Bundling and Consumer Evaluations of Individual Bundle Components

Shibin Sheng

Dissertation submitted to the Faculty of
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Marketing

Committee:

Dr. Kent Nakamoto, Co-Chair

Dr. Andrew M. Parker, Co-Chair

Dr. Eloise Coupey

Dr. Noreen Klein

Dr. Laura Poppo

April 26, 2004

Blacksburg, Virginia

Keywords: Bundling, Bundling Product Evaluation, Mental Accounting,

Brand Image, Reference Price, Attribution, Categorization

Bundling and Consumer Evaluations of Individual Bundle Components

Shibin Sheng

(Abstract)

Drawing from mental accounting, reference price, attribution and categorization theories, we propose that bundle price discounts will influence perceived prices and quality of the individual bundle components, thus influence purchase intentions. Meanwhile, we investigate how these bundling effects interplay with the forms of bundling, complementarity and brand images of bundle components. The empirical results indicate that the impact of bundle price discount on evaluations of individual bundle components varies across bundling forms. In a mixed-joint bundle, the price discount increases consumer perceptions of the regular price of bundle components, but does not change quality perceptions. In a mixed-leader bundle, the price discount hurt consumer price and quality evaluations of the discounted product, but increased the undiscounted product's perceived quality. These effects are moderated by complementarity and the brand images of bundle components. Implications of these findings for marketing researchers and managers are presented along with suggestions for further research.

Acknowledgements

I would like to thank each of my committee members, Kent Nakamoto, Andy Parker, Eloise Coupey, Noreen Klein, and Laura Poppo. Their constructive comments have been a great source to clarify and refine the dissertation. Their warm support has provided great encouragement toward the development and completion of this dissertation. I would especially like to acknowledge and thank my co-chairs, Kent Nakamoto and Andy Parker. I have benefited greatly from their expertise and encouragement. In the doctorate journey, I also worked closely with Kent and Andy as a graduate research assistant. Whenever I come to Kent with a question, he is always open and willing to help me with an brilliant answer. He is like an unbounded tank of knowledge and wisdom. Whenever I bring a research idea or question to Andy, he will always provide me constructive suggestions and applicable research directions. Their tremendous guidance and help has spurred my confidence in pursuing the degree. I am grateful to their patience and willingness to help me develop skills and academic integrity as a scholar.

There are numerous beautiful memories in my mind when I contemplate the 4-year doctorate journey in retrospect. I have benefited a lot from the Marketing faculty in building my research and teaching skills. I would especially like to thank Jim Brown. I worked as a graduate research assistant and co-author with Jim, and learned a lot from this pleasant experience. Gratitude also goes to other cohorts in the program, like doctorate colleagues and secretaries. I will treasure all the happy memories in the past four years, as an integrative part of my life.

Finally, I would like to thank my wife, Chen, my parents, and parent-in-laws for their endless help and encouragement during the past years. It is impossible for me to finish the dissertation without their help. I dedicate this dissertation to my wife, Chen.

Table of Contents

Chapter 1: Introduction 1
Marketing Practice of Bundling 1
Research Significance 3
Research Questions 4
Organization of the Dissertation 6
Chapter 2: Literature Review 8
Concept of Bundling 8
Bundle Price Discount Framing 9
Economics of Bundling 11
Optimality of Bundling 13
Psychology of Consumer Judgments and Choices of Bundles 13
Consumer Evaluations of Bundling 15
Controversies and Limitations in Bundling Research 17
Effects of Bundling on Evaluations of Individual Bundle Components 24
Chapter 3: Conceptual Model and Hypothesis Development 28
Conceptual Background 28
Construct Definitions 35
Conceptual Model and Hypotheses 37
Chapter 4: Research Methods and Results of Studies 1 and 2 48
Method of Study 1 48
Analyses and Results of Study 1 52
Study 1b: Test of the Effect of Bundling Forms 63
Study 2: Toward Understanding of the Role of Mental Accounting 65
Chapter 5: Moderating Effects of Brand Image in a Mixed-Leader Bundle 78
Hypotheses 79
Method of Study 3 80
Results of Study 3 82
Discussion 85
Chapter 6: Enhancement Effect of Bundling on Bundle Components 87
A Brief Review of Categorization Theory 88
Hypotheses 90

Method of Study 4 96
Results of Study 4 99
Study 5: the Categorization Process in Bundle Evaluation 105
Discussion 108
Chapter 7: General Discussion 115
Summary of Empirical Findings 115
Managerial Implications 117
Limitations and Future Research Directions 119
References 122
Appendixes 131
Appendix 1: Experiment Stimuli of Study 1 131
Appendix 2: Experiment Stimuli of Study 1b 137
Appendix 3: Experiment Stimuli of Study 2 139
Appendix 4: Experiment Stimuli of Study 3 142
Appendix 5: Experiment Stimuli of Study 4 145
Appendix 6: Experiment Stimuli of Study 5 148
Vita 150

List of Tables

Table 2-1. Summary of Studies about Consumer Evaluations of Bundling……..…27

Table 4-1. Reliabilities of Measures (Cronbach's α)……..50

Table 4-2a. Correlations Matrix for the Mixed-Joint Bundle……51

Table 4-2b. Correlations Matrix for the Mixed-Leader Bundle……51

Table 4-3. Cell Means of Perceived Price and Quality in the Mixed-Joint Bundle……..52

Table 4-4. ANOVA Results in the Mixed-Leader Bundle……54

Table 4-5. Cell Means of Perceived Price and Quality in the Mixed-Leader Bundle……...55

Table 4-6a. Results of Regression on Perceived Value in the Mixed-Joint Bundle……..56

Table 4-6b. Results of Regression on Perceived Value in the Mixed-Leader Bundle……..56

Table 4-7. Cell Means of Dependent Measures in the Mixed-Leader Bundle……..58

Table 4-8. Summary of Results of Study 1……61

Table 4-9. Cell Means of Dependent Measures in Study 1b……64

Table 4-10. Effects of Price Discount and Complementarity on Transaction Value…….69

Table 4-11. Means of Perceived Transaction Value……..70

Table 4-12. Bundle Price Discount and Perceived Price Reduction……..73

Table 4-13. Means of Perceived Price Reduction……..74

Table 4-14. Effects of Price Discount and Complementarity on Transaction Value…….75

Table 4-15. Means of Perceived Transaction Value……..75

Table 5-1. Measure Reliabilities……82

Table 5-2. ANOVA Results on Perceived Quality of Product A……..83

Table 5-3. ANOVA Results on Perceived Quality of Product B……..83

Table 5-4. Cell Means of Perceived Quality of B……..85

Table 6-1. Results of the ANOVA……99

Table 6-2. Means of Perceived Quality of the Focal Product……99

Table 6-3. Cell Means of Perceived Quality of B……102

Table 6-4. Results of ANOVA for the Mixed-Joint and Mixed-Leader Bundles……103

Table 6-5. Results of ANOVA on Categorization of the Focal Brand……108

List of Figures

Figure 2-1. Prospect Theory and Framing Effects of Gains and Losses……...14

Figure 2-2. Prospect Theory and Framing Effects of Bundle Price Discount……...18

Figure 3-1. The Conceptual Model of Mixed-Joint Bundle……..39

Figure 3-2. The Conceptual Model of Mixed-Leader Bundle……...40

Figure 4-1. Moderating Effect of Complementarity on Perceived Price of Product B…….58

Figure 4-2. Moderating Effect of Complementarity on Perceived Quality of A……...59

Figure 4-3. Moderating Effects of Complementarity on Perceived Quality of B……..60

Figure 4-4. Effects of Bundle Price Discount Across Bundle Forms……65

Figure 4-5. Moderating Effect of Bundle Component Complementarity……..71

Figure 4-6. Interaction between Bundle Price Discount and Complementarity……73

Figure 4-7. Moderating Effect of Bundle Component Complementarity……..76

Figure 5-1. Moderating Effect of Brand Image…….84

Figure 5-2. Moderating Effect of Complementarity……..85

Figure 6-1. Moderating Effect of Bundle Component Complementarity……100

Figure 6-2. The Moderating Effect of Bundle Forms……..101

Figure 6-3. The 3-way Interaction Effect on the Focal Product……..102

Figure 6-4. 2-Way Interaction Between Bundle Form and Complementarity……105

Chapter 1: Introduction

Marketing Practice of Bundling

Bundling, the sale of two or more separate products in one package, is widely practiced in the marketplace (Guiltinan 1987; Stremersch and Tellis 2002). A travel plan may consist of airfare, lodging, and car rent. Software companies bundle a variety of software, for instance, a MS operating system installs a series of additions such as IE, outlook express, accessories, and so on in one package. Car dealers provide combinations of multiple automobile options for the basic functioning of a vehicle. Standard dinner packages include soup, salad, and entrée, sometimes at discounted prices. In some circumstances, there is a mandatory additional added part in a package. For instance, some schools provide dormitory lodging with a mandatory meal plan.

In some industries, bundling wars have even begun and bundling has become a key focus right now. In the telecommunication industry, the major carriers, including AT&T, SBC Communication, BellSouth, and Verizon all reported that the number of customers taking more than one service has increased significantly (Vittore and Bischoff 2003). The following figures convincingly demonstrate how important bundling strategies are to the carriers in the telecommunication industry. At the end of the third quarter of 2003, AT&T served more than 3.5 million subscribers with bundles, and its revenue attributable to consumer bundles soared up to $521 million by the end of the quarter, a 77% yearly increase. In SBC, 19% of its customers had purchased bundles of long-distance, DSL, or wireless, and as of September 30, 2003, that percentage had jumped to 35%. As of 2003, 2.6 million customers of BellSouth subscribed to one of the carrier's bundles, which combine local, long-distance, Internet and wireless services in four different combinations. Verizon has also slashed its DSL rates to $29.95 per month when

bought as part of a bundled package, from $34.95 when purchased as a stand-alone product. Verizon believes it can realize $500 million to $1 billion in revenues during the next five to six years from bundled services. As an attempt to appeal to bundle demands of its customers, Sprint would even go beyond providing bundles as the competitors do. It would enter into a major business unit realignment, scrapping three operating divisions (local telecommunications, global wireless data and voice services, and wireless) to a streamlined corporate structure divided into two segments: business and consumer (Fitchard 2003).

In the telecommunication industry, everyone bundles. A corporation cannot compete effectively if it does not offer the same kind of things. Bundled services provide customers with one-stop shopping convenience as well as significant annual savings. Among these bundled services, local, long-distance, and wireless services are complementary. However, carriers are also planning to add non-complementary services to their bundle options. For instance, BellSouth will also add data and video to its bundle soon as a major retention tool[1]. The trend of bundling strategy in the telecommunication and internet service industries corresponds with Bakos and Brynjolfsson's (1999) prediction that bundling large numbers of unrelated information goods might be surprisingly profitable because bundling can create "economies of aggregation" for information goods (Bakos and Brynjolfsson 2000).

Bundling strategy is also used in new product development and promotion (Simonin and Ruth 1995). A manufacturer may promote a new product through bundling with an existing product with the same brand name or a different brand name. For instance, Crest may launch a new toothbrush in a bundle with the parent brand, Crest toothpaste. Pizza Hut may launch a new bread stick in a bundle with a typical pizza. Introducing a new product in a bundle in which the other product has a well-established brand name can draw more consumer attention and provide

[1] Data Source in this paragraph: Vittore and Bishoff 2003; Bischoff 2003; and Luna 2002.

assurance of quality based on consumers' favorable attitude toward the existing brand. Thus, new product development bundles will also have substantial potential. Eppen, Hanson and Martin (1991) go further to treat bundles as new products in a new market with low risk in the process of promoting the bundles.

Research Significance

Previous research about bundling can be classified into four streams: (1) the economic analyses of bundling, (2) marketing research about the optimality of bundling using an applied economic approach, (3) the psychology of consumer judgment and choice of bundling based on application of prospect theory and mental accounting theory, 4) consumer evaluations of bundling. The first two streams of research about bundling primarily focus on the sellers' incentives of bundling. However, marketing literature about bundling has lacked understanding of consumers' psychological and behavioral responses to the bundling practice (Simonin and Ruth 1995). This vein will still be a promising research direction.

Most behavioral investigations in this area have been focused on how consumers evaluate bundles. Research in bundling has generally ignored the effects of bundling on consumer perceptions or evaluations of individual bundle components. The original objective of bundling is to attract consumers to buy the whole bundle by providing some price discounts or integrations of products in the bundle. However, the pervasive format of bundling in the current marketplace is mixed-bundling; that means all the components of a bundle are also available to the consumer separately. If a consumer exposed to a bundle is not interested in, or does not intend to buy the bundle, how does the bundle influence his/her separate evaluations of bundle components in the market? Compared with the situation where no bundle is available, a bundling offer may significantly change the context of evaluation for the constituent products. So, the lack of

investigation of effects of bundling on evaluations of individual bundle components represents a significant gap in literature of bundling and marketing practice (Simonin and Ruth 1995). The major goal of this dissertation is to address this gap with a hope to bring new insights into theoretical development and managerial practices of bundling.

Research Questions

Given the above limitations in the behavioral literature regarding consumer responses toward a bundle, this dissertation is proposed to pursue the following questions, aiming to advance theoretical understanding of consumer evaluations of individual bundle components and to develop some managerial implications for marketing managers.

1. How does a bundle price discount influence consumer evaluations of individual bundle components, in particular, how does it influence consumer perceptions of the regular prices and quality, and in turn the purchase intention of individual bundle components? What are the mechanisms underlying the influences?
2. How do the effects of bundle price discounts addressed in the above question vary across bundling contextual factors, including bundling forms and complementarity of bundle components?
3. How does brand information of bundle components interplay with the effects of bundle price discount? How do bundling contextual factors moderate the effects of brand image?

Regarding the first question, we utilize the basic price-value model (Dodds, Monroe, and Grewal 1991; Grewal, Krishnan, Baker and Borin 1998; Teas and Agarwal 2000; Zeithmal 1988) to examine how bundle price discounts influence consumer perceptions of product quality and price of bundle components in a bundling context. This investigation integrates reference price

and attribution theories. In particular, we argue that a discounted bundle price will shift downwards consumers' internal reference prices, thus make consumers perceive the regular prices of the individual bundle components more expensive. On the other hand, consumers will interpret the bundle offer as a marketing promotion tactic, thus influence their quality perceptions of the bundle components. Through the price-value model, these evaluations will influence consumer purchase intentions at last.

Concerning the second question, we apply mental accounting theory (Thaler 1985, 1999; Tversky and Kahneman 1981) to understand the cognitive process used by consumers to evaluate a bundling offer. Bundle component complementarity represents the functional relatedness between two products in a bundle, which will determine consumer selections of mental accounts. Different mental accounts used by an individual will result in differentiated cognitive evaluations even for an identical monetary decision. We propose that the selection of mental accounts will determine consumer evaluations of a bundle price discount, thus influence evaluations of the individual bundle components.

Relating to the third research question, we consider two situations. First, we examine a bundle with two products under the same brand name. In this scenario, we postulate that the brand image will moderate the effects of price discount on evaluations of individual bundle components. Second, we consider bundling as a new product or new brand introduction strategy, in which a weak or new brand is bundled with an established brand with a hope that consumer evaluations of a weak brand will be enhanced with the presence of an established brand. Instead of relying on signaling theory, we draw upon categorization theory to formulate our predictions. In addition, we investigate how bundling contextual factors, bundling forms, and complementarity of bundle components moderate the effects of brand in this situation.

To realize the above empirical tests, a series of empirical studies were conducted on student samples in paper-and-pencil experimental settings. Study 1 tests the major conceptual model. Study 2 is a supplementary study, which taps out the hypothesized mechanism we used to explain the effects in Study 1. Study 3 represents the situation in which two bundle components are under the same brand name. Study 4 addresses a bundle in which two different brands are presented together. In these experiments, we present subjects with bundling offers which manipulate factors we are interested in, including bundle price discounts, bundling forms, complementarity of bundle components, and brand information. After being exposed to these experimental conditions, subjects respond to questions that measure constructs of interest. Then, statistical analyses are executed to test the research hypotheses.

Organization of the Dissertation

The remainder of the thesis is organized in the following manner. This introductory chapter is followed by a review of existing literature about bundling. It scrutinizes four streams of research in bundling: (1) the economic analyses of bundling, (2) marketing research about the optimality of bundling using an applied economic approach, (3) the psychology of consumer judgment and choice of bundling based on applications of prospect theory and mental accounting theory, (4) consumer evaluations of bundling. Based on this literature review, a conceptual model is developed in Chapter 3. The model uses the price-value model in which the effects of bundle price discount are reflected on consumer perceptions of prices and quality of individual bundle components. It proposes conceptual solutions to the research questions. Some research hypotheses in the main conceptual model are then developed. Chapter 4 reports the methodology and results of two studies designed to test the conceptual model. Study 1 is conducted to test the hypotheses in the major conceptual model. Study 2 is a supplementary study to further discover

the psychological mechanism we propose to advance hypotheses in the conceptual model. This chapter discusses the research methodology applied in the empirical test, including experimental design, procedure, operationalization of constructs, and the appropriate statistical approaches to testing the hypotheses. Data analyses and results are also reported. On the basis of the results of studies 1 and 2, Chapters 5 and 6 further investigate how the bundling effects interplay with brand information. Chapter 5 reports the hypotheses about the brand images of the bundle components, as well as the methods and results of Study 3. Chapter 6 examines bundles in which two bundled products are under different brand names. We investigate how a weak or new brand can benefit from being bundled with an established bundle, and the influences of bundling contextual factors. Methods and Results of Study 4 are reported in Chapter 6 too. In Chapter 7, findings are discussed, and research and managerial implications as well as future research directions are offered.

Chapter 2: Literature Review

This chapter reviews the literature pertaining to research about bundling, including the economics foundation of bundling, a firm's optimality of bundling, the psychology of consumer judgments and choices of bundles, and behavioral research about evaluations of bundling. We start from a clarification of the concept and format of bundling in the next section.

Concept of Bundling

Several slightly different definitions of bundling have appeared in the literature of bundling research. Adams and Yellen (1976, p475) define bundling as "selling goods in packages." Guiltinan (1987, p74) defines bundling as "the practice of marketing two or more products and/or services in a single package for a special price." Yadav and Monroe (1993, p350) define it as "the selling of two or more products and/or services at a single price." Following previous research, we define bundling as the sale of two or more separate products in one package. Here, "separate products" means that the products can be sold separately in the market, in other words, some consumers may want to or will buy them separately. In the current study, we assume there is not integration of the products in a bundle, i.e., it is only price bundling. Because the products or services are not integrated, the reservation price for the bundle is equal to the sum of the original reservation prices of the bundle components. Therefore, the maximum price of the bundle will be the summation of the regular prices of the bundle components. However, a discount must be offered to motivate purchase, otherwise, consumers can buy the bundle components separately.

Another form of bundling is product bundling, which is defined as the integration and sale of two or more separate products or services at any price (Stremersch and Tellis 2002). This integration provides consumers with added value. Examples of product bundling include a

TV/VCR/DVD combo, an embedded CD burner in a PC, DSL phone and Internet service. Because product bundling provides integration, i.e., added value to consumers, the price of the bundle might be higher or lower than the summation of the regular prices of the original separate products. We would prefer to view a product bundle as a new product instead of a marketing or promotion strategy, because it involves a new design and manufacturing. The original products become integrative parts of the new product and they are not separate products anymore in a strict sense. For instance, in a TV/VCR/DVD combo, functions of these three parts are integrated with new a design of electronic circuits. It also requires new manufacturing procedures and technologies to produce the combo. More importantly, the new combo is an integration of the functions of the three products, instead of an integration of the three products. No physical part in the combo can be used as a single product providing any of these three functions. In this sense, we would rather view product bundling as a new product in stead of bundling anymore. The distinction between price bundling and product bundling is of strategic importance (Stremersch and Tellis 2002) because it entails different strategies with different consequences for a company. Price bundling should be treated as a basic marketing or promotion strategy, whereas product bundling involves more product research and development processes. In the current study, we focus on only price bundling.

Bundle Price Discount Framing

Consistent with Guiltinan (1987), marketers can employ two bundling strategies: pure or mixed bundling. In a pure bundle, products or services are available only in the bundled form. They cannot be purchased separately. We are not concerned about pure bundling because it is applicable only in relatively rare cases. In a mixed bundle, a consumer can purchase the bundle or products in the bundle separately. Mixed-bundling is currently the pervasive form of bundling

in the marketplace. Mixed bundling can be further classified into a *mixed-leader* bundle and a *mixed-joint* bundle. In a mixed-leader bundle, the price of one product in the bundle is discounted while the other product is listed at a regular price. That is, given P_A and P_B as the regular prices, consumers can buy the bundle at P^*_A ($P^*_A<P_A$) plus P_B or at P_A plus P^*_B ($P^*_B < P_B$). In a mixed-joint bundle, only a single price P_{A+B} is set for the bundle ($P_{A+B} < P_A + P_B$). These two forms of bundling are the most widely applied by marketers. Following are generic examples of mixed-joint and mixed-leader bundles:

A Mixed-Joint Bundle

Regular Price	Bundle
A: $200 B: $100	Buy A and B as a set at $250

A Mixed-Leader Bundle

Regular Price	Bundle
A: $200 B: $100	Buy A at $200 and B at $50 as a set

In all the forms mentioned above, either a percentage or a dollar value discount can be set. This thesis only focuses on dollar value price discounts. In addition, in the mixed-leader bundle, the price discount is set on product B, without loosing generality.

Previous research about bundling can be classified into four streams: (1) The economic analyses of bundling (Adams and Yellen 1976; Schmalensee 1984; Stigler 1968; McAfee, McMillan, and Whinston 1989; Telser 1979), (2) marketing research about the optimality of bundling using an applied economic approach (Bakos and Brynjolfsson 1999, 2000; Eppen, Hanson and Martin 1991; Foster 1992; Guiltinan 1987; Hanson and Martin 1990; Wilson, Weiss and John 1990), (3) The psychology of consumer judgment and choice of bundles based on the application of prospect theory and mental accounts (Masumdar and Jun 1993; Johnson,

Herrmann, and Bauer 1999), (4) Consumer evaluations of bundling (Gaeth, Levin, Chakraborty and Levin 1990; Harlam, Krishna, Lehmann and Mela 1995; Johnson, Herrmann, and Bauer 1999; Soman and Gourville 2001; Yadav 1994, 1995; Yadav and Monroe 1993). We will sequentially scrutinize these research streams.

Economics of Bundling

Bundling is an effective strategy for a firm to extract consumer surplus in a market consisted of heterogeneous buyers. Consumer surplus is the amount by which an individual's reservation price exceeds the actual price paid. Bundling enables a firm to extract consumer surplus by sorting customers into groups with different reservation price characteristics. Ever since Stigler (1963)'s pioneering study of the bundling practice, "block booking," a large body of economics literature has appeared to explain bundling strategies. Stigler (1963) analyzed the demand side incentives for a monopolist to package two or more products in a bundle rather than selling them separately. In Stigler (1963)'s framework, demand is represented as explicit customer segments, and each segment has different reservation prices for the products. A customer will choose the product that maximizes individual consumer surplus. Stigler used this setting to explain why a film distributor could extract large profits by leasing a multiple movie package instead of leasing individual movies. Suppose production is costless and that film X is worth $8000 to buyer A and $7000 to buyer B, while film Y is worth $2500 to buyer A and $3000 to buyer B. Absent bundling, the firm earns a maximum of $19000 by charging film X for $7000 and film Y for $2500. Without price discrimination, these are the best prices the distributor can charge otherwise it would exclude at least one customer and reduce profits. However, a bundle of firms X and Y can be sold for $10000, which is acceptable for both customers A and B, yielding a profit of $20000, more than the amount when the two products are

sold separately. Here, the assumption ensuring the profitability of "block-booking" is that customers have negatively correlated reservation prices for the two products.

Following the Stigler framework, Adams and Yellen (1976) examine the profitability of commodity bundling for a two-product monopolist when the products are independent in demand for all customers. Before Adams and Yellen, some focused on the cost savings in production, transactions, and information associated with package selling to explain the prevalence of bundling. Some as well dwelled on the complementarity in consumption of bundle components. Adams and Yellen (1976) show that the profitability of bundling stems from its ability to sort customers into groups with different reservation prices, and hence to extract consumer surplus. Adams and Yellen identify three general types of bundling options: unbundled sales (bundle components are sold separately), pure bundling (bundle components are sold only as a bundle), and mixed bundling (both the bundle and the individual products are sold). Adams and Yellen show that different rankings of these three strategies are possible, depending on the level of costs associated with supplying the goods and the distribution of customers in the reservation price space. They also show that some forms of bundling are generally more profitable than maintaining the unbundled sales.

Schmalensee (1986) extended previous research about bundling by relaxing the assumption of a finite number of buyers. Instead of representing a finite number of buyers as discrete points in a reservation price space, Schmalensee modeled continuous reservation price distributions. By assuming a specific distribution on demand (viz., Gaussian demand) in the Adams and Yellen's framework, Schmalensee (1986) demonstrates that mixed bundling is a more profitable strategy than either pure bundled or unbundled sales. This conclusion is also supported by prevalence of mixed bundles in marketing practices.

Telser (1979) provides a different rationale for bundling in a distinctive framework. Telser stresses the importance of complementarity between the products as a rationale for bundling. Complementarity between the products yields a valuation of the bundle which is super-additive, making the bundle practice profitable.

Optimality of Bundling

Research related to the optimality of bundling strategy investigates which strategy becomes dominant in different conditions. Guiltinan (1987) provides an analytical framework that incorporates the strategic objectives of a firm into the decision problem of selecting profitable bundling arrangements. Guiltinan demonstrates that the strategic objectives of a firm (e.g., cross-selling, acquisition of new customers, retention) and existing demand conditions in the market can be analyzed together to identify optimal bundling strategies.

Hanson and Martin (1990) examine the issue of bundle pricing. They show that a single firm's bundle pricing problem is naturally viewed as a disjunctive program, which is formulated as a mixed integer linear program. Multiple components and a variety of cost and reservation price conditions are integrated in their approach. Their work provides a practical method for a firm to determine how to bundle the products in its line and to find the optimal prices for the bundle.

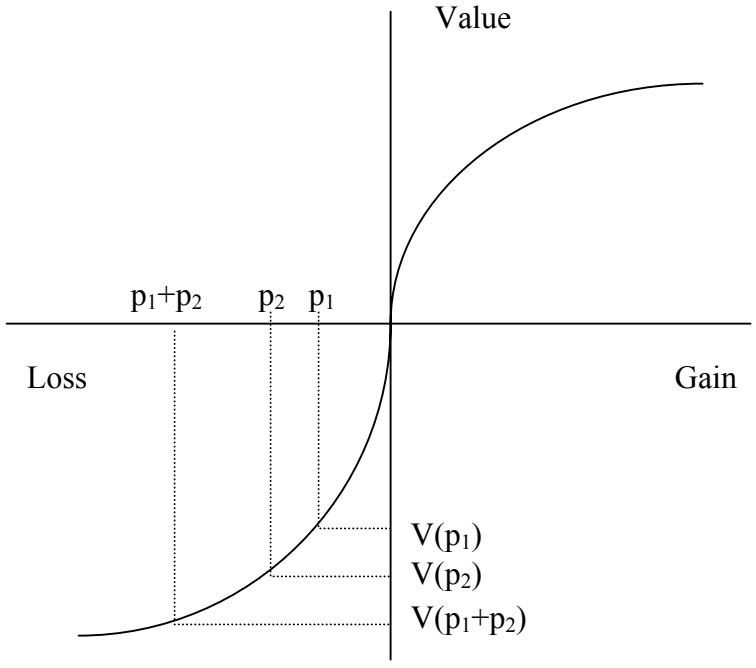
Psychology of Consumer Judgments and Choices of Bundles

The previous two streams of research on bundling are largely driven by economic principles. However, in the past two decades, considerable behavioral research has focused on psychological explanations of consumer perceptions of bundling. Most of the behavioral research about bundling is grounded on prospect theory (Kahneman and Tversky 1979) and mental accounting theory (Thaler 1985, 1999). In prospect theory, outcomes are framed as positive

(gains) or negative (losses) deviations from a reference point. An individual's value function is concave in gains and convex in losses, i.e., both the gain and loss functions display diminishing sensitivity. This feature reflects the basic psychophysical principle that the difference between $10 and $20 looms larger than the difference between $100 and $110. Extending this principle, literature on mental accounting suggests that people perceive multiple gains as more rewarding and multiple losses as more punishing than a single gain and a single loss of the same total amount. Consequently, a bundled price will result in more positive consumer evaluations than a presentation of the prices of individual components, while debundling of price discounts should result in more positive evaluations than a single equivalent aggregated discount. The theoretical rationale for price bundling is that consumers perceive a single price (loss) as less punishing than multiple prices (losses). Therefore, they value a single bundle price more than one that explicitly sums the prices of the separate products. The following mental arithmetic explains why consumers prefer a bundled price to regular single prices.

Figure 2-1

Prospect Theory and Framing Effects of Gains and Losses



In Figure 2-1, p_1 is the price of the first product in the bundle, and p_2 is the price of the second product, $p_1 + p_2$ is the price of the bundle. $V(p_1)$, $V(p_2)$ and $V(p_1+p_2)$ are an individual's value functions of paying the prices, respectively. All the three value functions are negative. Because the value function for losses is convex ($V''(x) > 0, x < 0$), $|V(p_1)| + |V(p_2)| > |V(p_1+p_2)|$. This is also reflected graphically in Figure 2-1. Therefore, consumers will prefer paying the bundled price p_1+p_2, to paying the single prices p_1 and p_2 separately. This mental arithmetic indicates that it is advantageous to mentally integrate or bundle multiple prices to minimize the negative effect of price information on consumer evaluations of an offer. Confirming the predictions of prospect theory and mental accounting, Johnson, Herrmann and Bauer (1999) empirically support that consumer evaluations of an offer increase as component price information is bundled. These evaluations include perceived satisfactions with an offering, perceived likelihood of recommending the offering to other people, and perceived likelihood of repurchasing the brand again. Similarly, based on the price-value function illustrated above, Mazumdar and Jun (1993) investigate the effect of integration or segregation of price increases, finding that consumers will respond more unfavorably to multiple price increases than to a single price increase of equal amount.

Consumer Evaluations of Bundling

In the past two decades, a large body of consumer behavioral research on bundling has appeared. Yadav (1994) applies the anchoring and adjustment heuristic (Tversky and Kahneman 1974) to investigate a consumer's evaluation process of a bundle. Yadav developed and tested a model of bundle evaluation in which buyers anchored their evaluation on the item perceived as most important and then made adjustments on the basis of their evaluations of the remaining items. Yadav argues that people scan a bundle to identify the most important product, evaluate

this product at its offer price, then evaluate additional products in the bundle, and update the bundle evaluation as they proceed. The whole evaluation process engages a weighted-additive model, i.e., the overall evaluation of a bundle will be a weighted average of the evaluations of the individual items. This weighted-additive model is represented as: $V=\Sigma w_i v_i$, where w_i is the importance of i^{th} product, v_i is the evaluation of i^{th} product. Also, Yadav (1995) proposes that the most valued product in a bundle will receive the most weight when product evaluations are summed. For example, consumers prefer to receive a discount on a liked magazine, as opposed to a disliked magazine, in a bundle of liked and disliked magazines. Thus, a discount to the most important product should be more positively evaluated.

Some other researchers have investigated the impacts of bundle characteristics on evaluations of the bundle. Gaeth et al (1990) investigate the influence of quality of a tie-in product on bundle evaluations. Their study suggests that the evaluations of a primary product and a tie-in product are averaged or balanced. Furthermore, the attributes of the tie-in product had a much larger effect on the evaluations of product bundles than would be expected on the basis of their monetary worth alone. Harlam et al (1995) propose that bundles composed of equally priced goods or related components will result in higher purchase intentions. Also, consumers' familiarity with the products will influence evaluations of a bundle. Suri and Monroe (1995) study the impact of a purchase plan on bundle evaluations, finding that prior intentions to purchase an item significantly influence the perception of savings on bundle offers. Simonin and Ruth (1995) take a unique perspective viewing bundling as a strategy for new product introduction. They examine the effect of the product combination, the form of the bundle, and attitudes toward the brands in the bundle on consumer evaluations of a bundle. They show that prior attitudes toward the component brands have significant positive impacts on evaluations of

the bundle, as well as the reservation price of the bundle. Agarwal and Chatterjee (2003) even go beyond the evaluation of a bundle, investigating how bundle characteristics influence consumer perceived decision difficulty in selecting from a menu of bundles. Table 2-1 summarizes the studies of consumer evaluations of bundling.

Controversies and Limitations in Bundling Research

Past research about bundling, especially research about bundling price discount framing has demonstrated conflicting expectations about consumer evaluations of a bundle. Although this thesis cannot resolve all of these controversies, we will raise them in the following discussions.

Which Product to Discount in a Mixed-Leader Bundle?

According to Yadav (1995), a bundle price discount assigned to the most-valued bundle component will receive the most favorable evaluation of the bundle. However, the application of prospect theory (Kahneman and Tversky 1979; Tversky and Kahneman 1981) and mental accounting (Thailer 1985, 1999) may have opposite predictions about the price discount framing effect.

In prospect theory, outcomes are framed as positive (gains) or negative (losses) deviations from a reference point. An individual's value function is concave in gains and convex in losses, i.e., both the gain and loss functions display diminishing sensitivity. Assume a merchant wants to bundle two products, A with an original price of $200, and B with an original price of $100, providing a $50 price reduction as an incentive to encourage purchase of the bundle. If the $50 price reduction is assigned on product A, that is a 25% price discount; if the reduction is assigned on product B, it is a 50% price discount. In other words, the difference between $50 and $100 looms larger than the difference between $150 and $200. This rationale predicts that the evaluation of the bundle will be more favorable when the discount is assigned to

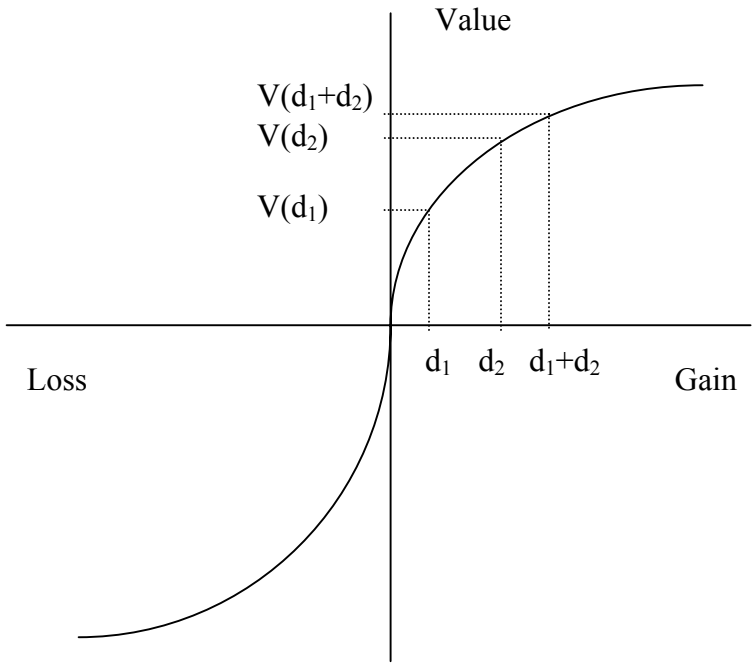
the less-valued product than assigned to the more-valued product. This is conflicting with Yadav (1995)'s prediction. Here, we assume that importance is approximately proportionate to monetary value. This raises the question of a framing effect of bundling price discount, i.e., on which product should a merchant assign the price discount in a bundle. Unfortunately, this controversy has largely been ignored.

Joint Price Discount or Debundled Price Discount?

The discussion above only addresses the selection of the discounted product in a mixed-leader bundle. Regarding the selection of a joint bundle price discount or a debundled price discount, existing literature also has contradictory predictions. Based on prospect theory, the following mental arithmetic explains why consumers prefer a debundled price discount to an equivalent aggregated bundle price discount.

Figure 2-2

Prospect Theory and Framing Effects of Bundle Price Discount



As suggested by Thaler (1985, p. 201), "people appear to respond more to perceived changes than to absolute values," they evaluate a discount to some natural inference points. Here, the reference point is the regular price, and a price discount is perceived as a gain. In Figure 2-2, d_1 is the price discount assigned on the first product in the bundle, and d_2 is the price discount assigned on the second product, $d_1 + d_2$ is the price discount jointly assigned on the bundle. $V(d_1)$, $V(d_2)$ and $V(d_1+d_2)$ are a consumer's value functions of getting the discounts, respectively. Because the value function for gains in prospect theory is concave ($V''(x) < 0, x > 0$), $V(d_1) + V(d_2) > V(d_1+d_2)$. This is also reflected graphically in Figure 2-2. Therefore, consumers will have more favorable evaluations when the bundle price discount is debundled than when the bundle price discount is assigned to the bundle jointly, i.e., a mixed-joint bundle. Confirming this prediction, Mazumdar and Jun (1993) find that consumers will respond more unfavorably when price discounts are debundled.

The discussion above explains why an unbundled price discount is more favorably evaluated than an aggregated bundle price discount (viz., a mixed-joint bundle). It states that if a merchant wants to bundle two products, it's more profitable to discount both products in the bundle instead of setting a single joint price for the bundle. However, this kind of multiple price discounts is rare in the market place. The more popular formats are mixed-joint or mixed-leader (Guiltinan 1987). More research attention related to this issue is warranted.

Mixed-Joint or Mixed-Leader Bundles?

Mental accounting theory (Thaler 1985) proposes that individuals evaluate gains or losses relative to some natural reference points. In the current context, bundle price discounts are evaluated relative to the original price. This rule will predict that a mixed-leader bundle (the

price discount is assigned on either product in the bundle) will generate more favorable evaluations than a mixed-joint bundle with an equivalent price discount.

Assume a merchant wants to bundle product A, which has a regular price of $100, and product B, which has a regular price of $200, with a $50 price reduction. If the price reduction is assigned on the bundle jointly (viz., a mixed-joint bundle), consumers perceive a 16.7% ($50/$300) price discount, which is less than when the price reduction is assigned to either product A (50% price discount) or product B (25% price discount). Therefore, consumers will have more favorable evaluations of a mixed-leader bundle than a mixed-joint bundle. Even if a consumer uses a dollar-value price discount instead of percentage of the price discount to evaluate the offer, a mixed-leader bundle will not be evaluated less favorably than a mixed-joint bundle. However, in the marketplace, mixed-joint bundling is still widely practiced. Why? This is a question interesting and begging more research attention. The current research may partially answer this question, as we will prove that consumer perceptions of the discounted product will be hurt by the price discount in a mixed-leader bundle. This may result in a less favorable attitude toward the bundle. A combination of both acquisition utility and transaction utility (Thaler 1985) may harmonize this controversy.

Bundling or Partitioned Pricing?

Although the economics of bundling (Adams and Yellen 1976; Schmalensee 1984; Stigler 1968; Telser 1979), prospect theory (Tversky and Kahneman 1979), and mental accounting theory (Thailer 1985, 1999) as well as existing empirical research (John, Herrmann and Bauer 1999; Mazumdar and Jun 1993) suggest that aggregated or bundled prices are more favorably evaluated than separated prices, there are still exceptions to this general rule.

Many firms partition the total price into two parts instead of charging one all-inclusive price. This practice is termed as partitioned pricing by Morwitz, Greenleaf and Johnson (1998). For instance, a mail-order catalog charges $19.00 for a DVD or VHS plus $4.99 for shipping and handling, instead of a total price of $23.99. A check print firm charges $12.00 for a box of checks plus $5.99 for shipping and handling, instead of a single price of $17.99. A university may charge $1,000 for dormitory housing plus a mandatory meal plan for $900, instead of a joint price of $1,900 for the housing and dining plan. The more common practice of partitioned pricing is seen in the online transactions. Online retailers like Amazon and Ebay always charge three parts of prices, the price of the product, shipping and handling, and commission instead of an all-inclusive single total price. Morwitz, Greenleaf and Johnson (1998) name the larger part of the partitioned prices as *base* price and the smaller part as *surcharge*. They argue if consumers do not process base prices and surcharges completely and accurately, partitioned pricing can increase consumer demand because of lower recalled total costs.

This example raises an exception to the predictions of bundling research literature, and suggests the need for more research on potential causes for the discrepancy. In other words, we need to identify the contingencies in which bundle pricing is more profitable or partitioned pricing is more profitable. Important topics in this research area may include the cognitive process in which consumers evaluate price information, the salience of the bundle components and their prices, or consumer perceptions of different parts of the price. For instance, in an online shopping situation, the total cost of purchasing a book might consist of three parts: $50 of the book paid to the seller, plus $10 of commission paid to the online retailer, plus $5 shipping and handling. A consumer may perceive the latter two parts as irrelevant to the real price of the book, $50. The commission and the shipping and handling fee might be perceived as necessary and fair

parts to facilitate the transaction. Therefore, they are not parts of the price of the book. The answer to resolve this discrepancy is not the interest of this dissertation, but future follow-up research directions.

Acquisition Utility or Transaction Utility?

A common limitation in existing research about bundling is that current research efforts primarily focus on transaction value, examining how consumers may use price information to evaluate the bundle (Johnson, Herrmann and Bauer 1999; Mazumdar and Jun 1993; Yadav and Monroe 1993). However, consumer evaluations of an offer can be decomposed into two forms of utility (values): acquisition utility and transaction utility (Thailer 1985). Acquisition utility represents the perceived economic gain or loss associated with a purchase, and it is a function of product utility and the purchase price. Transaction utility concerns perceived pleasure or displeasure associated with the financial aspect of a purchase, and it is determined by comparing the selling price to internal reference prices (Thaler 1985, Monroe and Chapman 1987; Grewal, Monroe, and Krishnan 1998). Grewal, Monroe, and Krishnan (1998, p. 48) further define transaction value as "the perception of psychological satisfaction or pleasure obtained from taking advantage of he financial terms of the price deal." Therefore, transaction utility (value) is judged on the basis of price information.

Several researchers have conceptualized perceived value interchangeably (Grewal, Monroe and Krishnan 1998). According to Zeithaml (1988, p. 14), perceived value is "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given." Perceived value is an important antecedent of purchase intention or willingness to buy in many value-based models (Dodds, Monroe, and Grewal 1991; Grewal, Krishnan, Baker and Borin 1998; Teas and Agarwal 2000; Zeithmal 1988). It reflects both the

quality information and price information of an offer. Consumer perceptions of acquisition value (utility) can be improved by decreased price and/or increased quality. Meanwhile, consumers judge the quality on the basis of price quite often, and there exists a price-quality schema, i.e., positive association between price and perceived quality (Dodds, Monroe and Grewal 1991; Lichtenstein and Burton 1989; Lichtenstein, Ridgway and Netemeyer 1993; Rao and Monroe 1989; Teas and Agarwal 2000; Zeithaml 1988). When quality is judged on the basis of price information, lower prices can both enhance and harm evaluations of an offer. Thus, the influence of bundle price discount may be more sophisticated.

Such complexity is not all accounted for in the literature of bundling, because current research primarily focuses on transaction utility as a predictor of evaluations of a bundle. A comprehensive consideration of both the transaction utility and acquisition utility will lead to more comprehensive predictions about a consumer's evaluation of a bundle offer. As demonstrated by prospect theory, given the same amount of price reduction, a mixed-leader bundle will lead to higher transaction value because the price reduction is evaluated on the basis of lower referent point, i.e., the regular price of a single bundle component, while in a mixed-joint bundle, the price reduction is evaluated on the basis of the total regular price of two bundle components. However, with the same price reduction, a mixed-joint bundle will lead to higher acquisition utility because of the following two rationales.

First, in a mixed-leader bundle, one product is discounted whereas another is listed at a regular price. Such a bundle will be more likely to be interpreted as a marketing promotion. The bundling strategy itself may make the consumer infer that the bundle items are being promoted by each other. This attribution will lead to lower perceived quality of the items in a bundle (Blattberg and Neslin 1990), thus leading to a lower acquisition value.

Secondly, in a mixed-leader bundle, the discounted price of one product may communicate negative information about quality. Consider a consumer see a bundle with a TV and a DVD player, if the DVD is priced half off its regular price in a mixed-leader bundle as an incentive to attract consumers, a consumer may question the quality of the DVD.

The negative attributions and low-quality perceptions about the discounted product in a bundle will negatively influence the overall acquisition value of the bundling offer, engendering a less favorable evaluation of the mixed-leader bundle than of a mixed-joint bundle.

Then, the question is: how can we harmonize these conflicting predictions? We need to develop a comprehensive understating of how overall value is formed in the bundling context, incorporating both transaction value and acquisition value as suggested by Yadav and Monroe (1993). We start from examining the effect of bundling on evaluations of individual bundle components in this research.

Effects of Bundling on Evaluations of Individual Bundle Components

As we discussed above, current behavioral research of bundling has primarily focused on consumers' evaluations of the bundle itself. As an exception, Simonin and Ruth (1995) go beyond the tradition of focusing on a bundle itself, examining the effects of bundling on bundle components. They find that consumer evaluations affect not only willingness to pay for the bundle, but also reservation prices for the distinct primary and tie-in products. Thus, bundling impacts the propensity to purchase these components separately in the future. They specifically focus on the effect of bundle brands, finding that prior positive attitudes toward the brands will increase consumers' reservation prices for the new product and tie-in components. Because reservation prices are related to internal reference prices, thus the effect of favorable brand attitudes will be transferred to the internal reference prices. With higher internal reference prices,

any given price would appear to be more attractive and thus increase perceived value and purchase intentions of both the new product and tie-in product (Simonin and Ruth 1995). Although as an initial trial to examine the effect of bundling on individual products in a bundle, Simonin and Ruth's efforts primarily focus on the effect of brand information in the bundle, ignoring the effect of the bundling strategy itself.

Several important issues remain unexplored in this direction. First, research in bundling has limited the scope of investigation to factors influencing the choice of the bundle itself or its components, and omitted the question of the long-term attitudinal spillover effects on bundle components (Simonin and Ruth 1998). Secondly, and critical to this thesis, research on bundling has also ignored the effects of the bundle on evaluations of individual bundle components in the market. A bundling offer changes the environment in which an individual product is evaluated. For instance, a consumer may see the following bundles in a store:

Scenario A:

Item	Price
A: 20 inch Flat screen TV	$250
B: DVD/VCR combo	$150

OR

Buy the flat screen TV at $250 and the DVD/VCR combo at $110 as a set (get $40 off the regular price of B).

Scenario B:

Item	Price
A: 20 inch Flat screen TV	$250
B: DVD/VCR combo	$150

OR

Buy the flat screen TV and the DVD/VCR combo at $360 as a set (get $40 off the regular total price of A & B).

The original motive of the store is to provide a bundle is to promote sales of both the flat screen TV and the DVD/VCR combo. No matter how a consumer evaluates the bundle itself, the presence of the bundle creates a different context in which consumers evaluate the individual items than does the absence of the bundle. Thus, consumer evaluations of the individual bundle items may be a function of the presence of the bundle. In addition, different framings of bundle price discount may influence evaluations of bundle items. For instance, will consumers evaluate Product A and B in Scenario A in the same way as in Scenario B? These potential effects represent a gap in the existing literature of research about bundling.

This study also has important implications for marketers. Given the prevalence of bundling in marketing practices, people's attention has been primarily drawn to the evaluation and the profitability of bundling. The impacts of bundling on the profitability of individual bundle components have generally been ignored. In many cases, a bundle will only attract a small portion of consumers. For instance, in the example presented above, a consumer may already own a flat screen TV at home. Therefore, there is no need for this consumer to buy the bundle. So, the majority of consumers will still buy the bundle components separately. If a bundle appeals to a consumer, does it also improve the profitability of the individual bundle items? If a bundle generates negative attitudes among consumers, does it also hurt consumer attitudes toward the individual bundle components? Which bundle component is more likely to be unfavorably influenced by a bad bundle? Will the format of bundling change or moderate these effects? The major goal of this thesis is to answer these questions.

Table 2-1

Summary of Studies about Consumer Evaluations of Bundling

Author	Independent Variable	Dependent Variable	Finding
Gaeth et al. 1990	Evaluation of bundle components	Evaluations of the bundle (willingness to buy, usefulness and perceived bundle quality	Evaluations of the bundle components are averaged or balanced. Attributes of the tie-in product have a larger effect on the evaluation of a bundle than would be expected on the basis of their monetary worth alone.
Harlam et al. 1995	Bundle complementarity, Component price equivalence, Framing of bundle price, Product familiarity	Purchase intention of bundle	Complementary bundles aroused higher purchase intentions. There is an interaction between familiarity and bundle prices on purchase intentions. There is an interaction between framing of the bundle and the price level of the bundle offer. Consumers are more sensitive to a bundle price "increase" than to a bundle price "decrease" of equal amounts.
Suri and Monroe 1995	Purchase plan	Perception of bundle savings	Prior intentions to purchase an item significantly influence the perception of savings on bundle offerings.
Simonin and Ruth 1995	Product Combination, form of the bundle, attitudes toward the brand	Evaluation of the bundle, Reservation price of the bundle, and individual products	Prior attitudes toward the brands in a bundle have positive impacts on evaluations of the bundle, which are associated with more favorable reservation prices for the bundle itself and bundle products. In the case of between-brand bundle, consumers' reservation prices for the new product could be raised for a new brand when bundled with a well-liked product.
Yadav and Monroe 1993	Item savings, and Bundle savings	Bundle transaction value	Total transaction value is a combination of perceived additional savings on the bundle and perceived savings offered on the items if purchased separately.
Yadav 1995	Price reduction on preferred or unpreferred item	Bundle evaluation	A price reduction on the preferred item is more effective for enhancing bundle evaluations than an equivalent discount on the less preferred item.

Chapter 3: Conceptual Model and Hypothesis Development

Conceptual Background

This study builds on multiple research streams, including mental accounting, reference price, and attribution theories. In particular, we argue that a discounted bundle price will shift downwards a consumer's internal reference price, thus make a consumer perceive the regular prices of the individual bundle components as more expensive. On the other hand, consumers will attribute the bundle offer as a marketing promotion tactic, and this attribution will influence their quality perceptions of the bundle components. Through the price-value model, these evaluations eventually will influence purchase intentions. In addition, we apply mental accounting theory (Thaler 1985, 1999; Tversky and Kahneman 1981) to understand the cognitive process used by an individual to evaluate the bundling offer. In this section, we will briefly review these theories and their relevance to the current study.

Mental Accounting

Mental accounting has been applied to explain consumer evaluations of bundles (Johnson, Herrmann and Bauer 1999; Mazumdar and Jun 1993). "Mental accounting is the set of cognitive operations used by individuals and households to organize, evaluate and keep track of financial activities" (Thaler 1999, p. 183). It describes the psychological construction of separate budgets or accounts for categories of decisions. These accounts contain the advantages and disadvantages of an event or activity. These advantages and disadvantages are then compared to a reference state to determine whether the activity will be evaluated positively or negatively. The concept of mental accounting has spawned considerable conceptual and empirical research (see Thaler 1999).

Tversky and Kahneman (1981, p. 457) illustrate the notion of mental account as a potential for decision bias via the following experimental scenarios:

Play Decision Scenario

> Scenario A: Imagine that you have decided to see a play where the admission is $10 per ticket. As you enter the theater you discover that you have lost a $10 bill. Would you still pay $10 for a ticket for the play? (Yes 88%).
>
> Scenario B: Imagine that you have decided to see a play and paid the admission price of $10 per ticket. As you enter the theater you discover that you have lost the ticket. The seat was not marked and the ticket cannot be recovered. Would you pay $10 for another ticket? (Yes 46%).

Calculator Decision Scenario

> Scenario A: Imagine that you are about to purchase a jacket for $125 and a calculator for $15. The calculator salesman informs you that the calculator you wish to buy is on sale for $10 at the other branch of the store, located 20 minutes drive away. Would you make the trip to the other store? (Yes 68%)
>
> Scenario B: Imagine that you are about to purchase a jacket for $15 and a calculator for $125. The calculator salesman informs you that the calculator you wish to buy is on sale for $120 at the other branch of the store, located 20 minutes drive away. Would you make the trip to the other store? (Yes 29%)

Tversky and Kahneman explained these results by hypothesizing the formation of mental accounts. In the play decision scenario, the choice is whether to spend $10 to buy a new ticket, but responses to the two scenarios were different. Subjects formed an account for the play. In Scenario B, this account includes the price of the lost ticket ($10) and the price of the new ticket, adding up to a total cost of $20 to see the play. In Scenario A, the account does not include the lost $10, resulting in a cost of $10 to see the play. Therefore, subjects in Scenario A were more willing to purchase a new ticket than subjects in Scenario B.

In the calculator decision scenario, the choice is whether to drive 20 minutes to save $5 on a total expenditure of $140. The responses to the two scenarios were markedly different. In scenario A, 68% of participants were willing to make the trip, compared with only 29% in

scenario B. Kahneman and Tversky hypothesized that subjects in each condition formed an account that included the price of the calculator and the potential saving of $5. They then used prospect theory (Kahneman and Tversky 1979) to explain why the $5 gain was valued differently in the two conditions. As a consequence, subjects would consider driving 20 minutes to save $5 on a $15 or a $125 calculator, respectively in the first and second scenarios. Because of the diminishing sensitivity of utility, subjects would value a $5 saving more on a $15 than on a $125 calculator.

In a later paper, Kahneman and Tversky (1984) propose three mental accounts in which outcomes may be framed: a minimal account, a topical account, or a comprehensive account. These accounts vary in their levels of inclusiveness, with a minimal account being least inclusive and a comprehensive account being most inclusive. They further explain the above preference reversal on the basis of the topical mental account as described in Kahneman and Tversky (1984, p. 347).

A topical account relates the consequences of possible choices to a reference level that is determined by the context within which the decision arises. In Scenario A of the calculator decision, the relevant topic is the purchase of the calculator, and the benefit of the trip is therefore framed as a reduction of the price from $15 to $10. If the price of the jacket is not included in the topical account, the potential saving is only associated with the calculator.

However, a minimal account entails examining only the differences between the two options, disregarding all their common features. With this mechanism, the representation of the decision problem would be regarded as a choice between "saving $5 versus saving 20 minutes driving." With this minimal mental account, the reported preference reversal would not be found.

A comprehensive mental account incorporates all other factors including current wealth, future earnings, possible outcomes of other probabilistic holdings, and so on. With a comprehensive mental account, the price of the jacket as well as other expenses would be considered. In other words, in both experimental conditions, subjects would compare the $5 discount with the total regular price of $140, a summation of the jacket price and the calculator price. Following this analysis the preference reversal reported in Tversky and Kahneman (1981) would appear only when a topical mental account was employed.

In sum, the selection of the mental accounts will alter the decision makers' choices. Kahneman and Tversky (1984, p347) suggest that "people will spontaneously frame decisions in terms of topical account that, in the context of decision making, play a role analogous to that of 'good forms' in perception and of basic-level categories in cognition." However, previous studies also show that in the context of multiple purchases people consider the undiscounted products when they have to decide whether to accept a price reduction. In other words, people will use a comprehensive mental account to examine a price discount offer (Bonini and Rumiati 2002).

Thus, the study of the conditions that activate a topical or comprehensive mental account represents a critical issue in the research of mental accounts. This issue would also influence evaluations of the bundle and individual bundle components. For instance, in a mixed-leader bundle, only one product is discounted, as in Scenario A presented in the previous chapter. If a consumer uses a topical mental account, the price discount will be compared only to the original price of product B. In other words, this consumer will value the $40 price discount against $150, the original price of B. However, if a consumer uses a comprehensive mental account in this situation, the price discount will be compared to the sum of the original prices of A and B. The

consumer will evaluate the $40 price discount against $400. In the latter case, the same price discount ($40) will loom less significant than in the first situation.

Internal Reference Price

It has long been recognized that consumers use some standards or references to evaluate the offering price of a product (Monroe 1973, Thaler 1985). Prices above the reference price lead to perceived loss for the consumer, and prices below the reference price lead to perceived gain. Consequently, any influences on the internal reference price will necessarily affect price perceptions, and further, the transaction value of an offer.

The concept of internal reference price (IRP) is an important cornerstone for pricing research. However, several researchers have conceptualized IRP slightly differently. Grewal, Monroe and Krishnan (1998) define IRP as a price (or price scale) in buyers' memories that serves as a basis for judging or comparing actual prices. Understood from the context of this definition, IRP is influenced by both the advertised selling price and the advertised reference price; therefore, it encompasses context influence. Thaler (1985) refers to a reference price as the "expected or fair" price, which is an internal representation. An IRP can be some average of the range of prices for similar products (Emory 1970). It can also be defined as a range of expected prices, rather than a single reference point (Lichtenstein, Block, and Black 1988; Moneroe 1971; Urbany and Dickson 1991).

If reference prices are dynamic (Klein and Oglethorpe 1987), changing across different decision contexts, then the important question is how internal reference prices are formed and modified. A conjunction of adaptation theory (Helson 1964) and assimilation-contrast theory (Sherif 1963) can explicate the process by which IRP is formed and evolved.

Adaptation Theory. Adaptation theory suggests that consumers have internal norms (adaptation levels), against which current prices are judged (Monroe 1973, 2003; Urbany, Bearden, and Weilbacker 1988). Adaptation levels represent a combination of effects of present and past experiences. Adaptation theory further proposes that an individual's internal reference price represents an adaptation to three kinds of stimuli: focal, contextual, and organic. Focal cues are the stimuli an individual directly responds to, e.g., current prices. Contextual stimuli are all other situational or background stimuli in a particular situation, for example, purpose of purchase, and purchase environment. Organic cues refer to the inner physiological and psychological processes affecting a behavior, including the amount of cognitive resources a person has available to process the information about a product and an offer.

According to adaptation theory, new prices an individual faces will move the adaptation-level in the direction of those prices. This is the anchoring effect in adaptation theory (Monroe, 2003). New prices near the original adaptation level will have little influence on a consumer's internal reference price. However, prices far above or below the adaptation level will move the adaptation level to a greater extent, thus changing a consumer's reference price.

Meantime, an individual assesses the offered purchase price by comparing it with internal reference prices. In other words, prices are evaluated comparatively.

Assimilation-Contrast Theory. Similar to adaptation-level theory, assimilation contrast theory (Sherif 1963) suggests that a new stimulus encountered by an individual is judged against a background of previous experiences in the category. The past experience forms an individual's reference scale (also referred to as a psychological scale). A preferred category within this scale becomes the anchor. Subsequent stimuli are judged in relation to the reference scale, thus the

reference scale serves as the basis for comparison and evaluation. Prices above the reference scale will be judged high, whereas prices below the reference scale will be judged low.

Meanwhile, new stimuli an individual encounters may also change the reference scale in that direction. For example, a relatively high price will alter the reference scale upwards.

Attribution Theory

In practices, consumers are constantly estimating what is responsible for, or causes of, various events. The process of estimating causes is called attribution. This approach to understanding the reasons why consumers assign particular meanings to the behaviors of others has been used primarily for analyzing consumer reactions to promotional messages. For instance, when consumers attribute advice given by a salesperson or advertising message to a sales motive, they tend to discount that advice. Consequently, these attributions will influence consumer evaluations of sales and shopping or purchase intentions (Lichtenstein and Bearden 1986; Lichtenstein, Biswas and Fraccastoro 1994; Lichtenstein, Burton and O'Hara 1989).

In terms of the focus of attribution, it has been theorized that attributions may pertain to the person, the stimulus, or some specific circumstance (Kelley, 1973; Kelley and Michela 1980). In the practice of retail price advertisement, the relevant types of attributions pertain to the merchant advertiser (person), the advertised product (stimulus), and circumstances (Lichtenstein and Bearden, 1986). Prior research has indicated that attributions pertaining to a merchant (person) will possibly generate positive sale evaluations (Burton et al. 1994). Consumers will possibly attribute a sale or a price discount as the merchant's motive to "enhance customer goodwill" or "pass on savings from bulk purchases from manufacturers," and so on. In contrary, because many consumers believe there is a positive relationship between a price and product quality (Rao and Monroe 1989), a price discount may be perceived as related to

something negative about the product (such as out-of-data models or inferior quality). Thus, attributions pertaining to a product may have negative effects on sale evaluations and purchase intentions (Burton et al. 1994). Attributions pertaining to circumstances may vary from one another, and they will have mixed effects on sale evaluations, leading to no overall effects (Burton et al. 1994). In this thesis, we will not address the influence of circumstance attributions.

Construct Definitions

Bundle Price Discount

A bundle generally has a price discount. Consumers are sensitive to the framing of price information in a bundle. There is evidence that an equivalent price discount, applied to the overall bundle, one of the individual products, or all of the individual products, can alter the evaluation (e.g., purchase intentions) of the bundle (Heath, Chatterjee and France 1995; Kaicker, Bearden, and Manning 1995; Mazumdar and Jun 1993; Yadav 1995; Yadav and Monroe 1993). In this study, we are interested in the effects of the magnitude and the format of bundle price discount on consumer evaluations of individual bundle components. Past research has shown differential effects of dollar-value and percentage price discounts on consumer perceptions (Chen, Monroe, and Lou 1998; Grewal and Marmorstein 1994; Heath, Chatterjee, and France 1995). However, this study will only focus on dollar-value price discounts.

Perceived Price

Perceived price is the price encoded by a consumer. Jacoby and Olson (1977) distinguish between objective (the actual price of a product) and perceived prices. This distinction of perceived and objective prices has been supported by research in marketing literature (Zeithaml 1988). Objective price is not the price frequently encoded by a consumer, although it does influence consumer price perceptions. Price perceptions may vary across consumers, products, and purchase contexts. They can be both an indicator of the amount of sacrifice needed to

purchase a product and an indicator of product quality, determining consumer perceptions of value, and eventually purchase intentions (Dodds, Monroe, and Grewal 1991). Thus, we will focus on the effect of perceived prices as well as objective prices in this study.

Perceived Quality

Similar to the distinction between objective and perceived prices, objective quality and perceived quality have distinctive meanings to a consumer. Objective quality is defined as the "unbiased measurement of quality based on characteristics such as design, durability, performance and safety" (Riesz 1978, p. 19). Though there is a positive association between objective quality and perceived quality, the latter is sometimes evaluated upon some extrinsic cues, such as price, brand name, retailer reputation, and warranties (Dawar and Parker 1994). The cognitive tradeoff between perceived price and perceived quality then determines the perception of value and purchase intentions (Dodds, Monroe, and Grewal 1991).

Perceived Value

Several researchers have conceptualized perceived value interchangeably with acquisition value (Grewal, Monroe and Krishnan 1998). According to Zeithaml (1988, p. 14), perceived value is "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given." We follow this definition in the current study. Perceived value is an important antecedent of purchase intentions or willingness to buy in many value-based models (Dodds, Monroe, and Grewal 1991; Grewal, Krishnan, Baker and Borin 1998; Teas and Agarwal 2000; Zeithmal 1988). It mediates the impacts of perceived quality and perceived price on purchase intentions.

Purchase Intention

Purchase intention has been widely used as a direct predictor of purchase behavior.

Complementarity of Bundle Components

Guiltinan (1987) asserts that the degree of complementarity of bundle components is a key to the success of bundling strategy. As classified by Varadarajan (1986), complementarity of bundle components is based on various dimensions, including complementarity of usage, timing, occasions, images, distribution (e.g., TV cable and DSL internet service), derived demand (e.g., a camcorder and a battery), or target markets. In this study, we focus on functional complementarity, defining complementarity as functional relatedness and dependence between bundle components. Complementary bundles are those in which individual components function as a system or complementarily (e.g., a computer and a printer, a TV and a VCR, airfare, lodging, and a rental car, a razor and a blade). Non-complementary bundles are those in which the bundle components are not functionally related (e.g., a computer and a camera, a ski suit and a TV set). When individual products complement rather than substitute for each other, a seller should be able to increase profits by bundling (Telser 1979); consumers have higher purchase intentions (Harlam et al. 1995) and higher reservation prices (Gaeth et al. 1990). In addition to the effect of complementarity on bundle evaluations, I propose that bundle component complementarity will also influence the effects of bundling on evaluations of individual bundle components.

Conceptual Model and Hypotheses

In this section, hypotheses are developed based on the theoretic background and the constructs of interest clarified above. Recalling the goals of this study discussed at the end of Chapter 2, the effects of bundling on consumer evaluations of individual bundle components are of focal interest. Figure 3-1 and Figure 3-2 represent the conceptual models of two forms of bundling, mixed-joint and mixed-leader bundles, respectively. Although the same issues are

addressed, hypotheses vary across these two situations. Therefore, we need two differential diagrams to illustrate the conceptual models.

The models indicate that a bundle price discount (both size and form) affects consumer perceptions of price and quality of bundle components A and B. As the major antecedents of the perceived value of a product, perceived price and perceived quality mediate the impacts of the bundle price discount on purchase intentions of individual bundle components. In Figure 3-2, the model also integrates the moderating effect of bundle component complementarity in a mixed-leader bundle.

Effects of Bundling in a Mixed-Joint Bundle

Perceived Price

Subjective price judgments may rely on a comparison of the market price to a single, internal reference price (Kalyanaram and Winer 1995; Monroe 2003; Thaler 1985). The reference price is hypothesized to be the standard for comparison, with prices below it being perceived as low or inexpensive, and prices above it being perceived as high or expensive (Kalyanaram and Winer 1995; Monroe 1990, 2003; Thaler 1985). Thus, the internal reference price has very important implications for purchase evaluations, e.g., perceptions of price, value, and purchase intentions. Given the role of the reference price in product evaluations, any effect on the internal reference price necessarily influences market price evaluations, and thus purchase evaluations. A conjunction of adaptation-level theory (Helson 1964) and assimilation-contrast theory (Sherif 1963) can explicate the process by which IRP is formed and modified.

Figure 3-1

The Conceptual Model of Mixed-Joint Bundle

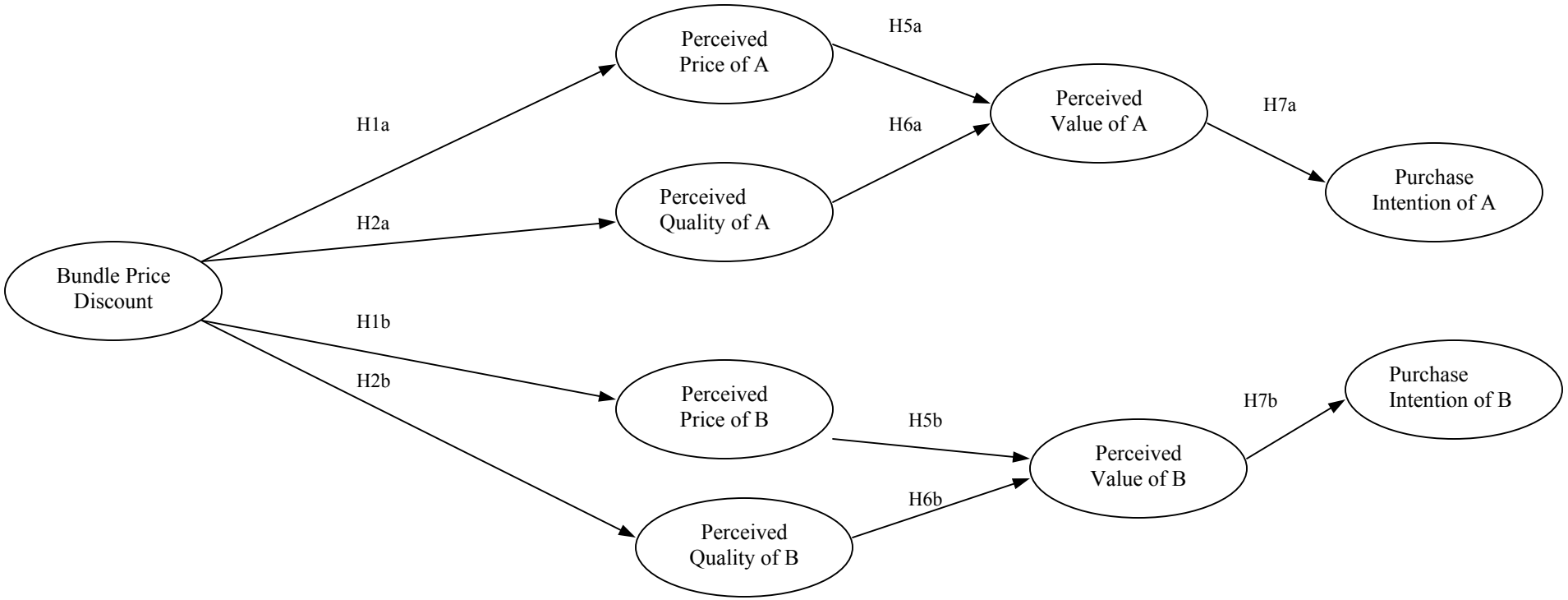
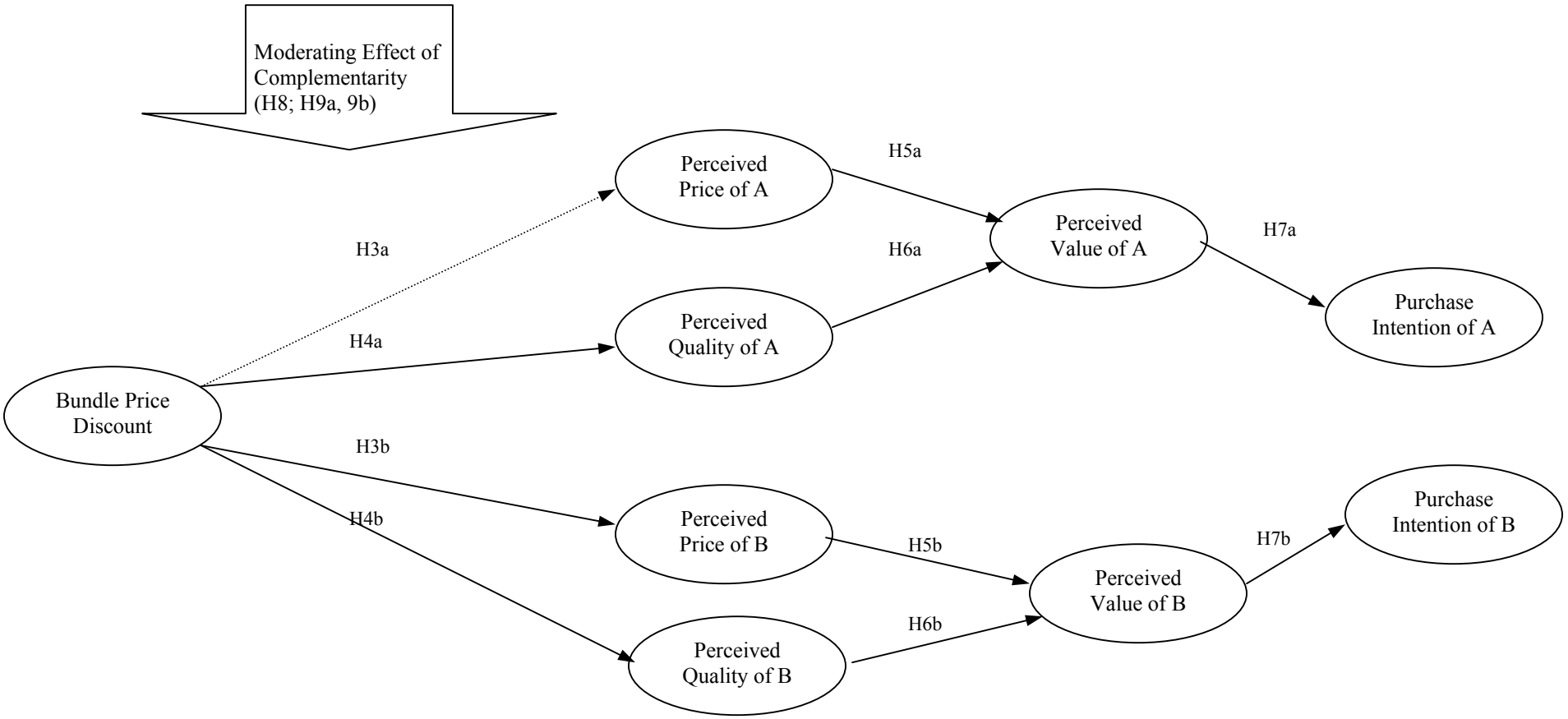


Figure 3-2

The Conceptual Model of Mixed-Leader Bundle



Adaptation theory proposes that an individual's internal reference price represents an adaptation to three kinds of stimuli: focal, contextual, and organic. In the current research framework, contextual stimuli play a critical role in influencing a consumer's internal price. According to adaptation theory, new prices an individual faces will move the adaptation-level in its own direction, thus changing a consumer's reference price. In a mixed-joint bundle, the price discount is associated with the single bundle price. Therefore, a consumer may associate this discount to both items in the bundle. The discounted price of the bundle items may decrease an individual's internal reference prices for both items. This effect is similar to the effect of an advertised reference price (ARP) in the context of a comparative price advertisement. If the ARP is not too far from a consumer's internal reference price, it will shift the IRP toward itself (Lichtenstein and Bearden 1989). Similarly, the discounted bundle price may have the same impact on the IRP. What's more, the discounted price of a bundle is always believable, because the offer is available in the shopping scene.

Assimilation-contrast theory (Sherif 1963) suggests that a reference price depends on both product experience and information in an environment. One input into a consumer's decision context is the price discount in the bundle, which will likely result in a lower internal reference price (Grewal and Compeau 1992; Lichtenstein and Bearden 1989; Rajenderan and Tellis 1994).

Meanwhile, both adaptation and assimilation-contrast theories as well as prospect theory suggest that a consumer evaluates an offered purchase price by comparing it with the internal reference price (Monroe 1990, 2003; Thaler 1985). In other words, prices are evaluated comparatively. Given the decreased internal reference prices for the bundle items, a consumer

may perceive the regular prices of individual products as more expensive and less attractive when the bundle price discount is greater. Thus, we have following hypotheses:

H1a: The greater the bundle price discount, the more expensive consumers perceive the regular price of bundle component A.

H1a: The greater the bundle price discount, the more expensive consumers perceive the regular price of bundle component B.

Perceived Quality

Quality perceptions of bundle items can be predicted by attribution theory (Blattberg and Neslin 1990). Attribution theory deals with the way in which individuals infer causes to actions or observed events. Focus of attributions can pertain to the person, the stimulus or some specific circumstance. In applications to bundling, the relevant attributions may pertain to both the bundling tactic and the price discount in a bundle. Because many consumers believe there is a positive relationship between price and product quality (Rao and Monroe 1989), bundle items may be perceived as of inferior quality. The bundling itself may make the consumer attribute that bundle items are promoted by each other. This attribution will also lead to lower perceived quality of items in the bundle. Therefore, we have following hypotheses:

H2a: The greater the price discount of the bundle, the lower is perceived quality of component A.

H2b: The greater the price discount of the bundle, the lower is perceived quality of component B.

Effects of Bundling in a Mixed-Leader Bundle

Perceived Price

Similar to the line of reasoning in hypotheses 1a and 1b, the bundle price discount will influence a consumer's internal reference price. However, in a mixed-leader bundle, only product B is discounted, therefore, consumers will only change their reference prices for product B. There, we have following hypotheses:

H3a: The bundle price discount has no influence on consumer perceptions of the regular price of the undiscounted product A.

H3b: The greater the bundle price discount, the more expensive consumers perceive the regular price of the discounted product B to be.

Perceived Quality

Similar to the line of the reasoning of hypotheses 2a and 2b, the greater the price discount of product B, the lower is its perceived quality. Then we have following hypothesis

H4b: The greater the bundle price discount, the lower the perceived quality of the discounted product B.

However, since product A is not discounted in this situation, a consumer will not have inferior attributions pertaining to it. In contrary, a consumer may attribute the bundling offer as a promoting tactic for the merchant to sell a relative worse product (product B) with the help of product A. Thus, they may assume product A is good enough to increase the acceptance of product B. The greater the price discount assigned on product B, the higher will be a consumer's perceived quality of A. Thus, we have the following hypothesis:

H4a: The greater the bundle price discount, the higher the perceived quality of the undiscounted product A.

Common Hypotheses in Mixed-Joint and Mixed-Leader Bundles

Relationship between Perceived Price and Perceived Value

Perceived value is assessed based on what a consumer receives in an exchange versus what he/she gives up (Dodds, Monroe and Grewal 1991; Zeithmal 1988). Thus, an essential antecedent of perceived value is perceived price. Marketing literature (Dodds, Monore,and Grewal 1991; Grewal et al. 1998) supports the following hypotheses:

H5a: There is a negative relationship between the perceived price of product A and its perceived value.

H5b: There is a negative relationship between the perceived price of product B and its perceived value.

Relationship between Perceived Quality and Perceived Value

As a major antecedent of perceived value, higher perceived quality leads to higher perceptions of value (Dodds, Monroe and Grewal 1991; Grewal, Monroe and Krishnan 1998). Thus, we have the following hypotheses:

H6a: There is a positive relationship between perceived quality of product A and its perceived value.

H6b: There is a positive relationship between perceived quality of product B and its perceived value.

Relationship Between Perceived Value and Purchase Intention

One of the most important predictors of a purchase behavior is the purchase intention, which is positively influenced by perceived value (Dodds, Monroe and Grewal 1991; Grewal, Monroe, and Krishnan 1998). Thus, we have following hypotheses:

H7a: There is a positive relationship between perceived value and a consumer's purchase intention of product A.

H7b: There is a positive relationship between perceived value and a consumer's purchase intention of product B.

Moderating Effects of Complementarity in a Mixed-Leader Bundle

Kahneman and Tversky (1984) propose three mental accounts that may differentially frame outcomes: a minimal account, a topical account, or a comprehensive account. The selection of the mental accounts will be determined by some contextual factors (Bonini and Rumiati 2002). Several researchers have underlined how the strength of association among the elements of a problem is a potential factor affecting the use of a mental account (Joyce and Shapiro 1995; Kahneman and Tversky 1984). Bonini and Rumiati (1996) suggest that people shift from a topical to a comprehensive mental account when the discounted product is specifically linked to the other planned purchases. This shift of mental accounts is demonstrated to influence acceptance of a price discount (Bonini and Rumiati 2002).

When product complementarity is high in a mixed-leader bundle, the price discount assigned to one product (Product B, in this study) is more likely to be evaluated by being compared to the total regular price of the bundle. In other words, a comprehensive rather than a topical account is used in this situation. Part of the price discount of product B is mentally shifted to product A. The discount perception is less significant under this situation. Therefore, the effect of product B's price discount on the perception of its regular price will be mitigated. Thus, we have following hypotheses:

H8: For higher (lower) levels of complementarity of bundle components, the effect of the bundle price discount on a consumer's perception of the regular price of the discounted product (B) will be smaller (larger).

As postulated in Hypotheses 4a and 4b, higher bundle price discounts will lead to lower perceived quality for the discounted product, whereas higher discounts have a positive influence on perceived quality for the undiscounted product. However, with high levels of product complementarity, a consumer will be more likely to use a comprehensive mental account to evaluate the bundle offer. As a consequence, people would relate an offered price reduction to a regular total price rather than the regular price of the discounted product. This mentally shifts part of the price reduction to the undiscounted product. Then the positive effect of bundle price discount on perceived quality of the undiscounted product will be mitigated (if not reversed).

Because the bundle price discount is evaluated on a basis of total regular price of the two products in the bundle when product complementarity is high, a consumer will perceive less relative significance of price change on the discounted product. Then, the negative effect of bundle price discount on perceived quality of the discounted product will be weaker. Thus, we have following hypotheses:

H9a: For higher (lower) levels of complementarity of bundle components, the positive effect of bundle price discount on perceived quality of the undiscounted product A will be smaller (larger).

H9b: For higher (lower) levels of complementarity of bundle components, the negative effect of bundle price discount on perceived quality of the discounted product B will be smaller (larger).

In summary, the hypotheses presented in this chapter propose specific testable relationships among the constructs of interest. The next chapter will examine these relationships by experimental studies.

Chapter 4: Research Methods and Results of Studies 1 and 2

In the preceding chapter, a conceptual model is proposed and research hypotheses are advanced regarding the effects of bundling on evaluations of individual bundle items, and how these evaluations influence consumers' purchase intentions. This chapter is devoted to the methodology applied to test these research hypotheses. Specifically, it discusses the research design, experimental procedure, operationalization of constructs, and the results of data analysis for the empirical study.

Method of Study 1

Experimental Design

We employed two 2 (price discount: low/high) × 2 (product complementarity: low/high) between-subjects designs to test the hypotheses for the mixed-joint and mixed-leader bundles, respectively. The low price discount was operationalized as 10% off the total bundle price, while the high price discount was 30%. In the mixed-joint bundle, only a single discounted bundle price was given to the respondents. In the mixed-leader bundle, product B was discounted, while product A was undiscounted. While, theoretically, we did not formulate the influence of complementarity in a mixed-joint bundle, complementarity was manipulated as a control in order to test any possible moderating effects in the mixed-joint setting. Complementarity of bundle components was manipulated through different combinations of products. In the mixed-joint bundle, the high-complementarity bundle consisted of a TV and a DVD/VCR combo; whereas the low-complementarity bundle consisted of a cordless phone and a blender. In the mixed-leader case, a clothes washer and dryer comprised the high-complementarity bundle, whereas a grill and a task chair comprised the low-complementarity bundle.

Pretest

Before running the major study, one pretest was conducted to refine the measures of complementarity. There are no previous measurements of complementarity available in the literature. We developed three 7-point Likert scales to measure complementarity: 1) A and B are highly complementary; 2) A and B are very likely to be used together; 3) A and B are functionally related. A reliability analysis of scales demonstrates acceptable reliability after item 3 was dropped. Therefore, in the final study, we replace item 3 with statement of "A and B are semantically related."

Procedure

A total of 183 undergraduate students from a state university participated in exchange for course extra credit. The sample was equally distributed between female (51.9%) and male (48.1%), with the vast majority (98.3%) of the respondents being age 19 to 24. During the session, participants were randomly assigned to one of the four experimental conditions. Subjects were first presented with a mixed-joint bundle, and then told that they did not want to buy the bundle as a set. They only needed one product, since they already owned the other one. Subjects then responded to questions regarding perceptions of price, perceived quality, perceived value, and purchase intentions of the individual bundle items. if sold separately. After a 10-minute distraction task, subjects were presented with a mixed-leader bundle, following the same procedure. Different products were used to avoid carry-over effects. At the end of the study, demographics were obtained.

Measures

The reliabilities of measures are shown in Table 4-1.

Complementarity. The measure of complementarity of bundle components was refined in the pretest. It demonstrated acceptable reliability as shown in Table 4-1.

Perceived price. The measure of perceived price was adopted from previous studies (Janiszewski and Lichtenstein 1999; Zeithaml 1988). It is measured through three 7-point semantic differential scales assessing the degree to which subjects perceived the price as cheap/expensive, unattractive/attractive, and unfair/fair. After the first item was dropped, we obtained acceptable reliability. The last two items were reverse coded.

Table 4-1

Reliabilities of Measures (Cronbach's α)

Construct	Number of Items	Bundle	
		Mixed-Joint	Mixed-Leader
Perceived price of A	2	.81	.77
Perceived quality of A	3	.88	.96
Perceived value of A	4	.94	.94
Purchase Intention of A	3	.95	.98
Perceived price of B	2	.87	.83
Perceived quality of B	3	.92	.91
Perceived value of B	4	.94	.95
Purchase Intention of B	3	.97	.97
Complementarity of Bundle components	3	.95	.98

Perceived quality. The measure of perceived quality was assessed through three semantic differential scales adapted from previous studies: unreliable/reliable (Grewal et al. 1998); of low quality/high quality (Boulding and Kirmani 1993) and inferior/superior (Keller and Aaker 1992).
Perceived value. The measure of perceived value was adapted from previous studies (Dodds, Monroe, and Grewal 1991; Grewal, Monroe, and Krishnan 1998). Participants indicated their agreement/disagreement on four 7-point Likert scale: "buying this (product name) is a very good value for the money," "buying this (product name) is a good buy," "buying this (product name)

at (the regular price of the product) is getting my money's worth," and "buying the (product name) meets high quality and low price requirements".

Purchase intention. The final focal dependent variable is purchase intention, which will influence the product choice. It was measured through three semantic differential scales adapted from previous literature (Grewal et al. 1998; and Greway, Monroe and Krishnan 1998): "I would be very unlikely/very likely to buy (the product)," "The probability of buying this (product) is very low/high," and "My willingness to buy (the product) is very low/high."

Tables 4-2a/b show means, standard deviations, and correlations for all measures in the model. The correlations in Table 4-2a and 4-2b provide an initial tests of the hypotheses except the effect of bundle price discounts. Precise tests of hypotheses are reported as follows.

Table 4-2a

Correlations Matrix for the Mixed-Joint Bundle

Measures	Mean	S.D.	1	2	3	4	5	6	7	8
1. Perceived price of A	3.78	1.37								
2. Perceived quality of A	4.83	1.12	-.10							
3. Perceived value of A	3.80	1.45	-.59**	.16*						
4. Purchase intention of A	3.60	1.58	-.49**	.21**	.75**					
5. Perceived price of B	4.00	1.44								
6. Perceived quality of B	4.66	1.19					-.12			
7. Perceived value of B	3.67	1.48					-.64**	.16*		
8. Purchase intention of B	3.31	1.67					-.49**	.21**	.78**	

Note: **p < .01; *p < .05

Table 4-2b

Correlations Matrix for the Mixed-Leader Bundle

Measures	Mean	S.D.	1	2	3	4	5	6	7	8
1. Perceived price of A	3.40	1.27								
2. Perceived quality of A	4.74	1.37	-.04							
3. Perceived value of A	4.20	1.31	-.42**	.23**						
4. Purchase intention of A	3.90	1.62	-.32**	.18**	.72**					
5. Perceived price of B	4.03	1.25								
6. Perceived quality of B	4.45	1.20					-.25**			
7. Perceived value of B	3.67	1.26					-.59**	.25**		
8. Purchase intention of B	3.36	1.55					-.46**	.25**	.76**	

Note: **p < .01; *p < .05

Analyses and Results of Study 1

Manipulation Check

Consistent with the manipulation, subjects varied in their assessments of bundle component complementarity. Respondents in high complementarity condition had higher assessments of complementarity than those in low complementarity condition (in the mixed-joint bundle, $M_{low\text{-}complementarity} = 1.76$, $M_{high\text{-}complementarity} = 5.59$, $t = 22.03$, $p < .001$; in the mixed-leader bundle, $M_{low\text{-}complementarity} = 2.13$, $M_{high\text{-}complementarity} = 6.14$, $t = 17.88$, $p < .001$). A manipulation check for bundle price discount was not conducted because this was an objective condition of the study.

Effects of Bundle Price Discount in the Mixed-Joint Bundle

H1a and H1b. Hypotheses 1a and 1b suggest that bundle price discounts will make consumers perceive the regular prices of bundle components as more expensive. Results of the MANOVA on perceptions of the regular prices of bundle components indicated a significant effect of the bundle price discount (Wilk's Lambda = .96, $F = 3.75$, $p < .05$). As hypothesized, greater bundle price discount led subjects to perceive the regular prices of bundle components as more expensive (for product A, 3.53 vs. 4.06, $P < .01$; for product B, 3.86 vs. 4.16, $P = .16$). These results marginally supported Hypotheses 1a and 1b. Perceived prices of both bundle components are reported in Table 4-3.

Table 4-3

Cell Means of Perceived Price and Quality in the Mixed-Joint Bundle

Price Discount	Perceived Price		Perceived Quality	
	Product A	Product B	Product A	Product B
Low	3.53	3.86	4.80	4.62
High	4.06	4.16	4.86	4.71
Mean Comparison p Value	p = .008	p = .16	p = .75	p = .62

H2a and H2b. In Hypotheses 2a and 2b, it was posited that bundle price discounts would have negative effects on perceived quality of the individual products in a mixed-joint bundle. However, results of the MANOVA did not indicate significant effects of the bundle price discount on quality perceptions of individual products in the mixed-joint bundle (Wilk's Lambda = .998, F = .14, p = .87, η_p^2 = .002), neither did the results of pairwise mean comparison in Table 4-3.

This unexpected finding may be accounted for by a consumer's attribution process. In a mixed-joint bundle, only a single price is set for the bundle. Then, the bundling practice will be more likely being interpreted as a tactic to solely increase sales of both products. Simultaneously, the bundle price discount is interpreted as a way to provide "fairness" to consumers. In the marketplace, "the rules that govern public perceptions of fairness should identify situations in which some firms will fail to exploit apparent opportunities to increase their profits (Kahneman, Knetsch and Thaler 1986, p. 729)." Although the economic analyses based consumer reservation price distribution (Adams and Yellen 1976) prove that a merchant can exploit consumer surplus by offering a bundle without a price discount, the rule of "fairness" constraints a firm's profit seeking behavior. A firm is not allowed to increase its profits by arbitrarily violating the "entitlement" of its transactors. Consumers are aware of the basic market principle: the more a merchant sells, the more profits it gets. It is perceived unfair for the merchant to exploit all extra profits from a sales increase. A price bundle without a price discount violates the "rule of fairness" of transactions, especially when the bundle components are also sold separately in the market. In a mixed-joint bundle, consumers are more likely to perceive the price discount as a way to keep the fairness in the transaction, rather than a way to promote something of low quality. Mentally, consumers are less likely to allocate the joint price discount to any specific

product in the bundle. In the attribution process, they are more likely to generate positive attributions pertaining to the merchant, such as "the merchant is trying to provide us with a good deal," "the merchant is trying to increasing sales," or "to attract more customers." Therefore, consumers are less likely to attribute the bundle price discount to negative product merits. This line of reasoning may explain why we failed to observe the hypothesized negative effects of bundle price discount on quality perceptions of individual bundle components in the mixed-joint bundle.

Effects of Bundle Price Discount in the Mixed-Leader Bundle

Table 4-4 reports the results of 2 × 2 ANOVAs on the three dependent measures in the mixed-leader bundle (see Table 4-5 for cell means). Two aspects of these results are noteworthy. First, because we have different hypotheses regarding our dependent measures, we test hypotheses about all dependent measures separately instead of using a MANOVA. Second, because we did not propose a moderating effect of complementarity on the influence of bundle price discount on perceived price of the undiscounted product, we only compared means to test H3a, without running an ANOVA on perceived price of the undiscounted product.

Table 4-4

ANOVA Results in the Mixed-Leader Bundle

Source	Perceived Price of Product B		Perceived Quality of Product A		Perceived Quality of Product B	
	F- Value	p. value	F-Value	p. value	F- Value	p. value
Price Discount	10.67	.001	12.14	.000	17.85	.000
Complementarity	3.28	.072	17.80	.000	29.51	.000
Discount × Complementarity	.76	.386	9.22	.003	20.99	.000
Overall Model	4.71	.003	7.53	.007	6.09	.015

H3a. In Hypothesis 3a, we predict that bundle price discounts have no influence on consumer perceptions of the regular price of the undiscounted product. Consistent with this

hypothesis, we found no significant effect of price discount on the price perception of product A (F = .50, p = .48,).

H3b. As predicted, a significant main effect of bundle price discount on perceived price of the discounted product B was observed (F = 10.67, p = .001, η_p^2 = .057), with regular price of the discounted product B being perceived more expensive when the bundle price discount was high ($M_{high\ price\ discount}$ = 4.34) than when t it was low ($M_{low\ price\ discount}$ = 3.76). Hypothesis 3b was supported.

H4a and H4b. In Hypotheses 4a and 4b, it is posited that the bundle price discount harms quality perceptions of the discounted product whereas improves that of the undiscounted product. Significant main effects of bundle price discount on these two dependent measures were observed (for the undiscounted product A, F = 12.14, p < .001, η_p^2= .090; for the discounted product B, F = 17.85, p < .001, η_p^2 = .142). The pairwise comparisons also indicated that subjects had higher perceived quality of the undiscounted product A when the bundle price discount was high ($M_{high\ price\ discount}$ = 5.16) than when it was low ($M_{low\ price\ discount}$ = 4.36), while perceived quality of the discounted product B demonstrated an opposite pattern ($M_{high\ price\ discount}$ = 4.01 vs. $M_{low\ price\ discount}$ = 4.84). Collectively, these results well supported Hypotheses 4a and 4b.

Table 4-5

Cell Means of Perceived Price and Quality in the Mixed-Leader Bundle

Price Discount	Perceived Price		Perceived Quality	
	Product A	Product B	Product A	Product B
Low	3.46	3.76	4.36	4.84
High	3.33	4.34	5.16	4.01

Common Hypotheses in Mixed-Joint and Mixed-Leader Bundles

Hypotheses 5a, 5b, 6a and 6b represent the basic price-value model (Dodds, Monroe, and Grewal 1991; Grewal, Krishnan, Baker and Borin 1998; Teas and Agarwal 2000; Zeithmal

1988). We tested the effects of perceived price and perceived quality on perceived value by running regression analyses on perceived value in the mixed-joint and mixed leader bundles, separately. Results of the regression analyses were reported in Table 4-6a and Table 4-6b. As indicated in Table 4-6a and Table 4-6b, overall, the price-value model was supported. Perceived price of bundle components consistently had significant negative impacts on perceived value of bundle components. Perceived quality of bundle components had positive effects on perceived value as suggested by our hypotheses, with the effects being non-significant in the mixed-joint bundle and significant or marginally significant in the mixed-leader bundle. The non-significant effect in the mixed-joint bundle might be due to the fact that the bundle price discount had no significant impacts on perceived quality in the mixed-joint bundle. Hypotheses 5a and 5b were well supported but Hypotheses 6a and 6b were not completely supported.

Table 4-6a

Results of Regression on Perceived Value in the Mixed-Joint Bundle

Source	Product A		Product B	
	Coefficient	Sig.	Coefficient	Sig.
Perceived Price	-.62	< .001	-.65	< .001
Perceived Quality	.13	.105	.11	.135
	R^2 = .36		R^2 = .42	

Table 4-6b

Results of Regression on Perceived Value in the Mixed-Leader Bundle

Source	Product A		Product B	
	Coefficient	Sig.	Coefficient	Sig.
Perceived Price	-.43	<.001	-.57	<.001
Perceived Quality	.21	.001	.12	.076
	R^2 = .23		R^2 = .36	

Hypotheses 7a and 7b predict a positive association between perceived value and purchase intention. Correlations between perceived value and purchase intention of product A

were r =.75, p<.01 in the mixed-joint bundle; r = .72, p < .01 in the mixed-leader bundle. Correlations between perceived value and purchase intention of product B were r = .78, p < .01 in the mixed-joint bundle; r = .76, p < .01 in the mixed-leader bundle. Hypotheses 7a and 7b were well supported.

Moderating Effects of Complementarity in the Mixed-Leader Bundle

H8. Hypothesis 8 predicts that for higher levels of product complementarity of bundle components, the effect of price discount on perceived price of discounted product B will be smaller. Although the interaction between the bundle price discount and complementarity was not significant (F = .76, p = .386, η_p^2 = .004, as shown in Table 4-4), the follow-up contrasts testing the impact of bundle price discount on perceptions of the regular price of the discounted product under low and high levels of complementarity provided consistent support for Hypothesis 8 (this interaction is shown in Figure 4-1). A significant impact of bundle price discount was observed under low level of complementarity, with subjects perceiving the regular price of the discounted product more expensive in the high price discount condition than in the low price discount condition ($M_{\text{high price discount}}$ = 4.59, $M_{\text{low price discount}}$ = 3.84, p = .002). However, this mean comparison was not significant under high levels of complementarity ($M_{\text{high price discount}}$ = 4.10, $M_{\text{low price discount}}$ = 3.67, p = .114). Similarly, effect size estimates indicated stronger effects of bundle price discount on perceived price of the discounted product B for low levels of complementarity (η_p^2 = .100) than for high levels of complementarity (η_p^2 = .028). The pattern of impacts of bundle price discount under low and high levels of complementarity was consistent with Hypothesis 8.

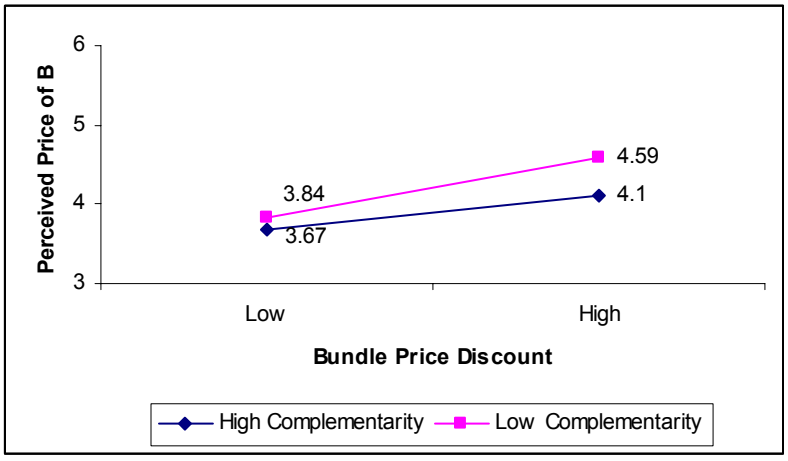
Table 4-7

Cell Means of Dependent Measures in the Mixed-Leader Bundle

Price Discount	Perceived Price of Product B		Perceived Quality of Product A		Perceived Quality of Product B	
	Complementarity		Complementarity		Complementarity	
	High	Low	High	Low	High	Low
Low	3.67	3.84	4.91	3.84	5.01	4.68
High	4.10	4.59	5.19	5.13	4.55	3.43

Figure 4-1

Moderating Effect of Complementarity on Perceived Price of Product B

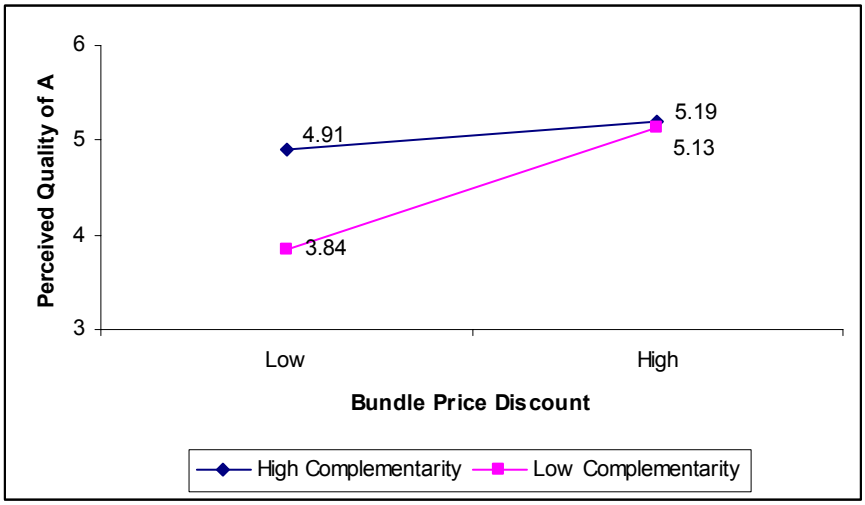


H9a. In Hypothesis 9a, it is posited that bundle price discounts will have greater influence on perceived quality of the undiscounted product under low levels of complementarity than under high levels of complementarity (i.e., an interaction between the bundle price discount and complementarity of bundle components was expected; refer to Figure 4-2). The result of the ANOVA on perceived quality of product A yielded a significant interaction effect ($F = 9.22$, $p = .003$, $\eta_p^2 = .040$). The results of simple main effect tests examining the influences of bundle price discount under low and high levels of bundle component complementarity indicated that this interaction was of the form specified in Hypothesis 9a. Under low levels of bundle component complementarity, the bundle price discount had a significant effect on perceived quality of the

undiscounted product A ($M_{\text{high price discount}} = 5.13$, $M_{\text{low price discount}} = 3.84$, $p < .001$); however, this comparison was not significant under high levels of complementarity of bundle components ($M_{\text{high price discount}} = 5.19$, $M_{\text{low price discount}} = 4.91$, $p = .232$). Similarly, effect size estimates indicated stronger effects of bundle price discount on perceived quality of the undiscounted product A for low levels of complementarity ($\eta_p^2 = .178$) than for high levels of complementarity ($\eta_p^2 = .016$). Hypothesis 9a was supported.

Figure 4-2

Moderating Effect of Complementarity on Perceived Quality of A

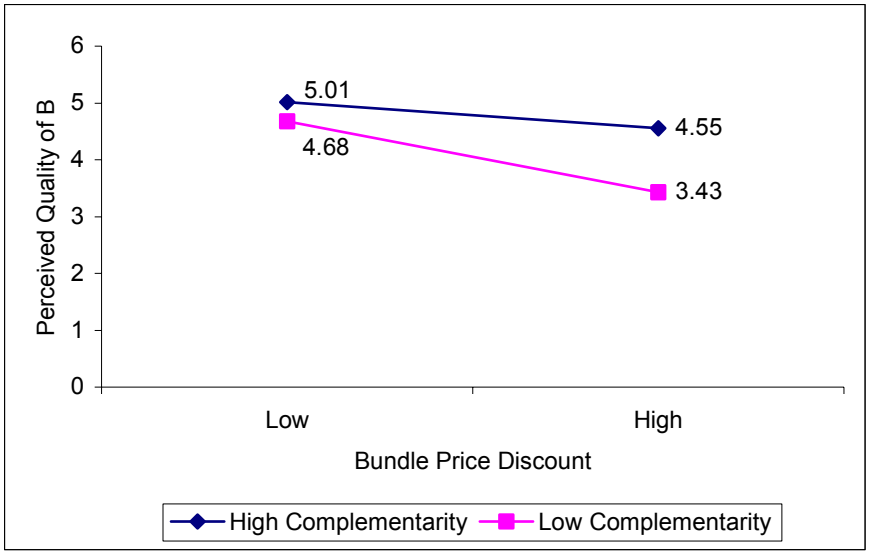


H9b. Hypothesis 9b predicts that bundle price discounts have larger negative effects on perceived quality of the discounted product under low levels of complementarity than under high levels of complementarity. As shown in Table 4-4, the bundle price discount × complementarity interaction was significant ($F = 20.99$, $p < .001$, $\eta_p^2 = .033$; observed values are shown graphically in Figure 4-3). Under high levels of complementarity, bundle price discounts had a marginally significant effect on perceived quality of the discounted product ($M_{\text{low price discount}} = 5.01$, $M_{\text{high price discount}} = 4.55$, $p = .06$). However, an even stronger effect of bundle price discount was found under low levels of complementarity of bundle components ($M_{\text{low price discount}} = 4.68$,

$M_{\text{high price discount}} = 3.43$, $p < .001$). Similarly, effect size estimates indicated stronger effects of bundle price discount on perceived quality of product B for low levels of complementarity ($\eta_p^2 = .307$) than for high levels of complementarity ($\eta_p^2 = .039$). Hypothesis 9b was supported.

Figure 4-3

Moderating Effects of Complementarity on Perceived Quality of B



Ancillary Analysis

In the mixed-joint bundle, we manipulated bundle component complementarity too, although we do not propose any moderating effect as we do in the mixed-leader bundle. Here, a MANOVA on the focal dependent measures, perceived prices of the two bundle components, was run to examine potential moderating effects of complementarity of bundle components. The results demonstrated that there was no bundle price discount × complementarity type interaction in the mixed-joint bundle (Wilk's Lambda = .978, p = .136).

Summary of Results of Study 1

The purpose of study 1 is to test the effects of bundle price discount on evaluations of individual bundle components. Table 4-8 summarizes the basic results of study 1.

Consistent with our hypotheses, the influences of bundle price discount on evaluations of individual bundle components varied across mixed-joint and mixed-leader bundles. In a mixed-joint bundle, as postulated by Hypotheses 1a and 1b, higher bundle price discounts made consumers perceive the regular prices of individual bundle components more expensive. We hypothesized that perceived quality of bundle components would also be decreased by a bundle price discount. However, our empirical results did not support these two hypotheses (H2a and H2b). This demonstrates that in the mixed-joint bundle, bundle price discount did not influence quality perceptions of individual bundle components.

Table 4-8

Summary of Results of Study 1

Hypotheses	**Paths or Moderating Effects**	**Support?**
Mixed-joint bundling		
H1a	Bundle price discount → perceived price of A	YES
H1b	Bundle Price discount → perceived price of B	YES
H2a	Bundle Price discount → perceived quality of A	NO
H2b	Bundle Price discount → perceived quality of B	NO
Mixed-leader bundling		
H3a	Bundle price discount → perceived price of A	YES
H3b	Bundle Price discount → perceived price of B	YES
H4a	Bundle Price discount → perceived quality of A	YES
H4b	Bundle Price discount → perceived quality of B	YES
Hypotheses for both mixed-joint and mixed-leader bundling		
H5a	Perceived price of A → perceived value of A	YES
H5b	Perceived price of B → perceived value of B	MIXED
H6a	Perceived quality of A → perceived value of A	YES
H6b	Perceived quality of B → perceived value of B	MIXED
H7a	Perceived value of A → purchase intention of A	YES
H7b	Perceived value of B → purchase intention of B	YES
Moderating effects of complementarity		
H8	On path in H3b	Marginally
H9a	On path in H4a	YES
H9b	On path in H4b	YES

The influence of bundle price discounts on evaluations of individual bundle components was significantly different in the mixed-leader bundle than that in the mixed-joint bundle. As postulated by hypothesis H3a, the bundle pricing had no influence on perceived price of the undiscounted product A in the bundle. The bundle price discount enhanced consumer evaluations of quality of product A, when the complementarity of bundle components was at a low level. The effects of bundle price discount on product B were consistent with Hypotheses 4a and 4b. Generally speaking, bundle price discounts harmed the discounted product in the bundle. However, the effects of bundle price discount on evaluations of bundle components were moderated by complementarity of bundle components. For bundles with higher (lower) levels of complementarity, the negative influence of bundle price discount on perceived quality of product B was lower (higher).

Our basic conclusions are as follows. First, in both bundle forms, mixed-joint and mixed-leader, perceived prices of individual bundle items will be higher under higher levels of bundle price discount, and in turn, higher perceived prices inhibit consumer purchase intentions of bundle components. Second, in mixed-joint bundles, perceived quality of the individual bundle components is not influenced by bundle price discount. However, in a mixed-leader bundle, perceived quality of the undiscounted bundle component increases, whereas perceived quality of the discounted bundle component is harmed, as the bundle price discount increases. Third, in a mixed-leader bundle, complementarity of bundle components moderates the effects of bundle price discount on the evaluations of individual bundle components.

However, there are still two caveats in Study 1. First, we observed different patterns of influences of bundle price discount on evaluations of individual bundle components across mixed-leader and mixed-joint bundles. However, we did not directly compare the influence of

bundle forms via a manipulation in the experiment. In addition, we used different product stimuli across the two bundling forms to avoid any potential carry-over effect in study 1. This may cause a confounding effect of different products on our findings.

Secondly, we applied mental accounting theory to understand the moderating effect of complementarity of bundle components in the mixed-leader bundle. However, we did not directly observe an individual's selection of mental accounts, neither did we articulate the process in which individuals employed different mental accounts to evaluate bundle price discounts under different levels of complementarity of bundle components. This lack of articulation of how mental accounts influence consumers' cognitive operations in the bundle evaluation process represents a logic leap. These two caveats will be addressed in Study 1b and Study 2, respectively.

Study 1b: Test of the Effect of Bundling Forms

Method

The major objective of study 1b is to examine how the influences of bundle price discount vary across the bundle forms via an experimental manipulation of bundle forms. It employed a 2 (bundle price discount: low/high) × 2 (bundling form: mixed-leader/mixed-joint) between-subjects factorial design. The stimuli were a gas grill and a task chair. The low price discount was set as 10% of the total regular price of the two bundle components, whereas the high price discount was set as 30% of that. In the mixed-leader bundle, the task chair was listed at a discounted price, while in the mixed-joint bundle only a single price was set for the bundle. For details of the stimuli, please see Appendix 2.

184 undergraduate students in a state university attended the study as a requirement of a marketing introduction class. Each subject was assigned randomly to one of four conditions.

Subjects were presented with a bundling offer. Subsequently, measures of evaluations of individual bundle components, including price and quality perceptions, were obtained.

Results

We used the same measures of price and quality perceptions as we did in study 1. The measures demonstrated acceptable reliabilities. For product A, Cronbach's α of perceived price was .85 and Cronbach's α of perceived quality was .84. For the discounted product B, Cronbach's α of perceived price was .82 and Cronbach's α of perceived quality was .82.

The effects of bundle price discount on price and quality perceptions of individual bundle components are reported in Table 4-9 (as depicted graphically in Figure 4-4). For perceived price of product A, the effect of bundle price discount was significant in the mixed-joint bundle ($p = .003$), but non-significant in the mixed-leader bundle; for perceived price of product B, it was significant in both the mixed-joint bundle ($p < .001$) and the mixed leader bundle ($p < .001$). For perceived quality of product A, the effect of bundle price discount was not significant in the mixed-joint bundle ($p = .292$), but marginally significant in the mixed-leader bundle ($p = .073$); for perceived quality of product B, it was not significant in the mixed-joint bundle ($p = .358$), but significant in the mixed-leader bundle ($p = .039$). Collectively, these results were consistent with findings in Study 1.

Table 4-9

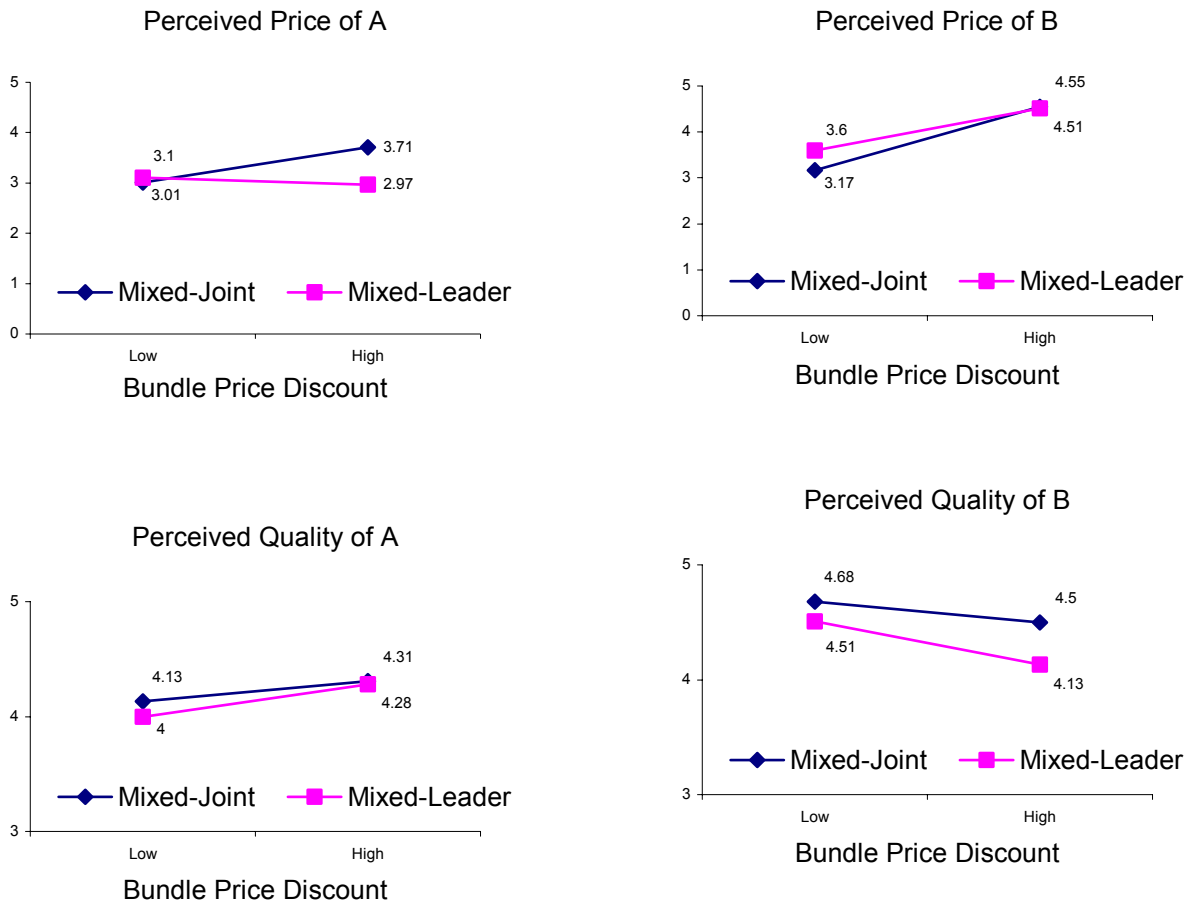
Cell Means of Dependent Measures in Study 1b

Measures	Mixed-Joint Bundle			Mixed-Leader Bundle		
	Price Discount		p value of t test	Price Discount		p value of t test
	Low	High		Low	High	
Perceived Price of A	3.01	3.71	.003	3.10	2.97	.577
Perceived Price of B	3.17	4.55	.000	3.60	4.51	.000
Perceived Quality of A	4.13	4.31	.292	4.00	4.28	.073
Perceived Quality of B	4.68	4.50	.358	4.51	4.13	.039

Next, in Study 2, we will examine how bundle product complementarity influences consumer selections of mental accounts during the process of bundle evaluation.

Figure 4-4

Effects of Bundle Price Discount Across Bundle Forms



Study 2: Toward Understanding of the Role of Mental Accounting

We applied mental accounting theory to understand the moderating effect of complementarity of bundle components in the mixed-leader bundle. Generally speaking, high complementarity of bundle components mentally shifts an individual's evaluation of a mixed-leader bundle to a mixed-joint bundle. However, we did not directly observe an individual's selection of mental accounts, neither did we articulate the process individuals using different

mental accounts to evaluate a bundle price discount. In order to bridge this logical gap we conducted a supplementary study to examine how bundle component complementarity changes consumer evaluations of the bundle price discount.

Thaler (1985) distinguishes between acquisition utility and transaction utility (value). Acquisition utility represents the perceived economic gain or loss associated with a purchase and is a function of product utility and purchase price. Transaction utility concerns perceived pleasure or displeasure associated with the financial aspect of a purchase, and is determined by comparing a selling price to internal reference prices (Thaler 1985, Monroe and Chapman 1987; Grewal, Monroe, and Krishnan 1998). Grewal, Monroe, and Krishnan (1998, p. 48) further define transaction value as "the perception of psychological satisfaction or pleasure obtained from taking advantage of he financial terms of the price deal." We also adapt this conceptualization to reflect a consumer's perception of the financial term of an offer, and propose the following hypothesis.

H10: The greater the bundle price discount, the higher is the transaction value of the bundle.

Kahneman and Tversky (1984) propose three mental accounts that may differentially frame outcomes: a minimal account, a topical account, or a comprehensive account. The selection of mental accounts will alter the decision makers' choices.

In the bundling context, complementarity of bundle components reflects functional relatedness and dependence between bundle components. When product complementarity is high in a mixed-leader bundle, the price discount assigned to one product (Product B, in this study) is more likely to be evaluated by being compared to the total regular price of the bundle. In other words, a comprehensive rather than a topical account is used in this situation.

Examine the following mixed-leader bundles:

Scenario 1: Low bundle price discount

Regular Price	Bundle
A: $100 B: $100	Buy A at $100 and B at $80 as a set

Scenario 2: High bundle price discount

Regular Price	Bundle
A: $100 B: $100	Buy A at $100 and B at $40 as a set

As predicted by hypothesis 9, consumers will have higher transaction value in Scenario 2 than in Scenario 1. However, the difference of transaction value between Scenario 1 and Scenario 2 varies across different levels of complementarity.

As suggest by Thailer (1985, p 201), "people appear to respond more to perceived changes than to absolute values." In other words, individuals evaluate gains or losses relative to some natural reference points. In current context, bundle price discounts are evaluated relative to the original price. If a consumer uses a topical mental account, the price discount would be compared to only the original price of product B, $100. Then, in Scenario 1, there is a 20% price reduction, whereas in Scenario 2, this reduction is 60%. The difference of price reduction rates between Scenario 2 and Scenario 1 is 40%.

However, if a consumer uses a comprehensive mental account to evaluate the price information the bundle, the price discount would be compared to the sum of the original prices of A and B, i.e., $200. Then, in Scenario 1, there is a 10% price reduction; whereas in Scenario 2, it is a 30% price reduction. The difference of price reduction rates between Scenario 2 and Scenario1 is 20%.

The arithmetic above implies that the effects of bundle price discount at low levels of bundle component complementarity on consumers' perceived transaction value are more significant than that at high levels of bundle component complementarity. Thus, we have the following hypothesis.

H11: In a mixed-leader bundle, complementarity of bundle components moderates the effect of bundle price discount on perceived transaction value of the bundle offer. Bundle price discounts have weaker effects on perceived transaction value of the bundle under high levels of bundle component complementarity than under low levels of bundle component complementarity.

Method

Study 2 employed a 2 (bundle price discount: low/high) × 2 (bundle component complementarity: low/high) between-subjects factorial design. The same stimuli were used as in the mixed-leader bundle in study 1, as well as the format of presentation of bundle offers. The complementary bundle consisted of a cloth washer and a cloth dryer, whereas the non-complementary bundle was a gas grill and a task chair. Price information was identical to that in study 1. However, in study2, we only focused on the measures of transaction value of the bundle, which reflects the pattern of cognitive operations used by an individual to evaluate financial information (bundle price discount).

151 undergraduate students in a state university attended the study as a requirement of a marketing introduction class. Each subject was assigned randomly to one of four conditions. Subjects were presented with a bundling offer. Subsequently, measures of transaction value of the bundle as well as the manipulation check of complementarity were obtained.

Results

Measures. Some items of the measure of transaction value were adapted from previous studies (Yadav and Monroe 1993), some were developed in this study. Participants indicated their agreement/disagreement on five 7-point Likert scales: "If I bought the bundle, the deal I would be getting is very good," "I would be satisfied if I bought the bundle at the reduced price," "taking advantage of this bundle deal will give me a sense of joy," "it is worth buying A and B as a set," and "Buying A and B as a set is very economical." This measure was reliable (Cronbach's $\alpha = .95$).

Manipulation check. Consistent with the manipulation, subjects varied in their assessment of bundle component complementarity. Respondents in the high complementarity condition had higher assessment of complementarity than those in low complementarity condition ($M_{low\text{-}complementarity} = 2.30$, $M_{high\text{-}complementarity} = 6.71$, $t = 25.06$, $p < .001$).

Table 4-10

Effects of Price Discount and Complementarity on Transaction Value

Source	df	Mean Square	F-value	p-value
Model	3	37.20	24.97	.000
Error	147	1.49		
Price Discount	1	48.21	32.37	.000
Complementarity	1	57.15	38.37	.000
Discount × Complementarity	1	6.24	4.19	.042

R Squared = .34 (Adjusted R Squared = .32)

Main effect of bundle price discount on transaction value. As predicted by Hypothesis 10, the effect of bundle price discount on perceived transaction value was significant ($F = 32.37$, $p < .001$, $\eta_p^2 = .178$, as shown in Table 4-10). Respondents exposed to the high bundle price discount had higher transaction value than those exposed to the low price discount ($M_{low\text{-}price\ discount} = 4.80$, $M_{high\text{-}price\ discount} = 5.93$, $t = 5.05$, $p < .001$). Hypothesis 10 was supported.

Main effect of complementarity of bundle components on perceived transaction value. Although the conceptual analysis did not provide predictions about the main effect of complementarity, it is still noteworthy. Two products in a complementary bundle are very likely to be used together, because they are functionally related to each other. It is quite nature to consider purchasing both products in a bundle together. However, a noncomplementary bundle may make consumers feel they are enticed to buy products unrelated to each other at the same time. Thus, consumers will have more pleasant feeling about it. Therefore, it was not surprising to observe a significant main effect of complementarity on transaction value of the bundle ($F = 38.37$, $p < .001$, $\eta_p^2 = .204$).

Table 4-11

Means of Perceived Transaction Value

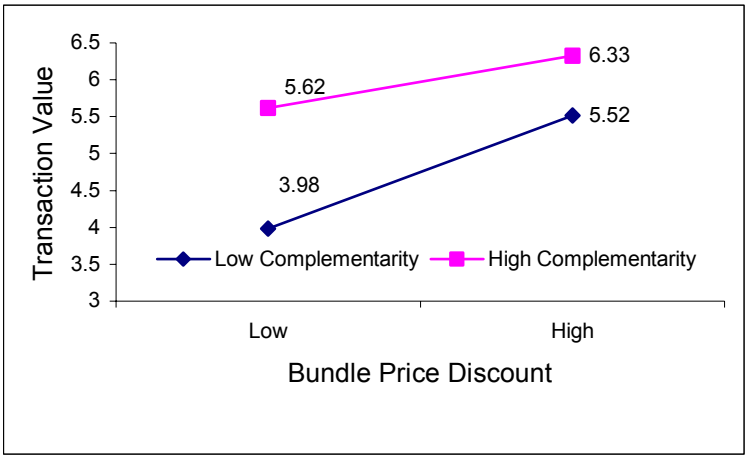
Bundle Price Discount	Complementarity		Marginal
	Low	High	
Low	3.98	5.62	4.80
High	5.52	6.33	5.93
Marginal	4.75	5.98	

Moderating effect of bundle component complementarity. As predicted by Hypothesis 11, the interaction between the price discount and bundle component complementarity was significant ($F = 4.19$, $p = .042$, $\eta_p^2 = .028$, as shown in Table 4-10). To better understand the nature of this interaction effect (as depicted graphically in Figure 4-5), we conducted simple main effect tests examining the impact of bundle price discount for low and high complementarity conditions. Under high levels of bundle component complementarity, the bundle price discount had a significant effect on transaction value of the bundle ($M_{\text{low price discount}} = 5.62$, $M_{\text{high price discount}} = 6.33$, $t = 3.57$, $p < .001$). However, an even stronger effect of bundle price discount was found under low levels of complementarity of bundle components ($M_{\text{low price}}$

$_{\text{discount}}$ = 3.98, M $_{\text{high price discount}}$ = 5.52, t = 4.46, p < .001). Similarly, effect size estimates indicated stronger effects of bundle price discount on transaction value of the bundle for low levels of complementarity (η_p^2 = .212) than for high levels of complementarity (η_p^2 = .149). Collectively, these results empirically supported Hypothesis 11.

Figure 4-5

Moderating Effect of Bundle Component Complementarity



Perceived price reduction. The findings discussed above have convincingly demonstrated how bundle component complementarity influences an individual's selection of mental accounts, thus influence the evaluation of financial information. As defined, transaction value is the perception of psychological satisfaction or pleasure obtained from taking advantage of the financial terms of the price deal in the bundle. However, psychological satisfaction is based on the deal, i.e., the bundle. It is still an indirect examination of the role of mental accounting. A direct judgment of the price reduction would articulate the cognitive process, in which consumers use mental accounts to evaluate monetary information. In Study 2, after subjects answered questions about transaction value and complementarity, we measured "perceived price reduction" at the end. In order to avoid any leading effect that might influence a subject's selection of the mental accounts (i.e., the selection of either total price of the two bundle

components or the price of the discounted product as the base for price comparison), subjects were phrased to "Imagine you are considering buying (product A) and (product B) as a set," and "consider both the original price information and the price reduction." Here, "original price information" might be either the sum of the regular prices of the two bundle components or the regular price of the discounted product, depending on a subject's selection of the mental accounts. Subjects indicated their agreement/disagreement on three 7-point Likert scales: "this $xx (objective price discount offered in the bundle) price reduction is a big saving/substantive/very attractive." The measure had an acceptable reliability (Cronbach's α = .93).

To better ensure the validity of the measures, factor analyses were run with the measure of transaction value. First, the exploratory factor analysis with varimax rotation produced two distinct factors, with the five items of transaction value being loaded with the first factor, and the three items designed to measure perceived price reduction being loaded with the second factor (variance explained = 86.17%). Second, a confirmatory factor analysis using LISREL 8.51 showed that the two distinctive factor model fit the data acceptably (χ^2 = 123.13, df = 19, p = 0.00; CFI = 0.94, NFI = 0.93, NNFI = .91). All factor loadings were statistically significant ($p < 0.01$) and the cross-construct correlation was significantly ($p < 0.01$) less than |1.0|, signifying the discriminant validity of the construct measures. Overall, these results show that the measures in this study possessed adequate reliability and construct validity.

Although we did not propose predictions about the effect of bundle price discount on the perceived price reduction, we anticipated this effect is similar to the effect of bundle price discount on transaction value, as proposed in Hypotheses 10 and 11. The results of the ANOVA on perceived price reduction were shown in Table 4-12.

A significant main effect of price discount on perceived price reduction was observed ($F = 59.13$, $p < .001$, $\eta_p^2 = .287$). Respondents exposed to the high bundle price discount had higher perceived price reduction than those exposed to the low price discount ($M_{\text{low-price discount}} = 4.41$, $M_{\text{high-price discount}} = 5.85$, $t = 6.62$, $p < .001$).

Table 4-12

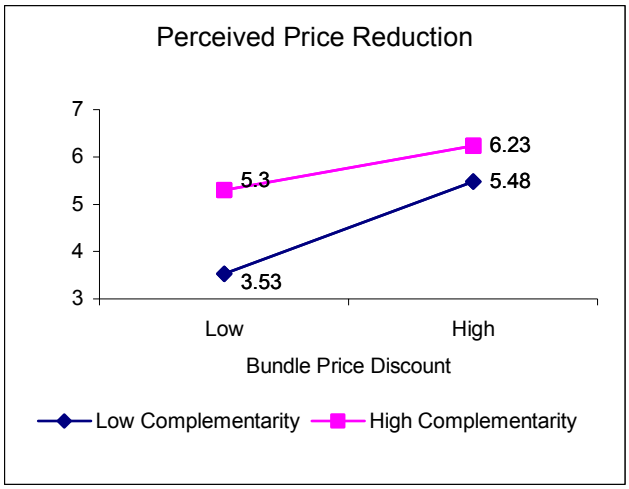
Bundle Price Discount and Perceived Price Reduction

Source	Df	Mean Square	F-value	Significance
Model	3	49.55	37.12	.000
Error	147	1.34		
Price Discount	1	78.93	59.13	.000
Complementarity	1	60.10	45.03	.000
Discount × Complementarity	1	9.82	7.36	.007

R Squared = .43 (Adjusted R Squared = .42)

Figure 4-6

Interaction between Bundle Price Discount and Complementarity



As anticipated, the interaction between price discount and complementarity was also significant ($F = 7.36$, $p = .007$, $\eta_p^2 = .048$; as graphically shown in Figure 4-6; cell means are shown in Table 4-13). Under high levels of bundle component complementarity, bundle price discount had a significant effect on perceived price reduction of the bundle ($M_{\text{low price discount}} =$

5.30, $M_{\text{high price discount}} = 6.23$, $t = 3.69$, $p < .001$). However, an even stronger effect of bundle price discount was found under low levels of complementarity of bundle components ($M_{\text{low price discount}} = 3.53$, $M_{\text{high price discount}} = 5.48$, $t = 7.06$, $p < .001$). Similarly, effect size estimates indicated stronger effects of bundle price discount on perceived price reduction for low levels of complementarity ($\eta_p^2 = .402$) than for high levels of complementarity ($\eta_p^2 = .157$).

Table 4-13

Means of Perceived Price Reduction

Bundle Price Discount	complementarity	
	Low	High
Low	3.53	5.30
High	5.48	6.23

Study 2-Replicated

The integrity of the findings in Study 2 was examined in a replication with bundles consisted of different products, with an aim to investigate if the findings in Study 1 can be applied to more product categories. The same design and procedure were applied except that in the replication we only focused on transaction value as the dependent measure. 122 undergraduate students participated in the study. In the replication, a car radio tuner and a car amplifier comprised the complementary bundle, while an electronic fish finder and a yoga kit comprised the non-complementary bundle. Both products in each bundle are in the same category, electronics or sports.

Manipulation check. Consistent with the manipulation, subjects varied in their assessment of bundle component complementarity. Respondents in the high complementarity condition had higher assessment of complementarity than those in the low complementarity condition ($M_{\text{low-complementarity}} = 1.29$, $M_{\text{high-complementarity}} = 6.26$, $t = 34.23$, $p < .001$).

Table 4-14

Effects of Price Discount and Complementarity on Transaction Value

Source	df	Mean Square	F-value	Significance
Model	3	79.62	62.58	.000
Error	118	1.27		
Price Discount	1	32.26	23.78	.000
Complementarity	1	200.45	157.55	.000
Discount × Complementarity	1	10.66	8.38	.005

R Squared = .61 (Adjusted R Squared = .60)

Main effect of bundle price discount on perceived transaction value. As predicted by Hypothesis 10, the effect of bundle price discount on perceived transaction value was significant ($F = 8.38$, $p = .005$, $\eta_p^2 = .168$; as shown in Table 4-14). Respondents exposed to the high bundle price discount had higher transaction values than those exposed to the low price discount ($M_{\text{low-price discount}} = 3.40$, $M_{\text{high-price discount}} = 4.35$, $t = 3.04$, $p < .01$).

Table 4-15

Means of Perceived Transaction Value

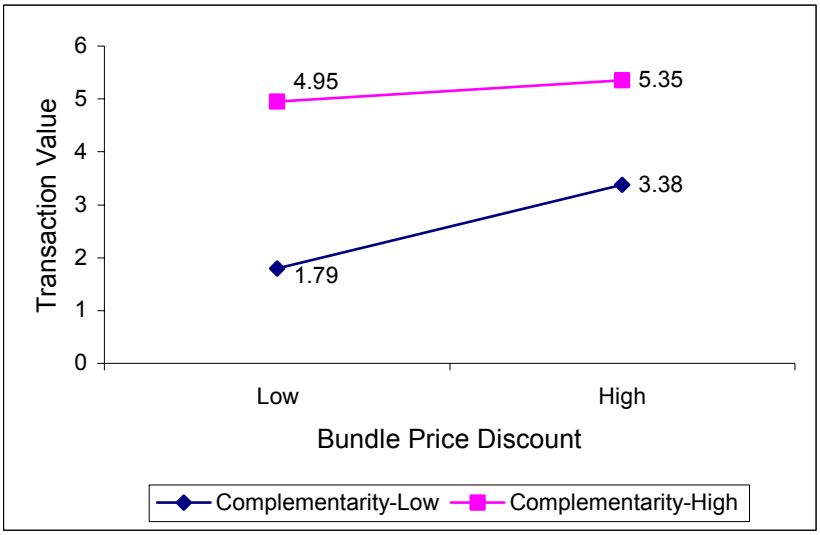
Bundle Price Discount	Complementarity		Marginal
	Low	High	
Low	1.79	4.95	3.40
High	3.38	5.35	4.35
Marginal	2.60	5.15	

Moderating effects of bundle component complementarity. As predicted by Hypothesis 11, the interaction between price discount and bundle component complementarity was significant ($F = 8.38$, $p = .005$, $\eta_p^2 = .066$; as shown in Table 4-14). To better understand the nature of this interaction effect (as depicted graphically in Figure 4-7), we conducted simple main effect tests examining the impact of bundle price discount for low and high complementarity conditions. Under low levels of bundle component complementarity, subjects perceived significant higher transaction value of the bundle when the bundle price discount was

high than when it was low ($M_{low\ price\ discount} = 1.79$, $M_{high\ price\ discount} = 3.38$, $t = 4.66$, $p < .001$). However, when bundle component complementarity was high, the effect of bundle price discount on transaction value of the bundle was not significant ($M_{low\ price\ discount} = 4.95$, $M_{high\ price\ discount} = 5.35$, $t = 1.79$, $p = .078$). Similarly, effect size estimates indicated stronger effects of bundle price discount on transaction value for low levels of complementarity ($\eta_p^2 = .269$) than for high levels of complementarity ($\eta_p^2 = .052$).Collectively, these results empirically supported Hypotheses 10 and 11.

Figure 4-7

Moderating Effect of Bundle Component Complementarity



Discussion

Study 2 examined how bundle component complementarity influence consumer evaluations of a mixed-leader bundle. Consistent with previous research (Gaeth et al 1990; Harlam et al. 1995; Telser 1979), consumers had more favorable evaluations toward a complementary bundle than a non-complementary bundle. More interestingly, bundle component complementarity influenced a consumer's selection of mental accounts, which in turn partially determined evaluations of the bundle.

However, existing literature in bundling and the previous two studies do not consider the influence of brand of bundle components. In the marketplace, a consumer's evaluation of a product is generally influenced by the brand image or brand prestige (Keller 1993). We propose that brand image will moderate the influence of bundling on evaluations of separate bundle components, as addressed in next two next chapters.

Chapter 5: Moderating Effects of Brand Image in a Mixed-Leader Bundle

As illustrated by the results of Study 1, bundle price discounts impact perceived quality of individual bundle components in a mixed-leader bundle, but not in a mixed-joint bundle. Therefore, in this study we constrain our research efforts to addressing the influence of brand image in mixed-leader bundles. In addition, we limit our study only to bundles with two components under the same brand name. The situation of bundles with components under different brand names will be addressed in the next chapter.

Thus far, research on bundling, either the economics or the behavioral streams, has generally ignored the impact of brand in the evaluations of a bundle, or the bundle components (Simonin and Ruth 1998). Brand information is not incorporated into the stimuli, thus brand effects are not addressed. However, a brand is generally used by consumers as a surrogate indicator of product quality. It has been found to be very important when it is the only information a consumer has available and to interact with (Dodds, Monroe, and Grewal 1991; Teas and Agarwal 2000). The ignorance of the effect of brand, especially the interplay of bundling effects and brand information, represents a significant gap in bundling literature. In this chapter, we will address this gap by testing the moderating role of brand image in a mixed-lead bundle.

Brand image is defined as "perceptions about a brand as reflected by the brand associations held in consumer memory" (Keller 1993). Research evidences have demonstrated that consumers use a brand name or brand image as extrinsic cues to assess product quality (Teas and Agarwal 2000). In such an affect-referral evaluative process (Wright 1975), consumers do not examine product attributes every time when they choose brands. They base their judgments on brand attitudes rather than on product attribute information. The brand attitudes are

consumers' brand image associations, which reflect the product-related benefits (Keller 1993), which will be used to make judgments about product quality (Zeithaml 1988). Because consumers will use brand image to infer product quality, it will interplay with the bundling effects in the quality evaluation process.

Hypotheses

Recall as shown by the results in Study1, a bundle price discount has a positive influence on perceived quality of the undiscounted product in a bundle. However, if the discounted product B has a prestigious brand name, consumers may be more likely to interpret the bundling as an attempt to provide added value to customers rather than to promote product B with the help of product A, a high-quality product. Thus, we propose that a brand image mitigates the positive effect of bundling on perceived quality of A as follows:

H12a: the higher the brand image of bundle components, the weaker is the positive influence of bundle price discount on perceived quality of the undiscounted component in a mixed-leader bundle.

Our empirical results show that the bundle price discount has a negative influence on the discounted bundle components, i.e., the higher the bundle price discount, the lower is the perceived quality of the discounted bundle component. However, we propose that the brand image of bundle components will moderate this negative relationship. For a prestigious brand, the favorable attitudes toward the brand are well established and stable, because brand-related experiences and associations are extensive (Bettman and Sujan 1987; Keller 1993). Consumer evaluations of the perceived quality of the product with a prestigious brand name will also be relatively stable and consistent with the brand image. Research evidence has also demonstrated that brand images moderate the effect of price on buyers' quality perceptions. For example,

Monroe and Krishnan (1985) find a more positive effect of price on quality perceptions when brand information is present than when it is absent. Based on the same logic, the negative effect of price discount on perceived quality of the discounted product will be weaker when the bundle products have a higher brand image. Thus, we have the following hypothesis:

H12b: the higher the brand image of bundle components, the weaker is the negative influence of bundle price discount on perceived quality of the discounted component in a mixed-leader bundle.

The hypotheses regarding the influence of brand image in a mixed-leader bundle will be tested in Study 3. In this study, we will only measure perceived quality of product A and product B as the focal dependent variables.

Method of Study 3

Experimental Design

Study 3 was primarily designed to test the moderating effects of brand image. A 2 (bundle price discount: low/high) × 2 (brand image: low/high) × 2 (complementarity of bundle components: low/high) between-subject design was conducted to test the proposed hypotheses. As demonstrated in study 1, bundle price discounts had no influence on quality perceptions of bundle components in a mixed-joint bundle. In this study, we only examined the mixed-leader bundle, in which product B was discounted. The low price discount was 10% off from the sum of regular prices of the two bundle items, while the high price discount was 30%. Brand image was designed at two levels: low/high. We did not have hypotheses about complementarity of bundle components in this study. However, complementarity was also manipulated at low and high levels as a control.

Participants

One hundred and fifteen students in a state university participated the experiment, for which they received extra credit in a marketing management course.

Stimuli

The two brands we chosen in the stimuli were "Panasonic" and "Apex", both were real electronics brands in the marketplace. Panasonic was for the high brand image condition, whereas Apex was designated for the low brand image condition. Products in the complementary bundle were a 19-inch flat screen TV and a DVD/VCR combo, while a fax machine and a DVD/VCR comprised the non-complementary condition. In order to exclude the influence of relative value of the bundle items, the regular prices of the bundle items were set equal, all being $100. This price was also close to the real price as tagged in WalMart. The full factorial design is shown in Appendix 4.

Procedure

Subjects were randomly assigned to one of the experimental conditions. They were presented with the separate products as well as the bundle offer. Participants indicated their evaluations of quality of bundle components and assessments of complementarity and brand image.

Measures

Brand Image. The measure of brand image was adapted from previous studies (Aaker and Keller 1990; Keller and Aaker 1992). Participants indicated their agreement/disagreement on four 7-point Likert scales: "the brand X (brand name) is favorable," "products made by x (brand name) are of high quality," "x (brand name) has a good image," and "x (brand name) has a good

reputation. Measures of quality perception, complementarity of bundle components were the same as in Study 1, demonstrating acceptable reliabilities in Table 5-1.

Table 5-1

Measure Reliabilities

Construct	Number of Items	Cronbach's α
Perceived quality of A	3	.94
Perceived quality of B	3	.94
Complementarity	3	.98
Brand Image	4	.98

Manipulation Check

To ensure that our manipulations were effective, respondent's responses to the assessments of brand image and bundle component complementarity were measured after they answered questions related to the focal dependent variables. The results indicated that the manipulations were effective (for brand image, $M_{\text{low brand image}} = 4.08$, $M_{\text{high brand image}} = 6.11$, $t = 9.33$, $p < .001$; for bundle component complementarity, $M_{\text{low complementarity}} = 1.87$, $M_{\text{high compelementarity}} = 6.45$, $t = 22.88$, $p < .001$).

Results of Study 3

Hypothesis 12a predicts that the higher the brand image of bundle components, the lower the positive influence of bundle price discount on perceived quality of the undiscounted bundle component in a mixed-leader bundle. However, a 2 × 2 × 2 ANOVA on perceived quality of product A, did not reveal a significant interaction between bundle price discount and brand image of bundle components ($F = .38$, $p = .54$). The results of the ANOVA are reported in Table 5-2. Hypothesis 12a was not supported.

Table 5-2

ANOVA Results on Perceived Quality of Product A

Source	df	Mean Square	F-value	Significance
Model	5	6.51	6.34	.000
Error	109	1.02		
Bundle Price Discount	1	.04	.042	.837
Brand Image	1	29.49	28.88	.000
Complementarity	1	2.94	2.88	.093
Discount × Brand Image	1	.39	.38	.540
Discount × Complementarity	1	.04	.04	.839

R Squared = .23 (Adjusted R Squared = .19)

Hypothesis 12b predicts that the higher the brand image of bundle components, the weaker is the negative influence of bundle price discount on perceived quality of the discounted bundle component in a mixed-leader bundle. A 2 × 2 × 2 ANOVA on perceived quality of product B, the discounted product in the bundle, revealed a significant interaction effect between bundle price discount and brand image ($F = 12.75$, $p = .001$, $\eta_p^2 = .105$), as shown in Table 5-3.

Table 5-3

ANOVA Results on Perceived Quality of Product B

Source	Df	Mean Square	F-value	Significance
Model	5	24.49	26.81	.000
Error	109	.91		
Bundle Price Discount	1	22.76	24.92	.000
Brand Image	1	70.30	76.97	.000
Complementarity	1	8.43	9.23	.003
Discount × Brand Image	1	11.65	12.75	.001
Discount × Complementarity	1	13.55	14.84	.000

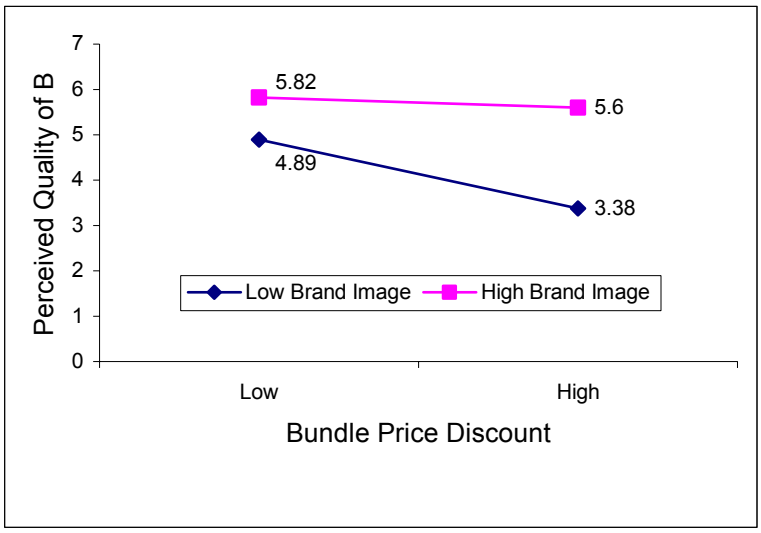
R Squared = .55 (Adjusted R Squared = .53)

To better understand the nature of this interaction effect (cell means in Table 5-4, depicted graphically in Figure 5-1), we conducted simple main effect tests examining the impact of bundle price discount for low and high brand images. For bundles with a low brand image, subjects had significant lower perceived quality of product B when the bundle price discount was

high than when it was low ($M_{low\ price\ discount}$ = 4.89, $M_{high\ price\ discount}$ = 3.38, t = 4.61, p < .001). However, for bundles with a high brand image, the effect of bundle price discount on perceived quality of B was not significant ($M_{low\ price\ discount}$ = 5.82, $M_{high\ price\ discount}$ = 5.60, t = 1.01, p = .319). Similarly, effect size estimates indicated stronger effects of bundle price discount on perceived quality of product B for the low brand image (η_p^2 = .278) than for the high brand image (η_p^2 = .018).Collectively, these results empirically supported Hypotheses 12b.

Figure 5-1

Moderating Effect of Brand Image



In addition, Table 5-3 revealed significant main effects of bundle price discount (F = 24.92, p < .001, η_p^2 = .186), brand image (F = 76.97, p < .001, η_p^2 = .414), and complementarity (F = 9.23, p < .01, η_p^2 = .078) on bundle components for perceived quality of B. Subjects exposed to the high bundle price discount had lower perceived quality of B than those exposed to the low bundle price discount ($M_{low\ price\ discount}$ = 5.36, $M_{high\ price\ discount}$ = 4.52, t = 3.37, p = .001). We also observed a significant interaction between bundle price discount and complementarity of bundle components (F = 14.84, p < .001, as shown in Table 5-3). For non-complementary bundles, subjects had significant lower perceived quality of product B when the bundle price

discount was high than when it was low ($M_{low\ price\ discount} = 5.44$, $M_{high\ price\ discount} = 3.85$, $t = 4.33$, $p < .001$). However, for complementary bundles, the effect of bundle price discount on perceived quality of B was not significant ($M_{low\ price\ discount} = 5.26$, $M_{high\ price\ discount} = 5.11$, $t = .50$, $p = .62$). The moderating effect of complementarity of bundle components was diagrammed in Figure 5-2. These results provided convergent support for findings discovered in Study 1.

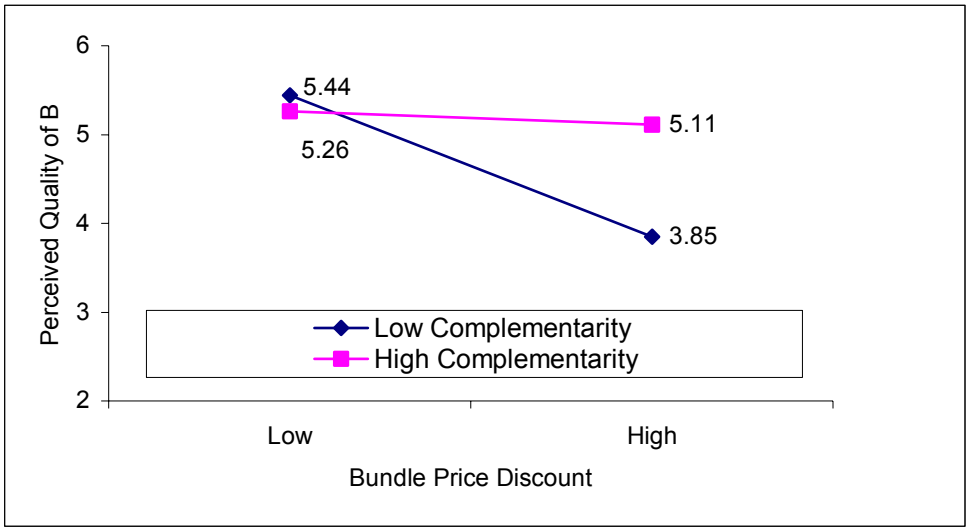
Table 5-4

Cell Means of Perceived Quality of B

Price Discount	Brand Image		Complementarity	
	Low (Apex)	High (Panasonic)	Low	High
Low	4.89	5.82	5.44	5.26
High	3.38	5.60	3.85	5.11

Figure 5-2

Moderating Effect of Complementarity



Discussion

The results of this study partly supported our hypotheses about the interplay between brand image and bundling effects. In a mixed-leader bundle, the negative effect of bundle price discount on perceived quality of the discounted product was attenuated by high brand images.

However, our hypothesis about consumer evaluations of the undiscounted product A was not supported, neither was the main effect of bundle price discount on perceived quality of it as proven in Study 1. Therefore, we should be very cautious when we generalize the findings regarding the undiscounted product in the mixed-leader bundle.

In this study, we only considered the situation in which the bundle components are under the same brands. Possibly, products with different brand names are also widely bundled in the marketplace (Simonin and Ruth 1995). For instance, a travel plan includes airfare, lodging, and a rental car. A flight alliance may include different airlines. How bundling influences evaluations of individual bundle components in this situation has not yet been studied. We will address this gap in the next chapter.

Chapter 6: Enhancement Effect of Bundling on Bundle Components

Bundling can play a critical role in new product introduction. A manufacturer can launch a new product on its own, and it also may promote this new product through bundling with an existing product that carries a different brand name (Simonin and Ruth 1994). Bundling of products with different brands can also be practiced by a retailer. For instance, in an electronics store, you may see a bundle featured a Sony TV and an Apex DVD player. In the service industry, bundles with different brands are even more common, for instance, a travel plan generally includes an airline, a hotel and a rental car (e.g., Delta Airline + Sleep Inn + Hertz Rent a Car). Bundles with brands in two different categories are also quite common in the market place. As an effective marketing strategy to exploit consumer surplus, bundling provides retailers opportunities to increase both sales and profits. As long as price discounts are assigned in a bundle, both brands can benefit from the bundle. However, bundling strategies are especially important to the new brand or a relatively weak brand in the bundle, or to an established brand entering a new market.

Despite the prevalence of bundling of products with different brands in the marketplace, surprisingly little is know about how the bundling strategies as well as features of a bundle affect consumer evaluations of the brands in the bundle, especially the evaluation of the new or weak brand in the bundle. Although we can view bundling as a special form of brand alliance (Rao and Rueket 1994; Simonin and Ruth 1998), we still need a further investigation in a bundling context. Existing research of brand alliance or bundling generally focuses on consumer evaluations of the alliance or the bundle. However, we focus on the effect of the bundling strategy as well as features of a bundle on consumer evaluations of the weak brand in the bundle. Overall, this research addresses three basic questions: (1) will and how a new brand benefit in a

bundling practice? (2) How does the complementarity of bundle components influence the evaluation of the new brand? (3) How does the bundling form influence consumer evaluations of the new brand? We draw upon categorization theory to seek answers to these questions.

A Brief Review of Categorization Theory

Categorization theory describes the organization of information in memory as well as the processing of new information. It suggests that people group objects and events into categories based on perceived similarity and resemblances. These categories contain information about their elements, including knowledge of the elements' features and interrelationships, expectations about members of categories, and positively and negatively evaluated information concerning the members. People use categories to structure and simplify their world, storing and retrieving information in memory around a set of category expectations, and improving cognitive efficiency (Cohen and Basu 1987; Fiske 1981; Rosch 1975; Rosch and Mervis 1975; Rosch et al. 1976).

Sujan (1985) dichotomized two evaluative strategies employed by consumers to process information. In a piecemeal-based process, consumers reach judgments through evaluating each piece of information available from a decision-making context. Products are evaluated on an attribute-by-attribute basis. Consumers integrate information of all attributes, or the most important attributes to determine the overall value of a product. An alternative approach is categorization-based. The major premise of the categorization-based approach is that people divide the world into categories, enabling an efficient understanding and simplifying the complicated environment. If an object or stimulus can be grouped as a member of certain category, then the affect associated with the category can be transferred to the new object (Cohen 1982; Fiske 1982). In the categorization-based approach, affects, attitudes, or judgments are cued

by the categorization process instead of a constructive evaluation of multiple attributes of a product.

Empirical findings suggest that the selection of the piecemeal-based or the categorization-based evaluative strategies are determined by the degree to which information is discrepant from category expectations. When a new object or stimulus matches with an existing category, the evaluative process appears to be more categorization-based (Sujan 1985). Compared to the piecemeal-based approach, the categorization-based approach resulted in faster evaluations, fewer verbalizations related the product attributes, more verbalizations to the product category, and fewer references to subtypes. Consumers' product knowledge or expertise influences the selection of evaluative approach, with novices using more categorization-based processing approach than experts. Generally, the typicality (match or mismatch) of a new object or product to the existing category determines the selection of evaluative approaches. It also determines the probability of a product being included in a consumer's evoked set and its evaluation (Loken and Ward 1990).

Typicality is usually defined as the degree to which an item can be perceived to represent a category (Cohen and Basu 1987; Loken and Ward 1990). Two approaches describe the relationship between attribute sharing and typicality: the family resemblance model and the feature-similarity model. In Rosch and Mervis's (1975) family resemblance model, family resemblance is defined as the degree a member has attributes in common with other category members. The more attributes a product shares with other category members, the more typical it is. The family resemblance model emphasizes attributes shared by category members. In Tversky's (1977) feature-similarity model of attribute sharing, typicality is positively related to the extent that a product shares common features with other category members and negatively

related to distinctive features that the product and other category members have. Except the structural properties of a category, Loken and Ward (1990) suggest that individuals' features, like familiarity and exposure to the item, are also related to the typicality of a product.

Categorization research has conceptualized two levels of categories: superordinate and subordinate categories based on their levels of inclusion or abstraction. Superordinate categories are more inclusive whereas subordinate categories are less. Members of a subordinate category may be more concrete and imaginable and may have more common attributes than members of a superordinate category (Goldberg 1986; Rosch et al. 1976; Sujan and Deklava 1987). For instance, a subordinate category of "fast food restaurant" may be represented by specific fast food restaurants including McDonald's, KFC, Burger King, Wendy's and so on, which are classified by concrete attributes of the type of food served by the restaurants. However, a superordinate category of "good restaurant" may be represented by restaurants frequented or experienced by an individual recently. It is classified by more abstractive attributes like, "good food", "nice atmosphere," and/or "friendly service" of the restaurants. In current study, we focus on the superordinate categories, without being interested in concrete features of category members. For instance, in a bundle consisted of a Sony TV and a DVD player, we are more interested in consumer perceptions of these two products as "reliable or quality products", rather than a basic-level category of "electronics" or "home theatre electronics". This categorization is based more on abstractive attributes, such as brand or price, than on physical features.

Hypotheses

Enhancement Effect in Bundling

This study investigates the enhancement effect of bundling on bundle components. Existing literature about bundling has generally ignored the impact of brands on attitude toward

the bundle; neither does it investigate the effects of bundling on the evaluation of individual bundle components.

Marketers are increasingly bundling two different brands together, as well providing a price discount in the bundle. For instance, in a travel package, flights, hotels and restaurants with different brand names are normally bundled together. Drawing from categorization theory, we hypothesize an enhancement effect of bundling on individual bundle components. In this study, a Enhancement effect refers to the phenomenon that consumers' quality perception of the new or relatively weak brand will be improved when it is bundled with a more prestigious brand than when it is bundled with a weak brand. It is quite common for marketers to bundle a new brand with an established brand in new product introduction or for an established brand to enter a new market, with a hope that the established brand will have positive impacts on consumer evaluations of the new or unknown brand. We draw upon research of brand alliance and categorization to advance the enhancement effect in bundling.

Bundling of two different brands can be viewed as a form of brand alliances (Simonin and Ruth 1998). It differs from other brand alliances in that it generally has a price discount as an incentive to attract consumers to buy products in the bundle together. The price discount itself as well as its format will have different impacts on consumer evaluations of the bundle than traditional brand alliances. A brand alliance can signal quality information when an individual brand is unable to successfully signal quality by itself (Rao and Ruekert 1994). When a new brand is bundled with an established brand, its quality is endorsed by the presence of the established brand in the bundle. If the new or weak brand does not perform well, consumers will penalize the established brand, hurting its brand equity. Therefore, the quality perception of the weak brand is enhanced by the established brand.

We also turn to categorization theory to provide a theoretical foundation for understanding the enhancement effect in bundling. Researchers in marketing have applied categorization theory to understand product categories, including both the effects of product category structure on evaluations of associated products, and the reverse, the effects of product on category structures. Categorization theory has demonstrated that general affect can be transferred from one object to another (Gilovich 1981; Read 1983). In a bundle with an established brand, the positive attitude or evaluation of the prestigious brand will be transferred to the weak brand. In addition, members of a category have judgment relevant attributes, consumers may use category membership as a heuristic basis for judgment of an object without considering more detailed information about the object's characteristics (Bodenhausen and Lichtenstein 1987; Bodenhausen and Wyer 1985). The weak brand in a bundle is very likely be grouped in the category represented by the established brand, i.e., a "high quality" category. When a consumer is faced with an evaluative task, he/she is very likely to use the membership of the "high quality" category to infer good quality of the weak brand too. Therefore, the quality perception of the weak brand is enhanced, when it is bundled with a strong brand. However, when it is bundled with another weak brand, a consumer will form a category such as "low quality," or "unknown brands." If such is the case, either the target product will be perceived as of low quality, or an individual will need more information to ensure its quality.

Collectively, we postulate following hypothesis:

H13: Perceived quality of a weak brand will be higher when it is bundled with a strong brand than bundled with a weak brand, i.e., the brand image of the bundle partner has a main effect on quality perception of the weak brand.

Moderating Effects of Complementarity and Bundling Forms

The degree of complementarity of bundle component is determined by consumer perceptions of functional relatedness between two bundle components. When a complementarity level is high, the association between two products will be strong. The new or weak brand is more likely to be positioned in the "good quality" category represented by the established brand in the bundle, thus, increasing the enhancement effect, and vice versa.

Complementarity of bundle components will also influence an individual's evaluation process of a bundle, thus influence the magnitude of the enhancement effect. Noncomplementary products have weak associations with each other. In this case, the bundling tactic itself arouses more consumer cognitive efforts to engage in a comprehensive evaluation of the bundle. Consumers would also contemplate why the two products are bundled together with greater level of elaboration and involvement. With high levels of elaboration and involvement, consumers will be less likely to use category membership as a basis of heuristic to evaluate the weak brand (Petty and Cacioppo 196). The enhancement effect will be attenuated at low levels of complementarity.

Collectively, we have following hypothesis:

H14: The higher the level of complementarity of bundle components, the more significant is the enhancement effect, i.e., there is a 2-way interaction between the brand image of a bundle partner and complementarity of the two bundle components.

Marketers have widely used two kinds of bundle forms: mixed-joint and mixed-leader. We postulate that bundling forms will influence a consumer's selection of mental accounts when he/she evaluates a bundle. In a mixed-joint bundle, only a single price is set for the bundle.

Consumers will compare the discounted bundle price with the sum of regular prices of the two products in the bundle. This process forms a comprehensive mental account, which includes the two products in the bundle. As proposed by Henderson and Peterson (1992), a comprehensive mental account represents an inclusive superordinate category per se. Thus, in such a comprehensive mental account, the two products in the bundle are grouped into the same category represented by the established brand. Therefore, the enhancement effect is reinforced in a mixed-joint bundle.

However, in a mixed-leader bundle, the new or weak brand is discounted as an incentive to attract consumers to buy the bundle. A consumer is more likely to use a topical account to evaluate the bundle offer. In the topical account, consumers only consider the monetary information of the discounted product. In other words, he/she will compare the discounted price with the regular price of the discounted product. In such a cognitive evaluative process, the new brand is less likely to be grouped into the same category represented by the established brand. This weakens the categorical association between the new brand and the established brand. The established brand will have weaker impacts upon consumer perceptions of the weak brand in the bundle. Thus, the enhancement effect is attenuated. As suggested by Barsalou (1982), by specifying a context, the relationship between an object (here the weak brand) and a category is changed. The bundling form in the current context alters the categorization of products in the bundle.

Bundling itself is a market promotion strategy with a hope to increase demand by providing a price discount in the bundle. Consumers are constantly estimating what is responsible for, or causes of, various events. The process of estimating causes is called attribution. This approach to understanding the reasons why consumers assign particular

meanings to the behaviors of others has been used primarily for analyzing consumer reactions to promotional messages. For instance, when consumers attribute advice given by a salesperson or advertising message to a sales motive, they tend to discount that advice. Consequently, these attributions will influence consumer evaluations of sales and shopping or purchase intentions (Lichtenstein and Bearden 1986; Lichtenstein, Biswas and Fraccastoro 1994; Lichtenstein, Burton and O'Hara 1989).

In the current context, the two bundling forms will arouse differentiated attributions. In a mixed-joint bundle, only a single price is set for the bundle. The two products are equally presented to consumers. Consumers will possibly attribute the bundle to the merchant's motive to "enhance customer goodwill" or "to pass on savings from bulk purchases from manufacturers." Therefore, they are more likely to group the two products into one category. In contrary, in a mixed-leader bundle, the price discount is explicitly assigned on the weak brand. Because many consumers believe there is a positive relationship between price and product quality (Rao and Monroe 1989), a price discount may be perceived as related to something negative about the new product (such as out-of-data models or inferior quality). Therefore, the new brand is less likely to be grouped into the "good quality products" category represented by the established brand. Thus, the enhancement effect will be more significant in a mixed-joint bundle than in a mixed-leader bundle.

Collectively, we have following hypothesis:

H15: The enhancement effect of bundling on the weak brand will be stronger in a mixed-joint bundle than in a mixed-leader bundle, i.e., there is a 2-way interaction between the brand image of the bundle partner and the bundling form.

In Hypothesis 14, we argue that products in a complementary (noncomplementary) bundle have stronger (weaker) links and associations between each other. Therefore, they are more (less) likely to be grouped into one category represented by the established brand in the bundle. Here complementarity influences the enhancement effect via the categorization process. More importantly, the effect of complementarity on the categorization process is influenced by bundling forms. In a mixed-joint bundle, the two products are already listed in one group (category), equally. This facilitates categorization process steered by the high level of complementarity. However, in a mixed-leader bundle, as we argued in Hypothesis 15, the two products are less likely to be grouped into one category. This inhibits the categorization process determined by the level of complementarity. The categorization process in turn determines the magnitude of the enhancement effect of the established brand on the weak brand. Therefore, we have following hypothesis:

H16: There should be a 3-way interaction among the brand image of bundle partner, complementarity of bundle components, and the bundling form. The enhancement effect is more significant in a complementary bundle than in a non-complementary bundle. Importantly, this moderating effect of complementarity is more pronounced in a mixed-joint bundle than in a mixed-leader bundle. i.e., the difference between the enhancement effects in a complementarity bundle and in a non-complementary bundle is larger for a mixed-joint bundle than for a mixed-leader bundle.

Method of Study 4

Design

Study 4 employed a 2 (brand image of bundle partner: low/high) x 2 (complementarity: low/high) x 2 (bundle form: mixed-joint/mixed leader) between-subjects factorial design. Eight

experimental conditions were generated. In addition, subjects' evaluations of the established brand image and the weak brand image were assessed in a control condition in which the focal brands were presented without being in a bundle.

Participants

One hundred and ninety nine participants from a state university were assigned randomly to the eight conditions of the experiment. Thirty-one subjects were assigned to the control condition.

Materials and Stimuli

We chose real brands from the market place to ensure the reality of the stimuli. "Sony" was selected to represent the brand with a high brand image. Two Chinese new brands in the US market, "Changhong" and "Haier" were selected as brands with low brand images. These three brands are all in the consumer electronics industry. A 6-piece speaker system and a surround sound receiver comprised the complementary bundle, whereas a digital camera and a surround sound receiver comprised the non-complementary bundle. The surround sound receiver was the focal product, which was always under the brand name of "Changhong", being bundled with either "Sony" or "Haier". In order to exclude the potential confounding effect of price inequity between the two bundle components, prices of the two items were set equal. Key features of the products in the bundle were also provided in the stimuli. The form of bundling was manipulated too. In the mixed-joint bundle, only a single price is set for the bundle. In the mixed-leader bundle, the "Changhong" surround sound receiver was discounted, whereas its counterpart, either the 6-piece speaker system or the digital camera was listed at the regular price. In both forms of bundling, the price discount was arbitrarily set as 20% of the sum of regular prices of the two products. For the details of the stimuli, please see Appendix 5.

Procedure

In order to prevent participants from determining the study's purpose, they were generally told that this study was about people's shopping behavior. Subjects imagined that they were in an electronics store, being exposed to the bundle offers. Then, subjects answered questions related to quality perceptions of the focal product. Participants' assessments of brand image and complementarity of bundle components were measured afterwards.

Measures: Independent Variales

Brand Image. The measure of brand image was adapted from previous studies (Aaker and Keller 1990; Keller and Aaker 1992). Participants indicated their agreement/disagreement on four 7-point Likert scales: "the brand X (brand name) is favorable," "products made by x (brand name) are of high quality," "x (brand name) has a good image," and "x (brand name) has a good reputation." The measure reliability was acceptable (Cronbach's $\alpha = .98$)

Complementarity. The measure of complementarity was the same as used in Studies 1 and 3. (Cronbach's $\alpha = .94$)

Measures: Dependent Variables

Perceived Quality. The measure of perceived quality was the same as used in Studies 1 and 3. (Cronbach's $\alpha = .87$)

Manipulation Check

Consistent with the manipulation, subjects reported higher brand images for "Sony" than for "Haier" ($M_{Haier} = 3.54$, $M_{Sony} = 6.26$, $t = 19.20$, $p < .001$). Subjects also varied in their assessments of bundle component complementarity. Respondents in the high complementarity condition had higher assessment of complementarity than those in low complementarity condition ($M_{low\text{-}complementarity} = 2.45$, $M_{high\text{-}complementarity} = 5.70$, $t = 18.84$, $p < .001$).

Results of Study 4

Table 6-1 reports the results of a 2 × 2 × 2 ANOVA on the focal dependent variable, perceived quality of the focal product.

Table 6-1

Results of the ANOVA

Source	Df	Mean Square	F	Sig.
Model	7	6.755	8.277	.000
Error	191	.816		
Partner Brand Image	1	18.952	23.223	.000
Bundle Form	1	3.938	4.825	.029
Complementarity	1	6.947	8.512	.004
Brand Image × Form	1	3.190	3.909	.049
Brand Image × Complementarity	1	3.673	4.500	.035
Form × Complementarity	1	3.916	4.799	.030
Brand Image × Complementarity × Form	1	6.565	8.045	.005

R Squared = .233 (Adjusted R Squared = .205)

The Enhancement Effect

Hypothesis 13 predicts that perceived quality of a weak brand will be higher when it is bundled with a strong brand than bundled with a weak brand. A significant enhancement effect was found ($F = 23.22$, $p < .001$, $\eta_p^2 = .108$), with higher perceived quality of the focal product being observed when the focal product was bundled with "Sony" than when bundled with "Haier" ($M_{Sony} = 4.73$, $M_{Haier} = 4.11$, $t = 4.49$, $p < .001$). Hypothesis 13 was supported.

Table 6-2

Means of Perceived Quality of the Focal Product

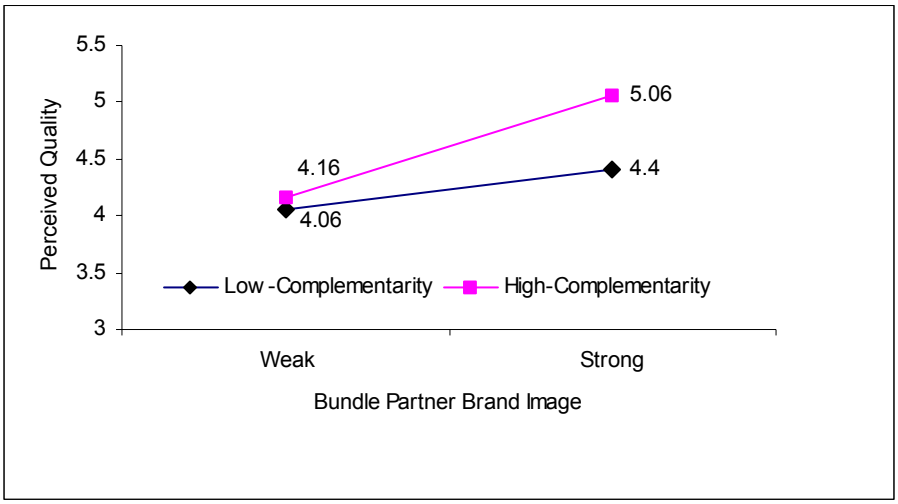
Bundle Partner	Bundling Form		Complementarity		Marginal
	Mixed-Leader	Mixed-Joint	Low	High	
Weaker	4.10	4.12	4.06	4.16	4.11
Strong	4.46	5.01	4.40	5.06	4.73
Marginal	4.28	4.56	4.24	4.61	

Moderating Effect of Complementarity of Bundle Components

In Hypothesis 14, it was posited that the enhancement effect would be more significant in a complementary bundle than in a non-complementary bundle. As shown in Table 6-1, the interaction between the brand image of the bundle partner and complementary was significant ($F = 4.45$, $p = .035$, $\eta_p^2 = .023$; see Figure 6-1 for a plot of observed values). To better understand the nature of this interaction effect, we conducted simple main effect tests examining the enhancement effect under low and high complementarity conditions. Under high level of bundle component complementarity, subjects had higher perceived quality of the focal product when it was bundled with high-image brand (Sony) than bundled with low-image brand "Haier" ($M_{Sony} = 5.06$, $M_{Haier} = 4.16$, $t = 4.70$, $p < .001$). However, when bundle component complementarity was low, the enhancement effect was not significant ($M_{Sony} = 4.40$, $M_{Haier} = 4.06$, $t = 1.85$, $p = .068$). Similarly, effect size estimates indicated stronger effects of the bundle partner image on perceived quality of the focal brand for high levels of complementarity ($\eta_p^2 = .186$) than for low levels of complementarity ($\eta_p^2 = .034$). These results empirically supported Hypotheses 14.

Figure 6-1

Moderating Effect of Bundle Component Complementarity

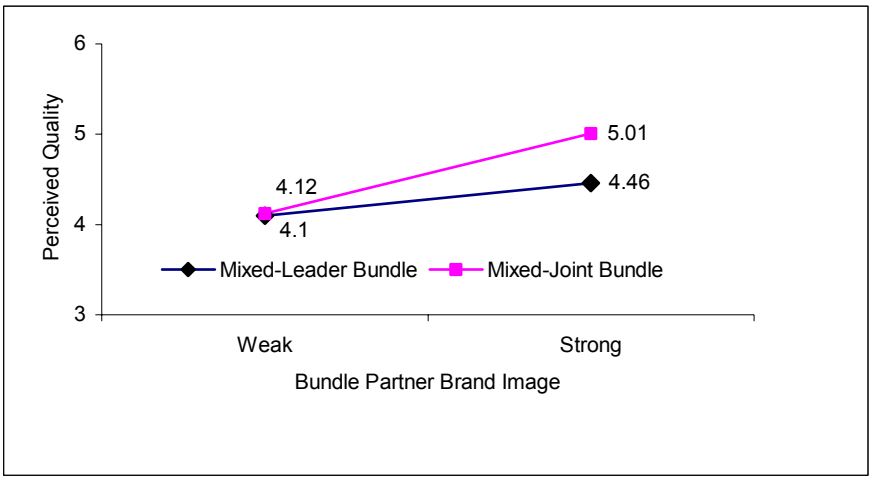


Moderating Effect of the Form of Bundling

In a mixed-leader bundle, the focal product is discounted whereas only a single discounted price is set for a bundle in a mixed-joint bundle. Hypothesis 15 predicts that the enhancement effect of bundling on the weak brand will be stronger in a mixed-joint bundle than in a mixed-leader bundle. As shown in Table 6-1, the interaction between the brand image of the bundle partner and the form of bundle was significant ($F = 3.91$, $p = .049$, $\eta_p^2 = .020$). To better understand the nature of this interaction effect (diagrammed in Figure 6-2), we conducted simple main effect tests examining the enhancement effect in a mixed-joint bundle and a mixed leader bundle. We observed a more significant enhancement effect in the mixed-joint bundle than in a mixed leader bundle (in the mixed-joint bundle: $M_{Sony} = 5.01$, $M_{Haier} = 4.12$, $t = 4.20$, $p < .001$; in the mixed-leader bundle, $M_{Sony} = 4.46$, $M_{Haier} = 4.10$, $t = 2.11$, $p = .04$). Similarly, effect size estimates indicated stronger effects of the bundle partner image on perceived quality of the focal brand for the mixed-joint bundle ($\eta_p^2 = .154$) than for mixed-leader bundle ($\eta_p^2 = .043$). Hypothesis 15 was well supported.

Figure 6-2

The Moderating Effect of Bundle Forms



The 3-Way Interaction Effect

Hypothesis 16 predicts a 3-way interaction among bundle partner brand image, complementarity of bundle components, and the bundle form. As shown in Table 6-1, this 3-way interaction is statistically significant ($F = 8.05$, $p = .005$, $\eta_p^2 = .040$). The cell means of perceived quality are shown in Table 6-3 and diagrammed in Figure 6-3.

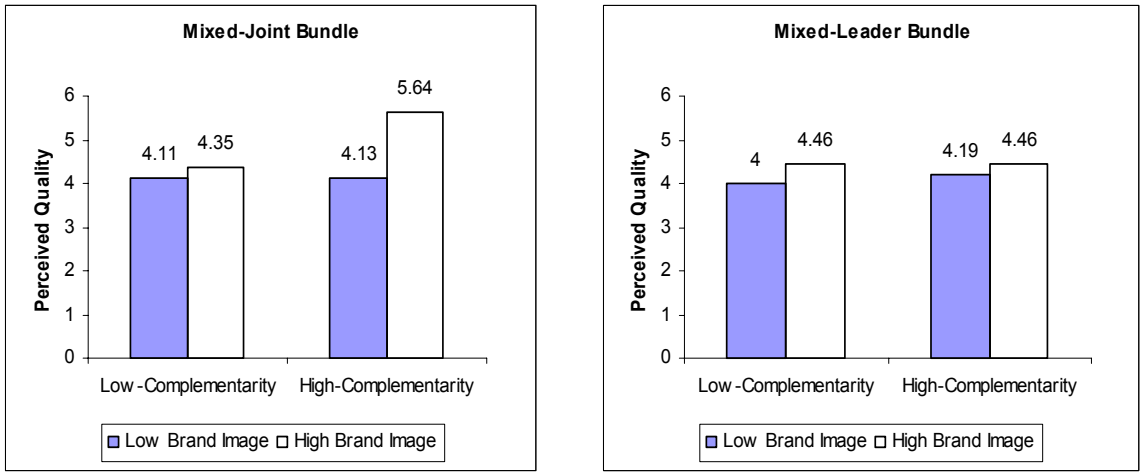
Table 6-3

Cell Means of Perceived Quality of B

Brand Image	Mixed-Joint Bundle		Mixed-Leader Bundle	
	Low-Complementarity	High-Complementarity	Low-Complementarity	High-Complementarity
Low	4.11	4.13	4.00	4.19
High	4.35	5.64	4.46	4.46

Figure 6-3

The 3-way Interaction Effect on the Focal Product



To better under the 3-way interaction, we ran two 2 (bundle partner brand image) × 2 (complementarity of bundle components) ANOVAs in the mixed –joint and the mixed-leader bundles, respectively. Table 6-4 reports the comparison of results for these two ANOVAs. As shown in Table 6-4, the 2-way interaction between the bundle partner brand image and

complementarity of bundle components were significant in the mixed-joint bundle (F = 10.96, p = .001, η_p^2 = .103), but not in the mixed-leader bundle (F = .59, p = .591, η_p^2 = .003). Collectively, these results empirically supported Hypotheses 16.

Table 6-4

Results of ANOVA for the Mixed-Joint and Mixed-Leader Bundles

Bundle Form	Source	df	Mean Square	F	Sig.
Mixed-Joint	Model	3	13.310	14.585	.000
	Error	95	.913		
	Brand Image	1	18.790	20.589	.000
	Complementarity	1	10.615	11.632	.001
	Brand Image × Complementarity	1	9.999	10.957	.001
Mixed-Leader	Model	3	1.191	1.653	.182
	Error	96	.721		
	Brand Image	1	3.305	4.587	.035
	Complementarity	1	.216	.300	.585
	Brand Image × Complementarity	1	.209	.290	.591

Ancillary Analyses

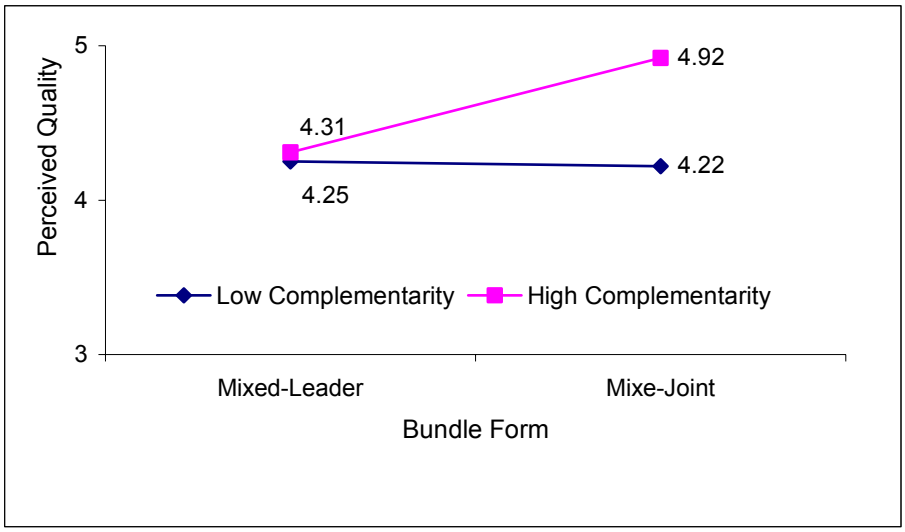
Effect of Bundling Form. As shown in Table 6-1, a significant main effect was observed for bundle forms (F = 4.83, p = .029, η_p^2 = .025). Subjects had higher perceived quality of the focal product in the mixed-joint bundle ($M_{mixed\text{-}joint}$ = 4.56) than in the mixed leader bundle ($M_{mixed\text{-}leader}$ = 4.28, t = 1.93, p = .055, marginally significant). This result was also consistent with our findings in Study 1, where the bundle price discount had negative impacts on perceived quality of the focal product in the mixed-leader bundle but had no influence in the mixed-joint bundle. This main effect of bundling form also indirectly supported our arguments regarding consumers' attributions about the quality of the discounted product in the mixed-leader bundle. Compared to the mixed-joint bundle, a mixed-leader bundle will be more likely to generate negative attributions about the discounted product in the bundle, thus leading to low perceived quality, as shown in this study.

Main Effect of Complementarity. As indicated in Table 6-1, a significant main effect of complementarity was observed ($F = 6.95$, $p = .004$, $\eta_p^2 = .043$). Subjects had higher perceived quality of the focal product in the complementary bundle ($M_{complementary} = 4.61$) than in the noncomplementary bundle ($M_{noncomplementary} = 4.24$, $t = 2.61$, $p = .01$). We suspect this main effect comes from the spillover effect of the attitudes toward the bundle. Bundling research has suggested that complementarity of bundle components will lead to more favorable evaluations of the bundle (Gaeth et al. 1990; Harlam et al. 1995). This positive affect may be transferred to individual bundle components during the evaluative process.

2-Way Interaction between Complementarity and Bundling Form. The main effect of bundling form on perceived quality of the focal product was moderated by complementarity of bundle components ($F = 4.80$, $p = .030$, $\eta_p^2 = .025$; diagrammed in Figure 6-4), significantly. Under high levels of complementarity of bundle components, subjects had significant higher perceived quality of B in a mixed-joint bundle than in a mixed-leader bundle ($M_{mixed\text{-}joint} = 4.92$, $M_{mixed\text{-}leader} = 4.32$, $t = 2.96$, $p = .004$); whereas under low levels of complementarity, bundling forms had no significant influence ($M_{mixed\text{-}joint} = 4.22$, $M_{mixed\text{-}leader} = 4.25$, $t = .16$, $p = .88$). This moderating effect is consistent with the hypothesized moderating effect of complementarity in Study 1, where the effect of bundle price discount on perceived quality of B in the mixed-leader bundle was moderated by the level of complementarity. As discussed above, the consumer attribution process is accountable for the main effect of the bundling form. In the mixed-leader bundle, a price discount generates negative attributions related to the discounted product. However, in a complementary bundle, the price discount assigned on the focal product was mentally shifted to the other product in the bundle, as we advanced in Study 1. Therefore, a weakened effect of bundling form was observable under high levels of complementarity.

Figure 6-4

2-Way Interaction Between Bundle Form and Complementarity



Does being bundled with a weak brand harm an established brand? One might concern that being bundled with a weak or a new brand will hurt the brand image of the established brand. A pairwise comparison of Sony's brand image under the control condition and the bundling condition indicated no significant difference ($M_{control\ condition} = 6.06$, $M_{bundling\ condition} = 6.26$, $t = 1.36$, $p = .18$). Being bundled with a new brand did not hurt the brand image of the established brand.

Study 5: the Categorization Process in Bundle Evaluation

Study 4 demonstrated that quality perceptions of a weak brand would be enhanced when it was bundled with an established brand. We also proposed that consumers used category membership as a heuristic basis for judgment of an object without considering more detailed information about the object's characteristics (Bodenhausen and Lichtenstein 1987; Bodenhausen and Wyer 1985). However, to fully demonstrate that this categorization process exists, it is necessary to illustrate the formation of categories in the evaluation process. Therefore, Study 5 was designed to articulate the categorization process in bundle evaluations,

demonstrating how subjects classify the new brand into a "low quality products" category or a "high quality products" category under different experimental conditions. In particular, we have following hypotheses:

H17: The focal weak brand will be grouped closer to a "superior-brand" category when it is bundled with an established brand than when it is bundled with a weak brand.

H18: There is an interaction effect between the bundling form and the bundle partner brand image, i.e., the effect of bundle partner brand image on the categorization process is larger in a mixed-joint bundle than in a mixed-leader bundle.

Method

In a pretest, we assessed brand images of fourteen consumer electronics brands (Aiwa, Apex, Audiovox, Haier, Hitachi, JVC, Panasonic, Philips, Pioneer, Samsung, Sony, TDK, Toshiba, and Zenith) existing in the US market, using a 9-point bipolar scale anchored from "low brand image" to "high brand image". 31 students attended the pretest. We ranked the brands according to their means of brand image. The top one third of brands were chosen as "high brand image" group, including Sony (Brand Image = 8.03), Philips (7.26), Samsung (7.1), Toshiba (6.87) and Pioneer (6.84). The third one third of brands were chosen as "low brand image" group, including Haier (3.45), TDK (4.00), Apex (4.61), Audiovox (5.00). The middle one third of brands were not included in the study.

This study employed a 2 (bundle partner brand image: low/high) × 2 (bundle form: mixed-joint/mixed leader) between-subjects factorial design. The focal weak brand was "Changhong." The weak bundle partner was "Haier" and the strong partner was "Sony." A 6-piece speaker system and a surround sound receiver comprised the bundle. The surround sound receiver was the focal product, which was always under the brand name of "Changhong", being

bundled with either "Sony" or "Haier". Key features of the products in the bundle were also provided in the stimuli. The bundle price discount was set as 20% of the sum of regular prices of the speaker system ($250) and the surround sound receiver ($250). The bundling form was manipulated too. In the mixed-joint bundle, only a single price is set for the bundle. In the mixed-leader bundle, the "Changhong" surround sound receiver was discounted, whereas the 6-piece speaker system was listed at the regular price. For details of the stimuli, please see Appendix 6.

147 undergraduate students in a state university attended this study. After being exposed to the bundling stimuli, subjects were asked to evaluate the bundle. Then, subjects were informed that we could classify brands in the consumer electronics market into two groups. Group A is consisted of brands of low image, including Apex, Haier, Audiovox and TDK; while group B is consisted of brands of high image, including Samsung, Toshiba, Sony, Philips, and Pioneer. Subjects indicated the extent that they thought brand Changhong belongs in group A or group B on a 9-point scale anchored from "group A" to "group B." The higher the measure, the closer a subject categorized the focal brand Changhong with the "superior brand" category. For details of the procedure and measure, please see Appendix 6.

Results

Table 6-5 reports the results of the ANOVA on categorization of the focal brand. The partner brand image had a significant main effect on categorization of the focal brand ($F = 10.99$, $p = .001$, $\eta_p^2 = .071$). As predicted by Hypothesis 17, the focal brand, Changhong, was categorized closer to group B (i.e., the "high brand image" group) when it was bundled with Sony than when it was bundled with Haier ($M_{\text{bundled with Sony}} = 4.99$, $M_{\text{bundled with Haier}} = 3.73$, $t = 3.24$, $p < .01$). Hypothesis 17 was supported. This result demonstrated that the bundle partners

did influence subjects' categorization of the focal product when they evaluated the bundle components. However, the interaction between the partner brand image and bundling form proposed in Hypothesis 18 was not supported ($F = .17$, $p = .68$, $\eta_p^2 = .001$).

Table 6-5

Results of ANOVA on Categorization of the Focal Brand

Source	Df	Mean Square	F-value	Significance
Model	3	32.39	6.06	.001
Error	143	5.35		
Partner Brand Image	1	58.77	10.99	.001
Bundling Form	1	38.33	7.17	.008
Image × Form	1	.90	.17	.682

Discussion

Bundling of a new product or a new brand with an established brand is widely practiced as a new product introduction or market entry strategy. Drawing upon marketing research about brand alliances and categorization theory, especially the latter, we advance a bundling effect in which consumer quality perceptions of the new brand will be enhanced when the new brand is bundled with an established brand than when it is bundled with a weak brand. More importantly, the enhancement effect is moderated in the bundling context.

As we hypothesized, we found that quality perceptions of the new brand was higher when it was bundled with a well-known brand name, "Sony", than when it was bundled with an unknown brand name "Haier". More interestingly, the magnitude of the enhancement effect varied across the bundling contexts. More significant enhancement effects were observed in the mixed-joint bundle than in a mixed-leader bundle. Higher levels of complementarity between two bundle products also reinforced the enhancement effects.

Research Implications

A key difference of our work from previous studies on brand alliances is that we advanced an alternative explanation of the branding effect in the alliance. Traditional studies of brand alliance or brand extension examine signaling effect of a brand. Established brand communicate unobservable quality information, because the brand owners make substantial investments to build brand equity, including advertising, product designing, and promotion. A firm can use its brand name as a bond for quality when it introduces a new experience product. If the claim associated with a brand is one of high quality and the brand turns out to be of poor quality, consumers can punish the brand (Montgomery and Wenerfelt 1992; Wernefelt 1988). Since this punishment can be substantially severe to the firm, the provision of a brand name can serve as a quality assurance device.

Some empirical studies have appeared supporting the positive correlations between brand name and perceived product quality (Erdem 1998; Kirmani and Rao 2000; Rao, Qu and Ruekert 1999). Rooted in this signaling theory tradition, Rao and Rucker (1994) suggest that the established brand in a brand alliance transfers high quality information to the new product, providing the signaling theoretical explanation of the success of brand alliances. The effectiveness of signaling is based on some premises, which include scarcity of prepurchase information about quality, Postpurchase information clarity, payoff transparency, and bond vulnerability (Kirmani and Rao 2000). However, a variety of brand alliances including bundling of two different brands are still pervasive in circumstances lack of one or more of these boundary conditions. Another major premise of the signaling theory is that consumers are rational, being able to use marketing mix, such as advertising and warranties as a signal of high quality. Under many situations, consumers have only limited rationality and are not motivated and involved to

process these signals. Therefore, an alternative explanation of the success of brand alliances, in particular success of bundling of different brands in this study is warranted.

The most prominent contribution of this research is that we applied categorization theory to explain the enhancement effect in a bundle when a new product is bundled with an established brand, thus we provide a new theoretical understanding into how a favorable attitude toward one brand is transferred to another new product in the same category. We argue that a bundle may (a brand alliance may also) be perceived as a superordinate category represented by the established brand. Empirical research has shown that attitudes can be formed by less thoughtful decision-making (Petty and Cacioppo 1986). Consumers may use category membership as a heuristic basis for judgment of the new product or unknown brand without considering more detailed information about the object's characteristics. Therefore the positive affect associated with the established brand is transferred to quality perceptions of the new product. Although the final effect is similar to the explanation of the signaling theory, the mechanism how an established brand help improve quality perceptions of the new product is entirely different in this explanation.

The explanation of the enhancement effect based on categorization theory is further confirmed by the moderating effects of complementarity of bundle component and the bundling form. Clearly, the enhancement effects in a bundle vary across different levels of complementarity and different bundling forms, because these moderators change consumers' categorization processes. In particular, in a complementary or mixed-joint bundle, the new product is more likely to be grouped into the category represented by the established brand. Thus, the enhancement effect appears more significant.

These mechanisms and findings also have important implications for research into bundle evaluations. Most of the current research of bundling evaluations primarily focuses on the price information in the bundle. Further research in bundling which integrates both the non-price and price information is advocated recently (Yadav and Monroe 1993). Echoing with this call, we integrate price information with brand information as well bundling contextual factors to provide a comprehensive understanding toward the evaluative process of bundling offers. The upshot is that, given the empirical findings in this study, researchers may need to put more efforts and attention on how bundling contextual factors influence the evaluative process.

The current study also enriches research in categorization. In most existing literature about categorization, the degree a new item can be grouped into a category is basically determined by its typicality (Cohen and Basu 1987; Loken and Ward 1990). In the two pronounced models about relationship between attribute sharing and typicality (Rosch and Mervis's (1975) family resemblance model and Tversky's (1977) feature-similarity model), typicality is primarily determined by physical features, or concrete attributes of an object. However, categorization is also altered by context cues instead of product features (Henderson and Peterson 1992). Few studies have investigated how contextual cues can influence the categorization process. The current study empirically demonstrated that the bundling practice could change the categorization of a new object. In particular, when a new brand was bundled with an established brand, it would be grouped into a "strong brand" category; but when it was bundled with a weak brand, it would be grouped into a "weak brand" category. In other words, the contextual cues altered the categorization of a new object.

Managerial Implications

A key managerial implication of this research is the demonstration of how consumer perceptions of unknown or new product can be enhanced when it is bundled with an established brand. The result of our studies, in conjunction with past research (Eppen, Hanson and Martin 1991; Simonin and Ruth 1995) provides marketers with a vibrant brand alliance strategy. Brand alliances commonly take place between two or more pronounced brands (for instance, Intel microprocessors "inside" Campaq personal computers, Breyer's Starbuck ice cream), because both brands can contribute to the success of the brand alliances. However, as we demonstrated in this study, the individual product, especially the new or weak brand in the bundle can benefit from being bundling together. Consumer quality perceptions of the new product are substantially lifted with the presence of the strong brand in the bundle.

Given the high competition and extremely high failure rates and costs of new product development, our results support the use of bundling for new product introduction and promotion. Simonin and Ruth (1995) find that in a between-brand bundle, a consumer's reservation price for the new product could be raised through an association with an established brand. Based on the basic price-value model (Dodds, Monroe, and Grewal 1991; Grewal, Krishnan, Baker and Borin 1998; Teas and Agarwal 2000; Zeithmal 1988), marketers can anticipate a lifted value for their new product if it is launched with an established brand. Of course, there is no free ride in the marketplace. Given the potential damaging effects of a poorly evaluated new product on the established brand, any manufacturer will hesitate to build up a between-brand with a new brand. However, our study has demonstrated that being bundled with a new brand did not hurt the brand image of the established brand. Moreover, the bundle itself is an incentive to encourage such cooperation, because it can increase demand for both products in

the bundle. If the manufacturer of a new brand can provide a price discount associated with the bundle, this bundling option will appear attractive to any target brand partner.

The results of this study also suggest that the bundling features, complementarity of bundle components and the bundling form, have considerable influences on the enhancement effect. These findings provide important implications for mangers to choose the bundling form and partner. Although the bundling forms, mixed-joint or mixed-leader, have controversial impacts on consumer evaluations of the bundle itself, it is quite clear that consumers will have higher quality perceptions of a new brand in a mixed-joint bundle than in a mixed-leader bundle, given the same price discount. In addition, complementarity between the products in the bundle will improve the enhancement effect. Therefore, if the major goal of the bundling strategy is to launch the new product, managers should choose the mixed-joint bundling with an established complementary partner.

Limitations and future research directions

In this study, we manipulated the bundle partner brand image as "weak" and "strong." The weak bundle partner was "Haier," and the strong partner was "Sony." And we did observed significant effects of the bundle partner brand image on perceived quality of the focal brand, "Changhong." In explanation of the enhancement, we argue that when a new brand is bundled with an established brand, consumers will categorize the new brand in a superordinate category represented by the established brand. Then they will use the membership as a heuristic to judge quality of the new brand, leading to higher perceived quality when it is bundled with the established brand. However, in this study, we confounded brand image strength with information availability of a brand. In general, consumers will have more information about an established brand, or their knowledge about an established brand is more accessible in memory. Therefore,

the effect of the partner brand image may actually arise from brand information accessibility. Therefore, if a consumer has ample information about the new or weak brand, they may form a category represented by the weak brand, instead of represented by the strong brand, thus, leading to no enhancement in the study. Therefore, further research is warranted to investigate if the information availability of a new brand changes the findings we observed in this study.

Chapter 7: General Discussion

Given the prevalence of bundling in marketing practice, how consumers evaluate a bundling offer has received increased intentions from marketing researchers. However, how bundling influences consumer evaluations of individual bundle components is generally ignored. The current research adds to this growing body of literature by examining how bundle price discounts, interacting with framing of bundling, brand names and complementarity of bundle components, influence consumer evaluations of separate bundle products. The present investigation has demonstrated following findings.

Summary of Empirical Findings

Consistent with our hypotheses, the influence of bundle price discount on evaluations of individual bundle components varied across mixed-joint and mixed-leader bundles. In a mixed-joint bundle, bundle price discounts made consumers perceive the regular prices of bundle components as more expensive, however, it had no effect on quality perceptions of individual bundle components.

The influence of bundle price discounts on evaluations of individual bundle components was significantly different in a mixed-leader bundle than that in a mixed-joint bundle. First, the bundle price discount had no influence on perceived price of the undiscounted product in the bundle, but enhanced its perceived quality. Second, the bundle price discount hurt the discounted product in the bundle, leading to more expensive perceived regular price and lower perceived quality. However, the effects of bundle price discount on evaluations of bundle components were moderated by complementarity of bundle components. Under high levels of bundle component complementarity, the negative impacts of the bundle price discount on the discounted product and positive impacts on the undiscounted product were attenuated.

Our empirical findings discovered that brand images interplayed with the basic bundling effects. When two bundled products in a mixed-leader bundle had the same brand name, the negative effect of bundle price discount on perceived quality of the discounted product was attenuated by high brand images.

When two different brands are bundled together, we found that quality perceptions of the weak brand were higher when it was bundled with a well-known brand than when it was bundled with an unknown brand name. More interestingly, the magnitude of the enhancement effect varied across the bundling contexts. More significant enhancement effects were observed in the mixed-joint bundle than in the mixed-leader bundle. Higher levels of complementarity between two bundle products also reinforced the enhancement effects.

The current findings, especially findings in Study 2 also enrich research in mental accounting theory. Mental accounting theory has already spawned considerable conceptual and empirical research (see Thaler 1999). To the best of our knowledge, however, little prior work in bundling has examined the conditions that influence an individual's selection of mental accounts. Our empirical results demonstrated that individuals used a comprehensive instead of topical mental account to evaluate a price discount in a complementary mixed-leader bundle. In other words, the functional relatedness between bundle components influenced the selection of mental accounts.

Our findings also enrich our understanding of brand alliances. Going beyond signaling theory (Rao and Rubert 1994), we applied categorization theory to explain the enhancement effect in a bundle when a new product is bundled with an established brand. We provide a new theoretical understanding into how a favorable attitude toward one brand is transferred to another new product in the same category. We argue that a bundle may be perceived as a superordinate

category represented by the established brand. Consumers may use category membership as a heuristic basis for judgment of the new product or unknown brand without considering more detailed information about the object's concrete characteristics. Therefore the positive affect associated with the established brand is transferred to quality perceptions of the new product in the bundle.

Managerial Implications

The conceptualization guiding the present research provides useful findings for managers to consider their bundling strategies. The ultimate objective of a bundle is to increase sales of bundled components. Thus far, research attentions have primarily been drawn to how to enhance consumer attitudes or evaluations of the bundle. Demonstrated by previous research (Kaicker, Bearden, and Manning 1995; Yadav 1995; Yadav and Monroe 1993), bundle price discounts lead to favorable consumer evaluations of a bundle. So, bundle price discounts might increase the sale of the bundle. However, as we proved in the present study, bundle price discounts will simultaneously make the regular prices of separate individual bundle products more expensive and less attractive to consumers exposed to the bundle. Meanwhile, in a mixed-leader bundle, bundle price discounts hurt consumer quality perceptions of the discounted component. Sales of individual bundle components might go down because of the negative impacts of bundle price discount. If the positive impacts of bundle price discount on evaluations of a bundle cannot outperform the negative effects on evaluations of individual bundle components, bundle price discounts will decrease total sales, imposing negative collective impacts on the merchant.

Regarding the selection of forms of bundling, mixed-joint or mixed-leader bundles, the moderating effect of complementarity of bundle components provides interesting insights for marketing managers. Although the bundle price discount will hurt quality perceptions of the

discounted product in a mixed-leader bundle, high complementarity will attenuate this negative effect. However, special cautions should be taken when non-complementary products are bundled together. In this situation, a mixed-joint bundle might be better than a mixed-leader bundle as far as the influence of the bundle price discount on the discounted product is concerned. Interestingly, based on findings in this study, a merchant might use a mixed-leader bundle to increase the sales of both the bundle and the undiscounted product in the bundle. Even if a consumer is not interested in the bundle, a mixed-leader bundle might boost his/her attitude toward the undiscounted product, because the bundle price discount does not influence consumer perception of its regular price but enhances quality perceptions.

Considerations of the effect of brand images supplement more insights for marketers to choose profitable bundling strategies. As demonstrated by the findings in Study 3, a high brand image will attenuate the negative effect of bundle price discount on quality perceptions of the discounted product. Therefore, for established brand names, managers may ignore the negative effect of bundle price discount on quality perceptions of the discounted product. However, managers for new brands must be very cautious when they launch the new product through bundling offers. They probably should avoid the use of the mixed-leader bundle. The mixed-joint bundle would be a profitable choice to introduce a new brand or for an established brand to enter a new market.

The research findings about the enhancement effect in a bundle provide marketers with a practicable new product introductory strategy. As shown in Study 4, the new or weak brand in a bundle can benefit from being bundling together with an established brand. Consumer quality perceptions of the new product are substantially lifted with the presence of the strong brand in the bundle. We also found that consumers would have higher quality perceptions of the new

brand in a mixed-joint bundle than in a mixed-leader bundle, given the same price discount. In addition, complementarity between the products in the bundle will improve the enhancement effect. Therefore, if the major goal of the bundling strategy is to launch the new product, managers should choose the mixed-joint bundling form with an established complementary partner.

Limitations and Future Research Directions

Besides caveats generally associated with behavioral experiments using student subjects, we have identified some existing limitations, which are also potential directions for future research.

First, we argue that bundle price discounts alter consumer internal reference prices, thus, influence perceptions of the regular prices of individual bundle components. This was supported in our empirical study. However, we did not tap out the real change of consumer internal reference prices. This could be fleshed out in further experimental studies.

Another limitation of this study stems from the nonavailability of manifested observations of a subject's selection of mental accounts. In the discussion of the moderating effects of bundle component complementarity, we propose that high levels of complementarity activate a comprehensive mental account, rather than a topical account when consumers evaluate a bundle. In other words, high levels of complementarity mentally shift a mixed-leader bundle to a mixed-joint bundle in terms of consumer evaluations. Regarding the selection of mental accounts, Kahneman and Tversky (1984, p. 347) suggest that "people will spontaneously frame decisions in terms of topical account that, in the context of decision making, plays a role analogous to that of 'good forms' in perception and of basic-level categories in cognition." Our argument and empirical results are controversial with Kahneman and Tversky's prediction.

Therefore, the study of the conditions activating a topical or a comprehensive mental account represents a critical issue. If we could observe the selection of mental accounts in an individual's cognitive process, we could strengthen the validity and generability of our findings.

The arbitrary setting of levels of bundle price discount is also a caveat open to criticism. We arbitrarily set the low price discount as 10% off the sum of the regular prices of the two bundle components, and the high price discount as 30% off. We also assume the bundle price discount has a linear impact on dependent variables in our model. However, this assumption may not always hold. For instance, consumers will perceive certain levels of price discount as goodwill a merchant attempts to provide to consumers. A slight price discount will not cause negative attributions about quality. However, if the price discount level is too high, it may exaggerate the negative attributions related to poor quality. Therefore, the influence of price discount might not be linear. It may vary across bundling contextual factors as well as the level of itself. Our arbitrary setting of low and high levels of price discount might be problematic. Thus, we must be very cautious when we generalize our results.

Instead of relying on signaling theory to explain the enhancement effect in a bundle in which a weak or new brand is bundled with an established brand, we apply categorization theory to explain why consumer evaluations of the weak brand will be enhanced by favorable attitudes towards the established brand. We argue that the bundle itself helps consumers group the two products in the bundle in a superordinate category, i.e., a "good quality product" category represented by the established product. However, there are still some ambiguous points in this argument. First, why is the superordinate category represented by the established brand, then being a "good quality product" category, instead of being resented by the weak brand? If the latter is the case, the bundle itself will be grouped as a "low quality product" category. This is a

big jump in the line of reasoning. Second, what factors determine the representativeness of the two brands in the bundle? Do the values (prices) of the two bundle components change the categorization process? Does the usage relationship between the two bundle components alter the categorization process? For example, if a printer and a computer are bundled together, the computer will be perceived as the major product and the printer will be perceived as the supplementary one. However, if a printer is bundled with a cartridge, it will be perceived as a major or leading product in the bundle. Will a major product in a bundle be more representative in the categorization process? Answers to these questions will provide more insights for marketing practices as well as theoretical development in categorization research.

Similarly, given two bundled products in a mixed-leader bundle, either the discounted product or the undiscounted product could be perceived as the main product being promoted. However, in study 1, we have presumed that the discounted product is the promoted product often the case. In principle, this doesn't have to be the case. It would be one logic point of future research to investigate how bundling contextual factors, like the functional dominance and cost dominance of one product over the other, influence consumer perceptions of which product is being promoted.

References

Adams, William J. and Janet L. Yellen (1976), "Commodity Bundling and the Burden or Monopoly," *Quarterly Journal of Economics*, 90 (August), 475-498.

Agarwal, Manoj K. and Subimal Chatterjee (2003), "Complexity, Uniqueness, and Similarity in Between-Bundle Choice," *Journal of Product and Brand Management*, Issue 6, Vol. 2.

Bakos, Yannis and Erik Brynjolfsson (1999), "Bundling Information Goods: Pricing, Profits and Efficiency," *Management Science*, 43 (12), 1613-30.

_____ and _____ (2000), "Bundling and Competition on the Internet," *Marketing Science*, 19 (1) , 63-82.

Barsalou, Lawrence W. (1982), "Context-Independent and Context-Dependent Information in Concepts," *Memory and Cognition*, 10 (1), 82-93.

Bentler, peter M. (1990), "Comparative Fit Indexes in Structural Models," *Psychological Bulletin,* 107 (March), 238-46.

Bettman, James R., Eric J. Johnson, John W. Payne (1990), "A Componential Analysis of Cognitive Effort in Choice," *Organizational Behavior and Human Decision Processes*, Vol. 45, Iss. 1, 111-139

_____ and Mita Sujan (1987), "Effects of Framing on Evaluation of Comparable and Noncomparable Alternatives by Expert and Novice Consumers," *Journal of Consumer Research*, 14 (September), 141-54.

Bischoff, Glenn (2003), "Bundling Up," *Telephony*, May 19, 2003.

Blattberg, Robert C. and Scott A. Neslin (1990), *Sales Promotion: Concepts, Methods, and Strategies*, Englewood Cliffs, NJ: Prentice Hall.

Bodenhausen, Galen V. and Meryl Lichtenstein (1987), "Social Stereotypes and Information-Processing Stategies: The Impact of Task Complexity," *Journal of Personality and Social Psychology,* 52 (May), 871-80.

_____ and Robert S. Wyer (1985), "Effects of Stereotypes on Decision Making and Information-Processing Strategies," *Journal of Personality and Social Psychology,* 48 (February), 267-82.

Bollen, Kenneth A. (1989), *Structural Equations with Latent Variables*. New York: John Wiley & Sons.

Bonini Nicolao and Rino Rumiati (1996), "Mental Accounting and Acceptance of a Price Discount," *Acta Psychologica*, 93, 149-60.

_____ and _____ (2002), "Acceptance of a Price Discount: The Role of the Semantic Relatedness between Purchases and the Comparative Price Format," *Journal of Behavioral Decision Making*, 15, 203-220.

Boulding, William and Amna Kirmani (1993), "A Consumer-Side Experimental Examination of Signaling Theory: Do Consumers Perceive Warranties as Signals of Quality?" *Journal of Consumer Research*, 20 (June), 111-123.

Burton, Scot, Donald R. Lichtenstein, Abhijit Biswas, and Katherine Fraccastoro(1990), "The Role of Attributions in Consumer Perceptions of Retail Advertisements Promoting Price Discounts," *Marketing Letters,* 5:2, 131-40.

Chen, Shh-Fen S., Kent Monroe, and Yung-Chien Lou (1998), "The Effects of Framing Price Promotion Messages on Consumers' Perception and Purchase Intention," *Journal of Retailing*, 74(3), 353-72.

Cohen, Joel B. (1982), "The Role of Affect in Categorization: Towards a Reconsideration of the Concept of Attitude," in *Advances in Consumer Research*, Vol. 9, ed. Andrew A. Mitchell, Ann Arbor, MI: Association for Consumer Research, 94-100.

_____ and Kunal Basu (1987), "Alternative Models of Categorization: Toward a Contingent Processing Framework," *Journal of Consumer Research*, 13 (March), 455-72.

Compeau, Larry D. and Dhruv Grewal (1998), "Comparative Price Advertising: an Integrative Review," *Journal of Public Policy & Marketing*, 17(2), 257-273.

Dawar, Niraj and Philip Parker (1996), "Marketing Universals: Consumers' Use of Brand Name, Price, Physical Appearance, and Retailer Reputation as Signals of Product Quality," *Journal of Marketing*, 58 (April): 81-95

Dodds, Willaim B., Kent B. Monroe, and Dhruv Grewal (1991), "Effects of Price, Brand and Store Information on Buyer's Product Evaluation," *Journal of Marketing Research*, 28 (August), 307-19.

Emory, Fred (1970), "Some Psychological Aspects of Price," in *Pricing Stategy*, Bernard Taylor and Gordon Wills, eds. Princeton, NJ: Brandon/Systems, 98-111.

Eppen, Gary D., Ward A. Hanson and R. Kipp Martin (1991), "Bundling- New Products, New Markets, Low Risk," *Sloan Management Review*, Summer 1991, 7- 14.

Erdem, Tulin (1998), "An Empirical Analysis of Umbrella Branding," *Journal of Marketing Research*, 35 (August) 339-51.

Fazio, Russell H. (1986), "How Do Attitudes Guide Behavior?" in *The Handbook of Motivation and Cognitions for Social Behavior*, R. M. Sorrentino and E. Tory Higgins, eds. New York: Guilford Press.

Fiske, Susan T. (1981), "Social Cognition and Affect," in *Cognition, Social Behavior, and the Environment*, ed. J. Harvey, Hillsdale, NJ: Erlbaum, 55-78.

_____ (1982), "Schema- Triggered Affect: Applications to Social Perception," in *Affect and Cognition: the 17th Annual Carnegie Symposium on Cognition*, ed, Margaret S. Clark and Susan T. Fiske, Hillsdale, NJ: Lawrence Erlbaum, 55-78.

Fitchard, Kevin (2003), "Sprint Preps for Bundling," *Telephony*, September 22, 2003.

Gaeth, Gary J., Irwin P. Lewin, Gautam Chakraborty, and Aron M. Levin (1990), "Consumer Evaluation of Multi-Products Bundles: An Information Integration Approach," *Marketing Letters*, 2(1), 47-57.

Gilovich, Thomas (1981), "Seeing the Past in the Present: The Effect of Associations to Familiar Events on Judgments and Decisions," *Journal of Personality and Social Psychology*, 40 (May), 797-808.

Goldberg, Lewis (1986), "The Validity of Rating Procedures to Index the Hierarchical Level of Categories," *Journal of Memory and Language*, 25 (3), 323-47.

Grewal, Dhruv and Larry D. Compeau (1992), "Comparative Price Advertising: Informative or Deceptive?" *Journal of Public Policy & Marketing*, 11 (Spring), 52-62.

_____, R. Krishnan, Julie Baker and Norm Borin (1998), "The Effect of Store Name, Brand Name and Price Discounts on Consumers' Evaluations and Purchase Intentions," *Journal of Retailing*, 74(3), p. 331-52.

_____, and Howard Marmorstein (1994), "Market Price Variation, Perceived Price Variation and Consumers' Price Search Decisions for Durable Goods," *Journal of Consumer Research*, 21(December), 452-60.

_____, Kent B. Monroe and R. Krishnan (1998), "The Effects of Price-Comparison Advertising on Buyers' Perceptions of Acquisition Value, Transaction Value, and Behavioral Intentions," *Journal of Marketing*, 62 (April), 46-59.

Guiltinan, Joseph (1987), "The Price Bundling of Services: A Normative Framework," *Journal of Marketing*, 51 (April), 74-85

Hanson Ward and R. Kipp Martin (1970), "Optimal Bundle Pricing," *Management Science*, Vol. 36, No. 2, 155-174.

Holbrook, Morris B. and Kim P. Corfman (1985), "Quality and Value in the Consumption Experience: Phaedrus Rides Again," in *Perceived Quality*, J. Jacoby and J. Olson, eds. Lexington, MA: Lexington Books, 31-57.

Harlam, Bari, Aradhna Krishna, Donald R. Lehmann, and Carl Mela (1995), "The Impact of Bundle Type, Price Framing and Familiarity on Evaluations of the Bundle," *Journal of Business Research*, 33(1), 57-66.

Heath, Timothy B., Subbimal Chatterjee, and Karen Russo France (1995), "Mental Accounting and Changes in Price: The Frame Dependence of Reference Dependence," *Journal of Consumer Research*, 22(June), 90-97.

Helson, Harry (1964), *Adaptation-Level Theory*, New York: Harper&Row.

Henderson, Pamela W. and Robert A. Peterson (1992), "Mental Accounting and Categorization," *Organizational Behavior and Human Decision Processes*, 51, 92-117.

Jacoby, Jacob and Jerry C. Olson (1977), "Consumer Response to Price: An Attitude, Information Processing Perspective," in *Moving Ahead with Attitude Research*, Yoram Wind and Marshall Greensberg, eds. Chicago, IL: American Marketing Association, 73-86.

Janiszewski, Chris and Donald R. Lichtenstein (1999), "A Range Theory Account of Price Perception," *Journal of Consumer Research*, 25 (March), 353-68.

Johnson, Eric J. and J. Edward Russo (1984), "Product Familiarity and Learning New Information," *Journal of Consumer Research*, 11 (June), 542-50.

Johnson, Michael D., Andreas Herrmann, and Hans H. Bauer (1999), "The Effects of Price Bundling on Consumer Evaluations of Product Offerings," *International Journal of Research in Marketing*, 16, 129-42.

Joreskog, Karl and Dag Sorbom (1993), *LISREL 8: Structural Equation Modeling with SIMPIS Command Language*, Chicago: Scientific Software International.

Joyce E J. and B. Shapiro (1995), "Invariance Violations and Mental Accounting Procedure in Riskless Matching," *Organizational Behavior and Human Decision Process*, 62, 175-89.

Kahneman, Daniel, Jack L. Knetsch, Richard Thaler (1986), "Fairness as a Constraint on Profit Seeking : Entitlements in the Market," *The American Economic Review*, Vol. 76, Iss. 4 (September), 728-41.

_____ and Amos Tversky (1979), "Prospect Theory: an Analysis of Decisions under Risk," *Econometrica*, 47, 263-291.

_____ and _____ (1984), "Choices, Values and Frames," *American Psychologist*, 39, 341-350.

Kaicker, Ajit, William O. Bearden, and Kenneth C. Manning (1995), "Component versus Bundle Pricing: The role of Selling Price Deviations from Price Expectations," *Journal of Business Research*, 33(May), 231-39.

Kalyanaram, Gurumurthy and Russel S. Winer (1995), "Empirical Generalizations from Reference Price Research," *Marketing Science*, 21(December), 408-18.

Keller, Kevin. L., & David A. Aaker (1992), "The Effect of Sequential Introduction of Brand Extensions." *Journal of Marketing Research*, 29: 35-50.

_____ (1993), "Conceptualizing, Measuring, and Managing Customer-Based Brand Equity," *Journal of Marketing*, 57 (January), 1-22.

Kelley, Harold H. (1973), "The Process of Causal Attribution," *American Psychologist*, 28, 107-128.

_____ and John L. Michela (1980), "Attribution Theory and Research," *Annual Review of Psychology*, 31, 457-501.

Kirmani, Amna and Akshay R. Rao (2000), "No Pain, No Gain: A Critical Review of the Literature on Signaling Unobservable Product Quality," *Journal of Marketing*, Vol. 64 (April), 66-79.

Klein, Noreen M. and Janet E. Oglethorpe (1987), "Cognitive Reference Point in Consumer Decision Making," in *Advances in Consumer Research*, Vol. 14, ed. Melanie Wallendorf and Paul F. Anderson, Provo, UT: Association for Consumer Research.

Lichtenstein, Donald R. and William O. Bearden (1986), "Measurement and Structure of Kelley's Covariance Theory," *Journal of Consumer Research*, 13, 290-96.

_____ and _____ (1989), "Contextual Influences on Perceptions of Merchant-supplied Reference Price," *Journal of Consumer Research*, 16(June), 55-66.

_____, Peter H. Bloch, and William C. Black (1988), "Correlates of Price Acceptability," *Journal of Consumer Research*, 15(September), 243-52.

_____ and Scott Burton (1989), "The Relationship Between Perceived and Objective Price-Quality", *Journal of Marketing Research,* Vol. 26, pp. 429-443.

_____, _____, and Bradley S. O'Hara (1989), "Marketplace Attributions and Consumer Evaluations of Discount Claims," *Psychology & Marketing*, Vol. 6(3), 163-80.

_____, Nancy M. Ridgway, and Richard G. Netemeyer (1993), "Price Perceptions and Consumer Shopping Behavior: A Field Study", *Journal of Marketing Research,* Vol. 30, pp. 234-245.

Loken, Barbara and James Ward (1990), "Alternative Approaches to Understanding the Determinants of Typicality," *Journal of Consumer Research*, 17 (September), 111- 26.

Luna, Lynnette (2002), "Verizon Bucks Trend by Bundling up," *Telephony*, August 12, 2002.

Mazumdar, Tridib and Sung Youl Jun (1993), "Consumer Evaluations of Multiple versus Single Price Change," *Journal of Consumer Research*, 20(December), 441-50.

Miranda, Mario J (2001), "The Influence of Price Reductions on Shoppers' Reference Price and Reservation Price When Upgrading to Premium Brands," *Journal of Targeting, Measurement and Analysis for Marketing*, Vol. 10, No. 1, 42-54.

Monroe, Kent B. (1971), "Psychophysics of Price: A Reappraisal," *Journal of Marketing Research*, 8(May), 248-51.

_____ (1973), "Buyers' Subjective Perceptions of Price," *Journal of Marketing Research,* 10(February), 70-80.

_____ (2003), *Pricing*, 3rd edition, McGraw-Hill Irwin.

_____and Joseph E. Chapman, "Framing Effects on Buyers' Subjective Product Evaluations," in Melanie Wallendorf and Paul Anderson, eds., *Advances in Consumer Research*, vol. 14 (Provo, UT: Association for Consumer Research, 1987), 193-97.

Montgomery, Cynthia A. and Birger Wernerfelt (1992), "Risk Reduction and Umbrella Branding," *Journal of Business*, 65 (1), 31-50.

Morwitz, Vicki G., Eric A. Greenleaf, and Eric J. Johnson (1998), "Divide and Prosper: Consumers' Reactions to Partitioned Prices," *Journal of Marketing Research,* 35 (November), 453-63.

Petty, Richard E. and John T. Cacioppo (1986), *Communication and Persuasion*, New York: Springer-Verlag.

Rajendran K. N. and Gerard J. Tellis (1994), "Contextual and Temporal Components of Reference Price," *Journal of Marketing*, 58(January), 22-34.

Rao, Akshay R. and Kent B. Monroe (1989), "The Effect of Price, Brand Name, and Store Name on Buyers' Perceptions of Product Quality: An Integrative Review," *Journal of Marketing Research*, 26(August), 351-57.

_____, Lu Qu, and Robert W. Ruekert (1999), "Signaling Unobservable Quality Through a Brand Allay," *Journal of Marketing Research*, 36 (May), 125-68.

_____ and Robert W. Rucker (1994), "Brand Alliances as Signals of Product Quality," *Sloan Management Review*, 36 (Fall), 87-97.

Read, Stephen J. (1983), "Once is Enough: Causal Reasoning from a Single Instance," *Journal of Personality and Social Psychology*, 45 (August), 323-34.

Riesz, Peter C. (1978), "Price versus Quality in the Marketplace, 1961-1975," *Journal of Retailing*, 54(Winter), 15-28.

Rosch, Eleanor (1975), "Cognitive Representations of Semantic Categories," *Journal of Experimental Psychology: General*, 104 (September), 192-233.

_____ and Carolyn B. Mervis (1975), "Family Resemblances: Studies in the Internal Structure of Categories," *Cognitive Psychology*, 7 (October), 573-605.

_____, _____, Wayne D. Gray, David M. Johnson, and Penny Boyes-Braem (1976), "Basic Objects in Natural Categories," *Cognitive Psychology*, 8 (July), 382-429.

Schmalensee, Richard (1982), "Commodity Bundling by Single-Product Monopolists," *Journal of Law and Economics,* 25 (April), 67-71.

Sherif, Carolyn (1963), "Social Categorization as a function of Latitude of Acceptance and Series Range," *Journal of Abnormal Social Psychology*, 67 (August), 148-56.

Simonin, Bernard L. and Julie A. Ruth (1995), "Bundling as a Strategy for New Product Introduction: Effects on Consumers' Reservation Prices for the Bundle, the New Product, and its Tie-in," *Journal of Business Research*, 33, 219-30.

_____ and _____(1998), "Is a Company Known by the Company it Keeps? Assessing the Spillover Effects of Brand Alliances on Consumer Brand Attitudes," *Journal of Marketing Research*, Vol. 35 (February), 30-42.

Stigler, George J. (1963), "*United States v. Loew's Ink*: A not on Block Booking," *Supreme Court Review*, 152.

Stremersch, Stefan and Gerard J. Tellis (2002), "Strategic Bundling of Products and Prices: A New Synthesis for Marketing," *Journal of Marketing*, Vol. 66 (January), 55-72.

Sujan, Mita (1985), "Consumer Knowledge: Effects on Evaluation Strategies Mediating Consumer Judgments," *Journal of Consumer Research*, 12 (June), 31-46.

_____ and Christine Deklava (1987), "Product Categorization and Inference Making: Some Implications for Comparative Advertising,": *Journal of Consumer Research*, 14 (December), 372-78.

Suri, Rajneesh and Kent B. Monroe (1995), "Effects of Consumers' Purchase Plans on the Evaluation of Bundle Offers," *Advances in Consumer Research*, Vol. 22, 588-93.

Teas, R. Kenneth and Sanjeev Agarwal (2000), "The Effects of Extrinsic Product Cues on Consumers' Perceptions of Quality, Sacrifice, and Value," *Journal of the Academy of Marketing Science*, 28, No. 2, 278-90.

Telser, L. G., "A Theory of Monopoly of Complementary Goods," *Journal of Business Research*, 52 (2), 211-30.

Thaler, Richard H. (1985), "Mental Accounting and Consumer Choice," *Marketing Science*, Vol. 4, No. 3, 199-214.

_____(1999), "Mental Accounting Matters," *Journal of Behavioral Decision Making*, 12, 183-206.

Tversky, Amos (1977), "Features of Similarity," *Psychological Review*, 84 (July), 327-52.

_____ and Daniel Kahneman (1974), "Judgment under Uncertainty: Heuristics and Biases," *Science*, 185 (September), 1124-1131.

_____ and _____(1981), "The Framing of decisions and the Psychology of Choice," *Science*, 211, 453-458.

Urbany, Joel E., William O. Bearden, and Dan Weilbaker (1988), "The Effects of Plausible and Exaggerated Reference Prices on Consumer Perceptions and Price Search," *Journal of Consumer Research*, 15(June), 95-110.

_____, _____, Ajit Kaicker, and Melinda Smith-de Borrero (1997), "Transaction Utility Effects When Quality is Uncertain," *Journal of the Academy of Marketing Science*, 25, No. 1, 45-55.

_____ and Peter R. Dickson (1991), "Consumer Normal Price Estimation," *Journal of Consumer Research*, 18 (June), 45-51.

Varadarajan, P. Rajan (1986), "Horizontal Cooperative Sales Promotion: A Framework for Classification and Additional Perspective," *Journal of Marketing*, 50 (April), 61-73.

Vittore, Vince and Glenn Bischoff (2003), "Bundling Strategy Provides Soft Landing," *Telephony*, Oct 27, 2003.

Wernerfelt, Birger (1988), "Umbrella Branding as a Signal of New Product Quality: An Example of Signaling by Posting a Bond," *Rand Journal of Economics*, 19 (3), 458-66.

Winer, Russell S. (1988), "Behavioral Perspectives on Pricing: Buyers' Subjective Perceptions of Price Revisited," in T. Devinney, ed., *Issues in Pricing: Theory and Research*, Lexington, MA: Lexington Boods.

Wright, Peter L. 1975, "Consumer Choice Strategies: Simplifying vs. Optimizing," *Journal of Marketing Research,* 11 (February), 60-7.

Yadav, Manjit (1994), "How Buyers Evaluate Product Bundles: A Model of Anchoring and Adjustment," *Journal of Consumer Research*, 21 (September), 342-353.

_____ (1995), "Bundle Evaluation in Different Market Segments: The effects of Discount Framing and Buyers' Preference Heterogeneity," *Journal of the Academy of Marketing Science*, 23, 3, 206-15.

_____ and Kent B. Monroe (1993), "How Buyers Perceive Savings in a Bundle Price: An Examination of a Bundle's Transaction Value," *Journal of Marketing Research*, 30 (August), 350-58.

Zeithaml, Valarie (1988), "Consumer Perception of Price, Quality and Value: A Means-End Model and Synthesis of Evidence," *Journal of Marketing*, 52 (July), 2-22.

Appendixes

Appendix 1: Experiment Stimuli of Study 1

a. Experimental Design of Mixed-Joint Bundles

	Complem-entarity	Price Discount	Bundle			
1	High	High	Item	Price		Buy the TV and the DVD/VCR combo at
			A: 20 inch Flat screen TV	$250	OR	**$280** as a bundle
			B: DVD/VCR combo	$150		(get **$120** off from total price of A&B)
2	High	Low	Item	Price		Buy the TV and the DVD/VCR combo at
			A: 20 inch Flat screen TV	$250	OR	**$360** as a bundle
			B: DVD/VCR combo	$150		(get **$40** off from the total price of A&B)
3	Low	High	Item	Price		Buy the cordless phone and blender as a
			A: Cordless phone	$50	OR	bundle at **$70**
			B: Blender	$50		(get $**30** off from total price of A & B)
4	Low	Low	Item	Price		Buy the cordless phone and blender as a
			A: Cordless phone	$50	OR	bundle at **$90**
			B: Blender	$50		(get $**10** off from total price of A & B)

b. Experimental Design of Mixed-Leader Bundles

	Complem-entarity	Price Discount	Bundle			
1	Low	High	Item	Price		Buy the grill at $90 and the task chair at **$15**
			A: Gas grill	$90	OR	as a bundle.
			B: Deluxe task chair	$60		(get **$45** off the regular price of B)
2	Low	Low	Item	Price		Buy the grill at $90 and the task chair at **$45**
			A: Gas grill	$90	OR	as a bundle.
			B: Deluxe task chair	$60		(get **$15** off the regular price of B)
3	High	High	Item	Price		Buy the washer at $400 and the dryer at $**160**
			A: Cloth washer	$400	OR	as a bundle
			B: Cloth dryer	$400		(get **$240** off from the regular price of B)
4	High	Low	Item	Price		Buy the washer at $400 and the dryer at $**320**
			A: Cloth washer	$400	OR	as a bundle
			B: Cloth dryer	$400		(get **$80** off from the regular price of B)

c. One Example of Stimuli in Study 1

Suppose you are in a store and you see following offers:

Item	Price		Buy the TV and the DVD/VCR combo at **$280**
A: 20 inch Flat screen TV	$250	OR	as a bundle
B: DVD/VCR combo	$150		(get **$120** off from total price of A&B)

Please answer following questions:

I'm_____ with flat screen TVs	Unfamiliar	1	2	3	4	5	6	7	Familiar
I'm _____with flat screen TVs	Unknowledgeable	1	2	3	4	5	6	7	Knowledgeable
I'm_____ with DVD/VCR combos	Unfamiliar	1	2	3	4	5	6	7	Familiar
I'm _____with DVD/VCR combos	Unknowledgeable	1	2	3	4	5	6	7	Knowledgeable

A TV and a DVD/VCR combo are highly complementary	Disagree	1	2	3	4	5	6	7	Agree
A TV and a DVD/VCR combo are very likely to be used together	Disagree	1	2	3	4	5	6	7	Agree
A TV and a DVD/VCR combo are semantically	Unrelated	1	2	3	4	5	6	7	Related

Please indicate your attributions of the bundle offer by answering following questions. That is, why does the merchant provide such a bundle offer?

Because the flat screen TV is inferior	Improbable	1	2	3	4	5	6	7	Probable
Because the flat screen TV is unpopular	Improbable	1	2	3	4	5	6	7	Probable
Because the flat screen TV's performance is poor	Improbable	1	2	3	4	5	6	7	Probable
Because the TV's future price is going down	Improbable	1	2	3	4	5	6	7	Probable
Because the DVD/VCR combo is inferior	Improbable	1	2	3	4	5	6	7	Probable
Because the DVD/VCR combo is unpopular	Improbable	1	2	3	4	5	6	7	Probable
Because the DVD/VCR combo's performance is poor	Improbable	1	2	3	4	5	6	7	Probable
Because the DVD/VCR combo's future price is going down	Improbable	1	2	3	4	5	6	7	Probable

The merchant wants:

To make customers think they are getting a good deal	Improbable	1	2	3	4	5	6	7	Probable
To increase sales	Improbable	1	2	3	4	5	6	7	Probable
To attract more customers	Improbable	1	2	3	4	5	6	7	Probable
To get rid of current inventory	Improbable	1	2	3	4	5	6	7	Probable

Now, please evaluate the bundle:

	Disagree						Agree
If I bought the bundle, the deal I would be getting is very good	1	2	3	4	5	6	7
I would be satisfied if I bought the bundle at the reduced price	1	2	3	4	5	6	7
Taking advantage of this bundle deal will give me a sense of joy	1	2	3	4	5	6	7
It is worth buying A and B as a set	1	2	3	4	5	6	7
Buying A and B as a set is very economical	1	2	3	4	5	6	7

I really like this bundle	Disagree	1	2	3	4	5	6	7	Agree
This bundle is	Unfavorable	1	2	3	4	5	6	7	Favorable
This bundle is	Bad	1	2	3	4	5	6	7	Good
This bundle is	Unattractive	1	2	3	4	5	6	7	Attractive

Now, suppose you do not want to buy the bundle as a set. You only need one product, the flat screen TV or the DVD/VCR combo, because you own the other one at home.

Suppose you are interested in a flat screen TV, please tell us your evaluation of this one:

The regular price ($250) of the flat screen TV is	Cheap	1	2	3	4	5	6	7	Expensive
The regular price ($250) of the flat screen TV is	Unattractive	1	2	3	4	5	6	7	Attractive
The regular price ($250) of the flat screen TV is	Unfair	1	2	3	4	5	6	7	Fair

This flat screen TV is	Unreliable	1	2	3	4	5	6	7	Reliable
This flat screen TV is of	Low quality	1	2	3	4	5	6	7	High quality
This flat screen TV is	Inferior	1	2	3	4	5	6	7	Superior

	Disagree						Agree
If I bought the flat screen TV, the deal I would be getting is very good	1	2	3	4	5	6	7
I would be satisfied if I bought the flat screen TV at this price	1	2	3	4	5	6	7
It is worth buying this flat screen TV at $250	1	2	3	4	5	6	7
Buying this flat screen TV is very economical	1	2	3	4	5	6	7
	Disagree						Agree
Buying this flat screen TV is a very good value for the money	1	2	3	4	5	6	7
Buying the flat screen TV is a good buy	1	2	3	4	5	6	7
Buying the flat screen TV at $250 is getting my money's worth	1	2	3	4	5	6	7
Buying the TV meets high quality and low price requirements	1	2	3	4	5	6	7

I would be _____ to buy this flat screen TV	Very unlikely	1	2	3	4	5	6	7 Very likely
The probability of buying this flat screen TV is	Very low	1	2	3	4	5	6	7 Very high
My willingness to buy this flat screen TV is	Very low	1	2	3	4	5	6	7 Very high

Suppose you're interested in a DVD/VCR combo, please tell us your evaluation of this one:

The regular price ($150) of the DVD/VCR combo is	Cheap	1	2	3	4	5	6	7 Expensive
The regular price ($150) of the DVD/VCR combo is	Unattractive	1	2	3	4	5	6	7 Attractive
The regular price ($150) of the DVD/VCR combo is	Unfair	1	2	3	4	5	6	7 Fair

This DVD/VCR combo is	Unreliable	1	2	3	4	5	6	7 Reliable
This DVD/VCR combo is of	Low quality	1	2	3	4	5	6	7 High quality
This DVD/VCR combo is	Inferior	1	2	3	4	5	6	7 Superior

	Disagree						Agree
If I bought the DVD/VCR combo, the deal I would getting is very good	1	2	3	4	5	6	7
I would be satisfied if I bought the DVD/VCR combo at this price	1	2	3	4	5	6	7
It is worth buying this DVD/VCR combo at $150	1	2	3	4	5	6	7
Buying this DVD/VCR combo is very economical	1	2	3	4	5	6	7
	Disagree						Agree
Buying this DVD/VCR combo is a very good value for the money	1	2	3	4	5	6	7
Buying the DVD/VCR combo is a good buy	1	2	3	4	5	6	7
Buying the DVD/VCR combo at $150 is getting my money's worth	1	2	3	4	5	6	7
Buying the combo meets high quality and low price requirements	1	2	3	4	5	6	7

I would be _____ to buy this DVD/VCR combo	Very unlikely	1	2	3	4	5	6	7	Very likely
The probability of buying this DVD/VCR combo is	Very low	1	2	3	4	5	6	7	Very high
My willingness to buy this DVD/VCR combo is	Very low	1	2	3	4	5	6	7	Very high

Appendix 2: Experiment Stimuli of Study 1b

a. Experimental Design

	Form	Price Discount	Bundle		
1	Mixed-Joint	Low	Item / Price A: Gas grill / $90 B: Deluxe task chair / $60	OR	Buy the grill and the task chair together as a bundle at **$135** (get **$15** off from the total price of A and B)
2	Mixed-Joint	High	Item / Price A: Gas grill / $90 B: Deluxe task chair / $60	OR	Buy the grill and the task chair together as a bundle at **$105** (get **$45** off from the total price of A and B)
3	Mixed-leader	Low	Item / Price A: Gas grill / $90 B: Deluxe task chair / $60	OR	Buy the grill at $90 and the task chair at **$45** as a bundle. (get **$15** off the regular price of B)
4	Mixed-leader	High	Item / Price A: Gas grill / $90 B: Deluxe task chair / $60	OR	Buy the grill at $90 and the task chair at **$15** as a bundle. (get **$45** off the regular price of B)

b. An Example of the Stimuli

In this section, we are interested in your shopping behavior. Suppose you are in a store and you see following offers:

Product	Price		Buy the grill and the task chair together as a
A: Gas grill	$90	OR	bundle at **$135**
B: Deluxe task chair	$60		(get **$15** off from the total price of A and B)

Now, please evaluate the price deal by indicating your disagreement or agreement of following statements:

	Disagree						Agree
If I buy the bundle, the price deal I would be getting is very good	1	2	3	4	5	6	7
The price reduction in this bundle is really satisfying	1	2	3	4	5	6	7
Taking advantage of this price deal will give me a sense of joy	1	2	3	4	5	6	7
The price reduction in the bundle is a big saving	1	2	3	4	5	6	7

Suppose you're interested in the bundle, please tell us your evaluations about it:

	Disagree						Agree
Overall, this bundle is a good value for the money	1	2	3	4	5	6	7
I feel that I'm getting good quality products for a reasonable price	1	2	3	4	5	6	7
Buying this bundle meets high quality and low price requirements	1	2	3	4	5	6	7
If I buy this bundle, I would be getting money's worth	1	2	3	4	5	6	7

Overall,

I really like this bundle	Disagree	1	2	3	4	5	6	7 Agree
This bundle is	Unfavorable	1	2	3	4	5	6	7 Favorable
This bundle is	Unattractive	1	2	3	4	5	6	7 Attractive

Now, suppose you do not want to buy the bundle as a set. You only need one product, the gas grill or the deluxe task chair, because you own the other one at home.

Suppose you're interested in a gas grill, please tell us your evaluation of this one:

The regular price ($90) of the gas grill is	Unattractive	1	2	3	4	5	6	7 Attractive
The regular price ($90) of the gas grill is	Unfair	1	2	3	4	5	6	7 Fair
This gas grill is	Unreliable	1	2	3	4	5	6	7 Reliable
This gas grill is of	Low quality	1	2	3	4	5	6	7 High quality
This gas grill is	Inferior	1	2	3	4	5	6	7 Superior

Suppose you're interested in a deluxe task chair, please tell us your evaluation of this one:

The regular price ($60) of the task chair is	Unattractive	1	2	3	4	5	6	7 Attractive
The regular price ($60) of the task chair is	Unfair	1	2	3	4	5	6	7 Fair
This deluxe task chair is	Unreliable	1	2	3	4	5	6	7 Reliable
This deluxe task chair is of	Low quality	1	2	3	4	5	6	7 High quality
This deluxe task chair is	Inferior	1	2	3	4	5	6	7 Superior

Appendix 3: Experiment Stimuli of Study 2

a. Experimental Design

	Complem-entarity	Price Discount	Bundle			
1	Low	High	Item	Price		Buy the grill at $90 and the task chair at **$15** as a bundle. (get **$45** off the regular price of B)
			A: Gas grill	$90	OR	
			B: Deluxe task chair	$60		
2	Low	Low	Item	Price		Buy the grill at $90 and the task chair at **$45** as a bundle. (get **$15** off the regular price of B)
			A: Gas grill	$90	OR	
			B: Deluxe task chair	$60		
3	High	High	Item	Price		Buy the washer at $400 and the dryer at $**160** as a bundle (get **$240** off from the regular price of B)
			A: Cloth washer	$400	OR	
			B: Cloth dryer	$400		
4	High	Low	Item	Price		Buy the washer at $400 and the dryer at $**320** as a bundle (get **$80** off from the regular price of B)
			A: Cloth washer	$400	OR	
			B: Cloth dryer	$400		

b. An Example of the Stimuli

Suppose you are in a store and you see following offers:

Item	Price		
A: Cloth washer	$400	OR	Buy the washer at $400 and the dryer at $**320** as a bundle
B: Cloth dryer	$400		(get **$80** off from the regular price of B)

Now, please evaluate the bundle by indicating your disagreement and agreement of following statements:

	Disagree						Agree
If I bought the bundle, the deal I would be getting is very good	1	2	3	4	5	6	7
I would be satisfied if I bought the bundle at the reduced price	1	2	3	4	5	6	7
Taking advantage of this bundle deal will give me a sense of joy	1	2	3	4	5	6	7
It is worth buying A and B as a set	1	2	3	4	5	6	7
Buying A and B as a set is very economical	1	2	3	4	5	6	7

Please indicate your disagreement and agreement of following statements:

A cloth washer and a cloth dryer are highly complementary	Disagree	1	2	3	4	5	6	7	Agree
A cloth washer and a cloth dryer are very likely to be used together	Disagree	1	2	3	4	5	6	7	Agree
A cloth washer and a cloth dryer are semantically	Unrelated	1	2	3	4	5	6	7	Related

Now, imagine you are considering buying A and B as a set. You consider both the original price information and the price reduction. Please tell us your disagreement or agreement about following statements:

	Disagree							Agree
This $80 price reduction is a big saving	Disagree	1	2	3	4	5	6	7	Agree
This $80 price reduction is substantive	Disagree	1	2	3	4	5	6	7	Agree
This $80 price reduction is very attractive	Disagree	1	2	3	4	5	6	7	Agree

c. Experimental Design of Study 2-Replicated

	Complem-entarity	Price Discount	Bundle			
1	Low	High	Item	Price		Buy the fish finder at $100 and the yoga kit at **$40** as a bundle. (get **$60** off from the regular price of B)
			A: Electronic Fish Finder	$100	OR	
			B: Yoga Kit	$100		
2	Low	Low	Item	Price		Buy the fish finder at $100 and the yoga kit at **$80** as a bundle. (get **$20** off from the regular price of B)
			A: Electronic Fish Finder	$100	OR	
			B: Yoga Kit	$100		
3	High	High	Item	Price		Buy the car radio tuner at $200 and the amplifier at **$80** as a bundle (get **$120** off from regular price of B)
			A: Car radio tuner	$200	OR	
			B: Car amplifier	$200		
4	High	Low	Item	Price		Buy the car radio tuner at $200 and the amplifier at **$160** as a bundle (get **$40** off from regular price of B)
			A: Car radio tuner	$200	OR	
			B: Car amplifier	$200		

Appendix 4: Experiment Stimuli of Study 3

a. Experimental Design

Brand Image	Complem-entarity	Price Discount	Stimuli			
			Regular Offer			Bundle
High	Low	High	Product	Price		Buy the FAX at $100 and the DVD/VCR combo at $40 as a set
			A: Panasonic Plain Paper Memory Fax	$100	OR	
			B: Panasonic DVD/VCR Combo	$100		
High	Low	Low	Product	Price		Buy the FAX at $100 and the DVD/VCR combo at $80 as a set
			A: Panasonic Plain Paper Memory Fax	$100	OR	
			B: Panasonic DVD/VCR Combo	$100		
High	High	High	Product	Price		Buy the TV at $100 and the DVD/VCR combo at $40 as a set
			A: Panasonic 19-inch Color TV	$100	OR	
			B: Panasonic DVD/VCR Combo	$100		
High	High	Low	Product	Price		Buy the TV at $100 and the DVD/VCR combo at $80 as a set
			A: Panasonic 19-inch Color TV	$100	OR	
			B: Panasonic DVD/VCR Combo	$100		
Low	Low	High	Product	Price		Buy the FAX at $100 and the DVD/VCR combo at $40 as a set
			A: Apex Plain Paper Memory Fax	$100	OR	
			B: Apex DVD/VCR Combo	$100		
Low	Low	Low	Product	Price		Buy the FAX at $100 and the DVD/VCR combo at $80 as a set
			A: Apex Plain Paper Memory Fax	$100	OR	
			B: Apex DVD/VCR Combo	$100		

a. Experimental Design (cont.)

Brand Image	Complem-entarity	Price Discount	Stimuli			
			Regular Offer			Bundle
Low	High	High	Product	Price		Buy the TV at $100 and the DVD/VCR combo at $40 as a set
			A: Apex 19-inch Color TV	$100	OR	
			B: Apex DVD/VCR Combo	$100		
Low	High	Low	Product	Price		Buy the TV at $100 and the DVD/VCR combo at $80 as a set
			A: Apex 19-inch Color TV	$100	OR	
			B: Apex DVD/VCR Combo	$100		

b. An Example of the Stimuli

Suppose you are in an electronics store and you see following offers:

A: Panasonic 19-inch Color TV	$100
B: Panasonic DVD/VCR Combo	$100

Or

Buy the TV at $100 and the DVD/VCR combo at $80 **as a set (get** $20 **off from the regular price of the DVD/VCR combo)**

Now please evaluate the deal if you bought the TV and DVD/VCR combo as a set:

	Disagree						Agree
If I bought the bundle, the deal I would be getting is very good	1	2	3	4	5	6	7
I would be satisfied if I bought the bundle at the reduced price	1	2	3	4	5	6	7
Taking advantage of this bundle deal will give me a sense of joy	1	2	3	4	5	6	7
It is worth buying A and B as a set	1	2	3	4	5	6	7
Buying A and B as a set is very economical	1	2	3	4	5	6	7

Please indicate your judgments about these two products presented above:

This TV is	Unreliable	1	2	3	4	5	6	7 Reliable
This TV is of	Low quality	1	2	3	4	5	6	7 High quality
This TV is	Inferior	1	2	3	4	5	6	7 Superior
This DVD/VCR combo is	Unreliable	1	2	3	4	5	6	7 Reliable
This DVD/VCR combo is of	Low quality	1	2	3	4	5	6	7 High quality
This DVD/VCR combo is	Inferior	1	2	3	4	5	6	7 Superior

Now, please evaluate the bundle:

I really like this bundle	Disagree	1	2	3	4	5	6	7 Agree
This bundle is	Unfavorable	1	2	3	4	5	6	7 Favorable
This bundle is	Bad	1	2	3	4	5	6	7 Good
This bundle is	Unattractive	1	2	3	4	5	6	7 Attractive

Please indicate your disagreement or agreement for following statements:

A TV and a DVD/VCR combo are highly complementary	Disagree	1	2	3	4	5	6	7	Agree
A TV and a DVD/VCR combo are very likely to be used together	Disagree	1	2	3	4	5	6	7	Agree
A TV and a DVD/VCR combo are semantically	Unrelated	1	2	3	4	5	6	7	Related
The brand Panasonic is favorable	Disagree	1	2	3	4	5	6	7	Agree
Products made by Panasonic are of high quality	Disagree	1	2	3	4	5	6	7	Agree
Panasonic has a good image	Disagree	1	2	3	4	5	6	7	Agree
Panasonic has a good reputation	Disagree	1	2	3	4	5	6	7	Agree

Appendix 5: Experiment Stimuli of Study 4

a. Experimental Design

Partner Brand Image	Complem-entarity	Bundle Form	Stimuli		
			Regular Offer		Bundle
High	Low	Mixed-Joint	Product / Price A: Sony Digital Camera $250 B: Changhong Surround Sound Receiver $250	OR	Buy the Sony Digital Camera and the Changhong Surround Sound Receiver as a set at $ 400
High	Low	Mixed-Leader	Product / Price A: Sony Digital Camera $250 B: Changhong Surround Sound Receiver $250	OR	Buy the Sony Digital Camera at $250 and the Changhong Surround Sound Receiver at $150 as a set
High	High	Mixed-Joint	Product / Price A: Sony 6-Piece Speaker System $250 B: Changhong Surround Sound Receiver $250	OR	Buy the Sony 6-Piece Speaker System and the Changhong Surround Sound Receiver as a set at $ 400
High	High	Mixed-Leader	Product / Price A: Sony 6-Piece Speaker System $250 B: Changhong Surround Sound Receiver $250	OR	Buy the Sony 6-Piece Speaker System at $250 and the Changhong Surround Sound Receiver at $150 as a set
Low	Low	Mixed-Joint	Product / Price A: Haier Digital Camera $250 B: Changhong Surround Sound Receiver $250	OR	Buy the Haier Digital Camera and the Changhong Surround Sound Receiver as a set at $ 400

a. Experimental Design (cont.)

Partner Brand Image	Complem-entarity	Bundle Form	Stimuli			
			Regular Offer			Bundle
Low	Low	Mixed-Leader	Product	Price	OR	Buy the Haier Digital Camera at $250 and the Changhong Surround Sound Receiver at $150 as a set
			A: Haier Digital Camera	$250		
			B: Changhong Surround Sound Receiver	$250		
Low	High	Mixed-Joint	Product	Price	OR	Buy the Haier 6-Piece Speaker System and the Changhong Surround Sound Receiver as a set at $ 400
			A: Haier 6-Piece Speaker System	$250		
			B: Changhong Surround Sound Receiver	$250		
Low	High	Mixed-Leader	Product	Price	OR	Buy the Haier 6-Piece Speaker System at $250 and the Changhong Surround Sound Receiver at $150 as a set
			A: Haier 6-Piece Speaker System	$250		
			B: Changhong Surround Sound Receiver	$250		

b. An Example of the Stimuli

Suppose you are in an electronics store and you see following offers:

A: Sony 3.2-MP Cyber-shot DSC-P32 Digital Camera Feature: 3.2 effective megapixels, 3.2x digital zoom, 1.6-inch color LCD screen	**$250**
B: Changhong Dolby Digital DTS Surround Sound Receiver Feature: Dolby Digital EX, 100 watts x 6 channels, digital AM/FM tuner, universal remote control	**$250**

Or

Buy the Sony Digital Camera at $250 and the Changhong Surround Sound Receiver at $**150** as a set (get $**100** off from the regular price of B)

Please evaluate the offers and answer following questions:

A digital camera and a surround sound receiver are highly complementary	Disagree	1	2	3	4	5	6	7	Agree
A digital camera and a surround sound receiver are very likely to be used together	Disagree	1	2	3	4	5	6	7	Agree
A digital camera and a surround sound receiver are semantically	Unrelated	1	2	3	4	5	6	7	Related

This digital camera is	Unreliable	1	2	3	4	5	6	7	Reliable
This digital camera is of	Low quality	1	2	3	4	5	6	7	High quality
This digital camera is	Inferior	1	2	3	4	5	6	7	Superior

This surround sound receiver is	Unreliable	1	2	3	4	5	6	7	Reliable
This surround sound receiver is of	Low quality	1	2	3	4	5	6	7	High quality
This surround sound receiver is	Inferior	1	2	3	4	5	6	7	Superior

The brand Sony is favorable	Disagree	1	2	3	4	5	6	7	Agree
Products made by Sony are of high quality	Disagree	1	2	3	4	5	6	7	Agree
Sony has a good image	Disagree	1	2	3	4	5	6	7	Agree
Sony has a good reputation	Disagree	1	2	3	4	5	6	7	Agree

The brand Changhong is favorable	Disagree	1	2	3	4	5	6	7	Agree
Products made by Changhong are of good quality	Disagree	1	2	3	4	5	6	7	Agree
Changhong has a good image	Disagree	1	2	3	4	5	6	7	Agree
Changhong has a good reputation	Disagree	1	2	3	4	5	6	7	Agree

Now, please evaluate the bundle:

	Disagree						Agree
If I bought the bundle, the deal I would be getting is very good	1	2	3	4	5	6	7
I would be satisfied if I bought the bundle at the reduced price	1	2	3	4	5	6	7
Taking advantage of this bundle deal will give me a sense of joy	1	2	3	4	5	6	7
It is worth buying A and B as a set	1	2	3	4	5	6	7
Buying A and B as a set is very economical	1	2	3	4	5	6	7

I really like this bundle	Disagree	1	2	3	4	5	6	7	Agree
This bundle is	Unfavorable	1	2	3	4	5	6	7	Favorable
This bundle is	Bad	1	2	3	4	5	6	7	Good
This bundle is	Unattractive	1	2	3	4	5	6	7	Attractive

Appendix 6: Experiment Stimuli of Study 5

a. Experimental Design

	Partner Brand Image	Bundle Form	Stimuli		
			Regular Offer		Bundle
A	High	Mixed-Joint	Product: A: Sony 6-Piece Speaker System; B: Changhong Surround Sound Receiver Price: $250; $250	OR	Buy the Sony 6-Piece Speaker System and the Changhong Surround Sound Receiver as a set at $ 400
B	High	Mixed-Leader	Product: A: Sony 6-Piece Speaker System; B: Changhong Surround Sound Receiver Price: $250; $250	OR	Buy the Sony 6-Piece Speaker System at $250 and the Changhong Surround Sound Receiver at $150 as a set
C	Low	Mixed-joint	Product: A: Haier 6-Piece Speaker System; B: Changhong Surround Sound Receiver Price: $250; $250	OR	Buy the Haier 6-Piece Speaker System and the Changhong Surround Sound Receiver as a set at $ 400
D	Low	Mixed-leader	Product: A: Haier 6-Piece Speaker System; B: Changhong Surround Sound Receiver Price: $250; $250	OR	Buy the Haier 6-Piece Speaker System at $250 and the Changhong Surround Sound Receiver at $150 as a set

b. An Example of the Stimuli

In this section, suppose you are in an electronics store and you see following offers:

A: Sony 6-Piece Speaker System
Feature: 4 satellite speakers, center-channel speaker, 20 watts to 100 watts of power recommended
Price: $250

B: Changhong Dolby Digital DTS Surround Sound Receiver
Feature: Dolby Digital EX, 100 watts x 6 channels, digital AM/FM tuner, universal remote control
Price: $250

Or
Buy the Sony speaker system and the Changhong Surround Sound Receiver as a set at $ 400
(get $100 off from total price of A and B)

Now, please evaluate the bundle:

This bundle is	Unfavorable	1	2	3	4	5	6	7	Favorable
This bundle is	Bad	1	2	3	4	5	6	7	Good
This bundle is	Unattractive	1	2	3	4	5	6	7	Attractive

We may classify brands in the market into two groups as follows. Please circle the number on the following scale indicating the extent that you think brand Changhong belongs in group A vs. group B? For instance, if you think it definitely belongs in group A, you will circle 1; while if you think it definitely belongs in group B, you will choose 9.

Group A:										Group B:
Apex, Haier, Audiovox, TDK	1	2	3	4	5	6	7	8	9	Samsung, Toshiba, Sony, Philips, Pioneer

Now, please tell us your feelings about the brand Changhong:

The brand Changhong is	Unfavorable	1	2	3	4	5	6	7	Favorable
The brand Changhong is	Bad	1	2	3	4	5	6	7	Good
The brand Changhong is	Dislikable	1	2	3	4	5	6	7	Likable

Vita

Shibin Sheng

Assistant Professor of Marketing
School of Business
Adelphi University
Garden City, NY 11530
Email: sheng@adelphi.edu

Education

Ph.D. in Marketing (2004), Virginia Polytechnic Institute and State University.

Ph.D. in Economics (2000), Tsinghua University, China.

B.E. in Mechanical Engineering (1996), Tsinghua University, China.

B.S. in Economics (1996), Tsinghua University, China.

Research Interests

Bundling, transaction cost economics and marketing channel research, international marketing research, salesforce management, compromise effect.

Teaching Interests

Principles of Marketing, Consumer Behavior, Marketing Channels

Honors

Fellow, 2002 Doctoral Internationalization Consortium in Marketing, Austin, Texas; April 11-14.

Fellow, 2002 AMA Sheth Doctoral Consortium, Atlanta, GA.

Professional Affiliations

Member of American Marketing Association

Member of Association of Consumer Research