The Moderating Role of the Industry Structure on the Causal Relationships between Remote Risks, Task Risks, and Industry Performance: Empirical Study of the U.S. Casual Theme Restaurant Industry

by

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ABSTRACT

The purpose of this study was to investigate the concepts of remote and task risks in relation to the structure of the casual theme restaurant industry, and to examine the performance consequences of their relationships. This study proposed a framework of analysis that will enable industry participants to develop an improved understanding of the relationships among environmental risk drivers, and of the influence of their strategic decisions on the environment-performance connection.

Specifically, it was proposed that task risk factors could be identified, and that they would mediate the influence that some identifiable remote risk factors would have on the performance of the industry. It was also expected that this mediated relationship would be moderated by the influence of the structure of industry.

The primary unit of analysis was at the industry sector level as the performance construct was operationalized using a portfolio of 24 casual theme restaurant firms. Exploratory factor analysis was used to identify the remote and task risk factors. The analysis suggested that three remote factors and three task factors represent the two environmental constructs: “Interest rates”, “Expectations” and “Exchange rates” for the remote environment, and “Input quantities”, “Input restaurant” and “Input prices” for the task environment.

A number of time-series regression analyses were subsequently conducted for the 1993-2006 period to investigate the various proposed relationships. The results indicated that a number of significant direct effects of the remote and task risk factors on the cash flow returns on invested capital of the industry portfolio existed. Also, a significant mediated relationship was found: the “Input prices” mediated the influence of the “Expectations” on changes in the cash flow returns on invested capital. However, and despite numerous significant direct effects between the industry structure variables and the performance variables, no moderation could be established.

The present study paved the way for future research on the relationships between the remote and task environment and the performance of firms. In particular, further research should be conducted that delves into the role of the cyclical nature of environmental risk factors. Besides, additional investigations of the influence of the structure of the industry should be conducted by attempting to compare more contrasted states of the industry.

DEDICATION

I dedicate this dissertation to the muse of my life, my loving wife Stéphanie Graf-Vocat. Without your love and unconditional support, I would not have had the courage and energies to pursue such endeavor.

I love you.

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CHAPTER 1 – INTRODUCTION

The basic imperative of business firms is to grow their values to satisfy the return requirements of their shareholders and to ensure their long-term viability. Executives of such firms make numerous resource allocation and investment decisions with the common objective to add value to their organizations. The resources allocated to competencies and critical success factors, and the investments that are made in competitive methods, must produce streams of cash flows over their economic lives that compensate investors for risk and the time value of money (Olsen, West, & Tse, 1998).

Strategic choices need to be evaluated based upon these fundamental economic principles. In the evaluation process, managers are required to develop a thorough understanding of the forces driving change and of the opportunities and threats they will pose upon their firms. The process includes the development and understanding of cause and effect relationships between external and internal value drivers. In the strategic management literature, such process has been labeled environmental scanning, whereby opportunities and threats are identified, and their probable impacts upon firms are estimated (e.g. Aaker, 1983; Aguilar, 1967; Aldrich, 1979; Ansoff, 1980; Bourgeois, 1980a; Lorange & Vancil, 1977; Olsen, West, & Tse, 2007).

From a strategic management perspective, the environment has been described using dimensions such as complexity and dynamism, which resulted in an assessment of a certain degree of uncertainty (Duncan, 1972). In contrast, uncertainty about future states of the environment has been defined as risk factors in the finance literature, usually taking the form of financial results that vary more or less when compared to some expectation levels (Ross, Westerfield, & Jaffe, 2003).

Executives in charge of capital investment decisions and strategy formulation are faced with the complexity of selecting investment opportunities that simultaneously take advantage of opportunities and maximize return potential, and minimize the uncertainty and risk levels. The complexity of the task and the difficulties of executives in approaching the issue have been exemplified by Tosi, Aldag and Storey (1973) who showed that the perceptions top managers had of their environment was clearly different from its actual state when measured objectively. DeNoble and Olsen (1986) also reported disturbing findings for the restaurant industry. They stated that 40% of the chief financial officers of restaurant firms did not consider any kind of risk adjustment method when making capital investment decisions. In addition, they reported that most of the top-managers of the industry perceived their task environment as rather simple and stable, while objective measures showed opposite evidences.

The current picture does not seem to be very different today as only a limited number of studies have been performed to improve our understanding of the relationships between the environment and the risk and return relationship (Chung, 2005; Madanoglu, 2005). Executives in the hospitality industry appear to be left with a rather empty toolbox when it comes to understanding the influence of remote and task environmental variables on the outcome of their strategies.

PROBLEM STATEMENT

Globalization, free market systems and threatened natural resources are some of the major forces driving change that have added to the complexity of the environment in which restaurant firms strive to sustain growth and satisfy their investors' return requirements (Olsen & Sharma, 1998). With the intensification of international commerce and the advent of global supply chains, complex sets of relationships have been created across industries and borders, and new sources of risk have emerged in the task and in the remote environments. While the risk factors in the remote environment may differ from those in the task environment, they appear to be related to each other, with part of the remote risks driving part of the task risks. For instance, the effects of the remarkable economic developments of China and India on the global food supply chain or on the world's environment, which are yet to be fully comprehended, have in all likelihood influenced the costs and traceability of the food supplied in the U.S., as well as triggered new governmental regulations that have ultimately had some implications for the industry.

This extraordinary degree of complexity, coupled with an ever increasing pace of change, has raised the level uncertainty faced by industry executives. More than ever, strategic decisions need to be evaluated thoroughly, and to include estimates of future risks and returns. Yet, estimating these risks and returns requires an understanding of the timing and likelihood of impact of the remote forces on the task environment and on the industry. With the current degree of uncertainty, this undertaking appears to be more challenging than ever. Typical scanning systems need to be improved upon and key value drivers from the remote and task environment need to be identified. It is also necessary to address the relationships between and among these external and internal value drivers. In addition, the effect of strategic decisions on these relationships needs to be formalized and rigorously investigated.

Recent studies in the hospitality industry have initiated a stream of research attempting to shed light on these issues. Works on industry business cycles have provided some evidence of relationships between macroeconomic indicators and the evolution of sales in the restaurant and lodging industries (Choi, 1996, 1999). Further attempts have been carried out to uncover the influence of aligning growth strategies and capital structures to the evolution of the environment (Chathoth, 2002). Other efforts have been directed toward the identification of macro and industry specific economic value drivers that influenced the industry's operating cash flows and stock returns (Chung, 2005; Madanoglu, 2005).

Taken together, these studies have resulted in the identification of several key external value drivers that cause changes in the industry's performance level. Also, the importance of the alignment of the strategy choice and firm structure constructs to the environment has been highlighted. However, the conceptualizations of the relationships have not been quite adequate as they either did not distinguish between remote and task variables, or did not acknowledge the relationship between these remote and task value drivers. In the current context, characterized by increased dynamism and complexity, it appears necessary to improve our understanding not only of the influence of the two environmental constructs on industry and firms, but also of the cause and effect relationships that exist between the remote and task environment.

In addition, the influence of strategic decisions and industry structure on the degree of risk exposure of the industry or of individual firms to the remote and task environment has not been investigated from a causal perspective to this point. Yet, the industry has been perceived as favoring a few simple strategies in its attempts to deal with environmental constraints and opportunities. Growth through domestic and international expansion or via mergers and acquisitions has likely been the most widely adopted strategic choice, closely followed by new concept development (Olsen and Sharma, 1998; Olsen et al., 2007). What remains unclear however is whether these strategies and their consequences on the structure of the industry (e.g. more concentration and more brand diversification) truly reduce the risk exposure of the firms' cash flows and increase their returns.

CONTEXT OF THE STUDY

The primary context of this study is the restaurant industry in the United States. The restaurant industry currently comprises several segments, ranging from full-service restaurants to limited service restaurants. The full-service segment includes the casual theme restaurant segment, which will serve as the primary unit of analysis for the present study as it represents a homogeneous group that is expected to be subject to the same task environment.

The restaurant industry emerged as one of the fastest growing industries in the U.S. in the early 1950s. Between 1970 and 2005, the total revenues of the industry increased from US$42.8 billion to an estimated US$476 billion, representing an annual average growth rate of about 32% (National Restaurant Association, 2005). For 2006, the total sales grew to US$511 billion, and is forecasted to increase to US$576.9 billion by 2010 (National Restaurant Association, 2006). The share of the total spending on food has increased from 25% in 1955 to 47.5% in 2005 for the restaurant industry. The number of restaurant stores reached 925,000 units in 2006, representing approximately one unit for every 300 citizens. The industry also currently employs more than 12.5 million workers from very diverse ethnic backgrounds.

While the industry reported record performance levels in 2004 and 2005, growing sales by an annual growth rate of more than 8% (Technomic Inc, 2005), results for 2006 present less favorable news. Annual growth rate during the second quarter was just above 1.4%, with the full service segment reporting a 0.2% decline (MacArthur, 2006). The industry is seen as rather mature and certainly extremely competitive as supply grows much faster than demand.

In this context, casual theme restaurant firms have lately appeared to favor mergers and acquisition (M&A) as a mean to achieve their growth imperatives. From an economic standpoint, the industry could be characterized as trying to move from a nearly perfectly competitive market to conditions of monopolistic competition. For instance, Darden Restaurants recently initiated its tender offer to acquire the steakhouse operator Rare Hospitality International (Anonymous, 2007a). A few months later, Applebee's International announced its shareholders had approved the US$2.3 billion buyout by IHOP Corp. (Lockyer, 2007). A year earlier, Buffet's Inc revealed its intention to become the leader of the buffet segment and announced the acquisition of Ryan's Restaurant Group Inc., a 337-unit grill-buffet operator, in a deal valued at a little less than US$900 million. Other examples of M&A activities include the acquisition of Paradise Bakery &

Café Inc by Panera Bread Co in November 2006 or the purchase of Champps Entertainment Inc by the parent company of Fox & Hound Restaurant Group in July 2007 (Anonymous, 2007b). The trend toward more consolidation exemplifies the issues faced by casual theme restaurant firms, and supports the recognized need to improve our understanding of what will drive value in the future.

PURPOSE OF THE STUDY

The purpose of this study is to investigate the concepts of remote and task risks in relation to the structure of the casual theme restaurant industry, and to examine the performance consequences of their relationships. This study proposes a framework of analysis that will enable industry participants to develop an improved understanding of the relationships among environmental risk drivers, and of the influence of their strategic decisions on the environment-performance connection.

RESEARCH QUESTIONS

The current effort is guided by several underpinning theories, principally drawn from strategic management, industrial organization economics and finance fields. In order to address the problem stated above, it is necessary to specify the questions the author will attempt to answer in this study. Specifically, these research questions are:

1. What are the key value drivers of the remote and task environment?
2. How do the remote value drivers influence the task value drivers?
3. How do these external value drivers influence the performance of the industry?

4. What role does the industry structure play in the relationship between the task value drivers and the performance of the industry?

CONCEPTUAL OVERVIEW OF THE CONSTRUCTS AND THEIR RELATIONSHIPS

Strategy scholars have generally adopted a systemic view of companies and their environment in their attempts to better understand the sources of superior performance and competitive advantage. While several competing strategy schools exist (Mintzberg, Ahlstrand, & Lampel, 1998), the notion of fit, or alignment, has recently emerged as the dominant perspective as it links the ideas developed in several theories such as the process view, the industrial organization (I.O.) economics and resource based view (RBV) of the firm (Amit & Schoemaker, 1993; Olsen et al., 2007; Venkatraman & Prescott, 1990). This concept of co-alignment has been discussed by Olsen et al. (2007), who used four constructs in the development of their theory: the environment, strategy choice, firm structure, and firm performance. The present study uses the co-alignment principle of Olsen et al. (2007) as a guiding theory. Yet, due to the nature of the casual theme restaurant industry, and to data availability, the initial four constructs are slightly adapted. These constructs are introduced next.

<u>The remote and task environments as separate constructs</u>

The remote and the task environments have often been conceptualized as being two components of the same general construct, and have been broadly defined as being those things that are external to the firm (e.g. Chung, 2005; Duncan, 1972). Primarily driven by research on environmental scanning activities and perceived environmental uncertainty (e.g. Ansoff, 1980; Dev, 1988; Jogaratnam, 1996; Olsen, 1980; Segev, 1977; Sharma, 2002; West, 1988; Zhao & Olsen, 2003), the conceptualization of the task and remote environment as a single construct has lead empirical investigations to indiscriminately include all variables from both components in their analysis, or to rely on the perceptions executives had of these variables, which resulted in confounded relationships or a lack of understanding of causal linkages (Choi, Olsen, Kwansa, & Tse, 1999; Chung, 2005).

Other studies have attempted to overcome this issue by limiting their investigations to the remote environment, which has been deemed as relevant to corporate level strategy and the definition of the domain in which the firm is to be in (Bourgeois, 1980a). This approach has also been adopted by most finance research as industry and firm specific factors have regularly been considered as insignificant to their diversifiable nature (Bansal & Yaron, 2004; Barrows & Naka, 1994; M.-H. Chen, Kim, & Kim, 2005; N.-F. Chen, Roll, & Ross, 1986; Lintner, 1965; Markowitz, 1959; Reinganum, 1980; Ross, 1976).

Alternatively, some inquiries have attempted to enhance the understanding of the influence of the task environment on business level strategies and of its importance to domain navigational issues. The task environment has typically been approached by measuring the perceived task environment uncertainty (e.g. Keats & Hitt, 1988; Tan & Tan, 2005) or, more objectively, by assessing the state of the industry in relation to its suppliers and buyers (Hatten, Schendel, & Cooper, 1978; Kaniovski & Peneder, 2002).

In the present study, the remote and task environment are defined as two separate constructs. First, it appears necessary to treat the two environments separately as they represent two distinct concepts with dissimilar relationships with industries and firms. Evidence from the finance literature have supported the idea that risk factors in the remote environment influence the performance of firms as they do for the entire economy (e.g. Braun & Larrain, 2005; Ross, 1976). Empirical studies in strategy have, in turn, substantiated the effects of the task environment on industries and firms (Hatten et al., 1978; McGahan & Porter, 1997). Secondly, the corporate versus business level strategy motive, which lead to the separate treatment of the remote and task environment, appears to be increasingly unfounded as a growing number of companies have been or are still in the process of downsizing their business portfolio in an attempt to refocus on their core activities[1]. When firms are engaged in a single business line, as a majority of the firms in the restaurant industry, the boundaries between corporate and business level strategies become blurry. Thirdly, it also seems reasonable to argue that further attempts made toward improving our understanding of the causal texture of the environment, and of the influence of environmental forces on industries and firms, need to incorporate both the remote and the task environments. Indeed, as suggested by several strategy students, dealing with environmental threats and opportunities requires the comprehension of the chain of causality, which encompasses the effect of the remote on the task environment, and of the task environment on the industry and the firm (Emery & Trist, 1965; Olsen et al., 2007; Porter, 1980).

[1] This trend is exemplified by the increasing number of newspaper and trade journals' articles reporting on corporate downsizing, the focus on core businesses, and horizontal mergers and acqusitions. For a sample of such articles, see Annett (2007), Vestring and Leung (2007), or Wiggins (Wiggins, 2007).

In the present study, the remote environment is defined as the collection of risk factors that are external to the task environment and the industry (Bourgeois, 1980a; Olsen et al., 2007). These risk factors affect multiple task environments and include the sources of “general social, political, economic, demographic, and technological trends” (Bourgeois, 1980a; p. 26). As such, they are relevant to the domain selection as opposed to domain navigational issues. The remote environment is empirically limited to economic factors that can be observed and measured with an acceptable degree of precision. The task environment is then defined as the set of risk factors that are external to the industry and that are directly related to the suppliers, buyers, and regulatory bodies with whom the industry interacts and whose actions affect the realization of the objectives and goals of the firms within the industry (Bourgeois, 1980a; Porter, 1980). The task factors are also limited in their empirical forms to economic factors, principally drawn from the suppliers’ group.

The remote and task environments being viewed as two separate constructs, the relationships linking them, and those connecting them with the industry and individual firms, need to be conceived differently than in previous research endeavors. As a replacement for the typical direct and independent relationships between the environmental constructs and industry and firm performance (e.g. Madanoglu, 2005), a mediated indirect relationship is hypothesized, wherein the effect of the remote environment on industry and firm performance is mediated by the state of the task environment. In line with the chain of causality idea of Porter (1980) and Olsen et al. (2007), the proposed relationship suggests that industry participants are not directly influenced by the changes in the remote environment, but rather that the supplier and buyer groups in the task environment are initially influenced by these remote changes, and that the industry is only subsequently impacted by the task environment. Viewing the task environment as a mediator in the relationship between the remote environment and the industry is consistent with the instability found in industry portfolios' betas, which suggest a time-dependence (i.e. changes over time) in the exposure of industries to macroeconomic risk factors (e.g. Guo & Whitelaw, 2006; Merton, 1973). It is also consistent with the I.O. perspective on the role of industry structures, which considers a high bargaining power and high barriers to entry as tools that help industries buffer themselves against environmental threats (the notion of buffering being close to the idea of mediation; e.g. Caves, 1977; Porter, 1980).

Industry structure: The influence of strategy choice

Firms' strategies have been discussed using primarily two perspectives. I.O. scholars (i.e. the positioning school) have seen strategy as being primarily driven by the state of the structure of the industry and the aspiration of firms to gain a position advantage within their industry as well as vis-à-vis the external forces present in the task environment (R. Caves & Porter, 1977; Cool & Schendel, 1987; Hatten et al., 1978; Leask & Parker, 2007; Porter, 1980). In contrast, other scholars have looked at strategy choice by focusing on the inside of firms, and have seen superior performance as being more a function of the distinctive resources and competencies of individual firms rather than their product-market orientations (Barney, 1996; de Chabert, 1998; R. M. Grant, 1991; Hamel & Prahalad, 1994; Newbert, 2007).

Building on the inconclusive, yet informational attempts made to test separately these two apparently opposite paradigms (e.g. Dev, 1988; Tse, 1988; West, 1988), Olsen et al. (1998) suggested that superior performance was a function of the degree of alignment between the core competencies (labeled firm structure in the co-alignment model) and strategic choices, rather than the result of one of the two in isolation[2].

In addition to the notion of internal alignment, Olsen et al. (2007) suggested that strategy choice could be seen in terms of two primary types of actions firms were taking. Using ideas developed by Crawford-Welch (1990) in addition to the inconclusive results mentioned above, the authors made the distinction between competitive methods (CMs) and critical success factors (CSFs).

Similar to the notion of strategic industry factors of Amit and Shoemaker (1993), CSFs were defined as those things that set industries' best practices and benchmarks, and that are necessary to firms to remain competitive. These CSFs were described as successful portfolios of products and services that have been copied and adopted by the majority of the firms in a given industry. As such, CSFs are CMs that have been successfully duplicated by competing firms and that have defined the way business is conducted in a given industry. Accordingly, these CSFs define the structural dimensions of the industry. As the CSFs evolve through time, the industry structure as a whole changes too. The idea that the structure of industries changes over time as a result of the strategic actions taken by the competing firms has also been suggested by I.O. students (e.g. Porter, 1991).

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[2] Note that in the co-alignment model, strategy choice and firm structure need also to be aligned with the environment to engender superior performance.

In contrast to the CSFs and industry structural dimensions, unique bundles of products and services offered by individual firms have been considered as CMs, and have been hypothesized to be the primary source of competitive advantage and performance differences among firms.

The current study uses this perspective on strategy choice. Specifically, strategy choice at the firm level is defined by the CMs and CSFs toward which the firm invests its resources. At the industry level, strategy choice is represented by the state of the CSFs, and the resulting industry structure, which, in turn, determines the type of competition taking place in the industry, the heights of the entry barriers, and the degree of bargaining power the industry has over its suppliers and buyers. Yet, as CMs are firm specific, and because their competitive potential is subject to failure if not aligned with the competencies of the firm, strategy choice at the firm level is not directly considered in the present study. As a matter of fact, the firm structure construct appears to remain overly conceptual and lacks adequate measurement scales, which excludes it from this study. Since the firm structure construct is not included due to these measurement limitations, the influences of CMs cannot viably be estimated as they depend on their alignment with the former construct. Consequently, the present study concentrates on structural dimensions of the industry, which are subject to the evolution of the CSFs. The measurement of the construct is thus limited to these structural dimensions, and does not include directly strategic choices. The unit of analysis is thus also limited and set at the industry level.

As suggested earlier, it is hypothesized that the industry structure, which results from the CSFs of the industry, will define the relationship the industry has with its task environment. Accordingly, the structural dimensions of the industry are expected to moderate the mediated relationship between the remote environment and the industry performance. Specifically, it is hypothesized that the influence of the remote environment on the industry performance, which is mediated by the task environment, is subsequently moderated by the structure of the industry.

Firm performance – Risk and return

The fourth construct included in this study has received much less theoretical consideration than the previous ones. While being the dependent construct of most strategy and finance research efforts, firm performance has generally been presented as a self-evident concept. Most of the early strategy works have limited their operationalization of the construct to accounting ratios, such as Return on Assets (ROA), Return on Equity (ROE) and Return on Sales (ROS) (e.g. Dev, 1988; Schendel & Patton, 1978; West, 1988).

Alternatively, finance studies have favored market variables, such as stock return and other risk-adjusted measures, and have adopted, without much discussion, the assumption of positive risk-return relationships (Brown & Warner, 1980; N.-F. Chen et al., 1986; Fama & MacBeth, 1973; Lintner, 1965). For the most part, the finance field has also limited its conceptualization and measurement of risk to the mean-variance paradigm, and to the notions of systematic and unsystematic risk as proposed by the modern portfolio theory and capital asset pricing model (Markowitz, 1959; Sharpe, 1964).

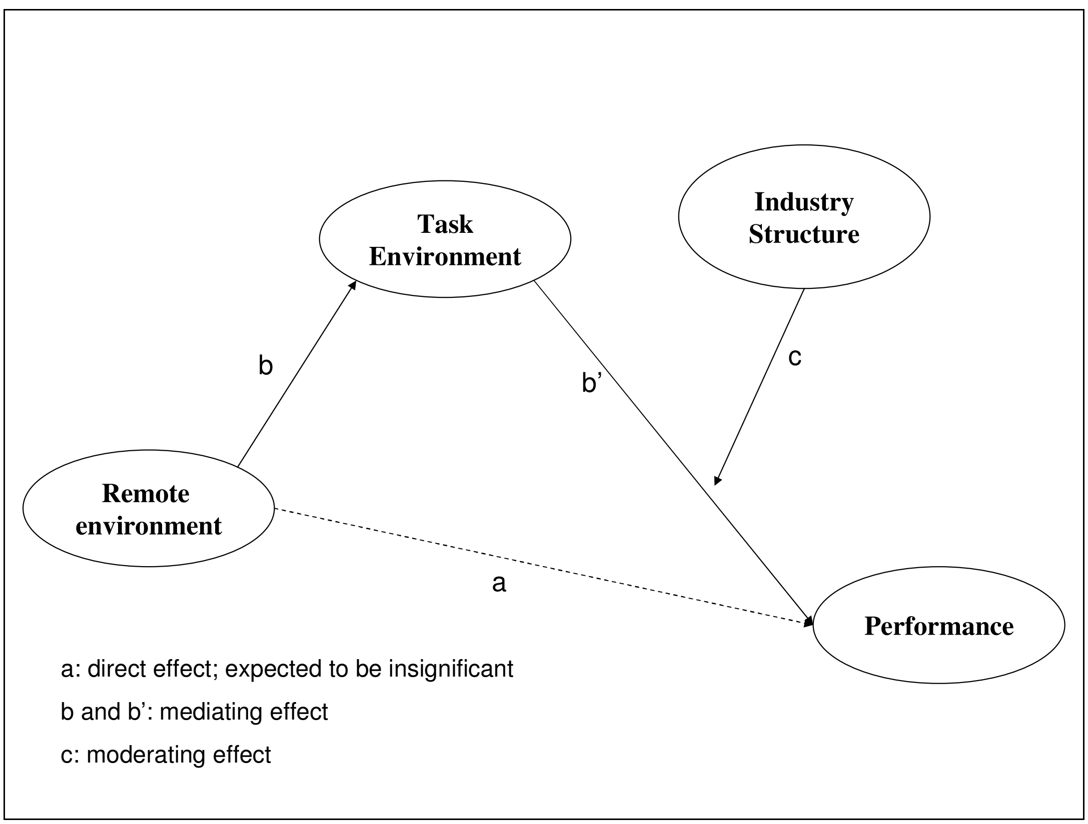
These initial views of performance have recently been challenged. In the strategy discipline, several authors urged the field to move away from simple accounting returns and to adopt finance notions, principally the concept of risk as it pertains to performance (Bettis, 1983; Bou & Satorry, 2007; Bromiley, 1990; Chatterjee, Lubatkin, & Schulze, 1999; Richard, Murthi, & Ismail, In press). In the finance literature, the growing number of inconclusive tests of traditional asset pricing models concentrating on the systematic risk components, have called for the inclusion of firm and industry specific risk factors in the assessment of the value and performance of companies and financial securities (Ball, 1978; Banz, 1981; Easley & O'Hara, 2004; Fama & French, 1992; Reinganum, 1981a, 1981b)

Other works in strategy suggested a negative risk-return relationship, thereby questioning the legitimacy of the assumptions on which modern finance theories had been built (Andersen, Denrell, & Bettis, 2007; Bowman, 1980; Fiegenbaum & Thomas, 1986; Miller & Reuer, 1996; Oviatt & Bauerschmidt, 1991; Ruefli, 1990). Several finance students also probed some of the fundamental assumptions of finance theories. Building on behavioral theories of decision making under uncertainty, they suggested that investors and managers did not perceive the upside volatility of performance as risk, but rather defined risk as the likelihood of achieving returns below a certain minimum acceptable reference point (Chiu, 2005; Fishburn, 1977; Leggio & Lien, 2003; Mao, 1970; Sortino & van der Meer, 1991).

In the present study, the performance construct is conceptualized using these latter perspectives. Specifically, the construct is defined by two dimensions, downside risk and return. The downside risk dimension adopts the suggestion made by Sortino and van der

Meer (1991), and is operationalized using the semivariance of the returns. For the return dimension, the operating cash flows return on invested capital is used as it is deemed superior to earning returns and other accounting returns (Chung, 2005; Madanoglu, 2005). Consistent with the notion that industry structure alters the exposure of industry participants to environmental risks, it is expected that the moderating role of the structural dimensions of the industry will influence the downside risk and return of the industry. Figure 1.1 illustrates the constructs used in the present study, and summarizes their proposed relationships.

Figure 1.1: Proposed conceptual model



Formally, the propositions describing the linkages between the constructs illustrated above are:

P1: Remote risk factors causally influence the task risk factors; the higher the remote risks, the higher the task risks.

P2: Task risk factors causally influence industry performance; the higher the task risk factors, the higher the variation in the industry cash flows.

P3: Remote risk factors do not influence directly the industry performance when the effects of the task risk factors are controlled; the task risk factors mediate the effect of the remote risk factors on the variation of the industry cash flows.

P4: The influence of the task risk factors on the industry performance is moderated by the changes in the industry structure; the higher the barriers to entry and the more bargaining power the industry has on its suppliers and buyers, the less influence the task risks will have on the variation in the industry cash flows.

RESEARCH DESIGN

As stated above, the primary unit of analysis for the present study is the industry. The sampling framework is similar to the one used by Chung (2005) and includes all U.S. publicly traded firms of the casual theme restaurant industry. In order to construct a homogeneous portfolio of firms, the sample is also restricted to firms that generate more than 95% of their sales from chain operated stores as opposed to franchised units. Data for the environment constructs will be collected from governmental databases and will include economic variables adapted from Madanoglu (2005) and Chung's (2005) works. Data for the industry will be gathered from governmental databases and the TrendMapper database of the National Restaurant Association. For individual firms, data will be collected from the SEC fillings.

The methodology and data analysis consist of several steps. First, remote and task environment risk factors will be obtained using exploratory factor analysis (EFA). It is important to note that the factors of the remote and task environments will be constructed separately. Then, as a preliminary step for further analysis, cross-correlation functions (CCF) will be used to identify potential time lags between the two environmental constructs and the performance construct. Next, the causality of the relationships between the remote and task risk factors, as well as between task risk factors and performance variables will be tested using the Granger procedure (Granger, 1969). Subsequently, time-series multiple regression models will be developed to test the various mediated and moderated relationships hypothesized between the remote and task environment, CSFs and performance.

CONTRIBUTION TO THE LITERATURE

This study builds on a recent stream of research that aims at identifying industry specific variables that affect the performance levels and variability of business firms. This study contributes to the current body of knowledge by providing a comprehensive list of remote and task variables that influence separately or in combination the casual theme restaurant industry. The present study also adds to the literature as it defines and tests two distinct types of relationships, namely mediation and moderation. This specific theorization and operationalization of the relationships not only intend to help industry professionals in their investment decisions, but also academics as they provide innovative approaches to further investigating the notion of co-alignment.

The second chapter provides a review of the literature on the key constructs of interest, and covers the subjects by taking perspectives from the strategic management, industrial organization and financial management fields. The key findings of this chapter are then synthesized, and propositions are put forth.

The third chapter concentrates on methodological issues, and specifies the unit of analysis, the boundaries and operational forms of the constructs. The development of the empirical model is described, and statistical tests are presented, as well as the sampling framework and data collection.

SUMMARY

Several research programs have advanced our understanding of the role of the environment on strategy and performance. The current status in these streams of research calls for investigations in the causal texture of the relationships between the remote and task environments, the structure of the industry, and the industry performance.

Building on the current body of knowledge in strategy and finance, the present study will attempt to further that understanding, and delve into the complex relationships of the above mentioned constructs. In particular, the mediating effect of the task environment on the remote environment and industry performance connection will be investigated. The moderating role of the structure of the industry on this mediating effect will also be investigated. The performance outcomes of these relationships will be evaluated in terms of downside risk and return.

The unit of analysis will be the industry level, and the sample will include firms active in the casual theme restaurant industry, but not involved in franchising. This research will incorporate several methodological steps, including exploratory factor analysis, Granger test of causality, and time-series regressions. The overall objectives of the study are to improve upon our current comprehension of the causal texture of the environment, and its impact on industries and firms.

CHAPTER 2 – LITERATURE REVIEW

INTRODUCTION

Central to the study of organizational success and failure is the role of strategy, and the relationships firms have with their industries and environments. Research on strategy, as it pertains to business firms, has accumulated over the last five decades. While an initial definition of strategy can be found in von Neumann and Morgenstern's (1947) theory of games, the original studies in the field are the works of Chandler (1962) and Ansoff (1965).

Chandler (1962) viewed strategy as a descriptive notion. He suggested that strategy was primarily the means by which the organization achieves its goals. In contrast, Ansoff (1965) observed strategy as the decision rules and guidelines that define the product/market scope, the growth directions, as well as the synergies sought. For Hofer and Schendel (1978), strategy was more about the match between internal elements within the firm and environmental opportunities and threats. Porter (1980, 1996) looked at strategy as defendable positions within an industry that are achieved by performing activities differently than others, and that takes advantage of the five forces of the task environment. Other scholars who defined strategy are presented in Table 2.1 in chronological order.

Table 2.1: Definitions of strategy

Authors	Definition
von Neumann and Morgenstern (1947)	A series of actions by a firm that are decided on according to the particular situations.
Chandler (1962)	The determination of the basic long-term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carry of these goals.
Ansoff (1965)	A rule for making decisions determined by product/market scope, growth vector, competitive advantage, and synergy.
Andrews (1971)	Strategy is decision rules and guidelines that define the scope and growth direction of the firm. It is the pattern of objectives, purposes or goals and major policies and plans for achieving these goals.
Hofer and Schendel (1978)	The match between organization resources and skills and the environmental opportunities and risk it faces and the purposes it wishes to accomplish.
Mintzberg (1978)	Consistent patterns in streams of organizational decisions to deal with the environment.
Miles and Snow (1978)	The means used by organizations for consistently responding to the environments they have enacted. Strategy is a pattern or stream of major and minor decisions about organization possible future domains.
Porter (1980)	Offensive or defensive actions that create a defendable position in an industry, and that cope with the five competitive forces and yield a superior return for the firm.
Olsen and DeNoble (1981)	The means through which organizational resources are employed to meet organizational objectives and the accomplishment of an organizational purpose.
Thompson and Strickland (1996)	The pattern of actions managers employ to achieve organizational objectives.
Porter (1996)	The creation of a unique and valuable position by performing activities differently than the competition.
Olsen et al. (1998)	A way of thinking. A reflection of the competitive methods in which firms have invested.

Definitions of strategy vary from one another. A central theme, however, is that strategy includes a series of actions adopted by the organization to achieve certain performance objectives. Additionally, the actions are taken in relation to the firm's environment and require the firm's internal structure to be aligned with environmental conditions.

Co-alignment principle

The notion of alignment has been a central premise in the study of organizations (Andrews, 1971; Duncan, 1979; Hofer, 1975; Hofer & Schendel, 1978; J. D. Thompson, 1967; Venkatraman & Camillus, 1984). This concept, also termed "fit" or "match", refers to the ability of firms to take product/market and structural actions that are consistent with the constraints posed on it by the environment.

This essential role of alignment, and the difficulty in achieving it, was highlighted by Andrews (1971), who stated that "The ability to identify four components of strategy – (1) market opportunity, (2) corporate competences and resources, (3) personal values and aspirations, and (4) acknowledged obligations to segments of society other than stockholders – is nothing compared to the art of reconciling their implications in a final choice of purpose" (p. 38).

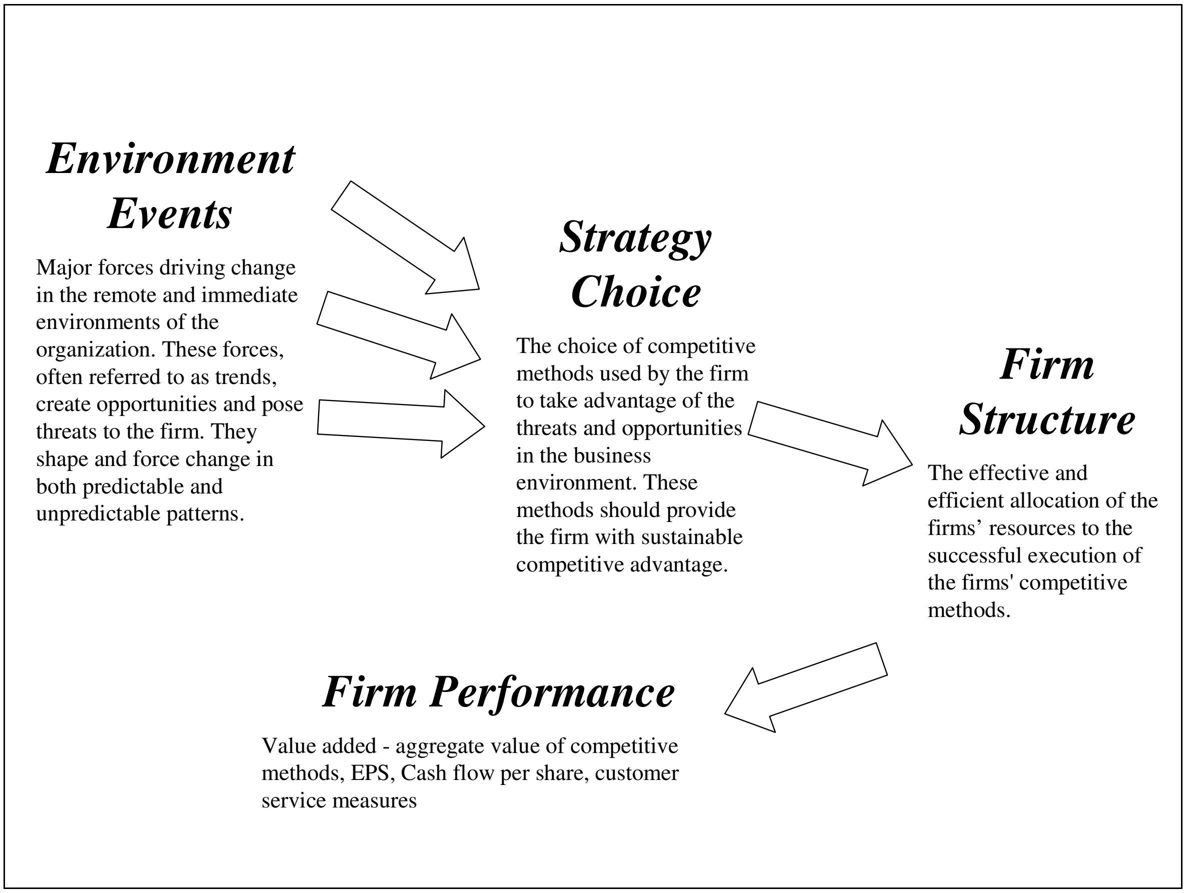
Similarly, Lawrence and Lorsch (1967) argued that organizational alignment required managers to demonstrate exceptional integrative skills, which they regarded as valuable but scarce. To them, these alignment skills were rent-producing resources, or strategic factors.

Recognizing the importance of co-alignment, Powell (1992) studied the performance consequences of fit in two manufacturing industries. Specifically, he investigated the influence of the fit between states of the environment, strategic planning and structural characteristics, on performance. He found that firms presenting a higher degree of fit significantly outperformed firms with a lower degree of fit.

The concept of co-alignment has been theorized in the hospitality management literature by Olsen et al. (1998), which provided a comprehensive view of the strategic management process and of the relationships of its key elements. The co-alignment principle suggests that " if the firm is able to identify the opportunities that exist in the forces driving change, invest in competitive methods that take advantage of these opportunities, and allocate resources to those that create the greatest value, the financial results desired by owners and investors have a much better chance of being achieved" (Olsen et al., 1998, p. 2). The co-alignment principle, depicted in Figure 2.1, includes four constructs: the environment, strategy choice, firm structure, and firm performance. These constructs need to be aligned with each other in order to maximize the performance of the firm. Achieving the alignment requires a thorough understanding of the cause and effect relationships among the constructs.

The following sections offer a review of works related to each of the co-alignment constructs. Major contributions are then synthesized and propositions are presented.

Figure 2.1: The Co-alignment principle



Source: Olsen et al. (1998)

THE ENVIRONMENT

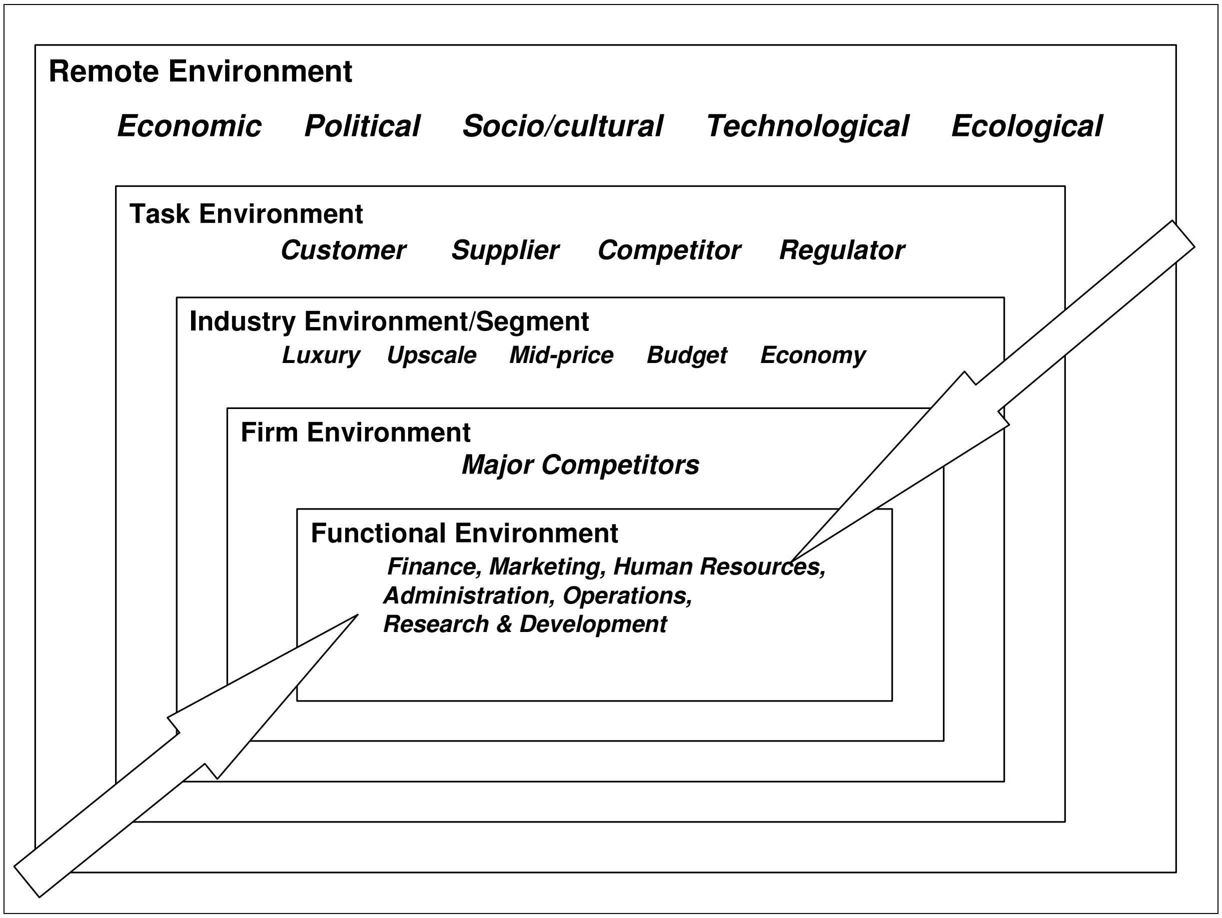
The importance of the environment to the conduct of organizations has long been recognized (Aguilar, 1967; Aldrich, 1979; Ansoff, 1965; Dill, 1958; Duncan, 1972; Lawrence & Lorsch, 1967; J. D. Thompson, 1967). Early works on the influence of the environment on firms have principally been directed toward structural and behavioral elements of organizations.

The concept of the environment has been defined in several ways, depending on the subject of investigation. Selznick (1948) defined the business environment as flows of information relevant to goal setting and decision-making. Concentrating on the immediate environment of firms, Dill (1958) defined the task environment as "the stimuli to which an organization is exposed" (p. 411). Duncan (1972) characterized the concept "as the totality of physical and social factors that are take directly into consideration in the decision-making behavior of individuals in the organization" (p. 314).

In his discussion on the hierarchical levels of strategy, Bourgeois (1980a) clearly made the distinction between the general environment, which was of interest to the domain definition (i.e. corporate strategy), and the task environment, important to the navigational issues of business level strategies. While not providing clear definitions, he suggested several factors to be included in each of the two environmental levels. For instance, the general environment included economic and demographic factors, whereas the task environment included suppliers, customers, competitors, regulators and technology. He also distinguished between perceived and objective environments.

In the hospitality industry, Olsen et al. (1998) detailed the classification and differentiated between the remote environment (i.e. general environment), task environment, industry/segment environment, firm environment, and functional environment. This classification scheme is showed in Figure 2.2.

Figure 2.2: Environmental classification scheme



Source: Olsen et al. (1998)

<u>Early works on the environment</u>

Duncan (1972) attempted to identify the characteristics of the environment that contribute to the decisions of managers. Drawing from the works of Emery and Trist (1965) and Thompson (1967), he tested three hypotheses relating environmental complexity and dynamism to perceived uncertainty. Using a self-typing survey instrument, he found that the two dimensions, complexity and dynamism, could explain the difference in perceived uncertainty among managers, and that the dynamism dimension was the most influential.

In his critical review of prior works on the environment, organizational structure and performance, Child (1972) suggested that strategic decisions needed to be incorporated in the study of the relationship between the firm and its environment. While acknowledging the fact that the environment poses some constraints on organizations, he argued that decision-makers with sufficient power could respond to these constraints by changing their strategic orientation rather than adjust their organizational structure.

These initial considerations of the environment lead scholars to delve into two fairly distinct subjects. Research efforts on environmental scanning were conducted with the intentions of understanding the importance of scanning activities on performance, and to formalize scanning activities with the aim of proposing better planning tools (Aaker, 1983; Aguilar, 1967; Ansoff, 1965; Fahey & King, 1977; Segev, 1977). In contrast, others have attempted to measure the construct objectively and to study its relationships with firms' strategies and performance levels. These two streams are discussed thereafter.

Environmental scanning

Environmental scanning researchers first attempted to understand how firms were actually looking at their environment. Aguilar (1967) empirically studied the behavior of executives with regards to the type of information they were considering as important, their sources of information, and how they were using them. As his work was exploratory in nature, he was more concerned with what was happening rather than what should happen. Aguilar (1967) characterized scanning activities by using four different modes, ranging from undirected viewing of the environment to formal search.

Building on prior studies, Ansoff (1980) developed a model with the aim of integrating scanning activities into the strategic planning process. In developing his model, Ansoff (1980) was also concerned with how firms with different scanning processes reacted to environmental signals. He also discussed the idea of trends within the environment, their importance in detecting strategic signals, and provided an impact/urgency analytical matrix for monitoring environmental trends.

Aaker (1983) proposed a six-step strategic information scanning system (SISS) in an attempt to solve some of the problems inherent to regular, yet sporadic, formal strategic planning exercises. He argued that organizations usually relied on ad-hoc and unsystematic external analysis, and that many potentially relevant pieces of information were unnoticed by top-managers, although they could be known by others within the organization. His scanning system included the specification of information types and sources, the identification and assignment of tasks to the participants, and the storage, processing and dissemination of information.

In the hospitality industry, Reid and Olsen (1981) proposed a strategic planning model for independent food service operator. Their model included five steps, opening with the scanning of the environment and followed by the gathering of marketing information. Subsequently, an internal analysis of the strengths and weaknesses was advised, followed with a financial analysis.

In a later article, Griffin and Olsen (1986) suggested that hotel chains would gain from the use of a computerized database system for strategic planning. The authors detailed the various components of such a system and explained how information should be stored, analyzed, and dispatched.

In a comparable attempt to facilitate environmental scanning activities in the hospitality industry, Nanus and Lundberg (1988) proposed a procedure, titled QUEST (QUick Environmental Scanning Technique), to assist management teams in reaching a shared understanding of high-priority issues, and to focus the attention of top-management on strategically relevant areas of the environment.

In an attempt to support the assertions made by previous prescriptive works on the importance of scanning, West (1988) studied the relationship between environmental scanning, generic strategies and performance. Using self-typing questionnaires, the author found that high performing firms appeared to perform more regularly some kind of environmental scanning activities than low performers. The results of his dissertation, also reported in West and Olsen (1989) and West and Anthony (1990), suggested that environmental scanning exercised a moderating influence on the strategy-performance relationship. Although these findings may result from the improper operationalization of the strategy construct, as they principally explained within strategic groups performance difference (this point is discussed in the strategy choice section), they still provided some support to the importance of scanning in strategic management.

Recognizing the importance of environmental scanning, Kim (1992) developed a framework for the identification of political issues faced by international hotel chains in newly industrialized countries in Asia. Using a Delphi research methodology, the author was able to identify 58 events that were considered as important to monitor. These results, also reported in Kim and Olsen (1993), suggested that the political environment was complex and diverse, and that it required intense scanning efforts for firms to be successful.

Jurowski and Olsen (1995) attempted to scan the general environment of the tourism industry by identifying patterns of activities. Using content analytical techniques, they exploited the Trends Database of the Center for Hospitality Research and Service at the Virginia Polytechnic and State University, and studied over 20 key industry journals covering seven years, from 1985 to 1992. The authors were able to isolate several major trends, such as changing consumer preferences, or greater local involvement in tourism development.

In what seems to be the most substantial effort to scan the environment of the international hospitality industry to date, Olsen (1995b) researched extensively the nature of forces driving change as they pertain to the future of a business enterprise. Motivated by industry recognized needs, and with the support of the International Hotel and Restaurant Association (IH&RA), the authors initiated a series of *visioning the future©* workshops. Those workshops were held across the globe, bringing together diverse groups of participants in order to obtain a broader view on issues facing the industry. The authors used nominal group techniques to monitor the sessions and to obtain consensus over the most central issues uncovered. The synthesis of the results of each workshop provided a global view of the forces driving change as reported by Olsen (1995b).

Upon industry request, this early work was taken a step further with the objective to provide more specific insights on each of the forces. A team of researchers, under the umbrella of the IH&RA, conducted another series of workshops entitled *Think Tanks*. The outcomes of those *Think Tanks* helped recognized the nature of those forces and resulted in several executive summaries published by the IH&RA. The initial efforts of Olsen (1995b) permitted the identification of five original forces, to which two other were later added: Assets and capital, capacity control, new management, safety and security, technology, social responsibility, and sustainable development.

Later works on environmental scanning have essentially followed the lines of research discussed thus far. Some studies have delved into the type of information perceived as important to the scanning process (Crook, Ketchen, & Snow, 2003; Harrison, 2003; Strandholm & Kumar, 2003; Yeoman & McMahon-Beattie, 2005; Yunggar, 2005). Other works have investigated the level of scanning activities performed by management under different environments (Costa & Teare, 2000; Hough & White, 2004; May, Stewart, & Sweo, 2000; Muralidharan, 2003), or have attempted to relate the attitude of executives toward environmental scanning to firm performance (Analoui & Karami, 2002). Yet, with the exception of studies in the vein of West (1988), most of the literature on scanning has resulted in normative models or in the identification of current and future industry trends. In the study of strategy, more objective measures and precise conceptualization of the construct have helped in the developing and testing of theories. These works are discussed in the following section.

Objective versus perceived environment

Several authors have attempted to relate the environment to strategy and firm performance. Earlier works attempted to classify environmental conditions based on several dimensions. Child (1972) indicated three environmental conditions: variability, complexity and illiberality. The first dimension represents the frequency, degree and irregularity of changes in environmental activities. The second, complexity, refers to heterogeneity and range of environmental activities. The third dimension indicates the degree of threats and hostility faced by organizations.

Lawrence and Lorsch (1967) attempted to measure environmental uncertainty (i.e. variability) as perceived by top managers. They used both questionnaires and interviews to collect data. They argued that only top executives would be in a position to be knowledgeable about conditions in their industry.

Tosi, Aldag and Storey (1973) tried to replicate part of Lawrence and Lorsch's (1967) study to test the validity of their uncertainty scale. Using the same questionnaire instrument, the authors compared perceived uncertainty with some objective measurements of volatility. Tosi et al. (1973) argued that if the perceived uncertainty scale was valid, the result between perceived uncertainty and the volatility of certain key indicators of the industry's outputs and inputs, should not significantly differ. They operationalized objective uncertainty by computing the average standard deviation of revenues and expenditures. Their results were somewhat astonishing as their two uncertainty measurements showed mostly negative correlations. The authors had to conclude that the uncertainty scale was methodologically inadequate.

Miles and Snow (1978) also attempted to measure environmental uncertainty in a study of the food processing and electronics industry. Their initial scale was also used in the study of Hrebiniak and Snow (1980), which included the automotive, air transportation, plastics/synthetics resins, and semiconductors industries. Using a 33-item scale, the authors asked top managers to rate various environmental elements on their degree of certainty/predictability. Through factor analysis, they identified five subdimensions of uncertainty: financial/capital markets, government regulation and intervention, the actions of competitors, suppliers' actions, and general conditions facing the organization. The authors found that there were differences in uncertainty levels among industries, but also within industries (yet, fewer than among industries).

Despite the findings of Tosi et al. (1973), a number of subsequent studies in the general and strategic management literature have used the concept of perceived environmental uncertainty (PEU). Daft, Sormunen, and Parks (1988) interviewed Chief Executives in 50 manufacturing companies about their perceived environmental uncertainty and scanning activities. Using essentially the same scale than Miles and Snow (1978), the authors found that Chief Executives in high-performing firms scanned more frequently and more thoroughly their environment when faced with high PEU than executives from low-performing firms.

Sutcliffe and Huber (1998) investigated the extent to which executives' PEU was affected by firm and industry membership. By means of mail questionnaires, and relying on a similar scale as the one used in prior studies (Miles & Snow, 1978), the authors surveyed 307 top management members in 58 organizations drawn from 19 industries. Using a nested ANOVA design, the authors found that more than 40% of the variance in PEU could be explained by firm and industry membership.

More recently, Hoffmann (2007) delved into the influence of PEU and resource endowment on the development of strategic alliances. Using the case study approach, the author interviewed a number of executives in a large multinational and diversified corporation, and found that the degree of PEU was important to the development path of strategic alliances. Specifically, he found that sudden increases in PEU could lead to strategic shifts to more conservative types of alliances.

In the hospitality industry, Dev (1988) investigated the relationships between environmental uncertainty, business strategy and performance. Dev (1988) relied on Miles and Snow's (1978) survey instrument to asses the perceived environmental uncertainty of hotel managers. The author asked general managers of hotels to rate several items related to their task environment from stable to volatile. Then, he averaged out the responses on his 20-item scale to obtain a general score of uncertainty, and grouped the responses into three categories, volatile, moderate, and stable environments.

More recently, Sharma (2002) delved into the influence of perceived environmental uncertainty on the variables used in budgeting activities in the hotel industry. Based on the survey of the Financial Controllers of 106 hotels, he found that different dimensions of PEU influenced the characteristics of budgeting systems.

A number of other researchers have favored objective measures of the environment in their studies of strategy. Snyder and Glueck (1982) attempted to validate Tosi et al. (1973) study. Using a similar, yet adapted methodology, the authors compared objective measurement of technology, market and industry volatilities, with evaluations of industry analysts. Their results supported the measurement approach of Tosi et al. (1973), and the authors concluded that "this information will enable researchers to study the effect of environmental volatility on organization functioning and performance" (p. 191).

In another attempt, Dess and Beard (1984) tried to measure the three dimensions of the task environment suggested by Child (1972) and Aldrich (1979). Using variables pertaining to growth (munificence/illiberality), specialization and geographic concentration (complexity), and instability (uncertainty), they were able classify different task environments across industries.

In the hospitality literature, Slattery and Olsen (1984) studied the risk adjustment techniques used by hospitality organizations when making investment decisions. The authors compared these approaches to risk to the objective measurements of market volatilities proposed by Snyder and Glueck (1982). Identifying large discrepancies between executives' perception of risk, characterized by the use of few risk adjustment techniques, and rather high market volatilities, they concluded that hospitality organizations were still far away from developing accurate perceptions of their environment.

In a similar effort, DeNoble and Olsen (1986) studied the degree of environmental scanning activities performed by food equipment manufacturers, restaurants, and lodging firms. Using a 3-point scale, the authors evaluated the efforts made toward the assessment of economic conditions, demographic trends, technological changes, socio-cultural trends, and political/legal factors. While the respondents seemed to make some relatively good efforts in assessing the economic and demographic environmental dimensions, only a few of them performed some kind of environmental assessment of the other dimensions. Using a 4-point scale, from strongly disagree to strongly agree, the authors also asked the respondents whether they perceived components of their task environment as stable/dynamic and simple/complex. Most of the participants viewed their competitors, suppliers, and customers' environmental categories as fairly simple and stable. Comparing these results with objective measurements of market volatility, DeNoble and Olsen (1986) concluded that industry participants should improve their environmental scanning practices.

In his critical review of the measurements of the environment construct, Bourgeois (1980a) made several suggestions. First, in investigating the relationship between the environment, strategies and performance, researchers should favor objective measurements. Recognizing that the perceptions of the environment shape strategy formulation (which is important in understanding the process of strategy), Bourgeois (1980a) noted that actual events in the environment influence firms and their performance, not only those that are perceived. Secondly, he suggested that the conceptualization of the environment should clearly delineate the general from the task environment.

The influence of the objective environment on industries and firms

The study of the environment has long been related to its influence on industries and firms. Early studies have tried to identify the behaviors of successful firms under different environmental conditions (Aldrich, 1979; Duncan, 1972, 1979; Hofer, 1975).

Drawing from previous studies, Duncan (1979) suggested a decision-tree approach to organizational design. He argued that the degrees of complexity and dynamism within the task environment posed several constraints upon firms. His main subjects of interest rested on information needs and coordination issues within organizations. To him, organizational design should be based upon the influence of the environment on task uncertainty.

In the industrial economics literature, the effects of environmental factors on firms were principally related to the state of the industry. For instance, Hofer (1975) suggested that "the most fundamental variable in determining an appropriate business strategy is the stage of the product life cycle" (p. 798). He then argued that the nature of buyer's needs was a prime determinant of the product life cycle, and that demographic and broad economic trends affected, positively or negatively, the demand curves of businesses.

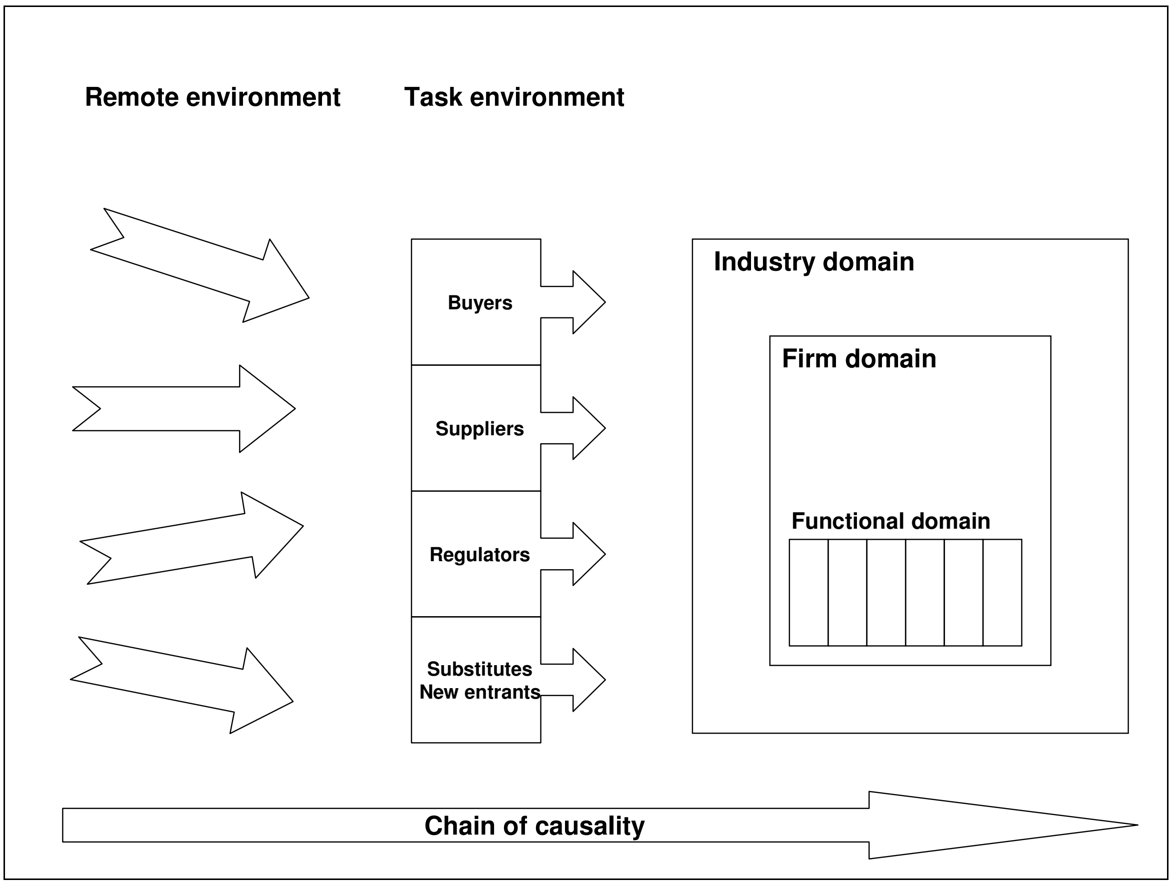
In an attempt to test the influences of the environment on organizational characteristics and performance, Keats and Hitt (1988) developed a model in which they measured environmental conditions, organization and performance in three different time periods. More specifically, they tested the influence of three environmental dimensions, munificence, instability and complexity, on the divisionalization, diversification and size of firms, and on operating and market performance measures. The authors found that munificence (positively) and complexity (negatively) significantly influenced the size of firms. They also found that instability negatively influenced diversification, divisionalization and operating performance, but had a positive effect on market performance.

In another effort to test the linkages between the environment, strategy and performance, Luo and Park (2001) studied the performance differences of firms exhibiting various strategic postures under different environmental conditions. The authors operationalized the environment construct using the perception executives had about the degrees of complexity, dynamism and hostility in their task environment, and the strategy construct by assessing the strategic postures of firms. Using canonical correlation analysis and multiple regressions, they found that the alignment of strategic posture to the state of the task environment was a significant determinant of performance as measured by the return on assets.

Building on the evidence of linkages found in prior works, Tan and Tan (2005) included the temporal dimension to their study of the influence of the environment on strategy and performance. Using composite measures of environmental hostility, complexity and dynamism and variables of strategic orientation (futurity, proactiveness, risk affinity, analysis and defensiveness), the authors assessed the co-evolution of the environment and strategy variables, and their interactive influence on firm performance. They assessed the changes in environmental conditions and strategic orientation by comparing their results to those obtained by Tan and Litschert (1994), who used the exact same measurement scale 12 years earlier. Using multiple regressions, the authors found that the co-evolution, or interaction term, of the environmental variables and strategic orientation variables were highly significant, while the main effects were not, except for the futurity dimension. The authors concluded that the causal relationships between the environment, strategy and performance could be better understood by investigating them through longitudinal studies.

Comprehending the causal relationships between firms, industries and the environment appears to be the essence of understanding success and failure of business firms. As suggested by Porter (1991), this endeavor requires an understanding of the chain of causality that links corporate success to functional activities, functional activities to strategic choices, and strategic choices to industry and general environmental conditions. Understanding these complex relationships is also central to the co-alignment principle theorized by Olsen et al. (1998). These relationships are depicted in Figure 2.3.

Figure 2.3: Causal relationships between the environment, the industry, and the firm



<u>The environment, economic indicators, and value drivers</u>

Several attempts have been made to understand the influence of economic indicators on tourism activities or to forecast business cycles, or demand and supply interactions. Others have been directed toward the identification of economic variables influencing stock returns. These undertakings are discussed below.

Early works on economic indicators and policy decisions in the hospitality industry

The early study of Combs and Elledge (1979) examined the effect of room tax on resort hotels and motels. In their study, they attempted to answer two questions, one related to the potential earning generated through hotel taxes, and the second related to the potential impact of such tax policy on the hotel and motel industry. Using ordinary least square regression (OLS), they estimated coefficients of elasticity for lodging expenditures. They found that the elasticity of the demand to price increases was rather small. Consequently, they argued that counties or local government could implement occupancy taxes in order to compensate for lower property taxes.

Fish (1982) analyzed the probable impact of taxing international tourism in West Africa. She considered two distinct types of taxes, one land tax taking the form of a lump sum, and an occupancy tax. Arguing that the lump sum would not influence the prices charged, she concentrated on the effect of the occupancy tax. Using the economic concept of marginal cost and revenue, she recommended developing a uniform tax policy across West African countries, except for exceptional locations which could be taxed at higher rates without suffering drops in prices and occupancy.

Using a simultaneous equation model, Arbel and Ravid (1983) modeled demand and supply functions of the hotel industry and analyzed the effect of increases in energy prices. Using national data for the U.S. as well as data from the state of New York, they found that increase in energy price would not reduce demand for the hotel industry, but rather slightly increase it. The author argued that while the results may be astonishing at the first sight, they could be explained by a shift in demand toward shorter and closer trips rather than a decrease in the overall demand.

Hiemstra and Ismail (1992) attempted to validate the previous findings on the effect of occupancy taxes in the hotel industry. Similarly to Combs and Elledge (1979), the authors used OLS regression, but added various control variables such as size, room rate segments and location. Using data provided by Smith Travel Research on 1'690 properties in the U.S., the authors found that demand elasticity for hotel room was much greater than previously reported. Consequently, they argued that increases in room tax had a negative influence on the industry.

Economic indicators and forecasting tourism activities

A number of studies have attempted to develop forecasting models for tourism activities. In a review of empirical research pertaining to the forecast of tourism demand, Witt and Witt (1995) showed that most studies were quantitative and relied on three types of statistical methods: econometric models, moving averages, or trend projections. The authors also showed that the most frequently utilized explanatory variables were related to measures of population, income, travel cost, destination cost, and exchange rate. Dummy variables were also used extensively to control for exceptional events, such as oil crises, political disturbances or currency restrictions. In comparing the various studies, the authors suggested that econometric models were the most accurate in forecasting directions of change and changes in trends.

Uysal and El Roubi (1999) compared the traditional multiple regression method of forecasting with artificial neural networks (ANN). Their study used the Canadian tourism expenditures in the United States as a measure of demand. The authors selected several explanatory variables: per capita income of Canada in real terms, consumer price index ratio in real terms multiplied by exchange rate ratio between Canada and the U.S., Canadian tourism expenditures in the U.S. lagged by one period, and dummy variables for quarterly seasonality. The results showed that the ANN model performed as well as the multiple regressions, and that it was able to capture some existing patterns not revealed by the multiple regression model. The authors concluded the use of ANN in forecasting of tourism demand should be expanded.

Choi, Olsen, Kwansa and Tse (1999) studied the hotel industry over a 28-year period (from 1966 to 1993) and developed the US hotel industry business cycle. Using the total receipts of the US hotel industry, the authors identified key fluctuations in the aggregate business activity of the industry. Specifically, the authors used the traditional method of the National Bureau of Economic Research (NBER) to identify turning points, namely peaks and troughs. Annual data of the total receipts supplied by the US Department of Commerce, Bureau of Census, were converted into real data series using CPI-U data series. The authors also developed an industry growth cycle, utilizing year-over-year growth rate. The results showed four peaks and troughs over the period covered, with a cycle duration, from peak to peak or from trough to trough, of 7.3 years. Expansion phases lasted for about 5.7 years, while contractions were shorter, about 1.7 years. They also found that the hotel industry cycle lead the general business cycle by 0.5 years. The authors concluded that future studies should aim at developing an indicator system of the cycle, including leading, coincident and lagging indicators. The authors also suggested that such model could help in the analysis of the relationships between economic indicators and the hotel industry.

Choi et al. (1999) paper was based on Choi's (1996) research. In his initial study, he developed the economic indicator system suggested in Choi et al. (1999). Using the NBER methodology as well as cross-correlation functions, he identified leading, coincident and lagging indicators. His leading indicator index was accurate 67% of the time in predicting the peaks, and 17% for the troughs. The coincident index was accurate 50% and 67% of the time respectively, and the lagging index, 67% and 83% of the time.

Expanding on his previous works (Choi, 1996; Choi et al., 1999), Choi (1999) developed an economic indicator system for the restaurant industry. Replicating his previous methodology (Choi, 1996), the author first developed the restaurant industry cycle and growth cycle. Then, he identified 56 variables that could relate to the cycle. To determine which indicator lead, coincided or lagged the cycle, he used the "two-third" rule suggested by the NBER, as well as cross-correlation functions. Choi (1999) also built composite indices of his leading, coincident and lagging indicators in an attempt to improve the stability of his model. With regards to the restaurant cycle, he found that the cycle duration, from peak to peak was 8 years, and 6.5 years from trough to trough. The expansion phases lasted on average 6 years and the contractions, 1.3 years. He also found 12 leading indicators, 6 coincident, and 17 lagging indicators. The composite indices performed quite well in forecasting turning points. The leading index was 100% accurate for peaks and troughs, the coincident index was accurate 60% and 80% of times, and the lagging index 100% and 60% of the time.

Choi (1999) also tried to assess the financial practices of restaurant firms in relation with the restaurant cycle. He separated high and low performers based on cash flow per share, and analyzed the relationships between key events in the industry cycle, capital spending, common shares outstanding, earnings per share (EPS), cash flow per share (CFPS), book value of assets (BVA), price-earning ratio (PER), and long term debts (LTD). He found that EPS, CFPS, BVA and LTD were positively related to the direction of the cycle for high performing firms, and that common share outstanding and LTD were negatively related to the direction of the cycle for low performers. He concluded that high and low performing firms had different patterns of financial practices for the changes of the restaurant industry cycle.

In a more recent effort, Choi (2003) developed an econometric model to forecast business cycles in the hotel industry. Replicating the methodology he used in prior studies, he built several composite indices of the leading, lagging and coincident indicators to predict industry cycle peaks and troughs. The prediction accuracy of his forecasting models ranged from a low 17% to a high 83%.

Several other attempts have been made to develop forecasting models of the tourism activities. For instance, Song, Wong, and Chon (2003) constructed an econometric model aimed at forecasting tourism demand. Using a number of economic variables as well as behavioral factors (i.e. lagged variables – the extent to which tourists from specific countries already came to the destination in the past) from the Hong Kong market, the authors found that the most important demand drivers were the “word of mouth effect” (p. 447 – i.e. the behavioral factors) and the cost of tourism.

Another attempt to model demand for hotels can be found in Qu, Xu, and Tan (2002). The authors developed a structural equations model of the supply and demand of the Hong Kong hotel market. Using 19 years of time-series data, the authors found that the most significant predictors were the average room price charged by hotels, the number of tourist arrivals, and dummy variables such as recessions and the Asian financial crisis.

While most of the forecasting studies carried thus far have failed to improve our understanding of the relationships between the environment and firms, Choi's (1996, 1999) initial works have still significantly contributed to the hospitality literature as they were the first of this nature. Not only was he first to develop hospitality business cycles, but he also pioneered the development of leading, coincident and lagging indices for these industries. Yet, his models and methodologies were primarily designed for forecasting matters, and his variables lacked theoretical grounds. His works, principally due to their methodologies, did not answer the question of causality, and his study of financial practices in relation to business cycle was not supported by many theoretical arguments (as in most forecasting studies). Nevertheless, the leading indicators found in his studies are worth some consideration.

Looking at Choi's (1996) leading indicators for the hotel business cycle, it is noticeable that many variables are related to stock markets. First, the American stock exchange index, the hotel stock index, the New York stock exchange index, and the S&P 500 stock price index were all leading indicators by two years. Secondly, prime interest rate charged by banks and number of business failures were also part of the leading indicators. All these indicators are related in a way or in another to asset pricing models.

In other words, these indicators are all related to economic models that aim to predict the evolution of stock prices. While these variables may not be directly related to the evolution of the industry, they may also show that investors are able to identify some key sources or indicators of risk in the environment before they actually impact industries. This would suggest that part of the risks valued by investors would be associated in some way with environmental factors causing the industry's growth or decline.

Economic indicators and stock returns

A variety of asset pricing models have been suggested over the years. The most notables are the dividend growth model (DGM) of Gordon (1962), the capital asset pricing model (CAPM) of Sharpe (1964) and Lintner (1965), the arbitrage pricing theory (APT) of Ross (1976), and the empirically derived three-factor model of Fama and French (1993). Yet, apart from the APT, no model links macroeconomic variables to asset pricing from a causal perspective.

The DGM is based on the ratio between the dividend per share paid and the price per share, plus an expected growth rate of dividends which is often based upon the sustainable or internal growth rates of the firm. The sustainable or internal growth rates of the firm are, respectively, a function of the product of the firm's return on equity or return on assets and of its dividend payout ratio. These elements are either controllable by the management or the results of the activities of the firm.

The CAPM measures the part of risk of the market portfolio that is explained by a security. This measurement theoretically represents the systematic risk component of an asset. As such, the CAPM does not identify the sources of risk. Instead, it measures the uncorrelated volatility of assets with the market portfolio (other drawbacks of the CAPM are discussed later in this chapter).

Fama and Fench (1993) developed their three factor model in an attempt to resolve some of the anomalies observed with the CAPM. In their expanded version of the CAPM, the return of individual stocks is a function of not only their systematic risk as measured by the CAPM, but also of some kind of size and valuation factors. The size factor is captured by measuring the difference between the returns on portfolios of small and large company stocks, and the valuation factor is estimated by the difference in returns on portfolios of stocks of companies with high and low book-to-market ratios.

Likewise, the APT of Ross (1976) allows for more than one factor as determinants to asset prices. Yet, in contrast with the Fama and French (1993) model, the APT derives its factors from theoretical arguments rather than empirical observations. Specifically, the APT states that several factors, or combinations of variables, are risky elements in the economy that influence the returns expected by investors. In other words, the APT suggests that some macroeconomic factors influence stock prices and returns. Formally, the factor model for asset returns takes the form:

$$R_i = E_i + \sum_{j=1}^{k} b_{ij}\delta_i + \varepsilon_i$$

where R_i is the return on asset i, E_i is the expected return for asset i, b_{ij} is the factor loading for asset i in relation to factor j, δ_i is the factor j, and ε_i is the error term for asset i. In turn, the expected return on any asset i can be expressed as:

$$E_i = \lambda_0 + \sum_{j=1}^{k} \lambda_i b_{ij}$$

where λ_0 is the return on a risk-free asset (zero systematic risk), λ_i are factors risk premium, and b_{ij} are the pricing relationship between the risk premium and the asset *i*. Unlike the CAPM in which the common factor (i.e. market return) is observable, the APT does not specify the common factors.

Roll and Ross (1980) empirically tested the APT using a similar methodology than previous empirical tests of the CAPM. The two-step procedure included the estimation of expected returns and factors coefficients from time-series of data, followed by the test of the predictions on a cross-sectional sample. Using factor analytical techniques, they found that three or four factors seemed to be present in the returns of different assets. However, the authors could not conclude whether the three or four factors were the same for all assets.

In another test of the APT, Reinganum (1980) reported results that could not support the model. In his study, using the same methodological approach than Roll and Ross (1980), he reported that the APT could not remove anomalies normally found with the CAPM, and that APT, regardless of the number of factors, was not able to account for most of the variance of portfolios of small firms.

Amid debates on whether the APT performed better than other simpler models, Chen, Roll and Ross (1986) developed and tested a factor model much similar to the APT, in which the factors were derived from macroeconomic variables. By means of theoretical arguments and empirical tests, they suggested that stock prices were influenced by several macroeconomic forces. The authors proposed five macroeconomic variables, of which the last two had weaker significance levels. The variables suggested were: the industrial production index, changes in short-term interest rate (or risk premium) as measured by the difference between 1-month treasury bills and consumer price index (CPI), changes in the yield curve, unanticipated inflation, and changes in expected inflation.

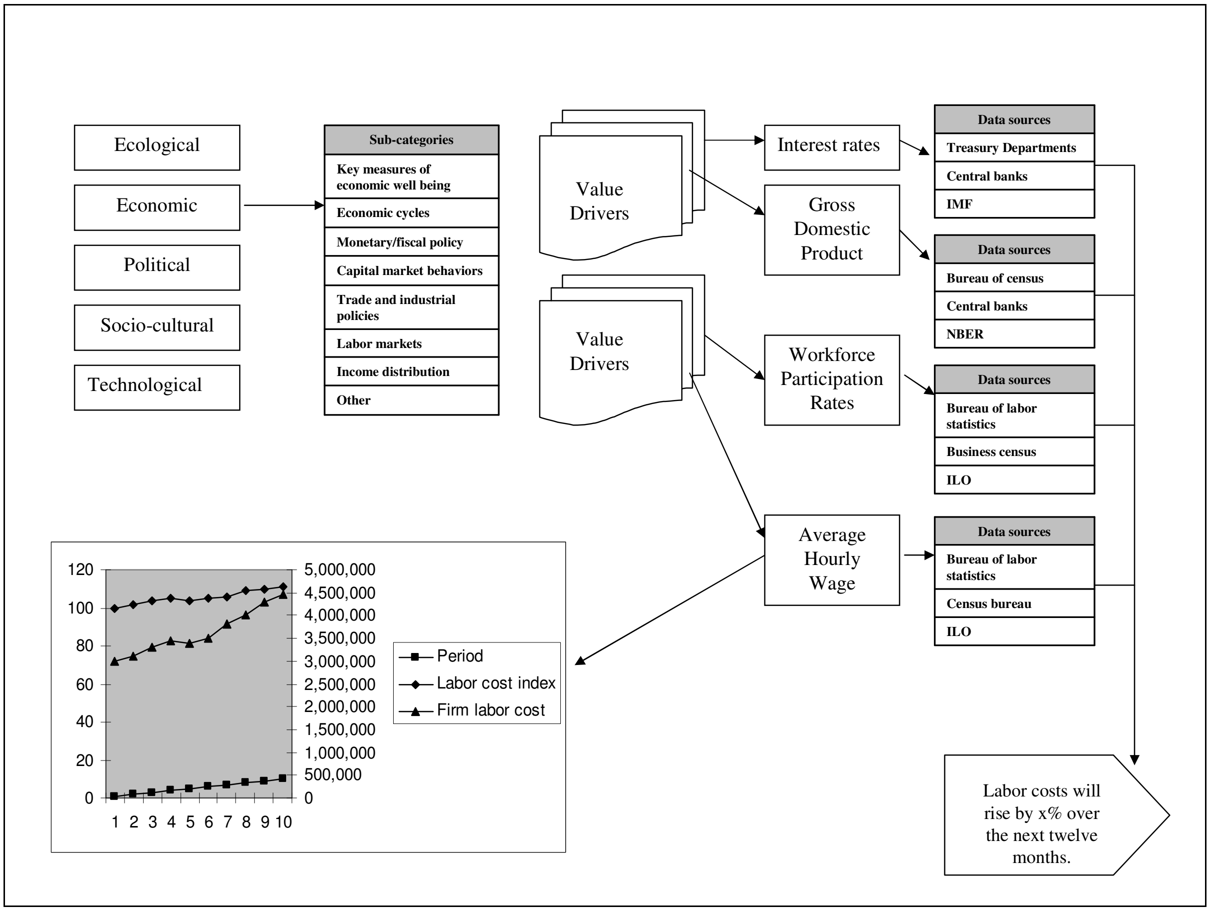
Building on Chen et al. (1986), several authors have tried to build factors that would best represent macroeconomic risk priced by investors. The most notable factors are: The industrial production index, the short-term real interest rate, short-term inflation as measured by unexpected changes in CPI, long-term inflation as measured by the difference between the yield to maturity on long- and short-term U.S. government bonds, and the default risk, measured by the difference between the yield to maturity on Aaa- and Baa- rated long-term corporate bonds (e.g. Berry, Burmeister, & McElroy, 1988; Copeland, Koller, & Murrin, 2000). Others have tried to expand the number of factors, and have added risk factors such as exchange rates (Eisenberg & Rudolf, 2007; Panigirtzoglou, 2004), or have attempted to develop factors using the real-time data available to investors when making decisions (Evans & Speight, 2006).

The treatment of sources of risks in financial economics shed some light on potentially important macroeconomic risk dimensions that could have causal relationships with firms. However, whether such sources are priced or not by investors does not prove causality per se. Two important studies on the influence of macroeconomic variables and factors have been carried concentrating on the restaurant industry. These studies attempted to uncover the relationships between macroeconomic variables, present in the remote and task environment, and the performance of the restaurant industry. These studies utilized the concept of value drivers, and are discussed next.

Value drivers and the restaurant industry

Broadly defined, value drivers are performance variables that have an impact on the financial results of a firm (Copeland et al., 2000). Zhao and Olsen (2003) suggested that value drivers are multidimensional, both tangible and intangible. For tangible value drivers, examples suggested include economic variables, such as GDP, unemployment rate, or crime rate. Intangible value drivers are, according to the authors, more difficult to recognize as they are part of more complex sets of relationships. The authors argued that the actual shifts underpinning the rise of terrorist activities are so complex that identifying value drivers related to them, as well as tracking them, becomes highly difficult and remains greatly subjective. Olsen, West and Tse (2007) provided an illustration of the potential causal relationships between external (i.e. environmental) and internal value drivers. The illustration is presented in Figure 2.4.

Figure 2.4: Remote environment, value drivers, and causal analysis



Source: Olsen et al. (2007)

In the hospitality literature, Ganchev (2000) reported on several value drivers important to the valuation of hotels. To him, the most important value drivers included the market revenue per available room (RevPAR), the hotel penetration rate, and the room revenue factor. While these value drivers are certainly important to the estimate of the cash flow of hotel properties, they are only internal and the author did not relate them to external value drivers.

While not specifically labeling it a value driver, Gu (1995) studied the relationship between interest rates (i.e. an economic value driver) and tourism activities such as park, air, and restaurants. Using the monthly average yield on U.S. short term (2 to 4 years) government bonds and monthly data of air passenger miles, national park visitor stays and restaurant sales, he tested the significance of the relationship by calculating Pearson moment correlations as well as through the use of trend-controlled time-series regressions. His results suggested that interest rates affected activities requiring high discretionary income and considerable leisure time, but that activities requiring less money and time, such as visiting restaurants, were much less influenced.

In her study, Chung (2005) attempted to identify economic value drivers that had an effect on the casual-theme restaurant industry sector's operating cash flows. She also tried to see how much of the variance in operating cash flows could be explained by economic value drivers and to study the sensitivity of the operating cash flows to changes in those economic value drivers. Through a literature review of economics, management and hospitality literature, she established a list of 110 macroeconomic value drivers from the remote and task environment that could potentially impact the operating cash flow of the industry.

Using a three-step approach, she first identified co-movements between the external value drivers and operating cash flow by computing cross-correlation functions. For this first step, she only considered the negative lags as she was principally interested in causal relationships (i.e. the independent variable must lead the dependent variable). In an attempt to filter out unnecessary variables, she applied several decision criteria, mainly that the variables should not show too much inter-correlation with other independent variables. This initial step resulted in the identification of 20 value drivers that showed a significant relationship with operating cash flows.

For the second step, she tested causality between each independent variables and operating cash flows. She used the Granger test of causality and found that 13 value drivers passed the test.

In her third step, she used a backward stepwise regression procedure to develop her final model, which consisted of four variables: consumer price index for fish/seafood (leading by one quarter), producer price index for all commodities (leading by three quarters), employment to population (leading by two quarters), and producer price index for finished goods less food and energy (leading by three quarters).

In an effort to expand on Chung's (2005) study, Madanoglu (2005) introduced the notions of systematic risk components and of industry-specific risk factors. Central to his work was the need to distinguish between macroeconomic – or remote – and industry – or task – variables. As his objectives included the identification of risk dimensions that influenced both operating cash flows and stock returns, he relied heavily on financial concepts to define and operationalize his macroeconomic risk construct. Specifically, he voted for the APT and the 5-factor model initially developed by Chen et al. (1986), and later refined by Berry et al. (1988) and Copeland et al. (2000). Then, through a meticulous review of the body of knowledge of the restaurant industry, he identified 33 potential industry value drivers related to the supply, and 17 related to the demand side.

Madanoglu (2005) based his classification of value drivers on Porter's (1980) five forces framework which was deemed as best representing the structure of the task environment. Acknowledging the difficulties in capturing variables pertaining to the potential entrants and substitutes dimensions of Porter's (1980) framework, the author decided to concentrate on the supplier and buyer dimensions. Madanoglu (2005) did not claim that his list of variables was exhaustive or that it could capture all the underlying variables representing the supplier and buyer dimensions of Porter (1980). Yet, his list probably included most of the relevant variables available from respected sources.

The author also tried to control for exceptional events influencing the industry. He added to his list of variables two dummy variables, one for the Mad Cow disease, and a second for the terrorist attack of September 11, 2001.

In his quest to find underlying risk dimensions, Madanoglu (2005) first utilized exploratory factor analysis. Prior to adding the variable into the analysis, he filtered his initial list by looking at the inter-correlation among the industry variables. This initial step resulted in 20 usable industry-specific value drivers, which were then factor analyzed. He was able to extract three factors, which he labeled Output, PPI Meats, and PPI Restaurants.

Having identified five factors representing macroeconomic risk, and three factors characterizing the industry risk, Madanoglu (2005) attempted to answer his research questions. Most notable is his question relating industry value drivers to internal value drivers while controlling for macroeconomic variables. In other words, the question aimed at testing whether industry model variables would remain in a final parsimonious model when entered into an equation with the five macroeconomic factors. Analyzing his final parsimonious model using data from three restaurant companies (Darden, Cheescake, and Outback), he found that industry variables remained, while macroeconomic variables were removed. Madanoglu (2005) concluded that his findings raised several questions regarding the importance of variables from the remote environment versus the importance of task variables. He noted that, while removed from the parsimonious model, macroeconomic variables such as those of the APT might still be important, but that their effects were already accounted for by industry variables.

The studies of Chung (2005) and Madanoglu (2005) added considerable understanding to the relationships between remote, task, and firm variables. While Chung (2005) initiated this stream of research, Madanoglu (2005) attempted to distinguish between remote and task value drivers. What emerged from these studies are the needs to consider some kind of sequential causality between remote and task variables. As suggested by Madanoglu (2005), task variables may filter part of the risk conveyed by remote variables. This notion of filtering is also consistent with Porter's (1980) perspective on the dynamics of his five forces. Indeed, industries' profitability potentials were suggested to be a function of the state of the five forces. This means that industries, through firms' strategic moves, may evolve and change their relations with the task environment. Stated differently, the sensitivity of firms' cash flows to external value drivers may be buffered by their strategic choices. In addition, adjacent industries (i.e. buyers and suppliers' industries), may also buffer themselves from remote environmental forces. Consequently, causal models aiming at reflecting the complex sets of relationships between the remote and task environment, and the firm, should include a sequential perspective and consider the effect of firms' strategic choices. Concepts of strategy choice are discussed in the next section.

STRATEGY CHOICE

The apparent divergence in defining strategy choice can be attributed to the various perspectives adopted by researchers in their investigations. While some attempted to uncover the *process* by which strategies come to life, others have delved into the *content* of strategy. The former is characterized by studies that seek to describe the formation of strategies by means of conception (Chandler, 1962, 1957), of emergent developments (Mintzberg, 1972, 1978), or of deliberate plans (Ansoff, 1965; Lorange & Vancil, 1977; Porter, 1980). The latter, in contrast, is exemplified by studies aiming at classifying distinct strategies or testing hypotheses from a variance perspective. As the objective of this study is to shed light on the influence of realized strategic choices on performance, the *content* perspective is adopted. The next section discusses some definitional and conceptual issues related to strategy choice as *content* as opposed to *process*.

Strategy choice as content

As Venkatraman (1989b) suggests, "A major task in conceptualizing a theoretical construct relates to the specification of its boundaries. For strategy constructs, this is particularly complex given the wide array of differences in terminology, disciplinary orientations as well as underlying assumptions." (p. 945); and indeed, the complexity of the task seems to have shaped several dissimilar definitions and conceptualization of the strategy choice construct. The structure of the following review draws on Venkatraman's (1989b) four theoretical questions: (1) scope, (2) intention vs. realization (3) hierarchical level, and (4) domain. The review also discusses some measurement issues that are specifically related to definitional matters.

Key to the definition of the strategy choice construct is the delineation of its scope. Resulting from the dissimilar definitions of strategy, scholars have separated or aggregated several concepts in their characterization of the construct. While some authors have preferred to see strategy choice as *means*, others have favored a more comprehensive view of the construct by including both *means* and *ends*. In these works, *means* have been defined as the actual deployment of resources, whereas *ends* have been characterized by some kind of strategic aspiration, such as goals or objectives.

Authors inclined to view strategic choice as *means* and *ends* also tend to view the construct from a *process* perspective. What Mintzberg *et al.* (1998) have described as the Learning School, the Power School and the Cultural School are streams of research that regard strategy choice as *means* and *ends.* In these views, realized strategies are more the result of dynamic relationships between complex systems both within and outside firms rather than deliberate choices made by executives or strategists. While these studies do not exclude choices made by the top management, the contentions are that actual strategies are often pale consequences of these choices, biased by the noise produced by the organization, or, more frequently, emerging patterns of decisions made within the organization that result from some kind of incremental learning, resistance to change or internal power conflicts.

While the roots of these streams of research, as applied to business policy or strategy, can be traced back to the work of Ansoff (1965), the most influential effort is to be found with the research program at McGill University, principally with the work of

Henri Mintzberg. Albeit defining strategy formation as *ends* - "a pattern in a stream of decisions" (p.935) - Mintzberg (1978) clearly separated intended from realized strategies, and focused his attention on the materialization and dynamic evolution of such patterns. For his historical study of Volkswagenwerk and of the US government in the Vietnam War, Mintzberg guided his analysis by a list of questions, such as "Under what conditions are formal analysis and planning used?" or "When and why are organizations reactive and proactive?" (p. 936). What emerged from these studies are rich descriptions of business situations and of the evolution of organizations through different contexts and with different internal decision-making dynamics. The contribution of these works to our understanding of strategy choice as an emergent and complex organizational process is important as it counterbalances some more prescriptive views of strategy choice as a fully planned and controlled process. Yet, these inductive studies do not clearly relate strategy choice to environmental changes or to firm performance as their methodological consequences prevent any kind of hypotheses testing or rigorous investigations of causal relationships.

In contrast, viewing strategy choice from a *means* perspective restricts the scope of the construct and permits a more parsimonious definition. Separating *means* and *ends* also makes the measurement of the strategy choice construct possible as it concentrates on the patterns of resource utilization. Such definitional restriction also allows the study of the relationship between *means* and *goals* that would otherwise not be doable.

Initial discussions on strategy content as *means* have primarily been normative, taking the form of propositions on what strategies were to be at different stages of the organizational life cycle (Ansoff, 1965) or stages of the product life cycle (Levitt, 1965).

Hofer (1975) summarized the various propositions and tried to identify environmental and organizational variables that could add to the contingency perspective of strategic choices.

In a similar vein, Hatten *et al.* (1978) developed an empirical model to identify groups of firms (i.e. strategic groups) following similar – but not identical – strategies. After having conducted an initial case study research, through which a number of strategic and environmental dimensions emerged, the authors developed a list of variables, principally driven by theoretical and practical relevance, but also by data availability. The dimensions used to capture the strategy choice construct were (1) Manufacturing Strategy, (2) Financial strategy, and (3) Market Strategy. Using sequential statistical tests as well as cluster analysis, the authors were able to distinguish four strategic groups within the U.S. brewery industry. Their results seemed to explain well performance as measured by return on equity (ROE) and tested through regression analysis. Yet they failed to answer the "how to compete" question as some of their findings were contradictory or unsatisfactory with regards to the role and importance of the environment on the relationship between strategies and performance.

Probably the most prominent work on strategic groups is the book of Michael Porter titled *Competitive Strategy* and published in 1980. In Porter's view, strategy choice is driven by some given industry structure and is guided by the ultimate objective of achieving a certain desirable position within the economic marketplace. Drawing from his own research (Porter, 1979) as well as from those of similar type (Hatten et al., 1978; Levitt, 1965; Schendel & Patton, 1978) he synthesized the findings on strategic groups across industries and defined three generic strategies that are "approaches to outperforming competitors in the industry" (Porter, 1980; p. 35). These generic strategies – overall cost leadership, differentiation, and focus – are all potential strategic orientations that should position firms within their industry and help them gain an advantage over their competitors and improve their postures *vis-à-vis* their suppliers, buyers, potential new entrants and substitutes. Table 2.2 provides examples of content of each generic strategy.

Table 2.2: Porter's generic strategies

Generic strategy	Strategic actions (content)	Strategic consequences
Overall low cost leadership	- Aggressive construction of efficient-scale facilities - Cost reduction from experience (experience curve) - Tight cost and overhead control - Avoidance of marginal customer accounts - Cost minimization in areas like R&D, service, sales force, etc.	- Defend the firm against intense rivalry as still can earn returns after its competitors have competed away their profit. - Decrease the bargaining power of buyers as they cannot drive down prices more than at the level of the next most efficient firm. - Buffer the firm from actions taken by powerful suppliers as it provides flexibility to cope with cost increases. - Reduce threat of new entrants as the position requires factors that raise entry barriers. - Reduce threats from substitutes due to the relative advantage gained over the competitors.
Differentiation	- Create a unique design or brand image - Create a unique technology - Create unique features - Create unique customer service - Create unique dealer network	- Insulate the firm against rivalry through brand loyalty and lower price sensitivity from the buyers. - Provides higher margins that mitigate the power of suppliers. - Decrease the threats posed by potential new entrants and substitutes through customer loyalty.
Focus	- Concentrate all efforts on a particular buyer group - Serve the narrow strategic market more effectively and efficiently than competitors	- Achieve the same advantages than low cost and differentiation strategies *vis-à-vis* its narrow target market, but not from the perspective of the market as a whole.

Source: Porter (1980)

Principally conceptual and prescriptive, the theory of Porter (1980) suggests several propositions related to the relationships between industry structure, strategy choice and firm performance. With regards to the construct of strategy choice, Porter

(1980) identified a number of strategic dimensions that "capture the possible differences among company's strategic options in a given industry" (p. 127):

- Specialization: the degree of focus with regards to the market scope.
- Brand identification: the degree of focus on the importance of brand identification versus price or other variables.
- Push versus pull: the degree of focus on the relationship with consumers versus distributors.
- Channel selection: the choice of distribution channels.
- Product quality: the level of quality of the products and of its components.
- Technological leadership: technological leadership versus imitation.
- Vertical integration: the degree of backward and forward integration.
- Cost position: The degree of focus on cost minimization.
- Service: the degree to which ancillary services are proposed.
- Price policy: Price positioning within the market.
- Leverage: The degree of financial and operating leverage.
- Relationship with parent company: The degree of linkages with the parent company.
- Relationship to home and host government.

A number of subsequent researchers have empirically investigated the concepts of generic strategies. Dess and Davis (1984) attempted to classify non-diversified manufacturing firms in the paints and allied products industry. A list of competitive methods used by this industry was established through a field study and factor analyzed to identify dimensions that would best represent Porter's (1980) three strategic groups. The factorization of the competitive methods was subsequently compared to opinions provided by an expert panel. The resulting dimensions were then used to survey executives and top managers from 28 firms. The responses were later analyzed using cluster analysis. Lastly, performance measures (Return on Assets – ROA, and sales growth) were collected and used to analyze the differences in performance among the clusters. While the authors found some evidence in support of Porter's (1980) theory, they also found contradicting results with regards to performance implications of the generic strategies. Additionally, the authors found that firms within this industry rarely followed a single generic strategy, but rather a mix of competitive methods reflecting an "apparent lack of *singularity* in strategic orientation" (p. 484). Whereas the inability to clearly differentiate firms from one group to another does not in itself contradict Porter (1980), it still raises questions on several aspects of Dess and Davis (1984) conceptualization and measurement of the strategic choice construct.

At the definitional level (*scope*), Dess and Davis (1984) voted for a view of strategy choice as being both patterns of decisions and goals, plans or intentions. This perspective, as discussed earlier, follows the *means* and *ends* view of strategy and results in an added complexity in the delineation of strategic choice which creates problems in investigating the strategy and performance relationship. The types of competitive methods identified in their study illustrate this issue; for instance, where *minimizing use of external financing* denotes a *mean* (or decision about financial resource), *operating efficiency* or *capability to manufacture specialty products* represent *ends* (or strategic goals and objectives). This specific issue is also related to the question of whether to study *intentions* or *realizations*. In addition to definitional challenges, the survey instrument used by Dess and Davis (1984) is suspect as there field study enabled them to generate competitive methods that represented only a limited number of Porter's (1980) initial strategic dimensions.

In the hospitality literature, West (1988) and Tse (1988) studied the strategy-performance relationship using a similar approach than Dess and Davis (1984). West's (1988) dissertation aimed at studying the relationships between strategy, environmental scanning and performance in the restaurant industry. Using a modified version of the survey instrument developed by Dess and Davis (1984), West (1988) collected the responses of 65 restaurant firms. Adhering to Porter's (1980) propositions, West (1988) tested the hypothesis that "High performing firms will espouse at least one generic intended strategy while firms that do not espouse an intended strategy will exhibit low performance" (p. 84). The results of the ANOVA procedure followed by the author showed that only the differentiation strategic group significantly outperformed the focus strategy on the ROS (Return on Sales) performance measure. More notably, West (1988) found that firms not following any generic strategy outperformed the focus strategy on three performance measures (ROA, ROS and growth in unit sales), which lead him to reject his hypothesis.

These findings, also presented in West and Olsen (1989), were similar to those found by Tse (1988). While her study delved into a different set of relationships – the strategy-structure-performance – she used the same survey instrument and operationalization of strategy choice as West (1988). Her statistical analysis however was different as she used chi-square test instead of ANOVA. She classified firms into three performance groups; high, medium and low performers. As her results corroborated those of West (1988), she concluded that they did not support the relationship between strategy choice and performance. Her results were also reported in Tse and Olsen (1988) in which the authors concluded that "There were differences in average return on sales and assets, and growth in sales for companies that indicated different structural combinations by their strategy choice. However, when hypotheses were established to test the relationship between strategy, structure and performance, statistical analysis indicated that findings were inconclusive to validate Porter's model." (p. 274).

As already acknowledged with the Dess and Davis (1984) study, these unsatisfying results raise several questions. Should strategy choice be viewed as *means* and *ends* or only as *means*? Should it be viewed and measured as *intended* or *realized* when studied in its relationship with performance? Are there other important dimensions that need to be included? While there seems to be evidence supporting a view of strategy choice as *means* and *realized*, the problem may have also resulted from the grouping of strategies based on Porter's (1980) three generic strategies. Alternative grouping perspectives are discussed below.

Looking at strategy choice from another angle, Miles and Snow (1978) and Miles *et al.* (1978) developed a typology based on behavioral characteristics of strategic choice. Where Porter (1980) saw strategic choices as leading to a certain position within an industry and given certain forces shaping it, Miles *et al.* (1978) recognized a "dynamic process of adjusting to environmental change and uncertainty" that is "enormously complex, encompassing myriad decisions and behaviors" that could be grasped "by searching for patterns in the behavior of organizations" (p. 547). Under this dynamic process of adjustment, or adaptive cycle, strategic choices become means to answering three broad questions that arise under different contextual situations: the entrepreneurial problem, the engineering problem, and the administrative problem. It is by searching patterns of choices made by organizations to solve these problems that Miles and Snow (1978) were able to establish their strategy (or behavioral) typology. Studying four industries (college textbook publishing, electronics, food processing, and health care), they found that firms could approach these problems from four different perspectives: (1) the defenders, (2) the prospectors, (3) the analyzers, and (4) the reactors. Table 2.3 provides a description of the behaviors of each group (these descriptions were also used in several empirical researches to measure strategic group membership and will be discussed later in this chapter).

Table 2.3: Definition of Miles and Snow (1978) strategic groups

Defender	This type of organization attempts to locate and maintain a secure niche in a relatively stable product or service area. The organization tends to offer a more limited range of products or services than its competitors, and it tries to protect its domain by offering higher quality, superior service, lower prices, and so forth. Often this type of organization is not at the forefront of developments in the industry – it tends to ignore industry changes that have no direct influence on current areas of operation and concentrates instead on doing the best job possible in a limited area.
Prospector	This type of organization typically operates within a broad product-market domain that undergoes periodic redefinition. The organization values being "first in" in new product and market areas even if not all of these efforts prove to be highly profitable. The organization responds rapidly to early signals concerning areas of opportunity, and these responses often lead to a new round of competitive actions. However, this type of organization may not maintain market strength in all areas it enters.
Analyzer	This type of organization attempts to maintain a stable, limited line of products or services, while at the same time moving out quickly to follow a carefully selected set of the more promising new developments in the industry. The organization is seldom "first in" with new products or services. However, by carefully monitoring the actions of major competitors in areas compatible with its stable product-market base, the organization can frequently be "second in" with a more cost-efficient product or service.
Reactor	This type of organization does not appear to have a consistent product-market orientation. The organization is usually not as aggressive in maintaining established products and markets as some of its competitors, nor is it willing to take as many risks as other competitors. Rather, the organization responds in those areas where it is forced to by environmental pressures.

Source: Snow and Hrebiniak (1980)

While most of the studies aiming at testing Miles and Snow (1978) typology used secondary data to capture the strategy choice construct (these efforts are discussed later), several hospitality management students attempted to uncover the strategy-performance relationship using a self-typing method. Dev's (1988) study of the U.S. lodging industry aimed at exploring the environmental uncertainty, business strategy, and performance relationships. The major hypothesis developed by Dev (1988) was that there would be no difference in the performance of hotels classified according to Miles and Snow (1978) strategy type (he also tested this hypothesis under different environmental conditions – stable and volatile). Interestingly, Dev (1988) selected two different approaches to measuring the strategy choice construct.

Following Snow and Hrebiniak (1980), he used descriptive statements to clarify the terms defenders, prospectors, analyzers, and reactors (similar to those presented in Table 2.3), and asked the respondents to choose the strategy type that would best represent their organization. Besides, he also used Dess and Davis (1984) approach of asking respondents to rate a set of strategic characteristics. For the latter method, he tried to make several improvements, first by purifying the scale and eliminating some elements that were found to be irrelevant in the given industry context, and secondly by changing the semantic anchor to ensure that respondents would consider realized strategies rather than intended ones. Through factor and cluster analysis, Dev (1988) attempted to identify strategic groups as defined by Miles and Snow (1978). However, due to inconclusive results, he had to conclude that his survey instrument was "inappropriate for further analysis" (p. 119), and had to pursue his investigation solely on the basis of the strategy identified by respondents from the descriptive statements of Snow and Hrebiniak (1980). Nevertheless, he couldn't reject his null hypothesis and had to conclude that the strategy-performance relationship could not be confirmed. Dev's (1988) results were also presented in Dev (1989) and Dev and Olsen (1989). While the publications stressed more the contention that the strategy-performance relationship was contingent upon the state of the environment, Dev (1989) acknowledged that "we need to validate the self-report method for determining strategy a hotel is following." (p. 13).

In another attempt to validate the Miles and Snow (1978) typology in the context of the hospitality industry, Crawford-Welch (1990) combined the efforts of Dev (1988), West (1988), and Tse (1988), and tried to determine if there were significant performance differences between hospitality firms grouped according to their business strategy. In his study, he included firms from both the lodging and the restaurant industry. His measurements of strategic choice, based on self-typing methods, included the descriptive statements of Snow and Hrebiniak (1980), as well as the a 23-item scale adapted from Dess and Davis (1984) and Dev (1988). Using similar statistical approaches to his analysis then previous researchers (i.e. factor and cluster analysis), Crawford-Welch (1990) could not confirm the applicability of the Miles and Snow (1978) typology to the hospitality industry. While he found some significant differences between high and low performers, these were more in terms of individual strategic characteristics rather than strategic group membership.

Acknowledging the limited use of both Porter (1980) and Miles and Snow (1978) typologies to understand the strategy choice – performance relationship in the context of the hospitality industry, several authors later tried to establish different classification schemes. In an attempt to explain performance differences of firms within the foodservice industry, and yet again using a self-typing method based on Dess and Davis (1984) original scale, West and Anthony (1990) empirically derived five strategic dimensions and six strategic groups through the now customary factor and cluster analytical techniques. The authors found some significant performance differences among groups; such as that product/service innovation and focus differentiation performed significantly better than focused differentiation or control, or that product/service differentiation outperformed significantly focused differentiation or no apparent strategy.

What emerges from these initial streams of research is that the strategic group perspectives, as well as the instruments developed thus far to measure the strategy choice construct, have failed to improve our understanding of the strategy-performance relationship in the context of the hospitality industry. As Murthy (1994) stated: "There is clear evidence that a more eclectic approach to the measurement of the strategy construct, using a broader set of underlying dimensions is necessary. More specifically, if strategy research in the hospitality industry is to be fruitful, industry-specific strategic characteristics have to be identified to operationalize the strategy construct." (p. 106). In a recent conceptual paper, Chathoth and Olsen (2005) suggested that the inconclusive results of the tests of generic strategies in the hospitality industry could also be due to the complexity and multivariate nature of the relationships between strategy and performance. The authors suggested that further research should favor multidimensional empirical model in testing the strategy-performance connection. The subsequent section reviews some of the efforts aimed at improving the measurement of the construct, both from an industry-specific perspective and from a more general perspective.

Toward valid construct measurements

Recognizing the need for better measurement of the strategy construct (Murthy, 1994; Venkatraman & Grant, 1986), Venkatraman (1989b) attempted to "develop and validate a set of operational measures for a particular conceptualization of strategy." (p. 942). In his work, Venkatraman (1989b) selected the *comparative* approach to strategy measurement, as opposed to the *narrative* and *classificatory* approaches. His arguments were that the *narrative* approach, while important for conceptual developments, is inappropriate for theory testing, and that the *classificatory* approach, as discussed in the previous section, is unable to capture essential "within group" differences. In contrast, he argued that the *comparative* approach was appealing due to "its ability to decompose the variation that is seen across different strategy classifications into more "fined grained" differences along each underlying traits (or dimensions)." (p. 944).

Circumscribing the strategy construct as being *means*, at the *business level*, *holistic*, and including only *realized* strategies, Venkatraman (1989b) then defined six *a priori*, theory driven, dimensions: Aggressiveness, Analysis, Defensiveness, Futurity, Proactiveness, and Riskiness. His dimensions aimed at reflecting the general strategic orientation of business units; in this sense, they were seen as *strategic postures*, which firms could emphasize or deemphasize according to various environmental conditions. Following a rigorous scale development methodology, including the generation of items through a thorough literature review and a pre-test, then a purification and validity check through confirmatory factor analysis, Venkatraman (1989b) proposed 29 indicators of his six-dimensional scale of strategy orientation. These indicators and their respective dimensions are presented in Table 2.4.

Table 2.4: Venkatraman's (1989b) 29 indicators of strategy orientation

Aggressiveness dimension	- Sacrificing profitability to gain market share - Cutting price to increase market share - Setting prices below competition - Seeking market share position at the expense of cash flow and profitability
Analysis dimension	- Emphasize effective coordination among different functional areas - Information systems provide support for decision making - When confronted with a major decision, we usually try to develop thorough analysis - Use of planning techniques - Use of the outputs of management information and control systems - Manpower planning and performance appraisal of senior managers
Defensiveness dimension	- Significant modifications to the manufacturing technology - Use of cost control systems for monitoring performance - Use of production management techniques - Emphasis on product quality through the use of quality circles
Futurity dimension	- Our criteria for resource allocation generally reflect short-term consideration (reversed scale) - We emphasize basic research to provide us with future competitive edge - Forecasting key indicators of operations - Formal tracking of significant trends - "What if" analysis of critical issues
Proactiveness dimension	- Constantly seeking new opportunities related to the present operations - Usually the first ones to introduce new brands of products in the market - Constantly on the look out for businesses that can be acquired - Competitors generally preempt us by expanding capacity ahead of them (reversed scale) - Operations in larger stages of life cycle are strategically eliminated
Riskiness dimension	- Our operations can be generally characterized as high-risk - We seem to adopt a rather conservative view when making major decisions (reversed scale)

Source: Venkatraman (1989b)

The scale developed by Venkatraman (1989b) was used by Jogaratnam (1996) in his dissertation, in which he delved into the environment-strategy-performance relationships in the context of the restaurant industry. With the exception of the quality service dimension, which he added to the initial dimensions, Jogaratnam (1996) only slightly modified the initial survey instrument of Venkatraman (1989b) to better reflect the industry context and improve content validity. Using factor analytic techniques, he then extracted factors that would represent the *a priori* dimensions. Due to a lack of validity, he had to remove two dimensions: Defensiveness and Proactiveness.

Among other hypotheses, Jogaratnam (1996) tested if the relative importance of each broad dimension representing strategic posture varied with respect to firm performance. Regression analysis was used and the results supported the proposition put forth. Of interest were the signs of the dimensions in the regression model; hence, the three significant dimensions were related to performance as expected: aggressiveness was negatively related to performance and quality service and analysis positively. His results, also presented in Jogaratnam *et al.* (1999a, 1999b), shed a new light on the strategy performance relationship and, at last, permitted to validate the strategy choice - performance contention. However, as with the Miles and Snow (1978) typology and Venkatraman's (1989a) initial dimensions, the measurement of strategy choice remained vague as it corresponded more to generic strategic orientations and behaviors rather than actual strategic contents or actions. This issue can be illustrated by the questions used in the survey instruments; where "We have consistently attempted to set prices below competition" represents an action, "We emphasize long-term effectiveness and growth by tracking environmental trends and demand patterns" corresponds to an orientation toward strategic decision making. In addition, while Jogaratnam (1996) tried to work out the issue by adding a service related dimension, the initial strategy dimensions determined by Venkatraman (1989a) were primarily based on theories resulting from studies on manufacturing or product oriented industries.

The problem of differences between the manufacturing and service sectors was one of the primary drivers of Murthy's (1994) effort. In his dissertation, Murthy (1994) aimed at developing new dimensions for the strategy construct specific to the lodging industry. In conclusion to his extensive hospitality literature review, Murthy (1994) noted several “imperfections in the past research in hospitality strategy” (p. 83) that could be viewed at two levels: conceptual and methodological (the latter concern is discussed at length in a subsequent section). With regards to the conceptual level, he highlighted the *intention* vs. *realization* problem, the unit of analysis, and the operationalization of the strategy construct.

Murthy (1994) observed that, with the exception of Dev (1988) - and after his dissertation was written, Jogaratnam (1996) – all other studies in the hospitality strategy literature measured *intended* strategies rather than *realized* strategies. As already mentioned, *intended* strategies are not relevant measurements when studying the strategy-performance relationship. Indeed, only realized strategies may influence the performance level of firms. In addition, as shown by Mintzberg (1978), while *realized* strategies may come from *intended* ones, they can also *emerge* from the organization. Moreover, only few *intended* strategies may indeed materialize as unplanned events, resource constraints, or other influential factors may occur between strategic intents and actual resources allocations (Mintzberg, 1978). This issue also relates to the perspective one takes on strategy choice. As already discussed, *process* oriented research would look at *intended* and *realized* strategies, but could not relate the construct to firm performance other than descriptively.

With regards to the unit of analysis, Murthy (1994) argued that most of the previous strategy research in the hospitality industry focused on the wrong level of strategy. He stated that “in the absence of due consideration to the unit of analysis” past researchers “in fact, measured corporate-level strategy and not business-level strategy as they presumed, because their samples included many multi-unit firms.” (p. 86). His main claim was that individual units within multi-unit firms face different environments and that their business strategies would consequently have to differ if they wanted to achieve a certain level of alignment. If it seems difficult to argue against this point, that individual hotel or restaurant units face different conditions in terms of supply and demand, labor market, operating supplies, etc., it is also worthwhile to consider where strategic decisions are made. If pricing issues are often dealt with at the unit level (or regional level; except for foodservice operations), strategic decisions relating to loyalty programs, distribution channels, selection of key suppliers, or important training programs, are more than often taken at the corporate level. Indeed, if one wants to define corporate level strategy as addressing issues pertaining to the domain definition of the business, i.e. what business should the organization be in, and to define business level strategy as concerned with domain navigational issues (Bourgeois, 1980b), where resource allocation and integration of the different functional aspects of the organization are important to this level, then the *wrong* unit of analysis may then well be the property or store level. In the current context of the lodging industry, a clear distinction between independent and chained hotels seems necessary. Additionally, the ownership structure (i.e. operated vs. franchised) and segment served (i.e. upscale, mid-scale, economy) need also to be considered as characteristics influencing the place of business level strategy within the organization.

Another issue, addressed by Murthy (1994), is on the operationalization of the construct, be it on *intended* or *realized* strategies. One of the main questions here is whether it makes sense to draw on dimensions developed in different industry context, mainly in manufacturing industries. A second key question is whether to ask respondents through surveys or direct interviews what strategies they pursue, or to measure strategies actually *realized* through indirect observation or archival data.

Differences between manufacturing and service industries have been highlighted by many authors, principally by looking at dissimilarities between goods and services. Of the key characteristics suggested, intangibility, inseparability, heterogeneity, and perishability are the most widely cited (Fitzsimmons & Fitzsimmons, 2004; Grönroos, 1990; Zeithaml, Parasuraman, & Berry, 1985). These four characteristics led service management scholars to develop new frameworks in which a clear distinction between activities that are visible and invisible to the customers. This concept of line of visibility (Fitzsimmons & Fitzsimmons, 2004; Zeithaml et al., 1985), emulated more research on the influence of the service interaction and customer involvement. Grönroos (1990) argued that firms aiming at achieving a low cost position would seek to improve internal efficiency that would ultimately result in a lower external efficiency, thus lower service quality. Hence, he argued that overall low cost strategies could not work in service industries. Taking the issue from another angle, Becker and Olsen (1995) investigated the study of service organizations. In their conceptual paper, they argued that the level of customer interaction would pose several constraints on the organizational structure and culture of the firm, hence preventing it from selecting generic strategies indiscriminately.

Recognizing the different nature of service organizations, Murthy (1994) incorporated several service dimensions drawn from Zeithaml *et al.* (1985) and Grönroos (1990) to his initial scale, in addition to the original strategic dimensions suggested by Porter (1980). Through a rigorous scale development methodology, Murthy (1994) was able to identify 7 factors:

1. Service quality leadership: actions aimed at improving and maintaining a high level of service quality.
2. Technological leadership: adopting/using technology and improving/maintaining technical/technological aspects.
3. Push: actions aiming at increasing, improving and maintaining direct interaction with customers.
4. Cost control: actions aiming at reducing and controlling costs.
5. Pull: actions aiming at increasing, improving and maintaining collaboration with intermediaries.
6. Group channels: actions pursued at the group level.
7. Cross-training: actions aiming at managing human resources to maintain cost and adapt to seasonal requirements.

The dimensions were deemed as valid and reliable, and accounted for 71% of the common variance in the strategy scale. The valuable contribution of Murthy (1994) principally resides in the fact that he developed his scale in an industry context and that he included both general management dimensions and service-related dimensions. However, as already mentioned, his unit of analysis may have had some influences as can be seen with his 6th dimension, where respondents noted that "these strategies are implemented at the group level" (p. 284).

With regards to the second key question mentioned above, pertaining to the measurement approach, Murthy (1994) opted for the self-typing method and argued that Snow and Hambrick (1980) favored the self-typing method of measuring strategy because they felt it is the management of a business unit which is in the best position to articulate the strategies employed by the business unit" (p. 119). However, Snow and Hambrick (1980) also noted that "executives generally report their organizations' intended strategies, as opposed to emergent or realized strategies.", and that "self-typing shares with the investigator inference approach a lack of external confirmation." (p. 533).

Many authors have tried to operationalize the strategy construct by means of objective indicators, a method deemed as "well suited for identifying realized strategies" by Snow and Hambrick (1980; p. 535). In their study of the brewing industry, Hatten *et al.* (1978) and Schendel and Patton (1978) measured strategies by using objective variables, such as number of plants, average capacity, newness of plants, length of production cycle, and capital intensity for their manufacturing strategy dimension. In the hospitality management literature, several students have tried to measure parts of strategies using objective indicators.

Strategic choice and objective measurements

Chathoth (2002), while studying the influence of corporate strategy, in lieu of business strategy, on performance (among other relationships), operationalized the strategy construct by including objective variables of growth and liquidity strategies. He measured growth strategies by taking the average quarterly sales growth over 5 years, the average quarterly sales growth over the same time period, and the market to book ratio (representing future growth opportunities), and liquidity strategy by taking the ratio of cash plus marketable securities to the book value of assets.

Interestingly, the measurements used by the author were finance-related measures. While it is necessary to recognize that his variables are proxies for strategy measurement and barely represent parts of the corporate strategy construct, it is also worth noting, as Chathoth (2002) puts it, "that almost 60 percent of the variance in firm performance was explained by variables and measures that were developed from corporate finance research" (p. 83). Whereas this high explanatory power may well result from some statistical artifacts, the measurement of strategy choice through financial variables can be justified when one looks at realized strategic choices as actions that are undertook through the allocation of resources (which can take the form of financial, human, technological or other resources, and that can be tracked via financial indicators).

At this stage, it is important to synthesize the key elements reviewed in relation to strategy choice. First, studies aiming at delving into the strategy-performance relationship favor *realized* strategies as *intended* strategies that fail to materialize are not expected to have any influence on performance. Secondly, *realized* strategies concentrate on *means* rather than *ends*. Indeed, as with intended strategies, goals or objectives may never be entirely achieved or, alternatively, certain *means* employed may conduct firms beyond their initial objectives. Thirdly, when envisioning strategy from the business level, the place where decisions are made needs to be considered, as well as the level at which the results are expected to occur. Fourthly, *means* that are engaged to create or maintain business level strategies, and *means* that are utilized to enable the operation of such strategies need to be differentiated. In other words, a clear distinction between competitive methods and competencies required to perform on competitive methods is necessary. Finally, the operationalization of the strategy construct could gain in objectivity and validity if it uses objective variables. The use of objective indicators would also benefit from other academic domains, principally from finance and economics related research. The next section introduces some of the consequences of these arguments.

STRATEGY CHOICE, FIRM STRUCTURE, AND THEIR EFFECT OF THE STRUCTURAL DIMENSIONS OF THE INDUSTRY

Strategy choice, when seen from the perspective developed in the previous section, can be defined as being the selection of, and investment in bundles of products and services that create value for the firm (Olsen et al., 1998). In contrast, competencies are aggregates of numerous activities a firm does in order to deliver on its strategic choices (Olsen et al., 1998; Snow & Hrebiniak, 1980). Hence, effective strategies require the allocation of resources to the development and maintenance of bundles of products and services, as well as to the development, maintenance or acquisition of the competencies required to dispense them.

These concepts refer to two distinct constructs: strategy choice and firm structure or strategy implementation. Although the two constructs have often been treated distinctively, yet frequently one excluding the other, it seems reasonable to treat them in parallel as they present very similar and complementary characteristics and consequences. Key to these similarities is their controllable nature as opposed to the uncontrollable character of the environment – which is imposed on the firm – and of the performance – which is an end-result, a dependent construct.

Past researches have also shown the difficulty of treating the two constructs completely separately. For example, Dess and Davis's (1984) instrument blended emphasis on products and service development with emphasis on competencies. Venkatraman's (1989b) dimensions of strategic orientation also mixed strategic choices and firm structure. For example, "emphasize effective coordination among different functional areas" represent an indicator of firm structure, while "usually the first ones to introduce new brands or products in the market" is a behavioral indicator corresponding to strategy choice. Murthy's (1994) scale also shows how difficult it is to separate one from the other. For instance, "maintaining consistently high quality product and/or service" and "using training and development to raise service quality standards" are two of his variables, loading on the service quality leadership dimensions, which represent, in turn, strategy choice and firm structure.

This confusion, however, does not represent a grave conceptual shortage in itself as successful strategies (i.e. strategies that positively influence performance) require a strong alignment between strategic choice and firm structure (Olsen et al., 1998). Thus, any failure on one or the other is expected to lead to strategic fiasco. The recognition of the importance of such alignment, as showed in Taylor (2002), as well as its integration within strategy research has yet to be enhanced. Accordingly, clearer definitions of strategic choice and firm structure are required if one wants to better operationalize the constructs and conceptualize their relationships, both between them, and in relation to other constructs.

Competitive methods and critical success factors

Olsen *et al.* (1998) suggested seeing strategy choice as investments in competitive methods (CM) that add value to the firm. To them, CMs are products and services that are bundled in a unique way and that attract customers from within the overall demand curve of the industry. The authors also made a distinction between CMs and critical success factors (CSF). To them, competitive advantages, resulting from the investment in CMs, are rarely sustained for a long period of time as competitors, principally in the service sector, tend to quickly and successfully copy them. CMs that are copied become CSFs, and shape the boundaries of the industry as they develop into benchmarks. This idea is also found in Porter (1985), where he argued that "firms, through their strategies, can influence the 5 forces" (p. 7). It is through the dynamic evolution of CMs and CSFs those firms define their industry domain. Consequently, CSFs are defined as those things that are necessary for firms to invest in if they aspire to compete within an industry (Olsen et al., 1998).

As shown in Olsen and Zhao (1997), distinguishing between CMs and CSFs can be a daunting task as CMs "frequently have very short life spans" (p. 57). Reporting on Olsen's (1995a) work, commissioned by the International Hotel and Restaurant Association (IH&RA), the authors also stated that "the leading or innovative firms were always the first to come up with a new or better method and they were then copied within a very short period of time." (p. 57). Thus, the primary distinguishing factor between CMs and CSFs appears to be time, where the leading firms take an advantage over the time period during which their CMs are unique.

Olsen (1995a), and Olsen and Zhao (2000), researched the CMs used by international hotel firms during the 1985-1994 and 1995-1999 periods. Using content analysis techniques, information on 20 international hotel groups from 10 different countries were analyzed and resulted in the identification of a number of CMs. These CMs are listed in Table 2.5.

Table 2.5: Competitive methods in the international hotel industry – 1985-1999

Period	Category	Competitive method
1985-1994	Customer products and services	- Frequent guest programs - Amenities - In-room sales and entertainment - Business services
	Technology development	- Technology innovation - Database management - Computer reservation systems
	Market efforts	- Branding - Niche marketing and advertising - Pricing tactics - Direct to consumer marketing
	Market expansion	- International expansion - Strategic alliances - Franchising and management fee
	Operation management	- Cost containment - Core business management - Service quality management - Travel agency valuation - Employee as assets - Conservation/ecology programs
1995-1999	Rapid information technology development	- Customer-oriented technology - Management-oriented technology
	International expansion and market cooperation	- Mergers and acquisitions - Management contracts - Franchise agreements - Joint ventures - Strategic alliances
	Relationship management	- Customer relationships - Employee relationship - Franchise relationship management - Travel agency relationship management
	Customer-oriented products and services development	- New segments, brand names, hotel room design and style - Health awareness amenities - Time-share programs
	Structural engineering	- New presidents and CEOs - New divisions
	New market initiatives and campaigns	- Heavy advertising investment - Co-promoting activities - Brand and image marketing - Competitive pricing tactics
	Quality control	- Use of brand name products - Renovation and modernization - Quality performer rewards - Employee as assets - Training
	Social awareness and environmental protection	- Social responsibility - Responsible corporate citizenship - Protecting the natural environment

Sources: Olsen (1995a) and Olsen and Zhao (2000)

Other scholars have also tried to uncover key CSFs in the hospitality industry. Geller (1985) interviewed 74 executives of 27 hotel companies and asked them to identify the most important CSFs to the performance of their firm, to which strategic goals they were related, and how they would track them. The most frequently cited were employee attitude, guest satisfaction (service), superior product (physical plant), superior location, maximization of revenue, and cost control.

Another attempt to identify those CSFs can be found in the explanatory study of Brotherton and Shaw (1996). Using mailed questionnaires, the authors initially attempted to identify corporate and unit level CSFs, yet they had to concentrate solely on unit level as they received only one response from corporate offices. In their study, they asked respondents to identify and rank CSFs, as well as to classify them according to functional areas.

Reporting on multiple studies performed on the U.S. lodging industry, Dubé and Renaghan (1999) described the best practices of "29 overall champions" (p. 16). While not labeling them CSFs, the authors established their ranking based on strategic actions commonly practiced in the industry. For instance, they classified Four Seasons as Deluxe-segment champion based on its leading performance in customer service that was attributed to investments in employees' training and selection. For Embassy Suites, the Upscale-segment champion, the deciding factors were the physical attributes, amenities and service, such as the size of the room, as well as quality service and breakfast quality.

In the foodservice industry, Olsen and Sharma (1998) offered a review of the CMs used by multinational companies between 1993 and 1998. Using the content analysis research method, the author summarized the key CMs described in trade journals and magazine, company and consultant reports as well as academic journals. Table 2.6 summarizes these CMs.

Table 2.6: Competitive methods multinational foodservice companies – 1993-1998

Competitive method	Examples
Strategic expansion	- Franchise/Master franchise - Management contract - Strategic alliance/Joint venture/Partnership/Co-branding - Merger and Acquisition
Technological development	- Internet communication with target market - Management information systems - Production and service oriented technology - Training and development systems
Internal competency development	- Quality management - Employee training and retention - Organization restructuring
New product/service development	- Modifying the menu to adapt to local needs - New product/concept/theme development - Safety and cleanliness - Chain and brand name domination - Facility renovation
Target marketing	- Heavy advertisement - Internet advertising and promotion - Database marketing - Sponsorship, community service, and charity - Environmental awareness
Pricing strategies	- Price/value relationship - Discounting war - Coupons

Sources: Olsen and Sharma (1998)

<u>The resource-based view of strategic choice and firm structure</u>

These streams of research have been highly influenced by the resource-based view of the firm (RBV), with the concepts of CSFs, CMs and core competencies deeply rooted in the RBV literature. Initially developed from an economic perspective, and as an alternative to the product-market side (Wernerfelt, 1984), the RBV of the firm emphasizes the role of firm-specific resources and capabilities in gaining a competitive advantage. In his seminal work, Wernerfelt (1984) explored the usefulness of analyzing firms from the resource side and suggested approaches to understanding profitability differences within industries. In his view, certain types of resources could create position barriers, in analogy to Porter's (1980) entry and mobility barriers. Unlike entry barriers, these resource position barriers would provide its owner an advantage over other industry members as long as it isn't replicated by other competing firms or new entrants. Much similar to the relationship between CMs and CSFs suggested by Olsen et al. (1998), and to the dynamic properties of mobility barriers and entry barriers of Porter (1980, 1985), resource position barriers would develop competitive positions between firms within an industry provided that they are unique to a firm, and nurture industry structure when copied by most of the competing firms.

Similarly, Barney (1986a) argued that gaining competitive advantage through the creation of imperfectly competitive product markets may not suffice to explain above normal economic performance. In his reasoning, abnormal economic performance can only exist when the cost of implementing product market strategies is lower than the returns. From this perspective, the principal competitive market becomes a strategic factor market, in which firms attempt to control unique resources or to acquire resources of which the future value has not been well recognized by competitors. Consequently, Barney (1986a) claimed that competitive analysis "should flow mainly from the analysis of its unique skills and capabilities, rather than from the analysis of its competitive environment." (p. 1231).

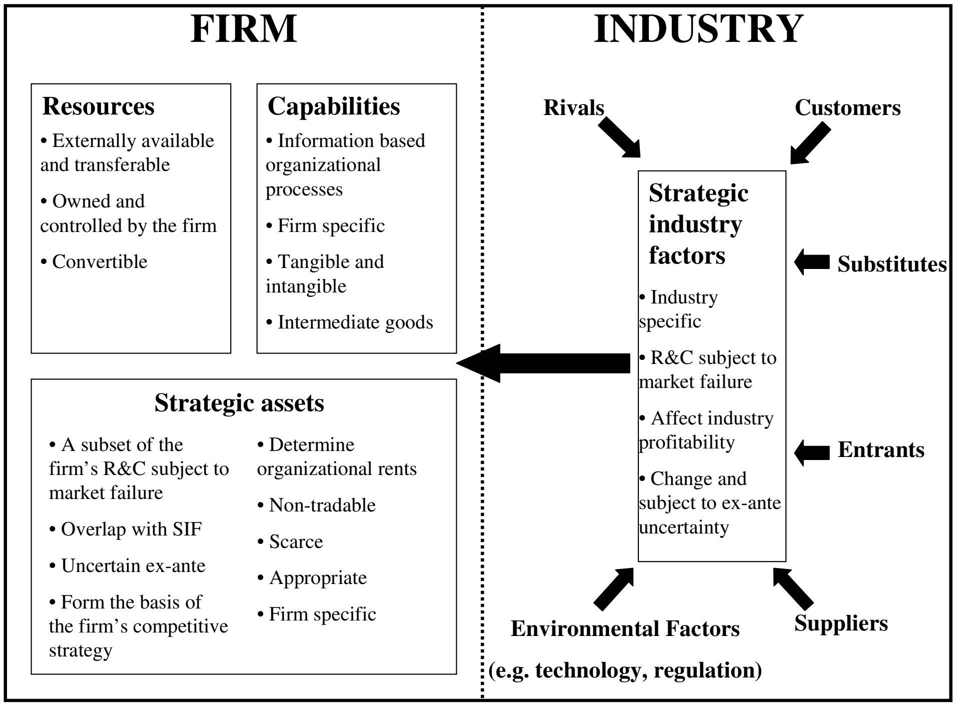
Likewise, Shoemaker (1990) discussed the importance of friction forces in the strategic factor market of Barney (1986a), and how these forces could create asymmetries resulting in firms gaining some competitive advantage over others. In his pursuit of the answer to the central questions of whether systematic rents are possible and how, Shoemaker (1990) suggested several potential factors related to the notion of friction forces that could enhance strategic rent production. Taking a behavioral approach to microeconomics, he argued that bounded rationality, information asymmetries, and asset specificity create imperfections in the rent-producing resource market, which could explain why some firms are able to sustain above normal returns for a long period of time. He concluded that further research should be directed toward understanding the role of asymmetries in skills, resources and know-how on the performance of firms.

Building on this resource approach, Prahalad and Hamel (1990) suggested that the roots of competitive advantage were not product market related, but entrenched in core competencies. Using historical examples of corporate successes and failures, they posited that "the real sources of advantage are to be found in management's ability to consolidate corporatewide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities." (p. 81). They defined core competencies as "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies." (p. 82). In terms of resource allocation, they distinguished between the traditional view of the firm, where capital is allocated to discrete business units, with a competence based approach, where capital and talents are allocated to competencies and businesses at large.

In an attempt to formalize the RBV of the firm, Grant (1991) proposed a practical, 5-step framework to strategy analysis. Synthesizing the work of RBV proponents such as Wernerfelt (1984), Barney (1986a, 1986b), Shoemaker (1990), and Prahalad and Hamel (1990), as well as prior works of Penrose (1959), Andrews (1971) and Thompson (1967), he suggested that firms should first analyze their resources, and appraise their strength and weaknesses relative to their competitors, as well as identify opportunities to better utilize them. Then, firms should identify their capabilities (i.e. competencies) and understand what they do better than their competitors. They should gain an understanding on which resources are necessary to their capabilities. Next, firms should appraise the rent-generating potential of their resources and capabilities, and select their strategies based upon the best possible exploitation of their internal strength (i.e. resources and capabilities) relative to external opportunities. Finally, firms should identify any gap between the strategy pursued and their resources and capabilities endowment, and, if necessary, invest in refilling or maintaining their resource base. Grant (1991) concluded that “key to a resource-based approach to strategy formulation is understanding relationships between resources, capabilities, competitive advantage, and profitability – in particular, an understanding of the mechanisms through which competitive advantage can be sustained over time” (p. 133).

In an effort to integrate apparently contrasting views of strategy, Amit and Shoemaker (1993) developed theoretical propositions that linked the RBV and the industry analysis perspectives. Drawing on the concept of key success factors (Vasconcellos E Sa & Hambrick, 1989) and on the industrial economics notion of strategic factors (Ghemawat, 1991), they linked firms’ resources and capabilities to the structure of the industry. Using Ghemawat’s (1991) notion of sunk cost, they stated that “When the industry (or product market) is the unit of analysis, one may observe that, at a given time, certain *Resources* and *Capabilities* which are subject to market failure, have become the prime determinants of economic rents.” (p. 36). Additionally, they argued that these *Resources* and *Capabilities* – labeled strategic industry factors – were characterized by their propensity to market failure and consequent asymmetric distribution over firms. In contrast, by focusing on the firm unit of analysis, unique bundles of resources and capabilities can be identified that enable the firm to earn economic rents. The authors labeled these firm-specific resources and capabilities strategic assets. Further, they argued that the rent-generating potential of these strategic assets was dependent upon their applicability to a particular industry setting; "the overlap with the set of *Strategic Industry Factors*" (p. 40). The authors concluded that strategic analysis would gain from a more multidimensional approach, including both industry structure, defined by strategic industry factors and environmental forces, and firms-specific strategic assets that are asymmetrically distributed within the industry. These constructs and relationships are depicted in Figure 2.5.

Figure 2.5: Strategic assets and strategic industry factors



Source: Amit and Shoemaker (1993)

In another attempt to theoretically synthesize and clarify the earlier works on the RBV, Peteraf (1993) proposed a model describing four conditions to gaining a sustainable advantage through resources. To her, all four conditions need to be met if firms want to generate superior rents on the long run (i.e. earnings in excess of breakeven). The first condition is that firms should be heterogeneous in a given industry and that superior resources exist in limited supply. These superior resources enable firms to produce at a lower average cost than competitors with inferior resources, and as they are limited in supply, efficient firms are able to sustain that competitive cost advantage. The second condition results from the need to maintain some degree of heterogeneity across firms. What the author coined as *ex post* limits to competition refer to forces that restrict competition for rents that have been gained by a firm. Some factors shaping these forces have been recognized in the RBV literature as resulting from imperfect imitability and imperfect substitutability. The third suggested condition is what Peteraf (1993) labeled imperfect mobility. This notion is related to Ghemawat's (1991) sunk costs and Shoemaker's (1990) idea of asset specificity. Resources that are imperfectly mobile are hard to trade as their use and value is firm-specific. The fourth condition, *ex ante* limits to competition, refers to the importance of the cost of implementing strategies brought out by Barney (1986a). The argument is that the future potential value of resources needs to be perceived differently by competing firms so that one that perceives it as valuable can acquire it at a relatively low cost.

The limited number of empirical research on the RBV of the firm may be explained by the difficulty of measuring rent-generating resources and competencies. In an early attempt to measure distinctive competencies and to assess their influence on the strategy-performance relationship, Snow and Hrebiniak (1980) asked top-managers from several small to large organizations to rate ten broad functions as strength, weaknesses or average. While acknowledging the potential biases of using a 3-point scale as an interval scale, they performed several ANOVAs and MANOVAs to assess the degree to which firms following Miles and Snow (1978) strategy types would differ in terms of distinctive competencies. Their initial analysis resulted in no significant differences in competencies between strategic group members. Their second analysis, using correlation and factor analytical techniques, enabled them to present some different patterns of competencies among strategic groups.

Henderson and Cockburn's (1994) effort to measure competencies was directed toward their effects on research productivity in the pharmaceutical industry. In their study, they distinguished between component and architectural competencies. Component competencies were defined as locally embedded knowledge and skills that are directly related to the operation of internal processes. In contrast, architectural competencies were identified as organizational characteristics and mechanisms that serve to integrate and coordinate the component competencies; these notions are close to the contextual and process competencies coined by Olsen et al. (1998). Using quantitative as well as qualitative data, Henderson and Cockburn (1994) tested several hypotheses relating their two categories of competencies with research productivity, which was viewed as a proxy for firm performance in this specific industry context. Using an econometric model, where productivity was a function of competencies, they were able to accept all their hypotheses. The authors recognized several potential biases with their methodology, yet they concluded that their results provided considerable support for the importance of competencies as a source of competitive advantage, and highlighted the importance of distinguishing between component and architectural competencies.

A number of recent works have attempted to provide means for operationalizing competencies and unique resources (e.g. Dutta, Narasimhan, & Rajiv, 2005; Hansen, Perry, & Reese, 2004; Newbert, 2007; Stieglitz & Heine, 2007). Yet, no study so far has established any dominant or valid measurement scale of the multiple dimensions discussed in the RBV literature, and none has looked the measures of resources and capabilities in the context of an industry structure or of environmental conditions.

In the hospitality management literature, several attempts to investigate the importance of competencies to firm performance have also been conducted, primarily using the case study method. De Chabert's (1998) effort principally aimed at testing the importance of the development and implementation of core competencies to the performance of firms within the restaurant industry. Drawing on the RBV literature, she developed a model of core competencies implementation and tested it in three casual restaurants. Using a multiple case study approach, she found strong support to her contention that a strong alignment between core competencies and resource allocation was necessary to superior performance. Her model suggested that firms should first identify the core competencies required, and then allocate the necessary resources to these important competencies at both the corporate and unit level if they wanted to maximize performance, measured as cash flow per seat.

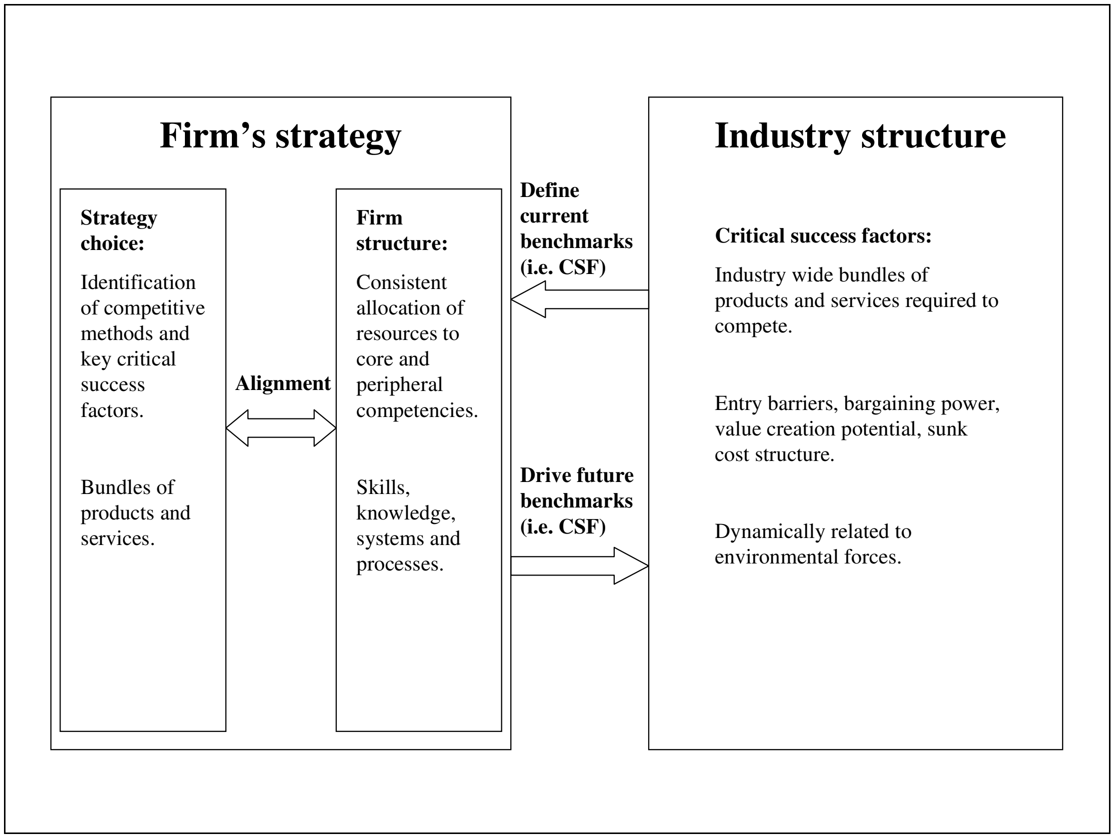
In a subsequent attempt, Taylor (2002) studied the importance of aligning competitive methods with core competencies in five independent hotels in Jamaica. Pursuing similar goals than de Chabert (1998), she added the construct of strategy choice and tried to better control for environmental differences by focusing on a limited geographical area. Through multiple measurement approaches, Taylor (2002) collected data on the competitive methods (as chosen by management, and perceived by customers), core competencies, customer satisfaction, and financial performance of the five hotels in her sample. Using a number of matrices, she then measured the degree of alignment between competitive methods and core competencies. Her measure of alignment, presented in percentages, was based on a count of evidences found to reflect actual allocation of resources toward competencies required to deliver on each recognized competitive methods. Subsequently, she compared the degree of alignment between competitive methods and core competencies with several performance measures. She found strong support to her initial proposition and was able to conclude that "The evidence suggested that hotels that utilize competitive methods that are aligned with the firm structure will perform better than hotels that do not." (pp. 218-219).

Strategy as aligning strategy choice and firm structure

What emerges from the literature on strategy as position, as posture, as choice of competitive methods, and as resource-based, is the need to consider several constructs and their dynamics simultaneously. While the debate on whether the firm or the industry has the most importance on performance still seems to attract the attention of several scholars (Hawawini, Subramanian, & Verdin, 2003; McGahan & Porter, 1997; Nelson, 1991; Powell, 1996; Rumelt, 1991; Schmalensee, 1985; Short, Ketchen, Palmer, & Hult, 2006), the inconclusive results illustrate that both are relevant and that their importance is contingent upon their relationship with environmental variables.

At the firm's unit of analysis, there seems to be a growing agreement that realized strategy depends on the consistent allocation of resources toward the chosen competitive methods. As such, realized strategies are a function of the alignment between two constructs: strategy choice and firm structure. It is the result of this alignment that defines the concrete outcomes of strategy formulation. It also appears that it is only the degree of alignment that defines the potential influence of strategy on performance at the firm level, and not strategy choice or firm structure autonomously. Secondly, there also seems to be a convergence of views on the importance of the structure of the industry as a whole on the profitability potential of the firms competing in it. Consecutively, the industry structure appears to be shaped by the strategic actions taken by the firms within the industry, as well as by tangent industries and more remote environmental forces. The relationships between these constructs are depicted in Figure 2.6, and will be further detailed in subsequent sections.

Figure 2.6: Strategy choice, firm structure and industry structure



Strategy, alignment, and industry structure

The discussion thus far has established that the success of strategy choices depends on the degree of alignment between the CMs and CSFs, and the competencies of the firm. It has also been suggested that the CSFs of an industry influence its structural dimensions. These structural dimensions (i.e. the industry structure) have been defined in several ways by I.O. students, and their relationships with the environment and firm performance have been studied from various angles.

Mason (1939) and Bain (1959) were the first to suggest that the structure of the industry was the prime determinant of economic performance. In their seminal works, they defined the industry structure by the type of competition taking place in it. Building on classic microeconomic theories, they suggested that the type of competition, ranging from atomistic to positions of monopoly, could be captured by the degree of concentration of firms, the degree of product differentiation, and the conditions to entry in the industry.

These early works have been at the core of the development of the I.O. field of research. As discussed in earlier sections, Caves (1972), Caves and Porter (1977), and Porter (1979, 1980), developed the notions of generic strategies based upon the influence of the structure of the industry upon firms. Amit and Shoemaker (1993) used some of the dimensions of the industry structure in their attempt to link the RBV with the I.O. perspective. A number of studies have also empirically investigated the influence of the structural dimensions of the industry on the success of new ventures entering an industry, or have attempted to identify the key determinants to performance differences across industries. Other studies have investigated the extent to which strategies and managerial cognition influenced these structural dimensions. The typical dimensions used in such efforts included (1) the industry concentration (e.g. Bain, 1959; Robinson & McDougall, 1998), (2) the stage of the life cycle or growth rate of the demand (e.g. Hatten et al., 1978; Hofer, 1975; Porter, 1980), (3) the excess capacity present in the industry (e.g. Caves, 1972; Plambeck & Taylor, 2005; Robinson & McDougall, 1998), and (4) the degree of product differentiation (e.g. Harrigan, 1981; Nevo, 2001). These dimensions are discussed next.

Industry concentration

The concentration of firms within an industry has been the most widely researched and used dimension in the study of industry structure. Industry concentration is defined by the number of firms in the industry, and their relative market shares. Highly concentrated industries are dominated by a few firms controlling most of the market. In contrast, fragmented industries are characterized by a large number of relatively small firms (Bain, 1959; Robinson & McDougall, 1998). I.O. studies have typically associated high industry concentration with high profitability. Hofer (1975) and Porter (1980), for instance, suggested that, as industries consolidate and large dominant firms emerge, the bargaining power industries have over their buyers and suppliers increases. Indeed, as firms grow in size and capture more market share, they become more critical to their suppliers and buyers, who are more likely to accept less favorable terms in their contracts.

Empirical works on the influence of industry concentration on industry profitability have for the most part supported the theorized relationship. In the traditional I.O. literature, a number of empirical studies have demonstrated that highly concentrated industries typically command higher profits. For instance, Levy (1984) showed that the industry concentration, measured by the four-firm concentration index, had a significant effect on the profitability of the industry, as measured by its ROA. In his study, he also noticed that the effect of concentration on performance, while always positive, was not homogeneous across industries. He suggested that other factors could interact with industry concentration, and thus, change the magnitude of its influence on profitability.

These conclusions were echoed by Harrigan (1981), who investigated the performance levels of new ventures in industries at various concentration levels. While her findings suggested that concentration alone did not explain performance, her results suggested that new ventures who quickly gained in size in highly concentrated industries had significantly higher returns on assets and equity than those entering fragmented industries.

In their meta-analysis of the determinants of financial performance, Capon, Farley, and Hoenig (1990) showed that industry concentration had been used in more than 90 studies, and that over 1100 statistical tests of its influence on performance had been reported. Based on the findings of these research articles, the authors concluded that there was a clear positive effect of industry concentration on performance (i.e. the higher the concentration, the higher the performance level).

These results were also confirmed by Robinson and McDougall (1998), who found that highly concentrated industries had significantly higher ROE and ROA than industries with medium and low concentration levels. Their results also suggested that industry concentration had a strong effect on both bargaining power and industry effect, as the success rate of new ventures in highly concentrated industries was lower than in fragmented industries, but that, when the entry was successful, the returns were higher in those highly concentrated industries.

In the finance field, a few scholars have researched the influence of industry concentration on stock returns and risks. Benett and Sias (2006) tested the influence of the changes in industry concentration on the changes in idiosyncratic risk of stock returns between 1962 to 2003. Using several randomly selected samples of firms and portfolios, the authors regressed industry concentration and firm size on firm-specific risk. Their results suggested that, as industry concentration increased (decreased), idiosyncratic risk decreased (increased). The authors concluded that industries in which firms were able to prevent new entrants from taking market share were able to minimize their total risk.

Hou and Robinson (2006) also tested the influence of industry concentration on the risks and returns of stocks. Using an expanded version of the Fama-French (1992, 1993) asset pricing model, the authors found that industry concentration significantly affected the stock returns. They also found that stocks of firms in highly concentrated industries had significantly lower risk, as measured by the variance in stock returns, than firms in fragmented industries. The authors suggested that concentrated industries insulated firms from undiversifiable distress risk.

Several arguments have been put forth as to the determinants of industry concentration. Porter (1979; 1980) suggested that the quest for low-cost leadership positions and economies of scale was driving firms to grow in size. He indicated that, when the industry growth rate is stagnant, firms still continue to grow by acquiring rivals, driving up the concentration level within the industry.

In their review of the evolution of the brewing industry, Tremblay, Iwasaki, and Tremblay (2005) found that the key determinants to the dynamics of industry concentration were the technological changes and the continuous success of leading firms who established the standards in production and sales for the industry. Consistent with the idea that CSFs drive change in the structural dimension of the industry, the authors suggested that industry concentration was primarily driven by firms' actions, and only facilitated by regulations.

Industry life cycle and growth rate of demand

The industry life cycle has usually been defined by the conditions of the demand, and has typically been measured by the growth rate in industry sales (Hatten et al., 1978; Hofer, 1975; Porter, 1980). Conceptually, the industry life cycle has been described using five primary stages (Hatten et al., 1978; Robinson & McDougall, 1998): (1) Market development (sales growth rate lower than population growth rate), (2) rapid growth (growth rate greater than Gross National Product growth rate), (3) competitive turbulence, shakeout (growth rate greater than GNP, but decreasing), (4) maturity, saturation (lower than GNP and declining), and (5) decline (negative growth rate).

Several studies have delved into the influence of the life cycle on industries and firms' performance. In the I.O. and business venturing literature, the stages of the life cycle have usually been used to categorize various industries. For instance, Sandberg and Hofer (1987) used six stages of the industry life cycle (differentiating maturity and decline) to study the importance of industry structure on the characteristics of successful new ventures. Using new ventures' proposals submitted to four venture capitalists as primary source of data, the authors found that new ventures were more successful (in terms of return on sales, ROA and market share growth) in the development and growth stages of the evolution. They also found that differentiated strategies outperformed focused strategies in these early stages.

In another study, Covin and Slevin (1990) classified 20 industries according to their life cycle stage, and investigated the influence the life cycle had on individual firms' strategic postures, organizational structure and performance. The authors found that the firms in growing industries had a more entrepreneurial posture than firms in the later stage of the life cycle. They also found that firms in industries in the early stages (i.e. development and growth) performed better than firms in mature industries.

In the strategic management literature, the stage of the industry life cycle has often been associated with market growth and the degree of munificence in the environment. Aldrich (1979), who labeled the dimension environmental capacity, referred to the ability of environmental resources to sustain growth. Dess and Beard (1984) suggested that market sales growth was the primary determinant of environmental munificence.

In their study of the influence of the environment on strategy and performance, Keats and Hitt (1988) operationalized environmental munificence by taking the average industry growth rate in sales and in operating profit. The authors tested several hypotheses linking environmental munificence to diversification strategies and firms' size. Using structural equation models, the authors found that munificence was positively related size and market performance (i.e. stock returns), but negatively to diversification and operating performance (i.e. operating profit). The authors concluded that, when industries are in a growing stage, firms are less prone to diversify as they can still grow their performance in their current lines of business. They also suggested that, when the environment offered less growth opportunities (i.e. less munificence), firms were striving to improve their operational efficiency rather than expand into new markets.

Capon et al. (1990) also suggested that the industry life cycle was one of the major dimensions of industry structure that affected performance. In their meta-analysis, they found that industry sales growth had been tested as having a significant positive influence on performance in a vast majority of the studies they analyzed.

In the hospitality industry, Jogaratnam et al. (1999b) tested the moderating effect of environmental munificence on the relationship between strategic posture and firm performance. Based on a sample of 311 independent restaurants, the authors found that, while no interaction effect appeared to exist, the degree of environmental munificence and the strategic postures were significantly influencing performance.

In another study, Chathoth (2002) included sales growth in his investigation of the effect of co-alignment between the environment, firm strategy, firm structure and firm performance. Arguing that growth was the primary strategy pursued by hospitality firms, he used sales growth rate as a measure of corporate strategy. While operationalized at the firm level, his sales growth variable was closely related to the notion of industry life cycle, except that he saw it as primarily dependent on the actions firms were taking rather than a function of the environment. Chathoth (2002) indeed argued that strategies such as diversification, internal new ventures, or acquisitions were choices made by firms that result in sales growth. Using a sample of 48 restaurant firms, he found that sales growth was influenced by the economic and market risks, and that it influenced the liquidity strategies of firms, which, in turn, influenced the performance levels.

Viewing sales growth as the prime objective and strategic orientation of firms in the hospitality industry is consistent with the findings of the content analysis undertaken by Olsen and Sharma (1998). The authors suggested that strategic expansion, driven by the imperative to grow sales, was the prime competitive method in the foodservice industry between 1993 and 1998. Examples of expansion included mergers and acquisitions, but also new market development, such as the breakfast market in the fast-food industry, or the take-away market in the casual-theme industry.

The studies on industry life cycle strongly support the hypotheses that the sales growth rate, and the consequent environmental munificence, does influence industry performance. In addition, several studies have supported the argument that, while partially driven by external forces, the evolution of the industry cycle is also driven by the actions firms take, principally by the development of new concepts that attract new markets.

Excess capacity

The degree of excess capacity (or capacity utilization rate) in a given industry has also been viewed as a major determinant of industry profitability (R. E. Caves, 1972; Porter, 1979). Industries with a large excess capacity have been associated with lower performance, as firms engage in price-cutting tactics in an attempt to improve the utilization of their assets and to generate sufficient volume to pay for the fixed costs linked with their high capacity. Excess capacity has also been related to entry barriers. Hofer and Schendel (1978) suggested that capacity surplus deterred new entrants as the cost of gaining market share was excessive due to the numerous options buyers had to choose from.

In the I.O. literature, the extent to which industries had excess capacity has usually been approached by measuring the capacity utilization of manufacturing plants in relation to their shipments (Schendel & Patton, 1978). For instance, industries that were able to produce x number of units, but were selling only $x/2$ units, would be attributed a utilization rate of 50%, and an excess capacity of 100%.

Studies along these lines have supported the contention that excess capacity was associated with lower performance. For example, Hatten et al. (1978) found that, as production capacity increased, the industry performance of the brewing industry decreased. Hofer and Schendel (1978) also found a strong negative influence of excess capacity on industry performance.

Excess capacity has also been related to the exit strategies of firms. Harrigan (1982) studied the structures of the industries from which 60 firms exited. Using a logistic regression model, she found that excess capacity, along with high capital requirement, were the most significant determinant of exit.

In a more recent study, Plambeck and Taylor (2005) examined the influence of production capacity in the original equipment manufacturer (OEM) industry on performance and strategic alliances. The authors showed that excess capacity was primarily determined by expected growth, and that, when growth didn't materialize, the industry suffered significant decline in profitability. The authors also suggested that strategic alliances, and the pooling of production capacity, altered the relationship. In other words, their results suggested that strategic alliances permitted allied firms to shift some excess capacity from one product to another, thereby reducing its negative effect.

Product differentiation

Product differentiation, as a structural dimension of an industry, refers to the extent to which consumers perceive the industry's products as having dissimilar characteristics, and offering diverse solutions to them (Dickson & Ginter, 1987). In the I.O. domain, product differentiation has been defined by the degree of homogeneity of the products' characteristics (e.g. Bain, 1959). Industries with high degrees of product differentiation have been considered as potentially more profitable than industries selling essentially homogenous goods and services (Porter, 1980). Indeed, differentiated products have been regarded as helping firms gain some bargaining power over their buyers, who, in this context, suffer high switching cost due to their inability to find similar products in the marketplace. Early I.O. theories also suggested that product differentiation raised entry barriers as potential new entrants would have more difficulties gaining market share.

Initial attempts to delve into the influence of product differentiation on industries have produced fairly inconsistent results. Schendel and Patton (1978) operationalized product differentiation by measuring the industry's advertising expenses as a percentage of total sales (i.e. advertising intensity ratio), and the number of different brands in existence. They found that the advertising intensity ratio was negatively related to the ROE of the industry. They also found that the number of brands was positively related to the ROE for large firms, but not for small firms. In contrast, at the industry level, the number of brands was not significant.

Harrigan (1981) tested the effect of product differentiation using the advertising intensity ratio. The authors suggested that industries with high advertising expenses vis-à-vis their sales might be subject to increased entry as potential new competitors would seek to exploit the benefit of such advertising campaigns. She also proposed a positive relationship between advertising intensity and profit, potentially with a lag time, as firms in industries with high advertising intensity could capture customers' goodwill and recognition. Using pooled cross-sectional regressions on longitudinal data of manufacturing industries, she found that the advertising outlay of the industry positively affected the likelihood of successful entry in the industry. Her results also suggested that advertising intensity was positively related to the industry's return on invested capital.

Using three categorization schemes of product differentiation, based on advertising intensity ratio, Robinson and McDougall (1998) investigated the dimension's influence on several performance variables (ROA, ROE, ROS). While product differentiation was significantly affecting all performance measures only with one of the three categorization systems used, the authors found that partially differentiated industries consistently performed better than homogenous industries.

More recent works have questioned the validity of the traditional measurement of product differentiation. Mariuzzo, Walsh, and Whelan (2003) suggested that the heterogeneity in industry's products could be better captured by including the relative size of the number of brands in existence. Nevo (2001) argued that brands were a significant characteristic of products and a key element of the consumer's utility function. In his study of the ready-to-eat cereal industry, he found that the number of brands was a significant variable to the measurement of the structure of the industry. He also found that brands commanded higher margin.

No study in the hospitality literature has directly investigated the influence of product differentiation on industry performance. Yet, a few studies have suggested several determinants of product differentiation, with a strong emphasis on the importance of branding. For instance, Tarrant (2003) defined branding as way to differentiate hotels' products and services, and to minimize the risk associated with demand uncertainties. Olsen et al. (1998) also characterized branding in hospitality as a tool to differentiate products and services from the competition. In one of the few empirical studies on brands and differentiation in the hospitality industry, Jiang et al. (2002) investigated the switching behaviors of customers among brands. Using secondary data about 88 lodging brands, they found that firms with a high number of brands had more loyal customers who where less likely to switch to rival brands. While the authors could not establish causality between branding and loyalty, their results supported the notion that the number of brands does indeed increase the level of differentiation in an industry, and that differentiation influenced the switching costs of the buyers' group.

Despite the importance of the structural dimensions of the industry to strategy, and their apparent close links with CSFs and firms' strategies, only a limited number of studies thus far have investigated the influence of the dimensions of the industry structure in the hospitality field. The present study aims to fill this gap, and to investigate the dynamic relationships the industry structure has with the environment and the performance of firms. This latter construct is discussed next.

PERFORMANCE AND THE NOTION OF RISK AND RETURN

Strategy scholars have long used the performance construct as a dependent concept. Most of the initial empirical works including performance have operationalized the construct using accounting variables such as return on asset (ROA), return on sales (ROS), or return on equity (ROE). Schendel and Patton (1978) for example, used ROE, market share and efficiency as surrogates for performance, and stated that "Profitability requires little justification as a performance measure for the business firm. Without profits, long term survival is not possible, especially if growth is also sought. Return on equity was used because it measures the reward of ownership and takes alternative financial structures and risk levels into account." (p. 1614). This example shows the little attention directed toward the conceptualization of performance in early strategy works.

In the hospitality strategy literature, early definitions and operationalization of the constructs have also been limited, with ROA, ROE, and ROS being utilized separately or collectively (Dev, 1988; West, 1988). Alternatives and more contextual variables have also been suggested. Murthy (1994) used yield per room, market share index and ROS. De Chabert (1998) voted for the ratio of operating cash flow per seat. In a more recent work, Chathoth (2002) attempted to include finance views to the measurement of the construct. In his review of strategy and financial literature, he concluded that performance, defined as the profitability of the firm, could be best measured by including stockholders and bondholders objectives. To this aim, he operationalized performance using both accounting and cash flow measures. To assess shareholder's satisfaction, he selected typical accounting measures such as ROE and ROA. For the bondholders, he included cash flow per share and other financial ratios.

From an economic perspective, above normal performance has been regarded as rents. The concept of rents, present in the positioning school as well as in the RBV, has been defined by Shoemaker (1990) as "all payments above the minimum level required to make the input available for use" (p. 1180). The concept is closely related to the finance definition of excess return, which refers to returns earned above the cost of capital used (Brealey & Myers, 1984; Sharpe, 1964). The cost of capital is a notion tightly related to the minimum level of return required by investors. In the financial economic literature, cost of capital and minimum required rate of return are synonymous (Ross et al., 2003).

While estimating precisely the cost of capital still seems to be a hopeless endeavor, there seem to be some agreement as to the factors influencing it, principally on the importance of risk.

Early finance works: Modern Portfolio Theory and the CAPM

In the finance field, the interest has generally been directed toward the investor and principally aimed at providing him with tools that better value firms or financial securities, and improve its investment decisions. The fundamental notions in the initial streams of research on asset pricing models are that investors need to be compensated for the price of time and for the price of risk (Markowitz, 1959; Sharpe, 1964). That is, investors would require firms to provide them with a return that is at least equal to the pure interest rate, plus a compensation for potential upsides or downsides of future returns (i.e. risk).

Original studies on asset pricing models (Lintner, 1965; Sharpe, 1964) concentrated on individual assets in the context of portfolio selection, and were restricted by several assumptions, such as perfect markets with no friction, no arbitrage and perfect information. For example, the well-known capital asset pricing model of Sharpe (1964), or CAPM (also termed SLB for Sharpe-Lintner-Black or SLM for Sharpe-Lintner-Mossin), suggests that the only risk that matters to fully diversified investors is the part of risk that a security brings to the overall risk of the market portfolio; this part of risk being measured by the covariance of the security return with the market portfolio return. The part of risk being measured by the CAPM and similar asset pricing model has been labeled systematic risk, as opposed to unsystematic risk. The model can be written as:

$$E[R_i] - R_f = \beta \times (R_m - R_f)$$

Where R_m is the return on the market portfolio, R_f is the risk-free interest rate, and β (beta) the standardized coefficient of the covariance of the risky asset with the market portfolio.

Early empirical tests of the CAPM have reported supportive evidences as they showed significant positive relationships between beta and average returns for the period of 1926-1968 (Black, Jensen, & Scholes, 1972; Fama & MacBeth, 1973). However, later tests have yielded more troubling results (Ball, 1978; Banz, 1981; Fama & French, 1992, 1996; Reinganum, 1981a, 1981b). For example, Banz (1981) found that size effect added to the explanation of the cross-section of average returns provided by betas. Using various statistical techniques, Fama and French (1992) tested the explanatory power of markets betas for the period of 1941-1990, and were "forced to conclude that the SLB model does not describe the last 50 years of average stock returns" (p. 464).

Several competing models have been developed to improve the poor predictive power of the initial asset pricing models. Most notable are the attempts by Fama and French (1992, 1993) and their three-factor model, or Ross's (1976) arbitrage pricing theory. However, none seems to be fully accepted as many elements other than pure economic factors appear to play a role in the pricing of securities (Cambell, 2000). Given the large variance in stock returns that is not explained by systematic components of risk, the role of idiosyncratic risk has been scrutinized (Goyal & Santa-Clara, 2003).

In the hospitality industry, a few studies have tested the effectiveness of general asset pricing models such as the CAPM in the context of the industry, and were forced to conclude that the model was not relevant for industry professionals and academics

(Sheel, 1995). Barrows and Naka (1994) for instance, tested the APT presented in its empirical form by Chen et al. (1986) for three industry groups. Using several multiple regressions for each portfolio, they found limited support for the models as only 12.1%, 7.8% and 9.1% of the variance in the stock returns was explained by the equation for the restaurant, lodging and industrial group respectively. Other authors have in turn examined the determinants of the betas of the restaurant and lodging industries (Huo & Kwansa, 1994), or have investigated the risk and return in the hospitality industry (e.g. H. Kim & Gu, 2003; H. Kim, Gu, & Mattila, 2002). Yet, as in the mainstream finance field (e.g. Fama & French, 1996; Goyal & Santa-Clara, 2003), the limited predictive power of asset pricing models relying solely on measures of systematic risk lead several authors to investigate industry and firm specific risk factors.

Risk, return and strategy

The notion of idiosyncratic risk is central to the research on strategy. While early finance scholars have reported, and built upon the principle that risk and return are positively associated, and that systematic risk was more valuable than firm-specific risk as it can be eliminated by diversification, other studies have reported contradicting evidences. The initial results of Bowman (1980), reporting on a negative relationship between risk and return, lead several management scholars (but few finance students) to study the relationship from a strategic management perspective. Using accounting return measures, Bowman (1980) found that, over time, most firms with high returns on equity had less variation in returns, or risk, than firms with low return on equity. Other studies were performed to validate his results. Fiegenbaum and Thomas (1986), for instance, reported similar results, yet moderated by environmental variables.

A number of subsequent studies were performed to explain the reason to such negative relationship. From a strategic management perspective, diversification effects were studied and found to significantly influence the relationship (Chang & Thomas, 1989). Others have suggested that superior management could explain such paradox (Bettis & Mahajan, 1985), or that industry structure and business strategy would significantly affect return and risk measures (Oviatt & Bauerschmidt, 1991).

While evidences of the role of strategic variables on risk and return emerged, other scholars tried to conceptualize the relationships between these constructs. Bettis's (1983) initial work shed some light on what he called three conundrums: (1) the theoretical irrelevance of systematic risk in the finance field versus systematic risk utmost importance to strategic management, (2) the information transparency required by investors versus the need to keep strategic moves secret, and (3) the lack of consideration of international competition by finance scholars. Bettis (1983) suggested several ways to solve the puzzles, principally by conducting studies taking finance and strategy perspectives conjointly into consideration. His suggestions were echoed by Peavy (1984), who stressed the importance of disciplinary interaction in further studies. Chatterjee et al. (1999) attempted to synthesize the various perspectives and findings on the role of strategy in the risk and return connection. They proposed a strategic model of risk premium that included tactical risk, strategic risk, and normative risk. The authors described tactical risk as resulting from information asymmetries that make investors averse to performance surprises. The techniques used to manage this kind of risk are financial tactics, hedges, and real options. While hedges and real options are commonly available tools, financial tactics require more involvement from the company, and include earnings management, governance, and liquidity. In contrast, Chatterjee et al. (1999) defined the strategic risk construct as being principally driven by market imperfections on which strategies try to build a competitive advantage. This sort of risk was portrayed as representing the ability of the firm to separate its performance from instability in macroeconomic forces and industry-related factors. According to the authors, low strategic risk is achieved either by leveraging existing market imperfections or by creating new ones (e.g. Barney, 1986a), or by establishing structural asymmetries within the industry (e.g. Porter, 1980). The third dimension of risk, the normative risk, was then defined as representing the risk premium a firm may support if it fails to comply with norms or rules that it is expected to follow. Examples of such kind of rules are the common expectations of investors, regulators, or other influential groups with regards to the behavior of the firm in activities such financial reporting and controlling. Unlike the other types of risk mentioned above, the norms convey no influence on the risk premium, unless it is mismanaged.

In the hospitality industry literature, Madanoglu and Olsen (2005) proposed an industry specific factor model that was intended to account for both systematic and unsystematic risk components of stock returns. In their conceptual paper, they suggested that, factors such as human capital, brand strength, technology utilization, safety and security index, and other industry specific elements, were critical to the accurate evaluation of risk for hotel companies. For the industry specific elements, they argued that the most important factor would be the property ownership structure of the firms.

Drawing on research in franchising and management contracts (e.g. Roh, 2002), the authors claimed that highly franchised corporations would benefit from transferring part of their business and financial risk to their franchisees. This transfer of risk is expected to influence risks that are associated with the volatility of the cash flows from operations, as well as the risk associated with the investment in real assets. As suggested by the authors, franchised operations provide a more stable cash flow than owned or managed properties which rely more heavily on incentive-based fees. With regards to the risks associated with the ownership of real assets, franchisors are able to pass on the financial risk linked with some locations to their franchisees (Martin, 1988).

What surfaces from the literature on performance, are the notions of both risk and return. The works on the importance of strategy in the risk and return relationship show that the outcomes of strategic choice and firm structure have effects on both performance indicators: risk and return. As suggested by Amit and Wernerfelt (1990), firms not only seek to improve returns; they also aim at reducing risk. While this notion has long been entrenched in the strategy literature, it related primarily to the perception of risk that managers had. The recent stream of research including insights from both strategy and finance fields showed that risk needs to be seen more objectively and in relation with returns. Hence, high performance needs not only to be associated with high return, but also with relatively low risk.

<u>Cash flows, path dependence, asymmetric distribution and expected utility</u>

The measurement of returns as a performance variable has evolved since the early work in strategy. While ROE, ROA or ROS were common profitability measures in initial studies (Dev, 1988; Hatten et al., 1978; Hofer, 1975; Murthy, 1994; West, 1988), recent inquiries have adapted accounting measures to better reflect value creation and to control for accounting artifacts. Most of the recent works have favored cash flow measures as opposed to reported earnings (e.g. Alti, 2003; Chathoth, 2002; Lamont & Polk, 2001; Mooradian & Yang, 2001).

The reasons for choosing cash flow measures are many. First, many non-cash items are included in the calculation of net earnings, including depreciation, which do not reflect the true economic value created (Ross et al., 2003). Secondly, several cash items are not reflected in earnings calculation, such as changes in current assets or current liabilities, as well as capital expenditures. These elements, taken together, can have an important effect on the actual profitability of firms (Ross et al., 2003). In addition, as suggested by Chathoth (2002) and Olsen et al. (1998), investors, principally debt holders, are more interested with the ability of the firm to serve its debts imperatives rather than its accounting return levels. Cash generation is also important to stockholders as it serves to pay dividends and to fund future capital expenditures to foster future growth (Ross et al., 2003).

As discussed earlier, returns per se are not the only measure that satisfies investors (and consequently, managers); they also seek returns with few risks associated with them. Initial measurements of risk have primarily focused on the variance of returns (Lintner, 1965; Markowitz, 1959; Myers, 1977; Sharpe, 1964). In a way, the variance represents a certain degree of uncertainty around an expectation. Initial preference functions of investors were defined as risk averse and avoiding uncertainty (Markowitz, 1959). More recent works, however, have challenged the key assumptions underlying the economic theories on which the mean-variance approach builds, and have advocated other risk and return measures.

In his plea against neoclassical economics, Arthur (1996) argued that modern economies, due to profound transformations, appeared to be progressively more characterized by increasing returns as opposed to the classical Marshallian view of perfect competition, which is based upon the assumption of decreasing return to scale. Decreasing return to scale is often described as resulting from perfectly competitive market conditions, under which firms constantly increase their production as long as the marginal price exceeds the marginal cost. As markets remain profitable, more and more competitors enter the market, increasing the overall production level to a point where the marginal cost equals the marginal revenue, and the overall industry profit equals to zero. In moving toward this equilibrium, firms within the industry grow in size, but see their profit level decrease, hence, suffering decreasing return to scale.

According to Arthur (1996), the evolution of the economy, "from processing of resources to processing of information, from application of raw energy to application of ideas" (p. 100), has created different mechanisms in some industries, in which the effect of size on return functions is reversed (i.e. increasing returns). What these increasing returns mean is that some firms may be able to find a position in their industry that enables them to create what Arthur (1996) labels "network or user-base effects" (p. 106). While hi-tech industries appear to be the most representative groups of such mechanism, Arthur (1996) also suggested that service industries were subject to increasing returns. For instance, he claimed that the very existence of retail franchises was due to increasing returns, where size and wide geographic coverage were instrumental in the creation of a “network” effect. To him, hospitality chains such as McDonalds or Motel 6, benefit from increasing returns, as size (and growth) results in increased brand awareness, and consequently, in increased patronage.

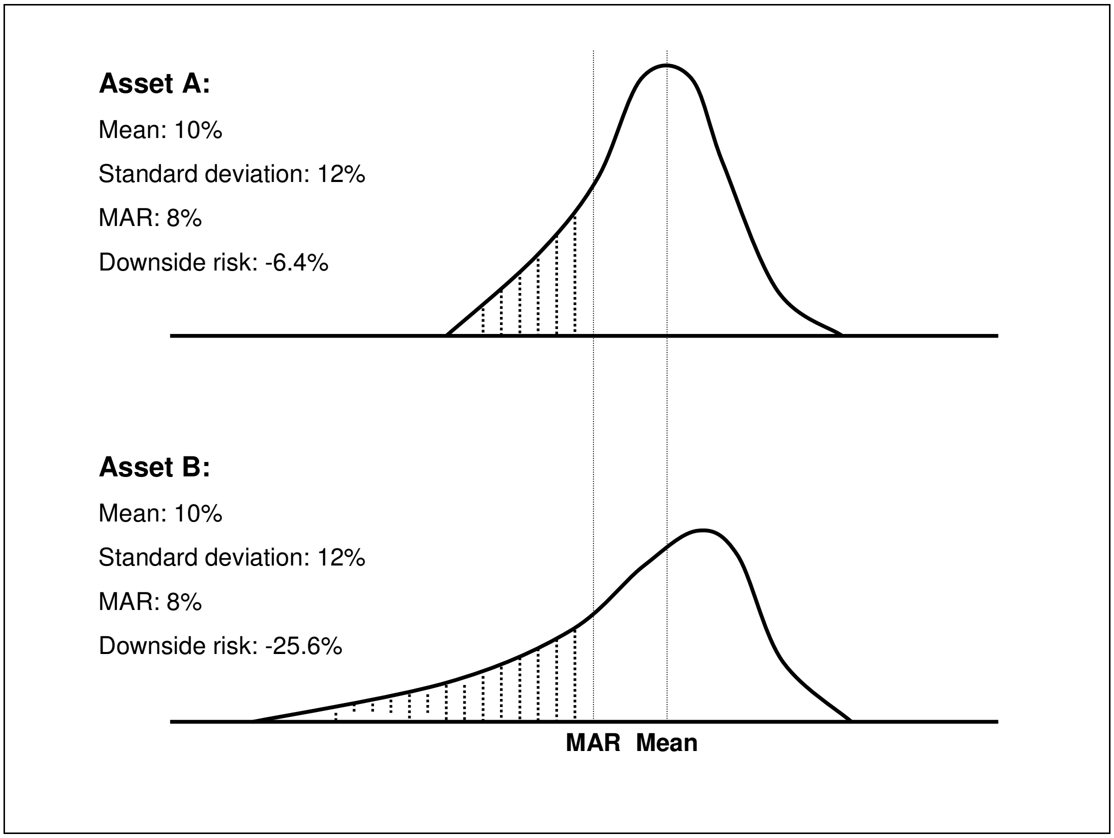
Drawing on Arthur’s (1996) theory, Downe (2000) suggested that increasing returns could partly explain why standard mean-variance asset pricing models were not reliable in estimating returns. Using essentially similar arguments as Arthur (1996), he claimed that firms in industries subject to increasing returns were subject to positive or negative feedbacks. To him, “positive feedback means that firms experiencing favorable company-specific events have a high probability of continuing to do so. Alternatively, firms in the other camp are likely to stay in trouble.” (Downe, 2000; p. 88). From a financial theory standpoint, this suggests that the risk-return characteristics of these firms is path dependent, and that the distribution of their returns over time would depart from the usually assumed normal distribution, and would be skewed either to the right or to the left depending on whether the firm is subject to positive or negative feedback. In addition, if the impact of the feedback is strong (i.e. highly skewed distribution), the systematic risk component of the distribution of returns can be expected to be relatively insignificant.

Increasing returns could be one of the explanations to the risk and return paradox detailed by Bowman (1980) and substantiated by Amit and Livnat (1988), Bettis and Mahajan (1985), Cool and Schendel (1988) and Fiegenbaum and Thomas (1986), among others. The negative risk-return relationships documented in some industries and for some firms could be due to the positive feedbacks posited by Arthur (1996) and Downe (2000). For instance, Fiegenbaum and Thomas’s (1986) findings suggested that the positive risk-return relationship was contingent upon prior firm performance. Using notions from the prospect and behavioral theories, the authors argued that managers of distressed firms were likely to take more risks than managers of successful businesses in an effort to recover from a history of unacceptable performance. In contrast, Cool and Schendel (1988) found that high returns were associated with low risk (i.e. low variance) for only a subset of firms within strategic groups, and that the relationship was primarily dependent upon the degree of environmental changes faced by these industries. The authors suggested that such long-term patterns were perhaps made possible by sustained phases of disequilibrium. This idea is also consistent with Arthur's (1996) increasing returns' world.

Taking the risk-return paradox from a methodological angle, Ruefli (1990) argued that the mean-variance approach was a biased method for measuring risk in strategy research as "the nature of the association between the two variables are inherently unverifiable and not necessarily generalizable." (p. 377). He also argued that the relationship between risk and return was highly dependent on the time period studied, concluding that the distributions of the two variables were not stable over time, and that the studies reporting on positive risk-return association were biased in their methodological assumptions and that their results were specific to their data.

Acknowledging the issues related to potential unstable distributions of returns, Sortino and Forsey (1996) argued that this was a rather insignificant concern when compared to assumptions associated with the shapes of the distributions and investors' utility functions. To them, distributions are stable enough, yet they often significantly depart from normality, making traditional mean-variance estimates inefficient. In addition to the distribution issue, Sortino and van der Meer (1991) contented that the definition of risk as assumed by mean-variance methods was not necessarily appropriate in investment decision contexts. Building on the work of Fishburn (1977) and investors and managers' attitude toward risk, as reported by Mao (1970), the authors attempted to differentiate uncertainty from risk, and argued that in investment situations, the real risk as perceived by investors and managers was about the probabilities of achieving returns below some kind of Minimal Acceptable Return (MAR). To them, while the variance captures the risk associated with attaining the mean, it remains "totally unrelated to bad outcomes that make us unhappy" (p. 28). Figure 2.7 illustrates the difference between what the authors refer to as "bad outcomes" or, more formally, downside risk, and risk as measured by the standard variance formula.

Figure 2.7: Downside risk and variance



Source: Adapted from Sortino and van der Meer (1991)

In Figure 2.6, asset A and asset B have the same mean (10%) and the same standard deviation (12%). Yet, because asset B distribution is negatively skewed whereas that of asset A is normal, the risk of attaining a return below the MAR is much greater for asset B than for A. Indeed, the shaded area of B is greater than A and results in a downside risk of -25.6% versus -6.4% for A. In this situation, a value maximizer and risk averse investor would be better off investing in A as it would maximize its utility function principally by avoiding the bad outcomes.

The downside measure of risk is not a new concept. In truth, Markowitz (1959) and Sharpe (1964) were aware of the theoretical dominance of mean-target semivariance models. Yet, due to the computational problems faced in the late 1950s and 1960s, they both voted for the variance, which still remains widely used today. In the hospitality industry, Johnson, Olsen and Van Dyke (1986) also endorsed the semivariance for its stronger theoretical and practical grounds. Yet, no other study in the hospitality industry has actually adopted such conceptualization of risk, and none has attempted to empirically test the direction of the risk–return relationship.

SYNTHESIS AND PROPOSITIONS

The discussion thus far established that there is a wide and growing agreement on the importance of co-aligning strategy choice and firm structure to the forces in the environment. Recent literature in strategy, finance and industrial organization (IO) economics also tend to agree on the importance of firm and industry specific elements that influence the environment-performance relationship.

From a finance perspective, industry and firm specific risk components have received increased interest in recent years. Principally driven by the failure of asset pricing models that concentrate solely on systematic risk in predicting stock returns, finance scholars have adopted some behavioral theories, as well as concepts from strategic management. New elements in finance research include information asymmetries among investors and managers, as well as industry and firm specific aspects, such as size, diversification strategies, or managerial capabilities.

The I.O. economics literature has also evolved by including more firm specific notions in their studies of industries. This evolution has essentially been driven by the requirement to understand industries' developments beyond the concept of strategic groups. Attempts to include ideas developed in the RBV literature have concentrated some attention toward the influence of firms' behaviors on the structure of industries.

For strategy research, the inclusion of finance concepts has been fostered by the inability of the field to move forward, principally when theory testing was required. Failures to capture the complexity of the environment or of strategy choice have lead researchers to investigate concepts of adjacent fields and to embrace some of their measurements.

More specifically, the financial notion of risk has been used to model the relationship between the remote and the task environment, and firms. Notably, the conceptual works of Bettis (1983) and Chatterjee et al. (1999) have encouraged strategy students to investigate the influence of strategy in the risk and return relationship. The empiric works of Chung (2005) and Madanoglu (2005) are important contribution to this innovative stream of research. However, their attempts appear exploratory and need further testing and development.

Their conceptualization of the relationships between macroeconomic risk and the industry is indeed relatively vulnerable as the notion of causality is not fully developed and lacks theoretical grounds. The conclusion of Madanoglu (2005) is informative in the sense that he recognized that part of the macroeconomic risk was probably already accounted for in his measurement of industry risk. From a theoretical standpoint, this makes sense, but remains incomplete. When the industry is viewed using Porter's (1980) five forces framework, one needs to consider its dynamic qualities.

First, as suggested by Porter (1980) and expanded by Amit and Shoemaker (1993), firms influence their degree of exposure to the five forces by their strategic actions and can shape the structure of their industry. In addition, contiguous industries that are part of the five forces also evolve through time, and shape their own exposure to external forces by means of their own strategies. This means that the effect of risk factors in the task environment (later called task risks) on industries and firms changes, but also that the influence of remote environment risk components on industries and firms is modified through time as well.

For these reasons, the effects of macroeconomic risks and task risks (as defined by the four forces in the task environment) on firms may be more complex than initially thought. For the environment constructs, the relationship may take the form of a mediating effect of the task environment on the remote-firm connection. Mediation can be defined as a causal chain in which an independent variable affects a mediating variable (also termed mediator or process variable) that, in turn, affects a dependent variable (Baron & Kenny, 1986). In other words, the remote environment risk factors would influence the task environment risk factors, which would, then, influence the industry and the individual firms. This mediating effect of task variables, if extremely high as probable in Madanoglu's (2005) study, would reduce the direct effect of macroeconomic (or remote) variables to a point where it becomes statistically insignificant. Mediated relationships of that sort, in which the direct influence of the independent variable on the dependent variable is insignificant when the effect of the mediator has been controlled, are illustrations of complete mediation (Kenny, Korchmaros, & Bolger, 2003).

Besides the linkages of the remote and task environment, theoretical arguments and empirical evidences in strategy research suggest that the influence of these environmental constructs on industry performance is dependent on the strategic actions taken by the firms within that industry (e.g. Amit & Wernerfelt, 1990; Porter, 1991; Richard et al., In press; Tan & Tan, 2005). I.O. students have indicated that firms could raise entry barriers and/or increase their bargaining power over their suppliers and buyers through their strategic moves, and that the overall profitability potential of the industry was developing as a function of the collective effects of these strategic actions (Adner & Zemsky, 2006; Lecocq & Demil, 2006; Porter, 1991). Because these strategic actions are taken collectively by a number of firms in an industry, several other scholars have described them as strategic industry factors or CSFs (e.g. Amit & Schoemaker, 1993; Olsen et al., 2007). As suggested earlier, these CSFs are industrywide bundles of products and services that shape the way competition takes place in an industry, and that define the relationship the industry has with its task environment. Amit and Shoemaker (1993) and Olsen and Zhao (2000) have indicated that these CSFs also change over time. Indeed, as changes occur in the environment, some CSFs become less critical and are replaced by new CSFs, or, alternatively, firms choose to place more or less emphasis on some of the existing CSFs.

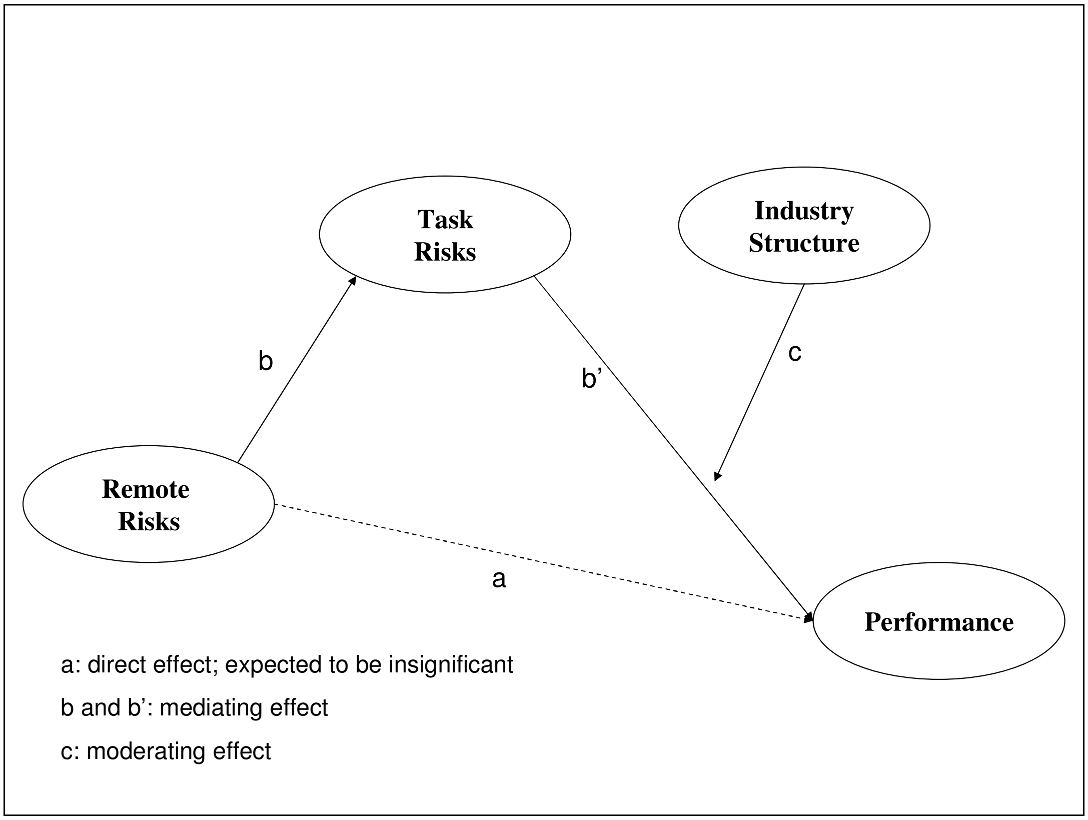
As evidenced by I.O. students, the bargaining power and barriers to entry of an industry are the prime determinants of the industry structure (e.g. Porter, 1991; Robinson & McDougall, 2001). Because these two determinants evolve as a result of the changes in the CSFs of the industry, the structure of the industry also varies over time, thereby altering the relationships the industry participants have with its task environment. Indeed, the commonly used measures of industry structure, such as the industry concentration, the stage of the life cycle, or conditions of excess capacity, do change over time.

When considering the influence and evolutionary nature of the industry structure, the mediating effect of the task environment on the performance of the industry is likely to be altered over time. In other words, the effect of task risk factors on the performance of the industry is expected to interact with the structural conditions of the industry. For instance, industries that have gone through a period of consolidation would see their risk exposure to the task risks reduced as their bargaining power increase and entry barriers are raised. Instead, if the industry builds too much excess capacity, then the industry risk exposure to the task risks would increase as any significant decrease in the demand would result in an increase in rivalry amongst firms. Such relationship can be best defined as a moderated relationship, in which the structural variables of the industry become moderators that may, depending on their values, increase or decrease the effect of the task risk factors on the industry performance (this notion is similar to an interaction term in a regression or ANOVA model).

Model and propositions

Following the line of reasoning developed thus far, the current study suggests that risk factors in the remote and task environment can be identified, and that, together with the variables that define the industry structure, can explain the evolution of risks and returns of the industry. In other words, it is expected that risks and returns of the restaurant industry portfolio can be described by a mediated relationship of risk factors from the remote and task environments, and by the moderating influence of the structural variables of the industry on the task risks. The proposed model takes the form presented in Figure 2.8.

Figure 2.8: Proposed Conceptual Model



Based on the discussion hitherto, the propositions describing the linkages between the constructs illustrated above are:

P1: Remote risk factors causally influence the task risk factors; the higher the remote risks, the higher the task risks.

P2: Task risk factors causally influence industry performance; the higher the task risks, the higher the variation in the industry cash flows.

P3: Remote risk factors do not influence directly the industry performance when the effects of the task risk factors are controlled; the task risk factors mediate the effect of the remote risk factors on the variation of the industry cash flows.

P4: The influence of the task risk factors on the industry performance is moderated by the changes in the industry structure; the higher the barriers to entry and the more bargaining power the industry has on its suppliers and buyers, the less influence the task risks will have on the variation in the industry cash flows.

These propositions are intended to shed light on the causal texture of environmental value drivers from the task and remote environment, as well as to further our understanding of the role of the structure of the industry. Eventually, this academic effort intends to provide some help to industry executives and investors in understanding the sources of growth and of volatility specific to the industry. Also, the results are expected to improve their evaluations of strategic decisions in relation to environmental conditions.

CHAPTER 3 – METHODOLOGY

The purpose of this study is to explore the effect of industry and firm specific factors on the causal texture of the environment. The previous chapters introduced several conceptual arguments pertaining to the relationships between five constructs: macroeconomic risks, task risks, industry structure, firm strategy and performance. Theoretical relationships between these constructs have also been exposed and discussed, and a synthesis of conceptual arguments leading to the development of three initial propositions has been provided.

This chapter revisits four of the five constructs of interest, and provides their operational definitions. The firm strategy construct is not discussed in itself as it not directly operationalized. The unit of analysis and boundaries of the theory developed in this study are also presented and discussed. The relationships conceptually described in the initial propositions are translated into hypotheses, and the statistical methods utilized are described in detail with their accompanying assumptions. Finally, the sampling framework and data collection are described.

BOUNDARIES

The theory presented as well as its empirical tests are restricted by measurements that are industry specific. Accordingly, the underlying spatial limitations are the following:

a. Publicly traded companies due to data availability and reliability.
b. Casual theme restaurant firms due to the necessity of concentrating on industry sectors' specific measurements.

c. Firms that generate most of their cash flows from company operated operations as opposed to franchised units. This limitation is set in an effort to ensure the validity of the measurements of the strategy choice and performance constructs. Indeed, the consolidated financial statements of parent companies do not include the operating data of franchised or managed operations.

With regards to contextual boundaries, it is realistic to state that the proposed theory does not specify the time-period. However, given the nature of the restaurant industry in the U.S. during the period covered, the theory may be restricted to the development and maturity stages of the industry life-cycle.

UNIT OF ANALYSIS

The unit of analysis in this study is at the industry sector level as the major dependent construct is estimated based on a single portfolio of publicly traded casual theme restaurant firms that generate most of their revenue from company operated units (as opposed to franchised units). The relationships between the macroeconomic and task risks construct is established in relation to the industry sector, not independent firms.

OPERATIONAL DEFINITION OF THE CONSTRUCTS

This research effort is directed toward the relationships between four constructs that have been so far conceptually described. Elements pertaining to the operationalization of each constructs have also been discussed in relation to theoretical issues. In this section, each construct is briefly introduced from a conceptual standpoint, and then defined in terms of its measurement characteristics, dimensionality and variables. The firm strategy construct is not discussed at the firm level at this point as it will not be operationalized. However, the relationship between the two environmental constructs, the industry structure, and industry performance will be detailed in the next section.

Remote risks

Remote risks are risk factors that influence the performance of all firms within an economy. These factors are economy wide indicators that define the state of the remote economic environment. Measurements of remote risks should include all potential drivers of risk for all businesses active in the economy. The present study utilizes the initial list of potential economic value drivers presented by Chung (2005). However, as Chung's (2005) aim was not to distinguish between general and industry specific drivers, the list of value drivers has been purified to include only indicators that are not direct measures of components of the task environment. The macroeconomic drivers represent elements of the environment that are not controlled or potentially influenced by firms within the industry, but also not controlled or altered by firms within the task environment. The revised list of value drivers is presented in Tables 3.1 to 3.9.

In is important to note that these potential macroeconomic drivers are all tangible drivers. While some less tangible but potentially influential factors will be included in the model using dummy variables, it is impossible to capture all intangible value drivers in the remote or task environment.

The first step in operationalization of the remote risk construct is to identify its relevant dimensions. As no prior theory exists to guide the selection of variables included in dimensions, and as dimensions are unknown, exploratory factor analysis (EFA) is the appropriate initial statistical method to be applied.

Table 3.1: Potential macroeconomic value drivers – commodity market

Macroeconomic variable	Measure	Source
Industrial Production Index (Total)	IPI	Federal Reserve Statistics
Producer Price Index (PPI) for all Commodities	PPI	Federal Reserve Economic Data: St. Louis Fed

Table 3.2: Potential macroeconomic value drivers – foreign exchange

Macroeconomic variable	Measure	Source
Foreign Exchange (FX) Rate; Hong Kong dollar/U.S. dollar	EXHKUS	Federal Reserve Bank
Foreign Exchange (FX) Rate; Japan yen/U.S. dollar	EXJPUS	Federal Reserve Bank
Foreign Exchange (FX) Rate; U.S. dollar/UK pound	EXUSUK	Federal Reserve Bank
Foreign Exchange (FX) Rate; U.S. dollar/EURO	EXUSEU	Federal Reserve Bank
Broad index	BROAD	Federal Reserve Bank
Major Currencies	MFX	Federal Reserve Bank

Table 3.3: Potential macroeconomic value drivers – Labor market

Macroeconomic variable	Measure	Source
Civilian Labor Force Level	LABORF	Bureau of Labor Statistics
Employment level	EMPLO	Bureau of Labor Statistics
Employment-Population Ratio	EMPPP	Bureau of Labor Statistics
Usually Work Full Time Employed	EMPFULL	Bureau of Labor Statistics
Usually Work Part Time Employed	EMPPART	Bureau of Labor Statistics
Unemployment Rate	UNEMP	Bureau of Labor Statistics
Total Non-farm Employment	EMPT	Bureau of Labor Statistics
Total Private Employment	EMPPRI	Bureau of Labor Statistics
Service-Providing Employment	EMPSER	Bureau of Labor Statistics
Private Service-Providing Total Employment	EMPPRIS	Bureau of Labor Statistics
Total Private Average Hourly Earnings	HRPRI	Bureau of Labor Statistics
Average Hourly Earnings for Private Service-Providing	HRPRIS	Bureau of Labor Statistics
Total Non-Farm Payrolls	NOFPAY	Bureau of Labor Statistics

Table 3.4: Potential macroeconomic value drivers – Inflation

Macroeconomic variable	Measure	Source
Inflation in Consumer Prices at Annual Rates	INFLAR	Economagic.com: Economic Time Series
Inflation in Consumer Prices	INFLA	Economagic.com: Economic Time Series
Total Consumer Price Index (CPI) for All Urban Consumers	CPI	Federal Reserve Economic Data: St. Louis Fed
CPI for All Items Less Food and Energy	CPILEFE	Federal Reserve Economic Data: St. Louis Fed
CPI for All Items Less Food and Shelter	CPILEFS	U.S. Bureau of Labor Statistic
CPI for Energy	EPIENER	Federal Reserve Economic Data: St. Louis Fed
CPI for Services	CPISER	U.S. Bureau of Labor Statistic
PPI for Finished Goods Less Food and Energy	PPILEFE	Federal Reserve Bank of Dallas: Economic & Financial Data
PPI for Non-Durable Goods Less Food and Energy	PPINOND	Federal Reserve Bank of Dallas: Economic & Financial Data

Table 3.5: Potential macroeconomic value drivers – Stock Market

Macroeconomic variable	Measure	Source
Dow Jones Composite Average Index	DJIN	Wall Street Journal (Dow Jones & Company)
NASDAQ Composite Index	NASDAQ	Wall Street Journal (NASDAQ Stock Market)
S&P 500 Close	SP500	Wall Street Journal (Standard & Poor's)
Composite Index of New York Stock Exchange	NYSEC	Wall Street Journal (NYSE)

Table 3.6: Potential macroeconomic value drivers – National Income and Output

Macroeconomic variable	Measure	Source
Gross Domestic Product (GDP)	GDP	U.S. Department of Commerce
Personal Consumption Expenditure	PCE	U.S. Department of Commerce
Personal Consumption Expenditure for Services	PCESER	U.S. Department of Commerce
Net Exports of Goods and Services	EXPORT	U.S. Department of Commerce
Net Exports of Services	EXPOSER	U.S. Department of Commerce
Value of Total Construction Put in Place	CONSTR	U.S. Census Bureau, Manufacturing and Construction Division
Value of Commercial Construction Put in Place	CONSTCO	U.S. Census Bureau, Manufacturing and Construction Division

Table 3.7: Potential macroeconomic value drivers – Interest Rate

Macroeconomic variable	Measure	Source
AAA Corporate Bonds	AAA	Federal Reserve Bank
BAA Corporate Bonds	BAA	Federal Reserve Bank
3-month CD Rate	CD3M	Federal Reserve Bank
3-Month Non-Financial Commercial Paper Rate	CP3M	Federal Reserve Bank
Federal Funds Rate	FEDFUND	Federal Reserve Bank
Federal Discount Rate	FEDDISC	Federal Reserve Bank
Bank Prime Loan Rate	PRIME	Federal Reserve Bank
6-Month Treasury Constant Maturity Rate	TCM6M	Federal Reserve Bank
6-Month Treasury Bills – Secondary Market	TB6M	Federal Reserve Bank
1-Year Treasury Constant Maturity Rate	TCM1Y	Federal Reserve Bank
5-Year Treasury Constant Maturity Rate	TCM5Y	Federal Reserve Bank
10-Year Treasury Constant Maturity Rate	TCM10Y	Federal Reserve Bank

Table 3.8: Potential macroeconomic value drivers – Money Market

Macroeconomic variable	Measure	Source
M1 Money Stock	M1	Federal Reserve Economic Data: St. Louis Fed
M2 Money Stock	M2	Federal Reserve Economic Data: St. Louis Fed

Table 3.9: Potential macroeconomic value drivers – Consumer Spending

Macroeconomic variable	Measure	Source
Total Disposable Personal Income	DISPOIN	U.S. Department of Commerce
Personal Consumption Expenditures	CONSUM	U.S. Department of Commerce
Personal Income	PERINCO	U.S. Department of Commerce
Disposable Personal Income Per Capita	PERCDIS	U.S. Department of Commerce
Wage and Salary Disbursements	WAGDIST	U.S. Department of Commerce
US Total Retail Sales	RETAIL	U.S. Census Bureau: Monthly Retail Trade Survey
Index of Consumer Expectations	SENTIM	Conference Board
Consumer Sentiment	CCI	University of Michigan
Index of Consumer Confidence	CEI	Conference Board

Task risks

Task risks are risk factors similar to macroeconomic risks, but that are part of the task environment of the firm competing in the industry. Much similar to the industry risk construct of Madanoglu (2005), task risks relate to value drivers present in Porter's (1980) four forces that are external to the industry. As suggested by Madanoglu (2005), it is possible to identify value drivers of only two of these four forces, namely value drivers pertaining to buyers and suppliers (mostly from suppliers). This limitation is however not expected to severely influence this study as the influence of the two other forces (new entrants and substitutes) is primarily driven by the attractiveness of the industry rather than external forces (Porter, 1980).

The operationalization of the construct replicates that of Madanoglu (2005). His initial list of industry value drivers is adopted, as well as his statistical methodology for identifying underlying dimensions of the construct (i.e. EFA). The reason for relying on this initial list is that it is based on all available data from reliable sources. The list is also derived from Chung's (2005) initial list. The 29 variables are presented in tables 3.10 to 3.14. It is also important to note that there is only one value driver directly related to the buyers (CPI-U food away from home). This is also due to the lack of reliable data that directly measure the drivers to this group. Yet again, this is not expected to severely impact the study as several task risk drivers listed in the following tables are indirectly related to the buyer group (e.g. all CPI-U for food also relate to the cost of cooking at home, which, in turn, is related to the cost incurred by buyers when eating in other places than in restaurants).

Table 3.10: Potential task value drivers – Inflation related

Macroeconomic variable	Measure	Source
Consumer Price Index Urban (CPI-U), Food Away From Home	CPIFAH	Bureau of Labor Statistics
CPI-U, Meats, Poultry, Fish and Eggs	CPIMPFE	Bureau of Labor Statistics
CPI-U, Tomatoes	CPITOM	Bureau of Labor Statistics
CPI-U, Fresh Vegetables	CPIFVEG	Bureau of Labor Statistics
CPI-U, Cheese	CPICHEES	Bureau of Labor Statistics
CPI-U, Fish	CPIFISH	Bureau of Labor Statistics

Table 3.11: Potential task value drivers – Labor related

Macroeconomic variable	Measure	Source
Average Hourly Earnings for Leisure and Hospitality	AHELH	Bureau of Labor Statistics
Average Weekly Hours of Production Workers for Leisure and Hospitality	AWKLH	Bureau of Labor Statistics
Average Hourly Earnings of Production Workers in Food Services and Drinking places	AHEPFSD	Bureau of Labor Statistics
Aggregate Weekly Hours for Leisure and Hospitality	AGGWKHL	Bureau of Labor Statistics
Aggregate Weekly Payrolls for Leisure and Hospitality	AGWPAYLH	Bureau of Labor Statistics
Average Hourly earnings of Production Workers for Leisure and Hospitality	AHERH	Bureau of Labor Statistics
All Employees – Foodservice and Drinking Places	ALLEMPL	Bureau of Labor Statistics

Table 3.12: Potential task value drivers – Production related

Macroeconomic variable	Measure	Source
Industrial Production (IP), Dairy Products	IPDAIRY	Federal Reserve Statistics
IP, Soft Drinks	IPSFTDR	Federal Reserve Statistics
IP, Cheese	IPCHEESE	Federal Reserve Statistics
IP, Butter	IPBUTTER	Federal Reserve Statistics
IP, Beef	IPBEEF	Federal Reserve Statistics
IP, Pork	IPPORK	Federal Reserve Statistics
IP, Miscellaneous Meats	IPMEATS	Federal Reserve Statistics
IP, Poultry Processing	IPOULTRY	Federal Reserve Statistics

Table 3.13: Potential task value drivers – Producer Prices

Macroeconomic variable	Measure	Source
Producer Price Index (PPI), Cheese	PPCHEESE	Federal Reserve Statistics
PPI, Fluid Milk	PPMILK	Federal Reserve Statistics
PPI, Poultry Processing	PPPLTRY	Federal Reserve Statistics
PPI, Pork	PPORK	Federal Reserve Statistics
PPI, Meats	PPMEAT	Federal Reserve Statistics
PPI, Dairy	PPDAIRY	Federal Reserve Statistics
PPI, Beef	PPBEEF	Federal Reserve Statistics

Table 3.14: Potential task value drivers – Construction Related

Macroeconomic variable	Measure	Source
Value of Construction Put in Place for Dining/Drinking	CONSDIN	U.S. Census Bureau, Manufacturing and Construction Division

Industry structure

The industry structure construct is defined by its four primary dimensions - (1) the industry concentration, (2) the industry life cycle, or growth rate of the industry, (3) the degree of excess capacity, and (4) the degree of product and service differentiation - which represent the relative bargaining power the industry has on its suppliers and buyers, and characterize how external firms are prevented from entering the industry (Porter, 1980). As suggested earlier, the evolution of the task environment, partially driven by elements in the remote environment, poses threats and opportunities to the industry (e.g. Bourgeois, 1980a; Olsen et al., 2007). When the task environment is viewed through Porter's (1980) framework, the task risks emerge as a consequence of the influence of the remote risks on the four external forces. Because industry participants, through their strategic actions (i.e. investment in CSFs), can influence the structural dimensions of their industry, they may alter their exposure to the remote forces that have impacted the task environment. In other words, the collective influences of the task environment components upon the firms, which are expected to mediate remote risks, are moderated by the dimensions of the industry structure. For instance, highly concentrated industries benefiting from a high bargaining power over fragmented suppliers may be able to keep their costs low even when these suppliers suffer from rising costs due to changes in the remote environment (e.g. Barney, 1996; Porter, 1980). On the contrary, fragmented industries are more likely to have no choice but to accept the higher costs as their relative bargaining power is lower[3]. Hence, the potential profitability of the industry

[3] Note that industry concentration depends on individual firms' size. Yet, if only one firm is large in a given industry, but all the others are small, the industry as a whole will likely have a low bargaining power over its supplier group (*ceteris paribus*). Hence, while related to a firm-specific strategic choice (i.e. size), the relative bargaining power between the industry and its suppliers is an industry-level concept.

develops as a consequence of this moderating influence, which minimizes the negative influence of remote and task environment. It is important to note that the industry structure construct does not capture firm specific factors as it is evaluated at the industry level and measured by industry-level indices and ratios. The four structural dimensions of interest are presented in more detail in the following sections.

Industry concentration

Industry concentration is defined by the extent to which an industry is dominated by a few large firms (Bain, 1959; Porter, 1980). The dimension has repeatedly been measured by the Herfindahl-Hirschman index (HHI) of the four or eight firm concentration ratio (e.g. Hatten et al., 1978; Hou & Robinson, 2006; Jacquemin & Berry, 1979). The HHI is computed by taking the sum of the squared market share of each firm in the industry. High HHI represents highly concentrated industries. Widely used by governmental agencies to monitor competition and assess the effect of horizontal mergers and acquisitions, it usually requires computing market shares for all companies within an industry. The index has frequently been adjusted in strategy and finance research where the market shares of only the four or eight largest company was used (Christensen & Montgomery, 1981; Hou & Robinson, 2006; Rumelt, 1974; Sampler, 1998). These industry concentration ratios have consistently yielded similar results than the classic HHI, and have been deemed as better suited for longitudinal research as their distributions were more stable and less skewed than the HHI (Tremblay et al., 2005).

The present study will adopt the approach generally accepted in management and economic research to building the index, and will include the eight largest firms in its computation. The nature of the casual theme restaurant industry renders the eight-firm concentration ratio more appropriate for the present research than the four-firm ratio. Indeed, over the period covered, between six to eight firms appeared to dominate the industry in terms of size, with reported sales of more than twice the amount of the other smaller firms. Specifically, the eight-firm industry concentration ratio (C8) takes the following operational form (Robinson & McDougall, 1998; Tremblay et al., 2005):

$$C8_t = \sum_{i=1}^{8} \left(\frac{Sales_{it}}{\sum_{i=1}^{N} Sales_{it}} \right)$$

where,

$C8_t$ is the eight-firm concentration ratio for period *t*,

$Sales_{it}$ are the sales of firm *i* in period *t*,

i=1 to 8 represents the inclusion of the eight largest firms in time *t* with regards to sales,

i=1 to N represents to total sales in the industry in time *t*.

The percentage change in the concentration ratio is then:

$$\Delta C8_t = \frac{(C8_t - C8_{t-1})}{C8_{t-1}}$$

Industry life cycle / industry sales growth rate

Several authors have reported that sales growth through new unit development or acquisition has been the primary strategy in the restaurant industry (e.g. Jekanowski, 1999; Olsen & Sharma, 1998; Sasser & Morgan, 1977). Sales growth rate has also been the primary measure of the stage of life cycle, which has been the secondly most researched structure dimension of industries (Capon et al., 1990). While some studies have categorized industries based on stages of the life cycle (e.g. Hatten et al., 1978; Robinson & McDougall, 2001), other efforts have operationalized the dimension by directly using the growth rate in total sales of industries (Jogaratnam et al., 1999b; Keats & Hitt, 1988; McDougall, Robinson, & DeNisi, 1992). In the present study, the dimension is operationalized using the latter approach as it permits a more precise estimate of the rate of changes in the life cycle. Formally, the industry sales growth rate is given by:

$$ISGR_t = \frac{(Sales_t - Sales_{t-1})}{Sales_{t-1}}$$

where,

$ISGR_t$ is the industry sales growth rate over the period t,

$Sales_t$ is the total industry sales at the end of period t.

Degree of excess capacity

The degree of excess capacity has been view as another key structural dimension of industries (Capone, Farley, & Hoenig, 1990). In manufacturing industries, the dimension has been measured using the ratio of plant capacity to actual sales or shipments (Schendel & Patton, 1978). In service industries, capacity has typically been measured using ratios incorporating the number of available service units per time period (Fitzsimmons & Fitzsimmons, 2004). In the hotel and restaurant industries, capacity is normally assessed by the number of rooms available per day, or the number of seats available per hour (Kimes & Thompson, 2004).

In the present study, excess capacity would ideally be measured by the number of seats available per hour. Yet, the data necessary to compute such ratio are not available for the industry as a whole. In lieu of number of seats, the present study will operationalize excess capacity by taking the ratio of full-time equivalent (FTE) employees in the industry to the total population in the US. While the number of FTE employees does not perfectly reflect the capacity of the fixed assets, it has been identified as one of the prime determinant to service capacity (Fitzsimmons & Fitzsimmons, 2004). In addition, the number of seats available per hour is likely to be highly correlated with the number of FTE employees. Indeed, when restaurant chains open new units (i.e. create more seats available), or when they decide to change their opening hours (i.e. more hours available), they are also expected to increase their number of FTE employees. Specifically, the excess capacity ratio takes the following form:

$$EXSCAP_t = \frac{FTE_t}{Population_t}$$

where,

$EXSCAP_t$ is the industry excess service capacity at the end of period t,

FTE_t is the total number of FTE employees in the industry at the end of period t,

$Population_t$ is the total population in the US for period t.

The changes in excess service capacity are then estimated as follow:

$$\Delta EXSCAP_t = \frac{(EXSCAP_t - EXSCAP_{t-1})}{EXSCAP_{t-1}}$$

Degree of product and service differentiation

Initial research efforts on industry structure have used the ratio of advertising expenses to sales as a measure of product differentiation. Recently, such operationalization of the dimension has been criticized as it does not truly reflect the definition of differentiation. Dickson and Ginter (1987) argued that product differentiation had to be defined and measured based upon the perception consumers had of the differences in products' characteristics. In the hospitality industry, differentiation has often been seen as resulting from the creation and development of different brands, each offering a different level of service (Dev & Olsen, 1998; Olsen et al., 1998). Jiang et al. (2002) operationalized differentiation by counting the number of brands in existence.

Galan and Sanchez (2006) argued that differentiation through the branding of different products could be best captured by the product diversification strategies of firms. In other words, they contended that industries in which firms have more diversified lines of products were exhibiting a higher degree of differentiation. The authors used the entropy measure of diversification (Jacquemin & Berry, 1979; Robins & Wiersema, 2003) to measure the dimension.

In the present study, the product differentiation is approached using the latter perspective in place of the advertising intensity ratio. The restaurant industry is indeed characterized by a number of advertising expenses which are not necessarily directed toward differentiation. In reality, a number of advertising campaigns are directed toward competition based on prices rather than on product or service characteristics, which is not consistent with the definition of the dimension.

Consequently, the product and service differentiation dimension is operationalized using an adapted version of the entropy measure of diversification. In order to capture the degree of differentiation, it is necessary to incorporate the number of brands (Jiang, Dev, & Rao, 2002), and their relative importance in the industry (Galan & Sanchez, 2006). The entropy measure normally includes the market shares of the products of the eight largest firms in the industry, and is very similar to the industry concentration ratio in its interpretation. In the present study, the proportion of sales for each of the brands of the eight largest firms will be used instead of the proportion of the products. In reality, restaurant brands can be seen as the actual products of restaurant chains. Formally, the index of brand diversification takes the following operational form:

$$BDI_t = \sum_{i=1,1}^{N,8} P_{it} \ln\left(1/P_{it}\right)$$

where,

BDI is the Brand Diversification Index at the end of period *t*,

P_{it} is the proportion of sales from brand *i* in relation to the total sales of the industry at the end of period *t*,

i=1,1 to *i=N,8* represent the inclusion of the *N* brands of the 8 largest firms in period *t*.

Accordingly, the evolution in brand diversification can be estimated by computing the percentage change in *BDI* (i.e. Δ*BDI*):

$$\Delta BDI_t = \frac{\left(BDI_t - BDI_{t-1}\right)}{BDI_{t-1}}$$

A summary of the variables used for the industry structure construct is presented in Table 3.15.

Table 3.15: Industry structure variables

Industry structure variables	Measures	Notations	Sources
Industry concentration	Eight-firm concentration index	C8	SEC Filings & Forms (EDGAR) and TrendMapper Database of the National Restaurant Association
Industry life cycle / Sales growth rate	Industry sales growth rate	ISGR	SEC Filings & Forms (EDGAR) and TrendMapper Database (NRA)
Excess service capacity	Number of FTE employees per capita	EXSCAP	SEC Filings & Forms (EDGAR) and TrendMapper Database (NRA)
Product and service differentiation	Brand diversification index	BDI	SEC Filings & Forms (EDGAR) and TrendMapper Database (NRA)

Performance

The performance construct is the dependent construct and is approached using two dimensions: return and risk.

Return

As discussed in the previous chapter, return is defined by the ability of the firm to generate operating cash flows. Cash flows' measures better represent the economic value generated by the operations of firms than earnings figures, which are distorted by accounting systems and practices. Several recent studies have favored cash flows' measures in their operationalization of the performance construct (Chathoth, 2002; Chung, 2005; Madanoglu, 2005). Cash flows may be estimated in a number of ways and for various purposes. While free cash flows have recently received increased interests in the finance literature due to their importance in valuation of firms (e.g. Copeland et al., 2000) or in assessing agency costs (Jensen, 1986), they are likely to be a biased estimate of returns from a competitive strategy perspective. Indeed, free cash flows typically include the net investments and the changes in net working capital. Consequently, free cash flows may not directly reflect a current competitive performance level. For instance, some firms may divest part of their non-operating assets in an attempt to cover some poor market performance (Jensen & Meckling, 1976). In contrast, operating cash flows's measures are perceived as better estimates of the competitive performance of firms as they gauge the actual cash generated by the operations, avoiding potential accounting or financial engineering practices. Yet, as suggested by Ross et al. (2003) and Madanoglu (2005), operating cash flows' figures reported in statements of cash flows may be biased by accounting rules. Consequently, operating cash flows are best estimated using the following formula:

$$OCF_{it} = OPINC_{it} - \Delta WCR_{it}$$

where,

OCF_{ti} is the Operating Cash Flows of firm *i* in period *t,*

$OPINC_{it}$ is the Operating Income of *i* in period *t,*

ΔWCR_{it} are the changes in Working Capital Requirements of firm *i* in period *t*, as defined earlier.

The operating cash flows represent then the level of return generated from operating the assets. However, it is not in itself a true measure of return as it can grow simply by adding more operating assets. Consequently, the operating cash flows need to be standardized and assessed in relation to the operating assets used to produce them. Copeland et al. (2000) suggested that the use of total assets as denominator (such as in the classic return on asset; ROA) was a biased estimate of the value of the assets used to generated the return. In lieu of the traditional ROA, they recommended the use of invested capital, which is also commonly used in the economic value added calculation (J. L. Grant, 2003). Formally, invested capital is calculated as follow:

$$IC_{it} = TA_{it} - EC_{it} - NIBCL_{it}$$

where,

IC_{it} is the Invested Capital for firm i in period t,

TA_{it} are the Total Assets for firm i in period t,

EC_{it} is the Excess Cash (cash and cash equivalent) for firm i in period t,

$NIBCL_{it}$ are the Non-Interest-Bearing Current Liabilities for firm i in period t.

Therefore, the operating cash flows return on invested capital can be estimated by:

$$OCFROIC_{it} = \frac{OCF_{it}}{IC_{it}}$$

It is important to note that the operationalization of the return variable is similar to the one used in Madanoglu (2005) and Chung (2005). Yet, while these authors were referring to the risk in returns when attempting to explain the variance in these returns, the present study differentiates between the variance and risk. The variance component of returns is defined as the volatility and evolution of returns, which includes the upside and downside parts, whereas risk is defined as being only the downside component of these returns, as discussed below.

Risk

The second dimension of performance is risk. Risk has usually been measured by the variance of the returns. However, as discussed in the previous chapter, the mean-variance approach to risk is a weak estimate of the risk level as perceived by investors (Mao, 1970). Indeed, risk-averse investors are principally interested in minimizing the variance below their minimum acceptable return (MAR), as it represents potential risks of losses. As suggested by Sortino and van der Meer (1991) and Johnson et al. (1986), downside risk can be measured by the semi-variance of return measures. The semi-variance is the average of the squared deviations below the MAR. Using the mean return as the MAR has been advocated by several authors (Sortino & Forsey, 1996; Sortino & van der Meer, 1991), yet, with no clear theoretical argument. What appears to be more theoretically sound, is the use of a target return based upon the mean return of a benchmark portfolio (Leibowitz & Henriksson, 1989). Yet again, such benchmark is not readily available as it varies from investors to investors. Given these empirical limitations, and because the distributions of returns may be skewed, the downside risk of operating cash flows growth rate is operationalized using both the mean and median of the industry returns as MAR. For skewed distributions, the median is expected to improve the measurement of the downside risk. Formally, downside risk, expressed as the semi-variance of returns, is given by:

$$DR_i^{\,2} = \sum_{t=1}^{N} \frac{\left(\tau_i - R_{it}^{-}\right)^2}{N}$$

$$R_{it}^{-} = \begin{cases} R_{it} \text{ if } R_{it} < \tau_i \\ 0 \text{ otherwise} \end{cases}$$

where,

DR_i^2 is the Downside Risk (variance) for firm *i*,

N is the Number of periods,

τ_i is the target return for firm *i* over the period of time *t*,

R_{it} is the Return of firm *i* in period *t*.

In this study, the downside risk measure for each period is then computed as follow:

$$DROCFR_{it} = \tau_{it} - R_{it}^{-}$$
$$R_{it}^{-} = \begin{cases} R_{it} \text{ if } R_{it} < \tau_i \\ 0 \text{ otherwise} \end{cases}$$

where,

DROCFRit is the Downside Risk of Operating Cash Flows Returns of firm *i* in period *t*,

τ_i is the target return for firm *i* over the period of time *t,* which will be estimated by the median and the mean of the returns of all firms over the entire sample period.

The performance variables are summarized in Table 3.16.

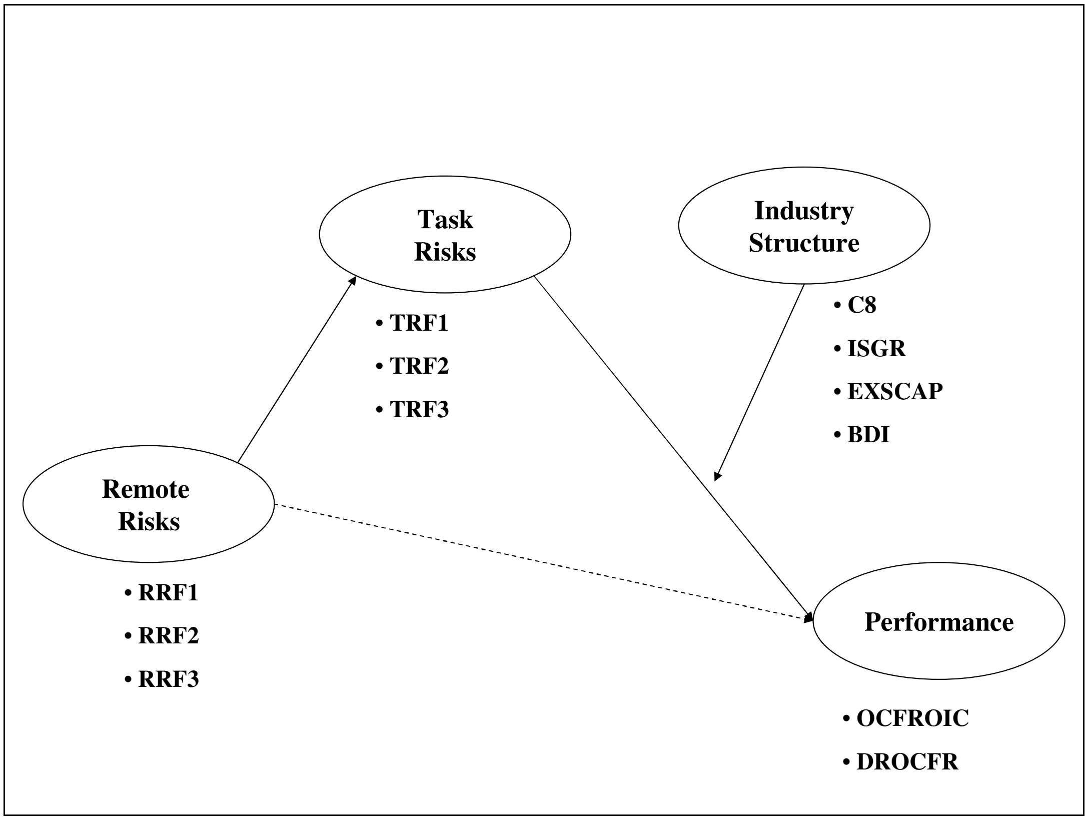
Table 3.16: Performance variables

Performance variable	**Measure**	**Source**
Operating Cash Flows Return on Invested Capital	OCFROIC	SEC Filings & Forms (EDGAR)
Operating Cash Flows Return Downside Risks – Semi-variance	DROCFR	SEC Filings & Forms (EDGAR)

EMPIRICAL MODEL AND HYPOTHESES

The conceptual model developed in the previous chapter suggested that remote and task risk factors could be identified, and that the remote risk factors causally influenced the industry performance. In addition, the effect of the remote risk factors on the industry performance was expected to be mediated by the task risk factors. It was also suggested that the industry structure was moderating the influence of the task risk factors on the industry performance. The conceptualization of these constructs and their laws of interactions were presented in more details in the previous chapter. At this stage, because the remote and task risk factors are not known, the empirical model and subsequent hypotheses cannot be fully developed. Hence, the empirical model presented in Figure 3.1 tentatively illustrates the relationships that will be tested. The unknown remote and task risk factors are represented by hypothetical factors RRF1, RRF2, RRF3, and TRF1, TRF2, and TRF3.

Figure 3.1: Tentative Empirical Model



Propositions

The propositions elaborated in the previous chapter describe the expected relationships between the constructs. These propositions were:

P1: Remote risk factors causally influence the task risk factors; the higher the remote risks, the higher the task risks.

P2: Task risk factors causally influence industry performance; the higher the task risks, the higher the variation in the industry cash flows.

P3: Remote risk factors do not influence directly the industry performance when the effects of the task risk factors are controlled; the task risk factors mediate the effect of the remote risk factors on the variation of the industry cash flows.

P4: The influence of the task risk factors on the industry performance is moderated by the changes in the industry structure; the higher the barriers to entry and the more bargaining power the industry has on its suppliers and buyers, the less influence the task risks will have on the variation in the industry cash flows.

Hypotheses

As the remote and task risk factors are not known at this stage, the hypotheses will be developed in a later stage, following the EFA.

MODEL DEVELOPMENT AND DATA ANALYSIS

The empirical model related to propositions one and two is developed in two stages. First, risk factors are established using exploratory factor analysis, and the potential lags of each risk factor with performance measures are identified through the use of cross-correlation functions. In the second stage, multiple regression analysis is used to test the hypotheses. The empirical model pertaining to proposition three is developed separately and requires the development of the industry business cycle in order to identify expansion and recession periods. These steps are presented in more detail below.

Exploratory factor analysis

Factor analysis is an interdependence technique that can be used to analyze interrelationships among variables and to explain these variables in terms of common underlying dimensions, or factors (Hair, Anderson, Tatham, & Black, 1998). Factors represent the common variance of variables. The factors are derived based on the factor loadings, which are the correlation coefficients between the variables and the factors. The squared factor loading is the percentage of variance in the variable that is explained by the variance in the factor.

The eigenvalue for each factor represents the amount of variance it explains in all the variables. Factors eigenvalues are computed by taking the sum of the squared factor loadings for all the variables. Eigenvalues are measures of the explanatory importance of each factor; factors with low eigenvalues (lower than 1) contribute little to the explanation of the variances in the variables and are deemed superfluous (Hair et al., 1998).

The present study utilizes the principal component analysis (PCA), which is a sequential analysis in which linear combinations of variables are explored in order to extract the maximum of the variance from the variables. PCA determines the least number of factors which can account for most of the variance in a set of variables. It is considered as appropriate for determining sets of variables in a given construct and to test dimensionality (Hair et al., 1998). The present study also relies on the variance maximization rotation (VARIMAX) of orthogonal axis as it facilitates the identification of the variables that belong to each factor. Given the sample size, factor loadings greater than .500 are regarded as practically significant (Hair et al., 1998). Variable having loadings of less than .500 on all factors, and variables having loadings of more than .500 on more than one factor are excluded from further analysis.

In order to conduct EFA, several elements need to be considered. First, one needs to supply a minimum of 100 data points, and a ratio of data points to variables of more than five (Hair et al., 1998). The first recommendation is satisfied as there are 156 data points. The second recommendation is satisfied for the task risks construct (i.e. 30 variables; ratio of data points to variables of 5.2), and is expected to be satisfied after multicollinearity checks are performed on the macroeconomic variables (i.e. currently 63 variables; ratio of 2.48).

Other checkpoints to assess the viability of EFA are measured by the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and the Barlett's Test of Sphericity. For the KMO, Hair et al. (Hair et al., 1998) suggest a minimum value of .60. For the Barlett's Test of Sphericity, in which the null hypothesis is that the intercorrelation matrix comes from a population in which the variables are noncollinear, a significant Chi-Square value is necessary.

The identification of the number of factors is based on three criteria (Hair et al., 1998):

a. All factors have an eigenvalue that is higher than 1.
b. The selected number of factors explains more than 50% of the variance.
c. The number of factors selected should be consistent with the visual analysis of the scree plot.

The factor scores of the resulting grouping of variables under their respective factors is then used for subsequent analysis. Factors are computed by taking the sum of the products of each of the observation's standardized score on each variable with the corresponding factor loading of the variable for the given factor.

Reliability

Reliability is the degree to which an assessment or instrument consistently measures an attribute. Two types of reliability are considered in this study: composite reliability and reliability of the variance extracted. Composite reliability is similar to Cronbach's alpha and measures the internal consistency in the measurements of the factors. Values higher than .70 are acceptable for composite reliability (Fornell & Larcker, 1981). The second reliability check examines the amount of variance that is extracted by the factor in relation to the amount of variance due to measurement error (Fornell & Larcker, 1981). Estimates of the average variance extracted should exceed .50, otherwise, the validity of the factor is questionable.

Validity

Construct validity is directly related to the question of what the instrument is actually measuring (Churchill, 1979). Valid measurements result from the adequate operationalization of theoretical constructs. Four types of validity are generally assessed: face validity, content validity, convergent validity and discriminant validity.

Face validity relates to the degree to which the variables appear to be good translations of the construct. Face validity is usually assessed by the judgment of the researcher or by a team of expert. It is viewed as the weakest form of validity and is not sufficient to establish validity.

Content validity is the second validity check and refers to the degree to which the variables included in the measurement cover the construct. In other words, it checks the operationalization of variables against the relevant content domain for the construct. Content validity is achieved in this study as the variables of the two environmental constructs reflect most of the existing data available from reliable sources, and that they draw from prior works. Content validity is somewhat weaker for the industry structure construct, but is deemed acceptable as the variables are based on prior works.

The two other types of construct validity are the strongest tests. Convergent validity demonstrate whether attributes are able to measure the construct that they are supposed to measure, and discriminant validity is evidenced when observed indicators measuring one construct are not related to other constructs (Churchill, 1979). When variables can be measured using different measurement methods, then the Multitrait-Multimethod matrix is recommended (Churchill, 1979; Nunnally, 1967). Alternatively, convergent validity can be tested by when variables within a construct are significantly correlated. Discriminant validity, on the other hand, is tested by constraining the correlation parameter between constructs at 1.0 (Venkatraman, 1989a). Significant Chi-Square value differences for the unconstrained and constrained models are proof of discriminant validity.

Cross-correlation function

As a preliminary step for time-series multiple regression, cross-correlation functions (CCF) are used to identify potential time lag between independent and dependent variables. Formally, CCF identifies the direction of the relationship between two time-series. That is, if a series leads another, then the increase in the CCF will point in one direction, and if the later series leads the former, then the CCF will point in the opposite direction. The results of CCF provide the significant correlation coefficient based on lead and lag effects. In this study, only lead effects are considered as causality between independent and dependent variables is the central theme.

Granger test of causality

The second step prior to testing the hypotheses is the test of causality between the independent variables, the mediators, and the dependent variables. Indeed, one of the key contributions of the present study is to establish causality between the environment and the performance constructs. In time-series settings, several tests of causality exist that assess the extent to which an independent variable is truly exogenous to a dependent variable. In other words, time-series tests of causality examine the temporal differences in explanatory power of lagged (or simultaneous) variables on independent variables. The typical tests include regression analysis in which the predictive power of the independent variable on the dependent variable is assessed at various lag (or lead) time intervals (Cromwell, Hannan, Labys, & Terraza, 1994). In addition, reverse relationships (or causal feedback) are also tested. Causality is commonly established when (1) the existence of an independent variable significantly improves the ability to predict a dependent variable, and (2) the existence of the dependent variable does not improve the ability to predict the independent variable. The present study will use the most common method for testing causality, the Granger procedure (Granger, 1969), which requires the test of the following two sets of hypotheses:

H_{01}: X_i does not Granger-cause Y_i

H_{A1}: X_i does Granger-cause Y_i

and,

H_{02}: Y_i does not Granger-cause X_i

H_{A2}: Y_i does Granger-cause X_i

Granger-causality is established when one rejects H_{01} in the first set of hypotheses, and does not reject H_{02} in the second set. In other words, one must show that X_i does Granger-cause Y_i, and that Y_i does not Granger-cause X_i. The test procedure includes the estimation of the following four equations:

$$\text{eq.}1: Y_t = a_0 + \sum_{i=1}^{n} a_i X_{t-i} + \sum_{i=1}^{m} b_i Y_{t-i} + \varepsilon_t$$

$$\text{eq.}2: Y_t = a_0 + \sum_{i=1}^{m} b_i Y_{t-i} + \varepsilon_t$$

$$\text{eq.}3: X_t = a_0 + \sum_{i=1}^{n} a_i X_{t-i} + \sum_{i=1}^{m} b_i Y_{t-i} + \varepsilon_t$$

$$\text{eq.}4: X_t = a_0 + \sum_{i=1}^{n} a_i X_{t-i} + \varepsilon_t$$

where,

X_{t-i} and Y_{t-i} are the two series being tested; the remote risk factors on the task risk factors, and the task risk factors on the industry performance in the present study.

a_i and b_i are the regression coefficients.

ε_i is an independent error term.

Equations 1 and 3 are unrestricted, while equations 2 and 4 are restricted. The test statistics for the two sets of hypotheses presented above takes the following form:

$$F = \frac{(ESS_R - ESS_{UR})/m}{ESS_{UR}/(T - 2m - 1)}$$

where,

ESS_R and ESS_{UR} are the error sum of squares for the restricted and unrestricted equations.

m is the sample size.

T is the number of lagged periods.

This test procedure will verify the lag structure of the variables and confirm the causal nature of the proposed relationships.

Multiple regression analysis

The multiple regression models used in this study aim at testing two types of relationships. The first type of relationship is related to proposition one, and includes a mediating effect of the task risks on the macroeconomic risks and performance relationship. Mediated regressions are tested using sets of regression equations. Mediation can be established when the following conditions are met (Baron & Kenny, 1986; Preacher & Hayes, 2004):

a. Variations in levels of the independent variable significantly account for variations in the presumed mediator; that is, remote risk factors significantly influence the task risk factors.
b. Variations in the mediator significantly account for variations in the dependent variable; namely, task risk factors significantly influence the industry performance variables.
c. When the two previously mentioned relationships are controlled for, a previously significant relation between the independent and dependent variable is no longer

significant; specifically, when the influence of the remote risk factors on the task risk factors, and the effect of the task risk factors on the industry performance variables are controlled for, the influence of the remote risk factors on the industry performance variables becomes insignificant.

Testing mediation usually requires estimates of series of regression equations. To test mediation, three regression models need to be estimated (Kenny et al., 2003): first, regressing the mediator on the independent variable; second, regressing the dependent variable on the mediator; and third, regressing the dependent variable on both the independent variable and mediator. The coefficients for each separate equation need to be estimated and tested. Because mediation requires that the independent variable and the mediator are correlated, the presence of multicollinearity is to be expected. This results in reduced power in the test of the coefficient of the third equation. Thus, one needs to evaluate not only the significance of the coefficients, but also their absolute size. In this situation, measurement errors become critical. The approximate significance test for the indirect effect of the independent variable on the dependent variable via the mediator has been provided by Sobel (1982), and takes following form:

$$\text{z - value} = \frac{ab}{\sqrt{b^2 s_a^2 + a^2 s_b^2 + s_a^2 s_b^2}}$$

where,

a is the unstandardized regression coefficient for the association between the independent variable and mediator.

b is the unstandardized regression coefficient for the association between the mediator and the dependent variable.

S_a is the standard error of *a*.

S_b is the standard error of b.

The initial test of Sobel (1982) omitted the $S_a^2 S_b^2$ term as it was deemed as small and irrelevant. However, it is kept in this study because it does not make any unnecessary assumption on the product of $S_a^2 S_b^2$.

Practically, the regression models used will take the following form (James & Brett, 1984):

$$\begin{aligned} \text{eq 1}: M &= C + aIV + \varepsilon \\ \text{eq 2}: DV &= C + bMED + \varepsilon \\ \text{eq 3}: DV &= C + aIV + bMED + \varepsilon \end{aligned}$$

where,

MED is the mediator.

IV is the independent variable.

DV is the dependent variable.

a is the regression coefficient of the independent variable.

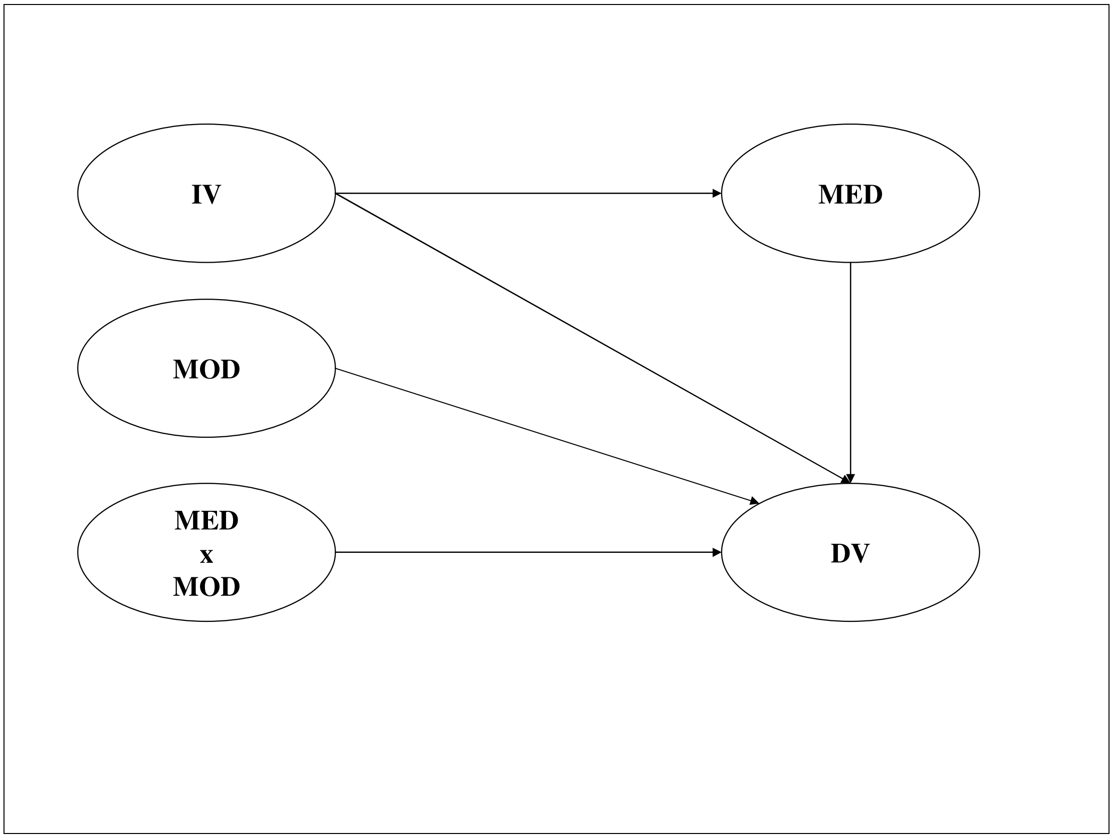
b is the regression coefficient of the mediator.

C is a constant.

ε is the error term.

The second type of relationship tested in this study includes both mediation and moderation. Specifically, the relationship suggested in proposition one is moderated by CSFs. That is, some kind of interaction effect between the task risks and industry structure is expected. These relationships are depicted in Figure 3.2.

Figure 3.2: Mediation and moderation



As suggested by Barron and Kenny (1986), combining moderation and mediation can be tested by a moderated regression including the interaction effect of mediator and of the moderator. If mediation has already been established, then the following equations are tested sequentially:

$$\text{eq1}: DV = C + aIV + cMOD + \varepsilon$$
$$\text{eq2}: DV = C + aIV + bMED + cMOD + dMEDxMOD + \varepsilon$$

where,

MOD is the moderator.

c is the regression coefficient of the moderator.

MEDxMOD is the interaction effect of the moderator and mediator.

d is the coefficient of the interaction effect.

Equation one tests the relationship between the independent variable and the moderator, with the dependent variable. Significant coefficients show that the moderator is significant and enable the test of the second equation. Equation two includes three direct effects, the independent, the mediating and the moderating effects. It also includes the interaction effect of the moderating and mediating effect. Moderated mediating effect is established when (1) the mediating effect is significant (i.e. null hypotheses related to proposition one are rejected), (2) equation one is significant for both coefficient, and (3) coefficient *a* in equation two becomes insignificant while coefficients *b*, *c,* and *d* are significant (Baroon & Kenny, 1986).

In other words, moderation is tested using a hierarchical regression procedure. In this study, the moderating effect of the industry structure is expected to significantly alter the effect of the mediator; i.e. the task risk factors. Specifically, in the first equation, the remote risk factors (i.e. the independent variables) and the industry structure variables (i.e. the moderators) are expected to be significant. This initial equation, when both coefficients are significant, ensures that the moderator does not mediate the independent variable and that the subsequent equation is well specified. In the second equation, all variables are entered in the regression model, with the addition of the interaction effect between the task risk factors (i.e. the mediators) and the industry structure variables (i.e. the moderators). In this second stage, the coefficients of the main and interaction effects of the task risk factors and industry structure variables are expected to be significant, while the coefficient of the remote risk factors are anticipated to become insignificant. This step ensures that moderation exists, and that the previously established mediation effect remains significant when the interaction term is added. If the main effects become insignificant, then the relationship is termed complete moderation, which is not expected in the present study.

When more than one moderator is included into the model, two procedures may be applied. First, when interactions of higher order than two-way interactions are not expected, one can simply ignore these higher order interaction terms and perform a hierarchical backward elimination that compares the fit of a model that includes all the two-ways interactions versus the fit of a model that drops a particular term (Kleinbaum, 1992). Specifically, the procedure would test the fit of the following equation:

$$\text{eq1}: DV = C + aIV + bMED + cMOD_1 + dMOD_2 + eMEDxMOD_1 + fMEDxMOD_2 + gMOD_1xMOD_2 + \varepsilon$$

with the fit of equation 2:

$$\text{eq2}: DV = C + aIV + bMED + cMOD_1 + dMOD_2 + eMEDxMOD_1 + fMEDxMOD_2 + \varepsilon$$

In contrast, when there is no a-priori reason to believe that there are no higher order interactions, then the procedure requires the test of all possible interaction terms. As in ANOVAs, the interpretation of lower order interaction terms depends then on the significance and strength of the higher order terms. Formally, a three-way interaction in a moderated-mediated regression takes the following form (Jaccard & Turrisi, 2003):

$$\begin{aligned} DV = C + aIV + bMED + cMOD_1 + dMOD_2 + fMEDxMOD_1 + gMEDxMOD_2 + hMOD_1xMOD_2 \\ + iMEDxMOD_1xMOD_2 + \varepsilon \end{aligned}$$

Assumptions

Time-series multiple regression analysis requires the testing of several assumptions. First, the same level of relationship throughout the range of independent variables is required (homoscedasticity), which is tested through the Barlett's tests of homogeneity of variance. Secondly, data need to be normally distributed. This is tested through Kolmogorv-Smirnov test of normality (Hair et al., 1998). Then, multicollineraty needs to be assessed. As stated earlier, some multicollinearity may be encountered in testing mediation. However, additional tests for other relations are performed using variance inflation factor (VIF) estimates. Variables not related to mediation effect with VIF values of more than 10 are discarded (Hair et al., 1998). Finally, and specific to time-series regressions, autocorrelation of error terms need to be assessed. The assumption, stating that variable must not be autocorrelated, is tested using the Durbin-Watson (DW) statistic (Hair et al., 1998). Specifically, the null hypothesis states that there is a severe autocorrelation. The decision as to whether autocorrelation in the residuals is problematic is made as follows:

$$if \begin{cases} d < dL \vee d > 4 - dL \Rightarrow \text{reject } H_0 \\ dL < d < dU \vee 4\text{-}dU < d < 4dL \Rightarrow \text{inconclusive} \\ dU < d < 4 - dU \Rightarrow \text{do not reject } H_0 \end{cases}$$

where,

d is the DW value.

dL is the lower DW

dU is the upper DW

SAMPLING FRAMEWORK

The sample of this study, used primarily to measure the performance construct, is similar to Chung's (2005) sample as it concentrates on publicly traded casual and full service restaurant firms that generate most of their revenues through company owned and/or operated units. The sample is based on the Nation's Restaurant News (NRN) industry stock data list. The list contained 69 firms as of December 2006. Three inclusive criteria were used to filter the list: (1) The corporation has to generate at least 95% of its revenue from the operation of restaurant (excluding franchise and licensing fees, as well as other sources of revenue; Rumelt, 1991; Madanoglu, 2005); (2) it has to be publicly listed for at least two years and be still active; (3) it needs to operate in the casual and/or full dining restaurant segment (Chung, 2005). 24 restaurant firms met the inclusive criteria (see Table 3.17) and represent the sample of this study.

Table 3.17: Selected firms

Company Name	Ticker Symbols	Market Capitalization* (01.01.2007)	Total Revenues** (2006)	Percentage of Revenues from Owned and/or Operated Units
Benihana Inc.	BNHN	72,901	273	99%
Buca Inc.	BUCA	98,971	254	100%
Cheesecake Factory Inc.	CAKE	1,914,298	1,315	100%
Mexican Restaurants Inc.	CASA	37,796	82	99%
CBRL Group Inc.	CBRL	1,402,734	2,643	100%
O'Charley's Inc.	CHUX	496,824	990	99%
Champps Entertainment Inc.	CMPP	90,892	210	100%
California Pizza Kitchen Inc.	CPKI	637,254	555	99%
Famous Dave's of America Inc.	DAVE	168,643	117	100%
Darden Restaurants Inc.	DRI	5,898,000	5,567	100%
Brinker International Inc.	EAT	3,704,945	4,151	95%
Granite City Food & Brewery Ltd.	GCFB	67,860	58	100%
Grill Concepts Inc.	GRIL	19,246	81	97%
Good Times Restaurant Inc.	GTIM	22,923	21	98%
J Alexander's Corp.	JAX	58,530	138	100%
Max & Ermas Restaurant	MAXE	20,416	180	95%
McCormick & Schmick's Seafood Restaurants Inc.	MSSR	342,282	308	100%
Outback Steakhouse Inc.	OSI	2,878,730	3,941	99%
P.F. Chang's China Bistro Inc.	PFCB	1,022,443	938	100%
Rare Hospitality International Inc.	RARE	1,121,958	987	100%
Ruby Tuesday Inc.	RI	1,608,204	1,410	99%
Steak n Shake	SNS	496,373	639	99%
Lone Star Steakhouse & Saloon Inc.	STAR	462,996	94	100%
Smith & Wollensky Restaurant Group Inc.	SWRG	43,728	125	100%

* In Thousand (USD)
** In Million (USD)
Sources: SEC Filings & Forms (EDGAR) and CRSP database

The initial observation period is set between 1993 and 2006 in an effort to capture enough data points (168 monthly observation and 56 quarterly observations) for subsequent statistical analysis.

Monthly data for the macroeconomic and task risks constructs are collected from the data sources indicated in Tables 3.1 to 3.15. All time-series for these economic value drivers are computed by the change/growth (%) as in Chung (2005) and Madanoglu (2005). In addition, the monthly values are transformed into natural logs in order to achieve some stationary in the series.

The industry structure dimensions are computed using data from companies' SEC filings and from the TrendMapper database of the National Restaurant Industry. The quarterly values of each of these dimensions are also computed by the change/growth (%) as discussed previously.

Quarterly operating cash flow return on invested capital (OCFROIC) of each of the firms in the sample is computed based on SEC filings. The OCFOIC index for the industry is computed by taking the weighted average of the OCFROIC of all firms in the sample. The weights are based on the ratio of the sales of each company to the total sales of the sample. Downside risks in operating cash flow returns (DROCFR) is measured by the OCFROIC semi-variance as detailed previously.

SUMMARY

This chapter defined the constructs and variables that are to be utilized in conducting the empirical part of this study. It also outlines the various relationships between the constructs, presents hypothesis when possible, and describe the subsequent statistical tests.

The formulas used to estimate the proposed variables were described, and their sources indicated. A list of firms included in the sample was also established and the selection criteria discussed. Finally, the assumptions related to the planned statistical analysis were laid out.

CHAPTER 4 – ANALYSES AND FINDINGS

This chapter describes the procedures adopted in the development of the remote and task risk factor models, and reports the empirical results and analyses of the relationships pertaining to the four propositions introduced in the previous chapters. The chapter is organized into the following sections. First, the exploratory and confirmatory factor analyses used to identify the relevant environmental value drivers and to reduce them into distinct remote and task risk dimensions are presented, and the resulting factors are discussed. Next, the hypotheses related to the four propositions are introduced and tested successively. Then, a summary of the findings is provided.

MODEL DEVELOPMENT

Preliminary examination of the data

The identification of the dimensions of the remote and task environment constructs is the preliminary step toward the testing of the propositions elaborated in previous chapters. Specifically, the objective of this first phase is to reduce the 64 remote and 29 task economic value drivers into distinct risk factors (i.e. dimensions). To achieve this goal, Exploratory Factor Analysis (EFA) is used for the two constructs separately. Prior to entering these economic value drivers into the analysis, the correlation coefficients among the variables were examined in order to detect extremely high coefficients which can cause multicollinearity and singularity problems in factor analysis[4] (Field, 2000). Variables that are extremely highly correlated (above 0.80) may be

[4] While multicollinearity is not necessarily a critical issue when using principal component analysis, it becomes a serious problem when the validity and reliability of the factors are subsequently tested using Confirmatory Factor Analysis (CFA), which is the case in the present study.

combined or eliminated to reduce these potential problems (Garson, 2000). The present study being primarily exploratory, and due to the fact that economic variables tend to be highly correlated, a more tolerant approach has been adopted, and an upper limit of 0.90 has been set (Madanoglu, 2005). Indeed, a threshold of 0.80 would have resulted in the combination or elimination of a very large number of variables and potentially, in the loss of theoretically important value drivers.

The visual examination of the correlation matrix of the remote value drivers resulted in the identification of nine clusters of extremely highly intercorrelated variables (above 0.90 – see Appendix A). In the first cluster, nine employment-related variables exhibited correlation coefficients ranging from 0.93 to 0.99. This cluster included the following variables: Civilian Labor Force Level (LABORF), Employment Level (EMPLO), Usually Work Full Time Employed (EMPFULL), Total Non-Farm Employment (EMPT), Total Private Employment (EMPPRI), Service-Providing Employment (EMPSER), Private Service-Providing Total Employment (EMPPRIS), Total Private Average Hourly Earnings (HRPRI), and Average Hourly Earning for Private Service-Providing (HRPRIS).

In the second cluster, eight variables displayed correlation coefficients above 0.91. The variables included in this cluster were all related to consumer and producer prices, and consisted of the following variables: Total Consumer Price Index for All Urban Consumers (CPI), CPI for All Items Less Food and Energy (CPILEFE), CPI for All Items Less Food and Shelter (CPILEFS), CPI for Services (CPISER), CPI for Energy (CPIENER), PPI for Finished Goods Less Food and Energy (PPILEFE), and PPI for Non-Durable Goods Less Food and Energy (PPINOND).

The third cluster comprised three variables related to composite stock market indices (correlation coefficient above 0.96): the Dow Jones Composite Average Index (DJIN), the S&P 500 Index (SP500), and the Composite Index of the New York Stock Exchange (NYSEC).

The fourth cluster included two types of corporate bonds variables with a correlation coefficient of 0.98: AAA Corporate Bonds (AAA) and BAA Corporate Bonds (BAA).

The fifth cluster contained five short term interest rate variables with correlation coefficients of more than 0.95: the Federal Funds Rate (FEDFUND), the Federal Discount Rate (FEDDISC), the Bank Prime Loan Rate (PRIME), the 6-Month Treasury Constant Maturity Rate (TCM6M), and the 6-Month Treasury Bills – Secondary Market (TB6M).

In the sixth cluster, seven variables primarily associated with consumers spending and income exhibited a correlation coefficient above 0.97. These variables were the Personal Income (PERINCO), the Total Disposable Income (DISPOIN), the Personal Consumption Expenditures (CONSUM), the Wage and Salary Disbursements (WAGDIST), the US Total Retail Sales (RETAIL), the Disposable Personal Income Per Capita (PERCDIS), and the M2 Money Stock (M2).

The seventh cluster included three variables linked with foreign exchange rates: the Foreign Exchange (FX) Rate; U.S. dollar/EURO (EXUSEU) and the Major Currencies Index (MFX), and the Broad Index (BROAD). The correlation coefficient of these three variables ranged from 0.92 to 0.96.

The eighth cluster identified comprised two inflation-related variables which showed a correlation coefficient of 0.99: Inflation in Consumer Prices at Annual Rates (INFLAR) and Inflation in Consumer Prices (INFLA).

In the ninth and last cluster, three variables related to consumer confidence, expectations and sentiments were identified with correlation coefficients above 0.93: the Index of Consumer Expectations (CEI), the Consumer Sentiment Index (SENTIM), and the Index of Consumer Confidence (CCI).

In an attempt to correct the severe multicollinearity problem, nine composite indices were constructed by standardizing the monthly values (i.e. percentage change) of the variables in each cluster. The composite indices were labeled Employment Index (EMPINDEX) for the first cluster, Consumer and Producer Prices Index (PRINDEX) for the second, Stock Market Index (MAINDEX) for the third, Corporate Bonds Index (ABINDEX) for the fourth, Short Term Interest Rates Index (STRINDEX) for the fifth, Exchange Rates Index (EXINDEX) for the sixth, Consumption Index (CONINDEX) for the seventh, Inflation Rates Index (INFINDEX) for the eighth, and Consumer Confidence, Expectations, and Sentiments Index (CCINDEX) for the ninth.

Despite this initial phase, the correlation matrix of the resulting indices and remaining variables revealed that a number of extreme intercorrelations remained. As suggested by Garson (2000), a critical decision as to which indices and variables to retain for the EFA was made based upon the following criteria:

a. The remaining variables and indices had to exhibit correlations coefficients of less than 0.90 with other variables or indices.

b. Whenever possible, the excluded variables or indices should be closely related to variables or indices remaining in the final list.

Consequently, the following variables were excluded from the EFA:

1. Employment Index (EMPINDEX). The index had nine correlation coefficients above the 0.90 threshold. Excluding the variables that correlated highly with EMPINDEX would have resulted in the loss of too many theoretically important variables such as PRINDEX, MAINDEX, or IPI. In addition, the fact that two employment-related variables remained in the final list minimized the importance of the loss of the information conveyed by the Employment index.
2. The Producer Price Index (PPI) for All Commodities. The index had five coefficients above 0.90. In addition, it was very highly correlated with the PRINDEX, which remained in the final list and which includes a number of variables theoretically closely related to the PPI.
3. Personal Consumption Expenditures (PCE) and Personal Consumption Expenditure for Services (PCESER). PCE and PCESER had nine and ten correlation coefficients above 0.90 respectively. They were both highly correlated with PRINDEX (0.96 and 0.98) and were deemed as conveying essentially the same information.
4. The Value of Total Construction Put in Place (CONSTR) and the Value of Commercial Construction Put in Place (CONSTCO). Both variables had ten coefficients above the threshold. Both were also highly correlated with PRINDEX, MAINDEX, and IPI which remained in the final list.

5. The Gross Domestic Product (GDP). GDP had twelve coefficients higher than 0.90. Notably, GDP had 0.98 correlations with both PRINDEX and NOFPAY, which were retained in the final list of variables. It is also important to note that the monthly values of the GDP were viewed as potentially introducing measurement errors as they were estimates made by the U.S. Department of Commerce based on the quarterly values.
6. The Net Exports of Goods and Services (EXPORT) and the Net Exports of Services (EXPOSER). The two export-related variables had nine coefficients of 0.90 or more. These two variables were especially highly correlated with the IPI and PRINDEX, which were both retained in the final list of variables.
7. The Inflation Rates Index (ININDEX). The index had twelve coefficients above 0.90. In particular, ININDEX was highly correlated with PRINDEX (0.97) and was deemed as carrying in essence the same information.

Following this initial data examination and multicollinearity correction phase, 19 remote variables were retained and entered in the remote EFA (see Table 4.1).

Table 4.1: Variables included in the EFA – Remote environment

	Macroeconomic variables	Measure (code)
1	Consumer and Producer Prices, Index	PRINDEX
2	Stock Markets, Index	MAINDEX
3	Corporate Bonds, Index	ABINDEX
4	Short Term Interest Rates, Index	STRINDEX
5	Exchange Rates, Index	EXINDEX
6	Consumption, Index	CONINDEX
7	Consumer Confidence, Expectations and Sentiments, Index	CCINDEX
8	Industrial Production Index (Total)	IPI
9	Foreign Exchange (FX) Rate; Hong Kong dollar/U.S. dollar	EXHKUS
10	Foreign Exchange (FX) Rate; Japan yen/U.S. dollar	EXJPUS
11	Unemployment Rate	UNEMP
12	Total Non-Farm Payrolls	NOFPAY
13	NASDAQ Composite Index	NASDAQ
14	3-month CD Rate	CD3M
15	3-Month Non-Financial Commercial Paper Rate	CP3M
16	1-Year Treasury Constant Maturity Rate	TCM1Y
17	5-Year Treasury Constant Maturity Rate	TCM5Y
18	10-Year Treasury Constant Maturity Rate	TCM10Y
19	M1 Money Stock	M1

A similar visual inspection of the correlation matrix of the task environment variables was conducted. This preliminary step resulted in the identification of two clusters of variables (see Appendix B). In the first cluster, five CPI variables exhibited correlation coefficients above 0.90: CPI-U Food Away from Home (CPIFAH), CPI-U Meats Poultry and Eggs (CPIMPFE), CPI-U Fresh Vegetables (CPIVEG), CPI-U Cheese (CPICHEES), and CPI-U Fish (CPIFISH).

In the second cluster, five variables related to employment were found to display coefficients ranging from 0.95 to 0.99: Average Hourly Earnings of Production Workers in Food Services and Drinking Places (AHEPFSD), Aggregate Weekly Hours for Leisure and Hospitality (AGGWKHL), Aggregate Weekly Payrolls for Leisure and Hospitality (AGWPAYLH), Average Hourly Earnings of Production Workers for Leisure and Hospitality (AHERH), and All Employees – Foodservice and Drinking Places (ALLEMPL).

These variables were also grouped into two indices using their standardized monthly values: CPIINDEX and AHEINDEX. Nevertheless, as in the case of the remote environment variables, this initial phase did not completely solve the multicollinearity problem as the correlation matrix of the resulting indices and remaining variables still revealed that a number of strong intercorrelations remained. Specifically, the two indices were highly correlated with each other as in Madanoglu (2005), with a correlation coefficient of 0.97. Again, a critical decision had to be made as to which index and variables to retain for the EFA; criteria similar to those used for the remote environment were applied to make the decision.

AHEINDEX was suppressed as two other variables related to employment remained in the final list. Also, CPIINDEX appeared to be more important due to the fact that only CPITOM was not too highly correlated with other variables. As a result of this initial phase, 20 task variables were retained for the EFA of the task environment (see Table 4.2).

Table 4.2: Variables included in the EFA – Task environment

	Macroeconomic variables	Measure (code)
1	CPI-U, Index	CPIINDEX
2	CPI-U, Tomatoes	CPITOM
3	Average Hourly Earnings for Leisure and Hospitality	AHELH
4	Average Weekly Hours of Production Workers for Leisure and Hospitality	AWKLH
5	IP, Dairy Products	IPDAIRY
6	IP, Soft Drinks	IPSFTDR
7	IP, Cheese	IPCHEESE
8	IP, Butter	IPBUTTER
9	IP, Beef	IPBEEF
10	IP, Poultry Processing	IPOULTRY
11	IP, Pork	IPPORK
12	IP, Miscellaneous Meats	IPMEATS
13	PPI, Cheese	PPCHEESE
14	PPI, Fluid Milk	PPMILK
15	PPI, Poultry Processing	PPPLTRY
16	PPI, Pork	PPORK
17	PPI, Meats	PPMEAT
18	PPI, Dairy	PPDAIRY
19	PPI, Beef	PPBEEF
20	Value of Construction Put in Place for Dining/Drinking	CONSDIN

Two other tests are important to ensure the viability of conducting factor analysis. First, the Barlett test of sphericity was performed to establish that the correlation matrix was significantly different from an identity matrix, which would have indicated that there were not enough correlations among the remaining variables. Barlett's values were significant for both sets of data (i.e. remote and task variables – see Appendix C), thereby leading to the rejection of the null hypothesis and supporting the viability of factor analysis. The second test, the Kaiser-Meyer-Oklin Measure of Sampling Adequacy (MSA), evaluates the appropriateness of the sample by investigating not only the correlations in the entire matrix, but also for each variable. Values above 0.50 are deemed as acceptable (Hair et al., 2006). The MSA for the remote variables was 0.807 and the MSA for the task variables was 0.791, and were considered as adequate (see Appendix C). These results were essentially due to the initial examination and correction stage of the data, and the consequent purification steps.

Exploratory factor analysis (EFA)

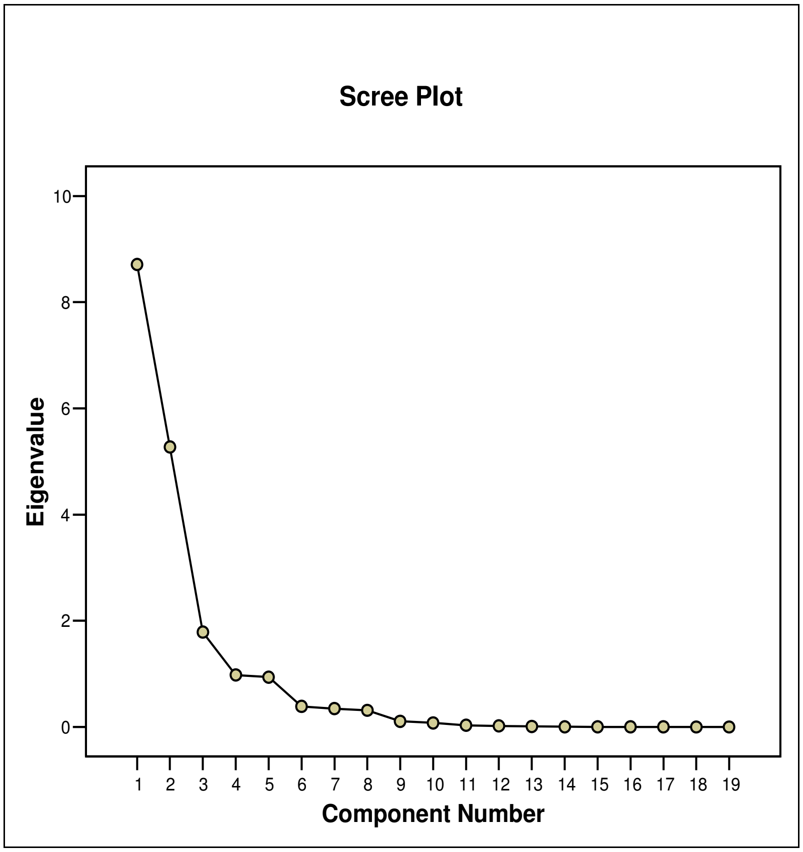
EFA - remote environment

The decision criteria for selecting the number of factors to retain from the outputs of the EFA were the following (Hair et al., 2006):

1. The factors had to exhibit Eigenvalues of more than 1.0.
2. The Catell's scree plot had to show steep declines in Eigenvalues after the selected number of factors, but not after the next factor (i.e. the scree plot elbow follows the last factor selected).
3. The factors selected had to account for more than 50% of the variance in the dataset.

For the remote environment variables, the analysis resulted in the identification of three factors. This solution developed from the assessment of the three criteria described above. While the reading of the scree plot could have lead to a three or five factors solution (see Figure 4.1), the other two criteria favored the three factors solution. Indeed, the variance explained by this solution exceeded by far the 50% threshold (i.e. 82.9% - see Appendix D), and the third factor was the last to have an Eigenvalue exceeding 1.0 (i.e. 1.79 – see Appendix D).

Figure 4.1: Scree plot – Remote environment risk factors



As suggested by Hair et al. (2006), variables that have a loading of less than 0.50 for a sample of more than 150 data points in their rotated solution are not meaningful. In addition, the authors recommended that variables showing loadings of more than 0.50 on multiple factors should be deleted for further interpretation and analysis. Consequently, the variables that had (1) a loading exceeding 0.50 on a factor, and (2) had no loadings of 0.50 or more on two or three factors were kept for interpretation and further analysis. These variables are presented in Table 4.3.

Table 4.3: Rotated Components – Remote risk factors

	Factors		
	Interest rates – RRF1	Expectations – RRF2	Exchange rates – RRF3
TCM1Y	.976		
STRINDEX	.966		
CD3M	.966		
CP3M	.965		
TCM5Y	.919		
TCM10Y	.809		
ABINDEX	.685		
M1	-.626		
MAINDEX		.964	
IPI		.943	
NOFPAY		.942	
NASDAQ		.865	
CCINDEX		.817	
PRINDEX		.775	
EXHKUS		.636	
EXJPUS			-.802
EXINDEX			-.795

Note:
For clarity, factor loadings lower than 0.500 have been suppressed from the Table.

The first factor included seven variables directly related to interest rates. Money stock – M1 was the only variable not immediately associated with the cost of money. However, the inclusion of the variable in this factor appeared to be theoretically coherent as M1 measures the amount of physical currency and the amount instantly available in checking accounts. The negative sign of the variable is also consistent with the inverse relationship that exists between interest rates and money supply (e.g. Samuelson & Nordhaus, 2004). Consequently, the first remote risk factor was labeled Interest rates – Remote Risk Factor 1 (RRF1).

The second factor included a number of variables related to future expectations about the economy. Two stock market indices (MAINDEX and NASDAQ), the Industrial Production Index (IPI), the Total Non-Farm Payroll (NOFPAY), the Consumer and

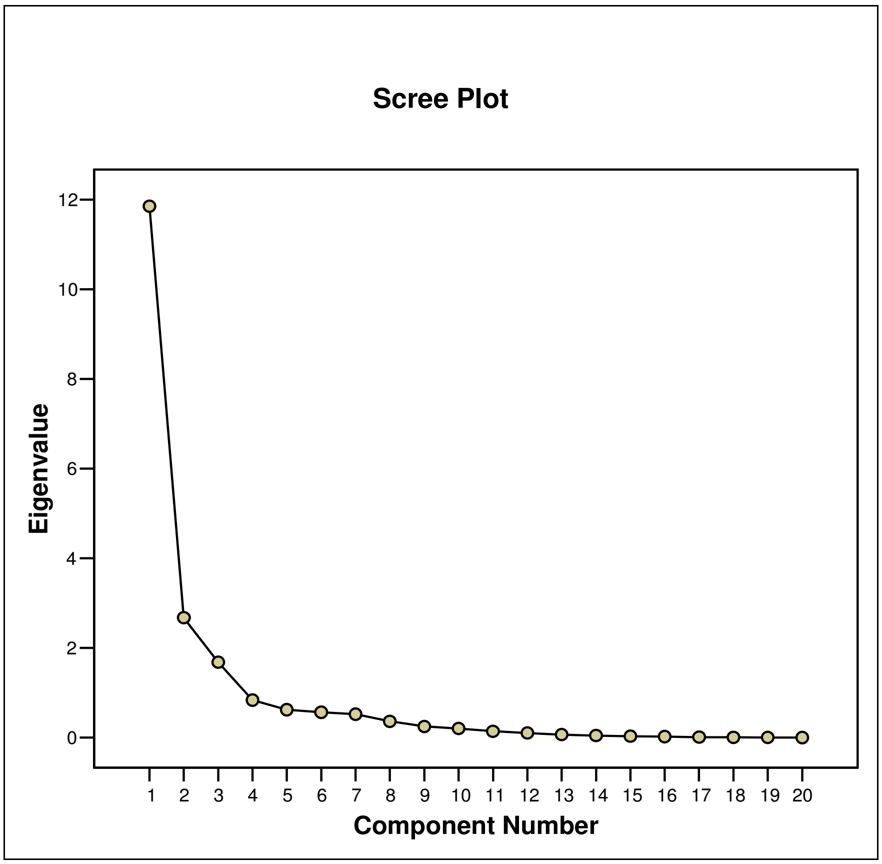
Producer Prices Index (PRINDEX) and the Consumer Confidence, Expectations and Sentiments Index (CCINDEX) are all indicators related to the situation of the economy, and more specifically, to the expectations about its future state. The Foreign Exchange (FX) Rate of the Hong Kong Dollar with the US Dollar (EXHKUS) appeared to be the only variable included in the factor without a clear theoretical reason. However, given that the Hong Kong Dollar has been pegged to the US Dollar since October 1983, the variable was viewed as representing the evolution of the US Dollar rather than the evolution of its exchange rate with the pegged currency.

Two exchange rates loaded on the third factor: the Foreign Exchange (FX) Rate of the Japanese Yen with the US Dollar (EXJPUS) and the Foreign Exchange (FX) Rate Index constructed in the previous stage (EXINDEX), which includes the Foreign Exchange (FX) Rate; U.S. dollar/EURO (EXUSEU) and the Major Currencies Index (MFX), and the Broad Index (BROAD). This factor was labeled Exchange Rates – RRF3 as it was viewed as representing the appreciation and depreciation of the US Dollar relative to its major trade partners. It is important to note that the two variables had negative loadings, indicating that an increase in the factor results in an appreciation of the US Dollar relative to this basket of currencies.

EFA - task environment

The 20 task environment variables were entered into task EFA. The results of the EFA were analyzed using a similar approach as in the remote environment EFA. Based on the three criteria discussed previously, a three factors solution was selected (i.e. the scree plot showed a single elbow after the third factor – see Figure 4.2 – and 77.6% of the variance was extracted by the solution – see Appendix E). The three factors and the variables retained are presented in Table 4.4 (after the deletion of the variables having loadings of less than 0.50 or more than 0.50 on two or more factors).

Figure 4.2: Scree plot – Task environment risk factors



Six variables loaded on the first factor, out of which, four were related to Industrial Production (IP): IP Beef (IPBEEF), IP Miscellaneous Meats (IPMEATS), IP Pork (IPPORK) and IP Soft Drinks (IPSFTDR). The negative sign of the loading of IPMEATS was tentatively explained by a substitution effect between miscellaneous meats (e.g. veal, lamb) and "regular" meats (i.e. pork and beef). The author conjectured that consumers, at times, change their preferences and demand more alternative meats in lieu of beef and pork. This substitution may be driven by higher prices for beef and pork relative to miscellaneous meats, or by other less quantitative drivers, such as health and safety concerns (e.g. mad cow decease, e.coli-related recalls). In other words, when the cost of beef or pork rises, or when some safety concerns for these two products surface, consumers may reduce their consumption of the two types of meat, and instead consume more veal or lamb. In this case, the Industrial Production of beef and pork would decrease while the IP of miscellaneous meats (i.e. veal and lamb) would increase (and vice-versa).

The inclusion of the two other variables was conversely less clear. Nevertheless, the presence of the Average Hourly Earning for Leisure and Hospitality (AHELH) was not inconsistent when one sees an increase in IP being related to the real activities taking place in the industry. Indeed, when there is more economic activity, it seemed plausible that the average hourly earnings increases too (i.e. more demand for labor command higher wages). The reason of the inclusion of the CPI-U Tomatoes (CPITOM) was also less apparent. One could argue that the production of beef is closely associated with the demand for tomatoes and related products (e.g. Ketchup; large hamburger chains such as McDonald's and Burger King are known for using large quantities of tomato slices and ketchup, and are also well known as being key drivers of the production of beef). Hence, as the production of beef increases, the demand for tomatoes increases as well which drives its price up. As such, CPITOM would be more related to the production of beef than to other inputs' prices. Following this line of reasoning, and given the four IP-related variables mentioned above, the first factor was labeled Input quantities – Task Risk Factor 1 (TRF1).

Table 4.4: Rotated Components – Task risk factors

	Factors		
	Input quantities – TRF1	Input restaurant – TRF2	Input prices – TRF3
AHELH	.869		
IPBEEF	.857		
IPMEATS	-.813		
IPPORK	.787		
CPITOM	.688		
IPSFTDR	.547		
PPMEAT		.829	
AWKLH		-.816	
PPBEEF		.778	
PPORK		.769	
IPBUTTER		.554	
PPMILK			.921
PPPLTRY			.849
PPCHEESE			.821
CONSDIN			.509

Note:
For clarity, factor loadings lower than 0.500 have been suppressed from the Table.

The variables loading on the second task factor were less evident to understand. Three PPI variables were included (PPI Meats, PPI Beef, and PPI Pork) in addition to the Average Weekly Hours of Production Workers for Leisure and Hospitality (AWKLH) and the IP of Butter (IPBUTTER). While the association of the PPI variables with the IPBUTTER could be explained by an overall increase in demand for meat (including pork and beef) and other commonly used food items (such as butter), the negative sign of the AWKLH suggested that the increase in demand for food was not necessarily related to the food produced and served by commercial restaurants (otherwise, the AWKLH should have had a positive sign). A potential explanation could be that the three PPI variables and the IPBUTTER are more driven by the demand for food at home as opposed to food away from home. This would make the negative sign of AWKLH coherent as the more demand there is for food at home, the less demand there is for restaurants, and the less need for labor there is in leisure and hospitality. Because the grouping of variables on this factor appeared to be motivated by a number of reasons, this second task factor was tagged with a broad label: Input restaurant – TRF2.

The variables included in the third factor, as well as the signs of their loadings, were more conceptually appealing. Indeed, three of the four variables were measures of producer prices (PPI Milk, PPI Cheese and PPI Poultry). In addition, PPIMILK and PPICHEESE were both measures of dairy products' prices, which make their association quite logical. The fourth variable, the Value of Construction Put in Place for Dining/Drinking (CONSDIN), was also related to prices in a way, as the measure is the product of the construction prices per unit and the number of units constructed. Consequently, the third task factor was labeled Input prices – TRF3.

Construct validity and reliability

Confirmatory factor analysis (CFA) - remote environment

The validity and reliability of the factor solutions selected in the previous stage were investigated using a number of tests. These tests were conducted based on the results of two Confirmatory Factor Analyses (CFA) that were performed on the factors identified using the AMOS software. Reliability of the solutions were assessed via two measures: composite reliability and the average variance extracted (AVE) by each construct. For the remote factors, the composite reliability values were all above the threshold of 0.70 as showed in Table 4.5 (0.885 for the Interest rates – RRF1; 0.869 for the Expectations – RRF2; 0.701 for Exchange rates – RRF3; Hatcher, 1994).

The second reliability measure was based on the AVE. The three factors all presented an AVE of more than 0.50, which supported the reliability of the measurement solution (0.739 for the Interest rates – RRF1; 0.805 for the Expectations – RRF2; 0.891 for the Exchange rates – RRF3).

Table 4.5: Remote risk factors – scale properties

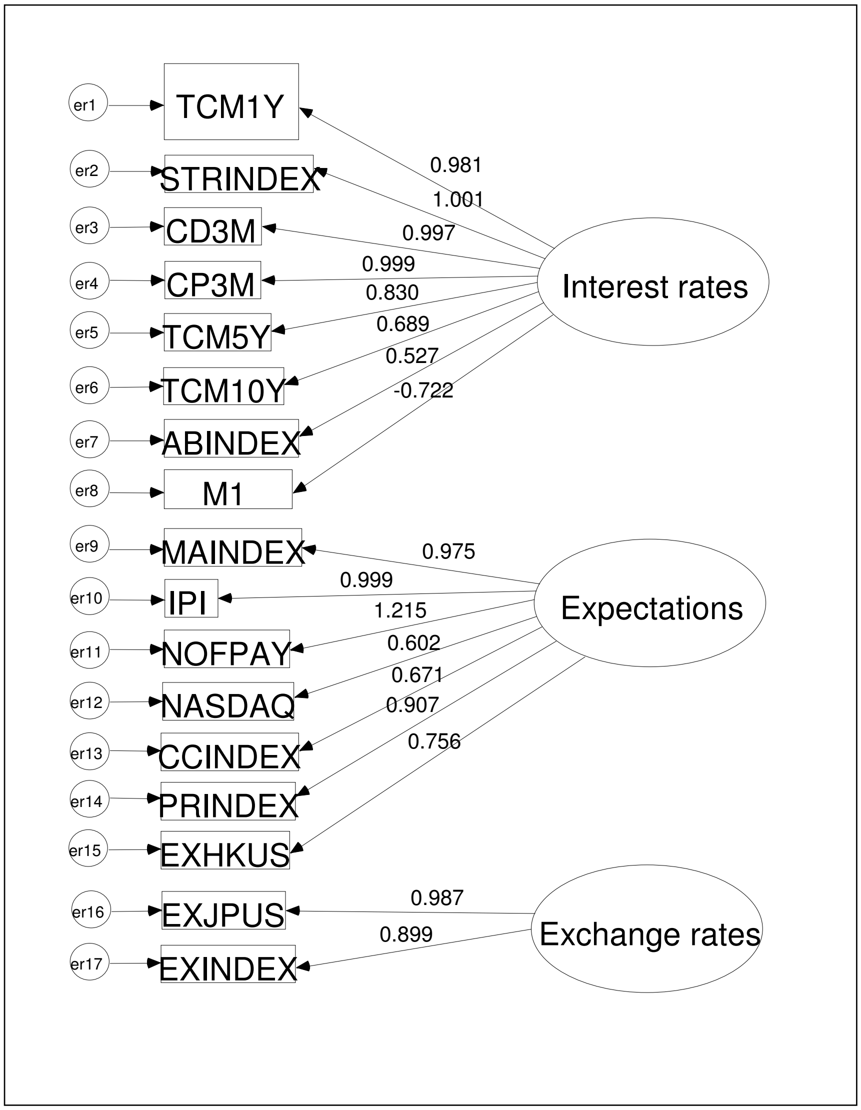
Variables (N=156)	Standardized loadings (regression weights)	Indicator reliability (Squared multiple correlations)
Interest rates	***0.739****	***0.885*****
TCM1Y	0.981	0.962
STRINDEX	1.001	1.001
CD3M	0.997	0.995
CP3M	0.999	0.997
TCM5Y	0.830	0.689
TCM10Y	0.689	0.475
ABINDEX	0.527	0.277
M1	-0.722	0.521
Expectations	***0.805****	***0.869*****
MAINDEX	0.975	0.951
IPI	0.999	0.998
NOFPAY	1.215	1.477
NASDAQ	0.602	0.363
CCINDEX	0.671	0.450
PRINDEX	0.907	0.823
EXHKUS	0.756	0.572
Exchange rates	***0.891****	***0.701*****
EXJPUS	0.987	0.987
EXINDEX	0.899	0.629

Note:
Factors are in bold and italic.
* denotes the average variance extracted by the factor.
** denotes the composite reliability for the factors.

The convergent and discriminant validity of the construct were tested using the significance of the indicators for each dimension, and the difference in fit between the constrained and unconstrained models (Joreskog, 1999).

The convergent validity of the remote factors was supported as all variables had a significant loading (i.e. t-values > 1.96; p-values < 0.05; see Figure 4.3). Similarly, the discriminant validity of the factor solution was also supported as the Chi-Square difference between the constrained and the unconstrained models was significant at a level of 0.05 (Chi-Square of the constrained model = 680.2; df = 119; Chi-Square of the unconstrained model = 531.1; df = 116).

Figure 4.3: Convergent validity of the remote risk factors



CFA - task environment

Similar tests of validity and reliability were conducted on the task environment factor solution. The composite reliability values of the three task constructs were also above the threshold, with values of 0.847, 0.805, and 0.758 for the Input quantities – TRF1, the Input restaurant – TRF2, and the Input prices – TRF3, respectively (see Table

4.6). The AVE by each of the construct also exceeded the 0.50 lower limit, with values of 0.511, 0.674, and 0.516 for TRF1, TRF2, and TRF3 respectively.

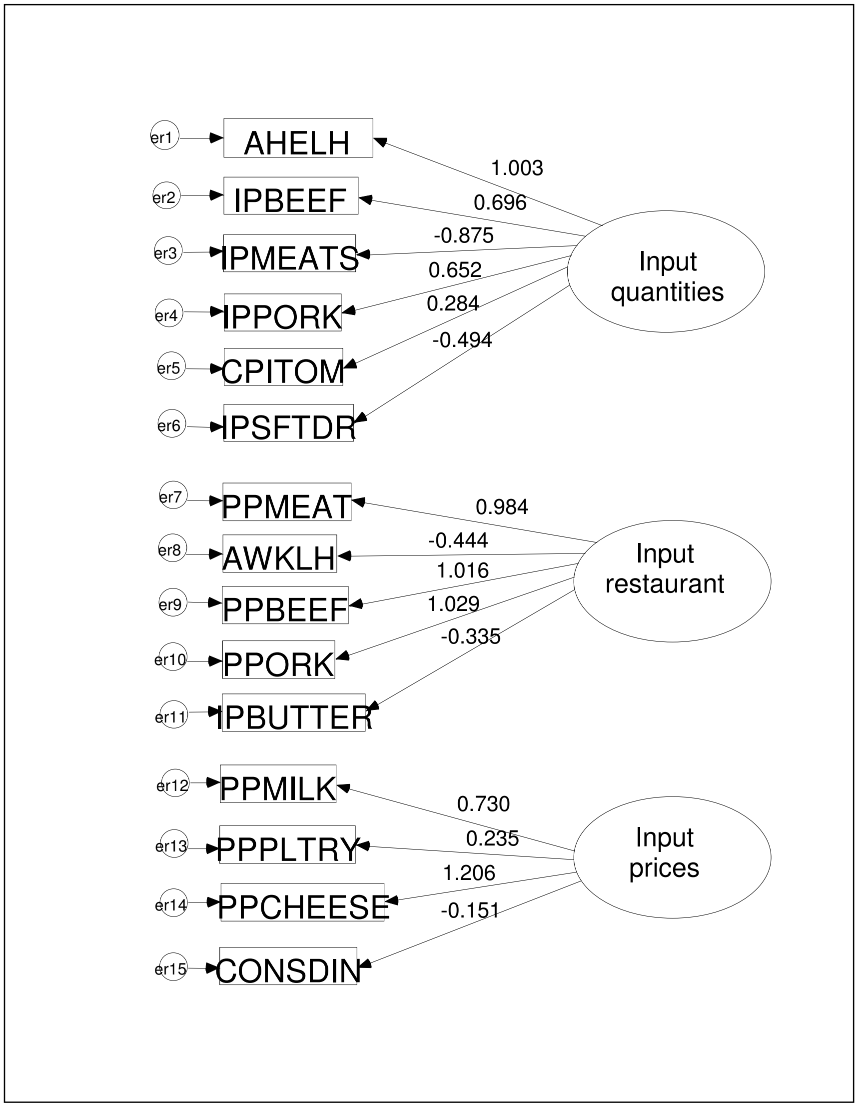
Table 4.6: Task risk factors – scale properties

Variables (N=156)	Standardized loadings (regression weights)	Indicator reliability (Squared multiple correlations)
Input quantities	***0.511****	***0.847*****
AHELH	1.003	1.006
IPBEEF	0.696	0.485
IPMEATS	-0.875	0.765
IPPORK	0.652	0.425
CPITOM	0.284	0.181
IPSFTDR	-0.494	0.244
Input restaurant	***0.674****	***0.805*****
PPMEAT	0.984	0.969
AWKLH	-0.444	0.297
PPBEEF	1.016	1.032
PPORK	1.029	0.425
IPBUTTER	-0.335	0.212
Input prices	***0.516****	***0.758*****
PPMILK	0.730	0.533
PPPLTRY	0.235	0.155
PPCHEESE	1.206	1.455
CONSDIN	-0.151	0.133

Note:
Factors are in bold and italic.
* denotes the average variance extracted by the factor.
** denotes the composite reliability for the factors.

Convergent and discriminant validity were supported as well as the loadings of the indicators were all significant at the level of 0.05 and the Chi-Square difference between the constrained and unconstrained models was significantly different from zero (Chi-Square of the constrained model = 553.8; df = 90; Chi-Square of the unconstrained model = 387.7; df = 87; see Figure 4.4).

Figure 4.4: Convergent validity of the task risk factors



The factor scores for the two constructs – the remote and task environments – were then computed in order to use each of the factors as single variables in subsequent regression analysis.

Data transformation and normality assumption

Prior to investigating the four propositions presented in the previous chapters, a number of statistical assumptions had to be met. In a time-series setting, the initial concern pertains to the stationary of the data set (Cromwell et al., 1994). The traditional transformation for economic data was performed to achieve stationary series. Specifically, all data measured in percentage changes or returns were converted using the natural log transformation. In addition, the operating cash flow returns on invested capital (OCFROIC) variables were also seasonally adjusted to account for the systematic variation that is due to seasonality effects (Madanoglu, 2005). This adjustment was made using the Seasonal decomposition procedure in the SPSS Trends option.

Among the other key properties variables needed to exhibit to comply with the assumptions underlying regression analysis, the normality of the distributions of the variables is likely to be the most critical. Indeed, when normality is not achieved, it is improbable that other assumptions such as homoscedasticity and linearity can be met (Hair et al., 2006). The normality assumption was tested using the Kolmogorov-Smirnov test. In this procedure, the null hypothesis states that there is no difference between the distribution of the data and a normal distribution. Consequently, the null hypothesis needs not to be rejected, and high p-values (above 0.05) are required. Tables 4.7 and 4.8 report the results of the test on the remote and task factors as well as on the industry structure variables, and indicate that all variables followed a normal distribution.

Table 4.7: Remote and task environment risk factors

	Remote 1 – Interest rates	Remote 2 - Expectations	Remote 3 – Exchange rates	Task 1 – Input quantities	Task 2 – Input restaurants	Task 3 – Input prices
N	56	56	56	56	56	56
Mean	-0.0133	-0.0166	-0.1695	0.0047	0.0044	0.0121
Standard deviation	0.1729	0.3104	0.6605	0.0325	0.0310	0.0722
Kolmogorov-Smirnov Z	0.0834	0.1168	0.0990	0.1078	0.0662	0.1048
Asymp. sig. (2-tailed)	0.2000*	0.0579	0.2000*	0.1584	0.2000*	0.1924

*Lower bound of true significance

Table 4.8: Industry structure variables

	ΔFTE	ISGR	ΔC8	ΔBDI**
N	56	56	56	56
Mean	0.0043	0.163	0.0068	0.0412
Standard deviation	0.0284	0.0434	0.0748	0.0368
Kolmogorov-Smirnov Z	0.1067	0.077	0.1062	0.1072
Asymp. sig. (2-tailed)	0.1765	0.2000*	0.1838	0.1328

**Seasonally adjusted

Despite the log transformation and seasonal adjustment, the performance variables however did not all meet the normality assumption. While the changes in operating cash flow returns on invested capital (ΔOCFROIC) appeared to follow a normal distribution (see Table 4.9), the downside risk measures did not.

As discussed in the previous chapter, two slightly different specifications were used to calculate the downside risk: one based on a target return estimated by the mean return (DROCFROIC - mean), and the other with a target return estimated by the median return (DROCFROIC – median). In both cases, the distributions were negatively skewed due to three apparent outliers (i.e. three quarterly DROCFROIC). These outliers could not be related to any specific event such as the mad cow decease, the Iraq Wars, or terrorist attacks of September 11, 2001 (outliers found for the 4th quarter of 1995, the 1st quarter of 1998 and the 4th quarter of 2002). In addition, none of these outliers could be related to any specific firm's downside risk measure.

As suggested by Bianco, Garcia Ben, Martinez, and Yohai (2001), outliers in time-series may cause severe biases and instability in further regression analysis. Tight, Redfern, Watson, and Clark (1993) suggested that outliers should be treated as missing data. Tight et al. (1993) and Lütkepohl (2004) argued that outliers could be replaced by estimates produced by Autoregressive Integrated Moving Average models (ARIMA). In the present study, the three outliers were replaced by values estimated by an ARIMA $(1,1,1)_4$ model. The fit of the ARIMA model applied to the DROCFROIC (mean) being far superior to the fit of the ARIMA model applied to the DROCFROIC (median) (residual variance of 0.00019 versus 0.00245), the DROCFROIC (median) was deemed as an improper measure for further regression analysis. Consequently, the DROCFROIC (mean) was retained as the sole measure of the downside risk, and the three outliers were replaced with the estimates produced by the ARIMA model. The Kolmogorov-Smirnov test on the corrected time-series resulted in a Z-value of 0.106; the corrected series was deemed as normally distributed and appropriate for regression analysis (see Table 4.9).

Table 4.9: Performance variables

	ΔOCFROIC*	**DROCFROIC (mean)***	**DROCFROIC (mean; corrected)****	**DROICFROIC (median)***
N	56	56	56	56
Mean	0.0037	-0.0333	-0.0151	-0.0283
Standard deviation	0.2908	0.0309	0.0079	0.0302
Kolmogorov-Smirnov Z	0.1081	0.3059	0.1062	0.3435
Asymp. sig. (2-tailed)	0.1546	0.0000	0.1761	0.0000

*Seasonally adjusted
** Corrected for outliers using ARIMA estimates

PROPOSITION 1

Remote risk factors causally influence the task risk factors; the higher the remote risks, the higher the task risks.

In order to investigate the first proposition, a number of preliminary analyses needed to be performed. Indeed, prior to establishing the set of hypotheses related to proposition 1, the lead-lag relationships between the environmental factors and the performance measures had to be determined as these relationships were to be tested for answering the subsequent propositions. Cross-correlation functions were used to examine such relationships. A maximum of five quarters were used as in Madanoglu (2005) to account for effects that stretch beyond one calendar year. In addition, the proposed causal relationships required the consideration of only lagged or coincident relationships (e.g. Chung, 2005).

The results of these cross-correlation functions indicated a similar lead-lag structure between the remote and task factors and the two performance variables (see Tables 4.10 and 4.11). Specifically, for the remote risk factors and the performance measures, the Interest rates – RRF1 was coincident (lag t-0), the Expectations – RRF2 was leading by one quarter (lag t-1), and the Exchange rates – RRF3 was leading by two quarters (lag t-2). In the task environment, the Input quantities – TRF1 was leading by three quarters (lag t-3), the Input restaurant – TRF2 was leading by one quarter (lag t-1), and the Input prices was coincident (lag t-0).

Table 4.10: Cross-correlation functions between environmental risk factors and operating cash flow returns on invested capital

Environmental risk factors	Lag (t-)	Correlation (ΔOCFROIC)	SE	Sig.
Interest rates – RRF1	0	0.258	0.134	0.055
Expectations – RRF2	1	0.266	0.135	0.048
Exchange rates – RRF3	2	0.294	0.136	0.028
Input quantities – TRF1	3	0.345	0.137	0.009
Input restaurant – TRF2	1	0.164	0.135	0.227
Input prices – TRF3	0	0.298	0.134	0.026

Table 4.11: Cross-correlation functions between environmental risk factors and downside risk in operating cash flow returns on invested capital

Environmental risk factors	Lag (t-)	Correlation (DROCFROIC)	SE	Sig.
Remote 1 – Interest rates	0	0.268	0.134	0.046
Remote 2 - Expectations	1	0.137	0.135	0.314
Remote 3 – Exchange rates	2	0.105	0.136	0.441
Task 1 – Input quantities	3	0.205	0.137	0.130
Task 2 – Input restaurants	1	0.162	0.135	0.233
Task 3 – Input prices	0	0.283	0.134	0.034

<u>Granger tests of causality – remote and task risk factors</u>

The initial sets of hypotheses related to proposition 1 were designed to test the Granger-causality between the remote and the task risk factors. The concept of causality imposes a temporal restriction as the independent variable needs to lead or be coincident with the dependent variable. Consequently, given the lead-lag structure identified in the previous stage, not all remote risk factors were hypothesized to Granger-cause the task risk factors. For instance, no remote risk factors could logically be expected to Granger-cause the Input quantities – TRF1, as the latter was lagging the performance variables by three quarters and was thus also lagging all remote risk factors. In other words, for a remote factor to Granger-cause a task factor, it had to lead or be coincident with the task factor. Based upon this temporal restriction, the following set of hypotheses, in their alternative forms, was tested:

H_{1a}: *Interest rates – RRF1 Granger-causes Input prices – TRF3.*

H_{1b}: *Expectations – RRF2 Granger-causes Input restaurant – TRF2.*

H_{1c}: *Expectations – RRF2 Granger-causes Input prices – TRF3.*

H_{1d}: *Exchange rates – RRF3 Granger-causes Input restaurant – TRF2.*

H_{1e}: *Exchange rates – RRF3 Granger-causes Input prices – TRF3.*

These hypotheses were tested using the procedure described in the previous chapter. Specifically, in order to support hypotheses H_{1a} to H_{1e}, it was necessary to test the following two sub-hypotheses:

H_{01}: *Xi does not Granger-cause Yi*

H_{02}: *Yi does not Granger-cause Xi*

Granger-causality is supported when one does not reject H_{01}, but does reject H_{02}. The results of these tests are presented in Tables 4.12.

Table 4.12: Granger tests of causality – remote and task risk factors*

Yi	Xi	H_{01}: Xi does not Granger-cause Yi		H_{02}: Yi does not Granger-cause Xi		Decision
		F-value	Sig.	F-value	Sig.	
Interest rates - RRF1	Input prices – TRF3	0.6394	0.5319	0.8203	0.4462	Do not reject H_{01} and H_{02} – no Granger-causality
Expectations – RRF2	Input restaurant – TRF2	0.9322	0.4010	0.7735	0.4669	Do not reject H_{01} and H_{02} – no Granger-causality
Expectations – RRF2	Input prices – TRF3	2.8393	0.0681	2.2637	0.1147	Reject H_{01} (at p=0.1) and not H_{02} –Granger-causality
Exchange rates – RRF3	Input restaurant – TRF2	3.7877	0.0295	0.8947	0.4153	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
Exchange rates – RRF3	Input prices – TRF3	2.5149	0.0913	0.8769	0.4225	Reject H_{01} (at p=0.1) and not H_{02} –Granger-causality

* Note: Based upon the visual inspection of the cross-correlation functions, all Granger tests have been conducted using two lags.

Hypotheses for proposition 1

Based on the results reported above, hypotheses H_{1a} and H_{1b} were rejected while hypotheses H_{1c} to H_{1e} were supported. As a consequence, the following three hypotheses testing proposition 1 were formulated (in their alternative forms):

H_{1f}: There is a significant positive relationship between Expectations - RRF2 and Input prices - TRF3.

H_{1g}: There is a significant positive relationship between Exchange rates - RRF3 and Input restaurant - TRF2.

H_{1h}: There is a significant positive relationship between Exchange rates - RRF3 and Input prices - TRF3.

The positive signs expected in these relationships were based on the following rationale. The Expectations – RRF2 risk factor was viewed as representing the general expectations investors and consumers had of the evolution of the economy. When these expectations increase, it is likely that they are followed by a real growth in the economy that translates into more consumption, which drives prices upward.

The Exchange rates – RRF3 factor was defined as representing the evolution of the US Dollar relative to the value of a basket of currencies of major trade partners. As suggested earlier, the signs of the variables included in this remote risk factor suggested that an increase in the value of the factor translated into an appreciation of the US Dollar. As the exchange rates were based on nominal rates (as opposed to real rates), it is likely that their changes primarily include the changes in expected inflation (Shapiro, 2006). Consequently, when the US Dollar appreciates relative to a basket of currencies (in nominal exchange rates terms), it is an indication of an expected increase in inflation (*ceteris paribus*), which is directly related to increases in prices. The input restaurant – TRF2 and the Input prices – TRF3 are two factors that are closely related to price levels. Thus, when Exchange rates – RRF3 increases, it was expected that the two task factors increase as well (with a time lag of one and two quarters respectively).

These hypotheses were tested using simple time-series regression, where the remote risk factors were regressed against the task risk factors. The results of these regression models are presented in Table 4.13.

Table 4.13: Simple regression results between remote risk factors and task risk factors

Independent variable	Dependent variable	R-squared	B	Beta	t	DW
Expectations – RRF2	Input prices – TRF3	0.0806	0.0661	0.2839	2.1555**	2.152
Exchange rates – RRF3	Input restaurant – TRF2	0.0559	0.0112	0.2364	1.7716*	2.269
Exchange rates – RRF3	Input prices – TRF3	0.0525	0.0249	0.2292	1.6979*	2.338

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05

As can be seen on Table 4.13, all three hypotheses were supported as each of the remote risk factors had a significant relationship with their related task risk factors. The Expectations – RRF2 exhibited the most significant positive effect on Input prices – TRF3 with a t-value of 2.1555, which was significant at $p < 0.05$. The other two independent variables were also positively associated to their related task risk factors, however at a weaker significance level ($p < 0.10$)[5].

PROPOSITION 2

Task risk factors causally influence the industry performance; the higher the task risks, the higher the variation in the industry cash flows.

The second proposition relates the task risk factors to the two performance variables. The proposition suggests that the three task risk factors cause an increase in the variation of the OCFROIC and DROCFROIC. As for the first proposition, it was necessary to establish the Granger-causality of these relationships prior to testing the relevant hypotheses.

[5] While significance levels above 0.05 are usually considered as marginal in social sciences, the exploratory nature of the present study as well as concerns about the statistical power of the tests lead the author to vote for a less conservative threshold of 0.10 (Hair et al., 2006).

Granger tests of causality –task risk factors and ΔOCFROIC

The first set of hypotheses aimed at testing the Granger-causality of the three task risk factors with the ΔOCFROIC. As detailed earlier, Granger-causality is established through the testing of two sets of sub-hypotheses. Specifically, it Granger-causality is supported when one rejects the hypothesis suggesting that X_i does not Granger-cause Y_i, and when one does not reject the hypothesis stating that Y_i does not Granger-cause X_i. This procedure was applied to test the following hypotheses:

H_{2a}: Input quantities – TRF1 Granger-causes the ΔOCFROIC.

H_{2b}: Input restaurant – TRF2 Granger-causes the ΔOCFROIC.

H_{2c}: Input prices – TRF3 Granger-causes the ΔOCFROIC.

Table 4.14 reports the results of the series of tests conducted on the first performance variable. Two out of the three hypotheses were supported (H_{2a} and H_{2c}), however H_{2b} was rejected.

Table 4.14: Granger tests of causality –task risk factors and ΔOCFROIC*

Yi	Xi	H_{01}: Xi does not Granger-cause Yi		H_{02}: Yi does not Granger-cause Xi		Decision
		F-value	Sig.	F-value	Sig.	
Input quantities – TRF1	ΔOCFROIC	3.1964	0.0495	1.5093	0.2326	Reject H_{01} (at p=0.05) and not H_{02} – Granger-causality
Input restaurant – TRF2	ΔOCFROIC	0.6767	0.5130	1.0608	0.3540	Do not reject H_{01} and H_{02} – no Granger-causality
Input prices – TRF3	ΔOCFROIC	3.3838	0.0420	0.0534	0.9479	Reject H_{01} (at p=0.05) and not H_{02} – Granger-causality

* Note: Based upon the visual inspection of the cross-correlation functions, all Granger tests have been conducted using two lags.

<u>Granger tests of causality –task risk factors and DROCFROIC</u>

A similar procedure was applied to investigate the Granger-causality between the task risk factors and the DROCFROIC. The following three hypotheses were tested:

H_{2d}: Input quantities – TRF1 Granger-causes the DROCFROIC.

H_{2e}: Input restaurant – TRF2 Granger-causes the DROCFROIC.

H_{2f}: Input prices – TRF3 Granger-causes the DROCFROIC.

As in the case of the ΔOCFROIC, the hypotheses related to the Input quantities – TRF1 and the Input prices – TRF3 were supported, while the hypothesis for Granger-causality between the Input restaurant – TRF2 and the DROCFROIC was rejected (see Table 4.15).

Table 4.15: Granger tests of causality –task risk factors and DROCFROIC*

Yi	**Xi**	**H_{01}: Xi does not Granger-cause Yi**		**H_{02}: Yi does not Granger-cause Xi**		**Decision**
		F-value	**Sig.**	**F-value**	**Sig.**	
Input quantities – TRF1	DROCFROIC	3.8624	0.0277	2.3716	0.1040	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
Input restaurant – TRF2	DROCFROIC	0.4661	0.6302	0.9630	0.3888	Do not reject H_{01} and H_{02} – no Granger-causality
Input prices – TRF3	DROCFROIC	3.8633	0.0277	0.7888	0.4601	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality

* Note: Based upon the visual inspection of the cross-correlation functions, all Granger tests have been conducted using two lags.

Hypotheses for proposition 2

As a result of this initial step, a number of hypotheses specifically testing proposition 2 were articulated (in their alternative forms):

H_{2g}: There is a significant positive relationship between Input quantities - TRF1 and the ΔOCFROIC.

H_{2h}: There is a significant positive relationship between Input prices - TRF3 and the ΔOCFROIC.

H_{2i}: There is a significant positive relationship between Input quantities - TRF1 and the DROCFROIC.

H_{2j}: There is a significant positive relationship between Input prices - TRF3 and the DROCFROIC.

The expected positive signs were due to the following reasons. First, the two task factors were both theoretically positively related to consumption, which is a key driver of the demand for restaurant chains. Specifically, the Input quantities – TRF1 included mainly variables related to the industrial production (i.e. level of outputs), which have normally been perceived as indicators of economic growth. The Input prices – TRF3 factor was principally composed of variables related to producer prices, which is alternative measure of inflation. As inflation is also usually seen as being an indicator of economic growth (i.e. increase in demand), it was also expected to push consumption up and thus increase the demand for restaurants' products and services.

For the downside risk, it is important to note that the calculation of the measure necessarily results in negative returns. Indeed, as the downside risk is defined by returns below a target return, the difference between that target return and the actual returns is, by definition, negative. Accordingly, a positive relationship between the task risk factors and the downside risk measure suggests that increases in the task risk factors actually decrease the downside risk (i.e. make it less negative). Tables 4.16 and 4.17 present the results of the tests of these four hypotheses.

Table 4.16: Simple autoregression (Prais-Winsten estimate) – Task risk factors and ΔOCFROIC

Environmental risk factors	R-squared	B	Beta	t	DW
Input quantities – TRF1	0.1809	4.0397	0.4253	3.3233**	2.251
Input prices – TRF3	0.1090	1.2179	0.3301	2.5458**	2.307

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05

Table 4.17: Simple regression – Task risk factors and DROCFROIC

Environmental risk factors	R-squared	B	Beta	t	DW
Input quantities – TRF1	0.0541	0.0620	0.2325	1.7072*	1.946
Input prices – TRF3	0.0803	0.0311	0.2833	2.1709**	1.990

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05

All four hypotheses were supported, which was a not a surprising result given the Granger-causality tests. In addition, all signs were as expected. It is worth noting that the two hypotheses related to the ΔOCFROIC had to be tested using an autoregressive model, (Prais-Winsten procedure) as the residuals were found to be autocorrelated when applying the Ordinary Least Square (OLS) procedure.

PROPOSITION 3

Remote risk factors do not influence directly the industry performance when the effect of the task risk factors are controlled; the task risks mediate the effect of the remote risks on the variation in the industry cash flows.

Propositions 1 and 2 were essentially preliminary steps to the development of the hypotheses related to proposition 3. Indeed, the researcher investigated propositions 1 and 2 by testing the causal relationships (in a Granger sense) that exist between the remote and task risk factors, and between these environmental risk factors and the ΔOCFROIC and DROCFROIC. Conversely, proposition 3 suggests that, when propositions 1 and 2 are supported, the direct effects of the remote risk factors on the performance variables are mediated by the task risk factors.

Prior to establishing the hypotheses for these mediated relationships, it was necessary to test the Granger-causality between the remote risk factors and the two performance variables. Indeed, mediation requires that the independent variables (the remote risk factors) and the mediator (the task risk factors) are causally related to each other and to the dependent variables (the performance variables). At this stage, the relationships between the independent variables and the dependent variables had not been investigated yet.

Granger tests of causality –remote risk factors, ΔOCFROIC and DROCFROIC

As for the first two propositions, a series of Granger-causality hypotheses were developed:

H_{3a}: *Interest rates – RRF1 Granger-causes the ΔOCFROIC.*

H_{3b}: Expectations – RRF2 Granger-causes the ΔOCFROIC.

H_{3c}: Exchange rates – RRF3 Granger-causes the ΔOCFROIC.

H_{3d}: Interest rates – RRF1 Granger-causes the DROCFROIC.

H_{3e}: Expectations – RRF2 Granger-causes the DROCFROIC.

H_{3f}: Exchange rates – RRF3 Granger-causes the DROCFROIC.

The procedure used to test these three hypotheses included the test of a series of sub-hypotheses as described earlier. Tables 4.18 and 4.19 report the results of these Granger-causality tests.

Table 4.18: Granger tests of causality –remote risk factors and ΔOCFROIC*

Yi	Xi	H_{01}: Xi does not Granger-cause Yi		H_{02}: Yi does not Granger-cause Xi		Decision
		F-value	Sig.	F-value	Sig.	
Interest rates - RRF1	ΔOCFROIC	4.2159	0.0204	0.9446	0.3958	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
Expectations – RRF2	ΔOCFROIC	3.3399	0.04367	0.9446	0.3958	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
Exchange rates – RRF3	ΔOCFROIC	2.7910	0.0711	0.9969	0.3763	Reject H_{01} (at p=0.1) and not H_{02} –Granger-causality

* Note: Based upon the visual inspection of the cross-correlation functions, all Granger tests have been conducted using two lags.

Table 4.19: Granger tests of causality –remote risk factors and DROCFROIC*

Yi	Xi	H_{01}: Xi does not Granger-cause Yi		H_{02}: Yi does not Granger-cause Xi		Decision
		F-value	Sig.	F-value	Sig.	
Interest rates - RRF1	DROCFROIC	3.0531	0.0563	0.2371	0.7898	Reject H_{01} (at p=0.1) and not H_{02} –Granger-causality
Expectations – RRF2	DROCFROIC	2.8520	0.0673	0.2142	0.8079	Reject H_{01} (at p=0.1) and not H_{02} –Granger-causality
Exchange rates – RRF3	DROCFROIC	1.0042	0.3737	2.1053	0.1327	Do not reject H_{01} and H_{02} – no Granger-causality

* Note: Based upon the visual inspection of the cross-correlation functions, all Granger tests have been conducted using two lags.

The three hypotheses related to the ΔOCFROIC were supported while only two of the three hypotheses related to the DROCFROIC could be verified. Specifically, the Granger-causality between the Exchange rates – RRF3 and the DROCFROIC could not be confirmed.

<u>Tests of the direct effects of the remote risk factors on the performance variables</u>

The last stage of the preliminary tests prior to investigating mediation aimed at testing the direct influence of the remote risk factors on the performance variables. This step was designed to assess the level of significance and sign of the effect of the independent variables on the dependent variables without controlling for the effect of the mediator. Specifically, the following set of hypotheses (in their alternative forms) was tested using simple OLS regression and simple autoregression (Prais-Winsten procedure) when the error terms were autocorrelated:

H_{3g}: There is a significant positive relationship between Interest rates – RRF1 and the ΔOCFROIC.

H_{3h}: There is a significant positive relationship between Expectations – RRF2 and the ΔOCFROIC.

H_{3i}: There is a significant positive relationship between Exchange rates – RRF3 and the ΔOCFROIC.

H_{3j}: There is a significant positive relationship between Interest rates – RRF1 and the DROCFROIC.

H_{3k}: There is a significant positive relationship between Expectations – RRF2 and the DROCFROIC.

The expected signs of the relationships were due to the reasons detailed earlier. The results of the tests of the hypotheses are presented in Tables 4.20 and 4.21. All hypotheses were supported at a significance level of 0.10 except H_{3k}.

Table 4.20: Simple autoregression (Prais-Winsten estimate) - Remote risk factors and ΔOCFROIC

Environmental risk factors	R-squared	B	Beta	t	DW
Interest rates – RRF1	0.0599	0.3674	0.2447	1.8377*	2.304
Expectations – RRF2	0.0652	0.2079	0.2554	1.9047*	2.252
Exchange rates – RRF3	0.1027	0.1245	0.3205	2.4160**	2.248

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05

Table 4.21: Simple regression - Remote risk factors and DROCFROIC

Environmental risk factors	R-squared	B	Beta	t	DW
Interest rates – RRF1	0.0719	0.0123	0.2681	2.0448**	1.985
Expectations – RRF2	0.0190	0.0035	0.1379	1.0135	1.984

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05

Hypotheses for proposition 3

In the light of the hypotheses tested thus far, not all task risk factors could logically be expected to mediate the influence of the remote risk factors on the performance variables. Indeed, for a task risk factor to mediate the influence of a remote risk factor, a number of prior significant relationships had to be supported, and the lead-lag structure of these relationships had to be accounted for. In particular, for a set of relationships to be considered for mediation, the following criteria had to be met:

1. The remote and task risk factors had to be significantly related to the performance variable.
2. The remote risk factor had to be significantly related to the task risk factor.
3. The remote risk factor had to lead or be coincident with the task risk factor.

Given these criteria, only two hypotheses for mediation could be formulated:

H_{3l}: There is a significant mediating effect of Input prices - TRF3 on the direct effect of Expectations - RRF2 on the ΔOCFROIC.

H_{3m}: There is a significant mediating effect of Input prices - TRF3 on the direct effect of Exchange rates - RRF3 on the ΔOCFROIC.

It is important to note that no mediated relationships on the downside risk measure could be investigated as the only remote risk factor that was significantly influencing DROCFROIC (i.e. Interest rates – RRF1) was not significantly related to any of the task risk factors.

Hypothesis H_{3l}

The procedure to test mediation described in the previous chapter was applied to the two hypotheses. For H_{3l}, the following four equations had to be estimated:

$eq1: TRF3 = C + aRRF2$

$eq2: \Delta OCFROIC = C + bTRF3$

$eq3: \Delta OCFROIC = C + aRRF2 + bTRF3$

$eq4: \Delta OCFROIC = C + aRRF2$

In order to establish mediation, the coefficients of the independent variables in equations 1, 2 and 4 needed to be significant, and the coefficient of Expectations - RRF2 in equation 3 had to become insignificant. Table 4.22 reports the results of these equations. As all coefficients were significant at the level of 0.10, except the coefficient of Expectations - RRF2 in equation 3, H_{3l} was supported, and the authors concluded that the Input prices – TRF3 mediated the effect of the Expectations – RRF2 on the ΔOCFROIC.

Table 4.22: Mediation of TRF3 on RRF2

Equations Dependent variable	Independent variable(s)	R-squared	B	Beta	t	DW
eq1: TRF3	RRF2	0.0806	0.0661	0.2839	2.1555**	2.152
eq2: ΔOCFROIC[1]	TRF3	0.1090	1.2179	0.3301	2.5458**	2.307
eq3: ΔOCFROIC[1]	RRF2 TRF3	0.1451	0.1328 1.0901	0.1656 0.2979	1.2233 2.2002**	2.2532
eq4: ΔOCFROIC	RRF2	0.0652	0.2079	0.2554	1.9047*	2.252

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
[1]Autoregression (Prais-Winsten estimate)

In addition to these sequential tests and changes in the significance of the coefficients, their absolute size also needed to be evaluated. The Sobel (1982) test was conducted using the results shown on Table 4.22. The resulting Z-value was 1.6612 (Sig. 0.0967), indicating additional support for H_{3l}. Because the Sobel Z-test has been deemed as conservative (Baron and Kenny, 1986), a Z-value of 1.6612 was considered as a significant evidence of partial mediation (full mediation would have required the coefficient of Expectations – RRF2 to be equal to zero at a significance level of 0.05).

Hypothesis H_{3m}

Hypothesis H_{3m} was tested using the same procedure. The equations of interest were:

eq1: TRF3 = C + aRRF3

eq2: ΔOCFROIC = C + bTRF3

eq3: ΔOCFROIC = C + aRRF3 + bTRF3

eq4: ΔOCFROIC = C + aRRF3

Table 4.23: Mediation of TRF3 on RRF3

Equations Dependent variable	Independent variable(s)	R-squared	B	Beta	t	DW
eq1: TRF3	RRF3	0.0525	0.0249	0.2292	1.6979*	2.338
eq2: ΔOCFROIC[1]	TRF3	0.1090	1.2179	0.3301	2.5458**	2.307
eq3: ΔOCFROIC[1]	RRF3 TRF3	0.1460	0.0950 0.8076	0.2453 0.2212	1.7649* 1.5913	2.233
eq4: ΔOCFROIC	RRF3	0.1027	0.1245	0.3205	2.4160**	2.248

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
[1]Autoregression (Prais-Winsten estimate)

The results of these sequential tests did not support the hypothesized mediated relationship. Indeed, the coefficient of Interest rates – RRF3 remained significant in equation 3, while the coefficient of Input prices – TRF3 became insignificant. Hence, hypothesis H_{3m} was rejected; Input prices – TRF3 does not mediate the direct effect of Exchange rates – RRF3 on the DROCFROIC. Due to the result of equation 3, the Sobel Z-test was not conducted.

PROPOSITION 4

The influence of the task risk factors on the industry performance is moderated by the changes in the industry structure; the higher the barriers to entry and the more bargaining power the industry has on its suppliers and buyers, the less influence the task risks will have on the variation in the industry cash flows.

Proposition 4 argues that the previously tested relationships between the task environment factors and the performance measures are moderated by the effects of industry structure variables. In other words, it suggests that there are significant interactions between the task risk factors and the industry structure variables. Prior to formulating the hypotheses specific to the tests of these moderated relationships, it was necessary to investigate the Granger-causality between the four industry structure variables and the two performance measures. The Granger-causality test procedure detailed earlier was conducted to examine the following hypotheses:

> *H_{4a}: The Changes in Full Time Equivalent Employees per Capita (ΔFTE) Granger-cause the ΔOCFROIC.*
>
> *H_{4b}: The Changes in Industry Concentration (ΔC8) Granger-cause the ΔOCFROIC.*
>
> *H_{4c}: The Industry Sales Growth Rate (ISGR) Granger-causes the ΔOCFROIC.*
>
> *H_{4d}: The Changes in Brand Diversification Index (ΔBDI) Granger-cause the ΔOCFROIC.*
>
> *H_{4e}: The Changes in Full Time Equivalent Employees per Capita (ΔFTE) Granger-cause the DROCFROIC.*
>
> *H_{4f}: The Changes in Industry Concentration (ΔC8) Granger-cause the DROCFROIC.*
>
> *H_{4g}: The Industry Sales Growth Rate (ISGR) Granger-causes the DROCFROIC.*
>
> *H_{4h}: The Changes in Brand Diversification Index (ΔBDI) Granger-cause the DROCFROIC.*

As can be seen from the results reported in Tables 4.24 and 4.25, six of the eight Granger hypotheses were supported. Because the Granger-causality between the ΔBDI and the ΔOCFROIC, and between the ISGR and the DROCFROIC could not be established, these relationships were not further investigated.

Table 4.24: Granger tests of causality – industry structure variables and ΔOCFROIC*

Yi	Xi	H_{01}: Xi does not Granger-cause Yi F-value	Sig.	H_{02}: Yi does not Granger-cause Xi F-value	Sig.	Decision
ΔFTE	ΔOCFROIC	4.1706	0.0213	2.4050	0.1008	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
ΔC8	ΔOCFROIC	4.3309	0.0185	1.5298	0.2267	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
ISGR	ΔOCFROIC	3.9770	0.0250	1.7634	0.1817	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
ΔBDI	ΔOCFROIC	0.3883	0.6803	0.4704	0.6205	Do not reject H_{01} and H_{02} –no Granger-causality

* Note: Based upon the visual inspection of the cross-correlation functions, all Granger tests have been conducted using two lags.

Table 4.25: Granger tests of causality – industry structure variables and DROCFROIC*

Yi	Xi	H_{01}: Xi does not Granger-cause Yi		H_{02}: Yi does not Granger-cause Xi		Decision
		F-value	Sig.	F-value	Sig.	
ΔFTE	DROCFROIC	4.8552	0.0120	1.3465	0.2696	Reject H_{01} (at p=0.05) and not H_{02} –Granger-causality
ΔC8	DROCFROIC	2.9741	0.0604	0.8150	0.4486	Reject H_{01} (at p=0.1) and not H_{02} –Granger-causality
ISGR	DROCFROIC	2.4554	0.0963	3.5377	0.0367	Reject H_{01} (at p=0.1) and H_{02} (at p=0.05) –no Granger-causality
ΔBDI	DROCFROIC	2.7987	0.0706	0.7859	0.4614	Reject H_{01} (at p=0.1) and not H_{02} –Granger-causality

* Note: Based upon the visual inspection of the cross-correlation functions, all Granger tests have been conducted using two lags.

Tests of the direct effects of the industry structure variables on the performance variables

A significant direct effect of the moderator (the industry structure variables) on the dependent variable is a prerequisite to the existence of moderated relationships (Jaccard & Turrisi, 2003). Consequently, the researcher first conducted a series of tests on the direct effects of the industry structure variables on the two performance measures. Formally, the following hypotheses (in their alternative forms) were tested using simple OLS regression and simple autoregression (Prais-Winsten procedure) when the error terms were autocorrelated:

H_{4i}: There is a significant negative relationship between the ΔFTE and the ΔOCFROIC; the more excess capacity there is in the industry, the more negative the changes in OCFROIC.

H_{4j}: There is a significant positive relationship between the ΔC8 and the ΔOCFROIC; the more concentrated the industry is, the more positive the changes in OCFROIC.

H_{4k}: There is a significant positive relationship between the ISGR and the ΔOCFROIC; the highest the industry sales growth rate is, the more positive the changes in OCFROIC.

H_{4l}: There is a significant negative relationship between the ΔFTE and the DROCFROIC; the more excess capacity there is in the industry, the more negative the DROCFROIC.

H_{4m}: There is a significant positive relationship between the ΔC8 and the DROCFROIC; the more concentrated the industry is, the less negative the DROCFROIC.

H_{4n}: There is a significant positive relationship between the ΔBDI and the DROCFROIC); the more the industry's brands are diversified, the less negative the DROCFROIC.

Tables 4.26 and 4.27 report the results of the tests for hypotheses H_{4i} to H_{4n}. The regression models for the three hypotheses related to the ΔOCFROIC were significant at a level of 0.10. The null hypotheses for H_{4i} and H_{4j} were rejected as the coefficients of the ΔFTE and of the ΔC8 were significant, and their signs as expected. For the ISGR industry structure variables, the coefficient was also significant at a level of 0.01, however the sign was in the opposite direction than hypothesized. Consequently, H_{4k} was not supported (null hypothesis could not be rejected due to the sign of the coefficient).

What emerged from these results was that increases in excess capacity and in ISGR were detrimental to the OCFROIC. These two industry structure variables were apparently negatively related to the entry barriers and the bargaining power of the industry. On the contrary, increases in the industry concentration (ΔC8) appeared to be beneficial for the OCFROIC, which was expected.

Table 4.26: Simple autoregression results – direct effects of the moderators (dependent variable: ΔOCFROIC)

H0	Independent variable	R-squared	B	Beta	t	DW	Decision
H_{4i}	ΔFTE	0.0518	-2.1738	-0.2277	-1.7023*	2.3505	Reject at 0.1
H_{4j}	ΔC8	0.1768	1.4552	0.4204	3.3414**	2.2734	Reject at 0.05
H_{4k}	ISGR	0.2109	-2.7788	-0.4593	-3.7285***	2.2587	Do not reject; opposite sign

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
*** denotes significance at 0.01

The results for the hypotheses related to the DROCFROIC supported H_{4m}, but failed to support H_{4l} and H_{4n}. ΔC8 was the only industry structure variable that significantly influenced the DROCFROIC (Sig. < 0.01). The positive sign of the ΔC8 coefficient suggested that, as the industry becomes more concentrated, the DROCFROIC becomes less negative (i.e. less downside risk), which is consistent with the relationship the ΔC8 had with the ΔOCFROIC.

Table 4.27: Simple regression results – direct effects of the moderators (dependent variable: DROCFROIC)

H0	Independent variable	R-squared	B	Beta	t	DW	Decision
H_{4l}	ΔFTE	0.0411	-0.0569	-0.2026	-1.5207	2.111	Do not reject
H_{4m}	ΔC8	0.1382	0.0389	0.3718	2.9427***	2.075	Reject at 0.01
H_{4n}	ΔBDI	0.0062	-0.0183	-0.0788	-0.5642	2.046	Do not reject

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
*** denotes significance at 0.01

Hypotheses for proposition 4

As a result of the findings for the direct effects of the industry structure variables on the two performance measures, a number of hypotheses including the proposed moderated relationships were formulated. The next section presents the hypotheses related to each of the environmental factors that had a significant influence on the performance measures. Significant remote risk factors that were not part of a mediated relationship were also included albeit they were not explicitly considered in proposition 4. Indeed, when establishing proposition 4, all remote risk factors were expected to be mediated by the task risk factors. Yet, as discussed earlier, this was not the case, and consequently, the potential moderating effects of the industry structure variables on these remote risk factors were also investigated.

Moderation of the influence of Interest rates - RRF1 on the ΔOCFROIC

Interest rates – RRF1 was found to be positively related to the ΔOCFROIC. This remote risk factor was defined as representing changes in interest rates that are made when the general economy is growing. Given this positive relationship, and based on the results of the direct effects of the industry structure variables, the following hypotheses were made:

H_{4o}: The ΔFTE moderates the influence of Interest rates - RRF1 on the ΔOCFROIC; the more excess capacity (ΔFTE) there is in the industry, the less positive influence the Interest rates - RRF1 will have on the ΔOCFROIC.

H_{4p}: The ΔC8 moderates the influence of Interest rates - RRF1 on the ΔOCFROIC; the more concentrated the industry (ΔC8) is, the more positive influence the Interest rates - RRF1 will have on the ΔOCFROIC.

H_{4q}: The ISGR moderates the influence of interest rates - RRF1 on the ΔOCFROIC; the higher the industry sales growth rate (ISGR), the less positive influence the Interest rates - RRF1 will have on the ΔOCFROIC.

Table 4.28 provides a summary of the tests for H_{4o} to H_{4q}. While most of the direct effects remained significant at a level of 0.10 (with the exception of the coefficient of Interest rates – RRF1 in H_{4q}), no interaction term was found to be significant, resulting in the rejection of all three hypotheses (i.e. could not reject the null hypotheses). The author had to conclude that the industry structure variables did not moderate the influence of the Interest rates – RRF1 on the ΔOCFROIC.

Table 4.28: Summary of hypotheses – Moderating role of industry variables on the effect of RRF1 on ∆OCFROIC

H0	Independent variables	R-squared	B	Beta	t	VIF[1]	DW	Decision
H_{4o}	RRF1	0.1180	0.3876	0.2584	1.9432*	1.1014	2.3111	Do not reject
	∆FTE		-2.3017	-0.2407	-1.8106*	1.021		
	RRF1x∆FTE		0.3328	0.0059	0.0439	1.029		
H_{4p}	RRF1	0.2461	0.3746	0.2569	2.0830**	1.021	2.229	Do not reject
	∆C8		1.5167	0.4377	3.5263***	1.022		
	RRF1x∆C8		0.8599	0.0484	0.5094	1.043		
H_{4q}	RRF1	0.2519	0.3206	0.2178	1.6700	1.236	2.2212	Do not reject
	ISGR		-2.6255	-0.4328	-3.4985***	1.021		
	RRF1xISGR		-1.3773	-0.0524	-0.6881	1.231		

Notes:
[1]Estimated using OLS regression.
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
*** denotes significance at 0.01

Moderation of the influence of Exchange rates - RRF3 on the ∆OCFROIC

Exchange rates – RRF3 was also found to be positively related to the ∆OCFROIC. Exchange rates – RRF3 was defined as representing the relative appreciation of the US Dollar relative to the value of a basket of currencies of major trade partners. Given this positive relationship, the following hypotheses were made:

H_{4r}: The ∆FTE moderates the influence of Exchange rates – RRF3 on the ∆OCFROIC; the more excess capacity (∆FTE) there is in the industry, the less positive influence the Exchange rates – RRF3 will have on the ∆OCFROIC.

H_{4s}: The ∆C8 moderates the influence of Exchange rates – RRF3 on the ∆OCFROIC; the more concentrated the industry (∆C8) is, the more positive influence the Exchange rates – RRF3 will have on the ∆OCFROIC.

H_{4t}: The ISGR moderates the influence of Exchange rates – RRF3 on the ∆OCFROIC; the higher the industry sales growth rate (ISGR), the less positive influence the Exchange rates – RRF3 will have on the ∆OCFROIC.

As can be seen from the results presented in Table 4.29, none of these hypothesized moderated relationships were supported. The author concluded that the influence of the Exchange rates – RRF3 on the ΔOCFROIC was not moderated by the industry structure variables.

Table 4.29: Summary of hypotheses – Moderating role of industry variables on the effect of RRF3 on ΔOCFROIC

H0	Independent variables	R-squared	B	Beta	t	VIF[1]	DW	Decision
H_{4r}	RRF3	0.1472	0.1229	0.3181	2.3625**	1.022	2.281	Do not reject
	ΔFTE		-1.6727	-0.1833	-1.3573	1.044		
	RRF3xΔFTE		1.9404	0.1419	1.0470	1.028		
H_{4s}	RRF3	0.2530	0.0896	0.2356	1.8549*	1.040	2.290	Do not reject
	ΔC8		1.3395	0.4037	3.1337***	1.077		
	RRF3xΔC8		0.3793	0.0734	0.9147	1.062		
H_{4t}	RRF3	0.2919	0.0830	0.2172	1.5482	1.324	2.279	Do not reject
	ISGR		-2.5580	-0.4415	-3.6107***	1.029		
	RRF3xISGR		-0.4786	-0.0696	-0.5029	1.292		

Notes:
[1]Estimated using OLS regression.
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
*** denotes significance at 0.01

Moderation of the influence of Input quantities - TRF1 on the ΔOCFROIC

Input quantities – TRF1 was found to significantly positively influence the ΔOCFROIC, yet it was not found to mediate any of the remote risk factors. Input quantities – TRF1 included variables essentially related to the IP level, and was defined as representing increases in production due to higher expected demand. Consequently, the following hypotheses were formulated:

H_{4u}: The ΔFTE moderates the influence of Input quantities – TRF1 on the ΔOCFROIC; the more excess capacity (ΔFTE) there is in the industry, the less positive influence the Input quantities – TRF1 will have on the ΔOCFROIC.

H_{4v}: The ΔC8 moderates the influence of Input quantities – TRF1 on the ΔOCFROIC; the more concentrated the industry (ΔC8) is, the more positive influence the Input quantities – TRF1 will have on the ΔOCFROIC.

H_{4w}: The ISGR moderates the influence of Input quantities – TRF1 on the ΔOCFROIC; the higher the industry sales growth rate (ISGR), the less positive influence the Input quantities – TRF1 will have on the ΔOCFROIC.

As for the previous moderated relationships, none of these hypotheses was supported (see Table 4.30). The author had to conclude, yet again, that the industry structure variables did not moderate the influence of the Input quantities – TRF1 on the ΔOCFROIC.

Table 4.30: Summary of hypotheses – Moderating role of industry variables on the effect of TRF1 on ΔOCFROIC

H0	Independent variables	R-squared	B	Beta	t	VIF[1]	DW	Decision
H_{4u}	TRF1	0.2094	4.0093	0.4221	3.1721	1.122	2.270	Do not reject
	ΔFTE		-1.0449	-0.1133	-0.8597	1.087		
	TRF1xΔFTE		35.6452	0.1314	1.0095	1.033		
H_{4v}	TRF1	0.2549	2.7534	0.2897	1.9387*	1.442	2.302	Do not reject
	ΔC8		1.0079	0.3028	2.1384**	1.241		
	TRF1xΔC8		0.6685	0.0059	0.0434	1.221		
H_{4w}	TRF1	0.2835	2.9767	0.3131	1.8314*	2.203	2.337	Do not reject
	ISGR		-2.2169	-0.3828	-2.5843**	1.479		
	TRF1xISGR		-17.3625	-0.1257	-0.7406	2.352		

Notes:
[1]Estimated using OLS regression.
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
*** denotes significance at 0.01

Moderation of the mediated influence of Expectations - RRF2 and Input prices - TRF3 on the ΔOCFROIC

Input prices – TRF3 was found to be the only significant mediator of the influence of a remote risk factor (Expectations – RRF2) on the ΔOCFROIC. Input prices – TRF3 and Expectations – RRF2 were both found to positively influence the ΔOCFROIC, and were defined as representing a growing economy and a growing demand for restaurants' products and services. Hence, given the previously tested mediated relationship, the following hypotheses were articulated:

> *H_{4x}: The ΔFTE moderates the mediated influence of Expectations - RRF2 and Input prices - TRF3 on the ΔOCFROIC; the more excess capacity (ΔFTE) there is in the industry, the less positive influence the mediated effect of Expectations – RRF2 and Input prices - TRF3 will have on the ΔOCFROIC.*

H_{4y}: The ΔC8 moderates the mediated influence of Expectations - RRF2 and Input prices - TRF3 on the ΔOCFROIC; the more concentrated the industry (ΔC8) is, the more positive influence the mediated effect of Expectations – RRF2 and Input prices - TRF3 will have on the ΔOCFROIC.

H_{4z}: The ISGR moderates the mediated influence of Expectations - RRF2 and Input prices - TRF3 on the ΔOCFROIC; the highest the industry sales growth rate (ISGR), the less positive influence the mediated effect of Expectations – RRF2 and Input prices - TRF3 will have on the ΔOCFROIC.

When combining moderation and mediation, a number of coefficients need to be considered. Indeed, as described in the previous chapter, partial moderated mediation is established when the following criteria are met:

1. The coefficient of the independent variable (Expectations – RRF2) remains insignificant.
2. The coefficient of the mediator (Input prices – TRF3) remains significant.
3. The coefficient of the moderator (the industry structure variables) remains significant.
4. The coefficient of the interaction term between the moderator and the mediator is significant.
5. If the main effects of the mediator and moderator become insignificant while the interaction term is significant, then it is a sign of full moderation.

Table 4.31 reports the results of the tests conducted for the three hypotheses. As for the previously tested moderated relationships, the interaction terms for hypotheses H_{4x} and H_{4y} were found to be insignificant, thereby rejecting these alternative hypotheses. The results of the test for H_{4z} were slightly different as the interaction term was significant at a level of 0.10. However, as the coefficient of the independent variable (Expectations – RRF2) became significant and the coefficient of the mediator (Input prices – TRF3) became insignificant, the author could not conclude that there was a significant mediated moderation. As a consequence, no moderated mediation could be established.

Table 4.31: Summary of hypotheses – Moderation and mediation (RRF2 and TRF3) on ∆OCFROIC

H0	Independent variables	R-squared	B	Beta	t	VIF[1]	DW	Decision
H_{4x}	RRF2	0.2101	0.1668	0.2082	1.5466	1.114	2.2514	Do not reject
	TRF3 (mediator)		1.0762	0.2942	2.2139**	1.088		
	∆FTE (moderator)		-2.4371	-0.0128	-2.0078*	1.027		
	TRF3x∆FTE		1.7640	0.2584	0.1008	1.000		
H_{4y}	RRF2	0.2947	0.1948	0.2477	1.9122*	1.123	2.141	Do not reject
	TRF3 (mediator)		0.6130	0.1693	1.2766	1.197		
	∆C8 (moderator)		1.4819	0.4299	3.1620***	1.272		
	TRF3x∆C8		4.7959	0.0933	0.7201	1.159		
H_{4z}	RRF2	0.3242	0.2017	0.2531	2.0091**	1.109	2.240	Do not reject
	TRF3 (mediator)		0.2783	0.0763	0.5407	1.425		
	ISGR (moderator)		-2.7716	-0.4585	-3.5538***	1.191		
	TRF3xISGR		-13.6927	-0.1667	-1.3160*	1.164		

Notes:
[1]Estimated using OLS regression.
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
*** denotes significance at 0.01

Moderation of the influence of Interest rates (RRF1) on the DROCFROIC

The Interest rates – RRF1, the Input quantities – TRF1 and the Input prices – TRF3 were the only risk factors that had a significant influence on the DROCFROIC. As the industry concentration (ΔC8) was also the only industry structure variable that had a direct significant influence on the downside risk measure, only three hypotheses pertaining to the moderating role of the industry structure could be formulated:

H_{4aa}: The ΔC8 moderate the influence of Interest rates - RRF1 on the DROCFROIC; the more concentrated the industry (ΔC8) is, the more positive influence the Interest rates - RRF1 will have on the DROCFROIC.

H_{4ab}: The ΔC8 moderate the influence of Input quantities - TRF1 on the DROCFROIC; the more concentrated the industry (ΔC8) is, the more positive influence the Input quantities – TRF1 will have on the DROCFROIC.

H_{4ac}: The ΔC8 moderate the influence of Input prices – TRF3 on the DROCFROIC; the more concentrated the industry (ΔC8) is, the more positive influence the Input prices – TRF3 will have on the DROCFROIC.

Consistent with the findings reported for the ΔOCFROIC, no significant moderation could be established (see Table 4.32). None of the interaction terms were indeed significant, and the author had to conclude that there was no moderating influence of the industry structure on the effects of environmental risk factor on the industry performance.

Table 4.32: Summary of hypotheses – Moderating role of ΔC8 on the effect of environmental risk factors on the DROCFROIC

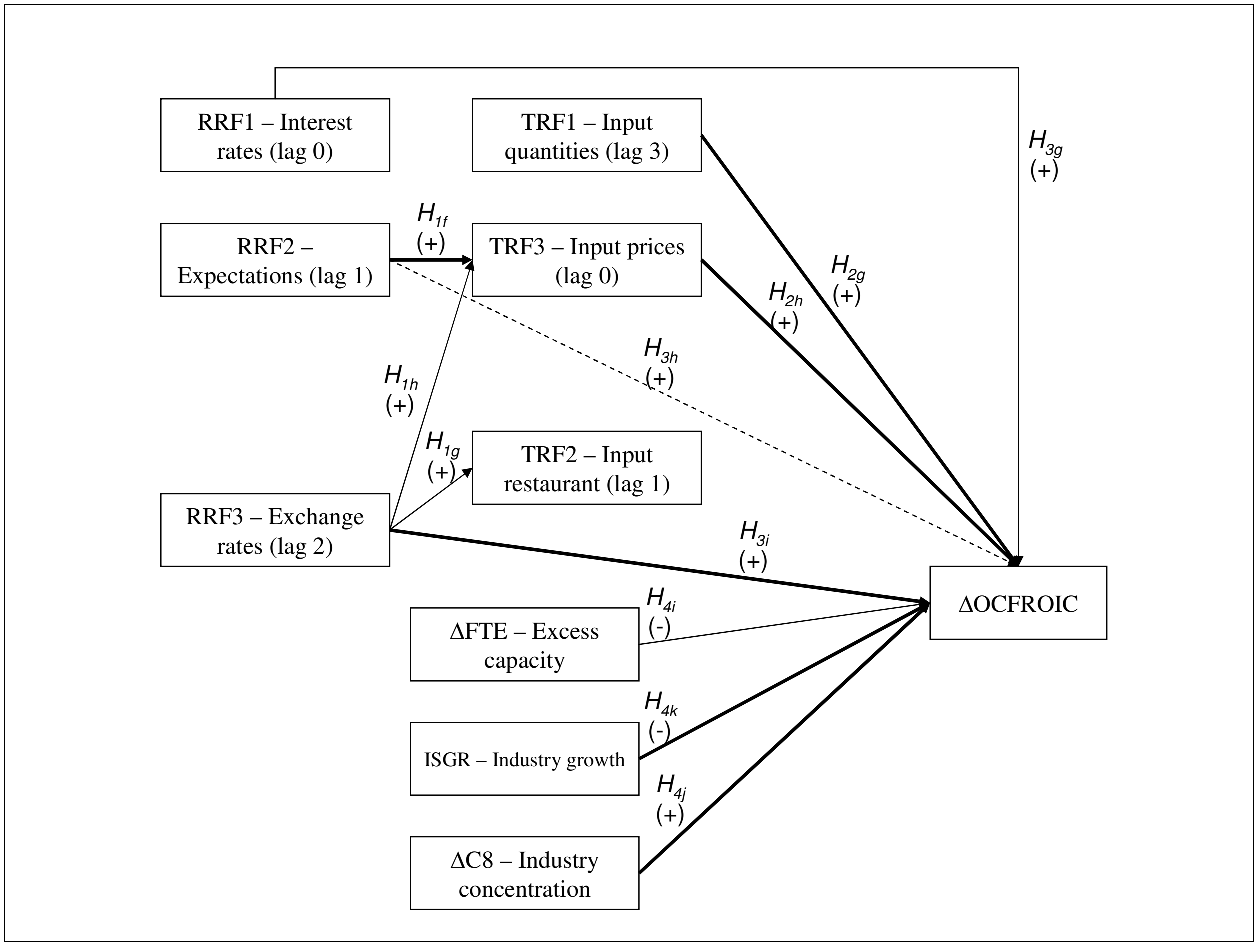
H0	Independent variables	R-squared	B	Beta	t	VIF	DW	Decision
H_{4aa}	RRF1	0.1864	0.0102	0.2227	1.7554*	1.020	2.043	Do not reject
	ΔC8		0.0348	0.3324	2.3705**	1.257		
	RRF1xΔC8		0.0117	0.0202	-0.1452	1.234		
H_{4ab}	TRF1	0.2020	0.0440	0.1649	1.1701	1.220	1.861	Do not reject
	ΔC8		0.0365	0.3521	2.7353***	1.018		
	TRF1xΔC8		0.4338	0.1293	0.9101	1.239		
H_{4ac}	TRF3	0.2034	0.227	0.2079	1.6105	1.067	1.950	Do not reject
	ΔC8		0.0326	0.3129	2.4194**	1.071		
	TRF3xΔC8		0.2453	0.1569	1.2517	1.006		

Notes:
All DW values fall within the acceptable range.
* denotes significance at 0.10
** denotes significance at 0.05
*** denotes significance at 0.01

PROPOSED EMPIRICAL MODELS

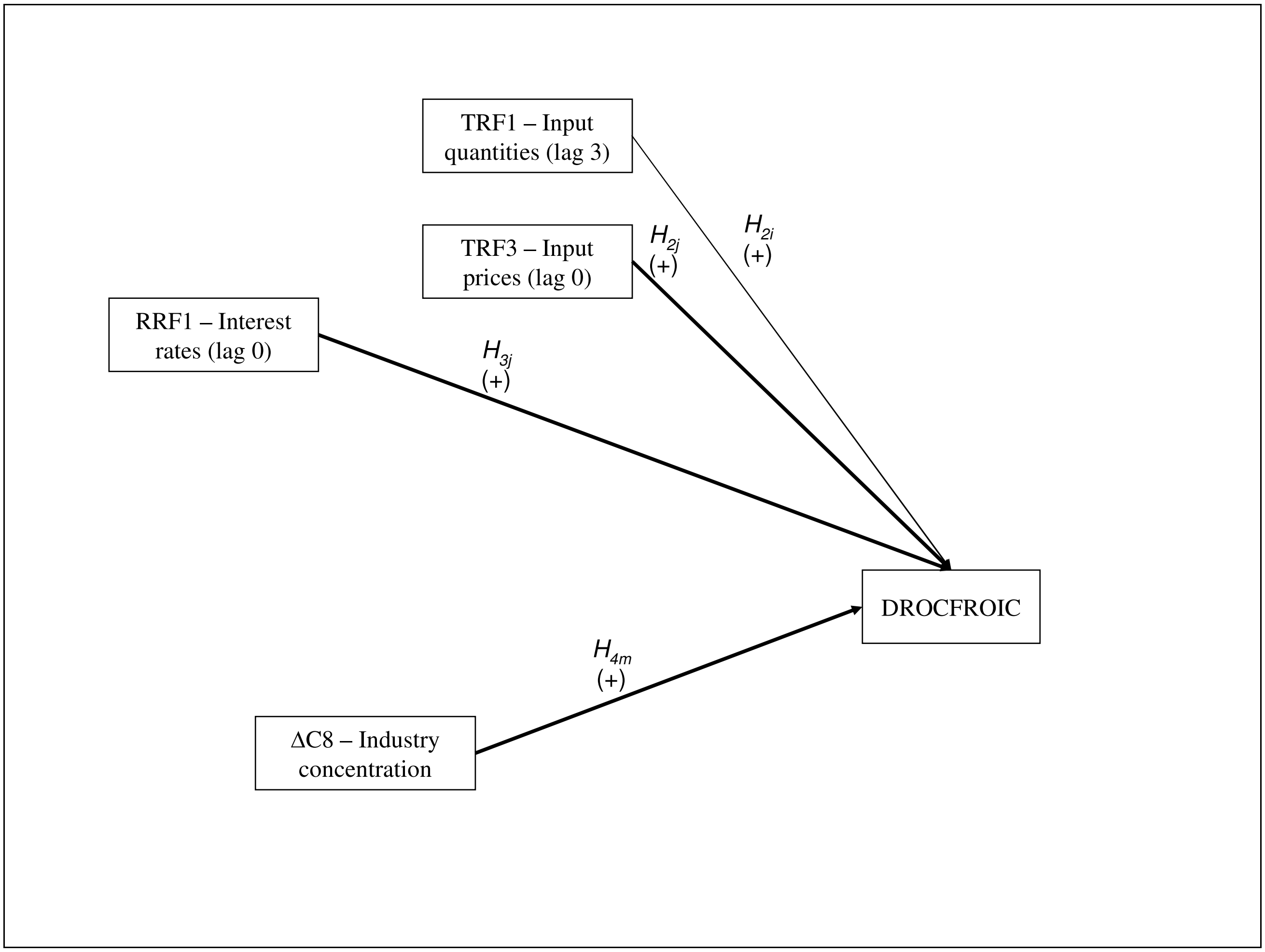
The empirical results of the proposed relationships resulted in the two empirical models presented in Figures 4.5 and 4.6. While a number of relationships were found to be significant, only one mediated relationship was supported, and no moderated relationship could be established. These results, and the insights they bring to the theory and practice of strategic and financial management are discussed in more detail in chapter 5.

Figure 4.5: Proposed empirical model (summary of the relationships) - ΔOCFROIC



Notes:
Thin arrows denote a significance of 0.1.
Large arrows denote a significance of 0.05 or better.
The dotted arrow denotes a partially mediated relationship.
The significant mediated relationship (H_{3l}) is represented by the arrows: H_{1f}, H_{2h} and H_{3h}

Figure 4.6: Proposed empirical model (summary of the relationships) - DROCFROIC



Notes:
Thin arrows denote a significance of 0.1.
Large arrows denote a significance of 0.05 or better.
For clarity, the relationships between the remote and task factors are not represented as they are the same than those illustrated in Figure 4.5.

SUMMARY

This chapter reported the various empirical analyses conducted to develop the remote and task risk factor models and to test the four propositions conceptually developed in the first two chapters. In the first section, the EFA and CFA performed on the remote and task value drivers were presented and discussed in detail. This initial step resulted in the identification of three remote risk factors (RRF) and three task risk factors (TRF): Interest rates – RRF1, Expectations – RRF2, Exchange rates – RRF3, Input quantities – TRF1, Input restaurant – TRF2, and Input prices – TRF3.

Next, the four propositions were developed and a series of hypotheses were formulated. Proposition 1 was generally supported as two of the three remote risk factors were found to directly influence two of the three task risk factors. Proposition 2 was also mostly verified as two of the three task risk factors were tested to significantly influence the two performance variables. Proposition 3 also received some support as one mediated relationship was found to be significant: Input prices – TRF3 significantly mediated the influence of Expectations – RRF2 on the ΔOCFROIC. In contrast, proposition 4 could not be confirmed as no significant moderated relationship could be established between the environmental risk factors, the industry structure variables, and the performance measures. Nevertheless, a number of main effects of the industry structure variables were found to be highly significant. In general, the signs of the relationships were consistent with the theoretical arguments, with the exception of the ISGR industry structure variable, which was found to be negatively related to the ΔOCFROIC.

CHAPTER 5 – DISCUSSION AND CONCLUSIONS

This chapter discusses the theoretical and managerial implications of the results reported in chapter 4. These empirical results are first discussed in relation to the four conceptual propositions developed in previous chapters, and conclusions are drawn in an attempt to answer the research questions that have guided this research effort. Then, the implications for the managers in the casual theme restaurant industry are presented and discussed, and practical recommendations are formulated. Finally, avenues for future research in the development of our understanding of the influence of the environment, the structure of the industry and firms' strategies on business performance are pointed out, followed by an assessment of the limitations and their implications on the present study.

DISCUSSION

Proposition 1

Proposition 1 suggested that a number of remote and task risk factors could be identified, and that the remote factors determined the task factors. Factor analysis revealed that three remote risk factors and three task risk factors could be uncovered and represent the dimensions of the two environmental constructs. However, as the remote and task environment constructs were approached solely from an economic perspective, thereby limiting the selection of variables to economic value drivers, the identified risk factors did not necessarily encompass other sources of risk that could be relevant to the casual theme restaurant industry.

The development of the two risk factor models included a data examination phase that resulted in a number of critical decisions as to which variables to include in the factor analyses. The visual inspection of the correlation matrices of the remote and task variables permitted the identification of several extremely highly intercorrelated variables. Amid multicollinearity concerns, the researcher initially attempted to group these clusters of intercorrelated variables into indices. Yet, the subsequent correlations continued to be problematic, and a number of variables and indices had to be excluded from the analysis. While the decisions remained subjective, the researcher strived to only exclude variables that were theoretically and empirically highly related to variables remaining in the analysis. Despite these challenges, the factor solutions for both the remote and task environment had sufficient reliability and survived the demanding tests of convergent and discriminant validity. The factor solutions were thus deemed as valid and reliable, yet not necessarily fully comprehensive measures of the entire economic environment.

The three remote risk factors identified were labeled Interest rates – RRF1, Expectations – RRF2 and Exchange rates – RRF3. With the exception of Expectations – RRF2, the variables loading on the first and third factors were all theoretically extremely closely related and directly fell in categories indicated by the labels of their respective factors. In contrast, the labeling of the second factor was more challenging as it included variables pertaining to the stock market (Stock Markets Index – MAINDEX and NASDAQ Composite Index - NASDAQ), the Industrial Production (IPI), the labor market (Total Non-Farm Payrolls – NOFPAY), Consumer and Producer Prices (PRINDEX), Consumer Confidence, Expectations and Sentiments Index (CCINDEX), and the exchange rate between the Hong Kong Dollar and the US Dollar (EXHKUS). As these variables were all perceived as indicators of changes in the expectations consumers, producers and investors had about the evolution of the economy, the factor was labeled Expectations – RRF2. Indeed, with the exception of EXHKUS and of some of the components of PRINDEX, all variables were related to the leading or coincident indicators typically used to forecast turning points in business cycles. As such, they were deemed as representing the broad expectations about the evolution of the economy. The reason of the inclusion of EXHKUS was tentatively explained by the fact the Hong Kong Dollar is a currency pegged to the US Dollar, and that the changes in this exchange rate represents an overall appreciation of the US Dollar relative to all other currencies that is essentially due to changes in expected inflation.

For the task environment, three factors were identified and were labeled Input quantities – TRF1, Input restaurant – TRF2 and Input prices – TRF3. The first factor included essentially the same variables as in the first task risk factor found by Madanoglu (2005). The only differences between the two studies were the inclusion of the Average Hourly Earning for Leisure and Hospitality (AHELH) in lieu of the Aggregate Weekly Hours for Leisure and Hospitality (AGGWKHL), and the IP of Soft Drinks (IPSFTDR) as a substitute for the IP of Cheese (IPCHEESE). This task risk factor, which was labeled output in Madanoglu (2005), appeared to be stable and consistent even when slightly different time periods were considered (1993 to 2004 versus 1993 to 2006). In the present study, the factor was labeled Input quantities as opposed to Output for a number of reasons. First, from the standpoint of the casual theme restaurant industry, the outputs of its supplier group are actual inputs for the industry. Secondly, as most of the variables loading on the factor were associated with some levels of production (i.e. industrial production), the use of the word “quantities” was deemed as appropriate as it added more precision to the label of the factor.

The second task risk factor was the most challenging to explain and label. It included a number of variables related to the producer prices (PPI Miscellaneous Meats – PPMEAT, PPI Beef – PPBEEF, and PPI Pork – PPORK), but also two variables related to the labor market (i.e. the Average Weekly Hours of Production Workers for Leisure and Hospitality - AWKLH) and to the industrial production (i.e. IP Butter – IPBUTTER). The author inferred that these two variables were included in the factor as increases in producer prices tend to be associated with increases in demand (thus the association of IPBUTTER), and that these increases in demand could be related to the demand for food at home as opposed to food away from home (which could explain the negative sign of AWKLH). Given the scope of the variables involved, the factor was given a broad label: Input restaurant – TRF2.

Contrary to the second factor, the third factor included variables that appeared to be more closely related to each other. Indeed, three PPI (i.e. PPI Milk – PPMILK, PPI Poultry – PPLTRY, and PPI Cheese – PPCHEESE) had loadings well above 0.50 on the factor in addition to the Value of Construction Put in Place for Dining/Drinking (CONSDIN). These four variables were perceived as highly related to prices and the factor was thus labeled Input prices – TRF3.

When looking more closely at the variables included in the second and third factors, it appeared that they were mostly different than those found by Madanoglu (2005). Indeed, the second factor of Madanoglu (2005) included three variables related to the PPI (i.e. PPI Poultry, PPI Miscellaneous Meats, and PPI Pork), which he labeled PPI

Meats. In the present study, PPI Pork (PPORK) and PPI Miscellaneous Meats (PPMEAT) loaded on the second factor too, but PPI Poultry loaded on the third factor. In addition, the IP for Butter (IPBUTTER) and the Average Weekly Hours of Production Workers for Leisure and Hospitality (AWKLH) were also included in this second factor, while they were included in the third factor of Madanoglu (2005). These differences between the findings of the two studies could not be explained, except by the dissimilarity in the time period covered, or by the decisions made earlier as to which variable to include in the factor analysis; these issues are discussed in more detail in the section dealing with the limitations of the present study.

To a large extent, this model development stage answered research question 1, which essentially asked what the relevant value drivers in the task and remote environment were. This early analysis was also a prerequisite to the actual investigation of proposition 1 and quest for an answer to research question 2. Where research question 2 asked how the remote and task environment value drivers were related, proposition 1 specifically suggested that the remote risk factors causally (in a Granger sense) influenced the task risk factors. With the identification phase of the remote and task risk factors completed, the researcher could thus proceed to the investigation of the lead-lag structure that exists between the environmental risk factors and the performance variables, and the empirical tests pertaining to these proposed relationships.

The interpretation of the cross-correlation functions' results and subsequent Granger-causality tests, paved the way to the development of three hypotheses relating the remote risk factors to the task risk factors. The results of the regression analyses supported the contention of the influence of the remote environment on the task environment. The Expectations – RRF2 had the most significant positive effect on the Input prices – TRF3 (sig. < 0.05), while the Exchange rates – RRF3 had a weaker significant positive influence on the Input restaurant – TRF2 and Input prices – TRF3 (sig. < 0.10).

The significant positive effect of Expectations – RRF2 on Input prices – TRF3 is similar to the demand-pull inflation phenomenon observed in Keynesian economics, which arises when the increases in the aggregate demand for goods and services outpace the increases in the aggregate supply. When this happens, price levels increase until a new equilibrium is reached. Indeed, higher expectations about the future growth of the economy may be early signs of a general increase in demand in the economy, which, if not matched by a similar increase in supply, may drive producer prices upward (Woodford, 2003).

The weaker, yet significant positive effects of Exchange rates – RRF3 on Input restaurant – TRF2 and Input prices – TRF3 may also be explained by changes due to demand and inflation-related causes. When the Exchange rates – RRF3 is viewed as a signal of unexpected inflation and a measure of the relative strength of the US Dollar relative to all other currencies, one may argue that an increase in Exchange rates – RRF3 may be an early sign of an increase in price levels due to an unexpected strength of the demand.

Proposition 2

Proposition 2 argued that the task risk factors influenced the casual theme restaurant industry performance. The investigation of proposition 2 included a series of tests designed to establish the Granger-causality between the three task risk factors and the two performance variables. Based on the results of these initial tests, four hypotheses were formulated that linked the Input quantities – TRF1 and the Input prices – TRF3 with the ΔOCFROIC and the DROCFROIC.

The results of the regression analyses lent support to the four hypotheses. It appeared that the two task risk factors significantly positively influenced the two OCFROIC variables. These results were to be expected for the first task risk factor – Input quantities – as the factor was very similar to the Output factor of Madanoglu (2005), which he found was positively associated with the variation in operating cash flows to sales (OCF/S). Hence, the positive influence of changes in Input quantities – TRF1 on the performance level of the casual theme restaurant industry appears to be well established as it showed consistent results independently from the specifications of the performance variables.

The positive influence of Input prices – TRF3 on the OCFROIC was however less consistent with previous research. Indeed, Madanoglu (2005) found that his prices-related task risk factor (i.e. PPI Meats) was not significantly associated with OCF/S or with stock returns. His results, while not significant, also suggested that the direction of the relationship was probably dependent upon the time lag selected. Indeed, the coefficients of his PPI Meats risk factor was positive in the relationship with the stock returns (lag t-2), but negative when associated with the OCF/S (lag t-5). Chung (2005) did not construct risk factors. Instead, she looked at the relationships between individual external value drivers and the casual theme restaurant industry operating cash flow per unit (IOCFPU). Among the influential value drivers she identified, the PPI for all commodities (PPI) and the PPI less Food and Energy (PPILEFE) were significantly related to IOCFPU. However, PPI was positively related (lag t-3) whereas PPILEFE was negatively associated with IOCFPU (lag t-3).

The inconsistencies in the sign of the relationships between external prices-related factors and the industry performance may be explained by the differences in the lead-lag structure adopted. In the present study, Input prices – TRF3 was identified as being coincident with the OCFROIC variables. As such, it can be argued that changes in the values of the factor are immediate consequences of an overall increase in demand that translates in an increase in the revenues of the restaurant firms. Conversely, the increase in prices is only reflected in the operating costs of restaurants after a time lag (of 5 quarters in Madanoglu, 2005, or of 3 quarters in Chung, 2005).

These fairly conflicting findings and resulting interpretations emphasize the complexity of the relationships between the environment and the firms, but also the difficulty in properly assessing the timing of impact of environmental factors on firm performance (Olsen et al., 2006). The number of potential effects among the external value drivers themselves, the issue of timing and the probable inversed effects of these value drivers on performance over time are important limitations in the present study. The implications of these limitations on future research will be discussed in more details later in this chapter.

It is also important to note that the Input restaurant – TRF2 failed the Granger test of causality and was thus not included in the formal hypotheses testing phase of proposition 2. This lead the author to believe that the Input restaurant – TRF2 factor was not a meaningful task factor for the restaurant industry, or that the changes that occurred in this factor cannot properly be accounted for on a quarterly basis.

Proposition 3

The third proposition was concerned with the influence of the remote and task risk factors on the OCFROIC. This proposition aimed at providing a more complete answer to research question 3 and specifically attempted to test the mediating effect of the task risk factors on the influence that the remote risk factors had on the performance variables.

Prior to formalizing the hypotheses for proposition 3, Granger-causality between the remote risk factors and the OCFROIC variables had to be established. The three remote factors appeared to Granger-cause the ΔOCFROIC, however, the Exchange rates – RRF3 failed the test on the DROCFROIC. The subsequent simple regressions indicated that the Interest rates – RRF1 positively influenced the two performance variables, and that the Expectations – RRF2 and Exchange rates – RRF3 were significantly positively associated with the ΔOCFROIC. Based upon these results and prior findings, only two hypotheses for the proposed mediated effect were put forth and tested.

The results supported one of the two hypotheses, and suggested that the positive effect of Expectations – RRF2 on the ΔOCFROIC was partially mediated by the positive effect that Input prices – TRF3 had on the ΔOCFROIC. In other words, most of the changes that Expectations – RRF2 caused in OCFROIC could be accounted for by the influence of Input prices – TRF3. In addition, the direct effect of Expectations - RRF2 on

Input prices – TRF3 was also partially reflected in the effect Input prices – TRF3 had on the ΔOCFROIC.

As suggested in chapters 1 and 2, this mediated relationship could explain the results of Madanoglu (2005), who found that the remote risk factors did not add much explanation to the changes in OCF/S when the influence of the task risk factors was accounted for. Indeed, if parts of the remote risks are mediated by some of the task risk factors, it is then logical that most of the variation in performance can be explained by the task risk factors only. These findings also provide support to the concept of chain of causality discussed by Porter (1980) and Olsen et al. (1998; 2006), which suggest that the changes in the remote environment drive the changes in the task environment, that subsequently influence industries and firms.

In contrast, the results of the second hypothesis were not as expected. Indeed, when the Exchange rates – RRF3 was entered in the regression with the Input prices – TRF3, the coefficient of the task risk factor became insignificant while the remote risk factor remained significant. Given the lead-lag structure of the two risk factors, the results cannot be explained by a reverse mediated relationship; that is, the remote risk factor cannot logically mediate the influence of the task risk factor as the former is leading the latter by two quarters (i.e. Exchange rates – RRF3 has a lag of t-2 and Input prices has a lag of t-0). Consequently, the only plausible reason for such result is that the two factors essentially carry the same information, yet at different time periods. In practical terms, this would mean that Exchange rates – RRF3 does not cause Input prices – TRF3 to change, but that is rather an early signal to changes in Input prices – TRF3. The rejection of this second hypothesis, and the rationales provided to explain it draw attention to the difficulties in assessing true causality between the two environmental constructs. Indeed, early signals given by a factor are not necessarily causes to the changes in another factor.

Proposition 4

Propositions 1 to 3 delved into the influence of external risk factors on the performance of the casual theme restaurant industry. In contrast, proposition 4 argued that the exposure the industry had to these risk factors was altered by the changes in some of its structural dimensions. Proposition 4 aimed at answering research question 4. Specifically, it was suggested that the industry concentration (ΔC8), the industry sales growth rate (ISGR), the degree of excess capacity (ΔFTE) and the degree of brand diversification (ΔBDI) were structural dimensions that were influencing the degree of exposure of the industry to external risks.

Prior to developing a set of hypotheses specific to the proposition, it was necessary to test the Granger-causality between the industry structure variables and the two performance measures. The ΔC8 and ΔFTE were both found to Granger-cause the ΔOCFROIC and DROCFROIC. However, ISGR was found to Granger-cause the ΔOCFROIC, but not the DROCFROIC and the ΔBDI were found to Granger-cause the DROCFROIC but not the ΔOCFROIC.

Upon consideration of these results and those reported earlier on the relationships between the environment risk factors and the performance variables, the author developed 15 hypotheses about the moderating role of the industry structure variables. Despite the detection of a number of direct effects of the industry structure variables on the ΔOCFROIC and DROCFROIC, none of the 15 hypotheses could be supported. The statistical analysis showed that there was no significant interaction effect between the environment risk factors and the industry structure variables, with the exception of the interaction of the Input prices – TRF3 with the ISGR on the ΔOCFROIC.

The only significant interaction could nevertheless not be associated with true moderation. The hypothesis under consideration included a mediated moderation between the Expectations – RRF2 (i.e. the independent variable), the Input prices – TRF3 (i.e. the mediator), and the ISGR (i.e. the moderator). As the mediator became insignificant while the independent variable became significant when the interaction term was entered in the equation, the author could not conclude that there was a significant moderation.

Although moderation was not established, the direct effects of the industry structure variables are worth some consideration. The ΔFTE, which was captured by the changes in FTE employees per capita, had a significant (sig. < 0.10) negative influence on the ΔOCFROIC. Practically, this means that increases in excess capacity results in lower OCFROIC. This result provides additional support to the belief that when an industry has built excess productive capacity, its participants are inclined to engage in price-cutting tactics when the demand softens in order to generate sufficient cash to pay for the fixed costs associated with its capacity (e.g. Hofer & Schendel, 1978; Plambeck & Taylor, 2005). In the context of the restaurant industry, examples of such competitive tactics could be found in discounted menu items through the use of coupons that are aimed at attracting a minimum number of customers to fill empty seats and ensure a minimum level of activity in the units at the detriment of operating margins.

The ΔC8, which measured the changes in industry concentration, had a significant positive influence on the ΔOCFROIC and DROCFROIC (sig. < 0.05 and sig. < 0.01 respectively). The positive effect of ΔC8 was expected as this industry structure variable had been regularly reported as an important determinant to industries profitability (e.g. Harrigan, 1981; Levy, 1984; Robinson & McDougall; 1998). The fact that the ΔC8 was significant and positive for the two performance measures indicates that the more the industry is dominated by a few players, the more growth in its OCFROIC it can expect, and the less downside risk it can fear. These two relationships, when considered together, also support the risk-return paradox reported by Bowman (1980) and corroborated by Fiegenbaum and Thomas (1986). Indeed, if positive ΔC8 can lead to more positive ΔOCFROIC and at the same time reduce the negative DROCFROIC, it suggests that, under certain circumstances, high returns may be related to low risk.

The ISGR was a measure closely related to the notions of life cycle and degree of munificence present in the industry. The measure was found to be significantly associated with the ΔOCFROIC, yet with a negative sign. This result was unexpected as a positive ISGR has usually been associated with increases in profitability (e.g. Capon et al., 1990; Sandberg & Hofer, 1987). Growth as a strategy has also been viewed as the major competitive method used by hospitality firms (Olsen et al., 2006). Nevertheless, the results reported in the present study imply a different relationship between ISGR and the ΔOCFROIC. The author of the present study hypothesizes that such negative relationship may be due to a decline in the alignment between the growth strategy (i.e. competitive method) and the core competencies of the firms (i.e. firm structure). When firms strive for rapid growth in sales, they may not necessarily be able to adjust their core competencies to such growth, and thus see the misalignment result in lower operating margins.

Because the performance variables were estimated at the industry level, using a portfolio approach, this result may also be due to a number of underperforming firms rather than to a universal cause. Indeed, the ΔOCFROIC may have been driven by a few firms that were truly misaligned, yet followed the dominant logic in the industry and attempted to grow despite their lack of resources and capabilities. This possibility would warrant more research as would the performance consequences of growth strategies in general. Such study would require the measurement of the alignment between strategic choice and firm structure at the firm level.

The fourth industry structure variable, the ΔBDI, was not tested to be significantly related to performance. The measure attempted to capture the degree of differentiation in the industry through the use of diversified brands. While the entropy measure of product diversification has been validated in prior studies (e.g. Jacquemin & Berry, 1979; Robins & Wiersema, 2003), it may not be well suited for measuring the diversification that arises from the development of various brands.

As a general answer to research question 4, it appeared that the industry structure had a direct effect on the industry performance, but that it had no influence on the exposure the industry had to the environmental risk factors. While these findings are consistent with the direct effects found in previous studies (e.g. Capon, Farley, & Hoenig, 1990; Hou & Robinson, 2006; Jogaratnam et al., 1999b), they do not corroborate the results reported by Benett and Sias (2006) who suggested that the changes in the industry concentration were altering the risk exposure of firms.

In other words, the changes in some of the structural dimensions of industry (i.e. concentration, sales growth and excess capacity) appeared to influence the performance levels of the firms in the industry (as measured by OCFROIC), but not the effect the environment has on it. Hence, the dimensions of the structure of the industry surface as being essentially related to the industry's internal environment and not necessarily associated with the relationships the industry has with its external environment. More specifically, when the industry becomes more concentrated and has less excess capacity, it appears to be able to generate higher operating margins than when it is not. From an economic perspective, this would mean that the industry structure plays a role in defining the type of competition or rivalry among firms, but not in the determination of the bargaining power it has over its suppliers and buyers, or of the heights of its entry barriers.

The results of the tests for proposition 4 were largely disappointing as no moderation could be found. The author of the present study argues that the lack of significant moderating effect could be due to the frequency of the observations and that meaningful shifts in the industry structure may not be captured by the incremental changes measured by the quarterly time series. Indeed, there may not have been large enough variations in the time series to capture true structural changes that could have changed the risk exposure of the industry.

The absence of moderated relationships could also be due to some of the characteristics of the industry. The casual theme restaurant industry is primarily a service industry and is thus typified by the simultaneity of the production and consumption and the perishability of the service, which translate into decentralized operations and more intense local competition. In other words, the nature of industry prevents companies from centralizing a number of activities as part of the production and most of the service need to be performed in the individual units, where the customers are located. Also, the perishable character of the service capacity of the individual restaurants promotes the use of short-term competitive tactics, in particular discounted menu items, which are aimed at maximizing the use of the capacity rather than support long-term differentiation strategies.

Taken together, these two industry-specific features may well partially prevent companies from taking advantage of their size when dealing with suppliers and consumers. For instance, the decentralization of most of the production and service activities could limit the extent to which large firms could exert their bargaining power over their suppliers. Indeed, with these decentralized operations, the restaurant firms could either be required to buy small quantities from local suppliers, hence limiting the effect of potential economies of scale, or, more likely, be inclined to value the ability of their suppliers to manage their supply chain effectively rather than the costs of their products. In both cases, a higher industry concentration would not necessarily translate into a higher bargaining power that could lower the costs of the goods purchased.

For the consumers' side, the perishability of the service capacity and the decentralized operations are industry-specific features that could prevent firms from taking advantage of their size and of the concentration of the industry. Indeed, if most of the competition takes place at a local level, the degree of concentration at the national level may not be a relevant determinant of the bargaining power the individual restaurants have over their consumers.

Following this line of reasoning, the effect of the industry concentration on the OCFROIC could be viewed as being more related to gains achieved within the organizations, such as lower administrative costs, rather than associated with entry barriers and bargaining power. Besides, the negative effect of the excess capacity on the OCFROIC could be regarded as being primarily linked with discounted prices stemming from more intense local rivalry.

MANAGERIAL IMPLICATIONS

The present study provides a number of insights to practitioners in the casual theme restaurant industry. First and foremost, it sheds a new light on the risk factors that exist in the environment and that cause operating cash flows to change. The study of Choi (1999) revealed a number of leading and coincident indicators that were able to forecast the industry cycle turning points. The studies of Chung (2005) and Madanoglu (2005) showed that a number of variables and risk factors existed in the environment that were driving some of the variation in the cash flow streams of restaurant firms.

The present study adds to these research efforts and clarifies the nature of these causal relationships. For practitioners, it is an important clarification as it will likely facilitate the identification of the relevant sources of risk. In addition, the present study confirmed some of the findings of Madanoglu (2005) as the Input quantities – TRF1 task factor was extremely similar to his Output factor. For restaurant managers and executives alike, this should mean that the variables loading on the factor are truly important to monitor on regular basis.

Besides the confirmation of this task risk factor, the findings also identified one other task risk factor and three remote risk factors that were found to significantly influence the cash flow returns of the industry (i.e. Interest rates – RRF1, Expectations – RRF2, Exchange rates – RRF3 and Input prices – TRF3). Of special interest to the restaurant managers are the nature of these factors, and their time lags. Indeed, two of the three remote factors – Expectations and Exchange rates - can be interpreted as being closely related to expected inflation. These two factors are positively related to the cash flow returns of the industry and are leading the performance variables by one and two quarters respectively.

For restaurant managers, this means that positive changes in these factors are likely to be followed by positive changes in their cash flows after one and two quarters respectively. As these factors are positively related to the cash flows, and because the Input prices – TRF3 is also positively associated with the performance variables (with a lag of t-0) and closely linked to actual inflation, it was inferred that such inflation was driven by an increase in the overall demand (i.e. demand-pull inflation). For the managers, this suggests that the two remote factors (i.e. Expectations – RRF2 and Exchange rates – RRF3) can serve as early indicators of an increase in demand for restaurant products and services.

The Input quantities, the first task risk factor identified, could also serve as an early indicator of change in the industry cash flows. Indeed, the factor was leading the performance variables by three quarters, and had a significant positive influence on the changes in cash flows and lowered the downside risk (i.e. made it less negative). Practically, this means that managers can also use the factor as an early signal. When the

Input quantities increase, it can be expected that the cash flows will increase three quarters later, and that the potential downside risk (i.e. possibility of achieving returns bellow the target return) decreases.

In practical terms, the restaurant managers would benefit from the development and regular use of a scanning system that tracks on a monthly basis the evolution of the value drivers included on these risk factors (e.g. 1-Year Treasury Constant Maturity Rate, Corporate Bonds Rates, Stock Market Indices, Consumer Confidence Indices, Foreign Exchange Rates, Producer Prices, Industrial Production Levels, etc.). These data are all readily available, mostly free of charge, from sources such as Wall Street Journal, the Bureau of Labor Statistics website, or the Federal Reserve Statistics website.

With regards to the causal texture of the environment, one mediated relationship between the remote and task environment and the OCFROIC was verified. This finding should help managers develop a better understanding of how the environment actually impacts their suppliers, and how their suppliers thereafter react and influence their firms. From a practical standpoint, the mediating effect of the Input prices – TRF3 on the influence of Expectations – RRF2 on the ΔOCFROIC should provide managers with a framework of understanding of the chains of causality that exist between the remote environment, their suppliers and buyers, and their financial performance. In other words, when the value drivers included in the Expectations – RRF2 risk factor increase (e.g. stock market indices, Industrial Production Index, or Consumer Confidence Index), the restaurant managers should expect to see these positive changes be partially reflected, three months later, in the value drivers included in the Input prices – TRF3 (i.e. PPI Fluid Milk, PPI Poultry, PPI Cheese and the Value of Construction Put in Place for

Dining/Drinking) and in their OCFROIC. Applying such framework to investment analysis or budgeting could help practitioners improve their forecasting abilities. More importantly, the use of these chains of cause and effect relationships could improve the ability of managers and investors in assessing the risk in their future cash flow estimates by developing more thorough scenarios.

When considering the findings on the influence of the industry structure variables on performance, it is important to note that, despite the absence of moderation, three industry structure variables were significantly influencing the OCFROIC of the industry (i.e. changes in concentration, industry sales growth rate and changes in excess capacity). In the present study, it has been argued that these three variables were partially driven by some of the strategic actions taken collectively by individual firms. As such, managers should be aware of the consequences of their actions on the performance level of the industry. For instance, while growth through consolidation may be beneficial for the industry as a whole, growth in sales has been tested to be associated with a decrease in performance. In addition, the negative influence of the changes in excess capacity, measured by the number of FTE employees per capita, also suggests that growth through the addition of new capacity is harmful when it exceeds the growth in population.

These results challenge the views commonly held on a strategy (i.e. growth) that has apparently become a dominant logic among industry analysts and managers. It it the author's hope that the finding will cause the various stakeholders of the industry to reflect upon their current perception of growth, and to invest more time and efforts weighing the pros and cons of such strategic choice, especially as it pertains to the alignment between this choice and their firm's capabilities and competencies. Besides, the consequences that growth strategies may have on the degree of rivalry in the industry would also require some consideration. Indeed, when growth fosters competition, it is likely to cause price cuts and lower operating margins.

For the future manager, that is the student in hospitality programs and colleges of business in general, the present study will hopefully contribute to his/her learning by providing empirically tested examples of the causal texture of the environment, and illustrations of the risks that environmental factors pose on firms and industries. The comprehension of such complex sets of relationships has notoriously been a challenge for students, and it is the author's wish that the results of the present study will facilitate the learning process.

FUTURE STUDIES

The present study answered the research questions it posed, but its results also trigger some new research questions that would be worth pursuing. The various time lags found for the environmental risk factors suggest that some task risk factors may indeed lead some of the remote risk factors. Such timing may prompt questions as to the directions of the relationships between these two constructs. For instance, some of the task factors may actually cause changes in remote factors, which was not initially anticipated. In addition, when comparing the signs of the effects of some of the external risk factors on the cash flow returns across studies, one may envision more complex relationships that take the form of cyclical influences. Such cyclicality could cause a factor to positively influence performance when at the beginning (conversely, at the end) of the cycle, and negatively when at the end (or alternatively, at the beginning).

Consequently, a potentially valuable line of research could be found in the study of the influence of environmental risk factors at different stages of the business cycle.

Another apparent avenue for future research emerges from the results of the tests on the influence of the industry structure variables on the industry performance and risk exposure. As suggested earlier, the inability of the present research to find significant moderating effect of the industry structure on the risk exposure of the industry may not inevitably mean that changes in environmental risk exposure do not exist. The understanding of the changes in risk exposure due to changes in the structural dimension of the industry may require stronger contrasts. In other words, significant differences in the risk exposure could be found when comparing an industry prior and after major structural shifts as opposed to studying its incremental changes captured through time series data.

From the perspective of the measurement of risk and performance, the present study attempted to investigate the influence of the environment and of the structure of the industry on the total variation in returns in addition to its downside variation. While the inclusion of the downside measure was theoretically appealing as it expressly considered the differences in the perception of risk, the results did not suggest that it added much to the more commonly used total variation measure. Indeed, with the exception of a few effects that were insignificant for the downside risk but significant for the total variation, the tests on the downside risk did not reveal any additional relationship. Despite this apparent limited usefulness, further research on the factors that affect the downside risk would be worth considering due to its practical significance as reported by Mao (1970). Specifically, the effects of exceptional events, such as natural disasters, terrorist acts or food contamination announcements, on the downside risk would be worth investigating. The non-normal characteristics of the downside risk data (i.e. the presence of the three outliers) that had to be corrected in the present study could be examples of some significant effects of exceptional events.

Finally, the significant direct effects of the industry structure variables certainly require more detailed investigations. The study of the relationships between the changes in the industry structure, industrywide Critical Success Factors (CSF) and individual firms' Competitive Methods (CM) would be a worthy effort as it could shed more light on elements that are controllable by the management rather than on some of the consequences of the actions collectively taken by a majority of firms in the industry. Such undertaking would require the investigation of the internal alignment between CSF, CM and firm structure, which remains a construct vastly unspecified.

LIMITATIONS

A number of limitations need to be acknowledged as they may have several important implications with regards the generalizability of the results. To begin with, the challenges faced when selecting the economic variables in the remote environment and, to a lesser extent, in the task environment, may have resulted in factor solutions that are probably not fully comprehensive of the entire economic domain. More powerful statistical techniques dealing with the multicollinearity issues without having to combine or suppress variables could result in different solutions and lead to the identification of additional economic risk factors.

In addition, the deliberate selection of homogeneous firms in an attempt to more reliably estimate their performance certainly limits the applicability of the remote and task risk models. Indeed, other industries or even restaurant firms that are actively franchising their systems may well exhibit different exposures to the six risk factors identified. In particular, the time lags identified may differ and result in different effect size and signs.

Besides, the author acknowledges that the use of performance variables that are based on a portfolio of firms hides some of the variation that is firm-specific. For instance, a company such as Darden may well be exposed to risk factors related to the production of seafood due to its offering at the Red Lobster concept while a company like Outback may not be as much exposed to it. Consequently, the identified risk factors need to be considered principally at an industry sector level, and may not necessarily represent all the risk factors that are relevant to individual firms.

Last, the period covered by the study, the first quarter of 1993 to the fourth quarter of 2006, may only represent one phase of the industry life cycle, and may therefore not include risk factors that are important to other phases of the cycle.

CONCLUSIONS

This study was motivated by the need to improve upon our understanding of the relationships that exist among the environmental risk dimensions and the performance of companies. The study also aimed at enhancing our comprehension of the role of the structure of the industry in these relationships. Whereas the operationalization of the remote and task environment constructs built on the studies of Chung (2005) and

Madanoglu (2005), the conceptualization of their relationships differed in an attempt to account for the various indirect relationships that link the two levels of the environment.

The clear distinction between the two constructs enabled the author to find a statistically significant mediated relationship between a remote and a task risk factor and the performance of the industry. Specifically, the study revealed that three remote risk factors and three task risk factors existed in the environment, and that the Interest rates – RRF1, the Expectations – RRF2, the Exchange rates – RRF3, the Input quantities – TRF1 and the Input prices – TRF3 all had a significant positive influence on the cash flow returns of the industry. In addition, the Input prices – TRF3 mediated the influence of the Expectations – RRF2 on these cash flow returns. These findings add to our understanding of the effects of the environment on industries and firms, and represent an important contribution to the body of knowledge as it provides an additional step toward the development of a comprehensive risk-factor model that incorporates the indirect effects of the remote risk factors (through some of the task risk factors).

From a strategic management perspective, such mediated relationships demonstrate the complex causal relationships between the environment and firms. It also further stresses the complexity of grasping the causal texture of the environment, especially when the timing of impact is considered.

In addition to the conceptualization of the relationships between the remote and task environment and the level of performance, the present study also investigated the influence of some of the structural dimensions of the industry. Despite the lack of changes in risk exposure due to the changes in the industry structure, the findings established that the degree of excess capacity, the industry concentration, and the industry sales growth rate were influential structural dimensions that had direct and significant effects on the cash flows of the industry. In particular, the significant positive effect of the industry concentration on the changes in OCFROIC, as well as the significant negative influences of the industry sales growth rate and of the changes in the degree of excess capacity on the industry performance, are important findings as they offer an additional set of industry-specific variables that could be further tested in the context of the development of a comprehensive risk-factor model.

The lack of moderating effect of these industry structure variables on the relationship between the environmental risk factors and the performance of the industry essentially suggests that the role of the industry structure may depend on the characteristics of the industry itself. Indeed, the principles developed in the Industrial Organization (I.O.) economics may not hold true in a service industry environment. Put in other words, the notions of bargaining power and entry barriers may well not be relevant to an industry characterized by decentralized units operating in multiple local markets and engaged in fierce local competition.

Nevertheless, these results suggest that the changes in the industry structure need to be considered by managers and investors alike as they are important performance drivers that evolve over time. Also, as it was suggested earlier, the strategic actions taken by the firms in the industry may change these structural dimensions. Hence, strategic decisions should incorporate the outcomes of the strategic actions on the industry structure, and evaluate the resulting performance consequences. The investigation of the dynamic relationships between individual firms' strategic actions and the changes in the structure of the industry was beyond the scope of the present study, and would be a topic worth consideration for future research.

The present study also differed from previous studies as it included two specifications of the performance construct, the total variation in operating cash flow returns on invested capital in addition to its downside variation. While the findings could not establish clear differences in the influence of the environment and of the industry structure on the two performance variables, the author conjectures that more drastic changes in the environment, or specific extraordinary events could result in significantly different effects between the total risk and downside risk measures. This issue would also be a valuable matter for future research.

This study solved part of the puzzle surrounding the relationships between the environment, industries and firms, and initiated a line of research with respect to the influence of the structure of the industry on its risk exposure and performance level. The major contributions made by the present research effort to the existing body of knowledge are linked with the development of a theory of risk in the casual theme restaurant industry, and to a lesser extent, to the practice of strategy by industry executives.

Indeed, the outcomes of this work essentially answer theoretical questions pertaining to the relationships between the remote and task environment, and the structure and performance of the industry. While the six environmental risk factors identified and the direct effects found between the industry structure and its performance should help practitioners improve their conceptualization of the environment and of their industry, the primary utility of the findings reside in setting the stage for the development of a comprehensive risk-factor model. The study is thus only an incremental step toward a theory of what drives cash flows in the hospitality industry, and it remains to be seen how the field will move forward and further develop industry-specific measurements and models of risk and returns.

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APPENDICES

APPENDIX A – REMOTE VALUE DRIVERS - CORRELATIONS

	IPI	PPI	EXHKUS	EXJPUS	EXUSUK	EXUSEU	BROAD	MFX	LABORF	EMPLO	EMPPP	EMPFULL
IPI	1.000											
PPI	0.782	1.000										
EXHKUS	0.750	0.465	1.000									
EXJPUS	0.336	0.052	0.277	1.000								
EXUSUK	0.512	0.719	0.080	-0.075	1.000							
EXUSEU	-0.253	0.227	-0.541	-0.479	0.633	1.000						
BROAD	0.808	0.336	0.815	0.563	**0.925**	**0.965**	1.000					
MFX	0.169	-0.349	0.464	0.612	**-0.955**	**-0.956**	**-0.965**	1.000				
LABORF	0.858	0.870	0.765	0.280	0.561	-0.142	0.726	0.050	1.000			
EMPLO	0.886	0.853	0.750	0.293	0.550	-0.181	0.757	0.088	**0.989**	1.000		
EMPPP	0.325	-0.092	0.085	0.254	-0.101	-0.435	0.432	0.443	0.071	0.209	1.000	
EMPFULL	0.878	0.820	0.755	0.302	0.503	-0.226	0.765	0.131	**0.962**	**0.981**	0.263	1.000
EMPPART	0.375	0.450	0.232	0.057	0.412	0.152	0.218	-0.169	0.467	0.430	-0.185	0.248
UNEMP	-0.611	-0.277	-0.262	-0.213	-0.185	0.321	-0.543	-0.279	-0.388	-0.518	-0.811	-0.561
EMPT	0.894	0.760	0.772	0.348	0.453	-0.302	0.841	0.224	**0.952**	**0.982**	0.352	**0.976**
EMPPRI	0.891	0.738	0.755	0.359	0.440	-0.317	0.846	0.243	**0.933**	**0.971**	0.406	**0.969**
EMPSER	0.890	0.807	0.784	0.322	0.497	-0.242	0.810	0.160	**0.982**	**0.994**	0.233	**0.980**
EMPPRIS	0.893	0.797	0.775	0.332	0.495	-0.251	0.817	0.172	**0.974**	**0.993**	0.272	**0.980**
HRPRI	0.843	0.880	0.751	0.275	0.578	-0.107	0.699	0.019	**0.996**	**0.979**	0.011	**0.945**
HRPRIS	0.843	0.878	0.753	0.280	0.574	-0.112	0.701	0.024	**0.996**	**0.978**	0.013	**0.943**
NOFPAY	0.894	0.760	0.772	0.348	0.453	-0.302	0.841	0.224	**0.952**	**0.982**	0.352	**0.976**
INFLAR	0.015	0.087	-0.005	-0.173	0.058	0.079	-0.058	-0.111	0.015	0.016	-0.030	0.021
INFLA	0.007	0.075	-0.009	-0.174	0.051	0.077	-0.061	-0.108	0.005	0.006	-0.029	0.012
CPI	0.833	0.920	0.707	0.243	0.618	-0.043	0.650	-0.049	0.892	0.876	0.007	0.885
CPILEFE	0.850	0.879	0.745	0.279	0.586	-0.098	0.711	0.018	0.897	0.883	0.043	0.894
CPILEFS	0.925	0.842	0.678	0.222	0.623	-0.023	0.618	-0.079	0.883	0.870	0.020	0.882
CPIENER	0.730	0.985	0.436	0.038	0.671	0.212	0.280	-0.350	0.834	0.809	-0.158	0.777
CPISER	0.825	0.910	0.711	0.246	0.621	-0.036	0.649	-0.052	0.901	0.870	-0.025	0.866
PPILEFE	0.847	0.908	0.712	0.247	0.588	-0.075	0.671	-0.016	0.886	0.881	0.082	0.856
PPINOND	0.862	0.983	0.588	0.138	0.672	0.096	0.480	-0.212	0.840	0.862	-0.059	0.888
DJCI	0.866	0.681	0.724	0.378	0.435	-0.345	0.821	0.264	0.888	0.832	0.429	0.900
NASDAQ	0.742	0.397	0.526	0.125	0.224	-0.407	0.611	0.271	0.580	0.661	0.622	0.689
SP500	0.860	0.681	0.727	0.332	0.406	-0.365	0.800	0.264	0.877	0.834	0.439	0.899
NYSEC	0.870	0.824	0.662	0.329	0.563	-0.184	0.709	0.089	0.893	0.864	0.309	0.875
GDP	0.847	0.898	0.686	0.235	0.648	-0.035	0.640	-0.064	0.887	0.900	0.052	0.891
PCE	0.862	0.837	0.773	0.271	0.551	-0.157	0.747	0.071	0.891	0.893	0.090	0.886
PCESER	0.904	0.876	0.764	0.266	0.566	-0.130	0.714	0.036	0.897	0.895	0.042	0.896
EXPORT	0.813	0.927	0.544	0.182	0.680	0.036	0.534	-0.145	0.908	0.834	0.235	0.862
EXPOSER	0.817	0.950	0.579	0.185	0.718	0.070	0.538	-0.174	0.885	0.880	0.096	0.882
CONSTR	0.829	0.933	0.667	0.211	0.652	-0.010	0.607	-0.094	0.880	0.869	0.019	0.864
CONSTCO	0.826	0.936	0.647	0.201	0.667	0.006	0.593	-0.112	0.872	0.864	0.030	0.863
AAA	-0.668	-0.753	-0.439	-0.269	-0.690	-0.227	-0.395	0.240	-0.774	-0.721	0.284	-0.670
BAA	-0.612	-0.752	-0.331	-0.201	-0.767	-0.342	-0.283	0.357	-0.707	-0.664	0.263	-0.614
CD3M	-0.183	-0.193	-0.468	-0.184	-0.111	0.055	-0.275	-0.075	-0.375	-0.254	0.691	-0.199
CP3M	-0.216	-0.200	-0.482	-0.204	-0.134	0.066	-0.308	-0.089	-0.397	-0.280	0.658	-0.225
FEDFUND	-0.181	-0.199	-0.446	-0.150	-0.146	0.025	-0.249	-0.036	-0.372	-0.251	0.701	-0.192
FEDDISC	-0.171	-0.189	-0.436	-0.140	-0.136	0.035	-0.239	-0.026	-0.362	-0.241	0.711	-0.182
PRIME	-0.174	-0.198	-0.438	-0.146	-0.147	0.019	-0.240	-0.030	-0.367	-0.244	0.707	-0.185
TCM6M	-0.232	-0.199	-0.502	-0.230	-0.115	0.093	-0.337	-0.120	-0.407	-0.292	0.636	-0.240
TB6M	-0.232	-0.197	-0.503	-0.227	-0.114	0.093	-0.338	-0.120	-0.407	-0.292	0.635	-0.240
TCM1Y	-0.288	-0.243	-0.542	-0.252	-0.130	0.113	-0.380	-0.136	-0.455	-0.344	0.602	-0.294
TCM5Y	-0.551	-0.489	-0.625	-0.315	-0.339	0.073	-0.525	-0.082	-0.676	-0.596	0.398	-0.548
TCM10Y	-0.695	-0.606	-0.655	-0.362	-0.428	0.092	-0.607	-0.086	-0.779	-0.726	0.223	-0.685
M1	0.628	0.884	0.428	-0.108	0.723	0.360	0.231	-0.463	0.790	0.727	-0.412	0.669
M2	0.892	0.900	0.717	0.221	0.611	-0.023	0.613	-0.071	0.899	0.900	-0.120	0.907
PERINCO	0.850	0.905	0.725	0.257	0.601	-0.086	0.675	-0.010	0.904	0.895	0.051	0.887
DISPOIN	0.831	0.912	0.714	0.237	0.621	-0.045	0.646	-0.050	0.891	0.882	-0.013	0.851
CONSUM	0.891	0.916	0.712	0.231	0.619	-0.046	0.642	-0.052	0.891	0.873	-0.008	0.843
WAGDIST	0.897	0.879	0.752	0.275	0.568	-0.142	0.717	0.045	0.896	0.892	0.100	0.869
RETAIL	0.873	0.914	0.707	0.224	0.618	-0.055	0.653	-0.046	0.891	0.880	0.037	0.852
SENTIM	0.132	-0.275	-0.052	0.136	-0.004	-0.244	0.233	0.271	-0.099	0.006	0.734	0.053
CCI	0.312	-0.106	0.064	0.223	-0.005	-0.348	0.397	0.363	0.057	0.187	0.890	0.247
CEI	0.184	-0.187	0.010	0.191	0.047	-0.221	0.273	0.248	-0.001	0.078	0.576	0.120
PERCDIS	0.835	0.908	0.719	0.241	0.616	-0.054	0.654	-0.040	0.892	0.875	-0.003	0.844

APPENDIX A – REMOTE VALUE DRIVERS – CORRELATIONS (CONTINUED)

	EMPPART	UNEMP	EMPT	EMPPRI	EMPSER	EMPPRIS	HRPRI	HRPRIS	NOFPAY	INFLAR	INFLA	CPI	CPILEFE
IPI													
PPI													
EXHKUS													
EXJPUS													
EXUSUK													
EXUSEU													
BROAD													
MFX													
LABORF													
EMPLO													
EMPPP													
EMPFULL													
EMPPART	1.000												
UNEMP	0.026	1.000											
EMPT	0.363	-0.625	1.000										
EMPPRI	0.342	-0.669	**0.998**	1.000									
EMPSER	0.409	-0.529	**0.992**	**0.983**	1.000								
EMPPRIS	0.397	-0.563	**0.996**	**0.989**	**0.999**	1.000							
HRPRI	0.493	-0.340	**0.934**	**0.912**	**0.970**	**0.961**	1.000						
HRPRIS	0.500	-0.341	**0.934**	**0.913**	**0.970**	**0.961**	**0.999**	1.000					
NOFPAY	0.363	-0.625	**0.999**	**0.998**	**0.992**	**0.996**	**0.934**	**0.934**	1.000				
INFLAR	-0.017	-0.008	0.008	0.007	0.012	0.012	0.015	0.015	0.008	1.000			
INFLA	-0.024	-0.005	0.000	-0.002	0.003	0.002	0.005	0.005	0.000	**0.999**	1.000		
CPI	0.476	-0.348	0.853	0.890	0.880	0.875	0.899	0.893	0.872	0.033	0.023	1.000	
CPILEFE	0.472	-0.369	0.864	0.852	0.898	0.857	0.900	0.897	0.874	0.013	0.003	**0.995**	1.000
CPILEFS	0.465	-0.365	0.845	0.895	0.880	0.843	0.898	0.883	0.842	0.052	0.041	**0.997**	**0.986**
CPIENER	0.428	-0.203	0.705	0.679	0.757	0.745	0.848	0.846	0.705	0.129	0.116	**0.918**	**0.919**
CPISER	0.489	-0.316	0.854	0.891	0.880	0.875	0.896	0.895	0.841	0.018	0.007	**0.999**	**0.996**
PPILEFE	0.453	-0.418	0.844	0.833	0.897	0.865	0.885	0.898	0.889	0.032	0.021	**0.992**	**0.989**
PPINOND	0.478	-0.306	0.845	0.823	0.889	0.879	0.865	0.895	0.845	0.074	0.062	**0.972**	**0.945**
DJCI	0.310	-0.681	0.897	0.897	0.859	0.896	0.868	0.869	0.967	0.007	-0.001	0.852	0.876
NASDAQ	0.095	-0.774	0.732	0.754	0.674	0.693	0.540	0.542	0.732	0.084	0.078	0.523	0.544
SP500	0.293	-0.695	0.896	0.896	0.849	0.898	0.855	0.857	0.959	0.024	0.016	0.839	0.859
NYSEC	0.371	-0.615	0.896	0.870	0.870	0.862	0.852	0.823	0.860	0.020	0.010	0.922	0.926
GDP	0.468	-0.396	0.891	0.892	0.893	0.896	0.899	0.899	0.891	0.030	0.019	0.894	0.891
PCE	0.449	-0.406	0.877	0.849	0.898	0.876	0.899	0.887	0.857	0.026	0.016	0.898	0.899
PCESER	0.463	-0.373	0.866	0.869	0.898	0.870	0.898	0.897	0.846	0.023	0.013	0.899	0.899
EXPORT	0.392	-0.569	0.896	0.891	0.904	0.839	0.899	0.898	0.896	0.030	0.020	0.893	0.898
EXPOSER	0.446	-0.449	0.895	0.882	0.859	0.862	0.879	0.875	0.895	0.051	0.040	0.877	0.895
CONSTR	0.476	-0.372	0.871	0.893	0.869	0.874	0.898	0.882	0.841	0.046	0.035	0.899	0.882
CONSTCO	0.471	-0.386	0.891	0.890	0.839	0.864	0.898	0.887	0.831	0.052	0.041	0.899	0.897
AAA	-0.487	0.015	-0.634	-0.606	-0.701	-0.687	-0.802	-0.800	-0.634	0.010	0.019	-0.803	-0.797
BAA	-0.463	0.046	-0.571	-0.547	-0.634	-0.623	-0.734	-0.733	-0.571	-0.009	0.000	-0.748	-0.732
CD3M	-0.345	-0.587	-0.177	-0.128	-0.274	-0.241	-0.414	-0.413	-0.177	0.025	0.027	-0.367	-0.388
CP3M	-0.352	-0.551	-0.208	-0.161	-0.302	-0.270	-0.435	-0.435	-0.208	0.023	0.025	-0.386	-0.410
FEDFUND	-0.362	-0.590	-0.169	-0.120	-0.268	-0.235	-0.412	-0.411	-0.169	0.016	0.017	-0.367	-0.385
FEDDISC	-0.352	-0.580	-0.159	-0.110	-0.258	-0.225	-0.402	-0.401	-0.159	0.026	0.027	-0.357	-0.375
PRIME	-0.359	-0.598	-0.161	-0.112	-0.261	-0.227	-0.407	-0.405	-0.161	0.015	0.017	-0.362	-0.379
TCM6M	-0.346	-0.531	-0.226	-0.181	-0.317	-0.287	-0.444	-0.444	-0.226	0.032	0.033	-0.394	-0.420
TB6M	-0.346	-0.531	-0.227	-0.181	-0.318	-0.287	-0.444	-0.444	-0.227	0.032	0.033	-0.393	-0.419
TCM1Y	-0.354	-0.481	-0.282	-0.237	-0.370	-0.340	-0.492	-0.492	-0.282	0.035	0.037	-0.440	-0.466
TCM5Y	-0.431	-0.191	-0.539	-0.503	-0.611	-0.590	-0.707	-0.707	-0.539	0.036	0.042	-0.667	-0.688
TCM10Y	-0.442	0.023	-0.682	-0.654	-0.736	-0.721	-0.802	-0.803	-0.682	0.032	0.039	-0.771	-0.789
M1	0.519	0.049	0.601	0.561	0.686	0.662	0.818	0.814	0.601	0.068	0.058	0.842	0.810
M2	0.499	-0.224	0.877	0.848	0.859	0.849	0.890	0.889	0.877	0.025	0.015	0.888	0.883
PERINCO	0.466	-0.389	0.894	0.849	0.890	0.870	0.895	0.895	0.840	0.022	0.012	0.900	0.899
DISPOIN	0.480	-0.331	0.892	0.896	0.870	0.855	0.896	0.895	0.872	0.025	0.014	0.880	0.889
CONSUM	0.477	-0.337	0.892	0.897	0.870	0.848	0.895	0.895	0.852	0.030	0.020	0.890	0.879
WAGDIST	0.449	-0.428	0.896	0.879	0.898	0.898	0.893	0.893	0.859	0.023	0.013	0.899	0.893
RETAIL	0.470	-0.380	0.893	0.889	0.890	0.876	0.893	0.892	0.833	0.036	0.025	0.897	0.893
SENTIM	-0.215	-0.636	0.124	0.169	0.032	0.065	-0.147	-0.147	0.124	-0.066	-0.059	-0.163	-0.119
CCI	-0.216	-0.857	0.326	0.377	0.217	0.254	0.002	0.002	0.326	-0.036	-0.034	0.000	0.039
CEI	-0.170	-0.516	0.174	0.207	0.105	0.130	-0.042	-0.044	0.174	-0.078	-0.072	-0.055	-0.010
PERCDIS	0.477	-0.340	0.900	0.901	0.870	0.865	0.896	0.901	0.872	0.025	0.014	0.897	0.894

APPENDIX A – REMOTE VALUE DRIVERS – CORRELATIONS (CONTINUED)

	CPILEFS	CPIENER	CPISER	PPILEFE	PPINOND	DJCI	NASDAQ	SP500	NYSEC	GDP	PCE	PCESER
IPI												
PPI												
EXHKUS												
EXJPUS												
EXUSUK												
EXUSEU												
BROAD												
MFX												
LABORF												
EMPLO												
EMPPP												
EMPFULL												
EMPPART												
UNEMP												
EMPT												
EMPPRI												
EMPSER												
EMPPRIS												
HRPRI												
HRPRIS												
NOFPAY												
INFLAR												
INFLA												
CPI												
CPILEFE												
CPILEFS	1.000											
CPIENER	**0.915**	1.000										
CPISER	**0.992**	**0.927**	1.000									
PPILEFE	**0.990**	**0.919**	**0.987**	1.000								
PPINOND	**0.983**	**0.964**	**0.965**	**0.964**	1.000							
DJCI	0.841	0.621	0.842	0.880	0.772	1.000						
NASDAQ	0.522	0.351	0.502	0.570	0.466	0.817	1.000					
SP500	0.831	0.630	0.827	0.871	0.769	**0.990**	0.860	1.000				
NYSEC	0.821	0.777	0.812	0.942	0.885	**0.968**	0.746	**0.967**	1.000			
GDP	0.891	0.883	0.892	0.888	0.898	0.876	0.577	0.868	0.896	1.000		
PCE	0.906	0.796	0.909	0.898	0.852	0.901	0.607	0.890	0.869	0.879	1.000	
PCESER	0.898	0.841	0.903	0.899	0.894	0.886	0.575	0.877	0.893	0.890	0.899	1.000
EXPORT	0.941	0.882	0.871	0.854	0.894	0.856	0.629	0.853	0.859	0.893	0.890	0.820
EXPOSER	0.873	0.910	0.859	0.903	0.897	0.852	0.578	0.844	0.849	0.880	0.863	0.849
CONSTR	0.891	0.904	0.889	0.885	0.898	0.856	0.558	0.851	0.874	0.895	0.870	0.884
CONSTCO	0.887	0.906	0.883	0.881	0.898	0.856	0.567	0.852	0.854	0.893	0.863	0.878
AAA	-0.786	-0.719	-0.820	-0.766	-0.784	-0.583	-0.202	-0.553	-0.685	-0.797	-0.765	-0.786
BAA	-0.739	-0.713	-0.761	-0.711	-0.758	-0.536	-0.192	-0.508	-0.652	-0.749	-0.697	-0.721
CD3M	-0.318	-0.215	-0.406	-0.301	-0.284	-0.120	0.220	-0.080	-0.123	-0.318	-0.379	-0.390
CP3M	-0.335	-0.219	-0.425	-0.320	-0.296	-0.156	0.185	-0.116	-0.154	-0.341	-0.405	-0.412
FEDFUND	-0.317	-0.224	-0.405	-0.298	-0.288	-0.116	0.207	-0.079	-0.123	-0.323	-0.381	-0.389
FEDDISC	-0.307	-0.214	-0.395	-0.288	-0.278	-0.106	0.217	-0.069	-0.113	-0.313	-0.371	-0.379
PRIME	-0.312	-0.223	-0.401	-0.292	-0.285	-0.108	0.214	-0.071	-0.117	-0.318	-0.374	-0.383
TCM6M	-0.342	-0.214	-0.432	-0.331	-0.299	-0.175	0.174	-0.133	-0.167	-0.347	-0.414	-0.421
TB6M	-0.341	-0.212	-0.431	-0.331	-0.297	-0.175	0.172	-0.133	-0.166	-0.346	-0.414	-0.421
TCM1Y	-0.390	-0.255	-0.477	-0.381	-0.345	-0.229	0.125	-0.191	-0.224	-0.394	-0.460	-0.469
TCM5Y	-0.628	-0.476	-0.695	-0.624	-0.581	-0.476	-0.091	-0.447	-0.501	-0.635	-0.675	-0.689
TCM10Y	-0.740	-0.578	-0.790	-0.743	-0.692	-0.627	-0.257	-0.606	-0.662	-0.751	-0.779	-0.790
M1	0.842	0.878	0.853	0.801	0.879	0.497	0.174	0.490	0.645	0.831	0.775	0.806
M2	0.902	0.878	0.893	0.909	0.896	0.804	0.462	0.794	0.881	0.880	0.867	0.898
PERINCO	0.899	0.872	0.899	0.899	0.896	0.880	0.573	0.873	0.889	0.897	0.898	0.901
DISPOIN	0.901	0.881	0.900	0.899	0.897	0.852	0.530	0.843	0.892	0.895	0.881	0.899
CONSUM	0.903	0.887	0.898	0.890	0.900	0.853	0.534	0.844	0.872	0.896	0.898	0.899
WAGDIST	0.898	0.843	0.887	0.899	0.895	0.906	0.615	0.901	0.885	0.892	0.890	0.900
RETAIL	0.899	0.882	0.895	0.899	0.897	0.870	0.566	0.862	0.854	0.897	0.899	0.889
SENTIM	-0.176	-0.361	-0.174	-0.120	-0.242	0.264	0.511	0.258	0.126	-0.101	-0.056	-0.115
CCI	0.003	-0.192	-0.025	0.069	-0.072	0.434	0.626	0.433	0.308	0.054	0.093	0.039
CEI	-0.074	-0.267	-0.060	-0.023	-0.147	0.290	0.456	0.267	0.167	-0.005	0.039	-0.015
PERCDIS	0.901	0.877	0.900	0.899	0.896	0.858	0.538	0.849	0.893	0.895	0.898	0.900

APPENDIX A – REMOTE VALUE DRIVERS – CORRELATIONS (CONTINUED)

	EXPORT	EXPOSER	CONSTR	CONSTCO	AAA	BAA	CD3M	CP3M	FEDFUND	FEDDISC	PRIME	TCM6M	TB6M	TCM1Y
IPI														
PPI														
EXHKUS														
EXJPUS														
EXUSUK														
EXUSEU														
BROAD														
MFX														
LABORF														
EMPLO														
EMPPP														
EMPFULL														
EMPPART														
UNEMP														
EMPT														
EMPPRI														
EMPSER														
EMPPRIS														
HRPRI														
HRPRIS														
NOFPAY														
INFLAR														
INFLA														
CPI														
CPILEFE														
CPILEFS														
CPIENER														
CPISER														
PPILEFE														
PPINOND														
DJCI														
NASDAQ														
SP500														
NYSEC														
GDP														
PCE														
PCESER														
EXPORT	1.000													
EXPOSER	0.898	1.000												
CONSTR	0.894	0.898	1.000											
CONSTCO	0.900	0.898	0.900	1.000										
AAA	-0.680	-0.772	-0.796	-0.792	1.000									
BAA	-0.675	-0.752	-0.754	-0.757	**0.976**	1.000								
CD3M	-0.021	-0.187	-0.324	-0.301	0.560	0.459	1.000							
CP3M	-0.043	-0.208	-0.344	-0.322	0.577	0.475	0.896	1.000						
FEDFUND	-0.023	-0.194	-0.331	-0.310	0.553	0.454	0.893	0.893	1.000					
FEDDISC	-0.013	-0.184	-0.321	-0.300	0.563	0.464	0.893	0.893	**0.990**	1.000				
PRIME	-0.018	-0.191	-0.326	-0.306	0.552	0.455	0.893	0.892	**1.000**	**0.991**	1.000			
TCM6M	-0.052	-0.212	-0.347	-0.324	0.590	0.485	0.894	0.896	**0.983**	**0.974**	**0.981**	1.000		
TB6M	-0.051	-0.211	-0.346	-0.323	0.588	0.483	0.894	0.896	**0.983**	**0.974**	**0.981**	**1.000**	1.000	
TCM1Y	-0.108	-0.261	-0.391	-0.368	0.636	0.531	0.879	0.883	**0.962**	**0.953**	**0.960**	**0.994**	**0.994**	1.000
TCM5Y	-0.410	-0.531	-0.624	-0.605	0.850	0.763	0.827	0.841	0.801	0.792	0.797	0.866	0.865	0.910
TCM10Y	-0.576	-0.671	-0.738	-0.725	0.910	0.837	0.678	0.698	0.651	0.642	0.646	0.727	0.726	0.786
M1	0.729	0.818	0.852	0.851	-0.803	-0.784	-0.487	-0.489	-0.509	-0.518	-0.509	-0.471	-0.470	-0.486
M2	0.872	0.894	0.898	0.897	-0.837	-0.773	-0.484	-0.501	-0.487	-0.496	-0.482	-0.505	-0.505	-0.547
PERINCO	0.830	0.907	0.899	0.899	-0.787	-0.731	-0.344	-0.365	-0.344	-0.353	-0.338	-0.373	-0.373	-0.422
DISPOIN	0.817	0.896	0.899	0.899	-0.810	-0.753	-0.389	-0.409	-0.391	-0.400	-0.386	-0.415	-0.414	-0.460
CONSUM	0.821	0.897	0.899	0.899	-0.806	-0.750	-0.380	-0.399	-0.382	-0.391	-0.377	-0.405	-0.405	-0.451
WAGDIST	0.825	0.858	0.899	0.898	-0.766	-0.707	-0.331	-0.354	-0.330	-0.339	-0.324	-0.365	-0.364	-0.415
RETAIL	0.833	0.871	0.899	0.891	-0.788	-0.735	-0.340	-0.361	-0.343	-0.352	-0.338	-0.367	-0.367	-0.414
SENTIM	0.028	-0.061	-0.132	-0.115	0.284	0.228	0.505	0.475	0.489	0.480	0.490	0.474	0.472	0.476
CCI	0.222	0.105	0.024	0.041	0.246	0.204	0.629	0.595	0.625	0.616	0.629	0.585	0.585	0.568
CEI	0.079	0.020	-0.035	-0.022	0.196	0.173	0.348	0.321	0.323	0.314	0.324	0.332	0.330	0.349
PERCDIS	0.892	0.896	0.899	0.899	-0.805	-0.748	-0.385	-0.405	-0.386	-0.395	-0.381	-0.411	-0.410	-0.457

APPENDIX A – REMOTE VALUE DRIVERS – CORRELATIONS (CONTINUED)

	TCM5Y	TCM10Y	M1	M2	PERINCO	DISPOIN	CONSUM	WAGDIST	RETAIL	SENTIM	CCI	CEI	PERCDIS
IPI													
PPI													
EXHKUS													
EXJPUS													
EXUSUK													
EXUSEU													
BROAD													
MFX													
LABORF													
EMPLO													
EMPPP													
EMPFULL													
EMPPART													
UNEMP													
EMPT													
EMPPRI													
EMPSER													
EMPPRIS													
HRPRI													
HRPRIS													
NOFPAY													
INFLAR													
INFLA													
CPI													
CPILEFE													
CPILEFS													
CPIENER													
CPISER													
PPILEFE													
PPINOND													
DJCI													
NASDAQ													
SP500													
NYSEC													
GDP													
PCE													
PCESER													
EXPORT													
EXPOSER													
CONSTR													
CONSTCO													
AAA													
BAA													
CD3M													
CP3M													
FEDFUND													
FEDDISC													
PRIME													
TCM6M													
TB6M													
TCM1Y													
TCM5Y	1.000												
TCM10Y	0.898	1.000											
M1	-0.619	-0.655	1.000										
M2	-0.738	-0.814	0.880	1.000									
PERINCO	-0.655	-0.767	0.818	**0.984**	1.000								
DISPOIN	-0.681	-0.780	0.850	**0.993**	**0.997**	1.000							
CONSUM	-0.674	-0.776	0.849	**0.992**	**0.998**	**0.999**	1.000						
WAGDIST	-0.650	-0.766	0.783	**0.974**	**0.997**	**0.991**	**0.992**	1.000					
RETAIL	-0.645	-0.755	0.835	**0.984**	**0.998**	**0.997**	**0.998**	**0.994**	1.000				
SENTIM	0.403	0.299	-0.421	-0.240	-0.120	-0.159	-0.163	-0.077	-0.128	1.000			
CCI	0.405	0.241	-0.363	-0.115	0.044	-0.010	-0.010	0.090	0.033	**0.933**	1.000		
CEI	0.324	0.243	-0.272	-0.118	-0.023	-0.048	-0.056	0.011	-0.028	**0.936**	**0.931**	1.000	
PERCDIS	-0.678	-0.779	0.844	**0.991**	**0.998**	**1.000**	**0.999**	**0.992**	**0.997**	-0.149	0.001	-0.040	1.000

APPENDIX B – TASK VALUE DRIVERS - CORRELATIONS

	CPIFAH	CPIMPFE	CPITOM	CPIFVEG	CPICHEES	CPIFISH	AHELH	AWKLH	AHEPFSD	AGGWKHL
CPIFAH	1.000									
CPIMPFE	**0.977**	1.000								
CPITOM	0.853	0.835	1.000							
CPIFVEG	**0.969**	**0.945**	0.901	1.000						
CPICHEES	**0.971**	**0.943**	0.818	**0.926**	1.000					
CPIFISH	**0.952**	**0.904**	0.827	**0.929**	**0.930**	1.000				
AHELH	0.856	0.769	0.710	0.822	0.887	0.834	1.000			
AWKLH	-0.530	-0.582	-0.411	-0.509	-0.470	-0.385	-0.343	1.000		
AHEPFSD	**0.961**	**0.936**	0.795	**0.933**	**0.932**	**0.949**	0.805	-0.470	1.000	
AGGWKHL	**0.961**	**0.913**	0.830	**0.932**	**0.953**	**0.988**	0.865	-0.343	**0.952**	1.000
AGWPAYLH	**0.963**	**0.924**	0.790	**0.928**	**0.945**	**0.947**	0.860	-0.443	**0.989**	**0.957**
AHERH	**0.977**	**0.937**	0.839	**0.947**	**0.963**	**0.988**	0.865	-0.432	**0.963**	**0.995**
ALLEMPL	**0.993**	**0.968**	0.852	**0.965**	**0.965**	**0.975**	0.840	-0.493	**0.969**	**0.980**
IPDAIRY	0.820	0.832	0.687	0.824	0.720	0.699	0.557	-0.634	0.767	0.689
IPSFTDR	0.769	0.765	0.705	0.746	0.705	0.823	0.453	-0.276	0.784	0.790
IPCHEESE	0.919	0.888	0.807	0.908	0.862	0.877	0.729	-0.427	0.889	0.879
IPBUTTER	0.531	0.478	0.405	0.505	0.463	0.418	0.443	-0.462	0.471	0.428
IPBEEF	0.503	0.350	0.438	0.492	0.488	0.629	0.656	-0.086	0.521	0.615
IPPORK	0.903	0.866	0.793	0.895	0.878	0.862	0.825	-0.427	0.851	0.859
IPMEATS	-0.957	-0.910	-0.809	-0.925	-0.960	-0.913	-0.918	0.457	-0.908	-0.928
IPOULTRY	0.984	0.960	0.838	0.959	0.942	0.917	0.813	-0.536	0.937	0.924
PPCHEESE	0.637	0.669	0.598	0.611	0.708	0.594	0.538	-0.274	0.629	0.629
PPMILK	0.236	0.299	0.294	0.226	0.333	0.237	0.156	-0.037	0.239	0.268
PPPLTRY	0.460	0.576	0.425	0.428	0.480	0.406	0.222	-0.256	0.453	0.426
PPORK	0.608	0.717	0.524	0.554	0.594	0.535	0.315	-0.541	0.594	0.551
PPMEAT	0.839	0.914	0.707	0.797	0.810	0.719	0.594	-0.637	0.789	0.732
PPDAIRY	0.848	0.852	0.755	0.810	0.900	0.824	0.748	-0.370	0.830	0.852
PPBEEF	0.834	0.891	0.699	0.803	0.805	0.700	0.639	-0.620	0.769	0.711
CONSDIN	0.472	0.495	0.464	0.515	0.451	0.514	0.338	-0.235	0.449	0.488

APPENDIX B – TASK VALUE DRIVERS – CORRELATIONS (CONTINUED)

	CPIFAH	CPIMPFE	CPITOM	CPIFVEG	CPICHEES	CPIFISH	AHELH	AWKLH	AHEPFSD	AGGWKHL	AGWPAYLH	AHERH	ALLEMPL	IPDAIRY
CPIFAH	1.000													
CPIMPFE	**0.977**	1.000												
CPITOM	0.853	0.835	1.000											
CPIFVEG	**0.969**	**0.945**	0.901	1.000										
CPICHEES	**0.971**	**0.943**	0.818	**0.926**	1.000									
CPIFISH	**0.952**	**0.904**	0.827	**0.929**	**0.930**	1.000								
AHELH	0.856	0.769	0.710	0.822	0.887	0.834	1.000							
AWKLH	-0.530	-0.582	-0.411	-0.509	-0.470	-0.385	-0.343	1.000						
AHEPFSD	**0.961**	**0.936**	0.795	**0.933**	**0.932**	**0.949**	0.805	-0.470	1.000					
AGGWKHL	**0.961**	**0.913**	0.830	**0.932**	**0.953**	**0.988**	0.865	-0.343	**0.952**	1.000				
AGWPAYLH	**0.963**	**0.924**	0.790	**0.928**	**0.945**	**0.947**	0.860	-0.443	**0.989**	**0.957**	1.000			
AHERH	**0.977**	**0.937**	0.839	**0.947**	**0.963**	**0.988**	0.865	-0.432	**0.963**	**0.995**	**0.964**	1.000		
ALLEMPL	**0.993**	**0.968**	0.852	**0.965**	**0.965**	**0.975**	0.840	-0.493	**0.969**	**0.980**	**0.964**	**0.992**	1.000	
IPDAIRY	0.820	0.832	0.687	0.824	0.720	0.699	0.557	-0.634	0.767	0.689	0.744	0.728	0.790	1.000
IPSFTDR	0.769	0.765	0.705	0.746	0.705	0.823	0.453	-0.276	0.784	0.790	0.739	0.789	0.799	0.623
IPCHEESE	0.892	0.888	0.807	0.908	0.862	0.877	0.729	-0.427	0.889	0.879	0.874	0.888	0.891	0.837
IPBUTTER	0.531	0.478	0.405	0.505	0.463	0.418	0.443	-0.462	0.471	0.428	0.474	0.459	0.498	0.671
IPBEEF	0.503	0.350	0.438	0.492	0.488	0.629	0.656	-0.086	0.521	0.615	0.558	0.598	0.531	0.282
IPPORK	0.903	0.866	0.793	0.895	0.878	0.862	0.825	-0.427	0.851	0.859	0.871	0.870	0.882	0.727
IPMEATS	-0.907	-0.891	-0.809	-0.893	-0.910	-0.891	-0.892	0.457	-0.908	-0.893	-0.893	-0.894	-0.894	-0.724
IPOULTRY	0.898	0.896	0.838	0.896	0.902	0.892	0.813	-0.536	0.894	0.892	0.893	0.894	0.897	0.877
PPCHEESE	0.637	0.669	0.598	0.611	0.708	0.594	0.538	-0.274	0.629	0.629	0.619	0.633	0.643	0.344
PPMILK	0.236	0.299	0.294	0.226	0.333	0.237	0.156	-0.037	0.239	0.268	0.218	0.262	0.256	-0.051
PPPLTRY	0.460	0.576	0.425	0.428	0.480	0.406	0.222	-0.256	0.453	0.426	0.410	0.436	0.474	0.299
PPORK	0.608	0.717	0.524	0.554	0.594	0.535	0.315	-0.541	0.594	0.551	0.553	0.585	0.615	0.536
PPMEAT	0.839	0.914	0.707	0.797	0.810	0.719	0.594	-0.637	0.789	0.732	0.773	0.769	0.816	0.757
PPDAIRY	0.848	0.852	0.755	0.810	0.900	0.824	0.748	-0.370	0.830	0.852	0.830	0.856	0.854	0.528
PPBEEF	0.834	0.891	0.699	0.803	0.805	0.700	0.639	-0.620	0.769	0.711	0.767	0.747	0.798	0.761
CONSDIN	0.472	0.495	0.464	0.515	0.451	0.514	0.338	-0.235	0.449	0.488	0.420	0.492	0.502	0.365

APPENDIX B – TASK VALUE DRIVERS – CORRELATIONS (CONTINUED)

	IPSFTDR	IPCHEESE	IPBUTTER	IPBEEF	IPPORK	IPMEATS	IPOULTRY	PPCHEESE	PPMILK	PPPLTRY	PPORK	PPMEAT	PPDAIRY	PPBEEF	CONSDIN
CPIFAH															
CPIMPFE															
CPITOM															
CPIFVEG															
CPICHEES															
CPIFISH															
AHELH															
AWKLH															
AHEPFSD															
AGGWKHL															
AGWPAYLH															
AHERH															
ALLEMPL															
IPDAIRY															
IPSFTDR	1.000														
IPCHEESE	0.787	1.000													
IPBUTTER	0.272	0.576	1.000												
IPBEEF	0.379	0.476	0.295	1.000											
IPPORK	0.695	0.834	0.365	0.475	1.000										
IPMEATS	-0.653	-0.838	-0.463	-0.542	-0.892	1.000									
IPOULTRY	0.755	0.894	0.614	0.472	0.886	-0.893	1.000								
PPCHEESE	0.512	0.582	0.061	0.134	0.606	-0.640	0.588	1.000							
PPMILK	0.301	0.195	-0.277	-0.120	0.256	-0.245	0.169	0.849	1.000						
PPPLTRY	0.490	0.429	-0.076	-0.170	0.378	-0.402	0.417	0.743	0.705	1.000					
PPORK	0.529	0.500	0.241	0.028	0.357	-0.461	0.579	0.480	0.301	0.596	1.000				
PPMEAT	0.622	0.708	0.387	0.121	0.729	-0.752	0.822	0.604	0.288	0.572	0.833	1.000			
PPDAIRY	0.687	0.752	0.235	0.345	0.785	-0.837	0.794	0.892	0.695	0.681	0.580	0.740	1.000		
PPBEEF	0.571	0.701	0.395	0.122	0.800	-0.784	0.823	0.590	0.254	0.501	0.673	0.897	0.720	1.000	
CONSDIN	0.480	0.487	0.100	0.168	0.483	-0.450	0.461	0.446	0.348	0.503	0.315	0.388	0.495	0.369	1.000

APPENDIX C – KMO AND BARLETT'S TESTS

EFA: Remote environment

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.807
Bartlett's Test of Sphericity	Approx. Chi-Square	8497.783
	df	171
	Sig.	.000

EFA: Task environment

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.791
Bartlett's Test of Sphericity	Approx. Chi-Square	3599.849
	df	105
	Sig.	.000

APPENDIX D – EFA REMOTE ENVIRONMENT; VARIANCE EXTRACTED

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.708	45.833	45.833	8.708	45.833	45.833	7.215	37.976	37.976
2	5.273	27.752	73.586	5.273	27.752	73.586	6.741	35.478	73.454
3	1.786	9.399	82.985	1.786	9.399	82.985	1.811	9.531	82.985
4	.980	5.156	88.141						
5	.939	4.940	93.081						
6	.387	2.039	95.120						
7	.347	1.826	96.946						
8	.315	1.656	98.602						
9	.108	.567	99.169						
10	.078	.411	99.579						
11	.033	.173	99.753						
12	.020	.105	99.858						
13	.012	.065	99.922						
14	.005	.027	99.949						
15	.004	.021	99.970						
16	.003	.014	99.984						
17	.002	.009	99.993						
18	.001	.004	99.997						
19	.001	.003	100.000						

Extraction Method: Principal Component Analysis.

APPENDIX E – EFA TASK ENVIRONMENT; VARIANCE EXTRACTED

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.850	59.252	59.252	11.850	59.252	59.252	6.482	32.409	32.409
2	2.674	13.371	72.623	2.674	13.371	72.623	5.289	26.447	58.855
3	1.681	8.403	81.027	1.681	8.403	81.027	4.434	22.172	81.027
4	.836	4.180	85.206						
5	.622	3.112	88.318						
6	.565	2.826	91.144						
7	.521	2.605	93.749						
8	.364	1.821	95.570						
9	.248	1.240	96.810						
10	.204	1.020	97.830						
11	.140	.702	98.532						
12	.103	.514	99.047						
13	.067	.337	99.383						
14	.046	.229	99.612						
15	.031	.155	99.768						
16	.022	.110	99.878						
17	.012	.060	99.939						
18	.007	.037	99.975						
19	.004	.021	99.996						
20	.001	.004	100.000						

Extraction Method: Principal Component Analysis.