log(*CONSULTING FEES*) = c + d * Log(*SGR*)
Expanding SGR into the two components of interest namely *Earnings Margin* and *Assets Turnover*,

> Log(*CONSULTING FEES*) = c + d*Log(*Earnings Margin*) + d*Log(*Assets Turnover*).

However, because of the difficulty of interpreting a logarithmic specification of *Earnings Margin* and *Assets Turnover* (both of which are ratios that involve sales as a measure of firm size) we convert this into a linear regression specification that uses sales to normalize consulting fees also. Thus, the regression model used in this paper is:

$$\frac{CONSULTING\ FEES}{SALES} = c + d_1 * EarningsMargin + d_2 * AssetsTurnover \text{ or}$$

ADJUSTED CONSULTING FEES = $c + d_1 * MARGIN + d_2 * TURNOVER$ where

$$ADJUSTED\ CONSULTING\ FEES = \frac{CONSULTING\ FEES}{SALES},$$

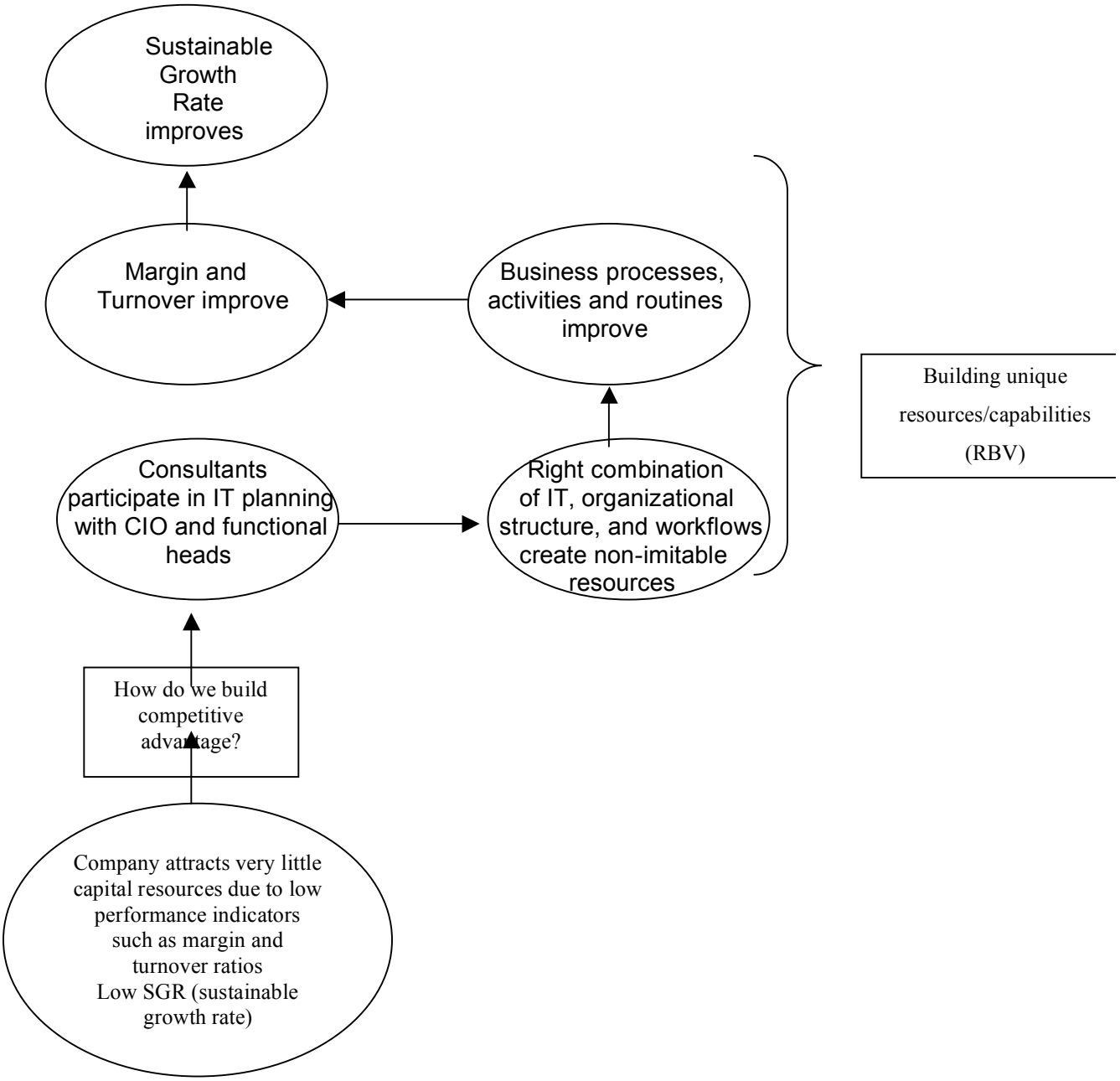
$MARGIN =$ *EarningsMargin*, and
$TURNOVER =$ *AssetsTurnover*

The complete specification is derived by adding the appropriate control variables, namely *CASH* and *MARKET-TO-BOOK*.

Exhibit 1 – Explanations of Terms Used

TERM	DEFINITION
Sustainable Growth Rate	The rate at which a firm can grow given its product market and financial market strategies. Mathematically this is the product of the earnings margin, asset turnover and dividend payout.
Earnings Margin	The ratio of net income to net sales
Total Asset Turnover	Ratio of net sales to average total assets. It represents how often the firm is turning over its assets – a measure of efficiency.
Inventory Turnover	Ratio of net sales to average inventory.
Fixed Assets Turnover	Ratio of net sales to average fixed assets.
Receivables Turnover	Ratio of net sales to average receivables.
Price to Earnings Multiple	Ratio of price per share to earnings per share. It represents the consensus market estimate of a firm's growth potential.
Market to Book	Ratio of the market value of a firm to the book value of assets. This also represents the growth potential of the firm in the investors' view.

Exhibit 2 - Linking RBV and SGR



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