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JANELL D. TOWNSEND

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SOURCES AND CONSEQUENCES OF BRAND EQUITY IN THE AUTOMOTIVE INDUSTRY

By:

Janell D. Townsend

A DISSERTATION

Submitted to:

Michigan State University
in partial fulfillment of the requirements
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Department of Marketing and Supply Chain Management

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ABSTRACT

SOURCES AND CONSEQUENCES OF BRAND EQUITY IN THE AUTOMOTIVE INDUSTRY

By

Janell D. Townsend

One of the primary means to achieving a differentiated position in the marketplace is through the strategic and tactical actions which create a strong brand in the minds of consumers. While the differential value of a brand has been grounded in consumer perceptions and related to financial outcomes, what remains to be clarified is the progression of firm level structures, processes, and actions which contribute to the creation of these perceptions, as well as the effect of changes in the measurable dimensions on alternative value propositions. In order to contribute to the understanding of brand equity, this thesis is structured as three essays as a means to address both broad theoretical concepts related to the domain of branding within the organization, along with the consideration of some particular antecedents and consequences of brand equity dynamics.

The first essay addresses the challenges faced by managers in a global organization and the processes used to link the organization's brands with the customer. The nature of global environmental drivers, value creating internal corporate relationships and their effect on brand management and global brand portfolio hierarchies are considered. While previous studies have examined various interactions which are contained within this framework, none has looked at the phenomenon holistically. Cultural Materialism, a research strategy used by anthropologists to understand structural

changes that occur within societies in response to environmental forces, is employed as an orienting strategy to conduct a qualitative study within the context of the world's largest automotive manufacturer. The second and third essays explore the relationships between specific driver and outcome variables associated with brand equity dynamics. The second essay examines the longitudinal relationship between brand equity dimensions and value retention. In order to consider the relationship between the knowledge a consumer has about a product or service, and the assignment of a probability of the actual quality of the product or service based on this knowledge, a framework based on information asymmetry is employed. A random effects model with auto-regressive error terms is utilized to test the research hypotheses developed. The findings indicate a strong moderation effect by the region of origin, with Asian firms in particular having significant and positive impact of brand equity on the value retention rate of automobiles in the U.S. market.

The third essay provides means to understand the effect of firm level strategic actions on consumer-based dimensions of brand equity, conceptualized as awareness, intended loyalty, perceived quality, perceived economy, and image. A seemingly unrelated regression model is used to test the conceptual model. The results indicate a positive effect of advertising, as measured by annual expenditures, on all the dimensions of brand equity, except luxury image. Innovativeness, as defined by new product introductions, positively affects all the dimensions except perceived value. The contextual factors of region of origin and global brand reach have mixed effects on the consumer-based dimensions of brand equity.

This dissertation is dedicated to my Mother,

Pamela J. Steffens

ACKNOWLEDGEMENTS

First and foremost, I must thank my family for their patience, understanding and sacrifice which allowed me to pursue my goals, and finish this dissertation and my Ph.D. My husband, Rick, for his support, the opportunities he forewent, and commuting to East Lansing for two years; my beautiful children, Laina and Troy, for their fortitude while Mommy was working, and their reinvigorating smiles, laughter, and hugs when I was home; my mother, Pamela, for guidance, a lifetime of lessons, and instilling an eternal quest for knowledge. Also, I would like to acknowledge the aid and lifelong encouragement of my grandparents, Alger and Helen Steffens, along with the rest of my extended family, especially, Ann and Al, Thom, Lesa and Rick, Lori and Dave, and Sara, Abbey, & Anthony. To all of you my sincere appreciation, most of all, for your love.

This ambitious expedition began with the help and encouragement of two very special Professors: Ravi Parameswaran of Oakland University and Attila Yaprak of Wayne State University. I must thank these two fine academics for putting me on the path which I now travel.

I must also express my sincere gratitude to my Committee for their individual, and collective, expertise and advice along the journey of completing my Ph.D. The knowledge they have conveyed, and the advice offered, has given me a strong foundation for a productive academic career. Professor S. Tamer Cavusgil for his superior mentoring and teaching me the foundations of publishing; Professor Roger J. Calantone for helping me to recognize my unique abilities and contribution to academic research; Dean Marietta Baba for opening my eyes to different perspectives of knowledge generation; Professor G. Tomas M. Hult for providing an example of what it takes to be a successful academic. It is without hesitation that I can go forth into the world with my new degree, confident in the knowledge I gained from these accomplished individuals.

The process of completing a Ph.D. is intense by comparison to many other endeavors in life. Those people who comprehend the general experience have also completed a similar program; perhaps those people who understand my personal adventure best are the members of my cohort. Shen Yeniyurt, my accomplice, my co-author, my friend, who's patience and persistence enabled me to learn things I thought beyond my scope; Chun Zhang, my officemate and "honey", expert on all things "relational"; Kwong Chan, an intellectual navigator, builder of black ties, and all around best fish guy; Linda Shihui, who always brought a fresh perspective and a smile. Regardless of where life takes us, the bonds we built, will last a lifetime.

In addition, I received significant support from the automotive business community which allowed me to conduct this research study. In particular, Don Deveaux and Bob Quigley from GfK Automotive, LLC were extremely generous in providing data and practical feedback on my dissertation studies. Also, I am grateful to Katy Barclay and Mark Johnson for facilitating my introduction to General Motors, and to the other executives from General Motors (who must remain nameless in this document to ensure confidentiality) who gave me their valuable time and their insights.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

INTRODUCTION

Throughout collective human history, there are examples of producers and sellers of goods and services using brands as a means to differentiate their offerings, or convey meaningful information to their customers. Yet, the concept of branding only began to advance in the eighteenth century as producers of commercial goods used names and pictures to strengthen consumer associations with their products (Farquhar 1990). Contemporaneously, a brand typically consists of a name, identifying mark, logo, visual images or symbols, or mental concepts which distinguish the product or service from competitive offerings (Kotler and Armstrong 2004). Essentially, a brand represents the holistic sum of all information about a product or group of products. As a binding force in a complex chain exchange in marketing (Bagozzi 1975), a brand can be conceptualized as the factor which aligns expectations and actions of stakeholders - from suppliers and producers, to distribution channels, to the consumers – it represents everything that makes up the total experience a customer has with a company. The implication is that there is inherent value to a brand which can be influenced by organizational efforts. Management of these efforts is most notably undertaken by processes related to marketing.

Marketing is a complex function which involves strategy, which translates the marketing concept into actions that create competitive advantage; tactics, or the act of demand stimulation and selling; and culture, which provides the internal means for implementing the marketing concept (Webster 2002). The underlying belief being that marketing-related activities produce measurable intermediate outcomes for the enterprise. Typically, these outcomes or performance metrics revolve around customers, branding, channels, and innovation (Cavusgil 2002). While there is an emergence of the recognition of the need to understand the value of marketing's impact on the firm's performance (Srivastava et al. 1998), there is a distinct gap in the literature which incorporates intermediate outcomes associated with marketing activities and how they influence more traditional financial performance indicators such as sales, market share, profits and stock returns. Further, there has been relatively little work that has considered the effects of these intermediate outcomes on the enduring value held by the marketplace for a firm's products and brands.

Modern technological advances have created an infrastructure which allows for the interaction between individuals and organizations, nations and regions in such a way that transcending traditional boundaries of time and space are now the norm, rather than the exception. Since boundaries are more permeable, the result is an openness to markets which has increased the speed, frequency and magnitude of access to national markets, including all tangible and intangible aspects of commerce, by a new and more diverse set of competitors (Wolf 2000). Corporations are evolving in response to these environmental and competitive pressures. In effect, as suggested by Kogut (1985) the primary impetus driving the globalization of the firm is the comparative and competitive advantages that are gained by integrating the various value-added activities performed throughout the organization.

The actual key to success for companies in this era of consolidation and integration comes from the ability to accommodate the forces that create common desires; the true challenge for marketing managers is to implement the marketing concept through the processes which link the organization with the customer. One of the primary means to achieving a differentiated position in the marketplace is through the strategic and tactical actions which create a strong brand in the minds of consumers of a firm's products, allowing the company to lower risks and enhance future profits (Srivastava and Schocker 1991). The value creation activities related to building and maintaining manufacturing, marketing, distribution and services which present the face of the organization to their constituent groups is becoming more harmonized (Townsend et al. 2004).

Evidence of the importance of the value creation and measurement phenomenon is the interest of both academics and practitioners alike. Marketing Science Institute (MSI), a collaborative organization between academia and practice, has designated the role of branding and brand equity as sustainable means of differentiation, along with ways to evaluate new product design and introductions, and the changing role of marketing in a global environment among their research priorities. MSI's selection criteria include the importance and relevance of a topic to its member organization as well as its ability to be researched effectively, with potential to have an impact on the field of marketing. The business press has also highlighted numerous examples of how global firms are attempting to focus their value creation activities such as new product development and advertising on the building and maintenance of strong brands. Thus, identifying and defining the role of marketing in the evolution of the firm, along with the relative contribution of various marketing activities which contribute to brand equity and the long term outcomes associated with marketing activities are of fundamental value.

Understanding the nature of branding in a globally competitive market is a complex phenomenon requiring consideration of both the expansive context and the specific components of the issues. Broad theoretical frameworks tend to be comprehensive and require conceptualization that may not be testable through statistical means, and may require a research strategy which allows for the identification and understanding of phenomena from a more holistic perspective (Porter 1991). Ethnographic approaches allow for the identification and development of these theoretical foundations (Strauss and Corbin 1998). On the other hand statistical techniques provide opportunity to test specific relationships between factors and the impact of individual variables within this broader context (Porter 1991). Bringing together the broad and the focused is a challenging task; yet, one that has inherently enables the expansion of knowledge. In order to achieve the objective of understanding the nature of strategic branding and the implications of global competition, this thesis will take the form of three essays meant to uncover various aspects of the brand equity phenomenon utilizing different methodological approaches.

As a means of contributing to the advancement of knowledge, this thesis will address broad theoretical concepts related to the domain of the organization and the development of a culture which supports brand objectives, as well as some particular sources and consequences of brand equity. Specifically, the research questions to be addressed and the methodology to be applied include:

1. Identify and define the nature of environmental drivers, value creating internal corporate relationships and their effect on organizational culture; relate these activities to brand management objectives and offerings in a globally competitive market.

   Method: Ethnographic

2. Explore changes to the after sale value preservation of goods due to the effects of the dimensional values of brand equity, moderated by the region of brand origin.

   Method: Random Effects Model

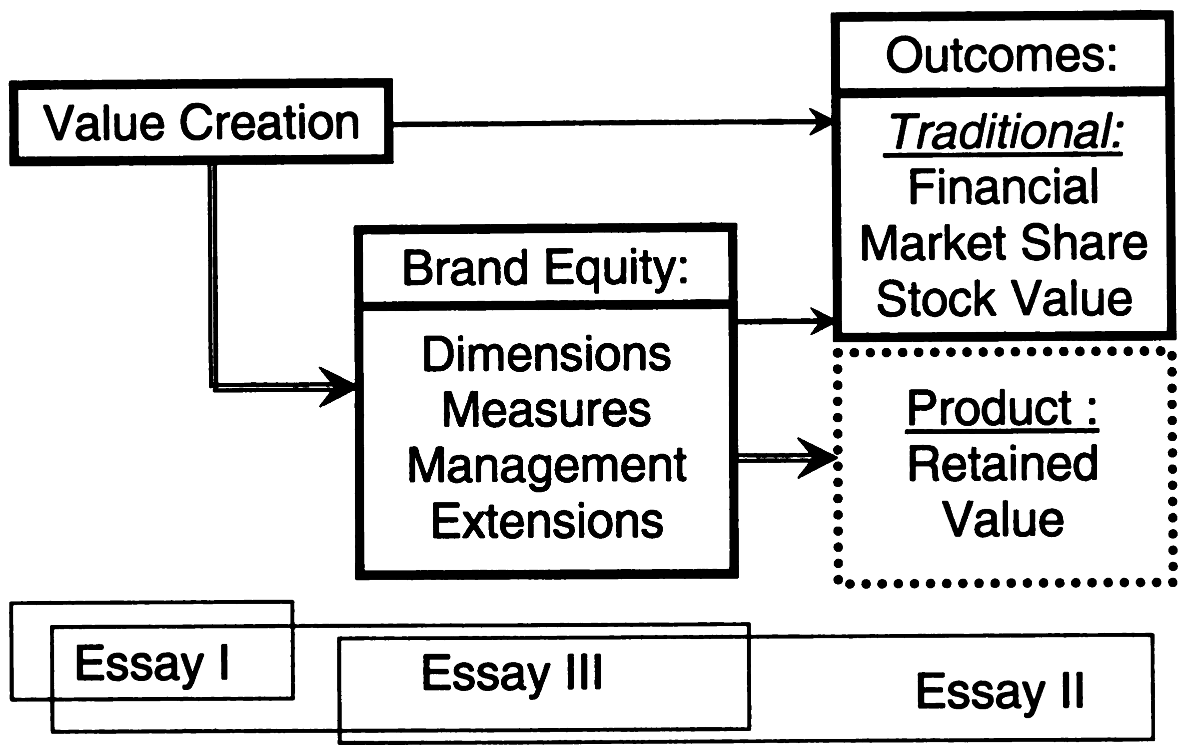
3. Consider longitudinal effect of marketing related antecedents of the dimensions of brand equity in a globally competitive market.

   Method: Seemingly Unrelated Regression Estimation

These essays interact through the progression from the theoretical to the detailed application of concepts to the practical level of understanding, as detailed in Figure 1. The first essay will invoke a research strategy founded on the principles of ethnographic research, enabling the delineation of propositions in the design stages of the process (Harris 2001). This approach allows for an explanation of how the environment, firm structure and cultural orientation interact to create brand portfolios in the context of a global firm. Theoretical underpinnings at each level of the framework provide a foundation, and aid in analysis of the findings.

The enduring value created for the firm by the various dimensions of brand equity has been a topic of interest for some time; yet, studies have not considered the longitudinal effects of the brand equity dimensions on the degree of value retention of consumer durable goods. The second essay will examine these dimensions and how their values impact the value retention rate of automobiles in the U.S. domestic market. The third essay will explore firm level capabilities and attributes on the dimensions of brand equity. Although research has considered the effects of marketing mix variables on specific dimensions of brand equity (Nowlis and Simonson 1996; Sullivan 1998; Yoo et al. 2000a), none has addressed the impact marketing related activities on a holistic conceptualization of the consumer based measures, longitudinally and simultaneously. Thus, the third essay will provide means to understand the nature of dynamic firm level strategic actions on the consumer-based dimensions of brand equity.

Figure 1.1: Contribution and Essay Interaction



Empirical evidence from the U.S. automotive market will be employed to address the research questions. This market offers an interesting context to study the branding and brand equity phenomena, as it is one of the most competitive in the world, with most of the major players participating. Over the last 20 years, increasing competition from foreign manufacturers has continuingly eroded the domestic companies' market share, with new entrants like Korean companies poised to make further inroads. While there has been considerable consolidation at a macro level of both OEM's and Tier 1's, there continues to be a proliferation of new brands and models (Stein 2004). Even with the reality of continuous quality improvements, the domestic makers still have trouble improving brand image and related brand value. Concurrently, shorter product development cycle times and platform approaches have allowed for the announcement of a myriad of new product initiatives requiring an ever greater focus on the marketing of the brand (Stein 2004). Volkswagen currently enjoys a price premium of 6-8% over its competitors and has spent billions to develop new models which it hopes will further boost its brand image (Mackintosh 2004). GM has turned around Cadillac with a variety of exciting new models that coalesce the brand's image; executives are concerned with the need to safeguard brand identity and differentiation in an increasingly competitive market (Economist 2004). What this research will address is how this process of new product development interacts with marketing in such a way as to support brand positioning and image objectives, the intermediate value of these activities as they impact the dimensions of brand equity, along with the impact on value preservation of the brand's products.

Contribution and Managerial Implications

Although inter-related, each essay in this dissertation is distinct and makes a unique contribution to knowledge about the generation and implications of brand equity in a global marketplace. The first essay contributes by the inductive development of knowledge with respect to the association between marketing and other functions in the new product development process as related to the brands offered by the organization. This study employs ethnographic research methods to describe and explain the environmental influences on a manufacturing firm operating in a globally competitive marketplace, and the structural changes which ensue.

The second and third essays begin to coalesce consumer-based measures of brand equity to serve as an intermediate measure of marketing related value creation activities. This is of inherent value to marketing managers as they gauge the effects of their work, and convey this to other areas of the organization. Further, essay two will also contribute to the literature by exploring the dimensions of brand equity and their effects on the rate of the depreciation in value of automobiles. The implications are significant as the maintenance of value is of considerable concern to managers in the industry. In addition to being a factor considered by consumers when purchasing a new car, it also has a direct impact on the leasing options available for the firm to offer. The lower the rate of capital decline, the lower the monthly payments available to the customer. Additionally, it will contribute by exploring the boundary condition established by the region of origin of the brand with respect to the equity dimensions.

The research study conducted in essay three addresses the nature of the effects of marketing related value creation activities and firm specific attributes on intermediate outcomes, as measured by the impact on the consumer based dimensions of brand equity. The value creation activities considered are new product introductions and advertising. Understanding the relative importance and degree of contribution of each of these activities will provide insights for managers when allocating resources and organizational emphasis. The firm specific attributes considered include the region of origin of the brand and the global reach of the brand. The effects of brand origin are important to managers when communicating with their consumer base, as illustrated by Toyota's recent effort to emphasize their production base in North America in advertising messages. How this moderates the effects of their value creation efforts is also of interest. The degree of a brand's global reach is also an important consideration as firms increasingly rationalize their international operations. While recent literature indicates perceived brand globalness is and important indicator of quality and purchase intentions of consumers (Steenkamp et al. 2003), the question of the actual brand dispersion has not been considered. This has potentially important implications for managers as they consider whether they need to achieve greater reach in order to achieve a higher degree of perceived globalness.

In aggregate this dissertation will contribute to a broad range of issues related to achieving and maintaining branding equity in a global marketplace. The contribution to the literature and implication of managers are correspondingly extensive and will offer insights with practical application for managers.

CHAPTER 2

EVOLVING INTEGRATION OF MARKETING IN THE NEW PRODUCT DEVELOPMENT PROCESS: CREATING A GLOBAL BRAND ARCHITECTURE AT GENERAL MOTORS

EVOLVING INTEGRATION OF MARKETING IN THE NEW PRODUCT DEVELOPMENT PROCESS: CREATING A GLOBAL BRAND ARCHITECTURE AT GENERAL MOTORS

ABSTRACT

This essay addresses the challenges faced by managers in an organization with a broad global footprint as they integrate the product development process and the portfolio of brands across the expansive organization. The underlying motivation of this study is to identify and define the role of marketing in the new product development process and the relationship with global brand creation. The intent is to understand and explain how different organizational units within the new product development process interact under the external pressures of globalization, to develop global brands. Qualitative research methods are employed, and propositions explored within the context of the world's largest automotive manufacturer. A cultural materialist framework is employed as an orienting strategy to understand the evolution of the firm's global brand architecture, as a symbolic indicator and artifact of the organization's culture. The findings provide support for the view that an organization's global brand architecture develops through a complex process of structural interactions between functional groups involved in new product development. Ultimately, the global brand architecture evolves as a response to environmental drivers.

EVOLVING INTEGRATION OF MARKETING IN THE NEW PRODUCT DEVELOPMENT PROCESS: CREATING A GLOBAL BRAND ARCHITECTURE AT GENERAL MOTORS

INTRODUCTION

"The thing with GM, we need to find ways to really mix this crazy quilt of companies and brands and regions into a strong global company without losing all of the nuances..."

Executive, Advanced Vehicle Development

General Motors, 2004

Globalization has emerged as a ubiquitous term to encompass many aspects of the process leading toward a more interdependent world; with implications that span the gamut from governmental policies to consumer choice decisions. These environmental forces have spurred changes to the means through which many firms conduct business. Among the most notable business phenomena of this ongoing environmental transformation is the advent of the global firm, spanning distance and national culture, organizations interact in such a way as to integrate both operations and orientation. The implications are significant for both home markets and distant shores, which can provide both resources and customers.

Perhaps one of the most overt manifestations of this phenomenon is the emergence of global brands; as noted by Shocker et al. (1994b), globalization is one of the most important factors impacting brand management. The intention is to understand and explain how different organizational units within the new product development process interact under the external pressures of globalization, to develop global brands and architectures. As such, the overarching research question to be addressed by this study is how do the organizational units respond to challenges imposed by the globalization drivers and interact to create global products and brands? In order to address this issue, a sub-set of research questions emerges. First, what are the effects of globalization on the new product development process of the firm? What is marketing's role in the new product development process? And finally, how do organizational units interact within the new product development process to build global brands?

The research questions are investigated via a qualitative study in the context of the world's largest automotive manufacturer, General Motors. Although the company has long maintained a global footprint, with operations on every continent except Antarctica; historically, the company's various regions, brands (previously divisions) and product development teams have operated relatively autonomously (Briody et al. 2004). The weight of competition created by globalization has set in motion changes which previously were inconceivable. As the very survival of the entire domestic U.S. automotive industry is called in question, the executive leadership of GM has undertaken the daunting task of revitalizing the firm's products and brands through an aggressive new product development process focused on core image attributes and a product portfolio based on leveraging the firm's global footprint. The nature and context of the study proved to be timely, with GM providing an ideal context for observation.

This essay first delineates conceptual foundations by employing a framework derived from a materialist perspective (Harris 1968), focusing on the implications for brand architectures impacted by the response of the new product development process to environmental drivers[1]. Next, specific propositions are developed from the literature by considering the drivers of globalization, marketing's role in the new product development and the implications for brand portfolios. The findings of the qualitative study are presented in the following section. A discussion of the findings, managerial implications and directions for future research conclude.

CONCEPTUAL FOUNDATIONS

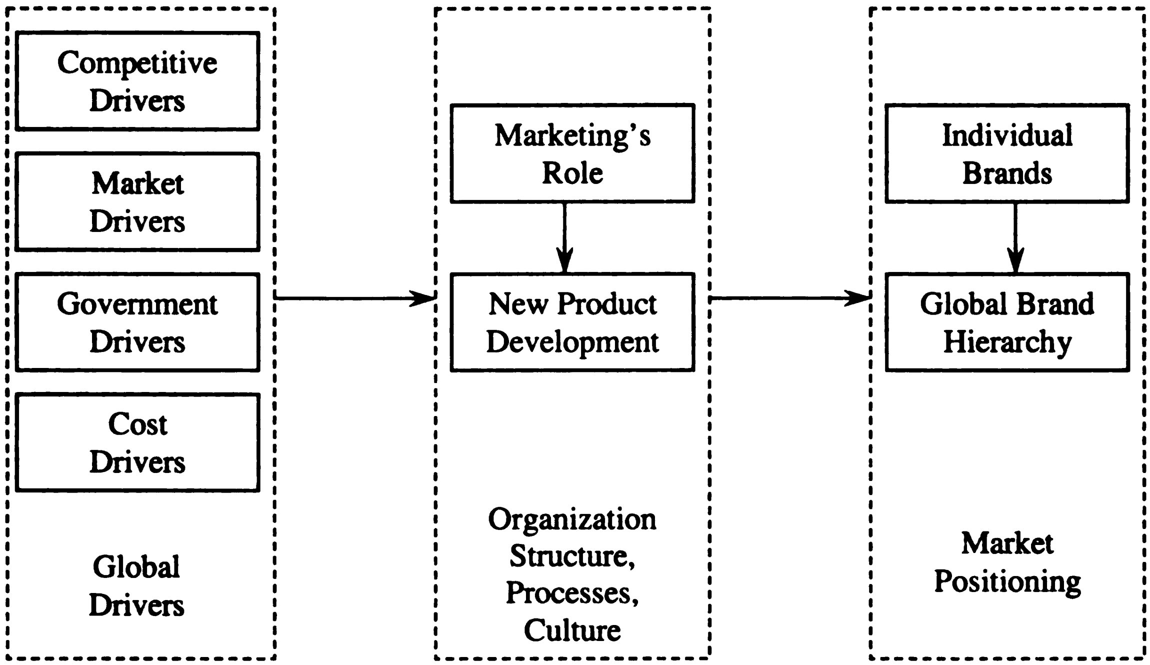
Cultural materialism, as proposed by Harris (2001; 1968) seeks to comprehend trajectories of structural and cultural change through the exposition of relationships between and among components of a social system in dynamic interaction with its environment. Various parts of the system are interrelated, and when one part changes, the others will also change. An underlying assumption of cultural materialism is that any organization or group cannot be considered in isolation (Elwell 2001). For a detailed description of cultural materialism refer to Appendix 1. As pointed out by Briody and Baba (1991), it is expected that formal organizations such as General Motors (GM) display a "universal pattern" of internal elements reflected by materialism, and evolve over time as a result of environmental change.

This foundation allows for a means to understand the way that organizational units within the firm interact in response to environmental change. The cultural materialist view provides a dynamic framework with the critical result being how the units of the organization collaborate to focus on the development of products and the

[1] Cultural Materialism in its classic form is not utilized as a framework, but as a base orientation for the qualitative study.

management of brands in the global marketplace. The conceptual framework is illustrated in Figure 1.1.

Figure 1.1: Conceptual Framework: Actualizing Global Brands



Globalization: Drivers and Responses

Over the last few decades, cross-border business has experienced phenomenal growth. This escalation is due to a combination of factors including advances in telecommunication, information and transportation technologies (Boudreau et al. 1998); a shift toward market economies due to deregulation in emerging markets; the emergence of the global consumer; and a proliferation of global products. These environmental changes clearly represent fundamental shifts in the foundation of society. Correspondingly, the literature has captured the phenomenon as it relates to the business enterprise, conceptualizing the transformation of leading business organizations from multi-national corporations to those with broad global scale and scope (Kogut 1985; Perlmutter 1969). To a large extent, the trend has been rationalized as an extension of the process of global integration as nation-states break down barriers to international trade and consumer preferences converge (Douglas and Craig 1989; Levitt 1983; Ohmae 1989).

Based on the premise that firms react to external conditions through the alignment of strategy and structure (Ruekert and Walker 1987), global firms need to create synergies in response to the external market drivers. In order to implement a viable global strategy, it is necessary for the firm to develop operational capabilities to manage inter-dependencies between and among various resource flows (Roth et al. 1991). It is the marketing processes through which the organization implements marketing strategy and utilizes structural components (Bonoma 1984; Ruekert and Walker 1987).

The drivers influencing the dynamics of operating in a global market reflect and parallel those of globalization; they can be broadly categorized as the market factors, cost sensitivity, governmental influences and competitive considerations (Yip 1992). New product development is a key component of the marketing related processes in a global company (Townsend et al. 2004). Arguments can be made for the importance and degree of impact of each of the global drivers on the new product development process. Further, given that the functional roles of each organizational unit are different, the globalization drivers are expected to have different implications for each of the units involved in the new product development process. In this study, the roles of design, engineering and marketing are specifically considered. Therefore, it can be expected that different functional units involved in the new product development processes within a large multinational corporation will respond to these drivers in a different fashion based on relative positions and responsibilities.

P1: *Each of the functional units involved in the new product development process (design, engineering, marketing) are influenced differently by the environmental drivers of globalization.*

Global Brand Portfolios

A brand is broadly defined as a name, term, symbol, design, or a combination thereof, which identifies a seller's products and differentiates it from competitor's products(Keller and Lehmann 2005). A study by LaForet and Saunders (1994) indicates that firm history, corporate culture, company policy, product range, and market structures are underlying drivers of a company's brands and brand portfolios. This suggests that brands are a result of the marketing strategy, structure and processes, including new product development. Further, Mizik and Jacobson (2003) conceptualize innovativeness, defined as the "degree of discontinuity in marketing and/or technological factors" (Garcia and Calantone 2002), as a significant means of market value creation. The inference is the new product development process is one of the major marketing value added activities that contribute to the development of brands.

The implications of a globalizing industry environment are that the firm will develop a global market orientation in response to environmental change. Global orientation refers to organizational emphasis on the global success of the firm, as opposed to accentuating nation or market based measures (Ohmae 1989), and is consistent with Perlmutter's (1969) original conceptualization of the geocentric firm. In a global context there is particular concern with the values and beliefs that help develop an organizational mindset oriented toward the complexities of global strategies, leadership, structures, and processes (Yip et al. 1997).

Global New Product Development

The new product development process is considered to be among the mediating events that determine the extent of an effect that a particular skill or resource has on a firm's ability to differentiate itself in the marketplace (Day and Wensley 1988), giving it opportunity to achieve a competitive advantage. New product process is defined as "a series of activities that move the product from idea to launch"(Cooper and Kleinschmidt 1987). The focus of this study is the global new product development process, which, in line with the extant global marketing literature, is defined as "the activities related to understanding the global customer needs, and shaping new product development and global brand creation processes according to those needs" (Townsend et al. 2004).

The cultural materialism framework posits that the social interactions are delineated through the formal and informal structures of the new product development process with respect to the interaction between marketing and the other functional groups within the firm (Harris 2001). The automotive industry has transformed over the last decade from a "smokestack" type of organizational design, to one of a "platform" approach (Lutz 1998). The smokestack approach was an ordered process with distinct responsibilities conducting their activities sequentially, with relatively little interaction between functional groups (Figure 1.2). As illustrated in Figure 1.3, the implication of the platform structure is that each of the functional areas has equal input into the new product development process and the introduction of new products. Conceptually, this supports the findings of Cummings (2004) which suggest that diverse work groups are more effective through the exchange of information between a broad base of internal and external constituent groups. As suggested by Calantone and di Benedetto (1988), both the technical and marketing skills possessed by an organization are contributing factors to new product success.

Figure 1.2: Traditional Vehicle Development

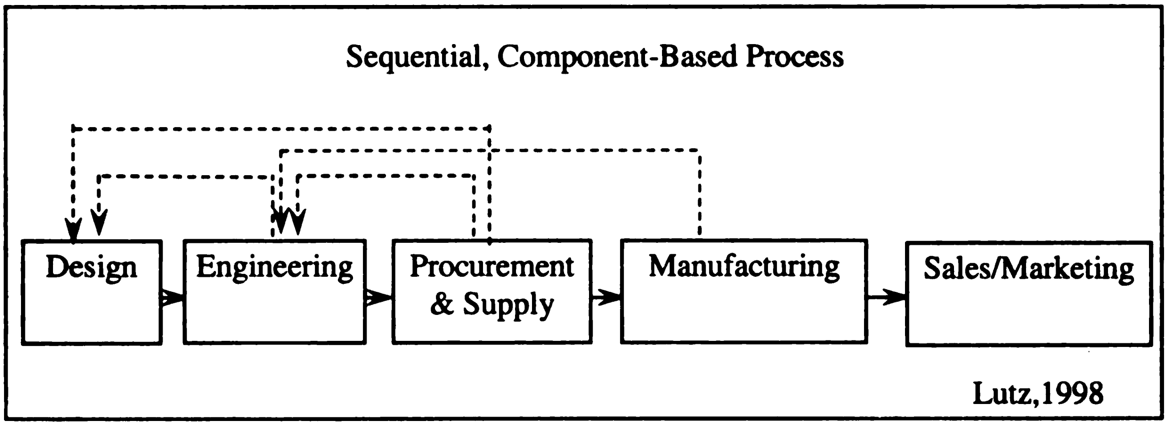
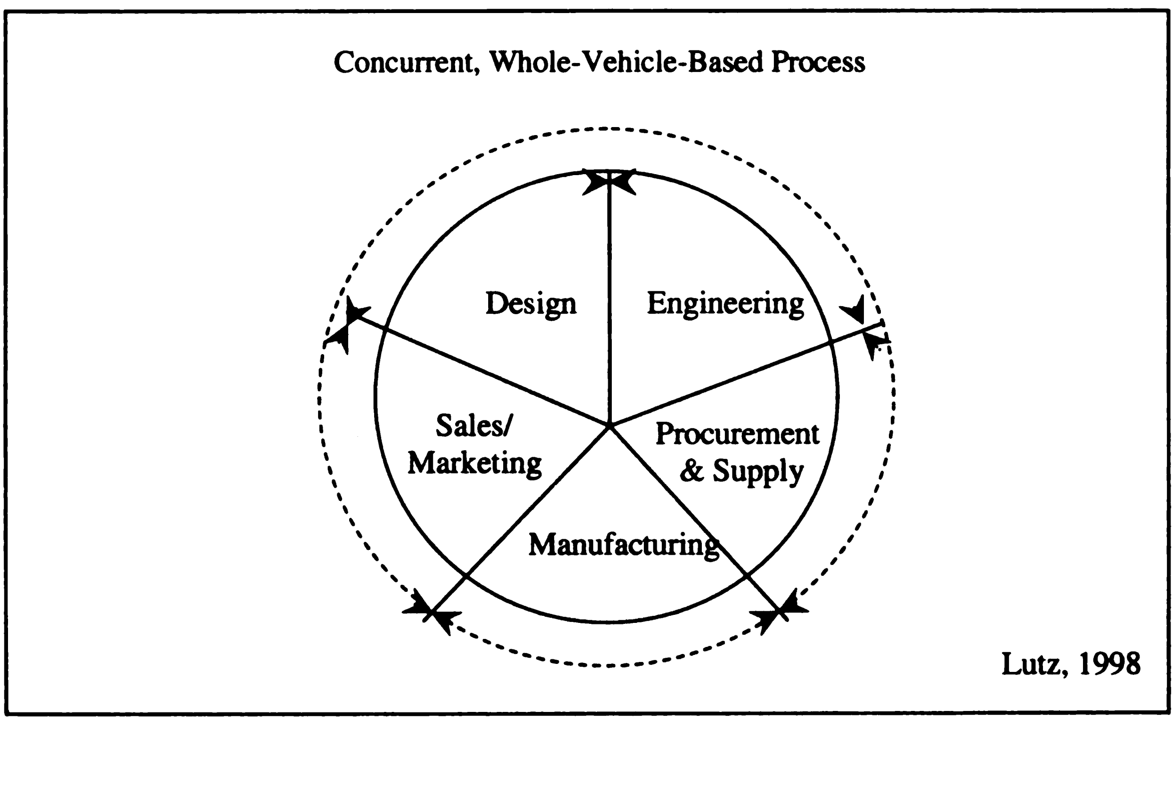


Figure 1.3: Platform Development



There is further complexity involved when broad geographical considerations are added to the equation. Barczak and McDonough (2003) found that global new product development teams are established to address the needs of common global markets, incorporate the unique needs of local markets, and to bring together globally diverse resources and expertise. While often difficult to manage because of the geographic and cultural diversity, these groups can achieve a higher level of performance if there is a significant degree of information exchange (Cummings 2004). Yet, there can be inherent conflict between functional group members such as engineering and marketing (Maltz and Kohli 2000), which impedes the effective development and ultimate success of new products and can be even greater in culturally diverse groups. Thus, it is argued that how work centers are structured, and their relationship to the international network should be based on the underlying characteristics of a firm's knowledge based assets (Birkinshaw 2002).

While previous qualitative studies in the marketing literature have focused on the limited impact of marketing on the new product development process (Workman, 1993), the consideration of this study is how a firm's new product development process is affected by the environmental drivers, and how the relationship between marketing and R&D (design and engineering specifically) evolves under the external pressures of globalization and internal organizational structural constraints. As such, in line with previous research in global marketing and the cultural materialist framework, it is postulated that the external globalization drivers and the internal processes dictate the role of marketing in the new product development process.

P2: The relationship between marketing and R&D is dependent on the configuration of the global new product development process.

The Role of Marketing in Global Brand Development

While there is an emergence of the recognition of the need to understand the value of marketing's impact on the firm's performance (Srivastava et al. 1998), there is a distinct gap in the literature which integrates the value added of the marketing functions, as a whole, particularly from a global perspective. Marketing is a complex function which involves strategy, which translates the marketing concept into actions that create competitive advantage; tactics, or the act of demand stimulation and selling; and culture, which provides the internal means for implementing the marketing concept (Webster 2002). The basis of the argument made here is that in order for marketing to be institutionalized in organizations, it must be infused into the actions of managers, influencing the process of work that gets done (Srivastava et al. 1999).

Evidence suggests that marketing tends to have relatively little influence in the new product development process, in the context of a high technology firm (Workman 1993), and it is the influence of individuals rather than mere participation in the process which is significant (Atuahene-Gima and Evangelista 2000). Yet, the literature supports the premise that the interface between marketing and research and development (R&D) is one of most important relationships in the organization (Song and Parry 1992).

As firms have entered broader and more diverse geographic regions, a phenomenon has occurred where marketing strategies and brand names are being transferred across markets; the term coined for this is global branding. A global brand is denoted by a product which is sold across multiple country markets, but the core essence of the brand identity remains unchanged, even if the execution is adapted to local marketing models (deChernatony et al. 1995). Essentially, a global brand is one whose positioning, identity, look and feel maintain a high degree of consistency across multiple markets worldwide (Board 2001). Fundamentally, a brand conveys a consistent image globally through its distinguishing characteristics which include attributes, associations and identifiers (DeSimone 1998).

Global branding may be the most readily observable outcome of corporate attempts to adjust to globalization, as the face with which a firm portrays an image to a more diverse customer base. Although the academic argument related to the globalization of product marketing has its roots in the debate about the relative level of standardization (Buzzell 1968), the extant literature and observations from the marketplace seem to support the idea of finding an appropriate balance (Cavusgil et al. 1993; Jain 1989). The basic tenets embrace the concept of being global, but acting locally as necessary (Wills et al. 1991). Although studies have found that there is no performance advantage to standardizing globally (Samiee and Roth 1992) and adaptation is preferred for export products (Cavusgil and Zou 1994), utilizing a hybrid approach appears to have merit; for example, IBM has globalized its marketing by unifying its worldwide business strategy, including their advertising and marketing campaigns, but tailors their campaigns to contain local associations (McCullough 1996). The underlying firm characteristics of global branding appear to be based on similarities garnered from centrally coordinated marketing strategies (Steenkamp et al. 2003).

Global brands offer a number of compelling benefits: (1) efficiencies of scale, (2) responsiveness to global customers, (3) leveraged agency relationships, and (4) efficiencies in scope (Board 2001). A company utilizing global branding strategies can achieve scale economies in manufacturing, sourcing, and sales and distribution networks. Global branding, facilitated by the integration of marketing and centralization of product selection and positioning allows for the transfer of knowledge across markets (Kim et al. 2003), and speeds up a brand's new product introductions by minimizing the number of modifications necessary for individual markets (Neff 1999; Steenkamp et al. 2003). This has implications from the brand level with respect to the acquisition and utilization of knowledge across markets, where experiential learning allows for the application of knowledge gained from successive markets to other markets.

It appears global branding is becoming more predominant as firms focus on core brands, and are increasingly implementing unambiguous international brand architectures as a strategic means of facilitating brand consistency across international markets (Douglas et al. 2001). Global brand positioning strategies have developed in parallel with the growth of the global marketplace (Alden et al. 1999b). The portfolio of brands can be conceptualized as based on a continuum of geographic scope and degree of consistency. As illustrated in Table 1.1, a reasonable expectation is for the hierarchy of brands to follow the basic tenets of the internationalization process (Johanson and Vahlne 1977), where increasing knowledge and commitment by a brand to global markets will yield a brand architecture based on degrees on international integration.

Table 1.1: Global Brand Hierarchy Definitions

Brand Scope	Definition / Criteria
Domestic Brand	• A brand with presence only in the home market. • Local management.
International Brand	• Sold across a few country markets. • Typically in the early stages of internationalization. • Positioning, identity, image, distinguishing characteristics including attributes, associations and identifiers of the brand virtually identical to the home market. • Management largely dictated by home market, often using local agents in international markets.
Multidomestic Brand	• Sold across multiple country markets. • Intermediate stages of internationalization • Positioning, identity, image, distinguishing characteristics including attributes, associations and identifiers of the brand varying across markets. • Decentralized management with local control.
Global Brand	• Sold across multiple country markets and having reach to the three major developed continents. • Mature internationalization. • The core essence of the brand remains unchanged; positioning, identity, image, distinguishing characteristics including attributes, associations and identifiers maintain a high degree of consistency across worldwide markets. (Corporate Executive Board 2001; DeSimone 1998) • Centralized brand management coordinating local execution.

In the cultural materialism framework, societal interactions are influenced by the relationship between the economic and technological structure (Harris 2001). As such, the formal and informal structures of the new product development process delineate the interaction between marketing and the other functional groups within the new product development process. Hence, the contribution of marketing to global brand development through the new product process is bound by the structure and super-structure. Yet, evidence in the marketing literature suggests there is a positive relationship between the development of customer knowledge, new product advantage, and market performance (Atuahene-Gima and Evangelista 2000; Li and Calantone 1998). To achieve this, it is necessary to engage in demand articulation which is conceptualized as a process which includes the translation and integration of market data into a product concept (Song and Parry 1997). Essentially, this is a capability used to absorb critical knowledge from external sources and amalgamate it for use by the various internal constituencies (Verona 1999). Therefore:

P3: *The greater the role of marketing in the global new product development process, the more systematic and balanced will be the global brand portfolio.*

DATA AND METHOD

Consistent with the exploratory nature of this study, the method used to develop and extend the cultural materialism framework to the organizational level is qualitative in nature, utilizing content analysis and interpretation of a range of observations. The data is based largely on thirty five semi-structured interviews of twenty eight GM employees across the spectrum of the new product development process, ranging from mid-level management to the Executive Vice President level. The key respondents represent members from Human Resources, Corporate Communications, Design and Styling Management, Planning and Portfolio Management, Engineering, Vehicle Line Executive Teams, Marketing and Brand Management, and Executive Leadership. The sample set was not randomly chosen, but the result of a snow-ball technique with the Human Resources group from the Advance Vehicle Development group providing the first 7 contacts, and the subsequent respondents garnered from referrals of these initial interviewees. A summary of the interviews can be found in Table 1.2.

The interviews were conducted from July, 2004 – March, 2005, at the GM Technical Center in Warren, Michigan, as well as at the GM World Headquarters located in the Renaissance Center in Detroit. Interview duration ranged from 30 minutes to 3 hours. The interviewee's experience with the company ranges from 10 years to 44 years. Also, 3 presentations by senior management to external groups were observed, with presentation materials provided for review, and one interview included a presentation of the evolution of the product development process at GM. Communications with respondents and their representatives included a multitude of phone calls and emails, in addition to the in person interviews. Multiple respondents were in transition to new jobs or had recently moved to new positions. This offered opportunity to garner information from these individuals from alternative perspectives. Several sets of internal company documents related to product and brand marketing were also made available for review.

In addition, interviews with industry experts and analysts were conducted in order to provide an etic perspective of the organization and its position. An etic perspective is one that is exogenous to the firm, in this case the respondents were people with specific knowledge of both the company and the global industry. This data is further supplemented with secondary data sources, including historical industry records, company oriented manuscripts and current periodicals.

The majority of interviews were recorded electronically, except for a few people who felt they could be more candid in their responses and examples if they weren't on record. Subsequently, the recordings were transcribed into written text format, as were hand written notes taken during interviews. These documents serve as a data set comprised of a collection of narratives suitable for analysis. *Atlas ti* was then employed to build explanations through a unique pattern matching technique, distinguished by the emic constructs identified in the new product development process, to match the conceptual development with the data (Yin 2003). *Atlas ti* enables the categorization of qualitative data by keywords and the extraction of quotes associated with a particular category (Muhr 1991). As suggested by Eisenhardt (1989), cross case (in this case, functional groups) pattern matching allows the researcher to derive insights through multiple lenses while looking for within-group similarities and inter-group differences.

Table 1.2: Interview Summary

Functional Position	Corporate	Portfolio Planning & Development	Advanced Vehicle Design	Int'l. Product Center	Large Trucks	Delta (Small Car)	Zeta (Mid-size Trucks)	Sigma (Cadillac)
Vice President / Executive	X			XX				
Vehicle Line Executive					X	X		X
Design	XX					X		
Engineering						XXX		
Sales/Service Marketing	XXXXXXXX						X	XXX
Human Resources/ GM	XX							
University	(presentation)		X				X	X
Planning and R&D		XX						
International	XX							
Communications			X					
Retired	X							
Industry Experts XXX								

ANALYSIS AND FINDINGS

The substantive findings of this study are presented in the materialist framework, based on the propositions developed. This is because the purpose of this study is to identify effects of the environmental drivers of globalization on functional units involved in new product development process, and the way in which they react and interact to develop global brands. A synopsis of the findings from a pattern matching process, where the narratives from people within the various groups within the organization involved in the new product development process were matched together by the categories considered in the conceptual model is presented in Table 1.3.

In the first section of the table, the relative influence of the global drivers on each functional area studied is presented. The classification of the findings is based on whether each of the drivers is considered to be a catalyst of global integration, a neutral factor, or an impediment. The next column considers the formal and informal involvement, and influence of marketing at each level of the new product development process. The final column identifies the relative role in the brand management portion of the new product process. A summary of some key terms and acronyms that are native to GM's culture is provided in Table 1.4. In general, as will be illustrated in the following sections, the findings suggest the cultural materialist framework provides an adequate strategy for considering the complex dynamics of the research study. A description of the findings as they relate to each of the propositions is presented in the following sections.

Table 1.3: Summary of Findings

	Drivers				Marketing Interface		Brand Management
	Consumers	Regulation	Competitors	Cost	Formal	Informal	
Planning and Portfolio Management	**N**	**N**	**C**	**C**	**P**		**S (Domestic)**
Advanced Vehicle Design and Styling	**I**			**C**	**L**	**L**	
Vehicle Line Executive	**I**	**I**	**N**	**C**	**P**	**I**	**TE**
International Product Center	**C**	**C**	**C**	**C**	**P**		**S/TE (Int'l)**
Vehicle Sales Service and Marketing	**C/I**	**N**	**C**	**C**	**D**	**D**	**TE (Domestic)**
	C - Catalyst N - Neutral I - Impediment				L - Limited P - Participates I - Influence D - Determines		S - Strategy T - Tactics E - Execute

Table 1.4: General Motors Native Categories and Terms

GM Acronym/ Phrase	Complete Title	Description
VLE	Vehicle Line Executive	The head of an architecture or platform. Responsible for inter-functional coordination. Signs a "contract" at the beginning of an architecture and each vehicle program built off an architecture.
AVD	Advanced Vehicle Design (Development)	Styling and design group.
Zeta, Delta, Sigma, etc.	Architecture names	Greek symbol name used for each unique GM architecture
PPD	Portfolio, Planning and Development	Strategic group which analyzes the environment and makes corporate product and portfolio decisions. Members act as organizational administrators on architectures
IPC	International Product Center	Responsible for managing operations by geographic region; integrating and rationalizing globalization activities throughout the organization
VSSM	Vehicle Sales, Service and Marketing	Responsible for generating and analyzing market data, brand management, and coordinating dealer networks
PET	Product Evaluation Team	Individual product units within each architecture
Homeroom		The regional vehicle development center assigned global responsibility for an architecture

Global Drivers

In this section, the effects of globalization drivers on the new product development process are investigated. Based on the emergent theory of globalization, it is expected that the convergence of consumer needs and wants, and the decrease in international regulatory pressures would have a significant impact on the firm's product development and brands. Yet, this does not seem to the general perceptions of managers at GM; moreover, this is the general impression of GM's managers with respect to the industry overall, with several people making comments to the effect that "there is no such thing as a truly global car". Customer requirements different across geographic markets due to cultural differences in the use of vehicles, and segments which exist in the U.S. market often don't exist in other markets (see Appendix 4, Quote 1). Overall, consumer convergence appears to be the weakest driver of globalization within the firm. Although there are two groups, Vehicle Sales Service and Marketing (VSSM) and the International Product Center (IPC) in particular, who recognize that their may be greater synergies which can be harnessed due to convergences which may exist (see Appendix 4, Quote 2). The IPC groups are working on developing metrics to determine in a broad sense where these synergies may reside, as well as implementation factors. Additionally, the Brand Strategy group within VSSM has been undertaking studies across multiple markets across Europe, Asia, Latin America, and the Middle East with respect to specific brands to try to understand what commonalities may exist across markets in order to tap into efficiencies that could be gained.

While the decrease in intra-governmental trade regulations, and multi-lateral trade agreements have facilitated a greater amount of cross-border trade, and are considered to be major factors impacting industry globalization, it is the internal regulations of nations that are more significant to the automotive industry, and directly effect how products are developed (see Appendix 4, Quote 3). Additional regulatory considerations directly impact how markets are segmented. For example, in Australia, for tax reasons, many vehicles are purchased by businesses as a perk for employees, rather than by consumers directly. This dictates to a large degree how products specifications are configured, and results in a great degree of fragmentation of a limited number of segments. Again, it is the IPC group which is considering how regulations across markets can be rationalized, with several interviewees referring to this group with respect to the consistency of adhering to regulatory issues.

Cost drivers, without fail, are the biggest concern for the managers of GM as they move towards being a global company, rather than just having disparate independent operations in many places around the world (see Appendix 4, Quote 4). Across the spectrum of the new product development process, managers indicated this is the greatest concern with respect to globalization. Although direct costs are a major consideration, it is through the efficiencies which can be obtained and "centers of excellence" where it is expected the greatest rewards can be reaped (see Appendix 4, Quote 5).

GM has been undertaking a major effort to adapt and cope with the intense competition now found in all geographic and product markets (Briody et al. 2004). Perhaps, most profound is the effect of competition on the home U.S. market, where it's market share has slide from over 60% in the 1960's to the mid-20% range in the first years of the new century. A multi-domestic company treats competition in each country or region on a stand-alone basis, a global company takes an integrated approach across countries and regions (Birkinshaw et al. 1995; Zou and Cavusgil 2002). In particular, the trajectory of Toyota in the global marketplace is a major competitive challenge. Harnessing GM's global footprint is seen as means to counteract this threat, with several people commenting along the lines that "Toyota's fear is that we will learn how to operate as a global company". As noted by Bob Lutz in a recently published interview, "Toyota and Honda run this business on a global basis, and we were maybe a little bit late. The regional model worked very well for us about 10 years ago. Now the scale of the business has changed" (Lutz 2005). There is recognition that competition from a variety of players is a reality in all markets of the world and there may be means to extracting advantage. Therefore, it appears GM is beginning to view the world as a global marketplace as opposed to a series of independent markets.

This study was, in fact, timely as a number of public announcements published in Automotive News related to global re-organizations of various functional and product development processes were made during the course of the investigation. A list of select announcements is noted in Table 5. There are some interesting points which arise from reviewing these announcements. The initial announcements indicate the individual functional units are being globalized independently, but subsequent moves are related to broader integration of the functional groups via the VLE. Another interesting point is that all the announcements refer to cost savings and efficiencies which are expected to be gained, supporting the findings from the interviews conducted with individual executives. However, what is conspicuously lacking in these announcements is the anticipated structural interaction between functional groups as well as the relationship with brand management in the organizational evolution.

Overall, support is found for the Proposition 1, positing that each of the functional units involved in the new product development process are influenced differently due to differences in perceptions of environmental drivers of globalization. Across the new product development process, the functions are unwaveringly driven by cost reductions and efficiencies which can be gained through global integration. The Planning and VSSM groups are concerned primarily with competitor and cost considerations, while the AVD and VLE groups appear to find consumer preferences and regulatory issues an impediment to globalization. The IPC, perhaps by the very nature of the group's mission, is motivated by the drivers of globalization in a much broader sense than other organizational groups. The differences in perceived drivers of globalization by department have a resulting impact on the degree of globalization by each functional group.

Table 1.5: Announcements Regarding Global Reorganizations at GM Reported in Automotive News

Automotive News Announcement	Date	Summary
GM to unify global engineers	February 2, 2004	GM's engineering centers will work as a unified global organization that constantly shifts work back and forth to smooth fluctuations in engineering workloads & create cost efficiencies. ▪ Common work practices ▪ Uniform computer system ▪ Single product-development process with global architectures and components
GM centralizes product design and manufacturing	March 15, 2004	Subsidiary firms will lose control in quest to build a lean global company. Key decision-making power will be concentrated in GM's executive strategy boards and global leadership councils.
Middlebrook named to new GM job: Veteran moves to global marketing post	August 16, 2004	Middlebrook to "work in partnership" with marketing chiefs in GM's regions with some global teams reporting to him to spread best practices among regions.
5 GM vehicle programs go to global units	January 10, 2005	GM announces the assignment of three major engineering centers worldwide and the appointment of one chief engineer and one vehicle line executive for each lead center.
GM creates global product board	March 7, 2005	GM announces the creation of the Automotive Product Board to cut costs, create innovative niche products and speed up GM's ponderous product development through centralization of control. The Board will enjoy equal status with GM's Automotive Strategy Board, and include the company's top global executives. Previously, GM's four regions developed vehicles independently.
GM creates global program management post	May 10, 2005	GM appoints Jon Lauckner to the newly created position of vice president of global program management. All global and regional vehicle line executives will report to Lauckner.

Marketing's Role in NPD

"I am sure we all realize....how much appearance has to do with sales; with all cars fairly good mechanically, it is a dominating proposition and in a product such as ours, where the individual appeal is so great, it means a tremendous influence on our future prosperity."

Alfred P. Sloan, Jr.

July 8, 1926

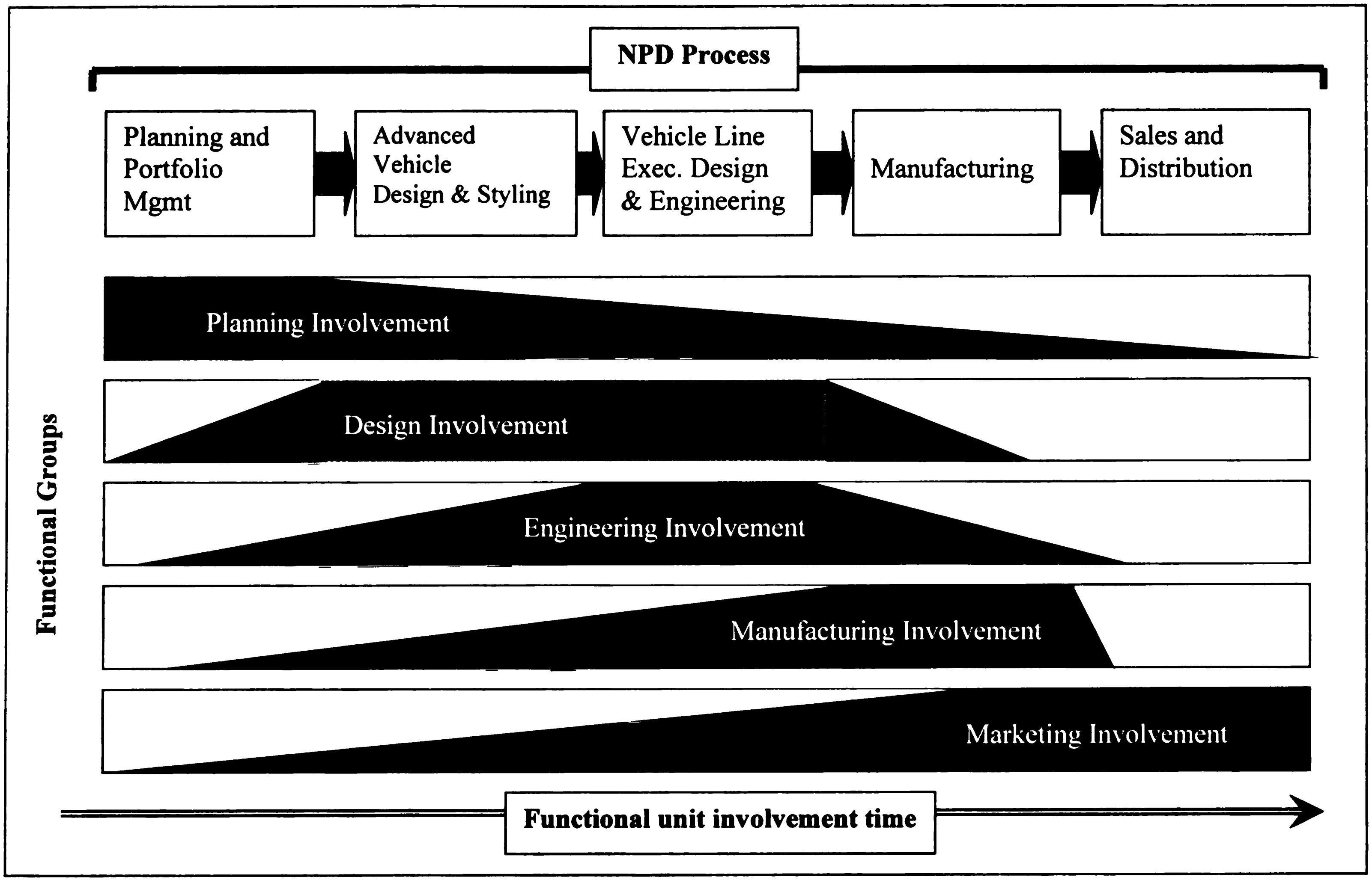
This quote appears under a picture of the CEO widely credited with creating the structure of the organization which dominated the automobile industry for much of the 20^{th} century. The picture is hung on a landing near a zen like fountain under the stairs in the sleek marble floored lobby of the Design Center at the General Motors Technical Center in Warren, Michigan. It illustrates the historical depths of the functional interface within the organization. The characterization of the interaction between the marketing/brand management and other groups in the new product development process is necessary to gaining an understanding of how the relationships between these sub-groups influence the culture of the organization and orientation of the firm in a global marketplace. In the materialist framework, clarifying the evolutionary nature of intra-organizational roles with respect to relative group influence and control is insightful for this purpose.

At GM, Planning is a distinct functional area from VSSM, and gained a great degree of power when the divisions were integrated. In the early stages of the NPD process, they have responsibility for determining where there is a gap in the entire GM portfolio, and then determining which brand within the portfolio should sell the product to fill that gap in the product line up (see Appendix 6, Quote 1). From an academic perspective, these would clearly be considered elements of the firm's marketing strategy. However, over time, as a product moves into the VLE system, Planning's role changes and it becomes responsible for the administrative aspects of coordination through the new product development process on behalf of the VLE (see Appendix 6, Quote 2). It was made clear by many managers that Marketing is involved in all teams, and has a distinct place in the Planning function (see Appendix 6, Quote 3). However, Marketing's role in the design process appears to have diminished greatly from earlier structures. The AVD group is very cognizant of the importance of market research and clinics, but seems to resent any interference or interpretation from the marketing group (see Appendix 6, Quotes 4, 5 and 6). There is an inherent protectionist sentiment towards the creative nature of the design process. The customer is not seen as someone to set the identity of the product but rather to provide feedback to it (see Appendix 6, Quotes 7 and 8). Yet, as marketing's role may have become more limited in the design process, there is clearly a reflection of an appreciation for the fact that customers will ultimately be the authoritative judge of a product (see Appendix 6, Quote 9).

Although the equal piece of the pie conceptualization of the platform (architecture) presented in Figure 3 was referred to by respondents as the model of the relationships between functional groups, the evidence from the interviews indicates that Marketing's overall role in the new product development process is more participatory, rather than influential, in nature for much of the operation (see Appendix 6, Quote 10). The question then becomes one of Marketing's actual vs. perceived role in the product development process. On many occasions and by a large number of the respondents through the course of this study, it was noted that Marketing "brings the numbers", and "Marketing's job is to sell". Perhaps the simplest, but most profound statement made an executive from the Planning group reflects the perceive role of marketing in the overall scheme of the organization: "Marketing is focused on today, not tomorrow."

Relative roles within the new product development process are illustrated in Figure 4. This graphic depicts the relative timing and authority over resources. The actual role of marketing changes over the life of a vehicle development process. Although there is participation during the process, the majority of influence actually occurs in later stages. The Planning group is primarily responsible for the initiation of a new project, with the AVD and VLE groups having responsibility for development. While marketing participates in the VLE, it is the informal interactions and initiatives of individual product managers (members of VSSM) which take the lead prior to the thrust towards "selling". Marketing's influence and relative control escalates just prior to the time that prototype builds begin.

Figure 1.4: New Product Development Process Involvement Timing



In addition to the relationships between functional areas that comprise the new product development process, there are also issues of the balance of power between brands housed within VSSM. Due to the historic competition between GM brands, there are remnants of this competition which continue to exist. There were several examples given by managers within VLE's with respect to product overlap. Even when styling cues are different between models, the more powerful brands typically win out over the weaker brands with respect to product attributes and superior specifications. This seems to occur in a manner that is irrespective of brand positioning concerns.

The nature of marketing's role in the current structure is explained by the complexity of designing, developing, manufacturing and selling a vehicle. There are over 15,000 parts in a car, and huge investments are required to actually bring a vehicle to market. Automotive executives generally rise from within the industry as it is considered difficult for "outsiders" to understand. In recent years, consumer goods executives were brought in to help re-vitalize the company's brands. However, there were some problems it turns out with the approach taken, and these managers attempted to brand individual products, rather than vehicle makes. Also, there were apparently attempts to have a great deal of influence in the design process that was not conceived as being based on research, but based on feelings. A significant amount of resentment seems to have built up as a result, a legacy effect that appears to persist (see Appendix 6, Quotes 11 and 12).

Leadership plays a significant role in the perceptions of marketing management from the perspective of the technical groups, and the VSSM and Planning groups. In several interviews it was mentioned that Bob Lutz is a product guy, but he is also really a "marketer". The people in Planning and VSSM feel as if their work is finally being paid attention to within the new product development process. There were examples given where Bob Lutz will immediately review research reports and fax back comments. Apparently he has also instituted a system where all clinics and studies should be reviewed by relevant managers within two days and comments and/or follow up considered within the week. This is an important consideration, as findings from empirical research indicate that leadership's perceived importance of market knowledge has a positive impact on the processes of market knowledge competencies (Li and Calantone 1998). Harnessing the "good tension" between and among groups is a major challenge for managers as they continue the journey of globalization and the structure becomes even more complex (see Appendix 6, Quote 16).

There is clearly a strong role for Brand Managers to play, if it is approached from a more informal manner. Savvy product managers have learned to negotiate the system in somewhat of a "back door" way, finding means to identify and implement characteristics and features expected by the marketplace. Further, there is recognition that there must be a resident base of understanding the vision and direction of a brand. Recently, "brand summits" have been conducted where the various groups of the development process are brought together to review the direction of the brand in future years. While this is carried out primarily to show the work of the design group, it is VSSM who will ultimately bring it all together (see Appendix 6, Quotes 13 and 14). As the company moves to a more global structure, it can be expected for the ecological adaptations of various groups to continue to evolve (see Appendix 6, Quote 15).

In summary, there is support for the Proposition 2 stating the relationship between marketing and R&D is dependent on the new product development process design, as predicted by the cultural materialism perspective. Marketing's role is relative to the point of process completion in New Product development process. The new product development infra-structure has a strong emphasis on engineering and design which is considered to be a function of the complexity of the development process in the industry. Marketing's relative influence through much of the process is a function of individuals acting in an informal manner, and the relative orientation of leadership. However, there is evidence from the interviews that some things may be changing in response to organizational structure changes being implemented.

Actualizing Global Brands

In this section, the involvement of different functional units on global brand development within the new product development process is investigated. Rationalizing the brand portfolio has been a major challenge for GM. In the early years of integrating the divisions from strong individual strategic businesses, there were many instances of "badge engineering" which took place. In this paradigm, individual products were produced for multiple brands, with minor modifications and trim levels made for each brand. The advent of the architecture structure minimized the obvious commonalities between products sold under different brand names, as the models are now significantly different, particularly on the exterior. In the U.S. market, GM has 8 brands under its direct management, although there are others with which they have alliance or some ownership relationships.

Due to the legacy of the organization (see appendix 2), one problem that has plagued the company is the continued over-reach of many of the brands. The "brand pyramid" documents used to communicate the message of the brand characteristics to internal constituencies has become broader and broader, making it difficult for each brand to remain distinct in its positioning in the marketplace (see Appendix 5, Quote 1). The proliferation of products has been such that there is increasing overlap between what is being offered by the portfolio of brands. This can be partially attributed to the product development time and the structure of the new product development process (see Appendix 5, Quote 2). In order to mitigate these effects, several new processes are being implemented. First, the concept of a "brand house" has been introduced to the company. In this new paradigm, not only will the functional benefits which can be derived from owning a vehicle be addressed, but the sensory and experiential will take an equal role. Many of the concepts related to brand personality (Aaker 1997) are being incorporated into this new brand pyramid model, where each brand will fill a distinct and specific role in the overall corporate portfolio based on a reverse segmentation approach. Also, in order to communicate more effectively with the AVD group and VLE's, a graphic approach will be taken to represent the "brand house". The purpose of this approach is not only to communicate more effectively, but also to help infuse the marketing concept into other functional areas. Additionally, designers and engineers are increasingly participating in traditional marketing activities like focus groups in order to derive more meaningful feedback directly from consumers at earlier stages in the new product process.

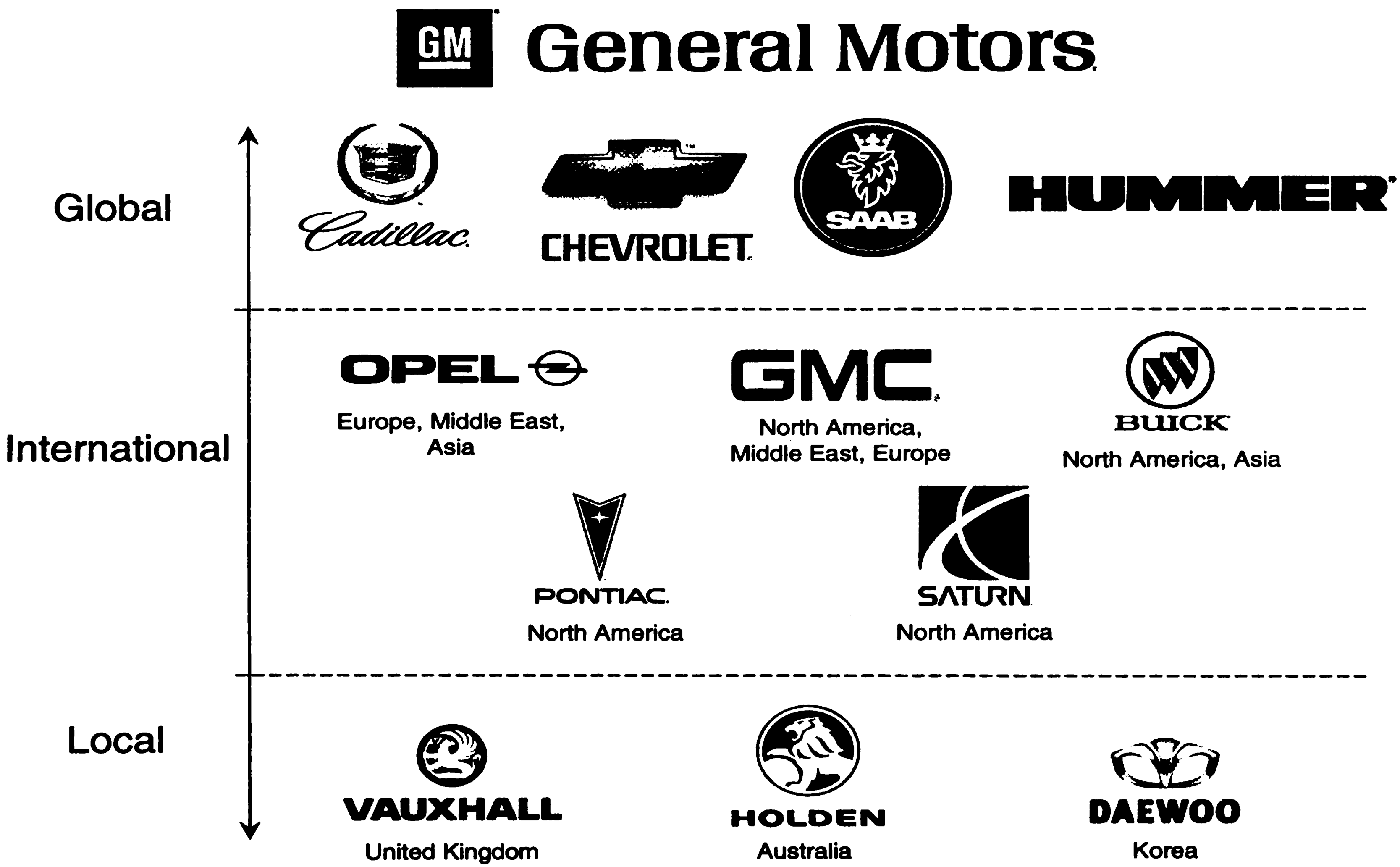
As illustrated in Figure 3, the company's brands have traditionally been managed individually by country market. Similar to the approach taken in the U.S. market, there is now a plan in place to rationalize the brand portfolio on a global basis. This is not a new idea, as mentioned by one executive: "The last false start we had was in 1996 when we identified that Chevrolet and Cadillac, I think and maybe there was a third, were going to be global brands." Based on the tenets of the materialist framework, it is understandable why these initial attempts did not succeed; the structural layers were not in place to support such a transformation.

As seen in Table 3, until recently, the only functional unit that engaged in an active form of global brand development was the International Product Center. Moreover, the IPC is the only functional unit that recognizes all of the globalization drivers as catalysts and none as impediments. The drivers of globalization are not only being identified, but responded to by VSSM and the IPC. In addition to the cost factors considered throughout the organization, the establishment of global brands is also seen as means to counter competitive moves by both global and local competitors alike, particularly in emerging markets (see Appendix 5, Quote 3). The first step in the process has been related to the defining the brands that would be "global", as in earlier iterations, a clear standard based on the business structure had not been identified. In this recent approach, however, this was among the first considerations (see Appendix 5, Quote 4). The expectation is that executive leadership utilizing the resources of the IPC's can influence the integration process (see Appendix 5, Quote 5).

The next logical step was to determine within the organization what would distinguish the stratum of the brands based on geographic location and degree of centralized management. It has been determined that all brands should continue to have strong local brand management reporting back through the regional and global structure. This has led to the establishment of a hierarchy of brands based on the structural components in place to support the brand (see Appendix 5, Quote 6).

As illustrated in Figure 4, in the hierarchy, Chevy is intended to be the GM value brand around the world, and managed by a Global Brand Board made up of representatives from the various regions, chaired by the North American Brand Manager. While Chevrolet is present in as many as 70 markets worldwide, because of the existing structural components, it was not being managed globally. When this study first began, one respondent commented: "Brent Dewar does not manage the Chevrolet brand globally." This made it difficult to achieve synergies across markets (see Appendix 5, Quote 7). However, a transition was made during the course of this investigation. As one respondent put "Chevrolet will be a global brand. Well, really from the first quarter of 2005 can we say that Chevrolet is a global brand." However, because of the international heritage of the brand and other portfolio considerations, there will be differences in positioning around the world. In Europe it will be positioned below the Opel and Vauhall brands. Saab will also be a global brand, but retain its Swedish character; it will also be globally managed by a Global Brand Board. For these brands, because they have had multiple country managers operating through the IPC's, the Global Brand Boards have historic structural components which make this a logical progression in the globalization process.

Figure 1.5: GM's Global Brand Hierarchy



Although the pre-existing infrastructure has an inhibiting effect, by limiting the marketing function to a perception of "sales", there is a general tendency among the GM executives to accept the need for a more influential marketing department in the new product development process. As such, the findings with respect to the brand portfolio support the idea that under the pressures of globalization, the organization recognizes the important role marketing plays in the development of global brands. Therefore, it can be concluded that the greater the role of marketing in the global new product development process, the more likely are the global brand development efforts to be more systematic and balanced as predicted by Proposition 3.

DISCUSSION AND MANAGERIAL IMPLICATIONS

This study provides some interesting insights for products and brands in a globalizing firm from a cultural materialist perspective. In recent history, the greatest emphasis in the marketing literature has been related to market orientation, or the implementation of the marketing concept; the tenets of which, along with performance implications, have been explored widely (Jaworski and Kohli 1993; Kohli and Jaworski 1990b; Narver and Slater 1990a). The key mediation effects of innovative capabilities have also been explored (Han et al. 1998; Hurley and Hult 1998). This essay begins the progression of understanding the evolution of interactions among different functional units under the pressures of globalization and the role they play in the global brand development process. Conventional wisdom at GM follows that of the automotive industry at large, and is focusing on unifying its brand looks and image in conjunction with a new product development process that harnesses efficiencies from the scale of the corporation. Simultaneously, it is globalizing its new product and brand architectures, converging previously disparate functional and geographic groups in order to build a cohesive whole.

The study results provide support for the idea that the environmental global drivers influencing the organization are perceived differently by different groups within the new product development process. While cost is the overwhelming consideration, according to one source, two products released off the same architecture could share as few as 10-20 parts. It is for this reason that one executive indicated that the architecture structure actually accounts for less than 20% of the total cost of a vehicle; it's in the remaining 80% where there is true opportunity for savings.

According to the findings of this study, the IPC is most cognizant of, and is instrumental to, responding to the drivers of globalization, while the AVD group appears to be more insulated overall. This is interesting because the people interviewed within AVD tend to have a great deal of international experience in comparison to most of the other employees. This may be because the AVD group is primarily concerned, at this point, with the creative process. The VLE's, overall, while aware of the drivers of globalization, are more sensitive to the differences rather than the similarities across markets. This may be because they are responsible for finding the engineering and manufacturing solutions necessary to implement the necessary local adaptations. VLE's are also closer to the process of itself, and have responsibility for being responsive to customer needs within the constraints of other aspects of the new product development process. Historically, these functions have not been integrated internationally, suggesting residual effects are in place, which need to be addressed. As such, this qualitative study indicates that there are significant differences in the perception and effects of globalization drivers across different functions within the organization. This could be attributed to the roles each function assumes in the new product development process.

Previous research indicates the interface between marketing and research and development (R&D) is one of most important relationships in the organization (Song and Parry 1992). Yet, this qualitative study indicates that marketing's role in GM is somewhat marginalized by other groups. This is consistent with the findings of studies in other industry contexts where marketing has relatively little influence in the new product development process (Workman 1993). Although there is clearly participation by members of brand management and other VSSM employees, there seems to be a relatively low level of influence when compared to other functional areas. Research has suggested it is the influence of individuals, rather than mere participation in the new product development process which is significant (Atuahene-Gima and Evangelista 2000).

It appears both Planning and the VLE's take some responsibility for components of what academics consider marketing activities. However, integrating all these functions in a meaningful way becomes inherently more complex in a global environment. In order to facilitate this, the literature suggests a greater level of formalization of the interaction of other functional areas involved in product development with marketing and brand management, as well as adding variety to the means of compensation provided to members of the teams (Maltz and Kohli 2000). The components of increasing influence functionally is to change the infra-structure which creates the environment for the social interactions. The implication of these findings is that although the importance of marketing is acknowledged by the executives of the company, the exiting organizational structure and procedures may impede its contribution.

The new brand hierarchy being pursued, both domestically and globally, there is an increasing acceptance of the importance on marketing in new product development. This is reflected in the degree of centralization of brand management, which has inherent strengths from an evolutionary perspective. One caveat, however, is the definition of the individual brands as local, foreign or global. It appears, based on published reports that Cadillac is currently being aimed at being positioned as "foreign" in markets outside North America. This is because the indications are that it will be marketed as an "American" luxury brand. However, recent research suggests there is a higher degree of prestige and quality perceptions on the part of consumers of "global" brands (Steenkamp et al. 2003). Again, using Cadillac as an example, it does not have an existing global foundation, and the positioning alternatives are not bound by legacy effects as other brands, such as Chevrolet may be.

One consideration not accounted for in the materialist framework is the role of leadership in evolving and creating the organizational framework. However, one accepted perspective of organizational culture holds that it is leadership which creates and manages culture (Schein 1992). This implies that leadership's real power is thought leadership; there is a need on the part of executives to recognize they can guide culture, and not just assume it will change itself. Although changes have been made at the top and the bottom of the framework, the real challenge is making changes at the structural level related to human interaction (see Appendix 7, Quote 2).

Day and Montgomery (1999) discuss points that are salient to markets and marketing, among these are that customers are more demanding; they have more choice, there is less time to respond to their demands, and global demographics are also changing. In response, organizations must be more adaptive to respond to growing competition and develop more interactive strategies, while being able to operate across boundaries and functional lines. There is a blurring of traditional industries and the balance of power is being shifted to the customer and channel members. Their perspective captures alot of what GM is contending with while pursuing a radical change to the materialist framework. The challenge for GM, beyond recognizing the need to facilitate the changes in place, is reducing the time lag to catch up. It is crucial that the transformation in place occurs before the environmental drivers change again, and make the framework obsolete.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

While this study provides some interesting insights in to the workings of an organization as it struggles with the environmental forces of globalization and the resultant offerings to the marketplace, there are limitations to the extent of knowledge generated. The study is limited to one firm, and therefore cannot automatically be generalized to other firms in the industry. Furthermore, it cannot necessarily be construed to other industry applications.

The sample set for the study was based on a snow-ball sample, which provides potential limitations with respect to the narratives obtained from the respondents, as it is possible that I was referred mainly to like minded individuals within the organization.

Also, the sample consisted of a limited number of senior executives. As noted by one respondent, when he first began attending corporate wide executive retreats approximately twelve years ago, there were over 6,500 participants; today there are just over 3,000. Therefore, the overall number of people included in the study is a small percentage of potential pool. Additionally, there were a number of referrals made who could not be contacted, whose input may have improved the nature of the findings. A non-disclosure agreement was not in place during the course of this investigation, which inhibited the responses of a few respondents, and limited the number of internal documents which were made available for review. Finally, although many of the people interviewed had international experience with the company, the sample was limited to executives located in the United States.

Since the initial reference group encompassed a relatively broad cross-section of people involved in the new product development process, the sample set should provide some degree of reliability with respect the general thinking and actions of management. Also, since the majority of the concepts are related to strategic issues, the sample set provides a degree of validity regarding future actions and intent of leadership.

The limitations identified, however, provide opportunity for future research directions. Comparison with another company that has had a different evolutionary history and country of origin would be interesting. Correspondingly, a study of an organization from a different industrial sector would provide further opportunity for comparison and extension. Within the organization, a more in depth ethnographic study considering specific VLE's and their interaction with the brand management personnel would allow for delineation of a greater understanding of the nature of the structural changes. Input from a deeper set of personnel within each of the groups would also give opportunity to determine if there are synergies between the executive ranks and those who are responsible for tactical level execution. Further, a survey instrument distributed to a large number of people throughout the areas involved in the new product development process would allow for the quantitative testing of research propositions.

CHAPTER 3

THE EFFECTS OF MULTI-DIMENSIONAL BRAND EQUITY ON VALUE RETENTION: AN EMPIRICAL INVESTIGATION OF THE U.S. AUTOMOTIVE MARKET

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ABSTRACT

The enduring value created for the firm by the various dimensions of brand equity has been a topic of interest for some time; yet, a distinct gap in the literature exists regarding the long-term effects of brand equity dimensions on preserving the value of durable consumer goods. As such, this essay investigates the relationship between brand equity and the rate of retained value (i.e. the rate at which the original value of the product depreciates) of a durable consumer good, moderated by the region of brand origin. A framework based on information asymmetry is employed to develop hypotheses that are tested within the context of the U.S. automotive market. The data set consists of a three year, semi-annual time series panel of brand equity dimensions for 30 automotive brands and the associated average aftersale-value retention rates. A random effects model with autoregressive correlation of the errors is utilized to test the research hypotheses. The findings indicate a strong moderation effect by the region of origin, with Asian firms in particular having significant and positive impact of brand equity on the value retention rate of automobiles in the U.S. market.

THE EFFECTS OF MULTI-DIMENSIONAL BRAND EQUITY ON VALUE RETENTION: AN EMPIRICAL INVESTIGATION OF THE U.S. AUTOMOTIVE MARKET

INTRODUCTION

The return on marketing efforts persists as one of the major issues of interest to both academics and practitioners alike. In particular, developing metrics to value the current brand assets of the firm has remained elusive. This is because accounting approaches do not allow for the delineation of organically grown brand value, and only attributes it as a component of goodwill at the firm level when a company is sold. Therefore, alternative means of evaluating the return of brand related marketing efforts needs to be employed. Brand equity is an intermediate measure of particular significance because of the advantages it is believed that can be provided to the firm through price premiums in the short term and a competitive advantage in the long term. It is accepted that the primary means to achieving a differentiated position in the marketplace is through the strategic and tactical actions which create a strong brand in the minds of consumers, allowing the company to lower risks and enhance future profits (Srivastava and Schocker 1991). This suggests developing brand equity should have an impact on the enduring value of products and services, since it is fundamentally the means through which value is conveyed to, and perceived by, the consumer.

Measuring the value of a brand, or its level of equity, has been addressed by scholars from two distinct perspectives: financial-based measures and consumer-based measures. The financial based methods are more closely related to traditional financial valuations of assets (Farquhar 1990; Schultz 2000; Simonin and Sullivan 1992). In general, these methods employ firm level measures extrapolated to the brand level. One often cited sources of this type of valuation was developed by *Interbrand* and relies on seven different criteria: market share and ranking, brand stability and track record, stability of product category, "internationality," market trends, advertising and promotional support, and legal protection (Farquhar 1990; Keller 1993; Schultz 2000; Wentz 1989).

The alternative method, and the focus of this study, relies on customer-based metrics related to the value customers place on a brand. These are often attitudinal measures which attempt to determine either future consumer choice decisions (Argarwal and Rao 1996), consumer utility (Kamakura and Russell 1993; Swain et al. 1993) or the premium price willing to be paid for a product bearing the brand name, as opposed to a generic one (i.e., one that does not have a specific brand associated with it) (Aaker 1996; Keller 1993). The commonality in approaches to consumer-based brand equity is the focus on the factors, derived from cognitive psychology, that contribute to brand equity, how to measure them, how to manage them and consumer evaluations of the trend toward the extension of core brands in order to leverage the value of built up equity (Aaker 1992a; Aaker 1996; Aaker and Keller 1990; Bottomley and Holden 2001; Farquhar 1989; Keller 1993); (Simonin and Sullivan 1992). Recent contributions extend the concept of brand equity to consider the level of relationships consumers have with the brands they choose (Fournier 1998). Yet another important area of study which is emerging integrates the cognitive psychology approach to measuring brand equity with information economics (Erdem and Swait 1998; Erdem et al. 1999). As called for by Erdem et al. (1999), this study furthers the attempt to integrate these two streams of literature.

The focus of this study is the automotive industry, which has been of particular interest to marketing academics due to its economic importance and the wide variety and complexity of issues presented by a multifaceted industry. As noted by Pauwels et al (2004), the automotive industry is one of the most important industries in the U.S., and in conjunction with the related systematic value chain, supporting a significant portion of economy. Also, a broad array of marketing literature has considered the automotive industry as a research context, with issues such as the performance implications of new product introductions and promotions (Pauwels et al. 2004), product portfolio management (Bordley 2003), the factors that influence satisfaction with product quality (Slotegraaf and Inman 2004), Internet-based solutions to identifying customer requirements (Urban and Hauser 2004) and as a source of information (Ratchford et al. 2003), and customer satisfaction with dealership service (Mittal et al. 2004) being addressed. With respect to brand equity, a financial perspective based on firm level drivers was taken by Sullivan (1998) as she considered the effects of quality and advertising on the value of automobiles in the secondary market. Yet, what has not been considered is the aggregate effect of the brand equity - operationalized through the dimensions of brand awareness, intended loyalty, perceived quality, image, perceived economy - on the rate at which a vehicle depreciates over time, which is a direct reflection of the retention of a product's value in the market place.

It is important to understand how the dimensions of brand equity contribute to the value retention of automobiles for several reasons. First, it is a well known fact that once product ownership is transferred from the company to the consumer, considerable value is lost. This is posited to be the result of information asymmetry, and the fact that a buyer does not have complete information regarding the quality of a product (Akerlof 1970). An understanding of the relationship between the perceptions of a brand held by consumers and the rate at which value is lost has not been explored in the literature. Second, the depreciation rate, and resulting residual values of the product, correspond directly to the payment options automotive dealers offer to customers. This provides an interesting paradox, as brands which have flatter residual curves (i.e. lower depreciation rates) can offer lower monthly payments than comparably priced products with steeper declines in capital value (i.e. higher depreciation rates). Since the total capital to be financed is lower, more favorable payment options can be offered to the customer. While brand equity has been operationalized as a "price premium", when there is a greater value retention rate, the monthly price actually decreases. Exploring this relationship offers the potential to derive interesting insights.

Third, manufacturers are beginning to look increasingly downstream as they attempt to garner a larger share of the vehicle life cycle value chain (Belzowski and Smith 2001). This implies that the residual value associated with a brand will make a fundamental impact on the way in which a firm conceptualizes the strategy to attain value chain synergies via engaging in downstream activities such as leasing, second hand quality guaranties, and rentals. The question becomes whether the brand premium can be maintained over the useful life of a durable consumer product, and how each of the dimensions of brand equity contributes to the performance of the brand in terms of value preservation. Therefore, the rate at which value will be sustained can contribute to both marketing strategy formulation and consumer choice decisions.

Additionally, there are natural boundary conditions which exist based on the region of origin of a brand. In the U.S. automotive market, increasing competition from foreign manufacturers and global consolidations has continuingly eroded the domestic companies' market share, with new entrants poised to make further inroads. As recently stated by Dieter Zetsche, CEO of the Chrysler Group, a division of DaimlerChrysler, "The U.S. auto market is the battleground for the global industry. It is the most open market in the world. As a result, the U.S. market is under attack from all sides, in every segment and by very competent competitors." (Zetsche 2004). Recent announcements indicate future entrants will include those from both Asia and Eastern Europe. These market entries present the question of whether or not the origin of the brand has an inherent impact on the perception of the products offered, and what resulting effects on depreciation rates can be expected.

Thus, brand evaluations, as measured by the dimensions of brand equity, residual values, and region of origin are important factors affecting the decision making process of the automotive customers, along with corresponding strategic and tactical actions taken by managers. The firm level actions are "signals" sent to potential customers and the retained knowledge from these signals result in a probability assigned by the consumer with respect to expected product performance (Akerlof 1970). Brand equity can be viewed as a reflection of brand knowledge (Keller 1993). This indicates the importance of identifying the contribution of the disentangled components of brand equity (i.e., awareness, loyalty, perceived quality, image and perceived economy) on the enduring market performance of a brand through the evaluation of its residual value over time in conjunction with the origin effects.

This essay will first contribute to the literature by exploring the dimensions of brand equity and their effects on the after sale value retention of automobile brands, under conditions of information asymmetry. Further, it will contribute by exploring the moderation effects of the region of brand origin, (i.e., Europe, Asia or North America) on the relationship between brand equity dimensions and value preservation.

The remainder of this essay is presented in the following manner. First, the concepts of brand equity and value retention are explored. Next, a conceptual framework based on the foundations of information asymmetry is presented. Hypotheses are then developed and a method for testing the proposed model presented. The data, the context of the study, the results and a discussion of the findings follow. To conclude, limitations and directions for future research are presented.

DEPENDENT AND INDEPENDENT VARIABLES

Brand Equity

As long as there have been exchanges between buyers and sellers, producers have attempted to differentiate their goods and services from that of their competitors. Yet, branding as a concept only began to advance in the eighteenth century as producers of products used names and pictures to strengthen consumer associations with their goods (Farquhar 1990). In contemporary marketing, a brand is broadly defined as a name, term, symbol, design, or a combination thereof, which identifies a seller's products and differentiates it from competitor's products (Kotler 1997). Yet, the term "brand equity" appears to have first been used by advertising practitioners in the early 1980's as a broad expression to denote the financial value of long term customer relationships (Barwise 1993).

Financial perspectives of brand equity consider the values of traditional firm based measures with respect to the differences between intangible and tangible assets. Simonin and Sullivan (1992) investigate the relationship between stock market prices and brand value by separating the financial market value of the firm and the value of its tangible assets. Brand equity has also been defined as the profit potential of a brand, as expressed through market share, relative price, and other outcomes at the market level where brand reputation acts as a mediator of the effects of brand advertising, brand familiarity, and brand uniqueness on firm and product level outcomes (Chaudhuri 2002). Additionally, Aaker and Jacobson (2001) found that brand equity, as measured by brand attitude, has an effect on financial based returns.

There is also a line of thought that posits a brand as an effective relationship partner with consumers (Fournier 1998). It has been argued that if consumers and brands are bound by relationships, then there is also a larger population of people who also share this bond. Thus, it has been proposed that a "brand community" is a specialized, non-geographically bound group of people who are admirers of a brand, and share a set of rituals, traditions, consciousness and sense of responsibility (Muniz and O'Guinn 2001). This is somewhat similar to the idea "Utopian Enterprise" where cultures and sub-cultures develop based on the consumption of meanings derived from mass-media objects and images (Kozinets 2001). Conceptually, these ideas bring people together from various market segments to form groups with homogeneous needs and expectations. Essentially, the argument is that these relational aspects form the basis of brand equity.

Customer based brand equity has been defined as the differential effect of brand knowledge on consumer response to the marketing of a brand (Kamakura and Russell 1991; Keller 1993). Keller (1993) stated "in terms of the marketing effects uniquely attributable to the brand – for example, when certain outcomes result from the marketing of a product or service because of its brand name that would not occur if the same product or service did not have that name". Thus, brand equity can be summarized as the difference in consumer choice between the focal branded product and an unbranded product given the same level of product features (Yoo et al. 2000b).

Table 2.1: Perspectives of Brand Equity

Perspective	Approach	Measures	Citations
Financial	Traditional financial valuation of assets	Balance sheet based measures of tangible and intangible assets:	
		▪ Incremental cash flows which accrue to the firm through their branded products	Schultz 2000; Simonin and Sullivan 1992
Consumer based	Grounded in cognitive consumer psychology	Attitudinal measures related to the value customers place on a brand:	
		▪ Premium price willing to be paid for a product bearing the brand name, as opposed an unbranded product	Aaker, 1996
		▪ Consumer utility, added value beyond functional benefits	Argarwal and Rao 1996
		▪ Consumer utility, added value beyond functional benefits	Farquhar 1990; Kamakura and Russell 1993
		▪ Value of a brand as a credible signal of a product's position	Erden and Swait 1998
		▪ Relationships ▪ Community	Fournier, 1998 Muniz and O'Guinn 2001
		▪ Differential effect of brand knowledge on consumer response to marketing of the brand	Keller, 1993

One of the most accepted conceptualizations of brand equity, and that which has been published in textbooks (Aaker 1991; Keller 2003; Kotler 1997), proposes that a strong brand has four key dimensions: loyalty, perceived quality, associations, and awareness, along with other proprietary brand assets such as patents and copyrights (Aaker 1991). Also, variations of Aaker's (1991) dimensions have been proposed, specifying that customer based brand equity is based on five elements: performance, value, social image, trustworthiness and commitment (Lassar et al. 1995). From this perspective, brand equity can be regarded as the combination of brand strength, based on brand associations held by customers, and brand value based on the financial leverage derived from brand strength (Lassar et al. 1995; Srivastava and Schocker 1991).

Keller (1993) elaborates on two of the basic dimensions of brand equity by defining them in terms of brand knowledge which has two underlying components, brand awareness and brand image (Keller 1993). Brand awareness is defined by brand recall and brand recognition. Brand image is a complex concept based on the various components of brand associations: the types of associations which include attributes, benefits and attitudes, the favorability of associations, the strength of associations, and the degree of uniqueness of the associations (Keller 1993).

Erdem and Swaite (1998) present a perspective which integrates the concepts of cognitive psychology and information economics to derive the expected utility of the brand. In this conceptualization, there is an effect of marketing mix variables, operationalized by brand investments and brand consistency, on a causal string of relationships between brand credibility, brand clarity, perceived quality, perceived risk, information costs saved, with the final outcome of expected utility.

Table 2.2: Delineation of Consumer Based Dimensions of Brand Equity by Author

Citation	Loyalty	Perceived Quality / Performance	Associations (	Awareness	Proprietary Brand Assets	Credibility	Clarity	Perceived Risk	Information costs saved	Value / Expected Utility	Attitude	Attachment	Activity	Social Image	Trustworthiness	Commitment	Share of mind	Esteem	Familiarity
Aaker 1991	☑	☑	☑	☑	☑														
Erdem and Swaite 1999		☑				☑	☑	☑	☑	☑									
Keller 1993			☑	☑															
Keller and Lehman 2005			☑	☑							☑	☑	☑						
Krishnan 1996				☑													☑	☑	☑
Lassar et al. 1995		☑								☑				☑	☑	☑			
Yoo et al. 2000	☑	☑	☑	☑															
Yoo and Donthu 2001	☑	☑	☑	☑															

Interestingly, there are a wide variety of managerial solutions cited in the literature which have been developed to attempt to measure the consumer based value of brand equity. These range from single variable models based on consumer perception of quality, to more complex multidimensional models. Jeri Moore of DDB Needham Worldwide defines brand equity as the multiplicative sum of brand awareness, brand liking and perceived quality based on five attributes (Winters, 1991). Another model, the "Equity Engine", evaluates three constructs of a brand to assess its equity base. The first construct is brand "authority" as measured by heritage, trust, and innovativeness. The second is "identification" based on the personal relevance generated by a brand, and the last construct is "approval" as a measure of the perception that a brand will meet a person's needs (Morgan, 2000).

Landor Associates has built a model to evaluate brand strength and brand stature based on a total of 64 measures derived from self administered questionnaires completed by 100,000 people in 32 countries evaluating 10,000 local and global brands (Johansson and Ronkainen, 2002). Another practitioner based approach, coined the "Consumer Value Model" attempts to reconcile the financial and consumer based methods by assigning a financial value to consumer equity, based on the dimensions of brand images and associations, which is considered to be dependent on loyalty. (Dyson et al., 1996). The commonality between all these methods of exploring brand equity is their grounding in cognitive consumer psychology approaches to measurement.

The conceptualization of brand equity proposed in this essay is an integration of the basic definitions offered in the literature, where the four primary dimensions of customer-based brand equity - awareness, image strength, perceived quality, and brand loyalty (Aaker 1991), along with the congruence of brand value are modeled as individual factors impacting the value preservation of a brand.

Since it is accepted that brand equity represents the biased behavior a consumer has for a branded product versus an unbranded equivalent (Faircloth et al. 2001), it should have both immediate and long term consequences. A firm possessing a brand with a substantial amount of built up equity has higher resilience against competitors, along with organic barriers of entry, and the opportunity for successful extensions to the brand (Farquhar 1989). Further, a brand with a strong amount of equity can avoid price competition and command a sustainable price premium in its product category (Aaker 1992a; Morgan 2000b). The question in this case, is whether the advantage achieved through brand equity can contribute to the retention of value of a durable consumer good, such as an automobile.

Value Retention

Residual values are the remaining capital values associated with the end of an investment period (Shillinglaw 1955). In the case of automobiles, it is the estimated worth of a vehicle at the end of a lease period, reflective of the anticipated re-sale value at that future point in time; (lease terms typically run between 24 and 60 months, in annual increments). The amount of value expected to be retained is important to consumers because the difference between the selling price of the vehicle and the residual value is the basis for a lease payment and is an indicator of the total cost of owning that particular car (Solheim 2004). The expected value at a future date is a function of the performance expectations of the consumers in the market (Akerlof 1970); thus, the rate at which value will be sustained can contribute to consumer choice decisions. As such, value retention is defined as the rate at which the original value is maintained after the sale of the product.

For the manufacturer, residual values are an important tool for establishing their leasing sales and promotion strategy; it is estimated that General Motors alone obtained at least 125,000 more customers in 2003 than they would have without an attractive leasing plan (Kiley 2004). Recent advertisements by Chrysler, the U.S. division of DaimlerChrysler, focus on the greater value retention rates of their brands than the competition, indicating the company's view that this is the source of a competitive advantage. Additionally, manufacturers are beginning to look increasingly downstream as they attempt to garner a larger share of the vehicle life cycle value chain (Belzowski and Smith 2001). Vehicles returned at the end of a lease period supply automotive manufacturer's certified used car business (Kim 2004). This implies that the residual value associated with a brand will make a fundamental impact on the way in which a firm conceptualizes the strategy to attain value chain synergies.

The question becomes whether this premium can be maintained over the useful life of a durable consumer product, and how each dimension of brand equity contributes to the performance of the brand, as measured by the rate of value retention. The forecast value retention rate is an accessible dependent variable which serves as a proxy for performance expectations held by the marketplace. Moreover, considering that second had values differ considerably across products and transactions, an average depreciation rates need to be considered across brands.

CONCEPTUAL FRAMEWORK

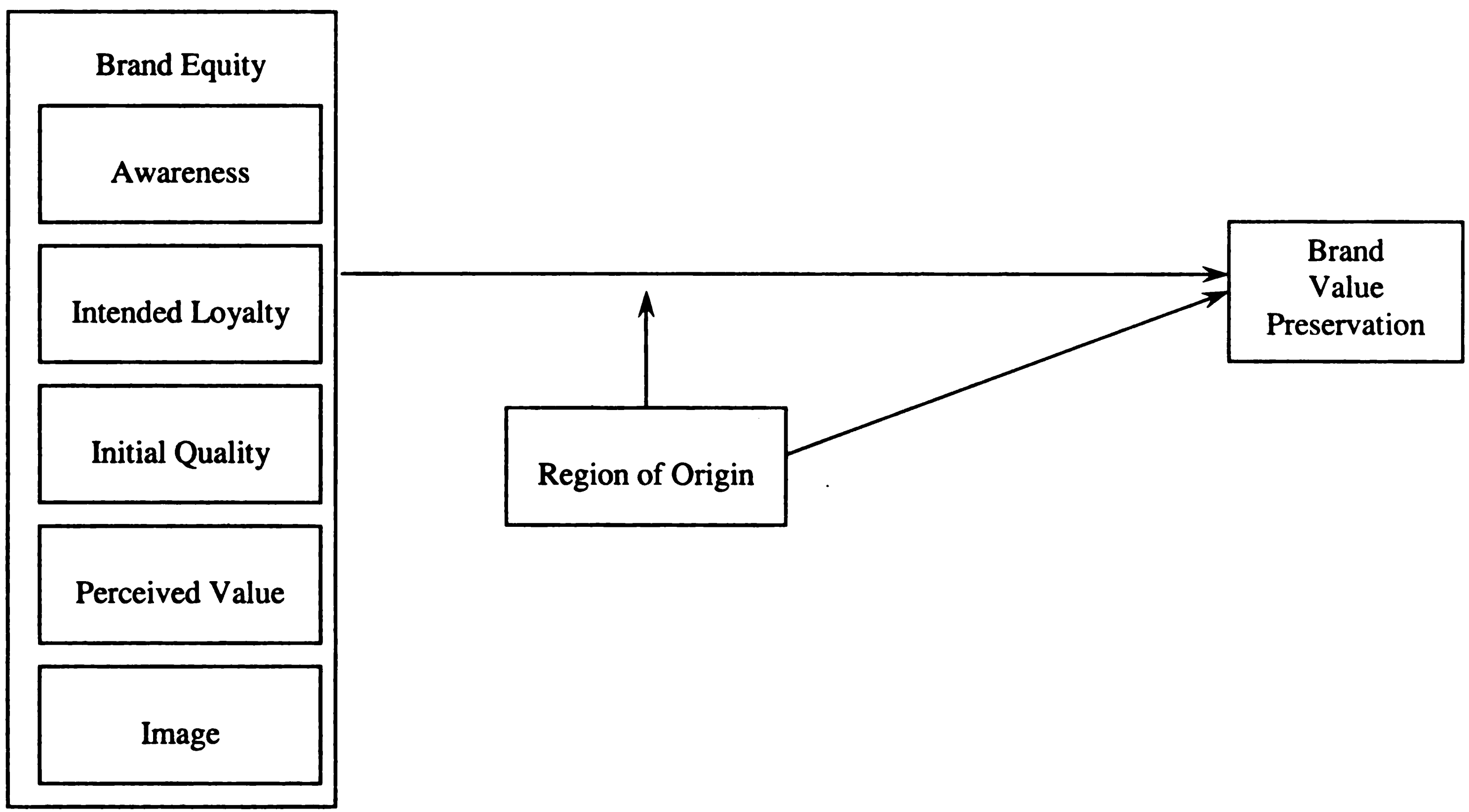
Buyers and sellers hold different information about a product; it is expected the seller holds a greater degree of information about the performance of their wares (Akerlof 1970). "Signals" are sent by the seller in order to communicate product quality, influence buyer's pre-purchase perceptions of their products, and ultimately sway purchase behavior. One such signal is a brand name (Akerlof 1970). A brand signal has been defined as a function of the present and past market mix activities associated with the brand (Erdem and Swait 1998). Thus, a brand name is a specific signal sent by the manufacturer to the consumer regarding the expected quality of their product (Dawar and Parker 1994). If the signal proves to be inaccurate (i.e., signals high quality falsely), then the result will reduce the net profits to the firm reflective of the extra costs of signaling (Wernerfelt 1988). Further, the brand will be punished in the marketplace through acts of retribution such as the withholding of repeat purchases, negative word of mouth, or the instigation of product recalls (Rao et al. 1999).

The concepts of information asymmetry assert that product cues are used by consumers as means to mitigate the effects of uncertainty (Akerlof 1970). Consumer product evaluation cues are either extrinsic, where the cue is not physically part of the product, or intrinsic, where the cue is a core product attribute (Richardson et al. 1994). Signals mostly serve as heuristics for consumers assessing product quality (Rao et al. 1999). Tellis and Wernerfelt (1987) found that on average, superior quality will produce a higher price.

Information economics posits a relationship between the information a customer has about a product or service, and the assignment of a probability of the actual quality of the product or service based on this knowledge (Akerlof 1970). Consumer-based brand equity is conceptualized in the literature as "brand knowledge" (Keller 1993). Transitively, brand equity can be viewed as the probability a consumer believes the brand of car they purchase is a "good" car versus the probability they will purchase a "lemon" (Akerlof 1970). The residual value assigned to the branded vehicle at the point of purchase is the anticipated market price at a future date, based on performance expectations. This future value should be near the point of equilibrium between supply and demand; thus, the residual value is the market clearing mechanism built into the purchase price based on the probability of a vehicle being a "lemon". Therefore, the expectation is that consumer based dimensions of brand equity should help to predict the rate of value retention of an automobile. The conceptual model which results is presented in figure 2.1.

The effects of these dimensions on the value retention of the brand are considered, as moderated by the region of origin of the brand. As import brands have garnered a larger share of the U.S. market, distinctions between brands from Asia (most notably Japan and Korea) and brands from Europe (e.g., Germany, Sweden, England) are often made reference to in a general sense. As such, the boundary condition is considered with respect to by region of origin in order to delineate the effects on a more specific scale than imports versus U.S. based brands.

Figure 2.1: Conceptual Framework:
The Effects of Multi-Dimensional Brand Equity on Value Preservation



HYPOTHESIS DEVELOPMENT

The following section considers the individual dimensions of brand equity and hypothesized effects on the value retention rate based on previous research presented in the existing literature.

Brand Awareness

Awareness is considered to be a basic component of brand equity. This is a significant consideration because a great deal of corporate resources are focused toward increasing the awareness of brand names. Automakers spent $50B on marketing activities in 2000, an expenditure greater than any other US industry and representing 200+% of the total net global income of the top five automakers combined (Chatterjee et al. 2002).

Brand awareness has two components: brand recall and brand recognition (Keller 1993). Brand recall, or the ability to identify a brand from memory cues is significant to brand equity because it is an important determinant of consumer's choices (Nedungadi 1990). It is thought that how a brand name is processed at the time of encoding will influence its retrieval; this processing has two factors: strength of the brand node and strength of the association between nodes (Lee and Sternthal 1999; Nedungadi 1990). Brand recognition, on the other hand, has a lower threshold of processing, and only requires a consumer to correctly discriminate a brand from other products in a given category (Keller 1993). Consideration of purchases has been modeled as a function of awareness; in order to evaluate a brand based on retained knowledge, there must first be an awareness of the brand (Erdem et al. 1999). Therefore, it is expected:

H1: The greater the brand awareness, the more positive is the after sale value retention of automobiles.

Intended Brand Loyalty

Brand loyalty has been defined as the commitment to re-purchase a preferred product or service consistently in the future, regardless of situational context or competitor's marketing efforts (Oliver 1997). It has been postulated that brand loyalty results from brand-specific knowledge and increases with the degree of (positive) experience a consumer has with a product (Ratchford 2001). In the customer's mind, a brand symbolizes a consistent value associated with a product (Erdem and Swait 1998). Therefore, customers develop brand loyalty often as a result of the risk reduction process in purchasing.

An emerging idea in the literature suggests that the commonality between the financial and consumer based methods of measuring brand equity is brand loyalty. The basic tenet behind this argument is that any measure of equity must ultimately rely on this construct to generate persistent revenues at a premium differential from alternative products (Schultz 2000). A study of automobile buyers found that a customer's brand loyalty increases with age, and buyers will pay more for a product with which they have a greater degree of experience (Ratchford 2001; Rechtin 1997). Another study found the brand loyalty construct to have a 51% greater impact on brand equity (Heath 1999). This supports the idea that brand loyalty is a key consideration when placing value on a brand's equity because a dependable customer base will generate sales and profit streams that are not only predictable (Aaker 1992b), but also economically viable over the long run. Yet, actual brand loyalty itself can only be measured post-purchase. Since this study is concerned with brand equity at the time of purchase, loyalty is operationalized as intended brand loyalty based on purchase intentions (i.e., intending consumers who currently own the brand/ intending consumers who currently own the brand). It is expected that as intended brand loyalty increases, there will be a positive impact on the change in the preservation of a brand's value.

H2: The greater the intended loyalty to a brand, the more positive is the after sale value retention of automobiles.

Perceived Quality

The perceived quality of a brand is considered to be the subjective judgment of consumers with respect to a brand's overall excellence and superiority, which would lead a consumer to purchase a brand over a competitor brand (Ziethaml 1988). When consumers evaluate a brand's quality, they consider the subjective psychological and emotional benefits in addition to the functional and objective benefits of the product (Hellofs and Jacobson 1999). A firm which focuses externally on the customer perceptions of brand quality through marketing activities will achieve superior performance (Rust et al. 2002). There is a correlation between the information of perceived quality related to a brand and the firm's stock price movement when used as a proxy for brand equity (Aaker and Jacobson 1994).

H3: The greater the perceived quality of a brand, the more positive the after sale value retention of automobiles.

Perceived Economy

Although the term "brand value" is often used interchangeably with "brand equity" in the literature, the concept of the perceived value attributable to a brand is a function of aligning the price of purchase and costs associated with ownership of a brand's product with the expectations of consumers (Keller 2000). It is believed that the cost of ownership will be a significant factor in the equity of consumer durable good brand. It is expected that as there are positive changes to the perceived economical value of owning and maintaining a brand, there will be positive change to the slope of the depreciation rate as indicated by the slope of the value retention curve. Thus,

H4: The greater the perceived economy of a brand, the more positive the after sale value retention of automobiles.

Brand Image

Brand image is able to capture the effects of brand attitude and other associations (Faircloth et al. 2001); (Keller 1993) A unique, strong, and favorable brand image permits the brand and its meaning to be strategically differentiated and positioned in the consumer's mind, contributing to enhanced brand equity (Faircloth et al. 2001; Pitta and Katsanis 1995). Brand image has been effectively conceptualized as the cluster of attributes and associations which consumers connect to a brand name (Biel 1992). Further distinguished as "a holistic construct formed from a gestalt of all the brand associations" (Faircloth et al. 2001).

Brand associations are sensory in nature, and become more important to brands as their images are positioned on the basis of experiences of pleasure, excitement and fun

(Holbrook and Hirschman 1982). From a cognitive psychology perspective, the majority of associations are pre-conscious and non-verbal (Supphellen 2000), the bulk of which are visual, as opposed to verbal (Zaltman 1997). One theory proposes that associations are a means of low involvement processing where brand information is stored in the right brain as sensory associations, and these associations stimulate consumer's purchasing behavior without any further processing (Heath 1999). Further delineation shows that brand specific associations will refer to features, attributes, or benefits that consumers relate to a brand and that differentiate it from the competition. Thus, brand strength is the set of associations held by stakeholders that allows the brand to be differentiated from its competitors and enjoy a sustainable competitive advantage (Srivastava and Schocker 1991). Therefore, changes in a brand's image should lead to positive changes in the preservation of value over time.

H5: The greater a brand's image, the more positive the after sale value retention of automobiles.

Region of Origin as a Moderator

The country-of-origin effects literature has considered the impact of specific country associations on the evaluation of product quality (Bilkey and Nes 1982; Parameswaran and Pisharodi 1994). In general, it has been found that the evaluation of a country from which a product originates has an impact on consumer assessments of product quality, and is used to choose the best available option (Klein 2002). It can also be viewed from the categorization literature related to consumer behavior and cognitive psychology related to the process of evaluative judgments (Pavelchak 1989). Essentially, this literature suggests that consumers either use a piecemeal or categorization process to evaluate products (Meyers-Levy and Tybout 1989; Pavelchak 1989), and because consumers will typically take the easiest approach to evaluation, they will categorize based on known information (Fiske and Taylor 1984; Ulgado and Lee 1998).

Consumer ethnocentrism literature takes this concept to a more granular level, and has been defined as the belief by consumers that it is inappropriate and immoral to purchase foreign products because it damages the economy, costs jobs and is generally unpatriotic (Shimp and Sharma 1995). Findings are that consumer ethnocentrism affects purchasing behavior, but will be lower when there is a higher quality to the imported good, and if there is a higher degree of cultural openness (Shimp and Sharma 1995). Moreover, the variable has been determined to be a factor when consumers make choices between domestic and foreign goods (Klein 2002). U.S. consumers generally rely on intrinsic attributes as a basis for evaluating products (Ulgado and Lee 1998).

It then follows that the region of origin should moderate the dimensions of brand equity on value preservation. Keller considers the country of origin of a brand to be an association which impacts brand equity (Keller 1993). Even with the reality of continuous quality improvements, the domestic makers appear to have trouble improving related brand value; it has been noted that there appears to be a widening gap between the residual values of U.S. based brands and their foreign rivals (Sawyers 2003). The external market entrants in the U.S. are broadly grouped into Asian and European brands, as this classification is a generally accepted industry practice for strategic management and also a way consumers tend to group brands. Thus, the region of origin, as an intrinsic product cue, is expected to have a moderating impact on the effect of brand equity dimensions on the value preservation of a product.

H6: The effects of the dimensions of brand equity on the value retention of automobiles will differ by the region of brand origin.

METHOD

Data

The purpose of this study is to investigate the effects of each component of brand equity on the after sale value retention of automobiles. The hypotheses presented above are tested within the context of the U.S. automotive market. Cross-sectional panel data derived from a semi-annual national survey are used to measure five of the brand equity dimension scores of each brand. This type of data offers several benefits including the mitigation of the effects of omitted variable bias by increasing the heterogeneity of observations, alleviation of the effects of multicollinearity through the combination of measures and time, the examination of issues which cannot be explored with cross-sectional or time series data alone, and the analysis of dynamic changes (Kennedy 2003, p. 302). The time span of the dataset used in this analysis covers three years, from 2001 to 2003, a critical time range in the automotive industry due to the continued erosion of domestic manufacturers' market share and increased performance of imported/transplant brands.

The dataset has been provided by GfK Automotive, LLC a member of the GfK Group, a leading supplier of syndicated market research to the automotive industry in the U.S.. GfK Automotive, LLC maintains the largest database of pre-purchase automotive information available in the U.S. market. An automotive consumer panel is developed from a monthly survey of on average 200,000+ households that demographically represents the U.S. population. This initial survey measures the expected timing of the next household purchase of an automobile, and the make/model intended to be purchased. A follow up study is conducted semi-annually among new vehicle intenders. Each intender rates all brands/models in the segment with questionnaires collected until a minimum ending sample size of n=300 per brand, per wave is achieved. Thus, utilizing this dataset, the brand average dimension scores of 30 brands sold in the U.S. light vehicle market are computed for 6 semi-annual time points from 2001-2003. This is a particularly important time frame for the automotive industry in the U.S. market, as interest rates remained low and an emphasis of incentive-based promotions pervaded the industry. J.D. Powers provided the initial quality data used in the analysis, and the residual values of the vehicles sold within the period of analysis were acquired from Automotive Leasing Guide (ALG), another standard industry data source and the primary provider of automotive residual values to financial institutions.

Independent Variables

In this study, as illustrated in Table 3, awareness is measured via two questionnaire items; the first is based on a 3 point Likert scale, which asks the respondents' familiarity with the brand, and the second is based on a 4-point Likert scale which asks the respondents' recall of advertising recently seen or heard.

Intended loyalty is measured through purchase intentions with respect to current brand ownership. The respondents are asked to list the current make and model they own, as well as the make and model they intend to purchase. These responses were cross-tabulated and aggregated to the brand level to find the percentage of intended loyalty to a brand. This method is consistent with common industry practice and provides suitable means for evaluating the intended loyalty of survey respondents.

Perceived quality is measured by the J.D. Powers Initial Quality Study which is based survey data of owners and lessees and asks the number of "things gone wrong" on a vehicle during the first 90 days of the vehicles service. The results of the survey are tabulated to calculate the number of reported problems per every 100 vehicles. While this quality measure is based on actual vehicle performance in the field, it is a sufficient proxy for perceived quality due to the wide reporting of the figure in the general and industry specific media, as well as a standard resource for those considering a vehicle purchase.

Perceived economy and the image constructs are measured via multiple questionnaire items on a 5-point likert scale, which has been converted by the marketing research firm to a 10-point scale in order to improve managerial evaluation. In order to capture the perceived economy of the vehicle, the questions are industry and product-specific, including the degree to which the brand is "economical to operate", "excellent gas mileage" and "good value for the money". Image can be a difficult construct to capture since it deals with a variety of associations and conditions. Automobiles, however, fit relatively distinct categories; in this study, the constructs of "dynamic" image and "luxury" image are operationalized via four and two measures, respectively. Although it is common industry knowledge that the average age of a new car buyer is in their mid-to late-forties, automakers attempt to portray many vehicles with a youthful image characterized by active lifestyle associations. In this vein, a "dynamic image" factor is constructed by measuring the degree to which a vehicle brand is "fun to drive", "has trend setting vehicles", is "sporty" and "good looking." Another common marketing approach for vehicle brands is to build associations with classic extravagance and high levels of esteem. As a means to capture associations of this nature, a "luxury image" factor is measured through questionnaire items which ask the degree to which a vehicle brand is "luxurious" and the degree to which it is "prestigious."

The region of origin was coded as North America, Europe and Asia using a set of two dummy variables, with the base case being North America. This allows for differentiation of model results with a comparison of European and Asian brands versus North American brands.

Table 2.3: Construct Definitions and Measurement

Construct	Definition	Measures
Awareness	Customers' ability to identify a brand from memory cues and correctly discriminate a brand from other products in a given category.	▪ Familiarity ▪ Advertising recall
Intended Loyalty	Customers' commitment to re-purchase a preferred product or service consistently in the future.	▪ Intended/Current Ownership
Perceived Quality	The subjective judgment of consumers with respect to a brand's overall excellence and superiority.	▪ Initial defects per 100 as perceived by customers
Perceived Economy	The alignment of price of purchase and costs associated with ownership of a brand's product with the expectations of consumers.	▪ Economical to operate ▪ Excellent gas mileage ▪ Good value for the money
Dynamic Image	The cluster of sporty attributes and associations which consumers connect to a brand name.	▪ Fun to drive ▪ Has trend setting vehicles ▪ Sporty ▪ Good looking
Luxury Image	The cluster of luxury attributes and associations which consumers connect to a brand name.	▪ Luxurious ▪ Prestigious

Factor Analysis

The independent variables representing the dimensions of brand equity are derived from the panel data set covering six consistent interval time points over three years. Multiple measures are available for the latent factors with proportional values used for the remaining factors. A complete table of the correlations between the measures employed is presented in Table 4. The correlation matrix indicates that all items correlated better with items intended to measure the same construct.

The measures presented above are used to form the dimensions of brand equity at the make level through the use of exploratory factor analysis. A six factor solution is constructed using the Principal Component Analysis method of extraction and Varimax with Kaiser Normalization used for the method of rotation. The variance extracted for this six factor solution is 96.96%, effectively creating the variables of brand awareness, intended loyalty, initial quality, perceived value, and two dimensions of image: luxury and dynamic; the factor loadings are presented in Table 5. The identification of these distinct factors allows for the elimination of potential multi-collinearity and enables the identification of the effect of each of the dimensions on the retention rate.

Table 2.4: Correlation Matrix for Principal Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11	(12)	(13)	(14)
Mean	0.54	6.43	5.95	5.95	6.02	6.04	6.27	6.52	6.09	6.06	6.67	6.1	6.208	-21
Std. deviation	0.26	0.93	1	103	0.7	0.72	0.46	0.51	0.57	0.57	0.63	1.36	1.271	3.3
(1) Intended/Current Owner	1.00													
(2) Familiarity	0.09	1.00												
(3) Advertising recall	0.00	0.85 **	1.00											
(4) initial defects per 100 vehicles	-0.35 **	-0.10	0.12	1.00										
(5) econonmical to operate	-0.15 *	0.12 **	0.33 **	0.26 **	1.00									
(6) gas mileage	-0.15	0.02	0.24	0.24 **	0.98 **	1.00								
(7) value for money spent	0.03	0.59 **	0.63 **	-0.05	0.69 **	0.63 **	1.00							
(8) fun to drive	0.22 **	0.16 **	0.18 **	-0.31 **	-0.14 **	-0.11 *	0.16 **	1.00						
(9) trend setting	0.27 **	0.26 **	0.21 **	-0.36 **	-0.16 **	-0.13 *	0.23 **	0.92 **	1.00					
(10) sporty	0.11	0.00	0.10	-0.12	0.16 **	0.22 **	0.15 **	0.77 **	0.70 **	1.00				
(11) good looking	0.31 **	0.30 **	0.24 **	-0.48 **	-0.30 **	-0.28 **	0.17 **	0.85 **	0.88 **	0.50 **	1.00			
(12) luxurious	0.32 **	-0.07	-0.23	-0.54 **	-0.65 **	-0.59 **	-0.25 **	0.57 **	0.66 **	0.16 **	0.74 **	1.00		
(13) prestigious	0.32 **	-0.10 *	-0.25 *	-0.51 **	-0.66 **	-0.60 **	-0.26 **	0.64 **	0.71 **	0.22 **	0.76 **	0.95 **	1.00	
(14) λ*100	0.19 *	-0.19 **	-0.10 *	-0.23 **	0.07	0.13 **	0.07	0.51 **	0.49 **	0.44 **	0.32 **	0.21 **	0.29 **	1.00

Table 2.5: Factor Loadings for Principal Constructs

Construct	Measures	Quality	Intended Loyalty	Awareness	Perceived Value	Dynamic Image	Luxury Image
Perceived Quality	Initial defects per 100	**-0.935**	-0.171	-0.034	0.114	-0.207	-0.185
Intended Loyalty	Intended/Current	0.151	**0.974**	0.035	-0.060	0.123	0.092
Awareness	Familiarity	0.127	0.027	**0.965**	0.006	0.035	0.049
	Advertising recall	-0.122	0.012	**0.917**	0.230	0.076	-0.152
Perceived Economy	Economical to operate	-0.129	-0.050	0.062	**0.947**	-0.035	-0.241
	Excellent gas mileage	-0.130	-0.053	-0.036	**0.960**	0.003	-0.189
	Good value	0.145	0.022	0.477	**0.818**	0.075	0.101
Dynamic Image	Fun to drive	0.125	0.058	0.091	-0.016	**0.944**	0.216
	Trend setting vehicles	0.126	0.101	0.094	-0.053	**0.887**	0.364
	Sporty	-0.007	0.023	-0.067	0.145	**0.962**	-0.171
	Good looking	0.269	0.119	0.189	-0.176	**0.740**	0.494
Luxury Image	Luxurious	0.277	0.142	-0.151	-0.476	0.439	**0.674**
	Prestigious	0.257	0.138	-0.178	-0.447	0.498	**0.651**

Dependent Variable

New car residual values, based on a national average percentage of value retained, of vehicles sold in the U.S. market are used to calculate the rate of value preservation. The data is from the ALG residual guidebooks, which were originally published in 1964, and are updated every other month. The ALG residual guidebook is the industry standard for the residual value forecasting of vehicles used by dealerships and finance firms to calculate lease costs (Automotive Lease Guide 2002). These values are also relied on by automotive executives to gauge their relative performance over time. For example, in a set of exploratory interviews with industry managers, one executive lamented that his brand had improved on many traditional metrics such as actual quality and market share, but had not been able to break their range of depreciation over time. The table he used to illustrate his point was based on ALG values[2].

Consumer brand equity variables are not specifically incorporated by ALG in the residual values and ALG was not a customer of GfK Automotive, LLC during the study period. However, the expectation is that these dimensions can explain a significant amount of the variance in the overall depreciation rates over time. Further, ALG's

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[2] The national percentage residual values are based on macro factors based on an analysis to include economic factors and correlating the factors to consumer price index; segment adjustments used supply forecasts at the segment level, consumer trends and shifts at the segment level, days supply which leads to incentives at the segment level, and residual performance tracking at the segment level; brand adjustments which anticipate negative changes in performance within a brand such as management issues, financial health, product pipeline etc., model adjustments which anticipate negative changes in performance within a model such as firestone tire, rollover/quality ranking, increased competition etc. and lifecycle considerations such as anticipated declines based on model changes and historical patterns; and a new model residual process that includes significant focus on future competitiveness, pricing trends and incorporate historical brand/model based residual performance. The correlation analysis and Hausman Test provide no indication of endogeneity.

incorporation of a wide array of macro environmental and firm level variables acts as ad-hoc control for these factors in the model developed to test the brand equity dimensions. The data are available on a model and trim level basis and un-weighted averages are calculated for each brand in order to complete the analysis at brand level.

The depreciation of the residual values from the point of purchase to five years out follows a reverse exponential curve. The residual values of the vehicles sold at the time of the survey are utilized to find the depreciation rate of each brand at that point in time. These values for each brand/year combination for 24, 36, 48 and 60 months are then transformed logarithmically utilizing the curve estimation function in SPSS. The lambda's are then estimated for each brand/year combination using a linear function, multiplied by 100 to enhance evaluation, and then used as the dependent variable in the model estimation.

$$\mathrm{RV}_{\tau i} = \alpha \cdot e^{\lambda_{ti} \cdot \tau} + u_{\tau i}$$

Which after logistic transformation becomes:

$$\mathrm{Ln(RV)}_{\tau i} = \alpha' + \lambda_{ti} \cdot \tau + u'_{\tau i}$$

Assessing the Impact of Brand Equity Dimensions

Having developed nine indices for six independent variables, the two moderator variables and the dependent variable, the basic econometric model to test the hypotheses becomes:

$$(\lambda_{ti}) = \beta_0 + \beta_1 A_{ti} + \beta_2 IL_{ti} + \beta_3 IQ_{ti} + \beta_4 PV_{ti} + \beta_5 LI_{ti} + \beta_6 AI_{ti} + \beta_7 CE_i + \beta_8 CA_i$$

$$+ \beta_9 A_{ti} CE_i + \beta_{10} IL_{ti} CE_i + \beta_{11} IQ_{ti} CE_i + \beta_{12} PV_{ti} CE_i + \beta_{13} LI_{ti} CE_i + \beta_{14} AI_{ti} CE_i$$

$$+ \beta_{15} A_{ti} CA_i + \beta_{16} IL_{ti} CA_i + \beta_{17} IQ_{ti} CA_i + \beta_{18} PV_{ti} CA_i + \beta_{19} LI_{ti} CA_i$$

$$+ \beta_{20} AI_{ti} CA_i + \varepsilon_{ti}$$

Where *i* and *t* denote the brand and survey time period respectively, τ denotes the time from point of purchase, and $RV_{\tau i}$ and λ_{ti} represent the residual value of brand *i* at time τ and the depreciation rate of brand *i* at time *t*, respectively. Where *i* and *t* denote the brand and survey year respectively, and:

A_{it}	Awareness of brand *i* at time *t*
IL_{it}	Intended Loyalty of brand *i* at time *t*
IQ_{it}	Quality of brand *i* at time *t*
PV_{it}	Perceived Value of brand *i* at time *t*
LI_{it}	Luxury Image of brand *i* at time *t*
AI_{it}	Dynamic Image of brand *i* at time *t*
CE_i	Is one if region of origin of brand *i* is in Europe, zero otherwise
CA_i	Is one if region of origin of brand *i* is in Asia, zero otherwise
RV_{it}	Residual value of brand *i* at timeτ
λ_{it}	Depreciation rate of brand *i* at time *t*

While time series panel data offers many advantages, care must be taken when estimating the models as it is generally agreed that cross-sectional heterogeneity exists for the observations of each individual, implying a different intercept for each brand in the data set (Kennedy 2003). Since there are so many extraneous factors which could impact the residual value over time, there is significant potential for omitted variable bias in the estimation. Thus, the composite error term may incorporate aspects that are idiosyncratic to each particular brand and can be defined as $\varepsilon_i = \alpha_i + \eta_{it}$, where α_i is an unobserved brand specific factor, also known as the unobserved or individual heterogeneity, and η_{it} is a white noise error term, also called idiosyncratic error (Aaker and Jacobson 1994; Wooldridge 2000, p. 420). The accepted means of improving estimation include application of a "first difference" model, "fixed effects" model or a "random effects" model.

A first difference model subtracts the values for one period from values in the next earlier period in order to identify change, effectively "differencing away" α_i. However, this method has the drawback of potentially reducing variation; this can be mitigated by using a large cross-section of data (Wooldridge 2000, p. 423), but the number of brands available in the automotive industry does not allow for the collection of a sufficiently broad cross-section of observations. The fixed effects estimation also eliminates α_i (Wooldridge 2000, p. 449), but transforms the data by subtracting from each observation the average of all observations for that brand, essentially allowing each brand to have a different intercept and implicitly including a dummy variable for each brand (Kennedy 2003, p. 304). This method is limited by the loss of degrees of freedom through the addition of the dummy variables. Further, the transformation processes of both the first difference and fixed effects methods of estimation create a situation where time invariant variables, such as the country of origin effects considered in this study, cannot be included the estimation (Kennedy 2003; Wooldridge 2000). Thus, from a theoretical perspective, neither of these methods of estimating time series panel data is adequate for testing the hypotheses.

The random effects model utilizes an alternative method of estimation; rather than eliminating α_i, the assumption is made that α_i and x_{it} are uncorrelated (Kennedy 2003,

p. 305; Wooldridge 2000, p. 449). The transformation of the data is conducted in such a way that the variance-covariance matrix of the composite error has a block diagonal pattern which requires use of generalized least squares (GLS) estimation (Aaker and Jacobson 1994). This allows for an assessment of the variation both within each group of observations and between the groups. The random effects estimated is more efficient than the alternatives because it uses a weighted average of both types of estimators when the assumption of zero correlation between the explanatory variables and the composite error (Kennedy 2003, p. 307).

The proposed model was estimated using Stata 8.0. Since the random effects estimation method assumes α_i and x_{it} are uncorrelated, it is necessary to assess whether or not this assumption is true. This is accomplished through comparison of the estimates obtained from the fixed effects model and the random effects model (Hausman 1978). The Hausman test tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the equivalent as the ones estimated by the consistent fixed effects estimator. Running the Hausman test with the model and data set described previously yields a χ^2 statistic of 11.4 with 21 degrees of freedom and a p-value = 0.953. The null hypothesis cannot be rejected, and the assumption that α_i and x_{it} are uncorrelated can be made indicating that the random effects model will not produce biased coefficients. Thus, both theoretically and methodologically, random effects estimation is the best specification among those considered for this data set.

The Breusch and Pagan Lagrangian multiplier test for random effects considers the null hypothesis that there is no serial correlation in the error terms (Wooldridge 2002a, p. 264). The results indicate a $\chi^2(1) = 196.21$ with a p-value < 0.001. The null hypothesis is strongly rejected, indicating that the there is serial correlation in the composite error, implying that pooled OLS estimation will be inefficient and GLS will be a better estimation technique. Further, the results obtained through the random effects estimation indicate a first order serial correlation (ρ) of 0.924. Therefore, the model was run again allowing for first-order autoregressive correlation among the disturbance terms. The modified Bhargava et al. Durbin-Watson test statistic = 1.076 and the Baltagi-Wu LBI = 1.681. For testing $\rho = 0$ versus $\rho > 0$ (or $\rho < 0$), it is necessary to compare the LBI result to the critical value from the lower (upper) tail of an $N(0,1)$ distribution. The upper tail critical value for the standardized normal distribution at the .05 confidence level is $z_{.05} = 1.645$. Since 1.68 is greater than the critical value, the null hypothesis of zero autocorrelation is rejected in the favor of AR(1) in the error terms. Results of the random effects model and the random effects with autoregressive error correlation are presented in Tables 6 and 7, respectively. A comparison indicates the coefficients of the AR(1) model are more consistent across alternate specifications and, therefore, appears to be the appropriate estimation method for this data set.

Table 2.6: Estimation Results – Random Effects

Covariates		Alternate Specifications					
Constant	β	**-22.811**	***	**-25.330**	***	**-25.580**	***
	s.e.	**0.420**		**0.553**		**0.645**	
Intended Loyalty	β	**0.189**	**	**0.215**	***	-0.062	
	s.e.	**0.087**		**0.079**		0.134	
Awareness	β	-0.075		**0.727**	***	0.467	
	s.e.	0.273		**0.284**		0.351	
Perceived Quality	β	0.159		0.275		**-0.760**	
	s.e.	0.200		0.180		**0.249**	
Perceived Economy	β	-0.039		-0.280		-0.577	
	s.e.	0.266		0.249		0.392	
Dynamic Image	β	**1.505**	***	**1.231**	***	0.565	
	s.e.	**0.259**		**0.240**		0.393	
Luxury Image	β	0.407		**0.525**	**	0.168	
	s.e.	0.254		**0.229**		0.354	
European Country	β			**5.515**	***	**5.579**	***
	s.e.			**1.039**		**1.268**	
Asian Country	β			**4.394**	***	**5.376**	***
	s.e.			**0.870**		**0.962**	
European Country X Intended Loyalty	β s.e.					0.092 0.211	
European Country X Awareness	β s.e.					-0.801 0.663	
European Country X Quality	β s.e.					**1.035** **0.447**	**
European Country X Perceived Economy	β s.e.					**1.418** **0.626**	**
European Country X Dynamic Image	β s.e.					0.232 0.630	
European Country X Luxury Image	β s.e.					-0.336 0.655	
Asian Country X Intended Loyalty	β s.e.					**0.346** **0.175**	**
Asian Country X Awareness	β s.e.					**1.026** **0.543**	*
Asian Country X Quality	β s.e.					**1.606** **0.289**	***
Asian Country X Perceived Economy	β s.e.					-0.402 0.560	
Asian Country X Dynamic Image	β s.e.					0.572 0.495	
Asian Country X Luxury Image	β s.e.					0.748 0.512	
Year 2002	β	**-0.449**	***	**-0.443**	***	**-0.405**	***
	s.e.	**0.163**		**0.154**		**0.127**	
Year 2003	β	**-1.133**	***	**-1.345**	***	**-1.143**	***
	s.e.	**0.253**		**0.239**		**0.202**	
December	β	**0.802**	***	**0.658**	***	**0.694**	***
	s.e.	**0.128**		**0.123**		**0.103**	
R-Sqr - Within		0.566		0.593		0.750	
Between		0.626		0.739		0.759	
Overall		0.589		0.732		0.775	
Wald Chi-Sq (d.f)		196.55 (9)		272.1 (11)		444.67 (23)	
significance		<0.001		<0.001		<0.001	
N (Groups)		171(30)		171(30)		171(30)	

significance levels: * < 0.10, **<0.05, ***< 0.01

Table 2.7:
Estimation Results – Random Effects with Autoregressive Error Terms

Covariates		Alternate Specifications					
Constant	β	**-22.652**	***	**-25.132**	***	**-25.362**	***
	s.e.	**0.355**		**0.500**		**.480**	
Intended Loyalty	β	**0.157**	**	**0.140**	**	-0.079	
	s.e.	**0.075**		**0.066**		0.113	
Awareness	β	**-0.443**	*	**0.503**	**	0.210	
	s.e.	**0.238**		**0.253**		0.315	
Perceived Quality	β	**0.411**	*	**0.429**	**	**-0.742**	**
	s.e.	**0.211**		**0.187**		**0.259**	
Perceived Economy	β	0.011		-0.257		-0.481	
	s.e.	0.220		0.215		0.293	
Dynamic Image	β	**1.306**	***	**0.936**	***	0.192	
	s.e.	**0.213**		**0.197**		0.352	
Luxury Image	β	0.278		**0.360**	**	-0.095	
	s.e.	0.213		**0.199**		0.266	
European Country	β			**5.578**	***	**5.553**	***
	s.e.			**0.898**		**4.762**	
Asian Country	β			**4.145**	***	**0.897**	***
	s.e.			**0.763**		**0.696**	
European Country X Intended Loyalty	β s.e.					0.050 0.181	
European Country X Awareness	β s.e.					-0.313 0.541	
European Country X Quality	β s.e.					**0.938** **0.477**	**
European Country X Perceived Economy	β s.e.					**0.933** **0.490**	*
European Country X Dynamic Image	β s.e.					0.530 0.520	
European Country X Luxury Image	β s.e.					0.045 0.491	

Table 7: Continued

Asian Country X Intended Loyalty	β s.e.			**0.359** ** **0.147**
Asian Country X Awareness	β s.e.			**0.959** ** **0.477**
Asian Country X Quality	β s.e.			**1.826** *** **0.292**
Asian Country X Perceived Economy	β s.e.			-0.182 0.437
Asian Country X Dynamic Image	β s.e.			**1.014** ** **0.425**
Asian Country X Luxury Image	β s.e.			**0.808** ** **0.392**
Year 2002	β s.e.	**-0.599** *** **0.177**	**-0.532** ** **0.156**	**-0.479** ** **0.143**
Year 2003	β s.e.	**-1.496** *** **0.303**	**-1.594** *** **0.268**	**-1.347** *** **0.245**
December	β s.e.	**0.792** *** **0.100**	**0.630** *** **0.091**	**0.681** *** **0.087**
R-Sqr - Within		0.540	0.580	0.727
Between		0.689	0.730	0.792
Overall		0.637	0.728	0.804
Wald Chi-Sq (d.f)		227.31 (10)	337.2 (12)	493.74 (24)
significance		<.001	<.001	<.001
N (Groups)		171(30)	171(30)	171(30)

significance levels: * < 0.10, **<0.05, ***< 0.01

RESULTS

The model was estimated using alternative specifications based on the conceptual development. The first specification is with the direct effects of the brand equity constructs and time. The fit is good with an overall $R^2 = 0.589$, and a Wald $\chi^2 = 196.5$ (9 d.f.), p-value < .001. The second specification adds direct region of origin effects; this model has a better fit with the data, with and overall $R^2 = 0.728$, and a Wald $\chi^2 = 337.2$ (12 d.f.), p-value <0.001. The final specification includes the interaction effects of region of origin with the brand equity indices in order to test for moderation effects of the region of origin. This specification of the model provides a strong fit to the data with an overall $R^2 = 0.804$ and a Wald χ^2 =493.74 (24 d.f.), p-value <0.001; additionally, this specification explains a strong and consistent amount of variation with both the within and between groups estimators.

Upon initial evaluation, the results for Hypothesis 1 appear to be mixed. The coefficient of awareness has a significant negative effect on the slope of the residual curve (-0.443, $p < 0.10$) when the direct effects of brand equity are considered independently. However, when the direct effects of the region of origin are added, the coefficient becomes positive (0.503, $p < 0.05$) with a greater level of significance. The implication of this size and valence of change is that there is most likely an omitted variable bias in the estimation with the specification that does not include region of origin (Wooldridge 2000, p. 90). Thus, it can be considered that brand awareness has a positive effect on the rate of value preservation of automobiles.

Hypothesis 2 is supported in both of the direct effects specifications of the model with positive and significant coefficients, 0.157 ($p <0.05$) and 0.140 ($p< 0.05$). It can be considered then that the intended loyalty to a brand has a positive effect on the rate of value preservation of automobiles, ceteris paribus. When the moderation effect of region of origin is considered, the findings indicate there is a positive impact of intended loyalty for Asian brands, with a coefficient of 0.359 ($p<0.05$).

As expected, the direct effects of a positive change in the perceived quality of a brand will have a positive effect on the change in the rate of value preservation of durable consumer goods. The estimated coefficients are .411 ($p < 0.10$) in the direct effects of brand equity specification and 0.429 ($p < 0.05$) when the region of origin effects are added. This result provides support for Hypothesis 3.

However, the results for Hypothesis 4 are contrary to the expectations that a positive change in the perceived value of a brand will have a positive effect on the rate of value preservation of durable consumer goods. The coefficient in the specification that includes the direct effects of the brand equity indices is 0.011 ($p > .10$) and when region of origin effects is included becomes -0.257 ($p > .10$). Both coefficients are insignificant so the hypothesis cannot be supported in either case.

The results are mixed for Hypothesis 5, providing support that a positive change in strength of a brand's image will have a positive effect on the slope of the residual values. The coefficient of dynamic image on the curve is relatively high, positive and significant at 1.306 ($p < 0.01$) and 0.936 ($p< 0.01$) with the alternative direct effect specifications. The coefficient of a luxury image on the curve of the residual values is positive but not significant when only the direct effects of the dimensions of brand equity are considered, but are significant and positive at 0.360 ($p <0.05$) when direct region of origin effects are added to the model specification. The moderation effects of region of brand origin are mixed. The European effect for both image constructs is insignificant. However, the Asian effect is positive and significant for both luxury image and dynamic image, 1.014 ($p<0.05$) and 0.808 ($p<0.05$), respectively.

The hypothesized expectation was that the effects of the dimensions of brand equity on the depreciation rate of vehicles will be greater for European and Asian brands than for U.S. brands. Overall, there is support for this hypothesis as the interaction effects between the region of origin of the brand and the dimensions of brand equity on the residual value slope are generally positive and significant. The final specification of the model with interaction effects evaluates this hypothesis, with the results supporting a moderation effect by region of origin. First, the direct effects of a European country are 5.578 ($p < 0.01$) and of an Asian country are 4.145 ($p <0.01$). When the interaction effects are added, the effects of a European country remain stable at 5.553 ($p <0.01$), but the effects of an Asian country are drawn down to 0.897 ($p <0.01$) which implies a strong degree of interaction for the Asian brands with the brand equity dimensions.

Since the base case is U.S. brands, the coefficients on the direct effects variables in this specification of the model reveal the effect on these brands. The coefficients on intended loyalty -0.079 ($p > .10$), initial quality -0.742 ($p < .05$), perceived value -0.481 ($p > .10$), and luxury image -0.095($p > .10$) all become negative, although only initial quality is significant. Awareness and dynamic image remain positive at 0.210 and 0.192, but are insignificant. The intended loyalty effects, 0.05 ($p > .10$), and the luxury image effects, 0.045 ($p > .10$) are very small and insignificant for European brands. Interestingly, awareness for European brands has a negative effect at -0.313 ($p > .10$), while perceived quality and perceived value are statistically significant and equal to 0.938 ($p < 0.05$) and 0.933 ($p < 0.10$). Yet, all the dimensions of brand equity have a positive and significant effect on the residual values for Asian brands, with the one exception being perceived value which although negative at -0.182 ($p > .10$) does not have a statistically significant effect.

In order to account for time specific fixed effects in estimating the model, a set of two year dummy variables have been included. Further, to control for seasonal effects, a dummy variable representing the period of data collection was also included. The year control variable is negative and significant across all three model specifications. In particular, 2003 has a large coefficient at -1.347 ($p < 0.01$). On the other hand, the month variable to capture the semi-annual nature of the survey, is positive and significant at 0.681 ($p < 0.01$).

Table 2.8: Main Effects

	Hypothesis	Results
H1	Brand awareness has a positive effect on after sale value retention of automobiles.	Supported
H2	Intended loyalty to a brand has a positive effect on after sale value retention of automobiles.	Supported
H3	Perceived quality of a brand has a positive effect after sale value retention of automobiles.	Supported
H4	Perceived economy of a brand has a positive effect after sale value preservation.	Not Supported
H5	A brand's image has a positive effect on after sale value retention of automobiles.	Supported
H6	The effects of the dimensions of brand equity on the value retention of automobiles will differ by the region of brand origin.	Supported

Table 2.9: Estimates of Interaction Effects

Interaction	Estimated Effect	Significance
European Country x Intended Loyalty	+	Not Significant
European Country x Awareness	-	Not Significant
European Country x Initial Quality	+	Significant
European Country x Perceived Economy	+	Significant
European Country x Dynamic Image	+	Not Significant
European Country x Luxury Image	+	Not Significant
Asian Country x Intended Loyalty	+	Significant
Asian Country x Awareness	+	Significant
Asian Country x Initial Quality	+	Significant
Asian Country x Perceived Economy	-	Not Significant
Asian Country x Dynamic Image	+	Significant
Asian Country x Luxury Image	+	Significant

DISCUSSION AND MANAGERIAL IMPLICATIONS

As elucidated in this essay, the dimensions of brand equity, residual values, and region of origin are important factors affecting the decision making process of both customers and the managers who seek to serve them. Through the identification of the collective contribution of the discrete components of brand equity through the evaluation of its residual value over time in conjunction with the origin effects, the findings of this study contribute to the literature in a variety of ways. First by empirically exploring the conceptual dimensions of brand equity and their effects on the preservation of value, meaningful insights can be derived. The conceptual dimensions proposed in the literature have been validated through the development of distinct factors. This is a relevant finding since research has incorporated various dimensions of consumer-based brand equity, but this conceptualization offers a comprehensive view in the context of the automotive industry.

Also, the impact of the brand equity factors on the value retention rates of new vehicles sold in the U.S. market is significant because it considers consumers' retained brand knowledge, and the utilization of this knowledge as measured by value retention rates, in an attempt to mitigate the effects of information asymmetries in the purchasing process. Therefore, brand equity can provide explanation of expected performance of the brand's products after the transfer of ownership. As such, it contributes to the emerging literature stream integrating the theoretical frameworks of cognitive psychology and information economics. Also, leasing represents an important means of generating new sales for automotive manufacturers. The lower the rate of depreciation, the greater the residual value of the vehicle at the end of the contract period, allowing for a lowering of the monthly payments offered to the customer. Improving the brand equity dimensions which have positive impact on residual values thus offers managers an opportunity to provide more attractive pricing options for potential customers. Further, by exploring the region of origin boundary condition with respect to the equity dimensions, implications for managerial decision making on this basis can be explored. The results, however, vary across dimensions and the moderation of region of brand origin, deserving further consideration of the specific findings and implications.

Awareness

Awareness has a generally positive impact on long term value preservation. Nevertheless, the region of origin significantly moderates its effect on value preservation.

According to the estimates, Asian brands enjoy a greater positive return from awareness than U.S. brands. The moderation effect is not significant for the European brands, implying that those brands have a similar return on awareness as the American brands. This implies spending greater amounts of resources on increasing awareness will actually be less beneficial for American and European brands as compared to Asian brands, with respect to value preservation. These results have important implications for the American firms, since generating a greater amount of awareness has a lesser impact on value preservation than their Asian competitors. On the other hand, generating a greater level of awareness increases the long term value preservation of Asian brands, thus decreasing the overall cost of ownership for the buyers. These findings are possibly a reflection of the existence of a higher level of awareness for U.S. and European based brands, but this was not a specific focus of this study and provides a basis for future research.

Intended Loyalty

It was expected that the loyal purchase intentions of consumers would have a positive impact on the forecast depreciation rate of automobiles. This hypothesis is generally supported by the findings. However, the Asian brands benefit from a greater effect of intended loyalty on value retention when compared to the American or European brands. The implication is there is limited benefit for European or U.S. brands employing loyalty programs in comparison with their Asian counterparts. A positive change in the intended loyalty to a brand will have a greater positive effect on the rate of value retention of automobiles only for Asian brands. Thus, loyalty programs established by these brands will improve the overall residual values more than the American and European brands.

Perceived Quality

Perceived quality has an overall positive effect on value retention of automobiles. Yet, the moderation tests reveal a positive change in the perceived quality of a brand will have a positive effect on the rate of value preservation of durable consumer goods for both European and Asian brands in comparison to U.S. brands. This provides further delineation of the results found by Sullivan (1998) where quality was indicated to have an overall positive effect on re-sale values of twin-branded vehicles. While it is commonly perceived that these brands have a high level of quality associated with them, there has recently been a spate of bad reports about European brands such as Volkswagen and Mercedes-Benz, in particular. One would expect these reports to have a negative impact on value retention rates; however, as indicated by this study, the effects would have to be substantial in order to have a negative impact on depreciation rates.

While the direct effects of perceived quality is positive and significant, when moderated by region of origin the effect becomes negative and significant for American brands. The results also explain why recent advances in quality by U.S. based brands have not been met with corresponding increases in residual values. The practical implication is that the firm level drivers of increased quality values are not effective in leading to measures of perceived quality which translate to increased residual values over time. One possible explanation for this finding may be that increases in perceived quality are associated with perceived cost and related price increases. This could result in an increase of the point of intercept, and accelerate the depreciation rate in the value retention curve.

Perceived Economy

The results indicate that perceived economy has a limited effect on the value retention of automobiles. Yet, when the moderation effect of region of origin is considered, the results reveal that European automobiles benefit from a significant positive return on perceived economy in terms of value retention when compared to American and Asian brands. That is interesting because Asian brands were originally brought into the U.S. market as value products, with high gas mileage and low cost of ownership. Managerial actions over the last twenty years have allowed for a change where perceived value no longer matters to buyers. This is particularly interesting when considering the value proposition of hybrid vehicles recently taking the market by storm. The implication is that buyers are not as concerned with the value of these vehicles, but with other factors. On the other hand, a positive change in the perceived value of a brand will have a positive effect on the rate of value preservation of European vehicles. This is also an interesting finding as European brands tend to position themselves at a higher price point in the market. The recent moves to launch vehicles which compete in lower price ranges could have a favorable impact on residual values.

Image

Overall, a positive change in strength of a brand's image will have a positive effect on the rate of value preservation of automobiles. Yet, according to the results, Asian brands benefit from significantly higher returns on image strength than their European and American competitors. This is a particularly interesting finding. This could be because the Europeans traditionally position themselves as luxury brands, and further enhancement of this type of attribute would have a lesser effect than their Asian counterparts. Essentially, this image area could be saturated for these brands. The effect of the image strength on value preservation is also limited for the American brands. This could be because there are so few brands from this region that are positioned in the luxury segment when compared to European brands. Dynamic image, on the other hand, could be the result of centrist, mainstream positioning for the American brands with little emphasis on small vehicles. The results for the Asian brands could be the result of significant expansion into the luxury area in recent years, along with emphasis on rugged, youthful positions for vehicles such as small SUV's.

Region of Origin

The findings of this study are consistent with previous studies, where negative country of origin effects can have an impact on purchase decisions (Johansson et al. 1994). Under conditions of information asymmetry value retention is suggested as an indicator of the equity of a brand. Overall, the American brands fair very poorly in their ability to impact value retention. The implication bodes poorly for Chevrolet's recent campaign relating the brand to an "American Revolution". Although this has been and exciting campaign, which may have contributed to sales and market performance, the emphasis on patriotic themes may not ultimately bode well for re-sale values. It also implies that Toyota's efforts to position their brand as a major contributor to the

American economy may not be worth the effort, with respect to value retention as measured by the depreciation rate of new vehicles sold.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study is limited in its generalizability due to it being conducted in a single industry related to a specific and relatively unique durable consumer product. It is also limited by the use of forecast residual values. While this is the industry standard for leasing and what is used by consumers in their decision process when considering capital value at some future point in time, it is strictly a forecast. This study is also limited by the use of industry specific measures from one source. While GfK Automotive, LLC benefits from a history as the primary supplier of pre-purchase data in the industry, recently competitors have entered this market. Therefore, future studies could compare findings from alternative data suppliers. Additionally, to derive a greater degree of generalizability, similar measures from other industries could be employed to test the findings of this study. Further this research is limited by the time horizon of the study, a longer time horizon may offer further insights to the findings, as potentially could the use of alternate years.

Also, additional specifications of the model could provide further revelations. For example, adding interaction effects between time and the dimensions of brand equity could provide further explanation of the dynamic effects over time. Another specification could consider the impact of the interaction of awareness with other factors. Awareness creation activities can focus on specific consumer benefits, which are divided into three categories: functional, symbolic or sensory (Park et al. 1986). Delineation of interaction effects of awareness with the symbolic image factors considered in this analysis, along with other forms of image could help to determine how marketing efforts focused on building awareness could be directed at specific aspects of brand equity.

Future research directions should also attempt to uncover why it is that U.S. based brands appear to have minimal, and somewhat negative brand equity impact on the residual value of vehicles. There are several possibly viable approaches to address this issue, beginning with a differentiation by manufacturer to highlight the effects of managerial practices. This could be undertaken both between and within groups based on region of origin; however, sample size within the U.S. market alone could be problematic so a broader market would need to be considered. The means to evaluate the opportunity for improvement to the impact of the brand equity variables on the depreciation rates may be through the consideration of firm level drivers of the dimensions.

Comparison and contrast to actual value retention, as opposed to that which is forecast, would provide meaningful information for managers and academics attempting to explain, predict and control the dimensions of brand equity. Industry executives at the highest levels of the U.S. based brands indicated during the initial phases of this study that they believe their brands are being unfairly discriminated against in the residual forecasting process because the values of promotions and incentives are not taken into account, effectively causing a steeper decline in the forecast retained values in order to compensate for what should be a lower intercept. A comparison of this nature could have implications for decision making during the strategic planning process.

CHAPTER 4

THE EFFECTS OF BRAND INNOVATIVENESS AND DIFFERENTIATION ON BRAND EQUITY: A LONGITUDINAL STUDY OF AUTOMOTIVE BRANDS

THE EFFECTS OF BRAND INNOVATIVENESS AND DIFFERENTIATION ON BRAND EQUITY: A LONGITUDINAL STUDY OF AUTOMOTIVE BRANDS

ABSTRACT

Identifying and defining the intermediate effects of marketing related value creation activities such as innovativeness and advertising are of considerable interest to academics and practitioners alike. Brand equity has been proposed as one such intermediate measure. This third essay will provide means to understand the effect of firm level strategic actions on consumer-based dimensions of brand equity, conceptualized as awareness, intended loyalty, perceived quality, perceived economy, and image. A seemingly unrelated regression model is used to test the conceptual model. The study is conducted within the context of the U.S. automotive market, using the largest pre-purchase brand related data set in the industry. The results indicate a positive effect of advertising, as measured by annual expenditures, on all the dimensions of brand equity, except luxury image. Innovativeness, as defined by new product introductions, positively effects all the dimensions except perceived value. The contextual factors of region of origin and global brand reach have mixed effects on the consumer-based dimensions of brand equity.

THE EFFECTS OF BRAND INNOVATIVENESS AND DIFFERENTIATION ON BRAND EQUITY: A LONGITUDINAL STUDY OF AUTOMOTIVE BRANDS

INTRODUCTION

Understanding the value of marketing-related value creation activities is of substantial interest to the field. While firm level outcomes have been well researched in the literature with some valuable contributions, understanding the intermediate brand level effects of marketing efforts has been somewhat neglected. It order to help rectify this situation, Marketing Science Institute has designated the role of branding and brand equity as sustainable means of differentiation, along with ways to evaluate new product design and introductions, and the changing role of marketing among their highest research priorities.

Brand equity provides a basis for comparison between brands, and thus a means for evaluating and interpreting marketing strategies (Keller 2003). Academic research related to consumer based brand equity has focused on the factors that contribute to brand equity (Aaker 1991), how to measure them, (Aaker 1996; Keller 1993), how to manage them (Aaker 1992a; Farquhar 1989), and consumer evaluations of the trend toward the extension of core brands in order to leverage the value of built up equity (Aaker and Keller 1990; Bottomley and Holden 2001). While there has been research conducted in an attempt to understand the firm-level drivers of brand equity derived from firm-level financial measures (Farquhar 1990; Simonin and Sullivan 1992), there has been limited empirical work which attempts to explain marketing related activities which contribute to consumer based measures of brand equity.

The context of this study is the U.S. based automotive market, which is one of the most competitive in the world with a majority of the world's largest players participating. The automotive industry is one of the most important industries in the U.S., According to the Original Equipment Suppliers Association (OESA), the U.S. automotive industry represents approximately 10% of the U.S. economy, with new vehicle sales generating over $240 billion in annual revenue and contributing 6.6 million jobs (Thuermer 2004). Increasing competition from foreign manufacturers and global consolidations has continuingly eroded the domestic companies' market share, with new entrants poised to make further inroads. Even with the reality of continuous quality improvements, the domestic makers still have trouble improving brand image and related brand value.

There has been considerable consolidation at a macro level of both automotive OEM's and Tier 1 suppliers, as well as an acceleration of product development cycle time and platform approaches to product development. This has allowed for the announcement of a myriad of new product initiatives requiring an ever greater focus on the marketing of the brand (Stein 2004). In the automotive industry, strong brands are highly valued and represent a significant competitive advantage, but are also extremely fragile and need to be managed carefully (Fournier et al. 2002). The business press has highlighted numerous examples of how global automotive firms are attempting to focus their value creation activities on the building and maintenance of strong brands. Volkswagen currently enjoys a price premium of 6-8% over its competitors and has spent billions to develop new models which it hopes will further boost its brand image (Mackintosh 2004). GM has turned around Cadillac with a variety of exciting new models that coalesce the brand's image; executives are concerned with the need to safeguard brand identity and differentiation in an increasingly competitive market (Economist 2004). In a recent survey sponsored by Agilent Technologies, business executives ranked product innovation and brand building among the top five priorities for their organizations (The Economist Intelligence Unit 2004).

Recent research suggests that focusing on the constructs that create brand equity is more important than trying to measure it as an aggregate financial performance outcome (Faircloth et al., 2001). However, exploration of firm level drivers and intermediate brand level outcomes has been relatively limited. Simon and Sullivan (1993) consider such factors as advertising expenditures, sales force and marketing research expenditures, age of the brand, advertising share, order of entry, and product portfolio as sources of financial based brand equity. Further, a financial perspective, based on firm level drivers was taken by Sullivan (1998) as she considered the effects of quality and advertising on the value of automobiles in the secondary market. Recent research exploring the relationship between marketing mix elements and brand equity, suggests that marketing mix elements are positively related to specific components of consumer based dimensions of brand equity in student based surveys (Yoo and Donthu 2001). Yet, understanding the nature of the effects of marketing related activities and firm specific resources with respect to strategic orientation on brand equity has not been considered in the literature.

In view of the potential for brand equity to serve as an intermediate outcome measure of a firm's marketing activities, the lack of empirical research in this area is a significant oversight. Thus, explaining and predicting the role of marketing-related value creation activities such as brand innovativeness, and brand differentiation through advertising

(Mizik and Jacobson 2003), along with the relative contribution of firm level contextual factors which effect brand equity is an important consideration.

This research will address the nature of the effects of marketing related value creation activities and firm specific attributes on intermediate outcomes, as measured by the impact on consumer based dimensions of brand equity (i.e., awareness, intended loyalty, perceived quality, perceived economy, and image). The remainder of this essay is organized as follows. First the concept of brand equity and its underlying dimensions as an intermediate outcome of a firm's activities is considered. Next the theoretical foundations of the activities which lead to the creation of brand equity are explored. A conceptual framework and hypothesis development is followed by the development of the empirical research method employed. Results are presented and a discussion of the findings offered.

THE DIMENSIONS OF BRAND EQUITY

In the early 1980's advertising practitioners coined the term "brand equity" as a broad expression to denote the financial value of long term customer relationships (Barwise 1993). In the existing literature, brand equity has most frequently been addressed from two distinct perspectives: financial based metrics and consumer based measures. The first of these methods is most closely related to traditional financial valuations of assets (Farquhar 1990; Schultz 2000; Simonin and Sullivan 1992), while the other is grounded in cognitive consumer psychology (Keller, 1993). The financial based methods use estimation techniques to determine the incremental cash flows which accrue to the firm through their branded products (Simonin and Sullivan 1992). Consumer-based metrics related to the value customers place on a brand generally rely on attitudinal measures which attempt to determine either future consumer choice decisions (Argarwal and Rao 1996), consumer utility (Kamakura and Russell 1993; Swain et al. 1993) or the premium price willing to be paid for a product bearing the brand name, as opposed to one that does not have a brand associated with it (Aaker, 1996; Keller, 1993).

In broad terms, customer based brand equity has been defined as the differential effect of brand knowledge on consumer response to the marketing of a brand (Kamakura and Russell 1991; Keller 1993). Keller (1993) stated "in terms of the marketing effects uniquely attributable to the brand – for example, when certain outcomes result from the marketing of a product or service because of its brand name that would not occur if the same product or service did not have that name". Thus, brand equity can be summarized as the difference in consumer choice between the focal branded product and an unbranded product given the same level of product features (Yoo et al. 2000a).

One of the most accepted characterizations of the consumer based dimensions of brand equity (Aaker 1991; Keller 2003; Kotler 1997), proposes that a strong brand has four key dimensions: loyalty, perceived quality, associations, and awareness (Aaker 1991). Empirical research has conceptually incorporated many of the same underlying characteristics of these dimensions (see table 3.1). For example, Lassar et al.(1995) propose five elements of brand equity: performance which incorporates the concepts of quality, value, social image, trustworthiness and commitment. Yoo et al. (2000a) operationalize the dimensions of brand equity as perceived quality, brand loyalty, and brand associations incorporated with brand awareness. While Yoo and Donthu (2001) identify a scale of brand equity dimensions based on brand loyalty, brand awareness as measured by recall, perceived brand quality and brand associations. Krishnan (1996) considers the effect of various associations on brand equity as measured externally by market share and Landor's rankings of overall equity and measures of share of mind, esteem, familiarity and awareness. Overall, brand equity has been regarded as the combination of brand strength, based on brand associations held by customers, and brand value based on the financial leverage derived from brand strength (Srivastava and Shocker 1991). The inherent nature of brand equity as a valuation tool implies it can have either a positive or negative valence, although it is most commonly referred to in a positive context.

Keller (1993) suggests brand knowledge is a component of brand equity and is a function of brand image and brand awareness. Brand image is able to capture the effects of brand attitude and other associations (Faircloth et al. 2001). A unique, strong, and favorable brand image permits the brand and its meaning to be strategically differentiated and positioned in the consumer's mind, contributing to enhanced brand equity (Faircloth et al. 2001; Pitta and Katsanis 1995). From a cognitive psychology perspective, the majority of associations are pre-conscious and non-verbal (Supphellen 2000), the bulk of which are visual, as opposed to verbal (Zaltman 1997). Thus, brand strength is the set of associations held by stakeholders that allows the brand to be differentiated from its competitors and enjoy a sustainable competitive advantage (Srivastava and Schocker 1991). Brand awareness has two components: brand recall and brand recognition (Keller 1993). Brand recall, or the ability to identify a brand from memory cues is significant to brand equity because it is an important determinant of consumer's choices (Nedungadi 1990). Brand recognition, on the other hand, has a lower threshold of processing, and only requires a consumer to correctly discriminate a brand from other products in a given category (Keller 1993).

Brand loyalty is considered to be the commitment to re-purchase a preferred product or service consistently in the future, regardless of situational context or competitor's marketing efforts (Oliver 1997). Loyalty is considered to be a component of brand equity because loyal consumers tend to exhibit more favorable responses to a branded product than consumers without loyal intentions or switching consumers (Grover and Srinivasan 1992). The perceived quality of a brand is considered to be the subjective judgment of consumers with respect to a brand's overall excellence and superiority, which would lead a consumer to purchase a brand over a competitor brand (Ziethaml 1988). The concept of the perceived value attributable to a brand is a function of aligning the price of purchase and costs associated with ownership of a brand's product with the expectations of consumers (Keller 2000).

In this study the concept of brand equity is captured through a combination of the most salient consumer-based dimensions, as presented in the marketing literature. Thus, the individual dimensions of brand equity conceptualized include brand awareness, intended brand loyalty, perceived brand quality, perceived economy (value), and brand image. Delineation of these dimensions allows for assessment of the impact of value creation and differentiation activities undertaken by the firm and relate them to an intermediate marketing outcome.

Table 3.1:
Dimensions of Brand Equity

Dimension	Definition	Key Citations	Terminology used
Awareness	The ability to identify a brand from memory cues and to correctly discriminate a brand from other products in a given category.	Aaker 1991; Krishnan 1996	Awareness
		Keller 1993; Keller and Lehman 2005	Awareness (recall and recognition)
		Yoo et al. 2000; Yoo and Donthu 2001	Awareness (measured by recall)
Intended Loyalty	The commitment to re-purchase a preferred product or service consistently in the future, regardless of situational context or competitor's marketing efforts	Aaker 1991; Oliver, 1997; Yoo et al. 2000; Yoo and Donthu 2001	Loyalty
Perceived Quality	The subjective judgment of consumers with respect to a brand's overall excellence and superiority.	Aaker 1991; Erdem and Swaite 1999; Yoo et al. 2000; Yoo and Donthu 2001; Ziethaml 1988	Perceived quality
		Lassar et al. 1995; Keller and Lehman 2005	Brand performance
Perceived Economy	The alignment of customer expectations with respect to the price of purchase and costs associated with ownership of a brand's product.	Erdem and Swaite 1999	Expected Utility
		Lassar et al. 1995	Value
Image	Associations that enable the brand and its meaning to be strategically differentiated and positioned in the consumer's mind.	Aaker 1991; Keller and Lehman 2005; Yoo et al. 2000; Yoo and Donthu 2001	Associations
		Keller 1993	Image (associations and relationships between them)

CONCEPTUAL FRAMEWORK

Two major strategies exist to differentiate a brand's position in the marketplace from its competitors (Miller 1986; Porter 1980). The innovating differentiators focus on new product development and introduction. Organizations that follow this strategy type have also been labeled as prospectors (Miles and Snow 1978) or adaptive firms (Miller and Friesen 1884). In these organizations there is a strong emphasis on Research and Development. Innovating differentiators tend to be pioneers in new products and technologies (Miller 1986). On the other hand, marketing differentiators "offer an attractive package, good service, convenient locations and good product/ service reliability" (Miller 1986). These firms have very strong marketing capabilities, focusing on advertising, promotion and distribution to achieve the competitive advantage in the marketplace and tend to be laggards in new product introductions (Miller and Friesen 1884). As such, the strategic typology offered by Miller (1986) provides an adequate framework for this study. Brands have two generic strategies two choose from in developing their equity: innovation and marketing differentiation.

A recent contribution by Mizik and Jacobson (2003) suggests the relative deployment of resources, or capabilities, is based on the strategic orientation of the firm and the trade off between emphasizing value creation (innovativeness) and value appropriation through differentiation (advertising). The results of their study indicate that a sustainable competitive advantage, as measured through firm level financial outcomes, is achieved through a focus on differentiation rather than value creation. Yet, the current study is concerned with the relative contribution of each of these capabilities to brand equity. Consistent with consideration of the balance of strategic orientation, the interaction of brand capabilities can be assessed with regard to achieving a market advantage (i.e., brand equity).

Firms achieve above normal returns because of distinctive competencies in deploying resources optimally (Penrose 1959). In order to achieve a sustainable competitive advantage, resources and capabilities must enable the firm to conceive of or implement strategies that improve performance, exploit market opportunities, or neutralize impending threats (Barney 1991). Although broadly elucidated in the literature with respect to the relationship between firm capabilities and overall performance, there has been limited understanding gained as to the effect of capabilities on intermediate marketing related outcomes.

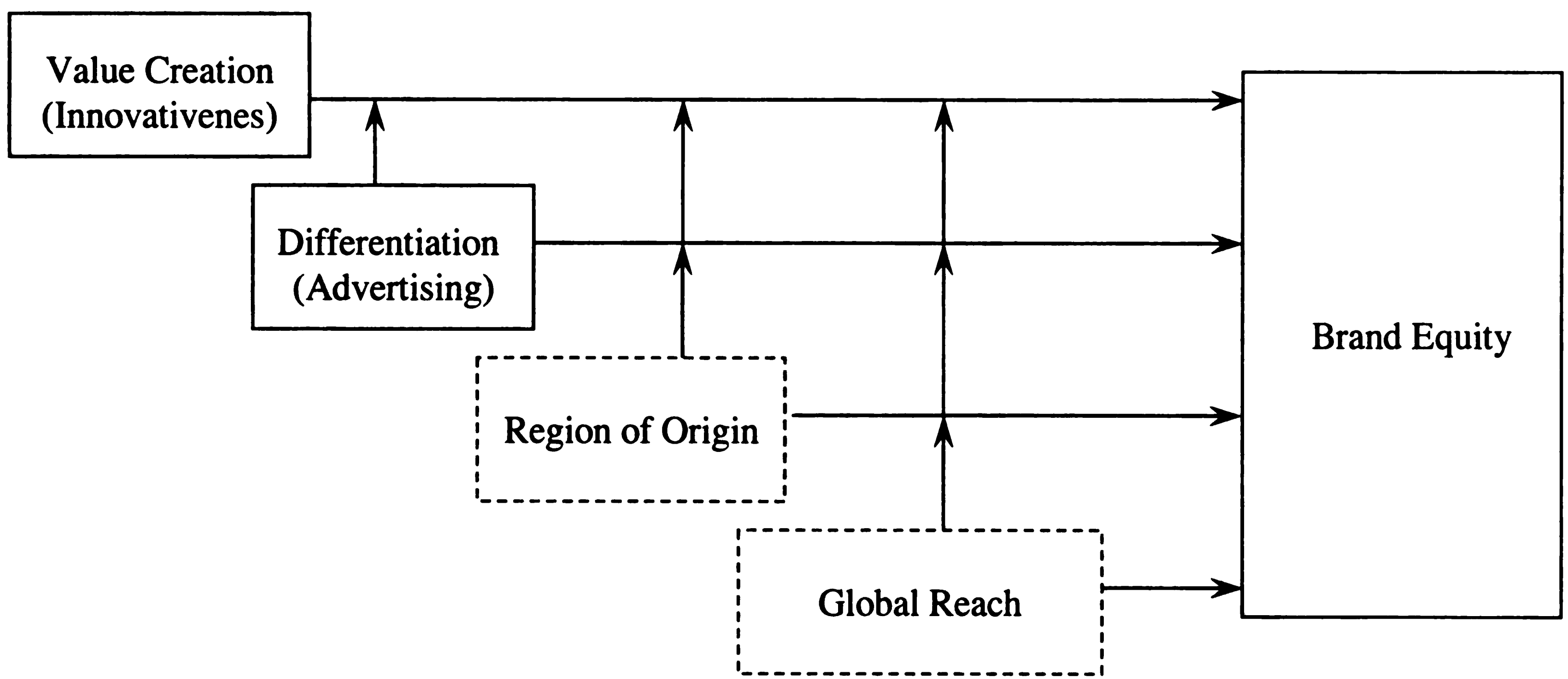
Since it is accepted that brand equity represents the biased behavior a consumer has for a branded product versus an unbranded equivalent (Faircloth et al. 2001), it is clear that this aspect of consumer behavior has particular relevance to both practitioners and academics alike. A firm possessing a brand with a substantial amount of built up equity has higher resilience against competitors, along with organic barriers of entry, can withstand negative events and the opportunity for successful extensions to the brand (Farquhar 1989). Further, a brand with a strong amount of equity can avoid price competition and command a sustainable price premium in its product category (Aaker 1992a; Morgan 2000a). From this perspective, the achievement of brand equity represents a sustained competitive advantage (Barney 1991) through the application of core capabilities to the strategic development of brands. There are a tremendous amount of resources employed in the automotive industry towards both value creation, through innovativeness, and differentiation, through advertising. A goal of these factor deployments would be to enhancing brand equity as a means to creating a sustainable competitive advantage. The question becomes one of relative contribution, as well as the boundary conditions which exist. The intention is to evaluate firm specific capabilities and how they effect measurable consumer based perceptions of the brand.

Additionally, this study considers contextual variables which are highly pertinent to the automotive industry. First, region of origin is captured since this is often a means of categorization of consumer perceptions (e.g., European brand, Asian brand) and it is expected to set a boundary condition with respect to brand capabilities. Yet another important contextual factor in the automotive industry is the globalization of brands. Brand ubiquity is posited to be a means of creating positive associations (Steenkamp et al. 2003) and a global positioning supersedes domestic or foreign positioning (Alden et al. 1999).

The framework which emerges from the integration of these firm specific resource deployments in conjunction with the contextual variables is hierarchical in nature, as each direct relationship is theoretically contingent upon the previous factor. This allows for explication of the effects of endogenous firm capabilities indicated by strategic efforts, as bounded by the contextual factors that essentially moderate the strategic emphasis of the brand. The conceptual model which results is illustrated in figure 3.1.

The following sections elaborate on the literature related to each of the strategic orientations, as well as the contextual factors considered in this framework, in order to develop hypothesis. The literature and hypothesis are summarized in Table 3.2 and Figure 3.2.

Figure 3.1:
Conceptual Framework: Drivers of Brand Equity



HYPOTHESIS DEVELOPMENT

Brand Innovativeness

The new product development literature has focused on a extensive range of factors related to new product success that can be included in categories such as strategy, the development process, the market environment including characteristics such competitiveness and market potential, along with organizational factors like internal and external relations (Henard and Szymanski 2001; Montoya-Weiss and Calantone 1994) and developing methods of forecasting new product sales (Urban et al. 1996). Essentially two types of innovations are conceptualized: technical innovation and administrative innovation (Han et al. 1998). Technical innovations are product intensive; related to products, services, and production process techniques. On the other hand, administrative innovation is related to organizational structure and administrative processes. Product related innovations are often referred to with respect to their degree "innovativeness", or the "degree of discontinuity in marketing and/or technological factors" (Garcia and Calantone 2002). In this study, the focus is on product innovativeness as measured by incremental automotive model changes and new introductions aggregated by brand and year.

It has been suggested that firms use their capabilities to create products to meet the needs of consumers, engendering a competitive advantage in the market (Gatignon and Xuereb 1997). Recent findings presented in the literature suggest that new product introductions in the automotive industry increases both the short and long term financial performance and stock value of the firm (Pauwels et al. 2004). Chaney et al. (1991) found that the emphasis on new products positively effects firm value. Further, Ali

(2000) found that the market performance of new products is moderated by the cycle time of the product development process, implying that the rate of new product introductions will have a positive impact on intermediate marketing outcomes. Nowlis and Simonson (1996) found that new product features can mitigate the effects of price and quality perceptions on consumer brand choice. It is expected the total number of products introduced by a brand is a measure of the new product development capability (Lukas and Ferrell 2000; Miller 1986) and is expected to provide a competitive advantage to the brand. Therefore, it is expected that the rate of a firm's innovativeness as measured by total new product introductions will have a positive impact on the dimensions of brand equity.

H1: A brand's innovativeness has a positive impact on brand equity in the U.S. automotive market.

Advertising as Means of Brand Differentiation

Recent literature related to the value activities of firms posits that marketing efforts result in value extraction from the marketplace through the creation of barriers to entry through differentiation (Mizik and Jacobson 2003). As measured by advertising expenditures, the "appropriation" of value, the achievement of differentiation was found to be of benefit to the organization's financial performance. Advertising has been identified as on of the principal means through which brands are able to maintain a competitive advantage in the marketplace over time for durable consumer goods such as air conditioners (Golder 2000).

Is it possible that these financial returns and competitive advantages are derived as a result of brand equity built for the brands held in the firms portfolio? It has been shown that repetitive advertising schedules increase the probability that a brand will be included in the consideration set, which simplifies the consumer's brand choice, making it a habit to choose the brand (Hauser and Wernerfeldt 1990). By reinforcing the consumer's brand-related beliefs and attitudes, advertising contributes to strong brand loyalty (Shimp 1997). Additionally, Aaker and Jacobson (1994) find a positive relationship between advertising and perceived quality. Tellis and Fornell (1988) find that increased advertising signals high quality, especially when the costs of producing quality are low even when consumers tend to be less responsive to advertising. Yoo et al. (Yoo et al. 2000a) find advertising positively impacts the brand equity dimensions of perceived quality, loyalty and associations, and advertising spending is positively associated with overall brand equity.

Thus, advertising expenditures are conceptualized as a deployment of resources, also known as a capability (Day 1994; Miller 1986). If advertising leads to differentiation and a sustainable competitive advantage in the marketplace (Barney 1991; Miller and Friesen 1984), then it can be expected that advertising expenditures will contribute to positive responses in the dimensions of brand equity. Further, this study investigates whether there is an impact from the interaction of advertising and new product introductions on the dimensions of brand equity.

H2: A brand's advertising expenditure has a positive impact on brand equity.

H2a: The greater the brand's advertising expenditure, the greater the positive impact of the firm's innovativeness on brand equity in the U.S. automotive market.

Region of Origin

The literature streams related to Country of Origin Effects generally evaluate the effect of consumer search cues, or search qualities, on consumer choice and ultimately, product sales performance. Consumer product evaluation cues are conceptualized as being either extrinsic, where the cue is not physically part of the product, or intrinsic, where the cue is a core product attribute (Richardson et al. 1994). Although from new product perspective, this has been grounded in the theory related to information asymmetry (Hennig-Thurau et al. 2001), it can also be viewed from the categorization literature related to consumer behavior and cognitive psychology related to the process of evaluative judgments (Pavelchak 1989). Essentially, this literature suggests that consumers either use a piecemeal or categorization process to evaluate products (Meyers-Levy and Tybout 1989; Pavelchak 1989), and because consumers will typically take the easiest approach to evaluation, they will categorize based on known information (Fiske and Taylor 1984; Ulgado and Lee 1998). Furthermore, it has been found that U.S. consumers generally rely on intrinsic attributes as a basis for evaluating products (Ulgado and Lee 1998).

The country of origin effects literature has considered the impact of specific country associations on the evaluation of product quality (Bilkey and Nes 1982; Parameswaran and Pisharodi 1994). Hong and Wyer (1989) found that country of origin has a direct effect on product evaluations. In general, it has been found that the evaluation of a country from which a product originates has an impact on consumer assessments of product quality, and is used to choose the best available option (Klein 2002). Consumer ethnocentrism literature takes this concept to a more granular level, and has been defined as the belief by consumers that it is inappropriate and immoral to purchase foreign products because it damages the economy, costs jobs and is generally unpatriotic (Shimp and Sharma 1995). Findings are that consumer ethnocentrism affects purchasing behavior, but will be lower when there is a higher quality to the imported good, and if there is a higher degree of cultural openness (Shimp and Sharma 1995). Moreover, the variable has been determined to be a factor when consumers make choices between domestic and foreign goods (Klein 2002).

Automotive brands are frequently referred to as "European" or "Asian", illustrating the categorization effects. U.S. brands have been losing market share to brands from these regions for over twenty years now, implying there is direct effect on the dimensions of brand equity. Therefore, it is expected the region of origin, as an intrinsic product cue, will have an impact on the dimensions of brand equity, and moderate the effects of marketing value creation and differentiation efforts on the dimensions of brand equity in the U.S. domestic market.

Thus, it is expected:

H3: European and Asian brands will have a greater positive impact on brand equity than will North American brands.

H3a: The effects of a firm's innovativeness on brand equity will be greater for the European and Asian brands than North American brands.

H3b: The effects of a firm's advertising expenditure on brand equity will be greater for the European and Asian brands than North American brands.

Inferences of Global Reach of the Brand

It appears global branding is becoming more predominant as firms focus on core brands, and are increasingly implementing unambiguous international brand architectures as a strategic means of facilitating brand consistency across international markets (Douglas et al. 2001). This has implications from the brand level with respect to the acquisition and utilization of knowledge across markets, where experiential learning allows for the application of knowledge gained from successive markets to other markets.

A global brand offers a number of compelling benefits for the firm: (1) efficiencies of scale, (2) responsiveness to global customers, (3) leveraged agency relationships, and (4) efficiencies in scope (Board 2001). A company utilizing global branding strategies can achieve scale economies in manufacturing, sourcing, and sales and distribution networks. Additionally, an established market presence for a brand that incorporates multiple regions and country markets suggests that the company will derive inherent benefits from its innovation and achieve a sustainable competitive advantage through the scale economies of operating on a broad scope. Global brand positioning strategies have developed in parallel with the growth of the global marketplace (Alden et al. 1999). It has been posited that the integration of marketing and centralization of product selection and positioning allows for the transfer of knowledge across markets (Kim et al. 2003), and speeds up a brand's new product introductions by minimizing the number of modifications necessary for individual markets (Neff 1999; Steenkamp et al. 2003). This has implications from the brand level with respect to the acquisition and utilization of knowledge across markets, where experiential learning allows for the application of knowledge gained from successive markets to other markets.

The implications for the impact on consumer perceptions of the brand are significant, as it has been found that the higher the perceived brand globalness (i.e., a consumer perception the brand is marketed in multiple countries and recognized as global in these countries), the higher its perceived quality and the stronger its perceived level of prestige (Steenkamp et al. 2003). This association with globalness is an important consideration when delineating the relationship between firm level activity and the dimensions of brand equity. It has been found that manipulations of brand associations through the marketing mix can influence brand image and brand attitude (Faircloth et al. 2001). Other research has found that the relative influence of brand specific associations and general brand impressions on brand ratings depend on both brand experience and positioning (Dillon et al. 2001).

As noted by Steenkamp et al. (2003), perceived brand globalness can be derived from either actual availability in multiple markets, or marketing efforts directed at establishing a global positioning. Therefore, it is expected the actual global reach of a brand will have an impact on changes to the dimensions of brand equity. In this study, global reach is operationalized by the number of countries in which a brand is sold in a given year. As a contextual factor establishing a boundary condition, it is also expected to moderate the effects of the deployment of endogenous resource factors which influence brand equity. Additionally, the effects of country of origin should be of lesser importance when the brand is perceived as more global. This is posited because there is potential the attribution to a specific country or region will be at least partially mitigated.

H4: The global reach of a brand has a positive impact on brand equity in the U.S. automotive market.

H4a: The effects of a brand's innovativeness on brand equity in the U.S. automotive market will vary by the degree of global reach of a brand.

H4b: The effects of brand's advertising expenditure on brand equity will vary by the degree of global reach of a brand in the U.S. automotive market.

H4c: The region of origin effects on brand equity in the U.S. automotive will vary by the degree of global reach of a brand.

Figure 3.2:
Hypothesis of the Effects of Innovativeness and Differentiation on the Dimensions of Brand Equity

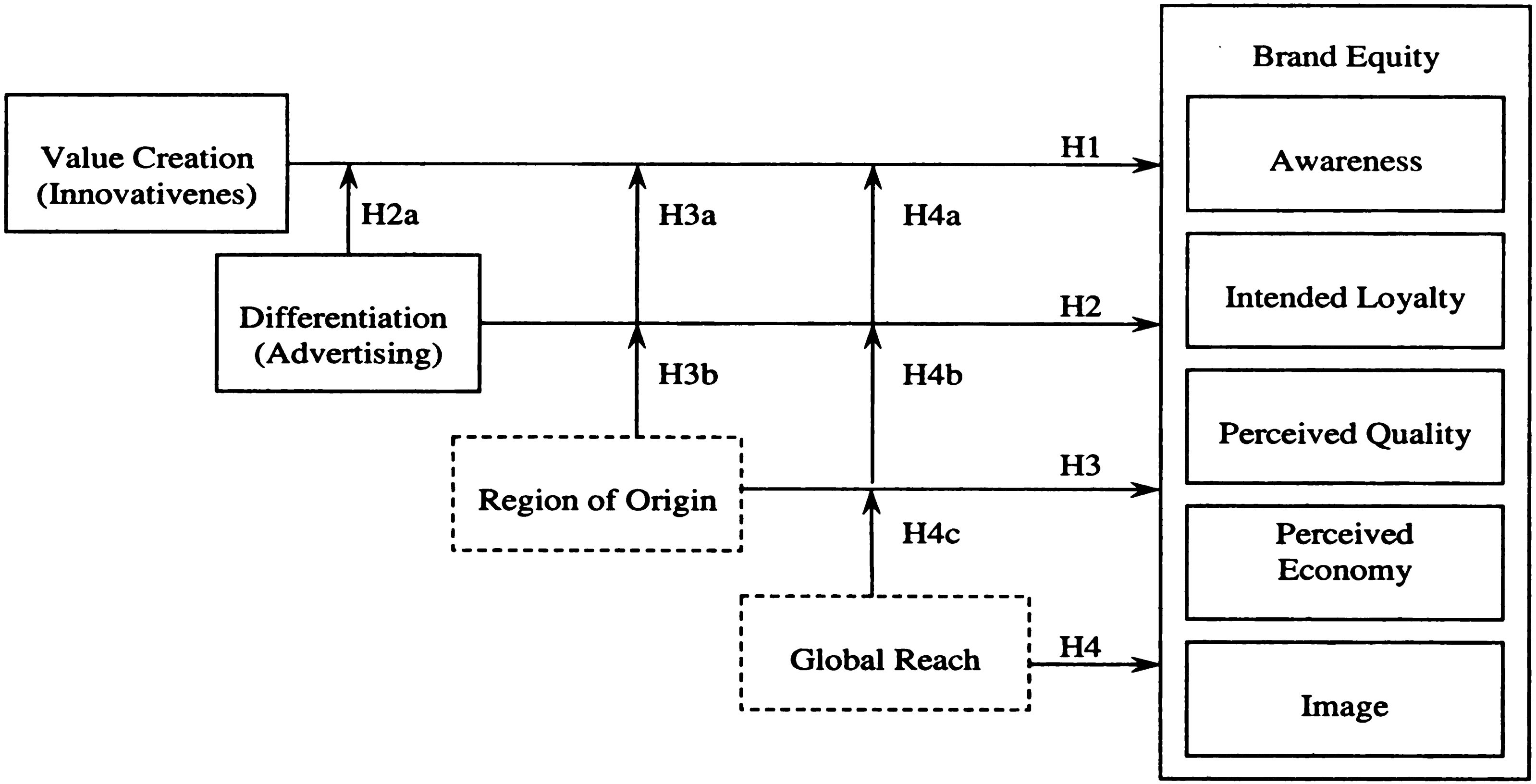


Table 3.2: Exogenous Variables

Construct	Definition	Measures	Citations
Innovativeness	The level of potential discontinuity a product generates	The aggregate new product introductions at all levels of innovativeness for the focal brand per year. (see Table 3.4)	(e.g., Bayus et al. 2003; e.g., Garcia and Calantone 2002; Pauwels et al. 2004)
Differentiation	Value extraction from the marketplace through the creation of barriers to entry through differentiation	Advertising expenditures measured in billions of dollars	(e.g., Johansson 1973; e.g., Mizik and Jacobson 2003; Simon and Arndt 1980; Telser 1962)
Region of Origin	The impact of specific country associations on brand evaluations	Country of a brand's origin	(e.g., Balabanis and Diamantopoulos 2004; e.g., Bilkey and Nes 1982; Parameswaran and Pisharodi 1994; van Ittersum et al. 2003)
Global Reach	Perceived brand globalness can be derived from actual availability in multiple markets.	Number of Countries a Brand is sold in officially	(e.g., Alden et al. 1999a; e.g., Shocker et al. 1994a; Steenkamp et al. 2003)

METHOD

Data

The hypotheses presented above are tested within the context of the U.S. automotive market. Survey results are used to measure the brand equity dimension scores of each brand. The time span of the dataset covers seven years (inclusive), from 1997 to 2003. The dataset has been provided by GfK Automotive, LLC, member of the GfK Group, a leading supplier of syndicated market research to the automotive industry.

GfK Automotive, LLC maintains the largest database of pre-purchase automotive information available in the U.S. market and is the industry standard for deriving purchase intention and image data. An automotive consumer panel is developed from a monthly survey of on average 200,000+ households that demographically represents the U.S. population. This initial survey measures the timing of the next purchase of an automobile, and the make/model intended. A follow up study is conducted semi-annually (June & December) among the new vehicle intenders. Each intender rates all brands/models in the segment with surveys collected until a minimum ending sample size of n=300 per wave is achieved. Utilizing this dataset, the dynamic values of the brand average dimension scores of 33 brands sold in the U.S. light vehicle market are computed on an annual basis using the December observations. An automotive brand is defined by the "make" level unit of analysis (e.g., Chevrolet, Toyota, Nissan, Dodge, etc.), as opposed to product or "model" level observations (e.g., Corvette, Camry, Altima, Caravan, etc.).

The advertising and new product introduction data was captured from secondary data sources including Automotive News, and Wards Automotive. The region of origin was recorded as North America, Europe and Asia, and coded using a set of two dummy variables, with the base case being North America. The new market entries were collected from annual company reports and media announcements. The global brand reach data was provided by Polk Automotive Intelligence, GmbH. who maintains a proprietary data base of global automotive registrations; 57 countries are recorded for the years investigated in this study.

The Dimensions of Brand Equity

The dependent variables representing the dimensions of brand equity are derived from the panel data and include 7 annual time points from 1997-2003. The measures collected for each make/model are aggregated to form the dimensions of brand equity. These variables include the awareness, intended loyalty, perceived quality, perceived economy, and image strength. Awareness is measured via two questionnaire items; the first is based on a 3 point Likert scale asking the familiarity of the brand, and the second is based on a 4 point Likert scale asking the amount of advertising seen/heard for the brand. Both of these measures were converted to a 10 point scale. Loyalty is measured through purchase intentions compared to current brand ownership. Perceived economy, perceived quality and image are each measured via multiple questionnaire items on a 5 point likert scale. Image is broken into two distinct image variables which tend to be focal positioning strategies in the automotive industry: sporty image and luxury image. Table 3.3 presents the items included in the factors, along with the reliabilities and factor loadings.

Table 3.3:
Factor Analysis of Brand Equity Dimensions

Dimension	**Measures**	**Factor Loading**	**Variance Explained**	**Alpha**
Awareness	familiarity	0.962	92.5	0.92
	advertising	0.962		
Perceived Economy	operational costs	0.974	85.0	0.90
	gas mileage	0.957		
	value	0.827		
Perceived Quality	dependable	0.951	97.5	0.96
	acceleration	0.907		
	ride	0.894		
	workmanship	0.974		
	lasting	0.949		
Sporty Image	fun drive	0.979	83.7	0.93
	trend setting	0.903		
	sporty	0.957		
	good looking	0.811		
Luxury Image	luxurious	0.980	96.0	0.96
	prestigious	0.980		

Exogenous Variables

The advertising effort of the brand is measured in terms of the total ad spending reported for the given year. The innovativeness of the brand was captured in terms of the aggregate new product introductions at all levels of innovativeness for the focal brand per year. The annual new product introductions were coded from the company reports and media announcements by industry experts with extensive experience in automotive styling and design based on the JD Powers and Associates rating scale as reported by Pauwels et al. (2004) and illustrated in table 3.4. Each introduction is coded based on the degree of change. The introductions were then added up, and the cumulative innovative effort of the brand during the year used as the measure of brand innovativeness. The region of origin was recorded as North America, Europe and Asia, and coded using a set of two dummy variables, with the base case being North America. The global reach of the brand is captured in terms of the number of markets in which the brand is sold via authorized distributors at each time point. The countries where an independent importer is responsible for registrations are not included in the data set.

Table 3.4:
Rating scale of innovation level for car model changes*

Innovation Scale	Description
0	No visible change
1	Only styling change, affecting grille, headlight and taillight areas
2	Minor changes affecting sheet metal in front and rear quarter areas and minor changes to interior, but not to the instrument panel
3	Major changes affecting exterior sheet metal and considerable change to interior, including instrument panel
4	All new sheetmetal including the roof panel, e.g. new platform or change from rear-wheel to front-wheel drive
5	New entry into the market

* As presented in Pauwels et al. (2004)

Model

In this model, the dependent variables consist of the brand equity dimensions as derived by the available survey data. The regressors include the innovation, advertising expenditures, global reach of the brand, the dummy variables for the region of origin of the brand and their interactions. Since the regressors are the same across equations and the five dimensions theoretically reflect an underlying common construct, the error terms across the six equations could potentially be correlated. In order to allow for this potential correlation, a seemingly unrelated regressions (SUR) model is employed (Wooldridge 2002b). In this method, each equation in the system has its own coefficient vector and therefore it appears as if the equations are unrelated, but the errors of these equations are allowed to freely correlate. The resulting equation becomes:

$$\begin{bmatrix} awareness_{i,t} \\ \text{int}\_loya_{i,t} \\ pquality_{i,t} \\ peconom_{i,t} \\ sportimg_{i,t} \\ luximage_{i,t} \end{bmatrix} = \Gamma \times \begin{bmatrix} total\_np_{i,t} \\ advbill_{i,t} \\ global\text{ne}_{i,t} \\ coeur_i \\ coasia_i \\ total\_np_{i,t} \times advbill_{i,t} \\ total\_np_{i,t} \times advbill_{i,t} \\ total\_np_{i,t} \times coeur_i \\ total\_np_{i,t} \times coasia_i \\ advbill_{i,t} \times global\text{ne}_{i,t} \\ advbill_{i,t} \times coeur_i \\ advbill_{i,t} \times coasia_i \\ global\text{ne}_{i,t} \times coeur_i \\ global\text{ne}_{i,t} \times coasia_i \end{bmatrix} + \begin{bmatrix} \varepsilon_{a,t} \\ \varepsilon_{l,t} \\ \varepsilon_{q,t} \\ \varepsilon_{e,t} \\ \varepsilon_{s,t} \\ \varepsilon_{l,t} \end{bmatrix}$$

Where *i* and *t* denote the brand and survey year respectively Γ is the coefficient matrix, and:

$\text{awareness}_{i,t}$	Awareness of brand *i* at time *t*
$\text{int\_loya}_{i,t}$	Intended loyalty of brand *i* at time *t*
$\text{pquality}_{i,t}$	Perceived quality of brand *i* at time *t*
$\text{peconom}_{i,t}$	Perceived economy of brand *i* at time *t*
$\text{sportimg}_{i,t}$	Sport image of brand *i* at time *t*
$\text{luximage}_{i,t}$	Luxury image of brand *i* at time *t*
$\text{total\_np}_{,t}$	Innovativeness of brand *i* at time *t*
$\text{advbill}_{,t}$	Advertising expenditure in billion dollars of brand *i* at time *t*
$\text{globalne}_{i,t}$	Global reach of brand *i* at time *t*
coeur_i	Is one if country of origin of brand *i* is in Europe, zero otherwise.
coasia_i	Is one if country of origin of brand *i* is in Asia, zero otherwise.

However, if all the interaction terms are introduced simultaneously in the equation, multicollinearity problems may occur, leading to potentially unreliable estimations. In order to mitigate this possibility, a hierarchical approach has been employed by including only one interaction term at a time (e.g., Elvira and Cohen 2001; Luo 2002; McGrath 2001).

RESULTS

The complete results of the analysis are found in Tables 3.6-3.12. Overall, the results indicate a complex set of main and interaction effects providing mixed evidence with respect to the hypotheses. A summary of the hypotheses and the relative support fore each provided from this study can be seen in Table 3.13.

The results of the main effects model indicate advertising ($\beta = 3.524$, $z = 16.67$, $p < .001$) and a brand's global reach ($\beta = .008$, $z = 2.75$, $p = .006$) have significant positive effects on brand awareness. The country of origin variables are significantly and negatively related to brand awareness, where European ($\beta = -.962$, $z = -8.96$, $p < .001$) and Asian ($\beta = -.932$, $z = -13.44$, $p < .001$) brands are compared to U.S. based brands. On the other hand, total new product introductions ($\beta = .003$, $z = .51$, $p = .610$) have an insignificant positive effect on awareness. The independent variables explain 84% of the variance in the measure of awareness.

Advertising ($\beta = 22.297$, $z = 3.38$, $p < .001$) and a European country of origin ($\beta = 13.907$, $z = 4.15$, $p < .001$) have a positive and significant effect on intended loyalty. On the other hand, the effects of innovativeness ($\beta = 0.092$, $z = .55$, $p = .583$) are positive but insignificant on intended brand loyalty. While Asian brands ($\beta = -3.351$, $z = -1.55$, $p = .122$) and global reach ($\beta = -0.140$, $z = -1.62$, $p = .104$) are just outside the significant range at a 10% level of confidence, but have a negative valence. 19 % of the variance in intended brand loyalty is explained by the independent variables.

The effects of advertising ($\beta = 1.331$, $z = 2.98$, $p = .003$) and European brands ($\beta = 1.772$, $z = 7.8$, $p < .001$) are positive and significantly related to perceived quality. Innovativeness ($\beta = 0.019$, $z = 1.64$, $p = .101$) and Asian brands ($\beta = 0.233$, $z = 1.59$, $p = .113$) are positively related to perceived quality, but just outside the range of significance at a 10% level of confidence. Global reach ($\beta = -0.026$, $z = -4.54$, $p < .001$), however, is significant and negatively related to perceived quality. The independent variables explain 28% of the variance in perceived quality.

Advertising ($\beta = 3.286$, $z = 8.09$, $p < .001$) and both non U.S. based brands, European ($\beta = 0.464$, $z = 2.25$, $p=0.025$) and Asian ($\beta = 0.943$, $z = 7.08$, $p < .001$), have a positive and significant effect on perceived economy. While innovation ($\beta = -0.020$, $z = -1.98$, $p = 0.048$) has a slightly negative and significant effect. Global reach's ($\beta = -0.003$, $z = -0.58$, $p = 0.563$) effect is also slightly negative, but insignificant. The variance of perceived economy explained by the independent variable is 41%.

Interestingly, all the independent variables are significant with respect to the sporty image dimension of brand equity. Advertising ($\beta = 1.796$, $z = 4.08$, $p < .001$), innovativeness ($\beta = 0.023$, $z = 1.98$, $p =0.047$), European brands ($\beta = 1.595$, $z = 6.99$, $p < .001$), and Asian brands ($\beta = 0.411$, $z = 2.79$, $p = .005$) all have positive effects. However, global reach ($\beta = -0.020$, $z = -3.4$, $p < .001$) has a mildly negative effect. The variance in sporty image explained by the equation is 25%.

The impact of advertising (β = -0.701, z =-1.56, p = .119) and Asian brands (β = -0.049, z = -0.33, p = .738) are negative but insignificant. Innovativeness (β = 0.021, z = 1.87, p =0 .061) and European brands have a positive and significant impact on luxury image. Global reach (β = -0.020, z =-3.48, p < .001), on the other hand, has a negative significant effect on luxury image. The independent variables explain 27% of the variance in the luxury image dimension.

The addition of the interaction of innovativeness and advertising explains a greater degree of variance in all the equations except the one related to the dimension of luxury image. The interaction variable has a negative impact across all the dimensions of brand equity, but is significant only for awareness, intended loyalty, and sporty image.

The interaction of the Asian region of origin with brand innovativeness is generally insignificant, except the interaction with perceived economy. The interaction of innovativeness with European brands is significant for perceived quality, sporty image and luxury image. The variance explained the brand equity dimensions are improved slightly with the addition of the interaction term.

The interaction term of the European region of origin and the advertising variable has a positive effect on awareness and perceived economy. However, it has a negative effect on perceived quality and luxury image. The interaction of Asian brands with advertising is positive and significant with respect to all the dimensions of brand equity. Region of brand origin interacted with advertising provides an increase in the variance explained across all the dimensions of brand equity.

The interaction effect of global reach with innovation is generally not significant, except for a very slight impact on perceived quality and perceived economy. The variance explained by the addition of this variable to the equations improves by only 1% for each of these outcome variables, and has no effect on the variance explained in the other dimensions of brand equity. The interaction of advertising with global reach provides a significant and positive effect for only the dimension of perceived quality. The variance explained by the equations is generally not improved by the addition of this interaction term.

The interaction of global reach with European brands has a positive and significant effect on awareness, perceived quality, perceived economy and sporty image. The Asian region of origin interacted with global reach has a positive and significant effect on perceived economy, but has a negative and significant effect on both sporty image and luxury image. The variance explained in the equations is improved for all the out come variables, with the variance explained by perceived economy increasing by 15%.

Further, to test for the robustness of the findings, a separate analysis was performed including time and brand as covariates in the SUR model. The inclusion of these variables had no effect on the explained variance and an insignificant effect on the coefficient estimates.

Table 3.5: Descriptive Statistics

	Variable	Mean	S.D.	1	2	3	4	5	6	7
1	int_loya	50.189	14.225	1.000						
2	awarenes	0.000	1.000	0.286	1.000					
				<.001						
3	peconom	0.000	1.000	-0.071	0.370	1.000				
				0.309	<.001					
4	pquality	0.000	1.000	0.763	0.106	-0.133	1.000			
				<.001	0.085	0.043				
5	sportimg	0.000	1.000	0.576	0.195	-0.045	0.815	1.000		
				<.001	0.005	0.525	<.001			
6	luximage	0.000	1.000	0.604	-0.191	-0.563	0.832	0.647	1.000	
				<.001	0.002	<.001	<.001	<.001		
7	advbill	0.220	0.178	0.189	0.801	0.483	0.016	0.168	-0.271	1.000
				0.005	<.001	<.001	0.802	0.015	<.001	
8	total_np	8.288	6.169	0.167	0.430	0.236	0.060	0.232	-0.108	0.586
				0.013	<.001	<.001	0.336	0.001	0.083	<.001
9	coeur	0.202	0.402	0.263	-0.384	-0.208	0.410	0.321	0.415	-0.344
				<.001	<.001	0.001	<.001	<.001	<.001	<.001
10	coasia	0.364	0.482	-0.287	-0.329	0.355	-0.155	-0.079	-0.202	-0.038
				<.001	<.001	<.001	0.012	0.256	0.001	0.518
11	globalne	34.708	13.354	0.083	0.033	0.221	0.059	0.150	-0.065	0.230
				0.219	0.592	0.001	0.345	0.031	0.296	<.001
12	intinnovadv	2.480	3.834	0.148	0.657	0.361	0.020	0.129	-0.210	0.852
				0.027	<.001	<.001	0.748	0.066	0.001	<.001
13	intinnovcoeur	1.340	3.709	0.263	-0.258	-0.186	0.379	0.390	0.377	-0.237
				<.001	<.001	0.005	<.001	<.001	<.001	<.001
14	intinnovcoasia	3.153	5.224	-0.212	-0.141	0.434	-0.085	0.005	-0.224	0.175
				0.001	0.023	<.001	0.173	0.940	<.001	0.003
15	intadvcoeur	0.020	0.054	0.175	-0.149	0.019	0.230	0.236	0.174	-0.119
				0.009	0.016	0.776	<.001	0.001	0.005	0.042
16	intadvcoasia	0.078	0.139	-0.055	0.015	0.555	0.059	0.105	-0.174	0.332
				0.411	0.814	<.001	0.340	0.131	0.005	<.001
17	intinnovglob	309.090	292.545	0.153	0.368	0.279	0.081	0.231	-0.103	0.569
				0.022	<.001	<.001	0.195	<.001	0.096	<.001
18	intadvglob	8.170	8.205	0.167	0.689	0.506	0.028	0.174	-0.259	0.931
				0.012	<.001	<.001	0.657	0.012	<.001	<.001
19	intcoeurglob	9.347	18.532	0.275	-0.374	-0.196	0.416	0.336	0.417	-0.331
				<.001	<.001	0.003	<.001	<.001	<.001	<.001
20	intcoasiaglob	13.467	19.852	-0.271	-0.183	0.490	-0.222	-0.137	-0.339	0.090
				<.001	0.003	<.001	<.001	0.049	<.001	0.126

Table 3.5 Continued

8	9	10	11	12	13	14	15	16	17	18	19
1.000											
-0.155	1.000										
0.009											
0.044	-0.380	1.000									
0.455	<.001										
0.232	0.406	0.091	1.000								
<.001	<.001	0.121									
0.808	-0.241	-0.023	0.224	1.000							
<.001	<.001	0.697	<.001								
0.193	0.706	-0.274	0.359	-0.108	1.000						
0.001	<.001	<.001	<.001	0.067							
0.343	-0.310	0.798	0.202	0.208	-0.219	1.000					
<.001	<.001	<.001	0.001	<.001	<.001						
-0.090	0.743	-0.291	0.350	-0.141	0.566	-0.230	1.000				
0.130	<.001	<.001	<.001	0.017	<.001	<.001					
0.241	-0.287	0.734	0.303	0.247	-0.205	0.844	-0.213	1.000			
<.001	<.001	<.001	<.001	<.001	0.001	<.001	<.001				
0.905	-0.002	0.082	0.555	0.771	0.319	0.372	0.032	0.329	1.000		
<.001	0.978	0.167	<.001	<.001	<.001	<.001	0.589	<.001			
0.588	-0.218	0.062	0.490	0.830	-0.137	0.276	-0.010	0.461	0.692	1.000	
<.001	<.001	0.296	<.001	<.001	0.020	<.001	0.860	<.001	<.001		
-0.123	0.991	-0.388	0.427	-0.232	0.750	-0.307	0.771	-0.285	0.034	-0.202	1.000
0.037	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	0.565	0.001	
0.094	-0.346	0.885	0.404	0.054	-0.248	0.784	-0.257	0.808	0.227	0.244	-0.343
0.112	<.001	<.001	<.001	0.366	<.001	<.001	<.001	<.001	<.001	<.001	<.001

Table 3.6: Estimated Main Effects

Dependent	Independent	Coef.	Std. Err.	z	P>|z|	R sq.	Chi Sq.
awareness	**advertsing**	**3.524**	**0.211**	**16.67**	**<.001**	0.84	1101.43
	innovativeness	0.003	0.005	0.51	.61		
	European	**-0.962**	**0.107**	**-8.96**	**<.001**		
	Asian	**-0.932**	**0.069**	**-13.44**	**<.001**		
	global reach	**0.008**	**0.003**	**2.75**	**.006**		
	intercept	-0.671	0.083	-8.11	<.001		
intended loyalty	**advertising**	**22.297**	**6.598**	**3.38**	**.001**	0.19	46.79
	innovativeness	0.092	0.168	0.55	.583		
	European	**13.907**	**3.354**	**4.15**	**<.001**		
	Asian	-3.351	2.164	-1.55	.122		
	global reach	-0.140	0.086	-1.62	.104		
	intercept	48.088	2.584	18.61	<.001		
perceived quality	**advertising**	**1.331**	**0.447**	**2.98**	**.003**	0.28	78.06
	innovativeness	0.019	0.011	1.64	.101		
	European	**1.772**	**0.227**	**7.80**	**<.001**		
	Asian	0.233	0.147	1.59	.113		
	global reach	**-0.026**	**0.006**	**-4.54**	**<.001**		
	intercept	0.095	0.175	0.55	.586		
perceived economy	**advertising**	**3.286**	**0.406**	**8.09**	**<.001**	0.41	138.89
	innovativeness	**-0.020**	**0.010**	**-1.98**	**.048**		
	European	**0.464**	**0.207**	**2.25**	**.025**		
	Asian	**0.943**	**0.133**	**7.08**	**<.001**		
	global reach	-0.003	0.005	-0.58	.563		
	intercept	-0.930	0.159	-5.84	<.001		

Table 3.6: Continued

sporty image	**advertising**	**1.796**	**0.449**	**4.00**	**<.001**	0.25	67.52
	innovativeness	**0.023**	**0.011**	**1.98**	**.047**		
	European	**1.595**	**0.228**	**6.99**	**<.001**		
	Asian	**0.411**	**0.147**	**2.79**	**.005**		
	global reach	**-0.020**	**0.006**	**-3.40**	**<.001**		
	intercept	-0.353	0.176	-2.01	.045		
luxury image	advertising	-0.701	0.450	-1.56	.119	0.27	74.70
	innovativeness	**0.021**	**0.011**	**1.87**	**.061**		
	European	**1.245**	**0.229**	**5.45**	**<.001**		
	Asian	-0.049	0.148	-0.33	.738		
	global reach	**-0.020**	**0.006**	**-3.48**	**<.001**		
	intercept	0.546	0.176	3.10	.002		

All Chi sq. statistics are significant at .001 level

Breusch-Pagan test of independence: Chi2 (15) = 795.368; P value < 0.001

Bold items indcate a 10% or better level of significance

Table 3.7: Estimated Interaction Effects: Innovation and Advertising

Dependent	Independent	Coef.	Std. Err.	z	P>|z|	R sq.	Chi Sq.
awarenes	**advertising**	**4.069**	**0.321**	**12.68**	**<.001**	0.85	1133.5
	innovativeness	**0.017**	**0.008**	**2.04**	**.042**		
	European	**-0.965**	**0.106**	**-9.09**	**<.001**		
	Asian	**-0.942**	**0.069**	**-13.72**	**<.001**		
	global reach	**0.007**	**0.003**	**2.68**	**.007**		
	intinnovadv	**-0.042**	**0.019**	**-2.24**	**.025**		
	intercept	-0.797	0.099	-8.03	<.001		
intended loyalty	**advertising**	**35.813**	**10.061**	**3.56**	**<.001**	0.20	50.64
	innovativeness	**0.437**	**0.256**	**1.71**	**.088**		
	European	**13.841**	**3.328**	**4.16**	**<.001**		
	Asian	**-3.614**	**2.153**	**-1.68**	**.093**		
	global reach	**-0.147**	**0.085**	**-1.72**	**.086**		
	intinnovadv	**-1.041**	**0.588**	**-1.77**	**.077**		
	intercept	44.969	3.112	14.45	<.001		
perceived quality	**advertising**	**2.193**	**0.682**	**3.21**	**.001**	0.29	81.89
	innovativeness	**0.041**	**0.017**	**2.34**	**.019**		
	European	**1.767**	**0.226**	**7.83**	**<.001**		
	Asian	0.216	0.146	1.48	.139		
	global reach	**-0.027**	**0.006**	**-4.65**	**<.001**		
	intinnovadv	**-0.066**	**0.040**	**-1.66**	**.096**		
	intercept	-0.103	0.211	-0.49	.624		

Table 3.7: Continued

perceived economy	**advertsing**	**3.526**	**0.624**	**5.65**	**<.001**	0.41	139.32
	innovativeness	-0.014	0.016	-0.90	.366		
	European	**0.463**	**0.206**	**2.24**	**.025**		
	Asian	**0.939**	**0.134**	**7.03**	**<.001**		
	global reach	-0.003	0.005	-0.60	.547		
	intinnovadv	-0.018	0.037	-0.51	.614		
	intercept	-0.985	0.193	-5.11	<.001		
sporty image	**advertising**	**3.671**	**0.668**	**5.50**	**<.001**	0.30	85.72
	innovativeness	**0.070**	**0.017**	**4.14**	**<.001**		
	European	**1.586**	**0.221**	**7.18**	**<.001**		
	Asian	**0.375**	**0.143**	**2.62**	**.009**		
	global reach	**-0.021**	**0.006**	**-3.68**	**<.001**		
	intinnovadv	**-0.144**	**0.039**	**-3.70**	**<.001**		
	intercept	-0.785	0.207	-3.80	<.001		
luxury image	advertising	-0.090	0.689	-0.13	.896	0.27	76.57
	innovativeness	**0.037**	**0.018**	**2.11**	**.035**		
	European	**1.242**	**0.228**	**5.45**	**<.001**		
	Asian	-0.061	0.147	-0.42	.678		
	global reach	**-0.021**	**0.006**	**-3.54**	**<.001**		
	intinnovadv	-0.047	0.040	-1.17	.242		
	intercept	0.405	0.213	1.90	.057		

All Chi sq. statistics are significant at .001 level

Breusch-Pagan test of independence: Chi2 (15) = 787.358; P value < 0.001

Bold items indcate a 10% or better level of significance

Table 3.8: Estimated Interaction Effects: Innovation and COO

Dependent	Independent	Coef.	Std. Err.	z	P>|z|	R sq.	Chi Sq.
awareness	**advertising**	**0.365**	**0.223**	**16.37**	**< .001**	0.85	1,121.21
	innovativeness	-0.002	0.007	-0.25	.800		
	European	**-1.109**	**0.142**	**-7.78**	**< .001**		
	Asian	**-0.893**	**0.117**	**-7.66**	**< .001**		
	global reach	**0.007**	**0.003**	**2.73**	**.006**		
	intinnovcoeur	0.020	0.013	1.58	.114		
	intinnovcoasia	-0.003	0.010	-0.31	.759		
	intercept	-0.665	0.087	-7.67	< .001		
intended loyalty	**advertising**	**25.028**	**6.947**	**3.60**	**< .001**	0.20	51.38
	innovativeness	0.092	0.223	0.41	.681		
	European	**11.142**	**4.441**	**2.51**	**.012**		
	Asian	0.751	3.634	0.21	.836		
	global reach	**-0.144**	**0.085**	**-1.68**	**.092**		
	intinnovcoeur	0.394	0.395	1.00	.318		
	intinnovcoasia	-0.418	0.319	-1.31	.190		
	intercept	47.371	2.704	17.52	< .001		
perceived quality	**advertising**	**1.692**	**0.468**	**3.61**	**< .001**	0.30	85.96
	innovativeness	-0.004	0.015	-0.27	.789		
	European	**1.303**	**0.299**	**4.35**	**< .001**		
	Asian	0.040	0.245	0.16	.870		
	global reach	**-0.027**	**0.006**	**-4.65**	**< .001**		
	intinnovcoeur	**0.062**	**0.027**	**2.34**	**.019**		
	intinnovcoasia	0.024	0.022	1.11	.267		
	intercept	0.195	0.182	1.07	.286		

Table 3.8: Continued

perceived economy	**advertising**	**3.330**	**0.427**	**7.80**	**<.001**	0.42	146.26
	innovativeness	**-0.034**	**0.014**	**-2.48**	**.013**		
	European	0.358	0.273	1.31	.190		
	Asian	**0.566**	**0.223**	**2.53**	**.011**		
	global reach	-0.003	0.005	-0.56	.573		
	intinnovcoeur	0.012	0.024	0.51	.607		
	intinnovcoasia	**0.041**	**0.020**	**2.09**	**.036**		
	intercept	-0.825	0.166	-4.96	<.001		
sporty image	**advertising**	**2.380**	**0.461**	**5.16**	**<.001**	0.30	86.30
	innovativeness	-0.005	0.015	-0.37	.714		
	European	**0.876**	**0.295**	**2.97**	**.003**		
	Asian	0.378	0.241	1.57	.117		
	global reach	**-0.020**	**0.006**	**-3.60**	**<.001**		
	intinnovcoeur	**0.097**	**0.026**	**3.70**	**<.001**		
	intinnovcoasia	0.009	0.021	0.41	.684		
	intercept	-0.266	0.180	-1.48	.139		
luxury image	advertising	-0.416	0.474	-0.88	.380	0.28	79.73
	innovativeness	0.011	0.015	0.74	.459		
	European	**0.910**	**0.303**	**3.01**	**.003**		
	Asian	0.052	0.248	0.21	.835		
	global reach	**-0.021**	**0.006**	**-3.55**	**<.001**		
	intinnovcoeur	**0.046**	**0.027**	**1.70**	**.089**		
	intinnovcoasia	-0.008	0.022	-0.39	.699		
	intercept	0.558	0.184	3.02	.002		

All Chi sq. statistics are significant at .001 level

Breusch-Pagan test of independence: Chi2 (15) = 794.435; P value < 0.001

Bold items indcate a 10% or better level of significance

Table 3.9: Estimated Interaction Effects: Advertising and COO

Dependent	Independent	Coef.	Std. Err.	z	P>|z|	R sq.	Chi Sq.
awarenesss	**advertising**	**2.959**	**0.238**	**12.46**	**<.001**	0.86	1,243.88
	innovativeness	0.008	0.005	1.50	.134		
	European	**-1.401**	**0.144**	**-9.76**	**<.001**		
	Asian	**-1.217**	**0.110**	**-11.09**	**<.001**		
	global reach	**0.008**	**0.003**	**2.86**	**.004**		
	intadvcoeur	**2.830**	**0.694**	**4.08**	**<.001**		
	intadvcoasia	**1.000**	**0.333**	**3.01**	**.003**		
	intercept	-0.542	0.087	-6.22	<.001		
intended loyalty	**advertising**	**19.729**	**7.671**	**2.57**	**.010**	0.21	55.84
	innovativeness	0.054	0.169	0.32	.749		
	European	**18.192**	**4.635**	**3.92**	**<.001**		
	Asian	**-8.343**	**3.544**	**-2.35**	**.019**		
	global reach	**-0.168**	**0.085**	**-1.97**	**.048**		
	intadvcoeur	-35.918	22.407	-1.60	.109		
	intadvcoasia	**20.372**	**1.075**	**1.90**	**.058**		
	intercept	50.060	2.813	17.80	<.001		
perceived quality	advertising	0.632	0.487	1.30	.195	0.39	128.14
	innovativeness	0.016	0.011	1.52	.129		
	European	**2.113**	**0.295**	**7.17**	**<.001**		
	Asian	**-0.640**	**0.225**	**-2.84**	**.004**		
	global reach	**-0.031**	**0.005**	**-5.64**	**<.001**		
	intadvcoeur	**-3.365**	**1.424**	**-2.36**	**.018**		
	intadvcoasia	**3.464**	**0.683**	**5.07**	**<.001**		
	intercept	0.450	0.179	2.52	.012		

Table 3.9: Continued

perceived economy	**advertising**	**2.108**	**0.455**	**4.63**	**<.001**	0.47	178.61
	innovativeness	-0.011	0.010	-1.15	.252		
	European	-0.285	0.275	-1.04	.300		
	Asian	0.252	0.210	1.20	.231		
	global reach	-0.004	0.005	-0.77	.438		
	intadvcoeur	**4.616**	**1.330**	**3.47**	**.001**		
	intadvcoasia	**2.504**	**0.638**	**3.93**	**<.001**		
	intercept	-0.624	0.167	-3.74	<.001		
sporty image	**advertising**	**1.574**	**0.526**	**2.99**	**.003**	0.26	73.29
	innovativeness	**0.021**	**0.012**	**1.85**	**.064**		
	European	**1.755**	**0.318**	**5.52**	**<.001**		
	Asian	0.104	0.243	0.43	.669		
	global reach	**-0.021**	**0.006**	**-3.67**	**<.001**		
	intadvcoeur	-1.466	1.536	-0.95	.340		
	intadvcoasia	**1.230**	**0.737**	**1.67**	**.095**		
	intercept	-0.229	0.193	-1.19	.236		
luxury image	advertising	-0.642	0.515	-1.25	.212	0.32	94.22
	innovativeness	0.016	0.011	1.37	.170		
	European	**1.835**	**0.311**	**5.90**	**<.001**		
	Asian	-0.340	0.238	-1.43	.152		
	global reach	**-0.023**	**0.006**	**-3.99**	**<.001**		
	intadvcoeur	**-4.527**	**1.503**	**-3.01**	**.003**		
	intadvcoasia	**1.268**	**0.721**	**1.76**	**.079**		
	intercept	0.652	0.189	3.46	.001		

All Chi sq. statistics are significant at .001 level

Breusch-Pagan test of independence: Chi2 (15) = 821.047; P value < 0.001

Bold items indcate a 10% or better level of significance

Table 3.10: Estimated Interaction Effects: Innovation and Globalness

Dependent	Independent	Coef.	Std. Err.	z	P>|z|	R sq.	Chi Sq.
awareness	**advertising**	**3.540**	**0.211**	**16.75**	**<.001**	0.84	1108.7
	innovativeness	-0.015	0.017	-0.85	.393		
	European	**-0.945**	**0.108**	**-8.73**	**<.001**		
	Asian	**-0.922**	**0.070**	**-13.23**	**<.001**		
	global reach	0.004	0.005	0.83	.404		
	intinnovglob	0.000	0.000	1.07	.286		
	intercept	-0.537	0.151	-3.56	<.001		
intended loyalty	**advertising**	**22.100**	**6.612**	**3.34**	**.001**	0.19	47.01
	innovativeness	0.305	0.537	0.57	.570		
	European	**13.697**	**3.389**	**4.04**	**<.001**		
	Asian	-3.466	2.181	-1.59	.112		
	global reach	-0.093	0.141	-0.66	.511		
	intinnovglob	-0.005	0.013	-0.42	.676		
	intercept	46.439	4.715	9.85	<.001		
perceived quality	**advertising**	**1.385**	**0.445**	**3.11**	**.002**	0.29	82.07
	innovativeness	-0.040	0.036	-1.10	.270		
	European	**1.829**	**0.228**	**8.02**	**<.001**		
	Asian	**0.264**	**0.147**	**1.80**	**.072**		
	global reach	**-0.039**	**0.010**	**-4.14**	**<.001**		
	intinnovglob	**0.001**	**0.001**	**1.70**	**.088**		
	intercept	0.548	0.317	1.73	.084		

Table 3.10: Continued

perceived economy	**advertising**	**3.340**	**0.404**	**8.27**	**<.001**	0.42	144.79
	innovativeness	**-0.079**	**0.033**	**-2.40**	**.016**		
	European	**0.521**	**0.207**	**2.52**	**.012**		
	Asian	**0.975**	**0.133**	**7.32**	**<.001**		
	global reach	**-0.016**	**0.009**	**-1.84**	**.065**		
	intinnovglob	**0.001**	**0.001**	**1.87**	**.061**		
	intercept	-0.478	0.288	-1.66	.097		
sporty image	**advertising**	**1.823**	**0.449**	**4.06**	**<.001**	0.25	68.45
	innovativeness	-0.006	0.036	-0.17	.862		
	European	**1.624**	**0.230**	**7.05**	**<.001**		
	Asian	**0.427**	**0.148**	**2.88**	**.004**		
	global reach	**-0.026**	**0.010**	**-2.74**	**.006**		
	intinnovglob	0.001	0.001	0.84	.403		
	intercept	-0.129	0.320	-0.40	.688		
luxury image	advertising	-0.679	0.450	-1.51	.132	0.27	75.34
	innovativeness	-0.002	0.037	-0.07	.948		
	European	**1.268**	**0.231**	**5.49**	**<.001**		
	Asian	-0.036	0.149	-0.25	.806		
	global reach	**-0.026**	**0.010**	**-2.66**	**.008**		
	intinnovglob	0.001	0.001	0.68	.494		
	intercept	0.730	0.321	2.27	.023		

All Chi sq. statistics are significant at .001 level

Breusch-Pagan test of independence: Chi2 (15) = 802.476; P value < 0.001

Bold items indcate a 10% or better level of significance

Table 3.11: Estimated Interaction Effects: Advertising and Globalness

Dependent	Independent	Coef.	Std. Err.	z	P>|z|	R sq.	Chi Sq.
awareness	**advertising**	**1.916**	**0.662**	**2.89**	**.004**	0.85	1143.27
	innovativeness	0.002	0.005	0.34	.733		
	European	**-0.924**	**0.107**	**-8.66**	**<.001**		
	Asian	**-0.962**	**0.069**	**-13.89**	**<.001**		
	global reach	-0.001	0.004	-0.21	.831		
	intadvglob	**0.040**	**0.016**	**2.56**	**.011**		
	intercept	-0.333	0.155	-2.14	.032		
intended loyalty	advertising	18.091	20.994	0.86	.389	0.19	46.85
	innovativeness	0.090	0.168	0.53	.594		
	European	**14.005**	**3.386**	**4.14**	**<.001**		
	Asian	-3.431	2.197	-1.56	.118		
	global reach	-0.162	0.136	-1.19	.234		
	intadvglob	0.105	0.497	0.21	.833		
	intercept	48.973	4.926	9.94	<.001		
perceived quality	advertising	-1.744	1.404	-1.24	.214	0.30	85.41
	innovativeness	0.017	0.011	1.50	.134		
	European	**1.844**	**0.226**	**8.14**	**<.001**		
	Asian	0.174	0.147	1.19	.236		
	global reach	**-0.043**	**0.009**	**-4.70**	**<.001**		
	intadvglob	**0.077**	**0.033**	**2.31**	**.021**		
	intercept	0.742	0.329	2.25	.024		

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Table 3.11: Continued

perceived economy	advertising	1.936	1.289	1.50	.133	0.41	140.93
	innovativeness	**-0.021**	**0.010**	**-2.06**	**.040**		
	European	**0.496**	**0.208**	**2.38**	**.017**		
	Asian	**0.918**	**0.135**	**6.80**	**<.001**		
	global reach	-0.010	0.008	-1.22	.222		
	intadvglob	0.034	0.031	1.10	.270		
	intercept	-0.646	0.303	-2.14	.033		
sporty image	advertising	1.268	1.428	0.89	.375	0.25	67.72
	innovativeness	**0.022**	**0.011**	**1.95**	**.051**		
	European	**1.608**	**0.230**	**6.98**	**<.001**		
	Asian	**0.401**	**0.149**	**2.68**	**.007**		
	global reach	**-0.023**	**0.009**	**-2.45**	**.014**		
	intadvglob	0.013	0.034	0.39	.697		
	intercept	-0.242	0.335	-0.72	.471		
luxury image	**advertising**	**-2.451**	**1.426**	**-1.72**	**.086**	0.27	76.99
	innovativeness	**0.020**	**0.011**	**1.78**	**.074**		
	European	**1.286**	**0.230**	**5.59**	**<.001**		
	Asian	-0.083	0.149	-0.55	.580		
	global reach	**-0.030**	**0.009**	**-3.21**	**.001**		
	intadvglob	0.044	0.034	1.29	.196		
	intercept	0.914	0.334	2.73	.006		

All Chi sq. statistics are significant at .001 level

Breusch-Pagan test of independence: Chi2 (15) = 799.902; P value < 0.001

Bold items indcate a 10% or better level of significance

Table 3.12: Estimated Interaction Effects: COO and Globalness

Dependent	Independent	Coef.	Std. Err.	z	P>|z|	R sq.	Chi Sq.
awareness	**advertising**	**3.606**	**0.211**	**17.13**	**<.001**	0.85	1,152.92
	innovativeness	0.002	0.005	0.36	.721		
	European	**-3.126**	**0.834**	**-3.75**	**<.001**		
	Asian	**-1.132**	**0.177**	**-6.41**	**<.001**		
	global reach	0.002	0.004	0.51	.607		
	intcoeurglob	**0.047**	**0.017**	**2.70**	**.007**		
	intcoasiaglob	0.007	0.005	1.29	.197		
	intercept	-0.533	0.119	-4.47	<.001		
intended loyalty	**advertising**	**23.014**	**6.685**	**3.44**	**.001**	0.19	47.77
	innovativeness	0.079	0.171	0.46	.642		
	European	-8.811	26.484	-0.33	.739		
	Asian	-4.697	5.608	-0.84	.402		
	global reach	-0.179	0.141	-1.27	.205		
	intcoeurglob	0.488	0.555	0.88	.379		
	intcoasiaglob	0.045	0.161	0.28	.779		
	intercept	49.149	3.786	12.98	<.001		
perceived quality	**advertising**	**1.376**	**0.450**	**3.06**	**.002**	0.29	82.97
	innovativeness	0.015	0.011	1.32	.186		
	European	-1.483	1.782	-0.83	.405		
	Asian	0.340	0.377	0.90	.367		
	global reach	**-0.026**	**0.010**	**-2.70**	**.007**		
	intcoeurglob	**0.067**	**0.037**	**1.80**	**.072**		
	intcoasiaglob	-0.003	0.011	-0.26	.792		
	intercept	0.089	0.255	0.35	.726		

Table 3.12: Continued

perceived economy	**advertising**	**3.789**	**0.354**	**10.69**	**< .001**	0.56	260.96
	innovativeness	-0.011	0.009	-1.20	.229		
	European	**-2.557**	**1.403**	**-1.82**	**.068**		
	Asian	**-1.344**	**0.297**	**-4.52**	**< .001**		
	global reach	**-0.053**	**0.007**	**-7.15**	**< .001**		
	intcoeurglob	**0.084**	**0.029**	**2.86**	**.004**		
	intcoasiaglob	**0.071**	**0.009**	**8.38**	**< .001**		
	intercept	0.319	0.201	1.59	.111		
sporty image	**advertising**	**1.711**	**0.436**	**3.92**	**< .001**	0.31	92.30
	innovativeness	0.013	0.011	1.15	.249		
	European	**-3.608**	**1.729**	**-2.09**	**.037**		
	Asian	**1.395**	**0.366**	**3.81**	**< .001**		
	global reach	-0.001	0.009	-0.14	.889		
	intcoeurglob	**0.100**	**0.036**	**2.76**	**.006**		
	intcoasiaglob	**-0.030**	**0.010**	**-2.83**	**.005**		
	intercept	-0.789	0.247	-3.19	.001		
luxury image	**advertising**	**-0.893**	**0.442**	**-2.02**	**.043**	0.31	93.49
	innovativeness	0.013	0.011	1.18	.237		
	European	-0.649	1.751	-0.37	.711		
	Asian	**1.143**	**0.371**	**3.08**	**.002**		
	global reach	0.004	0.009	0.46	.647		
	intcoeurglob	0.029	0.037	0.79	.432		
	intcoasiaglob	**-0.037**	**0.011**	**-3.45**	**.001**		
	o e	-0.052	0.250	-0.21	.837		

All Chi sq. statistics are significant at .001 level

Breusch-Pagan test of independence: Chi2 (15) = 801.840; P value < 0.001

Bold items indcate a 10% or better level of significance

Table 3.13: Summary of Findings

	Hypothesis	Findings
H1:	A brand's innovativeness has a positive impact on the dimensions of brand equity.	Partially supported
H2:	A brand's advertising expenditure has a positive impact on the dimensions of brand equity.	Supported
H2a:	The greater the brand's advertising expenditure, the greater the positive impact of the firm's innovativeness on the dimensions of brand equity.	Not supported
H3:	European and Asian brands will have a greater positive impact on the brand equity dimensions than will American brands.	Partially Supported
H3a:	The effects of a brand's innovativeness on the dimensions of brand equity will be greater for the European and Asian brands than American brands.	Partially Supported
H3b:	The effects of a brand's advertising expenditure on the dimensions of brand equity will be greater for the European and Asian brands than American brands.	Supported
H4:	The global reach of a brand has a positive impact on the dimensions of brand equity in the U.S. automotive market.	Not Supported
H4a:	The effects of a brand's innovativeness on the dimensions of brand equity in the U.S. automotive market will vary by the degree of global reach of a brand.	Partially Supported
H4b:	The effects of a brand's advertising expenditure on the dimensions of brand equity will vary by the degree of global reach of a brand.	Partially Supported
H4c:	The region of origin effects on the dimensions of brand equity will vary by the degree of global reach of a brand.	Partially Supported

DISCUSSION

This study contributes to the literature by ascertaining the impact of marketing related value creation and differentiation activities undertaken by the firm on an intermediate marketing outcome as comprised by the underlying dimensions of brand equity. Since brand equity is posited to contribute to a sustainable competitive advantage, delineation of the strategic efforts and contextual factors which impact the underlying dimensions of brand equity has inherent appeal for both academics and brand managers. These effects are evaluates further by considering observable contextual factors as boundary conditions. Several potentially important implications emerged:

- There is a positive return in terms of brand equity on both the innovativeness and differentiation orientations.
- The most consistent effects on brand equity are from differentiation through advertising.
- As suggested by the existing literature (Miller and Friesen 1984; Mizik and Jacobson 2003), there is a negative return for focusing on both value creation and differentiation through advertising at the same time. In this case, the new insight drawn is the potential mediating effect of brand equity between the deployment of resources and firm level financial returns.
- Country of origin is a significant driver of brand equity and also a significant moderator of the intermediate marketing return on strategic orientation.
- Globalness emerged not as a driver, but a significant moderator of the returns on the strategic orientations and country of origin.

Overall, the conceptual framework is generally supported. However, there is variation in the results by specific drivers across the dimensions of brand equity, which provides a contribution to the literature. While there are significant effects of both direct and interaction terms, the most consistent results are found from the effects of differentiation through advertising. In all specifications, advertising has a positive and significant impact on all the dimensions, except luxury image. However, innovativeness only has a positive effect consistently across the image dimensions. When the first hierarchical interaction is added, new product introductions become positive and significant across all dimensions except perceived economy. Yet, as both innovativeness and advertising increase, there is a negative return on awareness, intended loyalty and perceived quality. This implies there is a diminishing return to focusing too heavily on either value creation or differentiation capabilities concurrently, and only one course should be emphasized at a time. However, the results do not negate the importance of innovativeness, but suggests advertising provides a moderating effect. Strategically, it is important to determine the optimal point of emphasis for innovativeness and differentiation; thus, in addition to contributing to the knowledge base related to value creation and differentiation, this finding provides a direction for future research.

There is strong support for the moderating effects of region of origin and global brand reach proposed in the conceptual framework, supporting the hierarchical nature of the hypotheses and providing significant boundary conditions for the strategic orientation framework presented. There are significant main effects for region of origin, as well as a number of the interaction effects, supporting this step in the framework. However, both the direct and indirect effects of global reach vary across dimensions and specifications.

Although there is general support for this boundary condition, sustaining the overall framework, it is not consistent across the dimensions of brand equity. The specific effects of each driver on each dimension of brand equity are discussed below.

Determination of Intermediate Outcomes

Awareness is explained to a large degree by advertising expenditures, global reach and region of origin. The findings with respect to differentiation through advertising is consistent with previous studies that indicate advertising is an important component of maintaining a consumer durable good's brand position over time (Golder 2000) and a means of achieving competitive advantage (Mizik and Jacobson 2003). Further, as expected, the broader a brand's global reach, the greater the awareness of the brand. This finding supports the notion that as the inter-connectedness of the markets of the world increases, consumers have a greater awareness of products and services offered in other countries. There is a negative effect, however, of brands with non-U.S. region of origin on the awareness variable. This implies that overall, U.S. brands are the most well known in the U.S. market. However, greater degrees of advertising by brands from the European and Asian regions receive a higher return than brands from the U.S., indicating a level of saturation for U.S. brands. European brands which have a broader global reach also benefit further from their advertising efforts with respect to generating awareness. This may be because European brands tend to be consistent in their positioning in global markets, and thus gain greater advantage from their international efforts.

Intended loyalty is influenced by advertising, which reinforces a brand's message to the consumer. While this is consistent with previous findings that indicate through the reinforcement of the consumer's brand-related beliefs and attitudes, advertising contributes to strong brand loyalty (Shimp 1997). What is interesting is that European brands enjoy a substantial advantage with respect to intended loyalty, but it is diminished in a practical sense by increased advertising. This is interesting and implies that loyal European brand owners prefer a more subtle marketing strategy, perhaps due to the nature of the positioning and target demographics of most European brands.

Perceived quality is also enhanced by advertising, as was found previously by Aaker and Jacobson (1994). However, while this study supports this finding, it goes further to delineate the effects of the region of origin on perceived brand quality. The findings support that European brands have a higher perceived quality than U.S. based brands, but what is interesting is that Asian brands do not. This result could be because Asian brands have a broader range of quality perceptions. While Toyota and Honda may enjoy a high level of perceived quality, other Asian brands may not have that same level of perception. European brands, however, may tend to cluster more closely on this variable. European brands benefit further through their innovativeness, but those returns diminish through increased advertising. Further, the greater the global reach of the brand, the lower is the perceived quality of the brand. This is contrary to expectations because of recent findings that indicated the higher the level of a brand's perceived globalness, the greater its' perceived quality (Steenkamp et al. 2003). Yet, the measure used in this study is objective rather than subjective. Just because a brand is sold in many markets does not mean that it's positioning is consistent, or that it is even positioned globally.

Perceived economy, as with the other dimensions of brand equity, is positively impacted overall by increased advertising, with this effect being even more pronounced for European and Asian brands. These brands also enjoy a benefit on this dimension from their advertising efforts and global reach in comparison to U.S. based brands. However, innovativeness had negative direct effects on the dimensions of brand equity. This may be because consumers believe that firms who are more innovative have higher prices and a greater cost of overall ownership to maintain those innovations. Yet, Asian brands are rewarded for their innovativeness; this could be because consumers perceive their innovations to be either affordable with respect to cost, or perhaps because they believe the innovations (like hybrid technology, which actually increases overall costs!) to effect a lower cost of ownership.

While advertising has a positive direct effect on *sporty image*, it has an insignificant but practically negative direct effect on *luxury image*. However, when the interaction of region of origin and globalness is added to the equation, the effects become significant, and increasingly negative. This implies a point of advertising saturation for brands with a luxury image that operate more globally, and a diminishing return on these strategic efforts for this component of brand equity. Innovative efforts have a positive effect though for both types of *image*, which is an important finding; however, more so for European brands. Asian brands have a positive return from advertising for both types of image. It suggests Asian firms positioned in these segments should emphasize their value creation activities, while European luxury brands should balance their advertising efforts carefully. European brands enjoy a higher effect for luxury, while both regions enjoy an advantage over U.S. brands for a sporty image. Asian brands are impacted negatively by their globalness, so U.S. brands may want to emphasize their innovativeness and position globally with respect to image versus Asian brands.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study is limited in its generalizability due to it being conducted in a single industry related to a specific and relatively unique durable consumer product. It would be interesting to consider different industries and product classifications to see if the results are consistent. Also, additional specifications of the model could provide further revelations. For example, adding interaction effects between time and the drivers of brand equity could provide further explanation of the dynamic effects over time. Additionally, the effects of specific types of advertising and product introductions may add greater insights.

Further, several limitations arise from the method employed. Given that the data is collected from secondary sources and single measures were employed for each of the independent variables, measurement errors may be an alternative explanation for the insignificance in some of the coefficients. Future studies should consider multiple measures for each independent construct and use of structural equation modeling to alleviate the potential effects of measurement errors. Also, the data availability restricted the time range of this study to only seven years; the inclusion of a broader time span would allow for the investigation of alternate research questions such as whether there is change over time in the region of origin effects, and is there a cumulative or saturation effect of advertising and new product introductions on the brand equity dimensions. Finally, quadratic and delayed effects of value creation through innovativeness and differentiation through advertising have not been a focus of this study. Future research may address the diminishing returns, as well as the persistence of the effects of these variables on the brand equity dimensions.

CHAPTER 5

CONCLUSION

CONCLUSION

Through the process of incorporating both broad theoretical perspectives and focused empirical analysis, this dissertation investigates the sources and consequences of brand equity in the automotive industry. The three essays take distinctly different means to uncover various aspects of the brand equity phenomenon utilizing alternative methodological approaches. The first essay begins the progression of understanding & explaining how the new product development process responds to globalization in order to create global brands using qualitative research methods. The second essay uses a random effects model with auto-regressive error terms tested with time series panel data to explain and predict the effects of the multi-dimensional values of consumer-based brand equity on the rate value preservation, as moderated by the region of brand origin. The theoretical foundations for this essay are based on the premises of information asymmetry. The third and final essay identifies the longitudinal effects of marketing related antecedents on the dimensions of brand equity using seemingly unrelated regression estimation.

The first essay contributes by the development of knowledge with respect to the association between globalization, marketing and other functions in the new product development process, and the organization's global brand portfolio architecture. The focal company of this study is General Motors, which remains the largest automotive manufacturer in the world. The company is challenged to unifying the styling and looks of their individual brands while also managing a new product development process that harnesses efficiencies from the scale of the corporation. Simultaneously, it is globalizing its new product and brand architectures, converging previously disparate functional and geographic groups in order to build a cohesive whole.

The study results provide support for the concept that the environmental global drivers influencing the organization are perceived differently by the various groups involved in the new product development process. A summary of the findings indicates:

- Functions are unwaveringly driven by cost reductions and efficiencies which can be gained through global integration.
- Planning and VSSM groups are concerned primarily with competitor and cost considerations,
- AVD and VLE groups appear to find consumer preferences and regulatory issues an impediment to globalization.
- IPC is motivated by the drivers of globalization in a much broader sense than other organizational groups.

It is interesting to note that within the new product development process, the group, known as the VLE's, which integrates the functional areas to develop a vehicle, while aware of the drivers of globalization, appear to be more sensitive to the differences across markets, rather than the similarities. This may be because this area is responsible for implementing the systems and processes required to satisfy consumers, requiring an awareness of the constraints in meeting a variety of needs.

Previous research indicates the interface between marketing and research and development (R&D) is one of most important relationships in the organization (Song and Parry 1992). Yet, this qualitative study indicates that marketing's role in GM is somewhat marginalized. Other groups in the new product development process take responsibility for activities which academics consider marketing activities, especially with respect to implementing the marketing concept. In particular:

- Marketing's role is relative to the point of process completion, with emphasis and control being taken by the "brands" near to the point of product launch.
- The new product development infra-structure has a strong emphasis on engineering and design which is considered to be a function of the complexity of the development process in the industry.
- There is evidence from the interviews that some things may be changing in response to reorganizations being implemented.

GM is implementing a new brand hierarchy, both domestically and globally; in this approach, there is an increasing acceptance of the importance on marketing in new product development which represents the evolutionary nature of the changes which are occurring within the organization. The challenge for GM, beyond recognizing the need to facilitate the changes in place, is reducing the time lag between environmental change and cultural response - marketing concept is infused throughout the processes on a global basis.

- The pre-existing infrastructure has an inhibiting effect, by limiting the marketing function to a perception of "sales".
- GM executives recognize the need for more influential marketing thought, but this is most notably being implemented through the brand management groups.

- Under the pressures of globalization, the organization is beginning to recognize the important role marketing plays in the development and management of global brands.

It is noted often by people in the automotive industry that "there is no such thing as a global car". Yet, global brands do exist in the industry and harnessing the power and efficiencies which can be gained from brand equity enjoyed by brands with a global scope can be realized through the structure, processes and culture of the organization.

As elucidated in the second essay, the dimensions of brand equity, residual values, and region of origin are important factors affecting the decision making process of both customers and the managers who seek to serve them. The U.S. market is considered by industry executives to be the most globally competitive market in the world. It is with this in mind that consideration of multi-dimensional consumer-based brand equity, sources by which it is derived and the relationship with value retention rates is considered in the context of this market. Through the identification of the collective contribution of the discrete components of brand equity through the evaluation of its residual value over time in conjunction with the origin effects, the findings of this study contribute to the literature in a variety of ways.

The impact of the brand equity factors on the value retention rates of new vehicles sold in the U.S. market is significant because it considers consumers' retained brand knowledge, and the utilization of this knowledge as measured by value retention rates, in an attempt to mitigate the effects of information asymmetries in the purchasing process. Therefore, brand equity provides explanation of expected performance of the brand's products after the transfer of ownership. As such, this essay contributes to the emerging literature stream integrating the theoretical frameworks of cognitive psychology and information economics. In addition to being a factor considered by consumers when purchasing a new car, residual values also have a direct impact on the leasing options available for the firm to offer. The lower the rate of capital decline, the lower the monthly payments available to the customer.

Essay 2 also contributes to knowledge by exploring the boundary condition established by the region of origin of the brand with respect to the equity dimensions. Asian brands enjoy a greater positive return from awareness than U.S. brands. The moderation effect is not significant for the European brands, implying that those brands have a similar return on awareness as the American brands. This suggests that spending greater amounts of resources on increasing awareness will actually be less beneficial for American and European brands as compared to Asian brands, with respect to value preservation. The Asian brands also benefit from a greater effect of intended loyalty on value retention when compared to the American or European brands. The implication is there is limited benefit for European or U.S. brands employing loyalty programs in comparison with their Asian counterparts. However, this could also be because the European and American brands already enjoy a high level of brand loyalty, with emphasis on maintenance of current levels being an important concern.

- Awareness has a generally positive impact on long term value preservation.
  - Region of origin significantly moderates its effect on value preservation.
- Intended loyalty has a positive impact on the depreciation rate of automobiles.
  - Asian brands have a greater effect.

- Perceived quality has a higher positive effect on value preservation for European and Asian brands.
- European automobiles have a significant positive return on perceived economy in terms of value retention when compared to American and Asian brands.
- The conceptual dimensions proposed in the literature have been validated through the development of distinct factors.

Overall, the findings support the concept that brand equity can provide explanation of expected performance of a brand's products after the transfer of ownership, essentially mitigates the effects of information asymmetries.

The research study conducted in Essay 3 addresses the nature of the effects of marketing related value creation activities and firm specific attributes on intermediate outcomes, as measured by the impact on the consumer based dimensions of brand equity. The value creation activities considered are new product introductions and advertising. Understanding the relative importance and degree of contribution of each of these activities provides insights for managers when allocating resources and organizational emphasis. While recent literature indicates perceived brand globalness is an important indicator of quality and purchase intentions of consumers (Steenkamp et al. 2003), the question of a brand's actual global reach has not been considered previously. This has potentially important implications for managers as they consider whether they need to achieve greater reach in order to achieve a higher degree of perceived globalness. The findings of this study do not suggest

Since brand equity is posited to contribute to a sustainable competitive advantage, delineation of the strategic efforts and contextual factors which impact the underlying dimensions of brand equity has inherent appeal for both academics and brand managers. These effects are evaluates further by considering observable contextual factors as boundary conditions. Several potentially important implications emerged:

- There is a positive return in terms of brand equity from both the innovativeness and differentiation orientations.
- The most consistent effects on brand equity are from differentiation through advertising.
- As suggested by the existing literature (Miller and Friesen 1984; Mizik and Jacobson 2003), there is a negative return for focusing on both value creation and differentiation through advertising at the same time. In this case, the new insight drawn is the potential mediating effect of brand equity between the deployment of resources and firm level financial returns.
- Country of origin is a significant driver of brand equity and also a significant moderator of the intermediate marketing return on strategic orientation.
- Globalness emerged not as a driver, but a significant moderator of the returns on the strategic orientations and country of origin.

While there are significant effects of both direct and interaction terms, the most consistent results are found from the effects of differentiation through advertising. This implies there is a diminishing return to focusing too heavily on either value creation or differentiation capabilities concurrently, and only one course should be emphasized at a time. However, the results do not negate the importance of innovativeness, but suggests advertising provides a moderating effect. There is strong support for the moderating effects of region of origin and global brand reach proposed in the conceptual framework, supporting the hierarchical nature of the hypotheses and providing significant boundary conditions for the strategic orientation framework presented.

In summary, this dissertation provides interesting findings related to the drivers and outcomes of consumer-based brand equity from a broad organizational level, as well as from the more granular construct level. Organizations struggle with deriving value and creating meaning for their brands through complex processes which result from environmental pressures. Consumer-based brand equity provides means for measuring the effects of marketing related efforts on one hand, and provides explanation of the expected future performance of a brand's products on the other. The findings from each essay have limitations, but never-the-less, contribute independently and holistically to the body of knowledge related to brand equity.

APPENDICES

APPENDIX 1:
CULTURAL MATERIALISM

The cultural materialism framework posits three parallel layers where an infrastructure composed of technology, economy and population factors forms as a direct response to the environment; a structure supported by the infrastructure consists of the organized patterns of social order; and finally a mental superstructure which captures the ideological and behavioral actions of members (Harris 2001).

This framework has been invoked primarily for application to broad societal issues (Leavitt 1986). Yet, its extension to organizational level phenomenon has inherent attraction in an increasingly global environment where businesses, both large and small must respond to change. When considering societal level phenomena, the traditional tenets of cultural materialism are based on an open-natural system model (Scott 2003, p. 115), where emphasis is placed on the influences of the environment and evolutionary adaptation does not necessarily result in an increase in productivity or environmental advantage (Scott 2003, p.115; Weick 1979). Yet, when applied to a firm level inquiry based on a formalized organization with specific goals, cultural materialism takes a much different perspective. In this case, it is more reflective of an open-rational system approach (Scott 2003, p. 111).

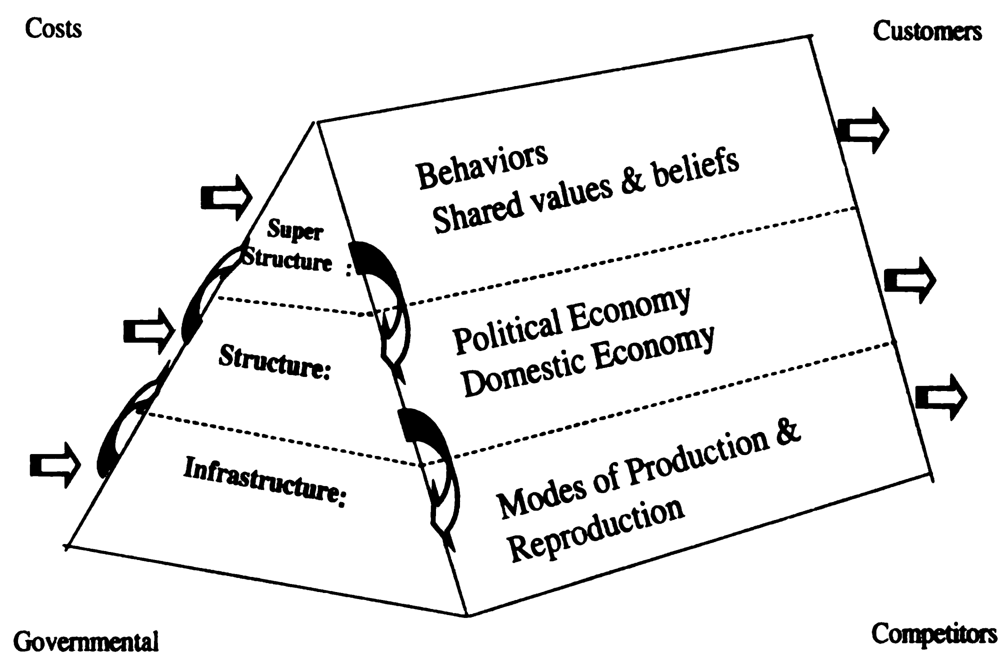
Additionally, Harris' framework requires the integration of more detailed theories because alone it does not provide explanation (Jackson 1996); there are synergies with well established organizational and marketing theories which make this framework inherently attractive for firm level research (see Figure 5). This materialist orientation framework is thus extended to the organization level as a means to explain:

- **Infrastructure:** The modes of production and re-production and their interaction with the environment. This is investigated with respect to the increasing globalization of the environment elucidated by the global drivers of the industry and related firm level infrastructure dynamics.

- **Structure:** The societal interactions as regulated by the political economy and the domestic economy, at least partially based on responses to the infra-structure. In an organizational sense, this is delineated through the formal and informal structures of the new product development process with respect to the interaction between marketing and the other functional groups within the firm.

- **Super-structure:** The institutional values and beliefs, in conjunction with observable practices. The culture of the firm as denoted by the strategic orientation and global mindset.

Figure 4.5: An Organizational View of Cultural Materialism



Graphical depiction of concepts presented by Harris (2001).

While it has traditionally been considered that humanistic and positivist approaches are mutually exclusive (Hirschman 1986), the cultural materialist approach takes a post-positivist view and argues for a melding of these methods. Qualitative approaches typically commence with an open or eclectic approach to conducting research of a phenomenon and building grounded theory (Hirschman 1986; Strauss and Corbin 1998). Cultural materialism proposes a research strategy that encompasses the specification of a hypothesized set of relationships and an investigation targeted at conceptual discovery related to these propositions (Harris 2001). While positivist in nature, it provides opportunity for theoretical exploration through qualitative data collection. The development of propositions related to the infrastructure, structure and super-structure, along with the theoretical underpinnings for each of these structures and relationships thus follows the materialist framework.

The infra-structure posited by Cultural Materialism encompasses the technology, economy and population factors of a society (Harris 2001). It is the organization and deployment of these factors in the pursuit of productive performance which responds to the external environment. Cultural materialism is concerned with the inter-relationships between the environment and the infrastructure which ensues to cope with natural change. The criteria postulated for etic measures of success are related to the amount of energy expended per unit of time times the technological means of expenditure is equal to the magnitude of the product per unit of time (White 1943). This tenet is not inconsistent with the theory of industrial organization economics, which provides that a firm's environment influences its strategy and structure, which directly impacts firm performance (Porter 1980). Conceptually, the parallel which can be drawn is that the energy expended and means through which a strategy is implemented through the materialist structural foundation results in the relative magnitude of performance achieved. Essentially, those firms which make strategic decisions in response to environmental influences, and adeptly manage the implementation of these decisions will be able to achieve an advantage in the marketplace.

The cultural materialist approach includes a level of structure related to the social interaction within the society and includes a political economy, which can be related to the formal group structures; and a domestic economy, which can be related to the informal group structures. One foundation upon which to study these relationships is the framework provided by cultural ecology (Baba 1995; Burgelman 1991). This theory is derived from that of organizational ecology theory (Hannan and Freeman 1977), which is concerned with competition for resources and how constraints in the environment affect relative sizes of different populations, but adapted to the intra-organizational setting. A population is defined by a collection of entities with a similar degree of environmental dependence, common reliance on certain resources, and limits to the range of activities and structures. The organization itself can be conceptualized as a niche, or collection of resources that sustains a population. One focus of ecological theory is in the processes that lead to equilibria in the environment. It is believed that as product populations compete for resources, they will begin to specialize or differentiate. When two populations try to inhabit the same niche, they cannot coexist in equilibrium; one will always try to outmaneuver and thwart the other in order to utilize the available niche resources, with the goal of competitive exclusion (Geroski 2001).

From an intra-organizational perspective, this can be conceived as one group exerting a greater level of influence and control to the disadvantage of another functional area. It has been posited that the marketing concept should be infused throughout functional areas of the organization based on the strategic objectives of the firm; this is not to say that marketing should not reside simultaneously as a distinct functional group (Ruekert & Walker, 1987). Yet, this leads to a need for a deeper understanding of marketing's role if it is not considered exclusively as a distinct functional area, and has limited influence in the development process. This implies the interaction of the functional subgroups of the firm will have an effect on the cultural orientation of the organization.

Cultural materialism divides the concept of superstructure into two components: the behavioral and the mental (Harris 2001). The behavioral superstructure is composed of symbolic processes which assume the repetition of productive activities that leads to etic products and services. The mental superstructure is concerned with "the conscious and unconscious cognitive goals, categories, rules, plans, values, philosophies, and beliefs about behavior elicited from the participants or inferred by the observer" (Harris 2001, p. 54). Aggregated to the super-structure level, the combination of these components encompass many of the concepts of organizational culture elucidated in the marketing literature. This view is analogous to the conceptualizations of market orientation which have been widely embraced by the marketing literature.

Fundamentally, the construct of market orientation is an operationalization of the marketing concept (Kohli and Jaworski 1990a; Narver and Slater 1990b), which is the underlying business philosophy of understanding and satisfying customer needs and wants (Kotler 1997). Consistent with the idea that market orientation is an internal firm resource, is Narver and Slater's (1990) conceptualization and construct development based on a culture driven perspective. The underlying constructs which they measure and employ to form the higher order variable are customer orientation, competitor orientation and inter-functional coordination. The behavioral perspective of market orientation incorporates activities of members of the organization and includes information generation, dissemination, and firm responsiveness concept (Kohli and Jaworski 1990a). The contention from the cultural driven perspective is that if a market orientation was simply a function of behaviors, then these practices could be implemented in any organization regardless of the culture (Homburg and Pflesser 2000; Narver and Slater 1998). However, in order to measure culture, behavioral measures have been used as indicators of the manifestation of the cultural orientation (Homburg and Pflesser 2000). Thus, the cultural materialist's super-structural definition of culture is consistent with the accepted definition of market orientation in the marketing literature, as it represents an integration of the alternative perspectives.

The ability of the firm to develop and incorporate knowledge is an essential part of the a firm's implementation, management and maintenance of a market orientation (Sinkula 1994a). Cultural materialism holds that each stratum of the organization will change as a reaction to progression of other levels; the implications of a globalizing infrastructure and structure are that the firm would develop a global market orientation in response. Conceptually, this can be explained through the tenets of organizational learning, or the development of insights, knowledge and associations between past actions, the effectiveness of those actions and future actions (Fiol and Lyles 1985). From this perspective, experience is a pattern of recognition; a repetition of activity that has been undertaken previously, while future actions become a function of the accumulated memory of the firm (Sinkula 1994b; Slater and Narver 1995). Organizational memory is the collective beliefs, behavioral routines, or physical artifacts that vary in their content, level of dispersion and accessibility (Moorman and Miner 1997). Organizational routines, procedures, and structures are vital components for controlling the behavior of the organization and are accumulated over time, establishing conditions for subsequent firm actions and activities (Cyert and March 1963; March and Simon 1958). Consequently, organizational learning is a function of age and experience (Sinkula 1994b). How a firm applies experiential knowledge to its activities is a major source of capability.

An influential framework of organizational culture drawn from an emic psychology foundation is based on the work of Schein (1984; Schein 1992), who suggests culture is a function of the assumptions, values, and artifacts of a group. This foundation was extended by Hatch (1993) to integrate the symbolic-interpretive view which places greater focus on the symbolism of organizations and various means of interpretation of these symbols. The dynamic nature of Hatch's model posits a recursive causal relationship between the assumptions, values, artifacts and symbols. The suggestion is that artifacts are the most tangible aspect of the organizational culture, derived from the process of realization of organizational values (Hatch 1993). Thus, an integration of two seemingly different schools of thought, cultural materialism with an evolutionary view, and the cultural dynamics model with a psychological perspective, provides a means to garner a more meaningful and in-depth understanding of the workings within the super-structure.

APPENDIX 2:
A BRIEF HISTORY OF GENERAL MOTORS

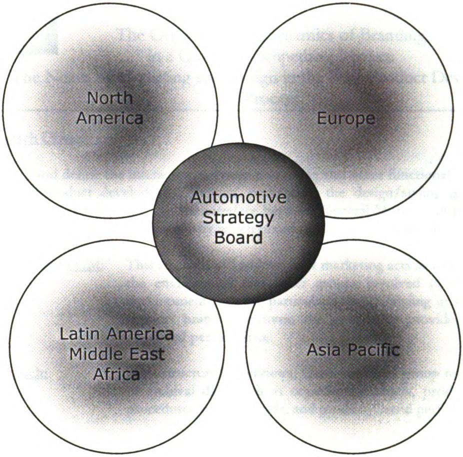
In order to understand the evolutionary nature of the culture within a multinational corporation such as GM, it is first necessary to consider the history of the organization and the orientation of its culture, and how the products and brands have related over time. Organizational history is important consideration in a materialist framework because structures tend to persist over time, even as their utility diminishes in value (Stinchcombe 1965). Briody and Baba (1994) suggest philosophies and behaviors of an organizational also persist in a corresponding fashion.

GM was initially incorporated in 1908 as a holding company for the various automotive operations acquired by William (Billy) Crapo Durant. Each of the car producing groups were operated as individual strategic business units (Binder and Ferris 2000). While somewhat of a visionary, Billy Durant was not able to manage finances well, and he eventually was forced out of the company. His de-centralized approach, however, was continued and expanded during the era of Alfred Sloan, Jr., who is widely credited with creating the management structure which was in place for more than half a century. Under the configuration established, each of the car divisions operated autonomously and had control of all aspects of the business, with only high level financial control held at the corporate level. The general structure of the overall portfolio was aimed at covering the full spectrum of car buyers, as illustrated by Sloan's now famous phrase, "A car for every purse and purpose" (Weiss 2003). Yet, over time, each of the car divisions became very powerful in their own right; competition between the individual divisions became intense as the corporation as a whole developed near monopolistic powers with a dominant market share in the U.S. market, and gained the position of the largest automotive manufacturer in the world.

Corporate level design and development of new products was undertaken initially under the direction of Harley Earl. The design studio was centralized in a geographic location, along with higher level reporting, but each division's design group worked independently – although housed in the same area, they were not supposed to look a the other divisions work. Interestingly, design in the early 1940's was based on a family of basic bodies but styled so each brand reflected the distinctive grilles and front ensembles that would allow each product group to be instantly recognizable as unique (Binder and Ferris 2000). This structure has alot of similarity with that which has emerged in recent years.

The companies which eventually came to form GM began international operations in the late 1800's. The first automobile exports began in 1893 by Oldsmobile with shipments to Bombay, India through sales to a company based in England. As a corporation, GM has had international operations since 1911 when the General Motors Export Company was formed to sell CKD kits for assembly in overseas markets. A key decision was to maintain the overseas operations as a separate division based in New York rather than in Detroit with the domestic operations. Over the next 80 years or so, GM largely followed the expected internationalization process (Johanson and Vahlne 1977), leading to ventures of various natures from export to manufacturing, sales and service, in all parts of the world. The individual country markets were operated as autonomous organizations reporting through the international division, which was eventually called International Automotive Operations (GMIO). During the same time frame that the domestic divisions were being more integrated, international operations were organized into four regional groups: North America, Europe, Asia-Pacific Operations, and Latin America, Middle East & Africa (Binder and Ferris 2000). As explained by one executive, each of the regional operations operated independently, reporting through the Automotive Strategy Board (see figure X). The integrating organization is called the International Product Center (IPC), with each region having an IPC. The organizational structure allowed the company to develop a global footprint, but international operations were always decoupled from the domestic and considered to be distinct from the North American operations, (Briody and Baba 1991; Briody and Baba 1994), and distinct from each other. This has added inherent complexity to responding to changes engendered by a globally competitive marketplace.

Figure 4.6: Automotive Strategy Board



The company currently sells products in more than 190 countries and has manufacturing operations in more than 32 countries. While tremendous gains have been made in plant productivity and vehicle quality, GM is struggling with sales and market share, particularly in Europe and its home U.S. market. However, it still maintains the #1 position in global sales and revenue, selling approximately 8.5 million vehicles annually or nearly 15% of the total global market. Currently the company has approximately 325,000 employees around the world, and some estimates figure as many as 900,000 jobs in the U.S. alone are directly or indirectly dependent on the company (Welch and Beucke 2005).

APPENDIX 3: INTERVIEW OUTLINE

GM

The Organizational Dynamics of Branding
in a Globally Competitive Market:
The Nexus of Marketing and Design in the New Product Development Process

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Research Objectives:

Identify and define the interaction between marketing and other functional areas involved in the new product development process, particularly the design/styling group. Gain an understanding of the nature of the interface between General Motors and the environment. Relate these findings to the means by which brand objectives are achieved.

Importance to GM: This research will address how marketing acts as an interface between the environment and other groups involved in the new product development process, particularly design/styling in such a way as to support brand objectives; the goal is to provide diagnostics for improved performance.

Approach: Semi-structured interviews; Observation of group meetings; Analysis of archival data such as organization charts, product development procedures and protocols, and product/brand performance data.

Key Issues:

- Define the structures and nature of the relationship between the marketing/brand management and the design/styling groups.
- Understand the nature of the interface between General Motors and the external environment.
- Characterize how these relationships maintain focus on dynamic brand objectives.
- Determine how a rapidly globalizing environment impacts these internal and external interactions.
- Establish how different levels of leadership have affected the relationship between marketing and other functional areas involved in the new product development process.

Key Respondents: Executive leadership, Marketing/Brand Management, Design/Styling Management, Functional Members in the New Product Design & Development Process, Corporate Communications

Time Frame: May – August 2004

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Conducted by:
The Eli Broad Graduate School of Management
Michigan State University

Sponsored by:
Michigan State University
Center for International Business Education
and Research (CIBER)

General Interview Questions:

The Individual:

- Please tell me about your position at GM and its responsibilities?

The Process & the Group:

- Could you briefly describe the product development process and its key functional players?
    - What is your role in this process?
    - What roles are played by the marketing personnel?
    - What roles are played by the design staff?
    - How have these roles changed over time?

Interactions:

- How does the design/styling group and marketing group interact?
    - What is the nature of a typical interaction?
    - How often do personnel from these groups meet in formal groups?
    - Do individuals from marketing and design interact on a one to one basis as well?
    - How does this change during the course of a new product development program?

- What considerations regarding competitor's actions are made prior to starting a new product development?
    - How is information regarding competitors actions collected?

    - How is this information used during the new product development process?
    - To what extent are competitor moves integrated into the planning of and strategy for new products?

- What considerations of customer input are made prior to starting a new product development?
    - How is information regarding customer requirements and expectations collected?
    - How is this information used?
    - Can you give me some examples?

Brand Management Considerations:

- What considerations regarding the brand positioning are made prior to starting a new product development?
    - What happens if there are changes to brand positioning strategies during the new product development process?
    - What specific considerations of branding are made during the new product development process?
- Recent media reports indicate GM is moving from individual branding to a greater degree of **family branding** under the GM name, what is the expected return from this move?
- Rick Wagoner, Jim Queen and others have recently been quoted in Automotive News and other trade journals related to the need to safeguard **brand identity and differentiation** – how does this play into the new product development process?
- What does the company consider to be the most important components (or attributes) of brand equity (value)?
    - What specific activities take place to enhance these attributes that lead to brand value?

- What means are used to convey the functional, experiential or symbolic benefits which can be accrued to customers by purchasing their brand?
- Are there specific efforts to position specific brands as either local products, foreign products or global products?
    - Has this changed over time and with corporate moves toward globalization?
- What aspects of the shared values, beliefs and organizational norms facilitate the new product development process in such a way as to effectively support the brand?
- Which people currently in the organization have had the greatest impact on shaping the brand?
    - Who in the past has had the greatest impact on shaping the brand?

Globalization:

- Considering GM's move to globalize the corporation, how has this impacted the new product development process?
    - The marketing functions?
    - The design functions?
- Has an increasingly globalization impacted the interaction between marketing other groups in the new product development process?
    - Can you give me some examples?

Leadership:

- What is leadership's role in the new product development process?
- Does this change at various junctures of the process?
- How does leadership affect the relationship between:
    - Marketing and brand management function's interaction with the design/styling group?
    - How the competitive environment impacts brand management decision making?
    - Customer input and decision making at points throughout the new product development process?
- How does the leadership affect the culture of the organization?
- What means are used by the executive leadership to communicate core values to the organization?
    - Are informal as well as formal means utilized?
- How does individual leadership or management affect the culture of the functional groups within the company?

General Organizational Culture (If time permits):

- What do you consider to be the core values of the company?
- Is there a key story about the organization, or your functional area which you believe illustrates the nature of the organization best?
- Are there any key rituals, rites of passage, or myths within the corporate experience you believe are particularly relevant?
- How have these cultural aspects of the company changed over time?

APPENDIX 4:
SELECTED QUOTATIONS – ESSAY 1, GLOBAL DRIVERS

Quote No	Quote	Source
1	"Well, the customer-from a customer perspective, basic sides of the vehicle are pretty common. If you've got a small car you've got a small car. Even if in Europe, you like smaller cars than our small car, it's a different car. They still have that size small car… The customer expectations of how they use those cars have vast differences. They have common things too, but they have vast differences. So, even if I do get all this common stuff the question is do the benefits of common outweigh the differentiation you have to have for customer differences? In Europe, they don't have the fast food world. They don't care if they ever had a cup holder in their car. In the U.S., you wouldn't buy my car if I didn't have cup holders, because where would we put our coffee? So, you'd think that's not a big deal. That's a real little one, okay, but when you start packaging an interior in a car and now this very prime real estate where I would have storage or a console and now I'm saying I've got to have cup holders, and by the way I can't just have one, I've got to have two and if I've got a back seat you better have two more back there. Things as little as a cup holder, the customers expectations are very, very different because of how you use the car."	*Janet Jones*
2	"And I think that the world is such that people don't have to leave their little town to recognize the globalness of brands, because the internet, obviously; because of sports or whatever, but, I mean, television-things that transcend the country. It wouldn't surprise me, I haven't seen the measurements but it wouldn't surprise me, and I think that in our business, we're the bigger, durable good where a lot of our consumers are globalized more, the more we can do to show consistency around the globe with a right kind of brand positioning the better off we're gonna be."	*Joe Creek*
3	"The bigger difference I see is more the regulatory differences. If you have a right hand drive car and I have a left hand car drive, that's pretty big. If you're worried about-if you're in Japan or you're in Europe and you're worried about pedestrian protection and you're going to	*Roscoe Fielder*

	mandate laws that say if you run into a person on the street and you can't hurt them anymore. Therefore, I have to redesign the whole front end of the car so that air bags blow out of the bumpers or hoods do these things. That's a big deal in Japan and Europe, and by the way Japan and Europe aren't migrating to common regulatory requirements on how they do that, but it affects the fundamental appearance of the car and styling, because maybe I need four inches of dead space under a hood, which means all my hoods are going to get taller so that I don't hit their knees. Now, the front ends have to be flat instead of styled and sculpted. Those are pretty fundamental differences. So, I see those getting more and more diverse. Even the air bag safety, all that kind of stuff, the requirement on how you meet those needs in the U.S. are different than in Europe, they're different in Japan, and some of the third world countries aren't even to the point that they care about some of that stuff yet."	
4	"I think cost is a huge driver, but also, a little bit deeper than that is you say leveraging GM's capability and foot. So, if on a particular architecture, let's say, that you could get 10 products off around the world, if that expertise is an Opel in Germany and they're the best engineers to do that, let's let them do that. Now, that comes back to a basket weave though. The basket weave is that the Germans may not know the North American market, but they know the basic infrastructure and how to engineer that vehicle so that when we eval that product here in North America and we put what we think are the winning regional elements in that vehicle, that not only is it going to sell here great, but we don't need to reengineer all the infrastructure and all the costs that goes into all of that."	*Giovanni Seagate*
5	"And so when I say I competitive pressures that's one of the key ingredients right there. That's really forcing the organization to look at how we do business and how can we improve, etc., etc. Obviously, the other things all play into it too. But let's face it, it's the competitive pressures that really make the organization, you know, achieve, you know, what it is that they want to try and accomplish."	*Chan Vanderman*

APPENDIX 5:
SELECTED QUOTATIONS – ESSAY 1, GLOBAL BRAND PORTFOLIO

Quote No	Quote	Source
1	"And the brand pyramid, you know, over time the joke is the font got smaller and smaller, you know. More and more and more text is jammed into the brand pyramid over time because you want to, you know, if there's something that you're perceived as not being, having an equity in, you'll want to build that into your brand pyramid. But before you know it you've build every single thing into your brand pyramid and then when you take that from marketing to design, engineering or whatever, they'll say, you know, how is this one different from the next pyramid. Out come the impassioned pleas but you know, the fact is that you've got almost everything baked into everyone's brand position. So that's problematic."	Ricky Wright
2	"And we tried saying, well, what if take essentially the same players and we take, and we roll that process up front. And it really, it fell apart. What if we do the positioning like we've always done it but we do it earlier on in the vehicle development process. A great idea, it falls apart because you cannot get it done for people reasons. It's like, all right, we're going to get a cross-functional team together and we're going to hammer out some positioning alternatives and we're going to, you know, go out and do some research and you guys can come and sit in the meeting as well – for a vehicle that's going to launch six years from now, or four years from now. No way. There are far more pressing issues on everyone's plate. Well, but it's important to get the positioning done up front and everyone can agree on that in principle. But by the time you get the four or the six years down the road, all the people have changed jobs. And this is the positioning work we did four years ago. Oh, well guess what? It's not really that good anymore because there have been a bunch of new competitive entries since then. The market shifted. This has happened. That's happened. And you know, so that's, you know, it's just impractical."	Ricky Wright
3	"And I, you know, I think you look at China for example, you realize we're all in there battling with our global brand. You know –if we're going to compete in the global market, shouldn't we, in this region of China, shouldn't we	Dominic Kawamoto

	have our brand? I think that if we are to be the (leader) in China, we have to go with our global brand and that association of that global brand needs to be so strong that it never provides an opportunity for those local brands ever to succeed."	
4	"And I must admit, about two years ago, we tried to look for a definition of what is a global brand and couldn't find a definition. We (now) have a definition of what is a global brand. And (we) defined that a global brand had to meet a certain criteria. It was almost like Marketing 101 quite honestly. But I can't remember all the points on the axis now. But one was the depth of the product range, availability in all regions of the world, for example. And there about five or seven different given points."	Dominic Kawamoto
5	"I think with Middlebrook in place, if he can learn to better globally manage Chevy, Hummer, Saab, Cadillac, Opel there are five global brands -- that should help."	*Adam Bernard*
6	"Our Global Brands are Chevrolet, Saab, Hummer and Cadillac. They are or will be sold in all four of our Global Regions and have a common positioning and identity globally. We do have Multi-Regional Brands that are sold in more than one region but are not intended to be Global. They are Buick (NA and China), GMC (NA , Europe and Middle East) and Opel (in three Regions but not planned as a Global Brand). The balance of our brands are limited to a Region or Country."	*Joe Creek*
7	"And the consequence, we had to recognize that although many people spoke about Chevrolet as being a global brand, it was in fact a mutli-regional brand and not a global brand."	*Dominic Kawamoto*
8	"So about 200,000 units in Europe being switched over to Chevrolet. And it – what we've been worried about in the past is that every time Daewoo closed an electronic factory in France or whatever, Daewoo closing down plant in France and we got all the bad publicity, even though our product in fact – because it's coming from the federal mandation. So moving it to Chevrolet is seen as a positive move. Some risk, some unknowns, but rather than drag it out and doing that. So that's happening on January 1st, we've made the announcements."	*Dominic Kawamoto*
9	"Every vehicle will be identified, front and rear, with a gold bowtie. Wherever you go around the world today, you'll find silver ones, red ones – – blue ones, and gold ones. First of all, looking at the product identification, and starting queues; but let's say mostly at the badge, what is Chevrolet? If what they looked at is the positioning,	*Joe Creek*

	that's some too. Third was actually looked at our identity. In other words, when you look at a – the place where the vehicle is purchased – the plate, how was it identified? And it might sound very easy. But to make it very easily communicatively possible, we actually just wracked every country in a red/green/yellow state. In other words, we have a standard. This is the standard for identification. Where are we? And –If you look at the sales outlet, there you see this gold bowtie. Does it actually meet what is the standard that's laid down? Recognizing that they get four autonomous regions of General Motors; they'll carry those four regions, and that's the way that the business is being driven. We define what the brand looks like and then here's a product, the style of the product, the engine, the whole thing – it's centrally managed."	
10	"The Saab products are conceived as being – with a couple of exceptions, were conceived as being global from day one."	*Dominic Kawamoto*
11	"If you're gonna play as a real global player—now you could be a niche global player, niche luxury guy and play in the whole market if you wanted—but yeah, we want to be global."	*Roscoe Fielder*
12	"We've been kind of going down this road that says, 'Alright, you've got to have the same architecture, the same materials, the same, the same, the same.' But I think maybe it needs to be a little bit more carefully thought through then that although it's really hard to do that.	*Prakesh Smith*
13	"Its easy-it's relatively easier to say it has to be exactly the same. Then you've got your formula. Follow the cookbook and you're done. It requires a higher degree of judgment if you're going to go beyond that and say, "OK. How do we create an architecture, for instance, that's Cadillac like and you can see maybe it's part of the family but is more appropriate for, you know, a Shanghai or wherever then, you know, or a Frankfurt or wherever then simply the cookie-cutter approach."	*Prakesh Smith*
14	"On that whole issue of standardization versus adaptation-I would, in fact, argue-at least as a hypothesis-that they would be different. That the adaptation might allow you to do better brand building but that the standardization might be-at least in the short term-more financially (viable)."	*Prakesh Smith*

APPENDIX 6:
SELECTED QUOTATIONS – ESSAY 1, NPD PROCESS

Quote No	Quote	Source
1	"Research, in our planning aspects, within our planning functions, comes in and they're looking at the whole portfolio and they're developing these needs segments across the whole portfolio and they're looking at where the volumes are, what the opportunities are, what the demographics are, how it's shifted, who's bringing in what entry. So, they're kind of framing it all for all of us…. So, they assimilate all the data. This would be the needs segmentation. I told you we had a bunch of numbers. These are the ones price is right, affordable safety sedan, sporty and affordable, practical with a touch of luxury. These would all be low car, different definitions of who that customer is, what they want, but I want to appeal to all those. And then they would tell me what's the volume opportunity, what's the demographics, who else has cars in there."	*Janet Jones*
2	"The planning part of it is really, you know, the folks who are, you know, running the process, who are bringing in, you know, or making sure everybody is delivering on their requirements when they're supposed to, etc. They're not tracking it. They're running it. They're running the process, you know—"	*Chan Vanderman*
3	"In reality, they're there from day one, because our teams are cross-functional teams that work together from the conception of a program till following up with the customer after we're in production. Where I get the data that we all use may come from different places and there may be people at different points in time of a program that their focus is provide this to the team. But, the whole team's integrating the data. So, Marketing starts at the very, very beginning and says 'we have a market segment spec that says this is what I think I need.' Now, the research and some of the details that are behind that may be coming from the Planning guys. But, they're involved right from day one. 'How many options do I need? What features do I need? Who is it really going to go up against? What else do I have in that show room?' If I'm designing a new Chevy Cobalt and I've got an Aveo and a Malibu on either side of it, I've got to make sure, independent of what the market	*Janet Jones*

	says, I've got Aveos and Impalas and Malibus and everything else in that show room, so it's got to make sense within the Chevy show room, too. So, Marketing would make sure that I knew that as we're planning what we're gonna do."	
4	"We typically have interactions with marketing, but it is not like it used to be where we would see—the marketing people would come into the studios and critique design directions… marketing has some influence, but they don't steer anymore. But, still, you know, they still have some influence where they would like to see the brand go. They talk about an image of the buyer, it's their responsibility to try to establish who the buyer is."	*Kevin Nailer*
5	"Well, I need to say marketing plays a very, very important role, I think, in understanding the customer while you're developing the product. But the way it was before, they were coming in. They were actually participating in making the aesthetic calls."	*Rich Cudgels*
6	"They certainly don't have the level of influence that they had before where, you know-before they were dictating to design, no we want to get a new this with the interior of the vehicle and blah, blah, blah."	*Chan Vanderman*
7	"We don't expect the customer to establish the identity of the product. We'll get reaction to that, but we don't see the customer setting the design direction."	*Kevin Nailer*
8	"Clinics, going to clinics can be some of the most painful experiences a designer can go through. You have to – you're sitting there in a room and there's a TV screen and there's people just in the room next door. And they're just slamming something that you just spent months and months slaving over and in your own mind is like, man, this is the best it can be. This is awesome. And then you hear these comments and you're just like – and oftentimes that's the difference between a designer designing for themselves rather than understanding what the customers are looking for. And that's a designer's job, is to understand the customer well enough that they can help develop a product that that customer is going to want. But at the same time throw new, exciting ideas into it that that customer never even knew they wanted."	*Rich Cudgels*
9	"And as the brands have evolved and essentially become marketing organizations within a large – the manufacturing and design and all are now done – they've retained marketing and they've retained a small PR	*Brooklyn Mays*

	function as part of marketing primarily to help with market launches of vehicles."	
10	"They do all the advertising; they do all the sales initiatives. So, when you think of Marketing, they're the ones developing promotions and ads and they're the ones moving it from a customer standpoint. Now, they have to be thinking about what else do I need and they're working with the dealers, but they're working on the brands and like advertising."	*Brooklyn Mays*
11	"I don't call them marketing by the way, they're all sales jobs."	*Kevin Nailer*
12	"It's really easy for Proctor & Gamble to be a marketing driven company because it's so easy to manufacture most of their products and there's so little capital investment in doing it. So, these people would come from Proctor & Gamble and, you know, we're just marketing the ruling the roost and couldn't understand why all of these other people had so much say at GM."	*Brooklyn Mays*
13	"And so I think it's just one of those culture things that inevitably when push comes to shove, and because it's so hard to change the manufacturing footprint or so hard to change the product portfolio, there really is a tendency when push comes to shove, marketing probably gets shoved harder than some of the other people would.....because marketing, I think, in a company like GM is seen as being kind of a little amorphous."	*Brooklyn Mays*
14	"And when you have that product, when you have that vision that gets everyone excited so they can rally around it, then marketing really is able to create a clear focus."	*Rich Cudgels*
15	"And there is good tension and bad tension. Good tension is that the functions and the regions are driving each other to produce better products for that global market. Bad tension is there's internal competition, there's politics, there's those kinds of things."	Giovanni Seagate

APPENDIX 7:
SELECTED QUOTATIONS – ESSAY 1, DISCUSSION SECTION

Quote No	Quote	Source
1	"There is a VSE and those are kind of like the lieutenants of the army and then those lieutenants kind of report to the...I don't know the general. The general is a person that works for me for that program, they are called a program engineering manager and they manage that individual, those five programs I reeled out. There is a person called a program manager that manages the engineering for that program. And then those program managers report to me and so for those car lines, that is how we kind of run the business."	*Nate Mountaban*
2	"It's just the company culture. If you look at the people running the company, almost all of them come out of either finance, manufacturing or engineering."	*Brooklyn Mays*

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