An Empirical Investigation of Category-Level Effects
of Consumer Factors on Private Label Purchase

A thesis submitted to Auckland University of Technology
in partial fulfilment of the degree of Master of Business

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the qualification of any other degree or diploma of a university or other institution of higher learning, except where due acknowledgement is made in the acknowledgements.

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Abstract

Private label brands have been examined in the literature for more than forty years (Narasimhan and Wilcox, 1998). Due to the rapid growth of private-label market share, researchers have looked into different influential factors in attempting to find out the reasons behind the success of these store products. As consumers reflect the demand side of fast-moving goods, their perceptions critically affect decisions on brand selection, and therefore the performance of the brands.

Although the topic of private labels has long been studied, the volume of private-label research is less than that of national-brand studies. Findings from the extant studies of private labels have provided valuable consumer insights for marketing scholars and practitioners to better develop branding theory and strategies. However, issues still exist in the literature, in particular, concerning category-level influences of consumer factors such as perceived risk and attitude. Risk perception and attitude are important explanatory constructs for consumer proneness towards buying private labels. Moreover, category-level differences are stated as the most critical source that can explain the variations in the performance of private labels (Batra and Sinha, 2000; Dhar and Hoch, 1997).

This research replicates Batra and Sinha's (2000) study which examined the category-level effects of different determinants of perceived risk on consumer preferences for buying private labels. The purpose of this research is to re-examine their hypotheses and to investigate other attitude determinants which Batra and Sinha did not study. In addition, this study also investigates the impact of demographics on the purchase of private labels.

A mall-intercept survey was conducted to test the hypotheses. The results indicate that perceived risk and attitude determinants such as quality variability, price consciousness, price-quality association and brand loyalty influence significantly consumers' propensities to buy private labels. Furthermore, these private-label propensities vary across product categories due to category-level variations in perceptions and attitudes. Consumers are more likely to buy private labels in categories where they perceive lower quality variability across brands, where they have higher price consciousness, where they believe weaker price-quality association, and where they have less brand loyalty.

Moreover, education and income are also identified as significant indicators of private label buyers.

Findings from this study suggest that category-level analysis of consumer factors could more effectively answer the question why private label success varies across different categories. A better way for national-brand manufacturers and retailers to compete against each other is the product quality improvement. Manufacturers should try to keep the quality level of national brands as far above that of private labels as possible, whereas retailers should attempt to reduce the quality gap for their private label brands.

CHAPTER ONE: INTRODUCTION

1.1   Problem Orientation

This thesis focuses on an area of increasing interest to marketing academics and practitioners, namely, private label brands (hereafter PLBs). The market share of PLBs has been growing rapidly in most categories of consumer-fast-moving goods in recent years (Batra and Sinha, 2000; Erdem, Zhao, and Valenzuela, 2004). The growth of PLBs has potentially increased the competition with national brands to such an extent that most consumer-goods manufacturers, including brand leaders, cannot afford to ignore it (Verhoef, Nijssen, and Sloot, 2002). Manufacturers should regard PLBs as other national-brand competitors and take them seriously (Hoch, 1996; Quelch and Harding, 1996). Ashley (1998) notes that for branded products to succeed in the 1990s and beyond, it will be necessary to compete effectively with PLBs.

Therefore, the topic of PLBs is of great interest to both researchers and marketing managers. Researchers have attempted to explore the influential factors behind the success of PLBs (e.g., Richardson, Jain, and Dick, 1996) and the strategies that manufacturers can use to compete against these store products (e.g., Hoch, 1996). Retailers and manufacturers have sought effective tactics to better position and promote their own brands in an attempt to retain their market shares.

This chapter begins with a background to the current research, followed by a section which describes the purposes, research problem, and research questions of the thesis. It then provides detailed justifications for the study, followed by a brief description of research methodology. The structure of the thesis is outlined in the sixth section. Then, some key definitions in the study are discussed. After that, some delimitations of the study are provided.

1.2   Background to the Research

This section provides a context for the current research to show the growth of PLBs in different markets. It also briefly describes some reasons for PLB growth and the importance of this growth in consumer-packaged-goods industry. PLBs were initially

introduced over 100 years ago in a few product categories such as tea (Raju, Sethuraman, and Dhar, 1995a). Currently, PLBs are present in virtually every product class in supermarkets (Burt, 2000), ranging from mass-consumption basic products, such as oils or jams, to more sophisticated lines, for example, breakfast cereals or cosmetics (Steenkamp and Dekimpe, 1997). Among western regions, Europe is the region which owns the largest PLBs share of all scanned grocery lines (22%), followed by the North American region (16%) (Owen, 2003).

In European countries, the market share of PLBs has increased substantially over the past fifteen years (Steenkamp and Dekimpe, 1997). Switzerland is the country where PLBs have the highest market share of 45%, followed by the United Kingdom which has a share of 37% (Erdem et al., 2004; Owen, 2003). In the United Kingdom, a survey from 1975 to 1999 revealed that the market share of 52 PLBs across 26 product categories had increased from 22% to 70% (Miranda and Joshi, 2003). PLBs in other European countries such as France, the Netherlands and Belgium also hold market shares of 18% to 23% (Ashley, 1998; Verhoef et al., 2002).

Among North American countries, Canada has a 22% dollar share of PLBs, followed by the United States where these products own nearly 15% of the share (Dhar and Hoch, 1997; Erdem et al., 2004). In the United States, PLBs have higher unit market shares than the strongest national brands in 77 out of 250 categories (Batra and Sinha, 2000; Quelch and Harding, 1996). Some marketing experts expect that further increases in volume and dollar shares of these products will occur in the near future (Burton, Lichtenstein, Netemeyer, and Garretson, 1998; Semeijn, Riel, and Ambrosini, 2004; Verhoef et al., 2002).

Some reasons for the growth of PLBs include their low price, improved product quality, higher profit margins for retailers, increasingly aggressive programmes by retailers, and economic recession (Ashley, 1998; Hoch and Banerji, 1993). For retailers, besides higher chain profitability, promoting PLBs can also be beneficial in that they can generate store loyalty and improve bargaining power with manufacturers (Liesse, 1993; Narasimhan and Wilcox, 1998). However, for the national-brand manufacturers, the rapid growth of PLBs has become a source of major concern, taking market share away from their brands (Ashley, 1998). Moreover, manufacturers claim that their share losses and gains to retailers have resulted in imitations by PLBs of national brands in areas

such as packaging design or even brand name (Rafiq and Collins, 1996). A number of researchers have investigated the factors influencing PLB purchase over the past decades. However, although such topics have long been studied, the volume of PLB research is less than that of national-brand studies.

1.3 Research Problem and Research Questions

This section firstly presents the purposes of the thesis. A research problem and several research questions investigated in this study are then introduced. The primary purpose of this thesis is to investigate the category-level effects of consumers' perception of risk and their attitude towards PLBs on their receptivity to buying PLBs. This research also seeks to determine whether these category differences can explain variations in PLB purchases. Another purpose is to examine the influences of consumer demographics on the choice of PLBs. The research problem that will be investigated in this study is:

How do consumer factors influence the purchase of private labels across different categories in supermarkets?

Batra and Sinha's (2000) study, which focuses on consumer perceived risk of PLB purchase, is chosen as a study to be replicated and extended by the current research. This thesis re-examines the hypotheses tested in Batra and Sinha's work, and investigates other consumer factors in an attempt to broaden their work. It is expected that the results from this thesis can provide valuable consumer insights for both manufacturers and retailers, and enable them to better establish strategies to promote their own brands. Five research questions are investigated as follows:

1. What are the relationships between different determinants of perceived risk and private label purchase?
2. What are the relationships between different determinants of consumer attitude and private label purchase?
3. Can the inter-category differences of the perceived-risk determinants help explain the variations in private label purchases across different product categories?
4. Can the inter-category differences of the attitude determinants help explain the variations in private label purchases across different product categories?
5. Do demographic characteristics of consumers influence their private label choices?

1.4 Justification for the Research

There are three main justifications provided for this thesis. First, there is a need to conduct more research on PLBs in New Zealand. Compared to other countries, there have been a smaller number of PLB products in the New Zealand grocery market (Prendergast and Marr, 1997). Although PLBs in this country are growing (Morris, 2002), the growth rate is rather slow. In 1993, PLBs occupied 10.6 % of volume share (Scott, 1993). After ten years, they still accounted for 11% of total scanned grocery items (Owen, 2003). The experience of other countries suggests that the key driver of PLB growth is retail consolidation (Morris, 2003). Nevertheless, although New Zealand retailers are consolidating, they are still in the early stages of developing successful PLB programmes (Morris, 2002). Compared to the supermarket chains in the United Kingdom such as Sainsburys, which attribute 59% of the sales to PLBs, the two giant supermarket operators in New Zealand, Progressive and Foodstuffs, have only 10% and 12% of PLB shares respectively (Morris, 2003). Therefore, it appears that PLB growth in New Zealand has not kept pace with other markets. In the literature, most studies of PLBs were conducted in the United States, the United Kingdom and Europe. Their findings might not adequately explain why New Zealand shoppers prefer national brands to PLBs.

The second justification for this thesis is that, it is necessary to have more research focusing on consumer-level factors in the PLB area. The expectations, needs and behaviours of consumers define the demand side of the supermarket products (Hoch and Banerji, 1993). However, understanding how consumers make product choices is a central issue in marketing theory (Baltas, Doyle, and Dyson, 1997). Steenkamp and Dekimpe (1997) argue that most conceptual and empirical research still focuses on national brands regardless of the emergence and growing importance of PLBs. Some issues involving important consumer factors such as perceived risk (Batra and Sinha, 2000; Dunn, Murphy, and Skelly, 1986), attitude towards PLB purchase (Burton et al., 1998) and demographic characteristics (Baltas, 1997) are unanswered in the studies of PLBs. Richardson et al. (1996) question what factors motivate consumers to buy PLB products. In practice, retailers are left in an uncomfortable position of not knowing what to do to enhance their PLB market shares (Richardson, Dick, and Jain, 1994).

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Another motivation for this thesis is that, there is a need to conduct more category-level studies in PLB purchase. An interesting phenomenon of PLB success is that its growth has been highly uneven across different product categories (Batra and Sinha, 2000; Hoch and Banerji, 1993). For example, in New Zealand, PLBs in value share are 46% in the category of fresh milk and cream whilst only 8% in the biscuit range (ACNielsen, 2003). Inter-category differences have been cited as the most important source of variation in PLB share across markets, retailers and categories (Batra and Sinha, 2000; Dhar and Hoch, 1997). However, there has not apparently been much consumer-level research focusing on these crucial differences of consumer factors in explaining the variation in PLB purchase (Batra and Sinha, 2000).

In short, the current study aims to fill in these gaps discussed above. This research attempts to replicate and extend Batra and Sinha's (2000) work to investigate three consumer factors, namely, risk perception of, and attitude towards PLB purchase, as well as demographic characteristics. One reason for choosing Batra and Sinha's study is that their empirical work provides a valuable foundation for further examining different determinants of a critical consumer factor, perceived risk. Another reason is that their research focuses upon the inter-category differences of consumer factors. Batra and Sinha have examined three determinants of perceived risk. A limitation of their work is that they did not include other consumer-level variables such as attitudes and demographics. For this reason, these two factors are also examined in this study.

1.5   Research Methodology

As a replication, the research design used in Batra and Sinha's (2000) work will guide that in the current study. Hypotheses in this thesis are developed on the basis of the replicated and other extant studies. The aim is to verify the relationships between consumer factors that have been measured in previous research, rather than to develop new concepts or measuring scales. Therefore, this study is a quantitative research (Cavana, Delahaye, and Sekaran, 2001). A questionnaire survey will be conducted in a supermarket in Auckland city. Participants will be New Zealand shoppers with a sample size of 600. Multiple regression analyses, t-tests, and one-way ANOVA (analysis of variance) will be employed to examine the relationships proposed in the hypotheses. More details of research methods will be discussed in Chapter Three.

1.6 Outline of the Thesis

This thesis divides into five chapters. This introductory chapter is followed by Chapter Two, the literature review. Chapter Two examines earlier research of PLBs. The importance of PLBs on retail and manufacturing industries is briefly reviewed. In particular, the review focuses on studies that examine the influences of consumer factors on PLB purchase. The replicated study, Batra and Sinha (2000), is investigated in some depth. Several consumer factors are discussed. A theoretical model developed by drawing on the replicated study is also outlined.

In Chapter Three, hypotheses underlying the proposed model and methodology used to examine the hypotheses are discussed in detail. Justifications for research design are provided. The research methods used in Batra and Sinha's study is compared with those employed in the current research. The discussion of methodology focuses on scale development, questionnaire design, data collection, participant selection, sample size design, product selection, data editing, coding and categorising, and analysing procedures. Some ethical considerations are also stated.

In Chapter Four, the processes and results of preliminary data analysis and hypothesis testing are discussed in details. Profiles of participants and response rate for this study are described. Preliminary data examination includes descriptive statistics of mean and standard deviation, missing data, outlier, and normality. Reliability and validity of the measurement scales are examined, followed by the testing of hypotheses.

In Chapter Five, findings derived from the analysis are discussed and compared with those shown in the prior studies. Conclusions about the research problem and research questions are provided based on the findings. The implications of the findings for academics and management, limitations of the current study, and suggestions for future research are also discussed.

1.7 Definitions

This section provides some definitions of private labels discussed in the literature. In general, private labels are defined as those products owned, controlled, and sold exclusively by a retailer (Raju et al., 1995a; Sethuraman and Mittelstaedt, 1992). The retailer must accept all responsibility from developing, sourcing, warehousing and

merchandising to marketing such as branding, packaging, promoting and even advertising (Dhar and Hoch, 1997; Steenkamp and Dekimpe, 1997). In the literature, store products meeting the definition of private labels are also called house brands, store brands, private brands, retail brands, retail own brands, own labels or controlled labels. By and large, it can be assumed that the definition of 'private labels' in one country or context is the same as in another (Burt, 2000). Therefore, as indicated earlier, to remain consistent, the term 'private labels (namely, PLBs)' is used throughout the thesis.

PLBs are identified either by using the store name or other distinctive brands that are independent of the store name (Burton et al., 1998). In New Zealand, most supermarkets identify their PLBs by using distinctive names. For instance, Progressive Enterprises, one major operator controlling supermarkets such as Woolworths and Foodtown, promotes its PLBs as Signature Range and Basics. Similarly, Foodstuffs, another giant retailer operating outlets such as Pak'n Save and New World, uses brand names such as Pam's and Budget to identify their PLBs.

To avoid confusion, it is necessary to distinguish PLBs from another type of retailer-owned products, generics. Generics are no-name products packaged usually in plain-white, no-frill or single-colour wrappers with little label information (Dick, Jain, and Richardson, 1995; McGoldrick, 1984; Murphy and Laczniak, 1979). The presence of generics in the market affects PLB sales adversely, partially because of their price advantage over PLBs (Bellizzi, Hamilton, Krueckeberg, and Martin, 1981; McEnally, 1984). However, unlike PLBs, generics do not have the potential to build store loyalty (Dick et al., 1995). Moreover, they are unavailable in many product categories and package sizes (Rosen, 1984) as PLBs do, and only account for a fraction of total grocery sales (Ghosh, 1994; Hoch and Banerji, 1993; Prendergast and Marr, 1997). Therefore, this study focuses on the comparison between PLBs and national brands.

1.8 Delimitations of Scope

This study is conducted in consumer-fast-moving-goods industry in the New Zealand market, which may be inappropriate for other industries such as durable goods or fashion. The research area focuses on consumer-level factors such as perception, attitude, demographics and their influences on PLB purchase. The aim of the research is to examine the relationships between existing variables and not to create variables. Product categories are chosen based on the market share of PLBs in the New Zealand

market. The practical implications of this study are provided to retailers and manufacturers in the grocery industry.

1.9 Conclusions

This chapter provided the foundation for the thesis. It provided a context and justification for the study. The research problem and research questions addressed in the study were introduced. The main purpose of this study is to investigate whether the category-level differences in consumer factors can explain the variation in PLB buying across different categories. Methodology underlying the purpose of the study was briefly described and justified. Definitions of PLBs were also presented. Some delimitations of the scope were delineated and a chapter structure was provided for the whole thesis. On these foundations, the thesis proceeds with a detailed description of the research by beginning with the Chapter Two – Literature Review.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Research on PLBs (private label brands) has been of substantial interest to marketing scholars for more than four decades (Narasimhan and Wilcox, 1998), particularly from the 1990s to the present. Hoch and Banerji (1993) state that consumers, retailers and manufacturers are three sets of players whose expectations and actions interact to influence the success of PLBs. Among studies of consumer-level factors, those in the 60s and the 70s focused more on examining the influences of consumer demographics, personality traits, or purchase behaviour on PLB proneness (e.g., Frank and Boyd, 1965; Rothe and Lamont, 1973). Later studies have switched the focus to more psychological aspects, for example, consumer perception and attitude (e.g., Richardson et al., 1996). The number of studies that have looked into the corporate-level factors, namely, retailers and manufacturers, has begun to increase since the 1990s. These corporate factors relate primarily to the price differential between PLBs and national brands, promotion intensity, and category margin (Cotterill, Putsis, and Dhar, 2000; Hoch and Banerji, 1993; Raju et al., 1995a).

The main purpose of this chapter is to review the consumer-level factors and their influence on PLB purchase, first through an overview of the importance of PLBs for retailers and manufacturers in the packaged-goods industry. This is followed by the review of consumer factors in section three. In particular, the third section examines Batra and Sinha's (2000) study in some depth. Six perceptual and attitudinal factors and five demographic characteristics are also reviewed. A modified framework developed by drawing on Batra and Sinha's (2000) and other studies is presented in section four. Some conclusions are provided in the last section.

2.2 The Importance of Private Labels in the Retailing Industry

PLBs are an important source of profits for retailers and a formidable source of competition for national brand manufacturers (Hoch and Banerji, 1993). On the one hand, the success of PLBs can be seen as a consequence of cleverly designed branding strategies employed by the retailers (Keller, 1998). On the other hand, PLBs have been

claimed by the manufacturers as category killers, which are cheap, me-too products taking profits out of a market by making consumers more price-sensitive (Dunne and Narasimhan, 1999). Some marketing researchers have investigated how branded manufacturers can respond effectively to the competition of PLBs (Hoch, 1996; Verhoef et al., 2002). This section firstly reviews the importance of PLBs for retailers, and then national-brand manufacturers.

2.2.1 Private Label Importance for Retailers

The importance of PLB success for retailers has been evident in several ways. For instance, PLBs bring greater profits for retailers, increase retailers' market power and bargaining power, generate store loyalty, and differentiate the retail outlets from other chain stores (Ailawadi, 2001).

The ultimate reason for retailers to promote PLBs is the significantly higher margins available from PLBs over national brands. The analysis of global markets has indicated that a strong PLB programme can lead to double profits for the supermarkets (Morris, 2002). Working from the US industry data, Hoch and Banerji (1993) indicate that the gross margins on PLBs for the retailers are 20 to 30 percent higher than on national brands. To obtain these higher margins, retailers must allocate resources to procurement, packaging, branding, promotion, and shelf-space (Hoch and Banerji, 1993). Similarly, Grant and Schlesinger (1995) also demonstrate that if a grocery chain store could persuade every customer to substitute two PLB items for two national brand items on each purchase occasion, the store would increase its profitability by 55%. In European supermarkets, higher sales of PLBs have resulted in higher average pre-tax profits (Quelch and Harding, 1996). Moreover, some premium PLBs are even more profitable to the stores than the traditional PLBs (Bonfrer and Chintagunta, 2004; Corstjens and Lal, 2000; Sudhir and Talukdar, 2004).

In addition, a successful PLB can strengthen the negotiating position of retailers in relation to national-brand manufacturers. Retailers have the advantage of controlling shelf space which may result in increased bargaining power over manufacturers. This is particularly the case for those retailers who have had some degree of market power. They can opt to carry PLB substitutes for popular national brands in an attempt to capture more profits from the vertical structures they share with the manufacturers (Mills, 1995). Mills (1995), Narasimhan and Wilcox (1998) show that a credible PLB

competition can allow the retailers to gain better terms of trade from the manufacturers, such as higher margins on national brands. Other studies also indicate that having a high PLB share enables retailers to obtain significantly higher profit margins on national brands by negotiating with manufacturers for a lower price on the national brands (Ailawadi, 2001; Steiner, 2004).

Furthermore, a successful PLB can potentially increase customer traffic, generate store loyalty and even distinguish the store from others by virtue of the fact that such products are unique to the sponsoring store but different from manufacturer brands or other store brands (Dick et al., 1995; Miranda and Joshi, 2003; Steenkamp and Dekimpe, 1997). Corstjens and Lal (2000) indicate that PLBs of high quality can be an instrument for retailers to generate store differentiation and store loyalty, thus improving profitability. Ailawadi et al. (2001) established a conceptual model of PLB use and national-brand promotion use and evaluated it in a self-reported study. Their empirical results also show that store loyalty is positively related to PLB use.

To summarise, PLBs enable retailers to gain higher margins, improve their ability to negotiate with their channel partners, compete with other rival retailers, and generate higher store loyalty. On the other hand, from national-brand manufacturers' perspective, PLBs may have an unfavourable impact on those who have taken steps to compete with PLBs. This impact is reviewed in the next subsection.

2.2.2 Private Label Importance for Manufacturers

Concerns of manufacturers about PLB growth have resulted from the evolution of PLBs over the past few decades. PLBs have changed from being regarded as low quality-low price substitutes with an inferior status to products that are seen as equal-to-national-brand alternatives (Burt, 2000). Traditionally, national brands have followed an image-orientated or differentiation strategy, whereas PLBs have delivered value-for-money or employed a straight low price strategy (Verhoef et al., 2002). Thus, the manufacturers did not take PLB competition seriously. However, the evolution of PLBs has shown that a clear marketing approach has been applied by retailers in the retail environment (Burt, 2000). Retailers have increasingly adopted the techniques commonly associated with leading national brands to market their PLB products (DeNitto, 1993).

The importance of PLBs for national-brand manufacturers is manifested in several ways. First, the presence of PLBs in supermarkets may have limited the shelf space for, and prevented more-than-modest price increases of, their branded products (Narasimhan and Wilcox, 1998; Seligman, 1995). PLBs may also increase difficulties for manufacturers negotiating with retailers on both wholesale and retail prices of their national brands. Moreover, PLBs may create greater pressure on national brands to retain value conscious consumers (Ailawadi, 2001). A major concern for manufacturers is that PLBs could be regarded by consumers as being equal to the national brands. Burt (2000) claims that consumers in the UK and the US accept PLBs as a clear brand alternative offering similar or identical levels of quality assurance and production innovation as do leading national branded products. When consumers perceive PLBs to be of equal quality to national brands, they may be more prone to buying a lower price alternative.

Some leading national-brand owners argue that the consumer perceptions of the similarity of PLBs to national brands is primarily due to the lookalike attributes of the PLB products (Kapferer, 1995). They claim that the retailers provide copy-cat products which confuse consumers by offering similar labelling and packaging attributes, such as colour, shape, graphics, lettering, or logo (Balabanis and Craven, 1997). Rafig and Collin (1996) found that a considerable number of consumers are confused by the packaging of PLB products. However, Balabanis and Craven (1997) did not find empirical support for the assumption that consumers purchase products by mistake because of PLB's lookalike characteristics.

Due to the increasing PLB competition, national-brand manufacturers need to think of PLBs as if they were also national brands and devise a strategy for dealing with them (Hoch, 1996; Hoch and Banerji, 1993). Since the 1990s, several researchers have attempted to explore ways that national brands can compete effectively against PLBs (e.g., Ashley, 1998; Dunne & Narasimhan, 1999; Hoch, 1996; Quelch and Harding, 1996; Verhoef, Nijssen, & Sloot, 2002). Hoch (1996) initially conceived a strategic model showing how national brands could respond effectively to PLBs. Later on, Verhoef et al. (2002) empirically tested this model in the Netherlands. Their results suggest that four strategic options are significantly useful for manufacturers taking actions against PLBs. These four options include developing innovation to increase distance from PLBs, offering more additional values to increase distance from PLBs,

waiting and doing nothing, and producing premium PLBs. The last option is also seen as useful by other researchers such as Dunne and Narasimhan (1999).

To summarise, the presence of PLBs in the market is an important concern for national-brand manufacturers to negotiate with retailers and retain value conscious consumers. Manufacturers are also concerned that PLBs may confuse consumers with their national brands due to similar packaging of PLBs to that of national brands. Several researchers have proposed some strategies that manufacturers can use to respond to PLBs. Since the focus of this thesis is not upon the perspectives from retailers and manufacturers, reviewing their factors in a depth is beyond the scope of this study. Hoch and Banerji (1993) note that to explore the success of PLBs, it is important to identify the factors behind this success. The following section reviews consumer-level factors influencing PLB purchase.

2.3 Consumer Factors Influencing Private Label Purchase

This section firstly provides an overview of studies that have examined the effects of consumer factors on PLB purchase over the past forty years. After that, the review focuses on six important factors, namely, three perceived-risk determinants and three attitudinal determinants. The effects of demographics on consumer receptivity to buying PLBs are also reviewed. Finally, a table summarising the key findings of prior studies is provided.

2.3.1 An Overview of PLB Studies of Consumer Factors

Studies focusing on consumer-factor effects on PLB purchase date back to the 1960s. Most studies in the 60s and the 70s concentrate on the examination of PLB-buyer characteristics. However, their findings cannot provide significant evidence to support the proposition that PLB-prone and national-brand-prone users are two distinct segments. PLBs and national brands were found to meet in head-on competition in the sense that they were all consumed by households with virtually the same socio-economic and total consumption characteristics (Frank, 1967; Frank and Boyd, 1965). Myers (1967) observed that general personality traits and socio-economic variables were not strong predictors distinguishing PLB buyers from non-buyers. He indicates that some consumer psychological variables such as price perception are more powerful

in identifying PLB-prone buyers. This is also in line with the findings from other studies such as Burger and Schott (1972), and Livesey and Lennon (1978).

In the 1980s, another research stream emerged in the literature, which focused on the comparison of consumer perceptions among PLBs, generics and national brands. Findings from these studies indicate that consumers perceive PLB products as the middle alternative between national brands and generics in terms of a variety of product attributes. By challenging the findings of earlier studies in the 60s and the 70s, these 80s' studies have revealed that differences among PLB, generic and national-brand buyers can be seen in their demographic profile as well as perceptions of price, quality and risk. Rosen (1984) examined three quality perceptions of grocery products, including overall quality, quality consistency over repeat purchases, and quality similarity across stores. His results show that PLBs are perceived as better than generics but as poorer than national brands in all three quality areas. Several researchers have also shown that consumers view differences among PLBs, generics and national brands in attributing measures such as reliability and texture, in satisfaction measures such as confidence in use and repurchase encouragement, and in demographic measures such as education and age (Bellizzi et al., 1981; Cunningham, Hardy, and Imperia, 1982). In addition, other researchers also reveal that consumer perceptions of risk have significant relationships with product choice (Dunn et al., 1986).

In relation to the above studies, later research from the 1990s to the present has increasingly investigated the influences of consumer psychological factors on PLB purchase. These factors include quality perception, economic perception, perceived risk, price-quality perception, brand loyalty, smart shopper perception, familiarity of PLBs, extrinsic cue reliance, intolerance for ambiguity, and proximity with brand personality (Ailawadi et al., 2001; Baltas, 1997; Baltas and Doyle, 1998; Batra and Sinha, 2000; Burton et al., 1998; Dick et al., 1995; Garretson, Fisher, and Burton, 2002; Omar, 1996; Richardson et al., 1996). Consumer factors pertaining to economics and quality are most often examined. Since PLBs are commonly seen as the alternatives with lower price and inferior quality compared to national brands, many researchers have explored whether these two factors are associated with consumer propensity to buy PLBs. Economic factors such as price consciousness, value consciousness or value for money have been found to have positive relationships with PLB purchase. On the contrary, quality factors such as quality consciousness and quality consistency are negatively

related to consumer proneness towards PLB products. In addition, findings from these later studies also suggest that consumer characteristics such as marital status, household size, household income (e.g., Dick et al., 1995; Richardson et al., 1996), housing patterns, and education (e.g., Burton et al., 1998; Omar, 1996) are useful to identify PLB buyers.

Among the various consumer-level factors examined in prior studies, perceived risk is highlighted as a critical factor that greatly influences consumer intentions to buy PLB products (Batra and Sinha, 2000; Bettman, 1973; Dunn et al., 1986; Richardson et al., 1996). This construct is reviewed in depth in the next subsection.

2.3.2 Consumer Risk Perception

Perceived risk is most often defined as risk in terms of consumer perceptions of the uncertainty and adverse consequences of buying a product (Dowling and Staelin, 1994). In other words, perceived risk is regarded as the "expected negative utility" (Dunn et al., 1986) or the "expected penalty" (Narasimhan and Wilcox, 1998) associated with the purchase of a particular product or brand. This expected negative utility or penalty can be reflected in a variety of ways. For example, consumers may fear that a product cannot possess desirable attributes, be uncertain about a product performance, sense that the purchase of a particular brand may invite social disapproval (Dick et al., 1995), or experience other concerns relating to emotional or psychological risks (Narasimhan and Wilcox, 1998).

Several studies have confirmed the importance of perceived risk in PLB purchase. Perceptions of uncertainty and danger associated with PLB purchase are key variables that differentiate PLB prone from national brand buyers (Bettman, 1973). Dunn et al. (1986) note that perceived risk may be an important explanatory construct for supermarket product decisions. Their findings indicate that consumers perceive national-brand purchases as associated with lower performance risk and higher financial risk than PLBs. Supporting these views, Richardson et al. (1996) state that perceived risk associated with using PLBs is an important determinant of consumer propensity to favourably evaluate and purchase these store products. They found that the greater the perceived risk is associated with PLBs, the lower the consumer proneness towards PLBs. Erdem et al. (2004) also reveal that one important factor that can partially explain the

greater success of PLBs in the UK than in the US is the relatively lower risk aversion of the UK consumers.

Perceived risk has been recognised as a multidimensional phenomenon (Dunn et al., 1986). However, most PLB studies have chosen to use 'perceived risk' as one variable to predict consumer preferences for PLB products. Batra and Sinha (2000) broke this construct down into three different determinants in an attempt to use them to explain the variations of PLB purchase across different product categories. Their study is further reviewed in the following contexts.

Batra and Sinha (2000) examined the influences of three determinants of perceived risk on PLB purchase. These three determinants include consequences of making a mistake in a purchase, quality variability in a category, and the "search" versus "experience" nature of product features. More importantly, they investigated the role played by these determinants in explaining PLB acceptability across twelve product categories.

A major reason for Batra and Sinha to conduct their study is the category-level variations of consumer factors. While PLBs have been growing rapidly, this growth is highly uneven across product categories. Differences among product categories are the most crucial source in determining variation in PLB shares (Dhar and Hoch, 1997). Therefore, Batra and Sinha suggest that the inter-category differences which might shed light on the reasons for PLB growth overall are worth researching in detail.

However, other research on these differences from a consumer perspective has been limited, particularly research pertaining to perceived risk. For example, studies such as Burton et al. (1998), Dick et al. (1995) and Richardson et al. (1996) have chosen to look at PLBs as a product category, rather than examining specific product types within the PLB group. Results from these studies cannot explain the variation in PLB purchase across different categories. Other studies looking into the inter-category differences have investigated PLBs mostly from the perspectives of retailers and manufacturers, which have less emphasis on consumer aspects (e.g. Hoch and Banerji, 1993; Sayman and Raju, 2004; Wedel and Zhang, 2004). Dunn et al. (1986) argue that risk perceptions cannot be generalised across brand types as the influence of perceived risk on brand choice varies by product categories and brands. Through examining consumer perceptions of generic products, Prendergast and Marr (1997) also note that it may be

unwise to draw sweeping conclusions about consumer perceptions of generic products in general, because consumers have different perceptions for different product types.

Batra and Sinha (2000) found that the three determinants of perceived risk have significant influences on PLB proneness. Their results indicate that quality variability is positively related to the consequences of making a purchase mistake, thus reducing PLB purchase. Search versus experience nature of product features has a positive relationship with PLB purchase. Besides the perceived-risk determinants, they also included price consciousness in their study. The reason is that they expect this construct can logically mediate the effect of several demographic and attitudinal variables they did not study, such as income or price-quality associations. These four constructs will be further reviewed in the next subsections.

Batra and Sinha state in the conclusion of their study that one limitation of their work is the insufficient number of consumer-level variables in their model. They suggest that other variables such as demographics, attitudes to PLBs and other perceptions of product category characteristics are needed in the model. Consumer attitude towards PLB purchase is an important explanatory factor determining consumer proneness to PLBs (Burton et al., 1998; Garretson and Burton, 1998; Richardson et al., 1996). Improving the attitude of consumers towards a store's PLB products will enhance the impression among the store's consumers that they are being provided with an expanded choice of products (Miranda and Joshi, 2003). However, despite the interest in the role of PLB brands from retailers and national-brand manufacturers (Richardson et al., 1996), it seems that there has not been sufficient scholarly research into the PLB attitude of consumers, particularly pertaining to the category-level variations of its determinants. In addition, although prior studies have attempted to identify demographic characteristics of the PLB-prone consumers, their findings cannot provide reliable criteria of consumer propensity to purchase PLBs (Baltas, 1997).

Therefore, two other attitudinal constructs, namely, price-quality association and brand loyalty, and five demographic characteristics are added into Batra and Sinha's model. These additional constructs are also reviewed in the next subsections, followed by the review of the perceived risk determinants. The model presented by Batra and Sinha is shown as follows.

Figure 2.1 Factors Moderating the Success of PLBs (Batra and Sinha, 2000)
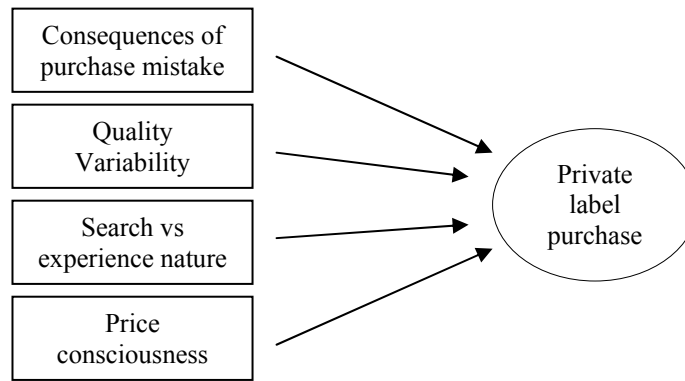
2.3.2.1 Consequences of making a mistake in a purchase

When a purchased brand fails to meet the consumer's expectation, the consumer may suffer from some type of loss such as time loss, hazard loss and ego loss (Roselius, 1971). In addition, other losses include performance loss, financial loss and social loss (Dunn et al., 1986). The degree of inconvenience brought about by these losses may vary across different situations and product categories. For example, the inconvenience resulting from the purchase of a bottle of wine for one's own consumption may not be as great as for a dinner party for one's guests (Hawkins, Best, and Coney, 2001). Thus, the consequences of making a purchase mistake would be more severe in the latter situation. Similarly, purchases in categories such as cosmetics can be more risky than the purchases in other categories such as toilet tissues where the consequences of making a mistake would be lower. Since perceived risk is described as the expected penalty associated with a purchase (Narasimhan and Wilcox, 1998), it is important to investigate how important the perceived outcomes of an expected penalty might be on consumers when they consider buying a PLB product.

PLBs have been generally evaluated as inferior to national brands on a variety of product attributes (Bellizzi et al., 1981; Cunningham et al., 1982). When consumers feel that purchasing a wrong brand in a product category may make them suffer more from some negative consequences and these consequences are important to them, they may be more likely to buy national brands in that category. This may be explained as national brands providing a secure option in many consumption situations (Baltas, 1997). Thus, national-brand-prone buyers may be more fearful of performance, financial and social losses than PLB-prone buyers (Dick et al., 1995). Dunn et al. (1986) indicate that consumers perceive national brands as the least risky on the performance

measurement in relation to PLB and generic products. They also show consumers prefer to buy PLB products rather than national-brand items when they perceive higher financial risk in a category.

In addition, the perception of purchase-mistake consequence is influenced by the degree of involvement the consumers have with the products. Some researchers have shown that the lower the involvement associated with the purchase, the lower the degree of inconvenience perceived in making a wrong purchase (Laurent and Kapferer, 1985). Thus, consumers may tend purchase PLBs in a category when they have lower involvement in that category. Richardson et al. (1996) note that consumers may be more prone to buying PLB products associated with low rather than high involvement. Other studies have also indicated that consumers with requirements in a particular category and who are involved highly in that category are attached to national brands (Baltas, 1997; Baltas and Doyle, 1998). These studies found that the importance of getting the right brand is negatively related to PLB proneness.

Supporting the above findings, Batra and Sinha (2000) provided evidence showing a negative relationship between the degree of consequence of a purchase mistake and PLB purchase. Their findings suggest that PLB buying increases in product categories where consumers' perception of consequence of making a purchase mistake decreases. In addition, they found that this relationship interferes with the influence of another perceived-risk determinant on PLB purchase. This determinant is quality variability which is reviewed in the following subsection.

2.3.2.2 Quality variability between PLBs and national brands

Another common theme is the role of perceived risk in relation to product quality (Burt, 2000). From a producer's perspective, product quality can be defined on the basis of eight dimensions: performance, feature, reliability, conformance, durability, serviceability, aesthetics, and perceived quality (Garvin, 1987). From a consumer's perspective, product quality refers to the extent to which a product meets or exceeds the consumer's expectations (Garvin, 1987; Sebastianelli and Tamimi, 2002).

Quality perception is known as a critical element in consumer purchase decisions (Hoch and Banerji, 1993; Richardson et al., 1996) and an important indicator of perceived risk (Narasimhan and Wilcox, 1998). When consumers perceive a possible mismatch

between their expectations and a product's characteristics, perceived risk may arise. Such risk may reduce consumers' expectation of utility from and desire for that product (Erdem and Swait, 1998). Although some major retailers have gradually upgraded their PLBs (Rafiq and Collins, 1996), consumers are still suspicious of the quality of these store products (Dick et al., 1995). There may be inherent product variability at the quality level of the brand or across different brands which adds to consumer uncertainty (Erdem et al., 2004). Therefore, PLB quality is a key element in determining PLB success (Hoch and Banerji, 1993; Miranda and Joshi, 2003; Steenkamp and Dekimpe, 1997).

Several studies have shown that the quality consistency of a PLB has a positive impact on that PLB's performance. PLB shares are likely to be higher in categories where PLBs have lower variation in their quality level (Hoch and Banerji, 1993). Steenkamp and Dekimpe (1997) suggest that the more consistent the perceived quality of a type of PLBs, the greater the ability of that PLB to attract non-loyal consumers. Similarly, Erdem et al. (2004) also note that the quality levels of PLBs are perceived more consistent by the consumers in the UK than in the US which may be one of the reasons that PLBs in the UK is more successful than those in the US.

More importantly, Batra and Sinha (2000) point out that the perceived degree of quality variability between PLBs and national brands in a category should create greater uncertainty and more perceived risk. Dunn et al. (1986) state that perceived risk is viewed as the sum of the probability of loss multiplies by the importance of the loss associated with each dimension for a product or brand offering. Agreeing with this concept, Batra and Sinha suggest that quality variability is an important determinant in dealing with the 'likelihood' of making a purchase mistake. This notion is empirically supported by Richardson et al.'s (1996) study which found that the increase in the perceived quality variability between national brands and PLBs raises the perceived risk associated with using PLB products.

Batra and Sinha (2000) examined the relationship between quality variability across brands and PLB proneness. Their findings did not support their hypothesis that quality variability has a direct relationship with PLB purchase. Rather, they found that this relationship was indirect and mediated by the consequences of making a purchase mistake. Their results show that quality variability in a category increases consumer

perceptions of purchase-mistake consequences, and thus reduce PLB purchases. Nevertheless, Baltas and Doyle (1998) found that the relationship between perceived quality variability and PLB choice is not significant in some categories such as tea.

On the other hand, other researchers have presented significant statistics on this relationship. Hoch and Banerji (1993) found that the PLB share is directly influenced by the relative quality of PLBs to national brands. Their results show that the share of PLBs is likely to be higher in categories where PLBs have higher relative quality. Similar findings are drawn by Semeijn, et al.'s (2004) study which show that quality variance across brands within a category is related to a negative evaluation of PLBs in that category. Other studies using the aggregate data of all categories have also shown that consumers who are reluctant to buy PLBs are significantly more inclined to believe that PLB products offer lower quality relative to national brands (Dick et al., 1995).

Other studies also support the influence of quality variability across brands on PLB purchase, although they do not measure this relationship. For example, Richardson et al. (1996) indicate that the perception of quality variation is negatively related to value for money of PLBs. They also found that value for money of PLBs is positively related to consumer proneness to PLBs. Therefore, they assume that the perceived quality variation has a negative impact on PLB proneness. Similarly, Erdem et al. (2004) show that the US consumers perceive higher quality differences between national brands and PLBs than the UK consumers. These differences of consumer perceptions of PLBs can be seen as a driver to explain the differential success of PLBs in the UK and the US (Erdem et al., 2004).

2.3.2.3 "Search" versus "experience" nature of product features

Drawing on Erdem and Swait's (1998) study, Batra and Sinha (2000) suggest that the search versus experience nature of the product attributes should be involved as one of the determinants of category-specific perceived risk. Search-type attributes refer to the tangible features that can be verified before buying the product, through direct inspection or sources which are readily accessible to the purchasers, for example, colour, quality standards, or other written description on product packaging (Batra and Sinha, 2000). Experience-type attributes refer to the untouchable, not-easily-described features that can be confirmed only through using the product, for instance, aroma, reliability, or endurance (Batra and Sinha, 2000).

Erdem and Swait (1998) state that consumers may have lower uncertainty and perceived risk in product categories where the products have more search attributes than experience attributes. They provided a comparison between two product categories, juices and jeans. They found that compared to the jeans category, which cost consumers more in information gathering and processing, juices are perceived as having lower risk. This is because jeans have long-term experience attributes such as abrasion resistance. Alternatively, most attributes of juices are search-type attributes that can be obtained through careful reading of product labels at relatively low information costs (Erdem and Swait, 1998). Their model suggests that a credible or well-respected brand can help save more information costs, reduce perceived risk, and thus have a higher purchase probability in categories where experience attributes are more important than search attributes.

Aligning with Erdem and Swait's concept, Batra and Sinha found that consumers prefer national brands to PLBs in product categories where they cannot reply on the written information provided by the product packaging to assess accurately the quality of important product attributes. In other words, this finding implies that consumer proneness to PLBs rises in categories where consumers can easily make purchase decisions based on searching accessible product features. Other studies have also shown that national-brand buyers rank usage experience as an important criterion of brand choice more highly than do PLB users (Omar, 1996; Rothe and Lamont, 1973).

However, PLBs usually suffer from deficiencies of extrinsic cues such as a strong brand name and packaging in relation to national brands (Dick et al., 1995; Richardson et al., 1994). Thus, depending on search attributes to assess product quality may offset PLB proneness. Some prior studies have shown that consumers rate national brands more highly than they do PLBs as far as packaging aspects such as attractiveness, persuasiveness and instructiveness are concerned (Bellizzi et al., 1981; Cunningham et al., 1982). Richardson et al. (1994) found that ingredients covered with national-brand extrinsic cues such as brand name and packaging receive significantly more favourable quality evaluation than the same ingredients covered with PLB extrinsic cues. They also found that the extrinsic cues can explain more variance in perceptions of product quality than do intrinsic cues, for example, ingredients or taste. Their other study (1996) also shows that the greater the consumers' extrinsic cue reliance, the greater the

perceived quality variability between national brands and PLBs, and the greater the perceived risk associated with PLB buying. This in turn, reduces PLB proneness.

By and large, experience characteristics are, by definition, more ambiguous than search attributes (Batra and Sinha, 2000). Results from Batra and Sinha's work indicate that consumers perceive lower quality variability and consequence of making a purchase mistake in categories where the products have more search than experience attributes. Therefore, sufficient search attributes of PLB products which serve to compensate for the ambiguity and uncertainty created by experience attributes should be helpful to increase consumer proneness towards them. Consumers may buy more PLBs if a category's benefit can be judged objectively through package label information instead of requiring actual using experiences.

2.3.3 Price Consciousness

Consumer perceptions of price are central to influencing their purchase behaviour (Miranda and Joshi, 2003). Price consciousness is defined as the degree to which consumers use price in its negative role as a decision-making criterion (Lichtenstein, Bloch, and Black, 1988). That is, price-conscious consumers focus on paying low prices (Lichtenstein, Ridgway, and Netemeyer, 1993).

One important basis for selling PLB products is their typically lower price relative to national brand products (Raju, Sethuraman, and Dhar, 1995b). Thus, the increases in the market share of PLBs have generally been linked to issues associated with their prices (Burton et al., 1998). For instance, Dhar and Hoch (1997) found that price gap between PLBs and national brands has an importantly positive affect on PLB performance in a category. Ashley (1998) also indicates that an increase in the price of a PLB lowers the share of that PLB. These findings have implied that the low price of PLBs is a strong indicator enticing consumer purchase of PLBs.

Studies of PLBs have often used "price consciousness" as one of the attitudinal characteristics describing PLB buyers. Batra and Sinha (2000) found that price consciousness is the strongest of all variables studied which significantly affect consumer propensity to buy PLBs. Their results indicate that PLB purchase rises significantly in product categories where consumers have higher price consciousness.

Batra and Sinha's results are consistent with those shown in most studies that have investigated the influence of price consciousness on PLB purchase. Earlier studies such as the work of Myers (1967), Burger and Schott (1972) disclose that PLB buyers are slightly more price conscious than national brand buyers. Rothe and Lamont (1973) found that PLB purchasers consider price much more important than do the national brand purchasers. Consistently, later studies also suggest that the economic benefit and cost-related characteristics such as price consciousness are the strongest correlates of PLB usage (Ailawadi et al., 2001). PLB purchasers have apparently more price consciousness than national brand users (Erdem et al., 2004; Omar, 1996). Burton et al. (1998) also show that consumers with favourable attitudes towards PLBs tend to focus on paying low price.

However, although the common assumption that a PLB product is purchased on a price base, some researchers argue that consumers' proneness to PLBs may be due to other factors apart from price, such as preference (Baltas, 1997; Baltas and Doyle, 1998). Hoch and Banerji (1993) do not agree with the view that consumers buy PLBs merely because of their cheap price. They argue that quality is much more important than price. Miranda and Joshi (2003) also suggest that consumer satisfaction with PLB quality and performance is more important than satisfaction with a low price.

By and large, findings from most extant PLB studies illustrate a consistent pattern. This pattern shows that consumers who opt for PLB products are apparently sensitive to price. PLBs do well in product classes where consumers are particularly price conscious (Batra and Sinha, 2000; Raju et al., 1995a). In addition, Burton et al. (1998) note that besides price consciousness, price-quality association and brand loyalty are also important constructs determining consumers' attitude towards PLB purchase. These two constructs are reviewed in the following two subsections.

2.3.4 Price-Quality Association

The association of price and quality has been widely studied in the literature in analysing consumers' purchase decisions (Finlay, Hackman, and Schwarz, 1996; Lambert, 1981; Rao and Monroe, 1988). Price-quality association is defined as the generalised belief across product categories that the level of a price cue is related positively to the level of product quality (Lichtenstein et al., 1993). In other words, high prices are positively related to high quality perceptions (Wheatley, Chiu, and Allen,

1982), whereas low prices are positively associated with low quality perceptions. Based on this definition, a lower priced product in a category may be viewed less favourably. This is because consumers may apply the low price to some problematic attributes of the product, and then perceive the product as inferior in overall quality (Burton et al., 1998; Garretson et al., 2002).

Following this perspective, consumers may associate the low price of PLB products with low quality. Some researchers argue that consumer attitudes towards PLB proneness are directly affected by the extent to which consumers draw assumptions from price and brand names when assessing the quality level of the products (Wolinsky, 1987). Consumers who are afraid of purchasing low-quality products may choose high-price brands to reduce purchase risk (Burton et al., 1998).

Empirically, several PLB studies have shown similar findings to support the proposition that the perception of price-quality association has a negative influence on PLB attitude and purchase. Earlier research has indicated that a positive relationship between price and quality relates negatively to consumer attitude towards PLB buying (Wolinsky, 1987). Later studies have also shown that the stronger belief of price-quality association increases consumers' unfavourable attitude to PLBs and thus reduces their proneness to the purchase of these products (Burton et al., 1998; Garretson et al., 2002). Therefore, although retailers set low prices to encourage the purchase of PLBs, this purchase encouragement might not be effective. This is particularly the case for consumers who rely on price in their quality assessment. The low prices of PLBs may serve only to exacerbate further unfavourable quality perceptions of PLB products (Richardson et al., 1994).

However, some consumers may be under the impression that the lower price of PLBs is a result of reduced advertising and not of any difference from national brands in product quality (Kleppner, 1979). A similar view is seen in some studies which suggest that consumers regard PLBs as being equal to the established manufacturer brands (Burt, 2000). In this case, consumers might not reply their brand choice on the price-quality association.

In general, prior studies have considered the perception of price as an indicator of quality (Erickson and Johansson, 1985). Lichtenstein and Burton (1989) state that

price-quality perceptions appear to be a function of general schemas. Consumers easily generalise the association of price with quality to other situations (Lichtenstein and Burton, 1989). Therefore, consumers who have strong price-quality association should have a negative attitude towards low-priced products including PLBs.

2.3.5 Brand Loyalty

The concept of consumer brand loyalty is not new in branding studies, particularly those focusing on consumer attitudes towards national brands. Brand-loyal consumers usually have a common shopping habit of purchasing a brand over time due to an emotional attachment to that brand (Lim and Razzaque, 1997). These consumers display a stronger tendency than others to buy the same brands they have always bought (Garretson et al., 2002). Unlike the non-brand-loyal consumers, these consumers are less likely to switch to new and unfamiliar brands (Garretson and Burton, 1998). Moreover, brand-loyal consumers are more concerned about quality and less sensitive to price (East, Gill, Hammond, and Hammond, 1995).

Prior research has also suggested that consumers concerned with paying lower prices are less loyal towards specific brands, instead tending to exhibit stronger variety seeking behaviour (Garretson and Burton, 1998; Garretson et al., 2002). Similar buying behaviours have also been found in consumers who frequently purchase PLB products. Baltas (1997) note PLB-prone buyers are likely switchers or variety seekers who do not have a stable, narrow brand selection. These consumers easily switch to national brands when the price gap between PLBs and national brands is narrowed (Blattberg, 1980; Livesey and Lennon, 1978; Putsis and Cotterill, 1999). Following this view, the term 'brand loyalty' may not be used to describe consumers who are prone to PLBs, because although these consumers have the habit of frequent purchase of a specific brand, they also exhibit brand-switching characteristics. Steenkamp and Dekimpe (1997) argue that consumer loyalty to PLBs is only possible until these products have a favourable image. However, it remains a big challenge for retailers, especially when they compete with well-known national brands.

This term "brand loyalty" has been used in several studies to predict the use of PLBs. Although the measurement scales for brand loyalty in these studies do not refer specifically to national brands, their findings indicate that PLB purchase is influenced negatively by brand loyalty. Ailawadi et al. (2001) explain that since national brands

are more salient and have higher market shares than PLBs, consumers will think of national brands when they respond to the measurement items of brand loyalty. Their results show that brand-loyal consumers are less likely to use PLB products. Likewise, other studies have indicated the presence of brand loyalty has a negative effect on PLB attitude which directly influences the percentage of PLB products the consumer purchases (Burton et al., 1998; Garretson et al., 2002).

On the whole, since consumer loyalty and shopping habits are the major factors in the battle between retailers' PLBs and manufacturers' national brands (Omar, 1996), a clear understanding of consumer loyalty can be helpful in establishing effective strategies for brand promotion. Prior studies of PLBs usually provide a general sense of the impact of brand loyalty on PLB proneness across all categories, suggesting a need to explore this attitudinal construct from a category-specific perspective.

2.3.6 Consumer Demographic Characteristics

A question of interest to marketing managers is whether there are significant differences in consumer proneness towards PLBs across different demographic factors (Burton et al., 1998). However, as indicated earlier, although a large number of prior studies have examined the influences of these personal characteristics, findings are mixed. Earlier studies show no differences between PLB and national-brand users in terms of demographics (Frank and Boyd, 1965; Myers, 1967). Later research suggests that PLB purchasers can be identified through some personal characteristics (Frank and Boyd, 1965; Myers, 1967; Omar, 1996). This leads several researchers to argue that findings regarding demographics from earlier research are unclear and outdated (Baltas, 1997; Baltas and Doyle, 1998; Dick et al., 1995).

Since demographic factors have a significant association with psychographic characteristics and are therefore useful in market segmentation, targeting and communication (Ailawadi et al., 2001), it is important to examine the effects of these factors on PLB purchase over time. This may reveal whether their effects have changed after a period of time (Richardson et al., 1996). The next subsections review five demographic factors including age, annual household income, education, gender and household size.

2.3.6.1 Age

Age is the factor most frequently examined in PLB studies. On the one hand, some studies found that age was not a significant factor influencing PLB proneness. Richardson et al. (1996) proposed that, other things being equal, older shoppers should have greater shopping expertise than younger shoppers. Thus, older shoppers might use their shopping expertise to evaluate brands and consider PLBs as viable alternatives to national brands for a wider range of products (Richardson et al., 1996). However, their findings did not support this contention. This insignificant relationship is also seen in other studies such as Burton et al. (1998), Cotterill & Putsis (2000) and Cotterill et al. (2000).

On the other hand, other researchers argue that age is a good indicator distinguishing PLB buyers from national brand buyers. Older people tend to avoid PLB brands, whereas younger people are more likely to accept them (Dick et al., 1995; Omar, 1996). This finding is consistent with some earlier studies which have shown that younger shoppers prefer to buy PLBs than do older shoppers (Coe, 1971; Cunningham et al., 1982). In contrast to this finding, other studies argue that older consumers tend to be more price-sensitive and have more severe budget constraints relative to younger consumers (Dhar and Hoch, 1997; Hoch, 1996). These studies have found that older people are more likely to buy low-priced products such as PLBs.

2.3.6.2 Annual household income

Annual household income can be related to product price that consumers wish to pay. For example, during economic recessions, as incomes fall, consumers become more price conscious and likely to choose low-priced products (Hoch and Banerji, 1993). Hoch (1996) suggests that, other things being equal, household income should have an apparently negative relationship with PLB purchase. This is because higher-income households are less financially restricted and therefore less price sensitive (Ailawadi et al., 2001). Other studies have also found that households with higher annual income have less favourable attitudes towards PLB products (Burton et al., 1998), and a lower propensity to buy them (Hoch, 1996; Richardson et al., 1996; Rothe and Lamont, 1973), therefore reducing PLB market shares (Cotterill and Putsis, 2000; Cotterill et al., 2000).

However, other researchers challenge that lower-income households should have preferences for national brands versus PLBs. Coe (1971) found that compared to middle-income shoppers, those with lower income were more afraid of buying brands they knew little or nothing about. Thus, lower-income households were less likely to buy PLBs. Dick et al. (1995) even found a curvilinear relationship between annual household income and PLB proneness, indicating that PLBs perform better in segments of households with the lowest and highest incomes than in the middle-income group.

2.3.6.3 Education

The impact of education on PLB proneness is also arguable in the studies of PLBs. On the one hand, some studies indicate that high-educated consumers have more chance to earn higher income. These consumers have fewer financial constraints, are more quality conscious (Ailawadi et al., 2001), and have lower price sensitivity (Becker, 1965; Hoch, 1996). Therefore, they may have more liberty to choose high-priced brands. Some researchers have shown that PLB buyers have lower formal education than national brand purchasers (Omar, 1996; Rothe and Lamont, 1973).

On the other hand, other studies argue that well educated consumers may have more confidence in their evaluative abilities and are better informed about the relative quality of PLBs compared to national brands (Hoch, 1996). They do not rely on the brand name as the indicator of product performance (Murphy and Laczniak, 1979). Burton et al. (1998) found that shoppers with higher education have more favourable attitudes towards PLBs. Similar results are also shown in other studies which suggest that education is positively related to PLB performance (Cunningham et al., 1982; Hoch, 1996). Nonetheless, Richardson et al. (1996) obtained insignificant findings for this notion. Their work indicates that there is no relationship between education and PLB proneness.

2.3.6.4 Gender

Earlier studies in the 60s and 70s have often chosen females as research samples to examine PLB purchase. These studies do not indicate whether male consumers have the same purchase behaviour as females (eg, Burger & Schott, 1972; Livesey & Lennon, 1978; Myers, 1967). Later studies indicate that females are more likely to purchase PLBs than male shoppers (Ailawadi, 2001; Omar, 1996). Nevertheless, some

researchers argue that the effect of gender on consumer inclination to buy PLBs is not significant (Burton et al., 1998).

2.3.6.5 Household size

Interest in studying the influence of household size on PLB purchase has been increased in the literature since 1990s. These studies have shown that family size is a strong factor identifying PLB buyers. Richardson et al. (1996) propose that households of a larger size may have fewer financial resources available to make ends meet. Their results indicate that the larger the size of household, the greater the PLB proneness. Consistently, the positive relationship between household size and PLB purchase is also seen in other studies which show that smaller households are more likely to confine their purchases to nationally advertised brands (Cunningham et al., 1982; Dick et al., 1995; Hoch, 1996; Omar, 1996).

2.3.7 Summary of the Review of Studies of Consumer Factors

This section examined extant studies of consumer-level factors affecting consumer proneness to PLB buying. The chronological review showed that studies of PLBs on consumer factors switched the research focus from identifying PLB-buyer characteristics to examining consumer perceptions of and attitude towards PLB purchase. More importantly, six consumer psychological factors were reviewed in depth, namely, consequences of making a purchase mistake, quality variability between PLBs and national brands, the search versus experience nature of product features, price consciousness, price-quality association and brand loyalty. Moreover, five demographic characteristics were reviewed. Key findings from prior studies of PLBs that have examined these consumer factors are summarised in Table 2.1. Using the Batra and Sinha (2000) model as a frame of reference, an extended version is outlined and discussed in the next section.

Table 2.1 A Summary of Key Findings of Prior Studies of PLBs

| Consumer Factors	Relevant findings	Relevant studies
Consequences of making a purchase mistake	• Consequences of making a purchase mistake were negatively related to PLB purchase; • Consumers perceived PLBs to have higher performance risk and to have lower financial risk than national brands; • PLB purchase was positively associated with low involvement with the product; • PLB purchase was negatively related to the importance of getting the right brand.	Baltas (1997), Baltas and Doyle (1998), Batra and Sinha (2000), Dunn et al. (1986), Dick, et al. (1995), Richardson et al. (1996),
Quality variability	• The success of PLBs was positively related to high quality of PLBs and low quality variability between PLBs and national brands; • PLB shares were likely to be higher in categories where PLBs had higher relative quality and lower variability; • Consumers perceived inferior quality in PLBs than in national brands; • Consumers perceived higher quality variability in PLBs than in national brands. • Quality was a key factor in PLB success.	Ailawadi et al. (2001), Bellizzi et al. (1978) Cunningham et al. (1982), Dick et al. (1995), Dunn et al. (1986), Erdem et al. (2004), Hoch and Banerji (1993), Miranda and Joshi (2003), Richardson et al. (1996), Richardson et al. (1994), Semeijn et al. (2004)
	• The relationship between quality variability and PLB purchase was not direct but mediated by other constructs.	Batra and Sinha (2000), Baltas and Doyle (1998),
Search versus experience nature of product features	• PLB buyers ranked experiences as less important than did national brand buyers; • PLBs increased in product categories where search attributes were more than experience attributes.	Batra and Sinha (2000) Omar (1996), Rothe and Lamont (1973)
	• The greater the reliance on extrinsic cues in quality assessment, the higher the perceived risk associated with PLB purchase; • Consumers ranked highly for national brands than PLBs in terms of extrinsic cues such as packaging.	Bellizzi et al. (1981) Cunningham et al. (1982) Dick et al. (1995), Richardson et al. (1996), Richardson et al. (1994)
Price consciousness	• PLB buyers were more price conscious than national brand buyers; • PLB attitude, purchase, and proneness were positively related to price consciousness; • PLBs increased in product categories where consumers had more price consciousness towards the products.	Erdem et al. (2004), Ailawadi et al. (2001), Batra and Sinha (2000), Burton et al. (1998), Baltas and Doyle (1998), Omar (1996), Burger and Schott (1972) Baltas et al. (1997) Myers (1967), Rothe and Lamont (1973)
Price-quality association	• The higher the price-quality association, the lower the PLB purchase and attitude;	Burton et al. (1998), Garretson et al. (2002), Wolinsky (1987),
Brand loyalty	• Brand loyalty was negatively associated with PLB purchase, usage, attitude, and proneness.	Ailawadi et al. (2001), Barreston, et al. (2002), Burton et al. (1998),
Demographics	• Demographics were not important factors to identify PLB buyers;	Frank and Boyd (1965) Frank (1967) Myers (1967)
	• Younger people were more likely to buy PLBs; • Higher-income households were more likely to buy PLBs. • Higher-educated consumers were less likely to buy PLBs; • Female were more likely to buy PLBs; • Larger sizes of households were likely to buy PLBs.	Coe (1971), Cunningham et al. (1982) Dick et al. (1995), Omar (1996), Rothe and Lamont (1973) Richardson et al. (1996)
	• Older people were more likely to buy PLBs; • Lower-income households were more likely to buy PLBs; • Higher educated people were more likely to buy PLBs;	Cotterill and Putsis (2000) Cotterill et al. (2000) Cunningham et al. (1982) Dhar and Hoch (1997), Hoch (1996), Richardson et al. (1996), Rothe and Lamont (1973)

2.4   Conceptual Framework in the Study

Drawing on Batra and Sinha's (2000) study, the category-level effects of three determinants of perceived risk and price consciousness on PLB purchase are re-examined in the current research.   Batra and Sinha found that PLB purchase rises in product categories where: the consequences of making a purchase mistake are reduced, there is a smaller degree of quality variability across brands, the product categories have more search than experience characteristics, and consumers are more price conscious. These findings are also supported by some other PLB studies of consumer factors.

Moreover, the current study adds price-quality association, brand loyalty, and five demographic characteristics to Batra and Sinha's model.   As reviewed in the previous section, extant studies have shown that price-quality association and brand loyalty are important determinants influencing consumer attitude towards PLB proneness. Demographic constructs are also useful for retailers and manufacturers to distinguish PLB buyers from national-brand buyers.   Thus, drawing upon Batra and Sinha's study, an extended version of their model to be investigated is proposed as follows.

Figure 2.2 Factors Affecting the Success of Private Label Brands
– An extended version of Batra and Sinha's (2000) model
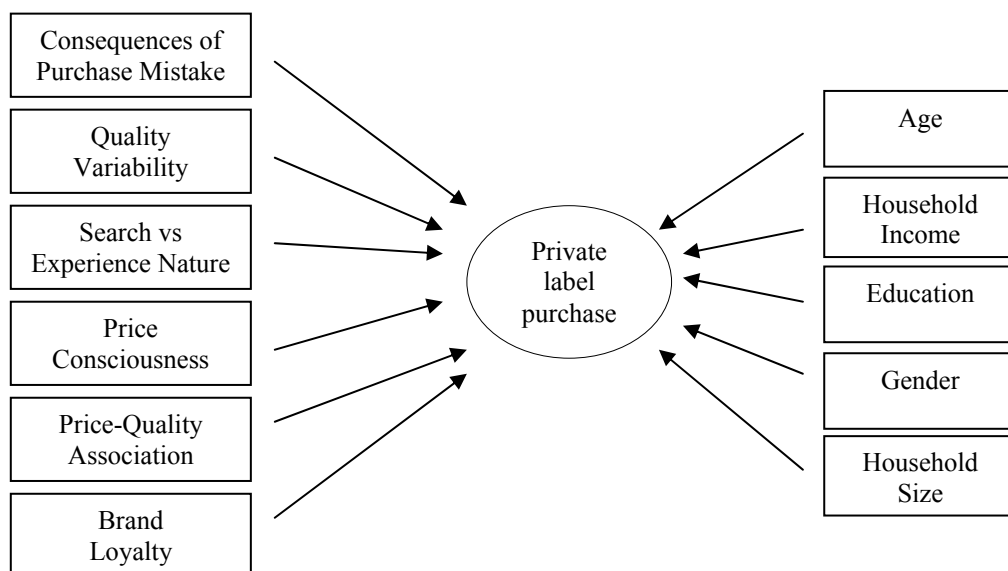
2.5   Conclusions

This chapter reviewed detail in studies of PLBs. As shown in the review, the increasing prevalence of PLBs in the market has a different or even opposing impact on the retailers and national-brand manufacturers. Retailers devote resources to promotion of PLBs according to their potential profitability. National-brand manufacturers are concerned about these products as they have taken shares from their brands. Some strategies that manufacturers can use to respond to PLBs were also briefly reviewed.

More importantly, this chapter reviewed a number of studies that had investigated consumer-level factors influencing consumer proneness to PLBs and their purchase. Through this review, some knowledge gaps were highlighted. Specifically, one gap was the deficiency of research looking at different determinants of perceived risk. Another gap was the necessity of investigating variations of influences of consumer factors on PLB purchase across different product categories.

In particular, this chapter discussed Batra and Sinha's (2000) study in some depth. Based on their study, some additional consumer factors were discussed. These factors include consequences of making a mistake in a purchase, quality variability, the search versus experience nature of product features, price consciousness, price-quality association, and brand loyalty. Findings of extant studies have shown that these important factors have different degrees of influences on consumer preference for PLB products. Moreover, the effects of five demographics on PLB buying were also reviewed, namely, age, annual household income, education, gender, and household size. However, results involving these demographic factors were mixed. A table summarising key findings of prior studies that had examined these factors was provided. Finally, an extended version of Batra and Sinha's (2000) model was introduced for this research to investigate. The hypotheses underlying this extended framework, as well as methodology used to examine them are discussed in detail in the next chapter.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1   Introduction

This chapter discusses the hypotheses developed based on the literature review, and describes the design of research methodology underlying the examination of the hypotheses. It aims to provide assurance that appropriate procedures were followed. As reviewed in Chapter Two, a number of consumer-level constructs are under investigation in the current study. These constructs include determinants of perceived risk and determinants of consumer attitude towards PLB (private label brand) purchase. This research seeks to examine the category-level effects of these constructs on consumer proneness to buying PLB products. Moreover, the category-level differences of these constructs are used to explain the variations of PLB purchase across product categories in the study. In addition, the influences of demographic characteristics on consumer preference for PLBs are also investigated.

This chapter is organised in eight sections. It starts with a section of justifications for the research design used in the current study. The uses of quantitative research approach and replication research are explained. Hypotheses proposed for this study are developed in the third section. This is followed by the detail discussions of research methods. The fourth section provides a comparison of the research methods used in Batra and Sinha's (2000) study and the current research. Scale development, questionnaire design, data collection, sample size and product selection are also discussed in detail. Section five describes the administration process of the questionnaires collected. Procedures of analysing data are then provided in section six where the main multivariate technique employed to test the hypotheses are also discussed. Some ethical considerations in the study are addressed in the seventh section, followed by the conclusion.

3.2   Justification for the Research Design

The current research was a quantitative approach. Batra and Sinha's (2000) study adopted a quantitative research design to investigate relationships among perceived-risk determinants and PLB purchase. One major purpose of this research is to re-examine

their hypotheses. Another major purpose is to examine additional constructs based on Batra and Sinha's theoretical proposition. The hypotheses with respect to these additional constructs were developed based on the format of Batra and Sinha's hypotheses together with other extant studies. Measurement scales for the constructs were adopted from prior studies. Since this study attempts to test or verify the relationships between these previously developed constructs rather than to generate new variables, a positivist, quantitative research methodology is appropriate (Cavana et al., 2001). Within the quantitative disciplines, the research process of this study was objective rather than subjective. Data would be collected in a survey by using structured questions where the response options had been predetermined and a large number of respondents was involved (Burns and Bush, 1999, p. 230). Statistical methods would be used to examine the data obtained from the survey.

In addition, the current research replicates and extends Batra and Sinha's (2000) study. Replication is an important scientific activity as it increases credibility of findings and permits generalisations to be drawn from them (Hubbard and Armstrong, 1994). In social science disciplines, this type of replication is called approximate replication (Klein, Brown, and Lysyk, 2000). Approximate replication research duplicates the methods of the original study as closely as possible, also allowing for research extension to include additional variables and inevitable variations in conditions such as location, time, subjects, and investigators (Klein et al., 2000). Obtaining similar results from this replication research can build confidence in the outcomes and leads to the expectation that the situation would be the same in unstudied populations and samples (Hubbard and Armstrong, 1994; Klein et al., 2000). Therefore, replications and extensions play a valuable role in ensuring the integrity of a discipline's empirical results (Hubbard and Armstrong, 1994)

However, Hubbard and Armstrong (1994) note that replication is rare in marketing. They urge that more replication and extension studies should be conducted in marketing disciplines, which can help assess the validity, reliability, and generalisability of the original empirical findings. Therefore, a replication and extension of Batra and Sinha's study can further validate their findings. This replicating and extending study was conducted with consumers in the packaged-goods industry in the New Zealand market. The research design utilised in Batra and Sinha's (2000) work guided the current research design.

3.3 Hypothesis Development

There were six perceptual constructs examined in this research. Batra and Sinha (2000) examined four constructs in their study, namely, consequences of making a purchase mistake, quality variability, search versus experience nature of product features, and price consciousness. The hypotheses developed by them were used in the current study for re-examination. These hypotheses are as follows:

H_1: Consumers are more prone to buying private labels in product categories where they perceive lower consequences of making a mistake in their brand selection.

H_2: Consumers are more prone to buying private labels in product categories where they perceive lower variability in quality levels across brands.

H_3: Consumers are more prone to buying private labels in product categories where they think they can accurately gauge the quality of important product attributes or benefits based on written descriptions alone.

H_4: Consumers are more prone to buying private labels in product categories where they are more price conscious.

The hypotheses for the two added constructs, namely, price-quality association and brand loyalty, were developed in a similar format as the hypotheses proposed by Batra and Sinha. As discussed in the literature review, several researchers have shown that the association of price with quality have a negative impact on the purchase of PLB products in all grocery products as a whole (Burton et al., 1998; Garretson et al., 2002). Thus, it was assumed that this negative relationship would be the same across different product categories. Similarly, brand loyalty was also found to be negatively related to PLB purchase in general categories (Ailawadi et al., 2001; Burton et al., 1998; Garretson et al., 2002). Therefore, this negative relationship was also expected to be the same in specific product classes. As a result, the hypotheses involving these two constructs are as follows:

H_5: Consumers are less prone to buying private labels in product categories where they have stronger price-quality perception.

H_6: Consumers are less prone to buying private labels in product categories where they have stronger brand loyalty.

In addition, five demographic characteristics were also examined in the study. As reviewed in the literature, extant findings cannot provide consistent answers for the directions of the influences of these five demographics on consumer proneness towards PLB buying. Therefore, the directions of the relationship were not identified in the hypotheses of this study. The hypotheses involving these five demographics are as follows:

H_7:   Gender correlates with private label purchase.

H_8:   Age correlates with private label purchase.

H_9:   Education correlates with private label purchase.

H_{10}:   Annual household income correlates with private label purchase.

H_{11}:   Family size correlates with private label purchase.

3.4   Research Methods

Turning from the discussion of developing hypotheses, this section presents detail research methods that would be used to collect data to examine these hypotheses. It firstly illustrates a comparison of the research design used in Batra and Sinha's (2000) study with that employed in the current study. Similarities and differences in research methods between two studies are brief reviewed. It then moves onto discuss the development of measurement scales, followed by the design of the questionnaire. After that, data collection and sample size are explained. The selection of products under investigation is also provided.

3.4.1   Comparison of Research Design between Two Studies

Similar to Batra and Sinha's (2000) work, the current research was a cross-sectional study. The data were collected from a mall-intercept questionnaire survey where the participants were interviewed by university students. The sampling and survey procedures implemented in this research also followed the design of Batra and Sinha. Moreover, the measurement scales for the perceptual constructs and the number of responses for each product category were in line with their study.

The differences from Batra and Sinha's work were in participants, sample size, survey location, length of the questionnaire, and number and selection of the product categories. Although these elements were designed with reference to their study, they were adjusted

in terms of the conditions of the current research and situations of the survey. The design for each of the method units is discussed in detail in the following subsections. A comparison of each research method used in the original study and in the current study is illustrated in Table 3.1.

Table 3.1 A Comparison of Research Design between Original and Current Studies

Research Methods	Batra and Sinha	The Current Study
Research approach	Quantitative	Quantitative
Time horizon	Cross-sectional	Cross-sectional
Participants	US shoppers	New Zealand shoppers
Sample size	263	600
No. of product categories	12	10
No. of categories / participant	two or three	one
No. of responses /category	approx. 60	60
Instrumentation	Questionnaire	Questionnaire
No. of measure items	17	30
Measure scales	Likert	Likert and Categorical
Data collection method	Mall-intercept survey	Mall-intercept survey
Survey Interviewers	University students	Two university students
Survey Location	Malls in a major city	A supermarket in Auckland
Sampling technique	Randomly intercepted every 3rd shopper	Randomly intercepted every 3rd shoppers
Survey Process	1. Screener question 2. Questionnaires	1. Screener question 2. Questionnaires

3.4.2 Development of Measurement Scales

The subsection discusses how to develop scales to measure the consumer constructs examined in the current study. Likert scales are most widely used in measuring personality, perception, social and psychological attitude research (Bordens and Abbott, 1996; Hodge and Gillespie, 2003). An important question about constructing a Likert-type scale is whether it has an optimum number of points on the scale in which reliability changes very little (Jacoby and Matell, 1971). Some researchers support the idea that a positive relationship exists between the number of scale points over the normal range and the reliability of the measure (Churchill and Iacobucci, 2002; Churchill and Peter, 1984). Green (1970) presents evidence indicating that 6- to 7-point scales are optimal. However, some other studies argue that both reliability and validity

are independent of the number of scale points used for Likert-type items (Jacoby and Matell, 1971; Komorita, 1963).

Batra and Sinha (2000) used 7-point Likert scales to measure the perceived-risk constructs, and a 5-point scale to assess the dependent variable, PLB purchase. Following their research design, this study used the Likert scales with same number of points as theirs to measure the six perceptual constructs and PLB purchase.

With regard to the measurement items, Batra and Sinha (2000) used four items to measure each of the three determinants of perceived risk, and two items to measure price consciousness. In their convergent and discriminant validity testing, the four items measuring quality variability obtained satisfactory statistical support. Therefore, these four items would be used in the current study to re-examine quality variability. However, regarding the measure items for another two perceived-risk determinants, namely, consequences of making a purchase mistake and search versus experience nature of product features, they did not have acceptable validities. Thus, Batra and Sinha deleted the two-worst fitting items for these two constructs. In their study, they only showed the remaining acceptable measurement items. With regard to price consciousness, it was not clear why they only used two rather than four measure items.

Churchill and Iacobucci (2002, p. 394) note that the reliability of the measure increases as the number of items increases. Since higher reliability is generally associated with increasing numbers of the measuring items (Bordens and Abbott, 1996), this study added two items obtained from other studies to consequences of making a purchase mistake, search versus experience nature of product features, and price consciousness. Therefore, each construct would have four measuring items.

As far as price-quality perception and brand loyalty were concerned, the four measuring items were also taken from the extant studies, for example, Lichtenstein et al. (1993), Ailawadi et al. (2001), and Garretson et al. (2002). As a result, twenty-four 7-point Likert-scaled items were designed to measure the six perceptual constructs investigated in this research. In addition, PLB purchase was measured by the 5-point scaled item provided in Batra and Sinha's study, from 1 (exclusively purchase national brands) to 5 (exclusively purchase private label brands). A summary of the sources for each of the constructs is presented in Table 3.2.

Table 3.2 Sources for the Interval-Scaled Measuring Items for the Six Constructs

Constructs	Measurement Items	Scales	Sources
Consequences of Purchase Mistake	- Not a big deal - Can't go too wrong - Family or friends think less highly of me - Be financially worse off	Likert 7-point	Batra & Sinha, 2000 Dunn et al., 1986
Quality Variability	- Basically the same in quality - No significant quality difference - Do not vary a lot in terms of quality - Only minor quality variations	Likert 7-point	Batra & Sinha, 2000
Search vs Experience Nature	- Information on packaging tells everything - Description on packaging covers features - Need more information before buying - Try several times before decision	Likert 7-point	Batra & Sinha, 2000 Erdem & Swait,1998
Price Consciousness	- Compare prices before buying - Important to get the best price - Look for the cheapest brand - Price is the most important factor	Likert 7-point	Ailawadi et al., 2001 Batra & Sinha, 2000
Price-Quality Perception	- The higher price, the higher quality - You get what you pay for - Price is a good indicator of quality - Need to pay a bit more for the best one	Likert 7-point	Lichtenstein et al., 1993
Brand Loyalty	- Continue to buy not considering others - Tend to buy the same brand - Make effort to search for favourite brand - Care a lot about the brand bought	Likert 7-point	Ailawadi et al., 2001 Garretson et al.,2002
PLB Purchase	Buy national brands or private label brands	Interval 5-point	Batra & Sinha, 2000

Finally, the five demographic constructs, namely, age, gender, education, annual household income, and household size were measured on category scales. Since this study was conducted in New Zealand, the measure categories for each construct were designed with reference to the demographic classification provided by New Zealand Statistics (Statistics, 2003).

3.4.3 Questionnaire Design

A questionnaire was used to collect data for the current study. This subsection firstly provides an overview of the design for the questionnaires. It then discusses the pre-testing of the questionnaires after they had been developed.

3.4.3.1 Questionnaire outline

The questionnaire comprised three sections, each of which provided instructions to guide the participants to complete the questions.   As there were ten product categories in the study, ten sets of questionnaires were designed.   In general, the question items and sequences were the same.   The only difference was the name of the product category. It was shown on the top of each questionnaire. The purpose of this was to differentiate the responses. Section one provided the twenty-four Likert-scaled question items that measured the six perceptual constructs.   Section two asked a question about which brands, national brands or store brands, they usually bought in the category provided.   This question was to measure the dependent variable, PLB purchase. The five demographic questions were shown in section three.

3.4.3.2 Pre-testing of the questionnaire

The purpose of questionnaire pre-testing is to ensure that item wording, flow of questions, suitability of measurement scales, instructions, and other aspects of the questionnaire are understandable.   Churchill and Iacobucci (2002, p. 352) stress that data collection should never begin without an adequate pre-test of the instrument. Therefore, although the items used in this study were taken from the extant studies which had established the measurement, this step was still necessary.   It was because that wordings have different meanings and connotations in different cultural contexts (Sekaran, 2003).   Questionnaire pre-testing can help to rectify any inadequacies beforehand (Sekaran, 2003).

After the questionnaire had been developed, it was firstly given to three senior postgraduate lecturers in the Business Faculty at Auckland University of Technology to seek their comments.   They confirmed that the item wordings were simple and easily understood.   Only two changes were made. One was the layout of the questionnaire which was made easier for the participants to answer. The other one was the order of the Likert-scaled items. Placing the items measuring the same concept in different parts of the questionnaire may reduce any systematic biases in the response (Sekaran, 2003). Thus, the twenty-four Likert-scaled items measuring the six perceptual constructs were randomised throughout the questionnaire.

Secondly, five students were invited to fill in the questionnaires individually. Besides re-checking the understanding of the items, scales and layouts, timing for completion of a questionnaire was also calculated. Respondents said questions were clear and easily answered. It took approximately five minutes to complete one questionnaire.

Finally, three consumers were intercepted in a supermarket to test their willingness to participant in the survey. Shoppers accepted the survey. However, they were reluctant to fill in more than one questionnaire due to their busy schedules or unwillingness. Therefore, each respondent was only requested to provide data for one product category. This was one reason why the sample size had to be enlarged in this research compared to Batra and Sinha's study. More details about sample size will be discussed in section 3.4.5. An example of the final questionnaire is shown in Appendix B.

3.4.4 Data Collection

This subsection firstly discusses the data collection method used in the current study. Some advantages and disadvantages of the method used are highlighted. It then explains how participants would be selected for the survey, followed by a description of the procedures of collecting data.

3.4.4.1 Mall-intercept survey method

This study used a mall-intercept survey to collect data. Since mall-intercept survey is a personal or face-to-face interviewing method, it carries many of the advantages associated with personal interviewing (Gates and Solomon, 1982). There are three main advantages in this method (Sekaran, 2003). First, it can establish good rapport with the respondents and motivate them to participant in the survey. Second, the interviewers can provide clarifications sought by the respondents on the spot. This can avoid missing data and bias resulted from misunderstandings. Third, questionnaires can be collected once they are completed. A high response rate is easily obtained.

Thus, a mall-intercept survey was more appropriate for this study than other methods, for example, mail survey and telephone survey. Although a mail survey can reach a larger geographic area, this method usually suffers from a low response rate. It is also difficult to clarify doubtful items which may provide incorrect answers or missing data (Churchill and Iacobucci, 2002; Sekaran, 2003). Interviews in telephone surveys also

have the geographic advantage. However, the telephone survey can be easily terminated unilaterally by the respondents without warning or explanation (Sekaran, 2003). Thus, it is more likely to yield a lower response rate than the mall-intercept approach (Bush and Hair, 1985). Furthermore, Batra and Sinha's (2000) data was collected from a mall-intercept survey. Following their research design, the data for this study would be collected from shoppers in a supermarket.

However, the mall-intercept survey also suffers from some disadvantages. The disadvantages of this method can be seen in the possibility of introducing interviewer biases (Sekaran, 2003) and sampling biases (Nowell and Stanley, 1991; Sudman, 1980). Interviewer biases could result from the interviewers' misinterpretation or distortion of the question meanings. To reduce these biases, the two interviewers were first trained to be familiar with the purposes of the survey, the instructions of the questionnaire, and the interpretations of the question items before running the survey. Therefore, they could provide consistent answers when the participants required clarifications. In addition, sampling biases raised in the mall-intercept method could rise from non-representativeness of the sample selection (Burns and Bush, 1999). Sudman (1980) states that an unbiased sample requires that all entrances of the chosen mall have some probability of selection. Thus, in this research, the entrances of the selected supermarket and the participants would be sampled with equal probability. This is discussed more detail in the next subsection.

3.4.4.2 Participant selection

There were two steps in selecting participants for the current survey. The first step was the sampling method. In the Batra and Sinha (2000) study, every third shopper was intercepted in their survey. The advantage of this sampling procedure in the mall-intercept survey is its ability to reduce the sample biases (Sudman, 1980). In accordance with their design, the current research used the same sampling rate to select the shoppers. That is, every third shopper exiting the gate of the supermarket would be intercepted after the previous respondent had returned the questionnaire.

The second step was to choose the appropriate respondents. This step was also paralleled Batra and Sinha's procedure. After a shopper was selected, he or she would be asked to answer a screening question to confirm the appropriateness to participate in the survey. This screening question was taken from Batra and Sinha's (2000) work.

That is, "in the past month, did you buy any product in _____ category? If the answer was affirmative, the shopper was then considered as the appropriate respondent.

3.4.4.3 Data collection procedures

There were two stages in the whole survey: permission from the supermarket and survey implementation. The interview location was in a New World supermarket near Victoria Park in central Auckland. Before running the survey, an official letter (shown in Appendix A) was sent to the manager of the supermarket. The purpose was to introduce the intention of the survey and ask for a meeting to discuss detail procedures. The permission for the mall survey was received in the meeting. The survey was a five-day work from November 20 to November 24 2004, Saturday to Wednesday. Since consumers might repeat their shop visits on a weekly basis, finishing the survey within a week could avoid double sampling. To ensure that the required responses could be obtained in the five-day period, two interviewers were needed. One was the researcher of the current study. The other one was a fellow postgraduate student.

During the survey, the interviewer first intercepted a shopper by using the sampling method indicated earlier. Then, the interviewer invited the shopper to participate in the survey. The purposes of the survey and the timing for completing a questionnaire were explained to the shopper. Anonymity and confidentiality of answers provided by the shopper were also notified. After receiving the consent from the shopper, the interviewer randomly selected a product category, and then asked the screening question. A questionnaire was then presented to the shopper. During the filling-in, any doubts about the questions were clarified by the interviewer on the spot. After the questionnaire was completed, the interviewer collected it immediately and checked if all questions had been answered. Further information would be sought from the respondent if any question was unanswered.

3.4.5 Sample Size

This section explains how the size of the sample was designed for this research. Burns and Bush (1999, p. 422) believe that sample size affects the accuracy of results. Sample size also has a direct impact on the appropriateness of the statistical techniques chosen (Hair, Anderson, Tatham, and Black, 1998). The size of the sample for this research was designed in accordance with the criterion for applying the analytical technique

chosen, as well as the design of Batra and Sinha (2000). Since this study would use multiple regression analysis (see section 3.6.1 for the justification of this technique) to examine the relationships between the six perceptual variables and PLB purchase, a large sample size was required for this multivariate technique (Bordens and Abbott, 1996). The reason was that small sample size might provide less accurate estimates of the degree of relationship among the variables due to unstable correlations (Bordens and Abbott, 1996).

Hair et al. (1998) suggest that when applying multiple regression analysis, the ratio of observations to independent variables should not fall below 5 to 1. It means that there should be five responses for each independent variable in the variate. Since the primary purpose of this study is to examine the category-level influences of consumer factors, data would be analysed based on specific product categories. Therefore, the number of responses for each individual category would meet the ratio criterion (5:1) in order to ensure stable correlations (Bordens and Abbott, 1996).

Moreover, Batra and Sinha (2000) received 753 responses for twelve product categories in their study. Each category had approximately 60 responses. In the current research, ten product categories were under investigation. Thus, 600 responses were required for the current research (60 x 10). As found from the questionnaire pre-test, participants were unwilling to provide data on more than one category. This was unlike Batra and Sinha's survey in which respondents provided data on two to three categories. The main reason was that there were more items in the questionnaire of this research than that of Batra and Sinha (30 versus 17 items). Therefore, to ensure each product category had 60 responses, 600 participants were required. Since the data were collected from the mall-intercept survey, 600 responses would be easily obtained.

In brief, the sample size would be 600 for this study. The ratio of observations to independent variables for each product category was 10:1 (60:6) which met the ratio criterion. To ensure the quantity of the sample size, more shoppers would be intercepted.

3.4.6 Product Selection

Since this research examines consumer proneness towards PLBs, categories offering PLB products would be considered. Supermarket category trends of PLBs provided by

the reference book of A.C.Nielsen New Zealand Market Information Digest (2003) would be used as a guide to choose the products investigated in the current research.

A.C.Nielsen (2003) provides data on market sizes of the top ten PLB products, and growth rates of some PLB products versus a year ago (detail figures are shown in Appendix C). Among these products, fresh milk, bread, cheese, breakfast cereals, biscuits, toilet tissue, fruit juice, snack food, canned fruit, and pet food were randomly selected for this study. As shown by A.C.Nielsen (2003), market sizes vary across different product categories. For example, fresh milk and cream accounted for 46% of the total category value, toilet tissue 26.8%, bread 16%, breakfast cereals 14%, and biscuits 8%. In addition, growth rates also differ from one product to another. Canned fruit was the fastest growing category in dollar share (+24.3%) whereas the value share of breakfast cereals dropped (-7.2%) compared to a year ago. As this study seeks to investigate the category-level variances in consumer-factor influences on PLB purchase, these categories could be helpful in providing these variations.

3.4.7 Summary of Research Methods

The current research followed the research design utilised by Batra and Sinha (2000). Measurement scales used in this study were taken from prior studies. Questionnaires were pre-tested by several university senior lecturers, students and consumers to confirm the clarity of the contents involved. Data were collected from a mall-intercept survey conducted in a supermarket in Auckland city central. Participants were selected by using a sampling rate of every three shoppers and a screening question of asking whether they had a purchase in the category provided. The sample size would be 600. Ten products were selected. After the data were collected from the survey, the data would be processed through several steps to fine-tune their quality. These steps are discussed in the following section.

3.5 Data Editing, Coding and Categorising

This section describes briefly three steps to deal with the data before they were input into computer. These steps included data editing, coding and categorising. Their purpose is to ensure that the data are reasonably good and of assured quality for the later analysis (Sekaran, 2003). Data editing was firstly conducted to check the degree of questionnaire completion. This step was initially done in the supermarket at the same

time when the respondents returned the questionnaires. The interviewers checked the completion of all the questions on the spot and asked for further information if any question was unanswered. A second editing was conducted after the data were collected.

Then, data coding was conducted to facilitate the entry of responses and avoid later confusion (Sekaran, 2003). This step mainly focused on coding product categories, questionnaires and question items. A summary of data coding is shown in Appendix D.

After that, data categorising was conducted to group the question items which measured the same construct as well as to highlight those items that were negatively worded to facilitate later recoding. The four measure items were grouped for each of the six perceptual constructs. Seven items were highlighted as the negatively-worded questions. Specifically, theses items included two for consequences of making a purchase mistake, one for search vs experience nature of category, and four for quality variability. Therefore, in the later analysis, the higher the scores were in the measure items, the higher consequences of making a purchase mistake; the more the search attributes of the category; the higher the quality variability across brands; the higher the price consciousness; the greater belief on price-quality association; and the higher the brand loyalty. A summary of data categorising is presented in Appendix E.

Finally, data were directly keyed into the SPSS Data Editor by using the actual scores marked by the respondents. Missing data were represented by 999. Seven negatively worded items were also recoded.   After the data were entered in the computer, analysis of the data would be conducted. The procedures for examining the data are described in the following section.

3.6 Data Analysis Procedures

This section firstly introduces the main multivariate technique adopted to test the hypotheses involving the perceptual constructs in this study. It then outlines the procedures of analysing the data and statistical techniques employed for the analyses. The reason for each analysis processed and the technique chosen for the analysis will be justified in the next chapter.

3.6.1 Multiple Regression Analysis

Multiple regression analysis was the main technique used to examine the relationships between the six perceptual constructs and PLB purchase for this research. Multiple regression is a dependence technique which is most widely used to analyse the relationships between a single dependent variable and a sets of independent variables (Hair et al., 1998). This method successes in measuring the joint influence of the explanatory variables on the dependent variable, and, for each of these explanatory variables, assesses the effect on the outcome variable that is attributable to that explanatory variable alone (Harraway, 1995, p. 3). It is a statistical tool that is usually used when both the dependent and independent variables are metric (Hair et al., 1998). Since the six perceptual constructs and PLB purchase (dependent variable) were measured on metric scales, it was appropriate to use multiple regression analysis to examine their relationships.

In the replicated study, Batra and Sinha (2000) employed structural equation modelling technique (SEM) to test the hypotheses. SEM is a multivariate technique combining aspects of multiple regression and factor analysis to estimate series of interrelated dependence relationships simultaneously (Hair et al., 1998). Since this research focuses on examining the relationships between each perceptual construct and PLB purchase once at a time rather than investigating their interrelationships, multiple regression analysis was sufficient for the current analysis.

3.6.2 Analytical Procedures

The analyses included a profile of the respondents, preliminary data analyses and hypothesis tests. The response rate and an illustration of the respondents would be first provided, followed by the preliminary data analyses. The preliminary analyses are essential because they can ensure that the multivariate methods chosen are applied in appropriate situations (Hair et al., 1998). They also lend credibility to all subsequent analyses and increase accuracy in the results (Sekaran, 2003). The analytical process in this initial stage would firstly provide descriptive statistics of mean and standard deviation, followed by examining missing data, outliers, and normality.

Hypothesis tests included assessing reliability and validity of measurement scales and testing the hypotheses involving the relationships between the six perceptual constructs

and PLB purchase and the hypotheses pertaining to demographics. Reliability and validity of the interval-scaled measure items can ensure that the items indeed measure the constructs they are supposed to and measure them accurately (Sekaran, 2003). Multiple regression analysis would be used to examine the perception-related hypotheses. A t-test and one-way ANOVA (analysis of variance) would be employed to investigate the demographics-related hypotheses. A summary of specific analytical techniques used in the analyses appears in Table 3.3.

Table 3.3 Statistical Techniques Used in the Analyses

Analyses	Statistical Techniques	
	Interval variables	Categorical variables
Preliminary Data Analysis		
Descriptive statistics	Mean and Standard Deviation	
Missing data	Mean substitution	Completed data only
Outliers	Univariate detection and Multivariate detection	boxplots, and Stem and leaf plots
Normality	Skewness and Kurtosis	Levene statistics
Hypothesis Tests		
Reliability	Cronhach's alpha, Inter-item correlations, and Item-total correlations	--
Validity	Exploratory factor analysis	--
Consequences of mistake	Multiple regression analysis	--
Quality variability	Multiple regression analysis	--
Search vs experience nature	Multiple regression analysis	--
Price consciousness	Multiple regression analysis	--
Price-quality association	Multiple regression analysis	--
Brand loyalty	Multiple regression analysis	--
Age	--	t-Test
Annual household income	--	One-way ANOVA
Education	--	One-way ANOVA
Gender	--	One-way ANOVA
Household size	--	One-way ANOVA

3.7 Ethical Considerations in the Survey

This section addresses three ethical issues considered in this research. The ethics form approved by Auckland University of Technology Ethical Committee is attached in Appendix F. The first issue was consent to the survey participation by the shoppers. In

the survey, the interviewers explained to the shoppers the purposes and anonymity of the survey, and then asked for their consents to participate.

The second aspect was the confidentiality of the information provided by the survey participants. Although the survey was anonymous, it is still essential to treat the data provided as strictly confidential (Sekaran, 2003). Thus, all data input and analysis were done in the postgraduate lab in Auckland University of Technology. Only the researcher of the current study and her supervisor had access to the data.

The third aspect was the accuracy of findings (Sekaran, 2003). There should be no misrepresentation or distortion in reporting the data collected during the study. The statistical accuracy of the collected data should not be overstated by altering the findings (Zikmund, 2003).

3.8   Conclusions

This chapter provided a detail description in the research design used in the current study. The quantitative approach of this research was justified. Eleven hypotheses were developed on the basis of the literature review provided in the previous chapter. Research methods including scale development, questionnaire design, data collection, sample size, and product selection were discussed. Based on these methods, data were collected for this study to examine the hypotheses proposed. After the data collection, data editing, coding, and categorising were described to provide a view of how the questionnaires were administered. Three ethical issues were addressed. The procedures of data analysis and statistical techniques chosen for the analyses were also outlined. Four preliminary analyses of the data would be conducted before proceeding to test the hypotheses. Multiple regression analysis, t-test, and one-way ANOVA would be employed to test the hypotheses. The reason for using multiple regression analysis for testing the hypotheses was also justified. The next chapter reports analyses of the data.

CHAPTER FOUR: ANALYSIS OF DATA

4.1   Introduction

This chapter focuses on presenting the detailed analyses of the data collected and the statistical results for the study. The primary purpose of this research is to draw on Batra and Sinha's (2000) study to examine category-level variations of consumer level constructs in the purchase of PLBs (private label brands). Multiple regression analysis was adopted as the main multivariate technique to test the relationships between the perceptual constructs and PLBs purchase. As mentioned in Chapter Three, preliminary data analysis was conducted before proceeding to test the hypotheses, so as to ensure the validity of the data and reduce potential bias and distortion in the results.

This chapter is organised into five sections: introduction, profile of respondents, preliminary data analysis, hypothesis tests, and conclusion of analysis. Section two illustrates how the respondents of the survey were classified in the sample in terms of their characteristics. Response rate is also provided. This is followed by the section of preliminary data analysis including descriptive statistics of mean and standard deviation, missing data, outliers, and normality. After that, reliability and validity of the data are investigated in the fourth section where the examinations of hypotheses developed are also discussed. Some key results from the analyses are summarised in the last section.

4.2   Profile of Respondents

This section firstly provides the response rate obtained from the survey. It then describes the characteristics of the respondents for this study.

4.2.1   Response Rate

In this research, 665 shoppers were intercepted and asked to participate in the survey. Among these shoppers, 607 accepted the survey and 58 rejected the request. The reasons for rejection were no time, unwillingness or no interest in doing survey.

Of those shoppers who had participated in the survey, 600 completed most of the questions in the questionnaires, and seven shoppers only finished half or less than half

of the questionnaire and were not willing to continue. Sekaran (2003) suggests that when a substantial number of questions are unanswered, it is better not to include the questionnaires for later analysis. Thus, the seven questionnaires were excluded from the dataset. As result, 600 usable questionnaires were retained. The response rate was 90.2% (600 / 665). Numbers of the shoppers in the survey and the response rate are summarised in Table 4.1.

Table 4.1 Response Rate

Survey Participation	Number of Shoppers
Survey participated	607
Refused to participate	58
Total shoppers intercepted	665
Questionnaire finished	600
Questionnaire not finished	7
Total questionnaires retained	600
Response Rate	90.2%

4.2.2 Portrayal of Respondents

This section describes the characteristics of the respondents. In the survey, five personal characteristics were obtained from the respondents, namely, gender, age, education, annual household income and household size. Among these respondents, two thirds were females. Nearly half the respondents were aged between 30 and 50 years old. Respondents aged more than 50 years occupied 30.5% and those under 30 years old accounted for 22.2%.

In terms of education levels, the majority of respondents had university-level educations. Specifically, among every four respondents, nearly three had undergraduate or postgraduate qualifications. The large proportion of highly-educated respondents in the sample might result from the survey location. The survey site located in a supermarket in the central city may offer higher chances of intercepting company or university staff, and university students. The other quarter of respondents had qualifications of high school or less, vocation, trade, or others.

As for annual household income, more than a half of the households in the sample had incomes between $50,000 and $150,000 per year. Households which earned less than

$50,000 made up 24.3% of the sample. The other 22.4% of the households had annual income greater than $150,000.

Finally, the largest proportion of the respondents lived in a family unit of two to three people (63.2%). Those living in a larger household size of four or more accounted for nearly one quarter of the sample. 14.1% lived alone. A detailed description of the respondents for this study is illustrated in Table 4.2.

Table 4.2 Demographics of the Respondents

Characteristics	Measuring Groups	No. of Valid Responses	% of Valid Responses
Gender	Male	200	33.3
	Female	400	66.7
	Total	*600*	*100*
Age	0-29 years	132	22.2
	30-39 years	153	25.7
	40-49 years	129	21.7
	50-49 years	117	19.7
	60 or over years	64	10.8
	Total	*595*	*100*
Education	High school or less	71	12.0
	Vocation or trade	66	11.1
	Undergraduate tertiary	217	36.5
	Postgraduate tertiary	215	36.2
	Others	25	4.2
	Total	*594*	*100*
Annual Household Income	0-$30,000	49	8.6
	$30,001-$50,000	89	15.7
	$50,001-$70,000	83	14.6
	$70,001-$100,000	115	20.2
	$100,001-$150,000	105	18.5
	$150,001-$180,000	52	9.2
	More than $180,000	75	13.2
	Total	*568*	*100*
Family Size	1 person	84	14.1
	2-3 people	379	63.6
	4-5 people	118	19.8
	More than 5 people	15	2.5
	Total	*596*	*100*

4.3 Preliminary Data Analysis

This section describes the preliminary analysis of the data and presents the results. It starts with the descriptive statistics of mean and standard deviation, followed by the examination of missing data, outliers and normality.

4.3.1 Descriptive Statistics – Mean and Standard Deviation

The mean and standard deviation were computed to illustrate the central tendency and dispersion of the interval-scaled variables. The results indicated that the responses to the variables had a good dispersion on the scales. The means of the twenty-four independent variables ranged satisfactorily from 2.28 to 5.00 with standard deviations ranging from 1.45 to 1.99 on the 7-point Likert scales. The dependent variable (PLB purchase) had a mean of 2.34 with a standard deviation of 1.05 on the 5-point interval scale. The scores of Skewness and kurtosis implied that some variables were not normally distributed. Details of normality testing are provided in section 4.3.4. The descriptive statistics of the interval-scaled variables are shown in Table 4.3.

Table 4.3 Descriptive Statistics of the Interval-Scaled Variables

Construct	Measure Variables	Mean	Std. Deviation	Skewness	Kurtosis
Purchase mistake consequences	Wrong purchase is not a big deal	3.97	1.96	0.15	**-1.26**
	Can't go too wrong	4.34	1.72	-0.04	**-1.00**
	Family or friends think less highly of me	2.28	1.49	**1.08**	0.53
	Be financially worse off	2.81	1.45	0.47	-0.36
Quality variability	Basically the same in quality	5.14	1.72	-0.77	-0.36
	No significant quality difference	4.79	1.69	-0.44	-0.79
	Do not vary a lot in terms of quality	4.69	1.59	-0.27	-0.80
	Only minor quality variations	4.39	1.58	-0.03	-0.95
Search vs experience nature of product	Information on packaging tells everything	3.26	1.63	0.47	-0.60
	Infor. on package covers important features	3.84	1.59	0.01	-0.84
	Need more information before buying	3.26	1.51	0.43	-0.38
	Try several times before decision	4.51	1.49	-0.21	-0.70
Price consciousness	Compare prices before buying	4.44	1.99	-0.41	**-1.13**
	Important to get the best price	4.50	1.68	-0.35	-0.80
	Look for the cheapest brand	2.92	1.67	0.71	-0.37
	Price is the most important factor	3.20	1.63	0.53	-0.56
Price-quality association	The higher price, the higher quality	4.01	1.61	-0.04	-0.86
	You get what you pay for	4.63	1.51	-0.44	-0.52
	Price is a good indicator of quality	4.07	1.52	-0.19	-0.67
	Need to pay a bit more for the best one	4.36	1.50	-0.32	-0.64
Brand loyalty	Continue to buy without considering others	4.79	1.62	-0.49	-0.70
	Tend to buy the same brand	4.80	1.66	-0.64	-0.52
	Make effort to search for favourite brand	5.00	1.59	-0.77	-0.19
	Care a lot about the particular brand I buy	4.57	1.62	0.34	-0.70
Private label purchase	Buy national brand or private labels	2.34	1.05	0.34	-0.42

Notes: The twenty-four independent variables were measured on 7-point Likert scales.
         The independent variable was measured on a 5-point scale.
         n=600

4.3.2 Missing Data

Hair et al. (1998) note that the impact of missing data is harmful not only through its potential hidden bias of the results, but also in its practical impact on the sample size available for the analysis. Therefore, missing data existing in the data would be examined before further analysis.

As mentioned in section 4.2.1, 600 questionnaires were retained for the analysis. Among these retained questionnaires, 561 had complete answers. In other words, 39 questionnaires had some missing data. In total, there were 57 data were missing, namely, 10 interval-scaled data and 47 nominal-scaled data. The numbers of the missing data and their percentages of the total number of responses are summarised in Table 4.4.

Table 4.4 Number of Missing Data and Their Percentages

No. of Missing Data	No. of Items with Missing data	Type of items with missing data	Percentage of Missing data
1~2	6	Interval-scaled	0.2%~0.3%
3~4	2	Interval-scaled Nominal-scaled	0.5%~0.7%
5~6	2	Nominal-scaled	0.8%~1.0%
32	1	Nominal-scaled	5.3%

Note: n=600

As can be seen in Table 4.4, the percentages of the missing data were small, except for one nominal-scaled item which had 32 missing data. This item was annual household income. The reason for these income-related missing data was that some respondents were reluctant to provide the information due to their privacy concern.

A simple method of handling the ten missing interval-scaled data was mean substitution. Mean substitution is one of the widely used methods which replaces the missing values for a variable with the mean value of that variable based on all valid responses (Hair et al., 1998). Therefore, the ten missing data were replaced by the mean scores of valid responses provided by their corresponding variables. The 47 nominal-scaled missing data in the demographic questions were just left as missing in the dataset. When examining a specific demographic variable in later analyses, only those observations which provided data were included.

4.3.3 Outliers

After handling the missing data, outliers were examined. Outlier handling is essential because outliers can violate the representativeness of the sample and seriously distort statistical tests (Hair et al., 1998). In this analysis, standard scores and Mahalanobis D^2 were used to detect the outliers for the interval-scaled independent and dependent variables. Boxplots, and stem and leaf plots were employed to examine the outliers for the nominal-scaled variables (namely, demographics).

4.3.3.1 Outliers in interval-scaled variables

To detect the outliers in the interval-scaled variables, two detection methods were used in this analysis: univariate detection and multivariate detection. Univariate detection was firstly used to identify the unusual observations among the perceptual variables. Afterwards, multivariate detection was employed to identify those observations that had an unusual combination of values across all variables as a whole.

From the univariate perspective, standard scores (z-scores) were used to detect those observations appeared to be at the outer ranges of the distribution of a variable examined. Hair et al. (1998) suggest that when sample sizes are 80 or fewer, the threshold values of standard scores are ± 2.5. It means that those observations with standard scores exceeding ± 2.5 are identified as outliers. However, when sample sizes are larger than 80, the threshold values of standard scores can range from 3 to 4 (Hair et al., 1998). Therefore, as the sample size of this study was 600, standard scores of ± 3 were chosen as the cut-off values to identify the univariate outliers.

From the multivariate perspective, the score of Mahalanobis D^2 was employed to detect the observations which had uniquely combined values across a set of variables. Mahalanobis D^2 is a method which provides a common measure of multidimensional centrality (Hair et al., 1998).   The threshold value for this method is the level of 0.001 which suggested that those observations with a D^2 score of 0.001 or less are regarded as outliers (Hair et al., 1998).   The results of these two detections are shown in Appendix G.

The results showed that eleven observations were identified as univariate outliers with a z-score exceeding 3. Interestingly, they were all unusual on a single variable of "family

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or friends would think less highly of me". However, none of these observations were unusual on more than one variable. Except for this variable, the others had z-scores within the threshold values and thus, they did not have significant univariate outliers.

In addition, eight observations with a D^2 of less than 0.001 were identified as multivariate outliers. However, they were not seen in the previous univariate test but appeared only in the multivariate analysis. Hair et al. (1998) believe that observations should be retained unless there is demonstrable proof that they are truly unusual and not representative of any observations in the population. In this analysis, none of the observations were identified as distinctly different from others on a sufficient number of interval-scaled measuring variables. Therefore, no observations appeared to have the outlier's characteristics that were unrepresentative of the population. Consequently, all the observations were retained at this stage.

4.3.3.2 Outliers in demographic variables

Outliers in the demographic variables were firstly examined by creating boxplots, and then computing stem and leaf plots for each variable. Boxplots which visualised the distributions of the five demographic variables on the dependent variable (PLB purchase) indicated that some outliers existed in the subgroups of the demographic variables. After that, stem and leaf plots were computed to identify the specific outliers. The results indicated that eleven observations were detected to have extreme values in the measuring groups of annual household income and household size respectively. Nine were identified in the subgroups of education and age. However, like the interval-scaled variables discussed previously, none of them seemed to be noticeably different from the others. As a result, no observations were excluded from the dataset. The results of outlier detection for the demographic variables are provided in Appendix G.

4.3.4 Normality

Normality is the most fundamental assumption in multivariate analysis which greatly influence the validity of the results (Hair et al., 1998). If the variation from the normal distribution is sufficiently large, all resulting statistical tests are invalid (Hair et al., 1998). Therefore, nonnormal variables identified should be handled before further examination. In this analysis, skewness and kurtosis values were used to measure

normality of the twenty-five interval-scaled independent and dependent variables. The Levene test was adopted to assess normality of the nominal-scaled variables.

4.3.4.1 Normality of the interval-scaled variables

Skewness and Kurtosis values are two basic methods of measuring the symmetry of a distribution (Hair et al., 1998). If a skewness or kurtosis value exceeded ± 1.00, a nonnormal distribution was identified. As highlighted in Table 4.3 (p54), four variables were found as not normally distributed, whose skewness or kurtosis values exceeded 1.00. To improve these four variables' normalities, the data were transformed individually by taking the square root (Hair et al., 1998).

After transformation, the absolute values of skewness and kurtosis of "can't go too wrong", "family or friends think less highly of me" and "compare price before buying" were less than 1.0. The transformed data indicated that these three variables had normal distributions. However, as for the variable of "wrong purchase is not a big deal", its kurtosis value was still larger than 1.00 although the data was transformed by taking the square root. For this reason, another transforming method, logarithm, was employed for further improvement. After the second transformation, the kurtosis value of this variable was reduced to -0.60. This logarithm-transformed data implied that this variable was also distributed normally. The results of the data transformations for these four variables are shown in Appendix H. Except for them, the rest of the variables had absolute values of skweness or kurtosis ranging from 0.01 to 0.77 and thus their data were normally distributed.

4.3.4.2 Normality of the demographic variables

Normality of the five demographic variables was examined by testing their homoscedasticity. Homoscedasticity refers to the assumption that a metric dependent variable demonstrates equal levels of variances across the subgroups of the nonmetric independent variables (Hair et al., 1998). If the variances are significantly unequal, the homoscedasticity assumptions are rejected, implying that the distribution of the variable is not normal.

In this analysis, the Levene test, which can assess the variances of a single metric variable across any number of nonmetric groups (Hair et al., 1998), was utilised. The

results showed that only the Levene statistic of age was significant (Levene = 3.02, p = 0.02). This indicated that the variances of PLB purchase were significantly unequal across the five measuring subgroups of the age variable and thus, data distribution on this variable was not normal. To achieve equal variances, logarithm transformation was used. After the data was transformed, a new Levene statistic of 2.04 was obtained for the age variable which was not significant (p = 0.09). As a result, a normal distribution of age groups was assumed after transformation. Apart from age, the other four demographic variables had insignificant Levene statistics and thus indicated they were normally distributed ($p > 0.05$). The results of normality testing for the demographic variables and transformation are provided in Appendix H.

4.3.5 Summary of Preliminary Data Analysis

This section presented detailed preliminary analyses of the data before moving onto tests of hypotheses. The data were initially examined in four aspects, namely, descriptive statistics of mean and standard deviation, missing data, outliers and normality. Ten missing data on interval scales were replaced by the average means of the valid values. The nominal-scaled missing data were just left as missing due to the small quantity. Some outliers were identified. However, no observation was excluded from the dataset since the outliers did not have unrepresentative characteristics. The data also spread well on the measurement scales. Five variables which were identified to have nonnormal distributions were improved through using square root and logarithm transformations. After this preliminary stage, hypothesis testing proceeded are discussed in the following section.

4.4 Hypothesis Tests

This section firstly discusses the examinations of reliability and validity of the twenty-four interval-scaled variables that measured the six perceptual variables. Measurements of reliability and validity are important steps in ensuring the variables measure the relevant construct exactly and accurately. Without acceptable reliability and validity, results will be invalid due to wrong measurement. Following this procedure, this section reports the process of testing hypotheses and results.

4.4.1 Measurements of Reliability and Validity

Reliability is an assessment of the degree of consistency between multiple measurements of a variable (Hair et al., 1998). The internal consistency of measures is an indication of the homogeneity of the items which measure the same construct (Sekaran, 2003). Thus, to obtain a high reliability of a measure, the items should be highly correlated with one another to independently measure the construct.

Validity is the extent to which a set of measuring variables accurately represents the concept of interest (Hair et al., 1998). In other words, this test confirms if the multiple variables developed for a construct rightly measure that construct.

As indicated in Chapter Three, the measuring variables in the current study were obtained from the extant studies. Although these measuring variables were developed and tested in the literature, it remained necessary to re-test their reliability and validity, especially in a new dataset. This might be helpful in validating the previous findings. In this research, reliability was firstly examined by three methods, followed by validity testing in exploratory factor analysis.

4.4.1.1 Reliability testing

In this analysis, Cronhach's alpha, item-to-total correlations, and inter-item correlations were used to test reliability of the interval-scaled variables. Cronbach's alpha is the most popular test of inter-item consistency reliability, which is useful for multipoint-scaled variables (Cronbach, 1946; Sekaran, 2003). Moreover, item-to-total correlations or inter-item correlations can also be used to assess the internal consistency (Hair et al., 1998). Clark and Watson (1995) note that inter-item correlations which examine scale internal consistency are sometimes better than the coefficient alpha.

From the Cronbach alpha's standpoint, the closer the coefficient α is to 1.0, the higher the internal consistency reliability. In general, the cut-off of reliability α is 0.70 (Hair et al., 1998). It means that only the reliabilities ≥ 0.70 are acceptable. Moreover, only item-to-total correlations exceeding 0.50 and inter-item correlations exceeding 0.30 are considered as acceptably reliable (Hair et al., 1998).

The results showed that four of the six sets of variables obtained acceptable reliabilities. Specifically, they were the variables measuring quality variability, price consciousness, and price-quality association, and brand loyalty. These four sets of variables had Cronbach alphas larger than 0.70. Moreover, all of their item-to-total correlations exceeded 0.50, and their inter-item correlations were over 0.30. Therefore, they were reliable measures.

However, the other two sets of variables measuring consequences of making a purchase mistake and the search versus experience nature of product features had very poor reliabilities, yielding very low Cronbach's α of 0.18 and 0.25 respectively. Moreover, all item-to-total correlations were less than 0.50. The range of the inter-item correlations also revealed that the correlations did not go beyond 0.30. Therefore, the variables were not highly correlated with others to measure the construct they were designed to. The results of reliability testing are shown in Table 4.5.

Table 4.5 Reliability Testing

Construct	Measure Variables	Cronbach α	Item-To-Total Correlations	Inter-Item Correlations (absolute value)	
				Highest	Lowest
Purchase mistake consequences	Wrong purchase is not a big deal Can't go too wrong Family or friends think less highly of me Be financially worse off	**0.18**	**0.20** **0.05** **0.24** **0.10**	0.48	**0.03**
Quality variability	Basically the same in quality No significant quality difference Do not vary a lot in terms of quality Only minor quality variations	0.83	0.63 0.69 0.69 0.61	0.61	0.47
Search versus experience nature of product features	Information on packaging tells everything Description on packaging covers features Need more information before buying Try several times before decision	**0.25**	**0.22** **0.29** **0.01** **0.00**	0.38	**0.00**
Price consciousness	Compare prices before buying Important to get the best price Look for the cheapest brand Price is the most important factor	0.75	0.55 0.59 0.69 0.54	0.62	0.37
Price-quality association	The higher price, the higher quality You get what you pay for Price is a good indicator of quality Need to pay a bit more for the best one	0.83	0.61 0.55 0.74 0.72	0.71	0.41
Brand loyalty	Continue to buy without considering others Tend to buy the same brand Make effort to search for favourite brand Care a lot about the particular brand I buy	0.76	0.52 0.58 0.54 0.56	0.53	0.36

Note: n=600

To improve the reliabilities for these two sets of variables, further investigation was conducted to check if any poor-fitting variable could be deleted. Nevertheless, even though deleting some poor-fitting variables, Cronbach's alpha, item-to-total correlations, and inter-item correlations of these two sets of variables still did not meet acceptable thresholds. Consequently, these two sets of variables were excluded in the later analyses.

4.4.1.2 Exploratory factor analysis

As shown in the previous subsection, among the twenty-four interval-scaled variables, sixteen had acceptable reliabilities and were retained for analysis. Eight variables were excluded due to unreliable measurement scales. This subsection further examines validity of the retained variables.

Factor analytic techniques can achieve their purposes from either an exploratory or confirmatory perspective (Hair et al., 1998). Exploratory factor analysis is an effective method to assess if the dimensions of a concept are strongly associated with each other to represent that concept (Hair et al., 1998; Sekaran, 2003). Some researchers believe that exploratory factor analysis is often considered to be more appropriate than confirmatory analysis in the early stages of scale development, because confirmatory analysis does not show how well the variables load on the non-hypothesised factors (Hurley, Scandura, Schriesheim, and Brannick, 1997; Kelloway, 1995). In this validity analysis, exploratory factor analysis was adopted to confirm whether the sixteen variables were loaded on the right constructs. One of the most critical methodological decisions when using this technique is the number of factors to retain (Conway and Huffcutt, 2003; Hayton, Allen, and Scarpello, 2004). Thus, this technique could determine whether the number of factors to retain was the same as the one this research designed.

When applying exploratory factor analysis, there were three main steps. The first step was to assess the appropriateness of applying this technique. The second step was to conduct the factor extraction, while the third was to interpret factor loadings among the multiple variables.

The appropriateness of applying exploratory factor analysis was initially justified through examining case-per-variable ratio and the entire correlation matrix. The minimum ratio of case to variable should be 20 to 1 for factor analysis (Bordens and Abbott, 1996; Tabachnick and Fidell, 1989). In this research, there were 600 cases for sixteen variables. Therefore, the ratio was 37.5:1 (600:16) which met the minimum criterion for this technique. Moreover, another criterion was that data matrix should have sufficient correlations (Hair et al., 1998). Two calculating methods, Bartlett test of sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy (KMOMSA), were used to justify this criterion for the current analysis. The Bartlett test provides the statistical probability that the correlation matrix has significant correlations among at least some of the variables (Hair et al., 1998). KMOMSA offers the quantification of the degree of intercorrelations among the variables, whose score should be above 0.50 for acceptance (Hair et al., 1998). The results of these two tests were all satisfactory. The Bartlett test showed that the sufficient correlations were statistically significant (approx. chi-square = 3753.18; df = 120; sig. = 0.000). Moreover, the score of KMOMSA was 0.83 which also met the threshold value. Therefore, the sixteen measuring variables were appropriate for applying exploratory factor analysis.

Secondly, factors were extracted by using principal component analysis to select the number of factors to be retained. Latent root criterion or eigenvalues was used to determine the reserved components. The threshold value is 1 which suggests that only the factors having latent root criterion or eigenvalues equal or greater than 1 are considered significant (Hair et al., 1998). In this analysis, among the sixteen components, four were extracted which had eigenvalues larger than 1. They represented 65.1% of the total variance.

Third, factor loadings among the sixteen variables were examined through employing a rotational method. The reason for using a rotational solution was that it could provide a simpler, more theoretically meaningful factor pattern than the unrotated factors solutions (Hair et al., 1998). In this research, an orthogonal rotational method, namely, VARIMAX, was adopted. This method was chosen because, compared to other rotated methods, it is a more useful means of reducing the variables to a smaller set of uncorrelated variables for subsequent use in the regression technique, as well as to give a clearer separation of the factors (Hair et al., 1998).

The guidelines suggest that factor loadings exceeding ±0.50 are considered practically significant (Hair et al., 1998). The results indicated that the sixteen variables were satisfactorily loaded on their corresponding constructs. Each of the variables obtained a factor loading greater than 0.5. In addition, communalities for each variable were also computed to assess whether the variable met the acceptable levels (≥0.50) of variance explanation (Hair et al., 1998). The results showed that the communalities of the sixteen variables were all above 0.50, and therefore they had sufficient explanations. Consequently, the sixteen variables had acceptable validities and were able to accurately measure the constructs that they were designed to. The results of the factor analysis are presented in Table 4.6.

Table 4.6 Results of Exploratory Factor Analysis

Factor	Measure Variables	Rotated Factor Matrix				Communalities	Constructs
		1	2	3	4		
1	Basically the same in quality	0.75				0.63	Quality Variability
	No significant quality difference	0.82				0.70	
	Do not vary a lot in terms of quality	0.83				0.70	
	Only minor quality variations	0.74				0.59	
2	Compare prices before buying		0.80			0.62	Price-Quality Association
	Important to get the best price		0.69			0.66	
	Look for the cheapest brand		0.88			0.60	
	Price is the most important factor		0.84			0.70	
3	The higher price, the higher quality			0.77		0.64	Price Consciousness
	You get what you pay for			0.81		0.57	
	Price is a good indicator of quality			0.65		0.79	
	Need to pay a more for the best one			0.77		0.76	
4	Continue to buy not considering others				0.76	0.59	Brand Loyalty
	Tend to buy the same brand				0.83	0.70	
	Make effort to search for favourite brand				0.64	0.58	
	Care lots about the particular brand I buy				0.62	0.60	
						Total	
Extraction Sum of Squares (eigenvalues)		4.53	2.73	1.73	1.45	10.44	
Percentage of Variance		28.3	17.0	10.8	9.0	65.1	

Note: Extraction method: Principle Component Analysis
          Rotation Method: Varimax with Kaiser Normalisation
          n=600

After examining reliability and validity of the measurement scales, the next step was to test the hypotheses. As presented in Chapter Three, eleven hypotheses were proposed to be investigated in this study. Since two constructs, namely, consequences of making a purchase mistake and the search versus experience nature of product features were dropped out at the reliability stage, nine hypotheses remained for examination. These nine hypotheses were those involving the influences of quality variability, price consciousness, price-quality association, brand loyalty, gender, age, education, annual household income and household size on PLB purchase.

To avoid repetition, the null hypotheses for the proposed hypotheses were not listed in this thesis. The null hypotheses assumed that the relationships in the proposed hypotheses did not exist. If any proposed hypothesis was not significantly supported by statistics in the later analysis, the null hypothesis would be accepted.

The following subsections firstly discuss the analyses of testing the four perceptual hypotheses, followed by the examinations of the five demographic hypotheses. After that, a summary of the substantiations of all hypotheses is provided.

4.4.2 Testing Perceptual Hypotheses

Multiple regression analysis was employed to examine the relationships in the four perceptual hypotheses. That is, consumers are prone to buying PLBs in product categories where they perceive lower variability in quality levels across brands (H_2); where they are more price conscious (H_4); where they believe there is weaker price-quality association (H_5); and where they have less brand loyalty (H_6).

This subsection firstly investigates whether the data have met basic assumptions for applying multiple regression analysis. It then presents the multiple regression analysis of the four relationships across all categories as a whole, followed by analysis across specific categories. The reason for analysing general categories was to compare its results with those drawn from the category-specific analysis. This helps justify why category-level analysis is more effective in explaining the variations in PLB purchase across categories.

4.4.2.1 Assumption tests for multiple regression analysis

Linearity of relationships, constant variance of residuals, and normality of residual distribution are three basic assumptions underlying multiple regression analysis. Hair et al. (1998) stress that examining these assumptions is essential because it can ensure that the results obtained from multiple regression analysis are truly representative of the sample and that the best results are deemed to be obtained (Hair et al., 1998). If a relationship is not linear, the statistics which assume it is linear will result in an underestimation of the actual strength of the relationship (Hair et al., 1998). The presence of unequal variances will also violate the accuracy of results. Normality of each measuring item was previously tested in section 4.3.4. The test was redone at this stage to examine whether the combination of all multi-item independent variables was also normally distributed. This normality re-rest was necessary because, as argued by Hair et al. (1998), individual variables with normal distribution did not guarantee normality when they were combined together as one variable.

In this research, linearity was examined by employing partial regression plots. The constant variance was assessed through producing residual scatterplots, namely, plotting the studentised residuals against the predicted dependent variable (Hair et al., 1998). Normality was tested by using normal probability plots of standardised residuals. Results provided by these plotting tests indicated that the three assumptions were all satisfactorily confirmed. The partial regression plots showed no nonlinear relationships between the dependent and independent variables. Scatterplots did not illustrate any unequal spread of the dependent variable. Normal probability plots also indicated that the residual line followed closely the diagonal line. As a result, the assumptions of linearity, constant variance and normality were statistically supported to employ multiple regression analysis.

4.4.2.2 Multiple regression analysis in general product categories

This subsection analyses the relationships between the four perceptual constructs and PLB purchase in general categories. According to research method textbooks (eg. Burns and Bush, 1999; Churchill and Iacobucci, 2002), the equation in multiple regression analysis has the following form:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_m X_m + \varepsilon$$

where

Y = the level of the dependent, or predicted, variable

α = the intercept or constant

β_1 = the slope coefficient of the independent variable X_1

X_1 = the level of the independent variable X_1

β_2 = the slope coefficient of the independent variable X_2

X_2 = the level of the independent variable X_2

β_m = the slope coefficient of the independent variable X_m

X_m = the level of the independent variable X_m

m = the number of independent variables in the equation

ε = the random error associated with the prediction of Y

The results of multiple regression analysis for general categories are shown in Table 4.7.

Table 4.7 Results of Multiple Regression Analysis for All Product Categories

Model Summary		Analysis of Variance					
R	0.452		Sum of square	df	Mean square	F ratio	Sig.
R^2	0.204	Regression	133.87	4	33.47	38.13	0.000
Adjusted R^2	0.199						
Std. error of estimate	0.937	Residual	521.35	594	0.88		

Variables in Equation				
	Regression coefficients B	Standardised coefficients β	t-value	Sig
Constant (α)	2.334		60.971	0.000
Price consciousness	0.339	0.324	8.843	0.000
Brand loyalty	-0.227	-0.217	-5.915	0.000
Quality variability	-0.214	-0.204	-5.582	0.000
Price-quality association	-0.109	-0.105	-2.857	0.004

Note: Values of the four perceptual constructs in the analysis are REGR factor scores.
        Dependent variable: private label purchase.
        n=600

As shown in the first table under the title of model summary in Table 4.7, the R value indicating the strength of relationship between the four constructs and PLB purchase was 0.452. The value of R^2 was 0.204. R^2 measures the proportion of the variance of the dependent variable that can be explained by the independent variables (Hair et al., 1998). The closer the score of R^2 is to 1, the more variance of PLB purchase can be explained by the independent variables. The R^2 score in this analysis indicated that the

explanatory power of the four constructs was not strong. They explained only 20.4% of variance of PLB purchase. However, as shown in the first table under the title of analysis of variance, this percentage was statistically significant (F = 38.131, $p<0.001$).

As seen in the second table in Table 4.7, the intercept (identified as the constant) was significant at the level of 0.001 (B = 2.334; t = 60.971). All the regression coefficients of the four constructs were also statistically significant (all *ps* < 0.005). These coefficients implied that a significant relationship between each construct and PLB purchase.

The standardised coefficient beta can be used to compare directly the relative effect of each independent variable on the dependent variable (Hair et al., 1998). Among the four constructs, price consciousness had the highest beta score (β = 0.324, $p < 0.001$), signifying it was the construct that influenced PLB purchase most in this study. Brand loyalty was the second most influential construct, followed by quality variability and price-quality association. Moreover, the positive beta of price consciousness indicated that this construct had a positive relationship with the purchase of PLB products. It meant that the increase in consumers' price consciousness increased their propensity to buy PLBs. The other three constructs had a negative relationship with PLB buying, as indicated by their negative betas. Thus, increases in the perception of quality variability across brands, together with the association of price-quality and brand loyalty decreased consumers' proneness towards PLB purchase. As provided by Table 4.7, the predictive equation illustrating the effects of four perceptual constructs on PLB purchase for general product categories is shown as follows:

$$Y_{\text{PLB purchase}} = 2.334 + 0.339X_{\text{PC}} - 0.227X_{\text{BL}} - 0.214X_{\text{QV}} - 0.109X_{\text{PQA}} + \varepsilon$$

Where

$Y_{\text{PLB purchase}}$ = the level of PLB purchase

X_{PC} = the level of price consciousness

X_{BL} = the level of brand loyalty

X_{QV} = the level of quality variability

X_{PQA} = the level of price-quality association

ε = the random error associated with the prediction of $Y_{\text{PLB purchase}}$

4.4.2.3 Multiple regression analysis in specific product categories

The previous subsection provided an analysis across all product categories. This subsection presents the process of the multiple regression analysis on a category-by-category basis. It firstly compares the means of the four constructs and PLB purchase among the ten product categories studied. Then, the multiple regression analysis of the relationships between the constructs and PLB purchase is discussed. The means of the constructs and PLB purchase in each category are summarised in Table 4.8.

Table 4.8 Means Comparison of Constructs and PLB Purchase across Categories

Product Category	Price Consciousness	Brand Loyalty	Quality Variability	Price-Quality Association	Private Label Purchase
Canned Fruit	3.55	4.71	4.30	3.94	2.82
Toilet Tissue	3.49	4.49	4.72	4.63	2.63
Fresh Milk	3.32	4.35	3.54	3.75	2.38
Snack Food	2.97	4.48	4.59	3.83	2.37
Fruit Juice	3.13	5.00	5.38	4.60	2.33
Cheese	3.18	4.88	5.10	4.55	2.32
Biscuits	3.20	4.84	4.89	4.14	2.23
Bread	2.77	4.96	5.05	4.18	2.22
Breakfast Cereal	3.09	5.11	4.92	4.36	2.05
Pet Food	2.95	5.10	5.04	4.68	2.00
Average	*3.17*	*4.79*	*4.75*	*4.26*	*2.34*

Note: Private label purchase is the dependent variable. The other four constructs are independent variables.
The measure items of the four independent constructs are on 7-point Likert scales.
PLB purchase is measured on a 5-point scale.
Higher scores in quality variability, price consciousness, price-quality association and brand loyalty mean higher the variability, the consciousness, the association and the loyalty. Higher score in private label purchase means more in PLB purchase.
n=60 per category

As shown in Table 4.8, the average means of quality variability, price-quality association and brand loyalty were all over 4 on the 7-point scales. This indicated that the respondents in general perceived some quality differences across brands, with slightly higher association of price-quality and stronger brand loyalty. Relative to these three constructs, price consciousness had a lower average mean (3.17), indicating the perception of price consciousness was not as much as the other three in the ten categories studied. The average mean of PLB purchase (2.34 on the 5-point scale) implied that the respondents showed a slightly greater tendency to buy national brands.

When looking into the specific categories, the means of the constructs and PLB purchase varied from one category to another. For example, quality variability had relatively higher mean scores in cheese and fruit juice categories than fresh milk. The means of PLB purchase were higher in canned fruit and toilet tissue than in pet food and breakfast cereal. To further investigate whether these mean differences were statistically significant, one-way ANOVA and Tukey HSD Post Hoc Tests were utilised. One-way ANOVA examines the significance of mean differences among more than two subgroups of a categorical variable on a continuous variable (Sekaran, 2003). Tukey HSD Post Hoc Tests are useful to provide homogeneous subsets among the groups. The results are summarised in Table 4.9.

Table 4.9 Results of Significance of Mean Differences across Ten Categories

Construct		Sum of squares	Mean square	F	Sig.	Number of subsets
Price consciousness	Between groups	31.696	3.522	2.990	0.002	2
	Within groups	694.958	1.178			
Brand loyalty	Between groups	40.346	4.483	3.032	0.001	2
	Within groups	872.362	1.479			
Quality variability	Between groups	146.394	16.266	10.432	0.000	4
	Within groups	919.918	1.559			
Price-quality association	Between groups	66.094	7.344	5.012	0.000	3
	Within groups	864.466	1.465			
PLB purchase	Between groups	32.548	3.616	3.424	0.000	3
	Within groups	623.117	1.056			

Note: PLB purchase is the dependent variable. The other four constructs are independent variables.
         n=600

As shown in Table 4.9, the mean differences of the four constructs and PLB purchase among the ten product categories were statistically significant (all *ps* < 0.005). The means of price consciousness in bread were significantly lower than in toilet tissue and canned fruit. Brand loyalty had higher means in pet food and breakfast cereal than fresh milk. The means of quality variability was significantly lower in fresh milk than fruit juice. The means of price-quality association were higher in pet food than fresh milk. Canned fruit had the highest mean of PLB purchase whereas pet food had the lowest. These mean differences implied that respondents had different perceptions and attitudes across difference categories. Details of the homogeneous subsets are shown in Appendix I.

Secondly, multiple regression analysis was done in each product category to assess the effects of the four constructs on PLB purchase. The results are displayed in Table 4.10.

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Table 4.10 Results of Multiple Regression Analysis across Product Categories

Product Category	Model Summary			ANOVA	
	R^2	Adjusted R^2	Std. Error of the Estimate	F	Sig.
Canned fruit	0.337	0.289	0.871	7.004	0.000
Biscuits	0.308	0.258	0.799	6.115	0.000
Toilet tissue	0.298	0.246	0.972	5.825	0.001
Pet food	0.295	0.244	0.987	5.763	0.001
Fresh milk	0.266	0.212	0.982	4.975	0.002
Bread	0.260	0.206	0.822	4.821	0.002
Breakfast cereal	0.251	0.196	0.942	4.524	0.003
Fruit juice	0.251	0.197	0.943	4.611	0.003
Cheese	0.212	0.155	0.854	3.710	0.010
Snack food	0.025	0.046	0.996	0.353	0.841

Variables in Equation									
Product Category		Quality Variability		Price Consciousness		Price-Quality Association		Brand Loyalty	
	Constant	B	β	B	β	B	β	B	β
Canned fruit	2.589*	-.037	-.033	.591*	.540*	-.026	-.022	-.180	-.140
Biscuits	2.211*	.113	.114	.231*	.235*	-.241*	-.240*	-.346*	-.414*
Toilet tissue	2.497*	-.593*	-.528*	.157	.168	.009	.007	-.324*	-.326*
Pet food	2.230*	-.344*	-.292*	.346*	.326*	-.217	-.201	-.313*	-.292*
Fresh milk	2.452*	-.002	-.002	.448*	.468*	.064	.056	-.268*	-.270*
Bread	2.353*	-.163	-.175	.266*	.295*	-.015	-.018	-.292*	-.349*
Breakfast cereal	2.174*	-.350*	-.286*	.559*	.408*	-.109	-.096	-.354	-.244
Fruit juice	2.458*	-.279	-.219	.355*	.298*	-.078	-.069	-.309*	-.290*
Cheese	2.386*	-.249	-.249	.332*	.315*	-.130	-.138	.078	.076
Snack food	2.294*	-.080	-.078	-.068	-.064	-.132	-.140	-.061	-.057

Note: 1) Values of the four perceptual constructs in the analysis are REGR factor scores.
   2) * The intercept, regression coefficient (B) and standardised coefficient (β) are significant at 0.05.
   3) Dependent variable: private label purchase
   4) n = 60 per product category

The first table in Table 4.10 presents the values of R^2 and the significances of the four constructs associated with PLB purchase in the ten product categories. Except for snack food, the proportion of variance of PLB purchase was significant explained by the four constructs in each product category ($p < 0.05$). The insignificant R^2 value of snack food indicated that these four perceptual constructs did not explain the variance of PLB purchase in the category. The R^2 values of other categories also differed, indicating the explanatory powers of the four constructs varied across product categories. The four

constructs had the strongest explanatory power in canned fruit (33.7%) whereas they were at their weakest in the cheese category (21.2%).

As seen in the second table in Table 4.10, the constants were all significant in the ten categories (all ps < 0.05). The differences of β significances across categories indicated that the effect of each construct on PLB purchase varied from category to category. Price consciousness had significant βs in most categories except for toilet tissue and snack food. Brand loyalty's βs were significant in six categories. The β values of quality variability were only significant in toilet tissue, pet food, and breakfast cereal. Price-quality association's βs were only significant in the biscuit category. These differences indicated that whether the effects of the constructs on PLB purchase were significant or not depended on the category involved. The β values of the four constructs were insignificant in the snack food category. As indicated earlier, PLB purchase in snack food could not be explained by the four constructs studied.

Moreover, quality variability had the highest beta value in toilet tissue (β = -0.528), indicating it had a strongest influence on PLB purchase in toilet tissue than other categories. The highest beta of price consciousness was in canned fruit (β = 0.540) and that of brand loyalty was in biscuit (β = -0.414). Consistent with the results obtained from the all-category analysis done earlier, the directions of the significant betas indicated that quality variability, price-quality association and brand loyalty had a negative relationship with PLB purchase, and price consciousness had a positive relationship.

In short, this category-specific analysis found that the influences of these four constructs on PLB purchase varied across the ten categories studied. PLB purchase was higher in categories such as toilet tissue, pet food and breakfast cereal where quality variability across brands was lower. Similarly, in categories such as canned fruit, fresh milk and pet food, the increase of price consciousness increased the purchase of PLB products. Stronger Price-quality association reduced PLB purchase in categories such as biscuit. PLB purchase was lower in categories such as biscuit, toilet tissue and bread in which brand loyalty was stronger. Therefore, hypothesis 2, 4, 5, and 6 were all substantiated.

As provided by Table 4.10, the predictive equation demonstrating the effects of the four constructs on PLB purchase in each product category is formulated in the following:

Canned fruit: $Y_{PLB\ purchase} = 2.589 + 0.591X_{PC} + \varepsilon$

Biscuit: $Y_{PLB\ purchase} = 2.211 + 0.231X_{PC} - 0.346X_{BL} - 0.241X_{PQA} + \varepsilon$

Toilet tissue: $Y_{PLB\ purchase} = 2.497 - 0.324X_{BL} - 0.593X_{QV} + \varepsilon$

Pet food: $Y_{PLB\ purchase} = 2.230 + 0.346X_{PC} - 0.313X_{BL} - 0.344X_{QV} + \varepsilon$

Fresh milk: $Y_{PLB\ purchase} = 2.452 + 0.448X_{PC} - 0.268X_{BL} + \varepsilon$

Bread: $Y_{PLB\ purchase} = 2.353 + 0.266X_{PC} - 0.292X_{BL} + \varepsilon$

Breakfast cereal: $Y_{PLB\ purchase} = 2.174 + 0.559X_{PC} - 0.350X_{QV} + \varepsilon$

Fruit juice: $Y_{PLB\ purchase} = 2.458 + 0.355X_{PC} - 0.309X_{BL} + \varepsilon$

Cheese: $Y_{PLB\ purchase} = 2.386 + 0.332X_{PC} + \varepsilon$

Snack food: $Y_{PLB\ purchase} = 2.294 + \varepsilon$

     Where

         $Y_{PLB\ purchase}$ = the level of PLB purchase

         X_{PC} = the level of price consciousness

         X_{BL} = the level of brand loyalty

         X_{QV} = the level of quality variability

         X_{PQA} = the level of price-quality association

         ε = the random error associated with the prediction of Y

4.4.3 Testing Demographic Hypotheses

The five demographic hypotheses associated with PLB purchase in this study were: gender (H_7), age (H_8), education (H_9), annual household income (H_{10}), and household size (H_{11}). T-test and one-way ANOVA were employed to test these hypotheses. The *t*-test examining whether two categorical groups differ significantly on a continuous dependent variable (Sekaran, 2003) was used for the hypothesis involving gender. One-way ANOVA investigating more than two category groups (Sekaran, 2003) was employed for assessing the other four hypotheses.

Firstly, the results of the *t*-test for mean difference between the two gender groups are shown in Table 4.11. As seen in the table, under the title of Levene's test for equality variances, the F value was 0.239 with a Sig. of 0.625. This value indicated that the

variances of PLB purchase were equally distributed in the male and female groups. The *t* value (0.662) was significant at 0.508, indicating the mean difference of PLB purchase between the male and female groups was not significant (p > 0.05). It implied that the respondents' purchases of PLB products were not associated with their gender. Thus, hypothesis 7 was rejected.

Table 4.11 T-Test of Mean Difference of Gender Groups

	Levene's Test for Equality Variances		t-test for Equality of Means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean difference
Equal variances assumed	0.239	0.625	0.662	598	0.508	0.060
Equal variances not assumed			0.651	380.84	0.516	0.060

Note: The predictor variable: gender (male and female)
         The dependent variable: PLB purchase
         n = 600

Secondly, the results of one-way ANOVA for mean differences among the five age groups are displayed in Table 4.12. As shown in the table, the F value with a Sig. of 0.258 indicated the means differences among the five age groups were insignificant (p > 0.05). Like gender, this value implied that age was independent of PLB purchase. Thus, hypothesis 8 was not supported.

Table 4.12 ANOVA of Mean Differences among Age Groups

Descriptive		ANOVA				
Age	Mean		Sum of squares	df	F	Sig.
20-29	2.41	Between Groups	0.249	4	1.328	0.258
30-39	2.19					
40-49	2.32	Within Groups	27.617	590		
50-49	2.48					
60 or over	2.28					

n = 595

Next, the ANOVA results for mean differences among the five education groups are given in Table 4.13. The F value with a Sig. of 0.035 indicated some means differences among the five education groups were significant (p < 0.05). To further investigate whether these groups could be allocated into heterogeneous subsets among which the means were significantly different, Tukey HSD Post Hoc Test was computed. The

Tukey test showed that the five education groups could be divided into two different subsets. High school or less, vocational or trade and others were in one subset; undergraduate and postgraduate tertiary qualification in the other subset. The average mean of PLB purchase in the subset involving high school education was 2.55 and that in the subset having university qualification was 2.25. These means indicated that the respondents with university education were less prone to buying PLB products than those had lower education. Thus, hypothesis 9 was substantiated. Education had a significant relationship with PLB purchase. Moreover, this relationship was negative.

Table 4.13 ANOVA of Mean Differences among Education Groups

Descriptive		ANOVA				
Education	Mean		Sum of squares	df	F	Sig.
High school or less	2.58	Between Groups	11.235	4	2.598	0.035
Vocation or trade	2.50					
Undergraduate tertiary	2.22	Within Groups	636.765	589		
Postgraduate tertiary	2.29					
Others	2.60					

n = 594

Fourthly, the ANOVA results for mean differences among the seven annual household income groups are provided in Table 4.14. Similar as education, the F value was statistically significant (p < 0.05). The Tukey HSD Post Hoc Test was also done to further examine the specific income groups. The result suggested that the seven income groups could be divided into three heterogeneous subsets. These three subsets were incomes of 0-$50,000, $50,001-$150,000, and more than $150,001. The average mean of PLB purchase was the highest in the subset of $50,000 or less (2.69), followed by the subset of $50,001-$150,000 (2.37), and the other subset (2.11). These means implied that the respondents with higher household income were less likely to buy PLBs. Therefore, hypothesis 10 was supported. Annual household income was associated significantly with PLB purchase. Moreover, this relationship was negative.

Table 4.14 ANOVA of Mean Differences of Annual Household Income Groups

Descriptive		ANOVA				
Annual Household Income	**Mean**		**Sum of squares**	**df**	**F**	**Sig.**
0-$30,000	2.78	Between Groups	32.594	6	5.299	0.000
$30,001-$50,000	2.64					
$50,001-$70,000	2.47					
$70,001-$100,000	2.30					
$100,001-$150,000	2.19	Within Groups	575.146	561		
$150,001-$180,000	2.12					
More than $180,001	2.00					

n = 568

Finally, the ANOVA results for mean differences among the four household size groups are displayed in Table 4.15. As with gender and age, the F value was not significant (p>0.05), indicating that there was no significant mean differences among the groups. Thus, hypothesis 11 was rejected. Household size was not associated with PLB purchase.

Table 4.15 ANOVA of Mean Differences of Age Groups

Descriptive		ANOVA				
Household Size	**Mean**		**Sum of squares**	**df**	**F**	**Sig.**
1 person	2.44	Between Groups	6.860	3	2.103	0.099
2-3 people	2.37					
4-5 people	2.18	Within Groups	643.695	592		
More than 5 people	1.93					

n = 596

In short, among the five demographics investigated in this research, the PLB purchase relationships with education and annual household income were significantly supported by the statistics. Both of these two characteristics had a negative relationship with the respondents' PLB purchases. Regarding the other three demographic variables, namely, gender, age and household size, no relationship was found with PLB purchase.

4.4.4 Summary of Hypothesis Tests

This section discussed examinations of reliability and validity of the measurement scales. In the reliability testing, sixteen variables had satisfactory reliabilities. Eight variables measuring consequences of making a purchase mistake and the search versus experience nature of product features were excluded due to their unreliable

measurements. The remaining sixteen variables measuring quality variability, price consciousness, price-quality association, and brand loyalty had satisfactory reliabilities. They also produced acceptable validities in the exploratory factor analysis.

Most importantly, this section reported detailed analyses of the nine hypotheses involving the four perceptual and five demographic constructs. The results showed that although the effects of the four constructs on PLB purchase were significant in the category-general analysis, the category-specific analysis found that these effects varied across different categories. The four category-level hypotheses were substantiated. In addition, two of five demographic constructs were also supported by significant statistics. However, the statistics did not support the relationships of gender, age, and family size with PLB buying. A summary of the hypothesis testing is provided in Table 4.16.

Table 4.16 Summary of the Hypotheses Testing

	Hypotheses	Support?
H_1	Consumers are more prone to buying private labels in product categories where they perceive lower consequences of making a mistake in their brand selection.	Not tested
H_2	Consumers are more prone to buying private labels in product categories where they perceive lower variability in quality levels across brands.	Yes
H_3	Consumers are more prone to buying private labels in product categories where they think they can accurately gauge the quality of important product attributes or benefits based on written descriptions alone.	Not tested
H_4	Consumers are more prone to buying private labels in product categories where they are more price conscious	Yes
H_5	Consumers are less prone to buying private labels in product categories where they have stronger price-quality perception.	Yes
H_6	Consumers are less prone to buying private labels in product categories where they have stronger brand loyalty.	Yes
H_7	Gender associates with private label purchase.	No
H_8	Age associates with private label purchase.	No
H_9	Education associates with private label purchase.	Yes (Negative)
H_{10}	Annual household income associates with private label purchase.	Yes (Negative)
H_{11}	Family size associates with private label purchase.	No

4.5 Conclusions

This chapter discussed three main parts in data analysis of this research, namely, profiles of the respondents, preliminary data analysis and hypothesis testing. The results showed a response rate of 90.2% in the mall-intercept survey. Amount the respondents, the large proportion was female; aged between 30 and 50 years old; had university education; earned annual household income between $50,000 and $150,000; and lived in household sizes of two to three people.

Before discussing the hypothesis testing, four preliminary analyses of the data which attempted to ensure accuracy in the subsequent analyses were explained. These analyses handled some missing data, outliers and nonnormal distributions. The data were well spread over the scales.

In the section on hypothesis testing, examinations of reliability and validity of the measure items were first discussed. During the examinations, two constructs were excluded from the analysis. Then, nine hypotheses were analysed and discussed. Among them, six were supported by significant statistics whilst three were rejected. A summary table was provided to show the substantiation of each hypothesis. This analysis found that when investigating perceptual constructs on PLB purchase, the category-general results were different from those obtained from category-by-category examinations. Detailed discussion of the findings and their implications for both researchers and marketing managers are provided in the next chapter.

CHAPTER FIVE: CONCLUSIONS AND IMPLICATIONS

5.1   Introduction

The main purpose of the current study was to examine the category-level influences of consumer risk perception and attitude on the purchase of PLBs (private label brands). This research also investigated whether consumer demographics affected on PLB proneness.   It attempted to provide more useful consumer insights for marketing researchers to improve branding theory, as well as for practitioners (manufacturers and retailers) to better promote their own brands.   This research replicated and extended Batra and Sinha's (2000) work to investigate determinants of perceived risk and other determinants of attitude towards PLBs across several product categories.

This chapter starts with a discussion of the findings.   The conclusions drawn from these findings which answer the research problem and research questions follow.   Then, implications for researchers and marketing practitioners are discussed section five.   The sixth section presents the limitations of the study, followed by suggestions for future research and an overall conclusion of the thesis.

5.2   Discussion of Findings

As discussed in the data analysis, two hypotheses concerning the consequences of making a purchase mistake and the search vs experience nature of product features were not tested due to unreliable measurement scales.   The results of testing hypotheses indicated that quality variability, price consciousness, price-quality association, brand loyalty, education, and annual household income had significant relationships with PLB purchase.   Gender, age, and household size were not significantly associated with PLB buying.   This section focuses on discussing these findings and comparing them with those from other studies.   It starts with the discussions of the category-level findings, followed by the findings involving each construct examined.

5.2.1 Category-Level Findings

This study examined the effects of quality variability across brands, price consciousness, price-quality association, and brand loyalty on PLB purchase from a category-general perspective and a category-specific perspective. The category-general analysis indicates that these four constructs have significant relationships with consumers' propensity to buy PLB products. These significant relationships are in line with other category-general studies of PLBs, for example, Garretson et al. (2002), Ailawadi et al. (2001), Burton et al. (1998), and Richardson et al. (1996). The above studies also show that PLB purchase is positively related to price consciousness while it is negatively associated with quality variability, price-quality association and brand loyalty.

In the category-specific analysis, the results imply that consumers have different risk perceptions and attitudes towards PLB purchase across different categories. The effects of the perception and attitude on PLB purchase also vary. Price consciousness has a strong effect on consumer proneness to PLB buying in some categories such as canned fruit and breakfast cereal while this effect is not significant in other categories, for example, snack food and toilet tissue. Similarly, quality variability significantly influences PLB purchase in categories such as toilet tissue and pet food, whereas it seems to have no association with PLB purchase in fruit juice and cheese. Therefore, it may be incorrect to conclude that, because quality variability significantly affects PLB purchase in general, this will necessarily be true for the individual product category.

Category variations are also seen in a few studies (Batra and Sinha, 2000; Dunn et al., 1986; Hoch and Banerji, 1993; Prendergast and Marr, 1997). Dunn et al. (1986) found that consumers perceive higher performance risk in ice cream than in fabric softener and laundry detergent. They suggest that general risk measures for brand types are not appropriate surrogates for brand specific measures. Prendergast and Marr (1997) also presented evidence from their generic study to show that consumers evaluate generics in categories such as rice and tissues more favourably than others such as shampoo and coffee. They conclude that it is not appropriate to make rash generalisations about generic products as a category when it comes to consumer perceptions. They suggest that each generic product needs to be examined on its own merits.

5.2.2 Quality Variability between PLBs and National Brands

This study shows that PLB purchase is higher in categories where consumer perception of quality variability between national brands and PLBs is lower. Narasimhan and Wilcox (1998) note that the degree of perceived quality variation across brands in a category has a positive influence on the perception of purchase risk. Similar results have been found in some prior studies. For example, Hoch and Banerji (1993) point out that product quality is a key factor in explaining market shares of PLBs. Their work suggests that PLB products enjoy more success in categories where the quality level of PLBs is closer to that of national brands. Semeijn et al. (2004) conclude that when quality variance within a product category is high, it is likely that consumers will choose manufacturer branded products over private labels, to reduce perceived risk associated with that purchase. Dick, Jain and Richardson (1995) also support the notion that consumer PLB proneness is higher when consumers are aware of a lower quality difference between PLBs and national brands.

This research shows that quality variation across brands directly affects the purchase of PLBs. However, Batra and Sinha's (2000) work found an indirect effect of quality variability on PLB proneness. Their work indicates that the influence of quality variation on PLB buying is mediated by the consequences of making a purchase mistake. The reason for the different findings between this research and Batra and Sinha's study may be the absence of the consequence-of-purchase-mistake construct in this research. This consequence-related construct was excluded in the current study due to its poor measurement scales. Since quality variability across brands is seen as the probability of making a purchase mistake (Batra and Sinha, 2000; Dunn et al., 1986), its relationship with PLB purchase may be mediated if the consequence-related construct is involved.

5.2.3 Price consciousness

This research shows that price consciousness is the strongest influential factor among the four constructs determining PLB purchase. The results suggest that consumers are more likely to buy PLB products in categories where they are more price conscious. The low price of PLBs is one of the major factors that encourage consumers to purchase PLB products. Thus, consumer price consciousness should have a positive impact on consumer attitudes towards PLB buying.

This finding is consistent with that provided by Batra and Sinha's (2000) study. Batra and Sinha show that price consciousness is the strongest of all constructs that positively influence PLB purchase across the several product categories studied. Similarly, the study of Raju, Sethuraman and Dhar (1995) also indicate that PLB products perform well in the product classes where consumers are more sensitive to price.

The positive relationship between price consciousness and PLB proneness is also seen in a number of studies which have chosen to use the aggregate data of all product categories for analysis. Earlier studies such as Burger and Schott (1972) reveal that PLB purchasers are slightly more price conscious than national-brand purchasers. Later research, for example, Burton et al. 1998 and Ailawadi et al. (2001), show that consumers who tend to pay low prices have a more favourable attitude towards buying PLBs. Erdem et al. (2004) also suggest that the discrepancy between price sensitivity of the UK consumers and the US consumers is an important factor in explaining why PLBs are more successful in the UK than the US.

5.2.4 Price-quality association

The hypothesis relating to the negative relationship between price-quality association and PLB purchase is supported statistically in this study. The results indicate that consumer preferences for PLB products are seen in categories where consumers have a weaker belief in higher-price higher-quality associations. For consumers who draw assumptions directly from price to evaluate product quality, PLB products would be in a less favourable position where their lower price is associated with inferior quality.

Similar findings are seen in other studies which have examined the influence of price-quality association on PLB proneness in general product categories. For example, Ailawadi et al. (2001), Burton et al. (1998), and Garretson et al. (2002) show consistent evidence to support the notion that the weaker the price-quality association, the more favourable the attitude towards PLBs, and consequently, the higher the purchase of PLBs.

5.2.5 Brand loyalty

This research indicates that brand loyalty is an important factor negatively affecting the success of PLBs. The results show that consumers are more likely to buy PLB products

in categories where they have lower brand loyalty. Since brand-loyal consumers are likely to have more concerns about quality (East et al., 1995) and engage in lower variety-seeking behaviours (Garretson et al., 2002), PLB products may not be an alternative in their brand selection. This negative relationship is also in line with earlier studies that focus on analysing general categories. For example, Burton et al. (1998) and Garretson et al. (2002) suggest that consumers who are more loyal to brands have less favourable attitudes to PLBs, and thus reduce their purchase of these products. Ailawadi et al. (2001) also imply that PLB buyers are those consumers with less brand loyalty.

5.2.6 Demographic Characteristics

This study indicates that households with higher annual incomes are less likely to buy PLB products. Since higher-income households are less likely to be financially constrained and as a result be less concerned about price (Ailawadi et al., 2001), they may have more freedom to select high price products. This finding is consistent with those in other studies. For example, Burton et al. (1998) show that higher-income families show a less favourable attitude to PLBs which in return lowers their purchase of these products. Hoch (1996) and Richardson et al. (1996) also indicate that lower-income families have a greater propensity to choose PLB products.

Moreover, this study shows that the relationship between education and PLB purchase is significantly negative. Consumers who have tertiary-level education are more likely to choose high-price national brands than those people without university qualifications. People who are well educated may be more likely to be more highly paid. These consumers have been found to be less financially restricted and more sensitive about product quality (Ailawadi et al., 2001). Some extant studies also imply that people with higher formal education prefer to choose famous national brands rather than buy PLBs (Omar, 1996; Rothe and Lamont, 1973). Some researchers argue that highly-educated consumers might have more confidence in evaluating product quality (Hoch, 1996), and as a result they might not depend on the brand name as the indicator of product performance (Murphy and Laczniak, 1979). However, this study suggests that people with higher educational qualifications are less prone to choose PLB products.

In addition, this research shows that age and gender are not important factors in identifying PLB-prone purchasers. These findings are consistent with Burton et al.'s

(1998) results which indicate that PLB purchase is independent of age and gender. Furthermore, household size has also been found as an insignificant characteristic to differentiate PLB buyers from national brand buyers. However, the effect of this characteristic on PLB purchase has been supported by other researchers, for instance, Burton et al. (1998), Dick et al. (1995) and Hoch (1996).

5.2.7 Summary of Finding Discussions

This section discussed the findings of the current research and compared these findings with those of other studies. It showed that findings concerning consumer attitude and perception from whole grocery items might be insufficient to explain the variations across specific categories. The section also evaluated findings relating to demographics. Like some extant studies, education and household income were found to be good indicators of PLB proneness. A comparison of findings between the current research and the replicated study (that is, Batra & Sinha, 2000) was also discussed. Consistent with the original study, price consciousness was strongest factor influencing PLB proneness. In contrast, the original study showed an indirect relationship between quality variability and PLB purchase while the current study found a direct relationship between these two constructs.

5.3 Conclusions about the Research Problem

As indicated in Chapter One, this research investigated how consumer factors influence the purchase of PLB products across different categories in supermarkets. The five research questions posed were: (1) what are the relationships between different determinants of perceived risk and private label purchase; (2) what are the relationships between different determinants of consumer attitude and private label purchase; (3) can the inter-category differences of the perceived-risk determinants help explain the variations in private label purchase across different product categories; (4) can the inter-category differences of the attitude determinants help explain the variations in private label purchase across different product categories, and (5) do consumers' demographic characteristics influence their private label choices?

The study indicates that consumer factors influence PLB purchase differently across different product categories in supermarkets. Factors reducing consumer perception of risk will have a positive relationship with PLB purchase. This notion is supported by

the findings with regard to quality variability. The quality variations between PLB and national brands have a higher potential to increase consumer uncertainty, and as a result lead consumers to perceive that there is a greater risk attached to buying PLB products.

Similarly, factors increasing favourable attitudes towards PLBs will have a positive effect on the purchase of PLBs. This notion is evident in the findings of price consciousness, price-quality association, and brand loyalty. Price-conscious consumers are likely to have a more positive attitude towards PLB buying. In contrast, consumers who have strong price-quality association and brand loyalty are likely to offset their desire to buy PLB products.

As far as inter-category differences are concerned, this study indicates quality variability, price consciousness, price-quality association and brand loyalty have significant relationships with PLB purchase in the collective product categories. However, differences appear when analysing their influences in specific categories. Thus, these category differences may help to explain the variations in PLB purchase.

Finally, the results suggest that some demographic characteristics are good indicators of PLB-prone buyers. This notion is evidenced by the significant relationship between education and annual household income and PLB purchase.

5.4 Theoretical Implications

There are three implications for marketing researchers. Firstly, consumer factors such as perceived risk and attitude towards PLBs are important determinants that greatly affect consumer PLB buying (Batra and Sinha, 2000; Dunn et al., 1986; Richardson et al., 1996). Thus, examining these factors in depth can be helpful in revealing the role played by each determinant in an attempt to explain why consumers are more prone to national brands than PLBs. As discussed in Chapter Four, the four constructs examined in this study can only explain 20.4% of variance of PLB purchase. In other words, this percentage indicates that 79.6% of the variance is not explained. Thus, it appears that research exploring consumer factors affecting consumer inclination to buy PLBs would be worthwhile.

Secondly, this research implies a need for category-level analysis of consumer factors. Consumers have different perceptions of, and attitudes towards PLBs across different

product categories. The results of this study suggest that the effects of consumer factors in whole categories may not be significant in some specific categories. Category-specific analysis may more effectively explain the variations in purchasing preferences for national brands as opposed to PLB products.

Finally, as demographics are useful in segmentation, targeting, and communication (Ailawadi et al., 2001), it would be useful to include them when examining consumer propensity to buy PLBs. This could reveal whether their impact has changed over a period of time (Richardson et al., 1996).

5.5 Managerial Implications

There are several managerial implications for both manufacturers and retailers in the consumer-packaged-goods industry when attempting to better promote their own brands. This section first discusses the implications for the retailers, and then for national-brand manufacturers.

5.5.1 Implications for retailers

Five implications for retailers marketing PLB products can be drawn from this study. As indicated earlier, low price is a strong influential factor attracting price-sensitive consumers to purchase PLB products. Thus, the first implication for retailers underlines the need to maintain low-price strategies for PLBs. This could attract price-conscious consumers to PLBs and discourage them from switching to national brands.

Secondly, another important element for promoting PLBs is high product quality. Quality consistency is more crucial than price in determining PLB success (Hoch and Banerji, 1993). Corstjens and Lal (2000) suggest that without a combination of low price and high quality, PLB brands will not be successful. For those consumers with a strong belief in price-quality association, the low price of PLBs may discourage the use of PLB products. To improve the competitive position for PLBs, a better focus may be to market these products on the basis of quality (Richardson et al., 1996). Therefore, this study suggests that retailers should pay close attention to maintaining and improving quality of their PLBs in an attempt to increase consumer perceptions of quality. These efforts could be accomplished by improving the inherent quality of elements such as ingredients, as well as upgrading accessible attributes, for example,

packing design or labelling. Moreover, retailers could take advantage of their stores to communicate the high quality of PLBs to consumers through poster displays, in-store taste-trial activities, free samples, or other methods. PLB purchase would be increased when consumers perceive PLB products as "good quality for low price" rather than "low quality for low price".

Next, this research reveals that quality variability has a significant impact on PLB proneness. Besides maintaining the inherent quality of PLBs, retailers should also be aware of another important quality-related factor, that is, quality variability between PLBs and national brands. Quality variability across brands in a category may result in high perceived risk associated with PLB purchase. This research suggests that retailers improve PLB products in the hope of reducing their quality gap with leading national brands. To do this, retailers may need to recognise consumer needs of product quality in each category so as to increase the perception of PLB quality.

Fourthly, consumers' brand loyalty may reduce their proneness towards buying PLBs. However, the success of national brands resulting from loyal customers suggests that PLBs can also have their own loyalty programmes. Although PLB-prone buyers are likely to be brand switchers (Baltas, 1997), PLB programmes associated with incentives may be useful in retaining these consumers for PLBs. For instance, retailers could establish a reward system for those consumers who frequently purchase PLB products.

Finally, retailers could avoid head-on competition with manufacturers through targeting consumers who have different demographic characteristics from national-brand buyers. For instance, retailers may target segment where consumers have typically low education or low household incomes. In doing this, programmes could be established to promote money-saving ideas involving products used on a regular basis.

5.5.2 Implications for manufacturers

Five implications are also suggested for manufacturers marketing national brands. Firstly, low price is an advantage when inducing consumers to buy PLB products, especially those price-cautious buyers. For national-brand manufacturers, periodic sales which draw the price-conscious consumers to national brands may be an effective way of competing against PLBs in the short term. However, it may not be wise to run sales promotions frequently or long-term, because the results may have a negative impact on

the brand success once the promotion is removed (Blattberg, Briesch, and Fox, 1995). Since it is difficult to cancel out the price differential with PLB products (Baltas, 1997), competing pricewise with PLBs on a regular basis would be ineffective. It is better for manufacturers to differentiate national brands from PLBs though superior quality and product image.

Secondly, manufacturers could further enlarge the advantage of consumers' perception of high quality associated with national brands by using innovation technology. This could be particularly effective in categories where retailers do not have the capability to match national-brand quality. Quality variability across brands can create higher purchase risk for the inferior brands. Thus, through widening the quality gap, manufacturers could potentially introduce more risk perception into the PLB purchase.

Next, as price-quality association has a favourable influence on national brand performance, manufacturers could create marketing programmes to strengthen this concept in the consumers' consciousness. A negative experience with one product category can prevent consumers from buying PLBs in other categories (Semeijn et al., 2004). Thus, manufacturers could start with categories where consumers have already strongly associated price with quality. Then, they could extend this concept to other categories through establishing programmes that demonstrate the lower-price lower-quality patterns in one category may be indicative of other categories.

Fourthly, as brand loyalty has a positive effect on national brands, manufacturers could strengthen the brand-loyal concept in consumer knowledge. Since consumer brand loyalty differs across product categories, it would be more effective to conduct loyality programmes in categories where consumers have more concerns about PLB utility. This could further affirm consumers' frequent purchase of national-brand products.

Finally, manufacturers could establish programmes specifically targeting consumers who have are well educated and have high household incomes. This could help manufacturers reduce the tug-of-war rivalry with retailers who are also their business customers (Ailawadi et al., 2001).

5.6 Limitations

In the present study, five limitations should be noted. The first limitation is that this study focuses only on the consumer-fast-moving-goods industry. The results may not be generalisable to other industries such as durable-goods or fashion industries.

Secondly, the data collected was only from a single supermarket. Since PLB performance varies across different retail stores, consumer perception of, and attitude towards PLB purchase may also differ. Measurement on a single occasion may affect the reliability of the measured constructs when the constructs are taken as an operationalisation of more general behaviour (Burton et al., 1998; Epstein, 1979). Thus, the results of this study may be limited to the specific retail chain studied.

Next, this study did not examine two other important perceived-risk determinants, consequences of making a purchase mistake and the search versus experience nature of product features. Batra and Sinha (2000) indicate that the consequence of making a purchase mistake is a useful element in gauging the extent to which consumers accept PLB products. The search and experience nature of product features is also an important construct to explain in which categories PLBs would be more successful (Batra and Sinha, 2000). Batra and Sinha' findings involving these two constructs were not verified by this research.

Fourthly, this research used self-reported survey data obtained directly from consumer opinions. This method may suffer from disadvantages such as inaccuracy from poor recall (Batra and Sinha, 2000). Thus, the results might not have reflected the actual consumer behaviour.

Finally, the time horizon of data collection was a cross-sectional approach. The findings may only indicate the effects of consumer perceptions and attitudes as well as demographics on PLB purchase in a fixed period. They cannot show how these consumer factors alter over different time periods and how consumer decisions on brand selection change.

5.7   Suggestions for Future Research

The limitations discussed above suggest several areas for future research. First, similar research could be conducted in other industries. They could examine whether the influences of consumer factors on PLB products have different patterns in other contexts.

Second, further research could be done to examine the influences of consumer factors on PLB buying by using data obtained from more supermarkets or diverse geographic areas. This could increase credibility and generalisation in the empirical findings.

Next, there is a need to investigate the interrelationships among constructs that influence PLB purchase. Examining possible interrelationships among variables in an integrative nature can provide greater insight for the management of PLBs (Richardson et al., 1996).   Such research could also indicate how relationships between any constructs are mediated by other constructs, and whether the relationships are different when mediation is involved.

Finally, further research could use longitudinal data to examine the relationships between consumer factors and brand-choice decision. This longitudinal approach could enhance the understanding of the impact of consumer perception and attitudes as well as demographics on PLB proneness. This approach can help reveal how these factors may change in the evolution of PLB success.

5.8   Conclusions of the Thesis

This thesis explored how consumer factors affect private label purchase across different categories in grocery retailing. In particular, this research examined several consumer perceptions and attitudes in attempting to explain the category-level variations of private label purchase. Several demographic constructs were also investigated. Some knowledge gaps which were found in the literature review justified the current study. Topics on private labels had been examined in the literature for more than forty years (Narasimhan and Wilcox, 1998). Due to the rapid growth of private-label share, a number of researchers had investigated influential consumer factors in an attempt to explore the reasons behind the success of these store products. However, compared to the studies focusing on national-brand topics, the volume of research examining private

label issues was scarce. In particular, the research deficiency existed in the area pertaining to the category-level analysis of consumer factors in PLB buying. Batra and Sinha's (2000) study which examined category differences was reviewed in some depth. Drawing on their work, an extended version of their model was proposed.

In attempting to re-examine Batra and Sinha's hypotheses, the methodology design employed by the current study followed the one used by Batra and Sinha (2000). The data were collected from a mall-intercept questionnaire survey. 600 respondents provided usable data for this study. Exploratory factor analysis was employed to examine the validity of the measurement scales. Multiple regression analysis was used as the main analytical technique to test the hypotheses.

This study suggests that category-level analysis of consumer factors would effectively explain inter-category differences in private label success. Moreover, several implications for both researchers and managers were also provided. Theoretically, this study indicates the importance of examining the influences of consumer factors on private label purchase and the usefulness of category-level analysis of private label buying. Managerially, for both manufacturers and retailers, a better way to compete against each other is to emphasise on quality improvement. Manufacturers should attempt to keep the quality level of national brands as far above that of private labels as possible, whereas retailers should attempt to reduce the quality gap for their private label brands. Furthermore, retailers and manufacturers could take advantage of the demographic differences between private-label and national-brand buyers to avoid competing for the same consumer segments.

Finally, several limitations existed in the current study and suggestions for future research were discussed. These suggestions include conducting a similar study in other industries, collecting data from multiple stores, examining interrelationships among constructs, and using a longitudinal approach.

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APPENDICES

Appendix A - Letter for Supermarket Manager

27 October 2004
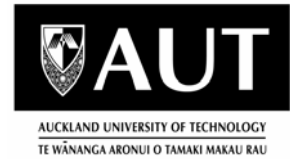
Dear Mr Rob McGregor,

My name is Shaoshan Chen. I am currently undertaking a customer survey as part of my thesis for my Master of Business degree at Auckland University of Technology. The purpose of the survey is to study how consumers' attitudes and perceptions influence their choice of store brands. The research results are expected to provide more insights for retailers to better develop store brand programmes.

Therefore, your supermarket is selected as one of the survey locations.   This survey will be undertaken before Christmas and requires approximately 4 days, 8 hours each day.   During the survey, two researchers will stand in front of the supermarket to invite shoppers who have finished their shopping to participate in the survey. It takes each shopper 8~10 minutes to complete a simple and friendly questionnaire. All answers provided by the shoppers are anonymous and confidential.

Therefore, your support will be very important for the success of this survey. I would like to make a time to discuss this survey with you. I will contact you shortly to arrange this.   Thanks you for your consideration.

Yours Sincerely,

_____

Shaoshan Chen

_____

Mark Glynn (Postgraduate Senior Lecturer)

Appendix B - Survey Questionnaire

Product Category: Fresh Milk (Example)

SECTION ONE: Instructions: Please read each statement and **CIRCLE** the number that most accurately reflects your opinion. Circling '1' means that you strongly disagree with the statement and circling '7' means you strongly agree the statement.   Or you may circle any number in the middle that shows how strong your opinion is. Please circle only one number for each statement.

Statements	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree		
When I choose a brand of this category, it is not a big deal if I make a mistake.	1	2	3	4	5	6	7
All brands of this category are basically the same in quality.	1	2	3	4	5	6	7
I don't need to actually try a brand of this category to know how good it is – the information on the packaging tells me everything I need to know.	1	2	3	4	5	6	7
I compare prices of at least a few brands of this category before I choose one.	1	2	3	4	5	6	7
Generally speaking, the higher the price of a product of this category, the higher the quality.	1	2	3	4	5	6	7
Once I have made a choice on which brand of this category to purchase, I am likely to continue to purchase it without considering other brands.	1	2	3	4	5	6	7
One can't go too wrong if one buys the wrong brand of this category.	1	2	3	4	5	6	7
I don't think that there are any significant differences among different brands of this category in terms of quality.	1	2	3	4	5	6	7
For this category, the written description on the packaging covers all the features that are important to how I choose a brand.	1	2	3	4	5	6	7
It is important to me to get the best price for the products I buy in this category.	1	2	3	4	5	6	7
The old saying "you get what you pay for" is generally true in this category.	1	2	3	4	5	6	7
Even though the product of this category is available in a number of different brands, I always tend to buy the same brand.	1	2	3	4	5	6	7
If I choose the wrong brand of this category, my family or friends would think less highly of me.	1	2	3	4	5	6	7
Brands of this category do not vary a lot in terms of quality.	1	2	3	4	5	6	7
I need lots more information about a brand of this category before I'd buy it.	1	2	3	4	5	6	7
When buying a brand of this category, I look for the cheapest brand available.	1	2	3	4	5	6	7
I am willing to make an effort to search for my favourite brand in this category.	1	2	3	4	5	6	7

Statements	Strongly Disagree	Disagree		Neither Agree Nor Disagree		Agree		Strongly Agree
If I choose the wrong brand of this category, I would be financially worse off.	1	2	3	4	5	6		7
There are only minor variations among brands of this category in terms of quality.	1	2	3	4	5	6		7
I'd have to try it several times to figure out what a brand of this category is like.	1	2	3	4	5	6		7
Price is the most important factor when I am choosing a brand of this category.	1	2	3	4	5	6		7
The price of a product of this category is a good indicator of its quality.	1	2	3	4	5	6		7
You always have to pay a bit more for the best one in this category.	1	2	3	4	5	6		7
Usually, I care a lot about which particular brand of this category I buy.	1	2	3	4	5	6		7

SECTION TWO: Instructions: Please answer the following question and **CIRCLE** the number that is closest to your buying behaviour. Circling '1' means that you exclusively buy national brand products and circling '5' means you exclusively buy store brand products. Or you may circle any number in the middle that shows how frequently you buy national or store brands. Please circle only one number.

Which brands, national brands or store brands, do you usually buy in this category?

    Exclusively national brands   1   2   3   4   5   Exclusively store brands

SECTION THREE: Instructions: The following questions are about your demographic status. Please **CIRCLE** the number that represents the most appropriate response for you.

A. Are you male or female?
     1. Male
     2. Female

B. Which age group do you fall into?
     1. 20 – 29
     2. 30 – 39
     3. 40 – 49
     4. 50 – 59
     5. 60 or over

C. What is your highest education?
     1. High school or less
     2. Vocational or trade qualification
     3. Tertiary qualification (Undergraduate)
     4. Tertiary qualification (Postgraduate)
     5. Others

D. Which annual household income group (before tax) does your household fall into?
     1. 0 - $ 30,000
     2. $ 30,000 - $ 50,000
     3. $ 50,001 - $70,000
     4. $ 70,001 - $100,000
     5. $ 100,001 - $150,000
     6. $ 150,000 - $ 180,000
     7. More than $ 181,000

E. How many members are there in your household?
     1. 1 person
     2. 2-3 people
     3. 4-5 people
     4. above 5 people

☺ Thank you very much for your support! ☺

Appendix C - Private Label Market Sizes by Categories

Private Label Top 10 Categories
(Year ending 18 May 2003)

Category	Market Size ($000's)	% of Total Category Value
Fresh milk and cream	$131,525	46%
Bread	$49,939	16%
Eggs	$34,367	38.5%
Toilet tissue	$33,870	26.8%
Cheese	$32,225	13.7%
Butter and margarine	$32,122	22.7%
Carbonated beverages	$23,827	12%
Prepacked smallgoods	$22,729	--
Biscuits	$21,923	8%
Breakfast cereals	$21,829	14%

Private Label Growth Rate in Volume and Value
(Year ending 18 May versus a year ago)

Category	Dollar growth	Package growth
Canned fruit	24.3%	--
Biscuits	22.4%	26.5%
Butter and margarine	18.5%	`22.5%
Pet food	9.1%	--
Fresh milk and cream	8.1%	13.4%
Carbonated beverages	6.6%	8.2%
Snack food	4.7%	--
Bread	3%	5.6%
Cheese	-3%	-9.3%
Eggs	-4.4%	-1.7%
Prepacked smallgoods	-5.1%	1.6%
Toilet Tissue	-5.2%	-5.0%
Breakfast cereals	-7.2%	-7.8%

Source: AcNielsen Market Information Digest (2003)
   – Channelscan (New Zealand)

Appendix D - Category, Questionnaire, and Item Coding

Category and Questionnaire Coding

Categories	Category ID	Number of Questionnaires	Questionnaire ID
Fresh Milk	C1	60	C101 – C160
Bread	C2	60	C201 – C260
Cheese	C3	60	C301 – C360
Breakfast Cereals	C4	60	C401 – C460
Biscuits	C5	60	C501 – C560
Toilet Tissues	C6	60	C601 – C660
Fruit Juice	C7	60	C701 – C760
Snack Food	C8	60	C801 – C860
Canned Fruit	C9	60	C901 – C960
Pet Food	C10	60	C1001 – C1060
Total		600	

Question Item Coding

Question Items	Item ID
When I choose a brand of this category, it is not a big deal if I make a mistake.	Q1
All brands of this category are basically the same in quality.	Q2
I don't need to actually try a brand of this category to know how good it is – the information on the packaging tells me everything I need to know.	Q3
I compare prices of at least a few brands of this category before I choose one.	Q4
Generally speaking, the higher the price of a product of this category, the higher the quality.	Q5
Once I have made a choice on which brand of this category to purchase, I am likely to continue to purchase it without considering other brands.	Q6
One can't go too wrong if one buys the wrong brand of this category.	Q7
I don't think that there are any significant differences among different brands of this category in terms of quality.	Q8
For this category, the written description on the packaging covers all the features that are important to how I choose a brand.	Q9
It is important to me to get the best price for the products I buy in this category.	Q10
The old saying "you get what you pay for" is generally true in this category.	Q11
Even though the product of this category is available in a number of different brands, I always tend to buy the same brand.	Q12
If I choose the wrong brand of this category, my family or friends would think less highly of me.	Q13
Brands of this category do not vary a lot in terms of quality.	Q14
I need lots more information about a brand of this category before I'd buy it.	Q15
When buying a brand of this category, I look for the cheapest brand available.	Q16
I am willing to make an effort to search for my favourite brand in this category.	Q17
If I choose the wrong brand of this category, I would be financially worse off.	Q18
There are only minor variations among brands of this category in terms of quality.	Q19
I'd have to try it several times to figure out what a brand of this category is like.	Q20
Price is the most important factor when I am choosing a brand of this category.	Q21
The price of a product of this category is a good indicator of its quality.	Q22
You always have to pay a bit more for the best one in this category.	Q23
Usually, I care a lot about which particular brand of this category I buy.	Q24
Which brands, national brands or store brands, do you usually buy in this category?	Q25
Are you male or female?	Q26
Which age group do you fall into?	Q27
What is your highest education?	Q28
Which annual household income group does your household fall into?	Q29
How many members are there in your household?	Q30

Appendix E - Data Categorising

Data Categorising

Constructs	Question Items	Initials
Consequences of Making Purchase Mistake	Q1*, Q7*, Q13, Q18	CPM
Quality Variability	Q2*, Q8*, Q14*, Q19*	QV
Search vs Experience Nature	Q3, Q9, Q15, Q20*	SE
Price Consciousness	Q4, Q10, Q16, Q21	PC
Price-Quality Association	Q5, Q11, Q22, Q23	PQA
Brand Loyalty	Q6, Q12, Q17, Q24	BL
Private Label Purchase	Q25	PLB
Gender	Q26	GEN
Age	Q27	AGE
Education	Q28	EDU
Annual Household Income	Q29	AIN
Family Size	Q30	FSZ

* Negatively worded question items

Appendix F - Ethics Approval Letter

AUT

AUCKLAND UNIVERSITY OF TECHNOLOGY
TE WĀNANGA ARONUI O TAMAKI MAKAU RAU

MEMORANDUM
Academic Services

To:	Mark Glynn
From:	**Madeline Banda**
Date:	20 October 2004
Subject:	04/186 An empirical investigation in consumer-level determinants of private label success in New Zealand

Dear Mark

Thank you for providing amendment and clarification of your ethics application as requested by AUTEC.

Your application was approved for a period of two years until 20 October 2006.

You are required to submit the following to AUTEC:

- A brief annual progress report indicating compliance with the ethical approval given.
- A brief statement on the status of the project at the end of the period of approval or on completion of the project, whichever comes sooner.
- A request for renewal of approval if the project has not been completed by the end of the period of approval.

Please note that the Committee grants ethical approval only. If management approval from an institution/organisation is required, it is your responsibility to obtain this.

The Committee wishes you well with your research.

Please include the application number and study title in <u>all</u> correspondence and telephone queries.

Yours sincerely

Madeline Banda
Executive Secretary
AUTEC
cc: 0181936 Shaoshan Chen shache06@aut.ac.nz

Appendix G - Outlier Detections

Outlier Detections for the Interval-Scaled Variables

Perceptual and Attitudinal Variables	z-scores Highest	z-scores Lowest	No. of Outliers Identified
Univariate Detection:			
Wrong purchase is not a big deal	1.55	-1.52	0
Can't go too wrong	1.55	-1.94	0
Family or friends think less highly of me	**3.16**	-0.85	**11**
Be financially worse off	2.90	-1.25	0
Basically the same in quality	1.08	-2.41	0
No significant quality difference	1.31	-2.24	0
Do not vary a lot in terms of quality	1.46	-2.32	0
Only minor quality variations	1.66	-2.15	0
Information on packaging tells everything	2.29	-1.38	0
Description on packaging covers all important features	1.99	-1.79	0
Need more information before buying	2.48	-1.49	0
Try several times before decision	1.67	-2.36	0
Compare prices before buying	1.29	-1.73	0
Important to get the best price	1.49	-2.09	0
Look for the cheapest brand	2.44	-1.15	0
Price is the most important factor	2.33	-1.35	0
The higher price, the higher quality	1.86	-1.87	0
You get what you pay for	1.57	-2.40	0
Price is a good indicator of quality	1.93	-2.02	0
Need to pay a bit more for the best one	1.76	-2.23	0
Continue to buy without considering others	1.36	-2.33	0
Tend to buy the same brand	1.32	-2.29	0
Make effort to search for favourite brand	1.25	-2.51	0
Care a lot about the particular brand I buy	1.50	-2.20	0
Buy national brands or store brands (Dependent variable)	2.55	-1.28	0
Multivariate Detection:			
Mahalanobis $D^2 \leq 0.001$			**8**

Number of Extreme Observations in the Demographic Variables

Demographic Variables	No. of Extreme Observations
Gender	0
Age	2
Education	7
Annual Household Income	11
Family Size	11

Appendix H - Data Transformation for Non-Normal Distribution

Results of Transformations of the Four Interval-Scaled Variables

Measure Variables	Skewness	Kurtosis	Transformation Methods
Wrong purchase is not a big deal	-0.60	-0.60	Square Root
Can't go too wrong	-0.43	-0.62	Square Root
Family or friends think less highly of me	0.66	-0.71	Square Root
Compare prices before buying	-0.73	-0.73	Logarithm

Levene Test for the Demographic Variables

Demographic Variables	Levene Statistic	Sig.	Logarithm Transformation	
			Levene Statistic	Sig.
Gender	0.24	0.63	--	--
Age	**3.02***	**0.02**	2.04	0.09
Education	0.77	0.55	--	--
Annual Household Income	0.56	0.76	--	--
Family Size	0.99	0.40	--	--

Note: * The Levene statistic is significant at the level of 0.05.
    The dependent variable is private labels purchase.

Appendix I - Category Subsets of Significant Mean Differences

Results of One-way ANOVA and HSD Post Hoc Test

Construct	Subset 1	Subset 2	Subset 3	Subset 4
Price Consciousness	Bread Pet food Snack food Breakfast cereal Fruit juice Cheese Biscuits Fresh milk	Toilet tissue Canned fruit		
Brand Loyalty	Fresh milk Snack food Toilet tissue	Canned fruit Biscuits Cheese Bread Fruit juice Pet food breakfast Cereal		
Quality Variability	Fresh milk	Canned fruit Snack food Toilet tissue Biscuits and Breakfast cereal	Pet food Bread Cheese	Fruit juice.
Price-Quality Association	Fresh milk Snack food	Canned fruit Biscuits Bread Breakfast cereal Cheese Fruit juice	Toilet tissue Pet food	
PLB Purchase	Pet food Breakfast cereal	Bread Biscuits Cheese Fruit juice Snack food Fresh milk	Toilet tissue Canned fruit	

Note: The mean differences between subsets are all significant at 0.05 level.
The average mean is the lowest in subset 1 and then gradually increases in other subsets.