

# **Motivation Factors for OnLine Buying: The Price Driver**

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## **Declaration**

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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Signature

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## **Abstract**

Price is often argued to be the determining factor for online (eBusiness) purchasing. The idea that buying online provides both asking and hidden cost savings is an assumption that has been promoted by IT advocates of the commercial opportunity. In this research Price (attribute) is to be investigated as a contributor to customer motivations for online purchasing. The investigation is to begin with a literature search for other factors that are claimed to influence online purchasing and studies others have published in the focus area.

Previously research has been carried out by others to understand the changes brought by internet and ecommerce to our lives and business opportunities. It has been found that behavioural characteristics like shopping convenience, information seeking, immediate possession, social interaction, and variety affects the consumer behaviour towards shopping on the internet (Rohm, 2004). There are other factors such as privacy and security affecting consumer attitude towards shopping online (Shergill, 2005). In this research the factors identified from the literature are listed in priority order and the top two used to explain the relationship to price. This approach is taken to limit the cost (financial and time) of the survey and yet to still contribute valuable knowledge regarding price and other factors affecting online purchasing behaviour. The ability to collect price information and make comparisons between the different product and offerings from various providers is argued to be defining for competitive advantage in ecommerce (Jiang, 2002).

The research is started by asserting an initial model that suggests price is a moderating factor for other factors when customers purchase online. This model is a “straw man” to be tested. The resource limitations of this short study are managed by selecting only two of the possible constructs affecting online buying motivations. The research is operationalised by submitting banks of potential questions to experts, a pilot study, and reliability testing and then surveying a stratified random sample of online purchasers. Structural equation modelling method is chosen for data analysis

and the appropriate approach for confirming (or otherwise) a mediation role for price in online customer purchasing. A metric and a path model were constructed from the empirical data and compared with the initial model.

It was found that Price was the dominant motivating factor for those in the sample for transacting online. The initial model was not the best fit for the empirical data and other relationships were explored. Best fit was found by removing the hypothesised relationship from trust to price and establishing the relationship between trust and security. The best fit model hence showed that Price and intention to buy was a very strong relationship.

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## **List of Abbreviations**

AMOS	Structural Equation Modelling Software
ANOVA	Analysis of Variance
AUT	Auckland University of Technology
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
GFI	Goodness of Fit Index
IS	Information Systems
SEM	Structured Equation Modelling
SPSS	Statistical Package for the Social Sciences

# Chapter 1

## Introduction

### 1.1 Background

Academics and practitioners alike have been arguing about whether the Internet brings a revolutionary change in the fundamental way we do business or if it simply offers a new distribution channel and communication medium (Moe, 2001). Research done by Forrester Research estimated that in 1999 there were 17 million households shopping online and that online sales were in excess of \$20.3 billion (Chan, 2003). Online revenues from North America retailers in 1998 were in the range of \$13 to \$15 billion (Burroughs, 2002) and in 2002 exceeded \$100 billion. U.S. online sales figures for 2006 exceeded \$210 billion showing the growth over time (Schuster, 2006). There has been a lot of research done in understanding the behaviour of the consumer and the identification of factors like trust, privacy and security to improve online transaction numbers (Lepkowska-White, 2004). The youngest generation (Gen Y), in particular, has grown up with the Internet, is used to free content, and is very price-conscious (Swatman, 2006). Little research has been conducted on the factors that influence price searches performed by the user online. The ease of comparing the price from different sources not only helps them in getting the best from the market but also if the user is not planning to buy immediately but getting price knowledge to plan a future purchase (Jiang, 2002). In some cases, consumers search price information online to justify their offline purchase decisions (Jiang, 2002).

Internet users seem concerned about how organizations may use or abuse personal information supplied online, whether such information is supplied willingly or without informed consent. This is one of the major de-motivating factors for shoppers to share their information or transact with the e-commerce operators (McRobb, 2004). The study suggests that clear and detailed privacy policies by the organization can help to establish trust between the organization and the consumer (McRobb, 2004). The degree to which online shopping fulfils goal-oriented and/ or experiential consumer needs will affect the amount of shopping dollars that consumer will choose to spend in each environment (Wolfenbarger, 2001). The frequency of the goal oriented shopper has increased freedom and control; they only go online when

they have something to buy. On the other hand the experiential shopper has the interest of going online and enjoys “the thrill of hunt” and the newly identified factor in research literature - of playfulness, is added to the shopping experience.

Past shopping typologies have primarily been based on consumer motives for shopping. Motivation theory suggests that human motives, whether cognitive or affective, are primarily geared towards individual gratification and satisfaction (Rohm, 2004). The review of empirical studies has added different factors which influence online purchasers’ behaviour. The antecedents of online purchase include many attitudinal components; for example, attitude towards a website and perceived risk of an online purchase. Consumers’ online shopping experiences, website design and fulfilment of quality expectations are deemed as the major components to successful online transactions (Shergill, 2005).

## **1.2 The Research Problem & Questions**

The literature suggests that factors which motivate the shopper to go online can be behavioural or market driven. In the past there has been research done on levels of affects of behaviour factors like shopping convenience, information seeking, immediate possession, social interaction, and variety (Rohm, 2004). Increased convenience and speed of procurement make e-commerce attractive to buyers (Dasgupta, 2005) but also personal motivation factors drive online activity (Wolfenbarger, 2001).

This research is to look at the combination of behavioural factors, shopping habits / motivations of the shopper, and the technical and ethical issues like security and privacy as mentioned by (Shergill, 2005) and (McRobb, 2004). The focus of the research is New Zealand online retail business and the customer perception of the experience. There are two components to the problem area. Selling in cyberspace is very different from selling in physical markets, and it requires a critical understanding of consumer behaviour and how new technologies challenge the traditional assumptions underlying conventional theories and models (Limayem, 2000). Secondly most online shops are extensions of current physical (‘bricks & mortar’) brands and few are only online. This is not the case with many international

brands such as amazon.com, dell.com, and so on. In the New Zealand case there are a limited number of online only shops, such as bankdirect.co.nz for banking services, but most are exploiting the internet as another vertical channel for customer interaction.

The research problem is hence the convergence of the two components namely online shopping behaviours and the nature of shopping experiences available. Arguably the predominance of online shopping experiences related to the brand of physical shops places limitations on customer expectations and experiential differences. The sub-text to this position is the concern that the full value of online shopping cannot be passed to the customer in such situations. This research is to investigate price as a mediating variable in online buying behaviour. The contention in the problem area is that vertical channel online shops cannot pass the full cost savings (and hence reduced or competitive (& variable) price) to the online customer. An adoption of the aggregation model for example creates a negative inventory with both the cost saving of nil inventories and the benefit of revenue accrual. Such strategic business design permits benefits that can be passed to the customer in incentives and competitive pricing.

The problem context is to be investigated further by using the research question:

### **Is Price a motivation to buy online?**

The question addresses the need to identify factors and drivers for online shopping behaviour and it takes the shopper as the subject. The question is deliberately framed with an “is” rather than a “what” that would refer to a specific relationship. The subject of interest is the shopper and the motivation for buying (the ‘is’). The expected outcome from the research is hence a better understanding of customer expectations and specifically the value of price in interaction with online shoppers. Once price is better understood as a motivation or driver for online business then recommendations for more effective and efficient online customer interaction can be made. These recommendations should have direct consequences for ebusiness design and act as drivers for ebusiness architects to maximise price advantage.

### **1.3 Structure of the Dissertation**

The Dissertation is structured into a logical sequence to communicate the research. The Formalities layout the topic of interest, the acknowledgements and how to access each element of the Dissertation. In Chapter 1 an overview is given of the problem area and how the research is to be approached. Chapter 2 provides a review of the relevant literature and the identification of problem areas, issues, contradictions and potential research questions. In Chapter 3, the research methodology is specified. Five similar previous studies are reviewed to report research methodologies and differences in approaches. A formalisation of the learning from Chapter 2 is made into an initial research model and questions, sub questions and hypotheses. The data collection, processing and analysis are specified. In Chapter 4 the field findings are reported and in Chapter 5 these findings are discussed with respect to the expectations and theories reviewed in chapters 2 and 3. Finally a summary of conclusions and recommendations for further research are made. A full set of references and appendix follow.

## **Chapter 2 Literature Review**

### **2.1 Introduction**

The literature reviewed in this Chapter is selected for its relevance to online shopping and to the issue of price. A large number of research reports have been selected to define the scope of online shopping and to identify problem areas, areas of contention, contradictions in belief, and to focus onto researchable relationships. The literature is deliberately chosen in the time space from 2002 to 2007. The literature prior 2002 is characterised by advocacy and beliefs about the future of online shopping. However when the .com bubble burst in 2001 many of the speculations in the prior literature no longer held relevancy to the adjusted market. The post 2001 online shopping literature addresses concerns that are relevant to key problem areas in the relationship between shoppers / customers and the Internet medium. The central concern is converting the large number of people browsing or searching on the Internet into transacting customers.

In Section 2.2 the context of online shopping is defined by reviewing three research reports that identify the scope of online shopping and its causal factors. In Section 2.3 online pricing is discussed from the perspective of transaction. Five subsections follow that address the issues of pricing theory, customer decision-making chains, price partitioning theory for online shops, customer motivations and online customer shopping cues. Section 2.4 investigates pricing strategies for online shops. It has three sub sections that review pricing effects research, customer push back behaviour, and the benefits of fixed or discount pricing tactics. In Section 2.5 the constructs of trust and security are investigated to identify the importance of each construct for online shopping. Finally conclusions are drawn from the literature review that point towards researchable hypotheses and questions.

### **2.2 The OnLine Shopping Context**

OnLine shopping occurs when a customer chooses the internet opportunity to transact. Many factors converge to motivate a customer to transact. According to Zhou et al. (2007) online shopping and off line shopping share many customer

motivational factors (such as “perceived risk” p. 45) but that the factors have different weightings online than off line. Perceived risk for example has a greater impact for the customer when shopping online whereas demographic information has a low factor weighting online. A study by Allred et al. (2006) further refined the context of online shopping by investigating online shoppers who transact and those who did not.

The context of online shopping was defined by Zhou et al. (2007, pp. 42-44) as having nine distinct factors and many of which were linked to individual factors. The context scoping in this view positioned online shopping within demographics, customer internet experience, and personal belief systems. The notion of shopping orientation was another factor that was used to explain shopping actions in terms of interaction profiles. Shopping motivation, personal traits and online experience formed another group of context related factors. Psychological perception and the shopping experience completed the scope of context. Of these nine factors three related in some way to the technology but the other six factors all related to abstractions associated with online shopping. This weighting of factors suggests that the context of online shopping has many factors that relate to the customer and ebusiness strategy.

Other studies for example Allred, et al. (2006), take a similar approach to studying online shopping. The technology contributed two factors to the scope of context and four others related to customer choices. The context was hence framed by what was termed segments and the analysis of online shopping behaviour. Park & Kim (2003) identified key factors affecting consumer online purchasing behaviour. It was concluded that (p. 16) “information quality, the user interface, and security perceptions affect information satisfaction and relational benefit that, in turn, are significantly related to each consumer’s site commitment and actual purchase behaviour.” The paper further went onto define four categories of attributes that bound online shopping, namely, merchandise, customer service, security, and promotions, navigation & convenience.

A study of online shopping consequently involves the exploration of numerous factors that relate predominantly to the online customer. Technology factors are important but there is an assumption that the technology works and it’s the



use of the technology and the customer perception of experience that are more important for transacting. The Allred et al. (2006) study of online shoppers (compared with non-shoppers) identified distinct characteristics. An online shopper is “younger, wealthier, better educated, have higher computer literacy, and are bigger retail spenders” (p. 328). The online shopper also spends more time online than the non-shopper and is less fearful about financial loss on account of the transaction medium.

### **2.3 Pricing for Transactions**

The ability to collect price information and make comparisons with different products and services and to compare competitor’s offerings is fundamental to competitive advantage. Jiang (2002) claimed that price search is dependent on customer ability and motivation. “... consumers search for information until the marginal cost of obtaining a unit of information is equal to the marginal benefit of possessing a unit of information” (p. 182). Online the potential for a customer to make rapid price comparisons and to use the web with the motivation of price searching is high. Many sites offer aggregation services that for example compare hotel prices, rental car prices or bank interest or fee rates. These sites make it easy for a customer to do price searching and comparisons. Arguably the availability of the services also provides an expectation that it can be done effectively and the ease feeds the motivation for action. Jiang (2002, pp. 184, 189) proposes that the electronic medium facilitates “a great deal of price searching” and hence the aim of electronic markets is to make information more accessible and easier to process so that consumers can be informed before making purchases. “... understanding how consumers acquire price information is important at the micro level for marketing ... and at the macro level for policy”. The argument is that price search is a primary stage in transacting and a point at which consumer’s decisions can be influenced.

Pricing and the relationship to online transaction is explored in the following sub sections. Sub section 2.3.1 explores the theory of pricing and relates the theory to online constraints and opportunities. Sub section 2.3.2 summarises the expected transaction effects of pricing and competition. In sub section 2.3.3 the concept of

partitioning markets with pricing is reported from the online perspective and the costs and benefits noted. In sub section 2.3.4 buying motivation is elaborated and in sub section 2.3.5 the concept of transaction customer cues is reviewed in relation to web site patronage.

### ***2.3.1 Pricing Theory***

Attempts to rationalise customer activity online have evolved from the substantial business literature on customer behaviours. Online there are fewer cues that signal customer intention but analysis and pre conditioned variables assist the forecasting of customer behaviour. “Rational buyer behaviour is based on a decision process, which involves the set of rules that a buyer employs to match motives and the means of satisfying those motives (Nisel, 2001, p. 223). Price, quality and availability are argued (according to Nisel) to be the three motives for online purchasing behaviour. Hence, “If a particular price is playing a crucial role in a consumer’s buying decision, the motive to buy or the determinant of the buying decision will be ‘low price’” (p. 224). A customer consequently generally has a value chain in mind that consists of a sequence of comparisons that lead (or do not) to a transaction decision. If price, quality or availability is not satisfied then the customer chooses to find an alternative source.

Price in pricing theory is one determinant for transacting behaviour. Other mitigating variables also come into play in the customer decision making chain. The concept of ‘price search’ (Jiang, 2002) is used as a generalised term for the customer decision making chain and provides explanatory power for the interaction of variables. “According to traditional microeconomic theory, the expected costs and benefits of price search should guide consumers’ search efforts irrespective of the price of the item to be purchased” (p. 187). The case Jiang puts is that the determination of any number of factors that may be causally related to customer transaction will always be an incomplete set. Hence transaction may be both a dependent and an independent variable depending on how the research design is constructed. However the intent of most research is to make transaction a dependent variable so that customer action may be predicted.

Price searching customer behaviour may be conditioned by coupling the business knowledge of a customer (for example tracking online behaviour, previous transacting behaviour and so on) with the good or service (the treat). The state of familiarity or comfort with transacting benefits the customer and mitigates the price searching motivation. "... when customers become familiar and comfortable with a shopping site, their incentive to shift to other sites for a lower price is reduced" (p. 188). The contemporary theory of pricing for online shopping (see Section 2.4 for pricing strategies) centres the customer in preference to other abstractions and emphasises the interaction of variables that create the transaction effect. Non price attributes of a good or services provide the condition in which a customer is more concerned about value (based on a basket of attributes) and strength of relationship with a brand.

### ***2.3.2 Customer Decision-making***

The decision making chain a customer uses to justify transacting has been introduced and discussed in the preceding sub sections. The decision making chain is complex and is generally modelled by the interaction of variables and effect mitigation. The choice of channel ("...consumers choose the shopping channel which they perceive to be least costly" (Soopramanien, et al., 2007, p. 2160)) and the choice to transact or not to transact (Allred, 2006) are researched and reported in a growing literature of online shopping studies. Customer judgements are affected by many interacting variables. The literature on trust and security (see Section 2.5) suggests that various positive customer perceptions (eg. of security assurances) sum to greater trust and motivation to transact. However negative customer perceptions have a far greater weighting and immediate impact on a decision not to transact. The provision of online help, purchaser safe guards, returns policies, social interaction and feedback blogs all build the context for customer transaction decision.

As understanding of the interaction and effects model for online customer management and the related decision making searching has grown the affects of symbolic representation are relatively unchanged. Xia (2003) for example investigated the affects of the numerical representation of price on samples of online

and off line customers. The impact of price representation on customers generalised across both shopping contexts. Shoppers tended to have a mental map that contained anchor points for number. Numbers were stored as exact amounts or as generalisation – usually to the next ‘round’ number. The mental representation of number was associated with prior judgements and expectations for value. “...price has specific characteristics such as interpretation and encoding of expensive or cheap, or association with product quality” (Xia, 2003, p. 275). Customer decision making hence is embedded in a complex web of beliefs and expectations that require best recognition in the symbolic and contextual presentation online. The use of \$5.99 as a symbolic representation of a bargain price only has worth in context and relative to price search motivations.

### ***2.3.3 Price Partitions***

Price partitioning on the internet is a strategy and a tactic that is easy to do and effective in the medium (Xia and Monroe, 2004). This means that an online shop can host a basic price for a good or service but then partition the overall cost to the customer into layers that reflect the tax component, the transportation cost, a booking fee for service, the credit card cost and so on. In this way the product is a basic stand alone price that can be competitively positioned and the other service costs can be presented as options at each step of the payment process. Xia and Monroe (2004) present research that shows that “appropriate” price partitioning “enhances consumers’ purchase intentions, perceived value, and price satisfaction, and further reduce information search intentions (p. 63). The limit on price partitioning is the extent to which the customer will absorb information and to accept a raft of layered charges. More is not better in this instance.

Price partitioning in online shopping may be managed in several ways. Most customers do not expect to pay shipping and handling charges in physical shops for small items. However online stores are generally remote in location and all items incur a shipping cost. Similarly many online stores are simply aggregators and hold no stock but rather act on behalf of suppliers. In this case the aggregator has to charge a fee that may be added to the customer charge or to the supplier as a commission or

to both parties. Many online shops outsource most of the services associated with physical shops. These services may range from financial fees to handling, information processing, packing, and so on. As a consequence the cost to an online customer may be partitioned but only to the extent that the customer expectation is satisfied. Most accept shipping charges are required and small booking fees are usually expected for services such as accommodation or travel.

Management tactics can be managed in several ways. Often the base price is promoted so that in online search motivation the opportunity comes up competitively and the other costs are partitioned. Another approach is to offer free shipping but build the cost into the base price. Similarly the partitioning of price allows the same good or service to be promoted in different ways by different aggregators and hence exposing the treat to the largest audience. Partitioning of price in online shopping is easy to do and offers many variations for the seller. Xia and Monroe (2004) describe a ‘U effect’ that occurs when the number of layers in a partition increases beyond customer expectations. “Thus when a total price is over partitioned, it provides less advantage to the seller as compared to when the multiple surcharges are combined into one larger charge.” (p. 64). It was also noted that the benefit of clear and simple price partitioning on a web site was perceived as honesty and enhanced the trust that a customer could put in a transaction.

#### ***2.3.4 Buying Motivations***

In Section 2.2 the concept of search motivation was discussed in detail. The action of searching in online shopping was seen as a natural behaviour of online customers. Sellers had to accept the behaviour and to develop strategy and tactics to limit search and to capture transactions using a basket of interacting factors. Raghurir (2005) adds to the understanding of online transaction behaviour by researching customer perception of bundled treats and the affect of free treats. Bundling offers many options for the seller to balance costs and appeal to customer perceived benefits. In addition the use of a “free” item or service in a bundle allows market exposure and conditioning to new products and services. For example many new perfumes,

software applications, and so on are offered free with the purchase of another (usually established) product or service.

Raghubir's research shows that it is often difficult to sell a "free" good or service after the free period expires. Consequently price promotion must be viewed as having both an economic and an informational effect. Hence the customer motivation to transact on a good or service is set during a promotion and the expectation of "free" goods or services has to be carefully managed within the product / service lifecycle. "...the presence of a promotional offer could actually backfire and lead to a reduced choice of probabilities as compared to the absence of the promotional offer. ... being offered as free gift can cheapen the brand itself." (p. 127).

### ***2.3.5 The Cues of Shopping***

The relationship between price as a cue for shopping and customer patronage was investigated by Moore & Carpener (2006). Price was reported to be "central to consumer behaviour" (p. 266) as it is present in all purchasing situations. Price was a driver for customer choice and a motivation for transactions. Price had maximum impact as a driver when it was low but remained a search motivation regardless of store price. If a price was unsatisfying in the customers' perception then the search behaviour would continue and usually by movement through the differentiation of product / service range or change to another site. In the literature reviewed by Moore & Carpener (2006) price was depicted as a pure monetary cost that the customer would interpret in terms of a prior mental map of comparative values. The customer however would learn or adjust the mental map (by adding anchor points or updating references) as the result of site interaction and promotions.

Online shopping relies to some extent on marketing mix to attract customers into buying experiences. Reference prices are one such entry point for online shopping. Many goods and services are offered at a cheaper price online than through physical stores. For example travel, banking, or download services. Customers use price as a cue in a positive and negative senses. The positive is often associated with low or quality (ie. can be high price) and the negative with preference for shops that have or promote low price. Customers driven by the positive or negative cues will

generally not transact in shops that signal the opposite cue. The Moore & Carpener (2006) research identified four price cue factors, namely, price consciousness, prestige sensitivity, the price/quality schema, and sale proneness (p. 268). Each cue has a positive and a negative variant and a variety of associated constructs that may be empirically tested. The study conclusion suggested that a shop must align all the functional strategies (including pricing when being used as a patronage driver) for consistency of cuing for customers.

## **2.4 Pricing Strategy**

Pricing strategy is a functional strategy that requires consistency with other functional strategies such as the promotion strategy, brand strategy, merchandising strategy and so on. Together the functional strategies substantiate the business strategy document. In this sense pricing strategy exists in alignment with (and not in isolation from) the business strategy. Pricing in online shopping is often set by the customer and the relative influences can impact on price setting more rapidly and across greater intensities of time (Jap & Naik, 2004). The auction strategy is often used and the price strategies of physical shops are often ineffective or turn rapidly against the physical shop pricing metrics. In part the online shopping medium defies the controls and in particular the time units available to a physical shop manager. The doors of an online shop are continually open over all time units and opened into a global market. Consequently interesting variations are found in pricing when customers have the power to set prices. For example, Priceline.com where customers name their price or trademe.co.nz where “quasi-endowment and opponent effects” (Jap & Naik, 2004, p. 5) set prices.

The following sub sections three elements in online pricing strategy are reviewed. In Sub Section 2.4.1 the concern of pricing effects online is discussed. As noted by Jap & Naik (2004) online shopping has defied predictions that traditional pricing models will remain consistent in the new medium. Sub Section 2.4.2 raises again the question of online shopping benefits and adds insight into customer reactions to pricing strategies. In sub Section 2.4.3 fixed and discounted price strategies are investigated in the online shopping context.

### ***2.4.1 Pricing Effects***

Pricing effects have an internal and an external reference point relative to the customer. This means that a customer has a perception of price that is related to what the marketer says and another for which they associate with a product or service. Research by Hardesty and Suter (2005) investigated perceptual price differences in different contexts. The two contexts of interest were online shopping and physical shops. They concluded that customers expect online prices to be lower than physical shops. The reasons given for the perception were that the “apparent supply of goods to consumers” had increased online, “price substitutes” are easily found online, and that online shops have “lower overheads” and hence the customers expected the benefits to be passed on (p. 130). These internal expectations for online shopping prices are likely to be disappointed by the external reference prices sellers place online. The difference between the expectations of both buyers and sellers can be accounted for in customer online search motivation and seller pricing strategy.

A study by Xiang & Tang (2004) compared the pricing effects of shops that were purely (only) online to those that also had a physical store. It was found that no significant pricing differences occurred between the two types of online shop. The finding contradicted other findings (see Section 2.3 reviews) but was justified by the type of online shop in the sample. Several of the non online only shops were large multi channel enterprises that had the capacity to purchase in bulk and hence keep prices down. This was a point missed in previous studies that had different samples and online shops that traded different goods and services. Pricing effects hence vary according the specific nature of the product or service, and in different markets.

### ***2.4.2 Customer Behaviour***

A consideration in setting pricing strategy is customer push back and customer learning. In research done by Hardesty, et al. (2007) the tactical implications of pricing strategy were investigated. It was found that consumers have knowledge of sellers’ pricing strategy and tactics, and that they use this knowledge to assess the relative value of price. “... knowledge regarding selling tactics of marketers can influence consumer responses to market stimuli such as prices, price presentation,



and price advertising. ... consumers often make inferences about seller behaviour regarding price promotions, and that long-term patterns of price promotions can affect consumer learning” (p. 199). The research used a construct termed ‘tactic persuasion knowledge’ as an indicator of customer awareness of seller price tactics. The result showed that tactic persuasion knowledge is a market place dynamic that is a moderating variable for price. Some customers have the knowledge and others do not. As a result different customer behaviours are apparent.

In addition the behaviour of customers with tactic persuasion knowledge had more predictable online behaviour. These customers were less prone to the affect of persuasion but consistently acted in accordance with search motivation theory and standard customer profile behaviour (see Section 2.2). Push back on pricing tactics creates its own dynamic in the market place and a segment of customers that are transaction valuable to the seller. The recommendation is that consumer or customer knowledge should be treated as a “competency” and the consequence is that customers with lower levels of tactic persuasion knowledge will be more responsive to claims and offers and often make decisions in the sellers’ interest. This conclusion has public policy implications. “...if knowledge differences affect consumer acquisition, comprehension, and interpretation of price tactics, it might be necessary to limit misleading impressions” (p. 207). Legal and ethical frameworks also act as moderating variables for price and the customer interpretation of value.

### ***2.4.3 Fixed & Discount Price***

The use of price as a competitive advantage has a profound impact on a business and requires alignment with all other strategies. Pricing can be fixed or discounted and both are tactical ploys for gaining customer transaction. Suri et al. (2002) undertook research to assess the effectiveness of each tactic and concluded that fixed price elicits more positive thoughts in the customer and a stronger positive effect (p.160). The flow on effect of customer positivity was that they spent less time assessing price and more time considering quality and value. The fixed price tended to minimise the importance of price and sent signals related to other contextual attributes. The lack of

information processing in a fixed price tactic also benefited customers who were reluctant to evaluate all the pros and cons of a discount tactic.

The use of discount price as a tactical ploy suffered from customer resistance. Customers tended not to believe the discount was a 'real' discount and knowing that discounts would come up regularly tended to hold off transacting until the discount was available. The uncertainty a discount price was a best offer also led to search motivations, and competitor comparisons. In addition a discount price heightened customer suspicion that there may be a quality fault and hence the customer tended to do more price search and quality inspection compared with a fixed price (p. 168). The study filtered brand effects that had a mitigating effect on tactic difference but did not neutralise price sensitivity.

## **2.5 Trust & Security**

Trust is a key concept in the in business transactions and a critical contributor to growth in online shopping. It has been argued that trust in online shopping has a negative factor weighting and that it is the single most important factor for increased transacting (Harridge-March, 2006). McCole & Palmer (2002) state that, "the primary barrier to the successful commercial development of the Internet is the current lack of consumer trust in this new commercial medium" (p. 35). These views are repeated throughout the literature and much research effort has gone into evaluating, understanding, and developing strategies for developing trust. A factor related to trust, security, has been researched. The literature shows a strong positive relationship between trust and security. Security in this sense is customer perception of security and a secure environment in which to transact.

Arnold et al. (2007) notes that "a large majority of online users hesitate when giving out personal information to online retailers regardless of their level of familiarity with the retailer – with perceived lack of safety in online shopping reported as the top reason for not shopping electronically" (p. 299). The perception of risk is heighten in the online shopping context and brand loyalty studies show that it is the medium and not the brand that online customers do not trust. Research by McCole & Palmer (2002) moderates the actual risk to customers and they state that,

“consumer’s perceptions of trustworthiness of the Internet may be at variance with reality. ... research would suggest that mistrust in the internet might be based on respondent’s lack of familiarity with the medium” (p. 44).

Research has moved towards identifying strategies and tactics that manage customer perceptions of online shopping. The aim is to restore to customers levels of trust experienced in physical shops. Some of these works have been reviewed in Section 2.4 and the recently adopted concept of “playfulness” introduced in Section 1.1. Arnold et al. (2007) created a typology of assurances a customer looks for when shopping on the Internet. Principally a customer requires signals of authenticity that a business and the web site are who they say they are. Secondly transactional and fulfilment integrity is expected. Privacy and security are expected and some insurance against such losses is required. Fourthly the customer expects some recourse if they are dissatisfied with the shopping experience, and finally there is an expectation that the formal procedures (& customer rights) are disclosed on the site. Together these customer assurances form a typology of mitigation for customer perceived risks.

A variety of trust building strategies has been assessed (Lim et al., 2006, Section 2.3). Generally it is accepted that the number of satisfying interactions a customer has with an online shop indicates an increase in trust and transaction levels. “Consumers tend to use intuitive judgement to decide whether or not something is risky, which may be affected by previous experiences, the level of involvement, or the price of purchase.” (Harridge-March, 2006, p. 747). Negative occurrences (as discussed in Section 2.3), such as fraud, information hacking, seller spam mail and so on, far out weight positive occurrences in the customer risk assessment. A negative occurrence triggers search motivation and often puts a complete stop of transaction interaction on the particular online shop and the attitude is generalised across the entire online medium. Fear heightens perceived risks and drives out trust.

Security of online shops is usually defined in the context of information protection. Information is the key asset of an online shop as all of the customer interaction occurs through the exchange and transaction of information. “Security is defined as the protection of data against accidental or intentional disclosure to unauthorised persons, or unauthorised modifications or destruction. Privacy refers to

the rights of individuals and organisations to determine for themselves when, how and to what extent information about them is to be transmitted to others” (Udo, 2001, p. 165). Customer perception of these elements of security and privacy are critical in online shopping transaction. “Security concern is one of the main reasons Web users give for not purchasing over the Web... the barrier to shopping on the Internet is relatively high.” (p. 166).

## **2.6 Conclusions**

One of the key concepts for online shopping is that of online search motivation. In the literature reviewed above this motivation is a driving force for online customers to be online in the first place and then to make choices between treats. The scope of online shopping has been defined and the discussion of relevant issues made. In the following chapter further literature will be reviewed to look specifically at research methodologies that other people have used to research online shopping. It will then be possible to define the problem area, the research question, an initial model for testing, hypotheses and a methodology to answer the research question.

## **Chapter 3**

### **Research Methodology**

#### **3.1 Introduction**

In Chapter 2 the relevant literature was reviewed to identify an initial model that has the potential to relate the three factors of interest. Trust, security and price are the factors that take the highest priority in the literature. The relationship between the three factors is a more difficult problem to solve. It appears that all three are inter-related but that the strength of relationship is uncertain and the direction of relationship is not clear from the literature reviewed. Consequently the initial model is a conjecture that may (or may not) be confirmed by empirical investigation. The research is hence narrowed to the testing of this model.

The model (see Figure 3.1) presents Trust and Security as two constructs and it is hypothesised that there is a path to Price as a mediating variable. It is proposed to test this model on a sample of online eBusiness users by surveying their responses to sets of prepared questions. The questionnaire is to be administered online and the participants are to remain anonymous, in keeping with the ethics approval. Structural equation modelling method is chosen as the appropriate methodology to guide the data analysis and to provide guidance as to the relevancy of the initial model.

In this chapter, the initial model is prepared for testing. To identify the appropriate research methodology for the study, a review of methodologies used in similar studies is presented in Section 3.2. Based on the analysis of these studies, the preferred research design is elaborated in Section 3.3. The questions and hypotheses are then presented, followed by a specification of the data requirements (Sections 3.4 and 3.5 respectively). Sections 3.6 and 3.7 discuss the limitations of the methodology and the conclusions of this chapter.

#### **3.2 Review of Similar Studies**

Five studies are now reviewed to report how other researchers have elaborated and explained their chosen methodologies. The first concerns identifying key factors affecting consumer online purchase behaviour. It uses survey and quantitative

modelling to test hypothesis. The second addresses the relationship between frequency of online shopping and trust. It used questions benchmarked from other studies and secondary data from online sales. The third study is an empirical study that looks at the relationship between trust and purchasing behaviour. The fourth links consumer perceptions of privacy and security to online shopping behaviour. It used interviewers to engage a random sample of online shoppers and to record the responses to set of prepared questions. The final study considered the relationship between price search cost reduction and online purchasing behaviour. A model was proposed and survey data collected for model testing.

### ***3.2.1 Identifying Key Factors***

Key factors in online shopping behaviour were identified in by Park and Kim (2003) in their study of the characteristics of online shopping and consumer purchase behaviour. A sample of 602 customers was taken from Korean online book stores by constructing a survey site and providing a hyperlink from a random sample of book stores. The participants in the survey were given purchasing and discount coupons for books as an incentive. It was found that the online customer behaviour was significantly affected by the product and service information quality, user interface quality, and security perception.

A complex initial research model was proposed where five attributes of the online site were defined from a literature search and then hypotheses generated. The hypotheses were generated with respect to an asserted relationship to customer satisfaction (in two components). It was then further asserted that customer satisfaction would lead to site commitment or repeat business, and that in turn purchasing behaviours may be identified. The researchers formulated an online questionnaire to survey customers in the random sample. It was a multiple item design that had a five point Likert scale. Validation was done by running a pilot study with 67 online customers and taking convergent and discriminant metrics. Two factor analysis were used to identify cross-construct loadings and to identify dependant variable distinctions respectively.  $R^2$  and F tests were used to test hypothesis. The

results were then presented in tabulated form and placed in the text and also in an appendix.

### ***3.2.2 Trust in Internet Buying***

The impact of transaction frequency and consumer trust was investigated (McCole & Palmer, 2002) in a multi-dimensional study. The researchers used focus groups to develop and refine questions and then these questions were put into a survey. 470 respondents provided completed survey forms by both post and a website. Item scales from previous research published by other researchers were used to start the focus group sessions and to test the relevancy of the sample and the power of indicators used in previous studies. The research carefully detailed the preparation and testing of questionnaires, their reliability tests and validity claims. The researchers also reported developing their own data processing processes and computer support tools. They extended previously reviewed research by adding their own indicators (for example, loyalty, p. 38) and mixed and merged factors from other studies. In this way they developed their own methodology to best suit the research question.

The result of the particular approach to doing the research was the ability to get new explanation of previously reported online customer behaviour and to get conclusions that were novel. For example the concept of mis-trust was explored and the conclusion that the medium may have much to answer for in online purchasing behaviour reached. The mixing of qualitative and quantitative methods was also instructive as most studies only choose one approach.

### ***3.2.3 Trust and Buying Behaviour***

The study by Lim et.al. (2006) extended research on trust and online buying behaviour by testing two trust building strategies. Importantly the study tested whether trust affects online customer's willingness to buy. The researchers developed a theory based model from literature that they attempted to validate (confirm) by collecting survey responses from an opportunity sample of online shoppers. A similar strategy to that developed by Park & Kim (2003) was used to collect data where an offer was made to participate in an online survey to eshoppers at an online bookshop.

The participants then responded to online questions that had been validated by a sequence of expert and pilot reliability tests.

Prior to the online survey a laboratory experiment was used to test the theoretical model. The experiment involved sets of students who were observed and questioned while doing a simulation of online purchasing. The purpose of the research was to understand two different strategies that had arisen from the literature search – one that grew trust by endorsement and the other by affiliation with a brand portal. Hence the students in the simulations were exposed to the two strategies and the data tabulated. In this way the researchers created two independent sets of data and then were able to compare the two and make conclusions. This is another interesting approach where several methods are mixed to arrive at a result.

#### ***3.2.4 Customer Perception of Security and Privacy***

The factors of security and privacy perception appear in the literature of online customer purchasing behaviour frequently. Miyazaki & Fernandez (2001) identify privacy and security as major obstacles in the growth of eBusiness and eCommerce. They explore risk perceptions in new and repeat online customers and conclude that risk perception is an inhibitor for online purchasing in new and experienced online shoppers. The method employed relies heavily on the critical appraisal of literature and the development of testable hypothesis.

The data collection was achieved by recording responses to questions on a sheet of paper. Two expert interviewers were employed to ask potential respondents at an international airport three questions. The first question was to screen non online shoppers and the remainder to understand their habits and concerns. The initial responses were recorded freehand and then a set of sub questions based on a seven point Likert scale filled in by the interviewee. 158 completed forms were analysed. A near equal balance of male and female respondents was gained and an age spread from 15 to 75 years. The interviewers attempted to get a demographic sample that would represent a general population of internet users. Analysis proceeded by categorising responses with respect to online shopper's risk concerns. Three theme



categories were found that prioritised security, privacy and inconvenience. Hypotheses were tested by using the F statistic,  $R^2$  and chi-squared test.

### **3.2.5 Price Search Behaviour**

Online customers often use the internet to compare prices and to compare different price opportunities on the web. Jiang (2002) developed a conceptual (initial) model to test online buying behaviour, and a set of propositions to explain the main factors influencing online price search. The research was managed by an initial literature review that identified a set of explanatory propositions. These propositions were structured into an initial model that could be tested empirically. The model consisted of nine constructs that accounted for the online customer drivers located in the literature review. These constructs were then theorised to have a path relation to perceived benefits, motivations, and efficiency (convenience). The meta value of the model was price search.

The paper is an interesting one as there is no report of field research or engaging online shoppers to collect data. It is a purely theoretical work but it manages to clarify many confused and difficult relationships in the area of online shopping. The explanatory power that is gained in this approach allows a researcher to see the important relationships between different entities in the research field and business processes. The exploratory area is that of customer perception so that the main contribution of this research is to locate researchable propositions that may in turn be turned into hypotheses. The conceptual model also has the potential for empirical testing.

## **3.3 Research Design**

The five studies reviewed in the preceding sub sections have introduced a range of ways others have addressed the issues of online shopping and the price factor. The five studies also show that much of what is done in terms of methodology is selected and created by the researchers themselves. This suggests that a major contribution to research is the methodology itself. The different approaches chosen by the researchers reviewed above demonstrates that no one approached is preferred over

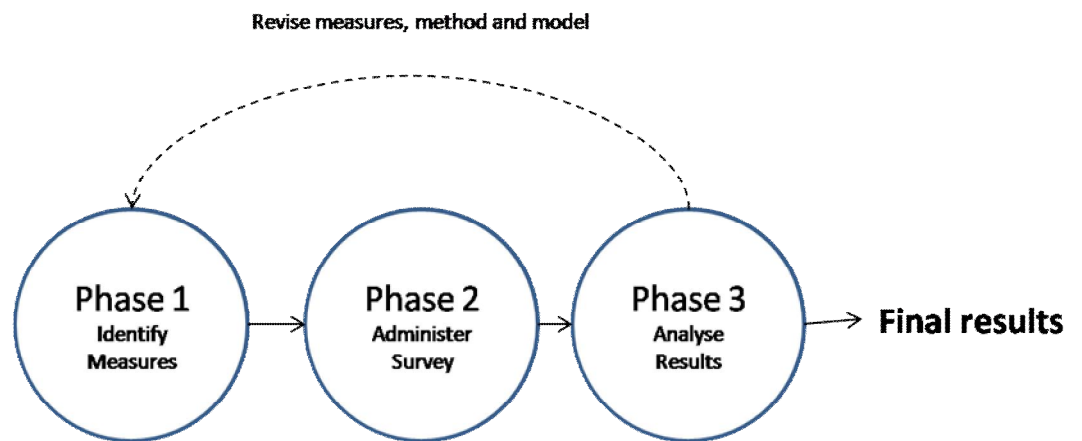
others in the IS world. However, the research designs all have similarities and systematic ways of proceeding through the steps of answering questions and reporting outcomes. For example most researchers build an initial model that represents an abstraction from data and is testable. They also identify the main entities, properties (& attributes) and relationships in the area of interest. Some are selected for investigation usually based on available resources or the necessity to differentiate from other published works.

The time resource available for this study is very limited and hence the scope and content of the study have to be reduced to the minimum to meet the completion deadline. As a consequence I shall adopt best practice from the five published research articles reviewed above. Each article starts with a literature review that identifies the problem area and research question. This will then be my starting point.

In study one (sub section 3.2.1) incentives were given to participants to respond. I do not want to do this on account of cost and also some participants may make up the responses just to get the incentive. The model was however a good idea and I shall aim to start with a simpler but testable set of constructs and relationships. Hypothesis can be generated in a similar fashion from a hypothesised model. In study two (sub section 3.2.2) the effort and resources put into generating the questionnaire are far more than I have available. The questionnaire is an easy instrument to use but my one will have to compromise reliability against cost. This will also limit the extent data can be explored and the evidence available for each question. In study three (sub section 3.2.3) the resources available to the researchers are again far greater than available for this study and the limitations on my work are the same as for study two. In study four (sub section 3.2.4) the asking of questions is the foundation of the study and worth adopting. More importantly the developing of propositions and hypotheses from literature is a strong point to be adopted. In the final study the cycle of literature search, model and hypothesis development is demonstrated.

My intention then is to follow the established paths for doing field research but within the resource constraints. This means that the literature review is to be completed first (see Chapter 2), and model developed (see section 3.4) with the

associated hypothesis. The model will be operationalised by developing a survey instrument (a questionnaire) and then a survey done on a random sample of online shoppers (sample size as per power function of 80%). In Figure 3.1 the research sequence and design is specified. It shows a sequence of process steps for the researcher to follow to achieve the overall effect.



**Figure 3.1 : Research Design**

### **3.4 Research Model**

The review of literature in Chapter 2 leads to a number of alternative models that may be theorised in regard to the price variable and online customer behaviour. The limitation on my study is resource availability. I cannot do what many of the experienced researchers demonstrate because of the time and finance restraints on a 14 week dissertation. Consequently I intend to select the two highest ranked factors from the literature that are related to online shopping motivations to buy and then to use a confirmation approach to testing. A confirmation approach will either leave my model accepted or rejected and if accepted both metric and path models will be available to guide future research.

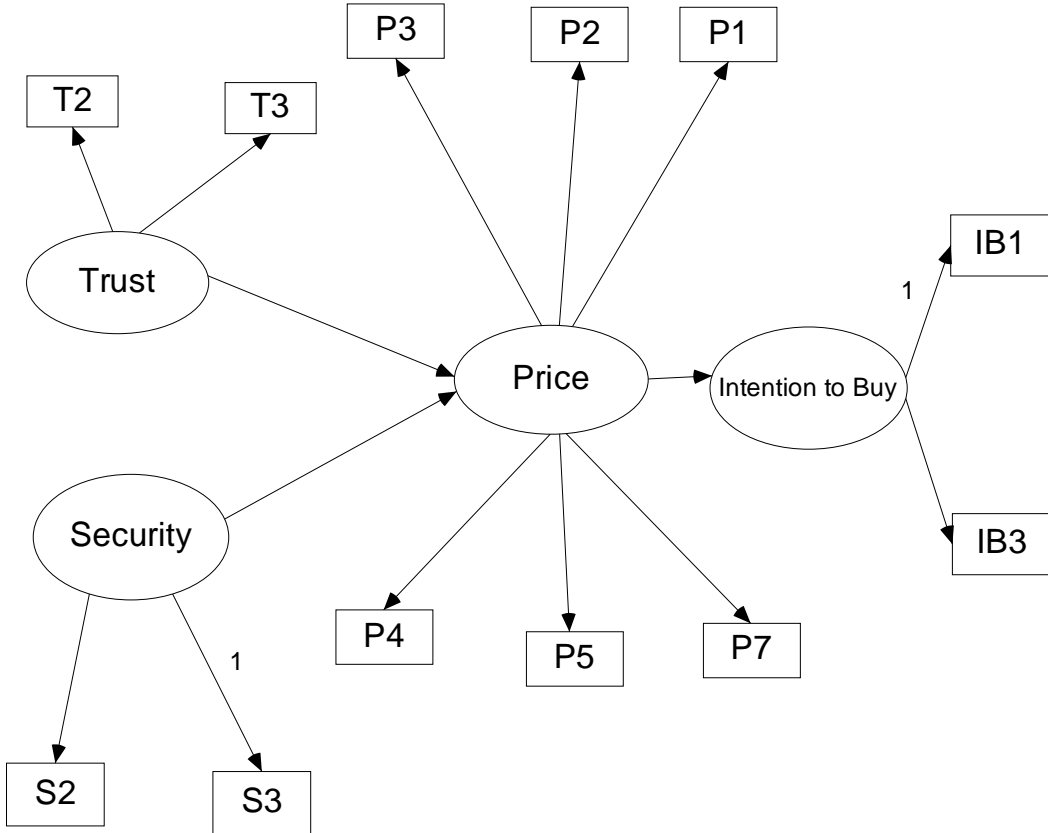
The research question is:

**Is Price a motivation to buy online?**

The question addresses the need to identify factors and drivers for online shopping behaviour and it takes the shopper as the subject. The question is deliberately framed

with an “is” rather than a “what” that would refer to a specific relationship. The subject of interest is the shopper and the motivation for buying.

A selection of factors identified in Chapter 2 places ‘Trust’, ‘Security’, and ‘Convenience’ as the factors with the highest weighting in relation to buyer behaviour. For this study I want to limit the data collection time and the data processing quantity so that the dissertation can be finished within the time resource. To do this the top two factors are to be selected knowing full well that there are others of importance. Hence Trust and Security will be taken to be constructs that relate to price. I hypothesise that Price is a mediating element in online shopping behaviour. My initial simplified model for testing is in Figure 3.2. The purpose of this initial model is to assert a set of relationships that are consistent with the literature reviewed but also researchable within the available resources.



**Figure 3.2 : The Initial Research Model**

In Chapter 2, it was noted that security mechanisms positively affect perception of security and perception of security positively affects trust. From this we note that security mechanisms are the independent variables in the relationship while perception and trust are the dependent variables. The final model capturing the relationships is presented in Figure 3.2. The main research question in this study is: Is Price a motivation to buy online?

A set of sub questions were also developed from the literature, namely:

What is the impact of Trust on online buying?

What is the impact of Security on online buying?

What is the impact of Price on online buying?

Do Trust and Security affect customer intention to buy online?

Does Price have a strong relationship with Trust and Security or is it independent?

(see Figure 3.3 for the Data Map)

The hypotheses for these relationships are as follows:

*H<sub>1</sub>: The perception of security well-being positively affects an online customer's motivation to buy.*

The alternative hypothesis for this would be:

*H<sub>0</sub>: The perception of security well-being negatively affects an online customer's motivation to buy.*

The second hypothesis in the model is:

*H<sub>2</sub>: The perception of trust well-being positively affects an online customer's motivation to buy.*

The alternative hypothesis for this would be:

*H<sub>0</sub>: The perception of trust well-being negatively affects an online customer's motivation to buy.*

The model also allows for non-mediated relationships between Trust and Intention to Buy, and Security and Intention to Buy. These relationships do not require hypotheses but will be established (or otherwise) in the data analysis.

### **3.5 Data Requirements**

To test the hypotheses data is to be collected using a survey instrument, namely an online questionnaire (See Appendix A). In the first stage, information related to price, security and trust was collected from prior published literature. A questionnaire was developed by breaking the main question into sub questions relating to each of the constructs Trust, Security and Price. These sub questions were then further refined by developing sets (5 sets of 5 in number) of questions that would be suitable for asking business people. The questions for the questionnaire were developed so that the internal reliability of each question could be tested against the Cronbach Alpher value of >70%. The sets of questions were stratified and then randomised within the questionnaire. In addition a text box was also provided for open feedback from respondents.

The pilot study is defined in Section 3.5.1 followed by the definition of the sample size, participants and recruitments process in the next section. The data collection methods including the questionnaire design and the methods used to process this data are included in Sections 3.5.3 and 3.5.4 respectively. Lastly, the data analysis techniques are defined in last Section 3.5.5.

#### ***3.5.1 Pilot Study***

Pilot studies are used by researchers as a method of reviewing and refining the data collection instrument. Any conceptual or communication problem can then be identified and corrected before exposing the instrument to the sample. In this study time will prevent a full pilot study and an expert sample will be used with 5 – 8 experts.

#### ***3.5.2 Sample***

A random sample of business people were invited from an initial sample across industries and industry roles in the Auckland area. 210 email requests were sent out. To add to the diversity and the anonymous nature of the sample a viral approach was also used. This meant that each respondent was asked to invite three other respondents from the business community. The result was that 158 completed

responses were returned from a potential sample size of approximately 500. According to Hair et al. (1998, p. 13) the best sample size is determined using multivariate techniques such as statistical power analysis. A graph of power versus sample size for different significance levels ( $\alpha$  - value) determines the best trade-off of values and in this instance a power of 80%, significance level of 0.05%, and a sample size of 130 participants is considered ideal based on this graph.

### ***3.5.3 Data Collection Methods***

Data is to be collected using an online questionnaire. The questionnaire was hosted on a 'Feedback server' that stored responses in a data base. The data could readily be migrated into a range of data formats and SPSS formatting was chosen.

### ***3.5.4 Data Processing Methods***

The data stored in SPSS format is to be imported into SPSS and also to AMOS. SPSS provides a full set of data analysis tools and AMOS has the visualisation tools for structural equation modelling. The data is to be processed by first assuring that the data is correctly stacked in SPSS. From this starting position the data is to be checked for accuracy by frequency testing that checks for missing, extra or erroneous data. No other data processing is required as the integrity and usability of data can be assured with these checks.

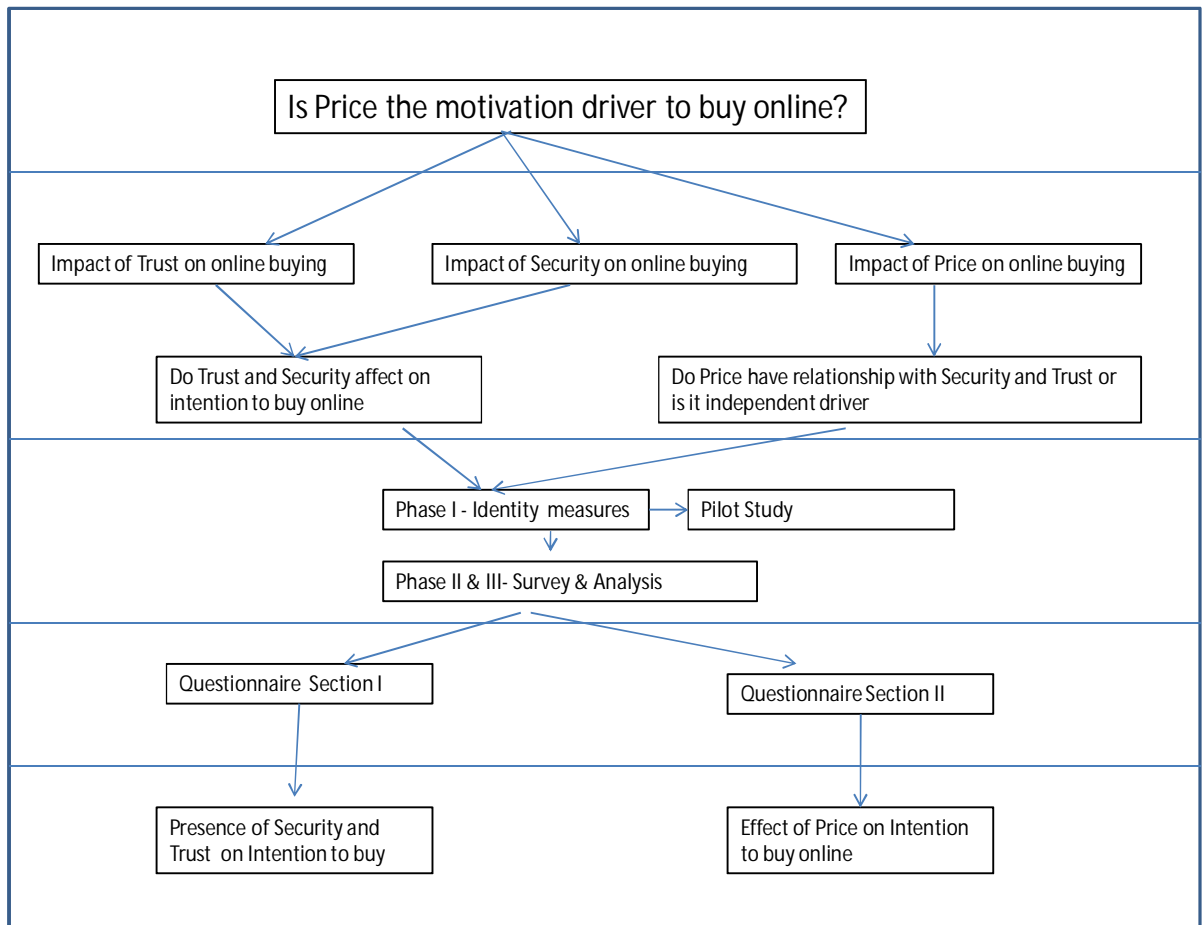
### ***3.5.5 Data Analysis Methods***

The data is to be analysed by following the steps for structural equation modelling confirmation (SEM). First the data is to be checked for normality and the data can be edited at this point. Outliers and aberrant (exception) data can be edited from the sample set. The edited data can still provide useful insight into the business processes but in order to proceed with a SEM approach the sample data set is to be normal.

Secondly, SEM analysis proceeds in phases. According to Hare et al. (1998, p. 602) once the initial model is established metrics are to be chosen (for example Cronbach Alpha > 70%, and so on), the parameters estimated, the model defined by best-fit indices, the path model by selected fit indices, and the over all result assessed

by comparing the initial model with the data model results. Software assists the computational aspect of data analysis. SPSS prints out the tabulated data forms and AMOS provides the visual models that are produced from the data.

Structured equation modelling enables generalised conclusions to be drawn about a population from a smaller representative sample and is used to test relationships based on hypotheses generated from the initial model. The method allows the comparison of theory with data and the learning that comes from the differences. Confirmation allows for the declaration of errors and the acceptance or rejection of the initial proposal within declared margins.



**Figure 3.3 :Data Mapping**



Figure 3.3 shows the mapping of the research questions from the literature into sub questions and then to the set of questions for the research instrument. The linkage to the hypotheses and the model are found at the bottom of the data map.

### **3.6 Limitations of Research**

The research is limited by the scope and the expected resource requirements to do more than what is proposed. A restricted set (2 in number) of constructs were selected from a far greater set in the literature review. Other constructs are possible but the proposed research is limited to two. In addition (See Section 4.4 above) it was asserted that confirmation is the best way (amongst other alternatives) of testing the asserted initial model. Other approached and choices are possible. The proposed sample and sampling methodology also place limitations on the extent to which the findings may be generalised. The pilot study is to be restricted to experts rather than a full pilot so that reliability testing of questions is to occur at the normalisation step of the SEM process. This decision was made to cut the time cost. Overall however the researcher believes that the project has been optimised to get the best performance in the trade-off of many competing values. These are some of the limitations of the chosen research methodology.

### **3.7 Conclusion**

The research model developed in this study is designed to answer an interesting question regarding the motivations of online shoppers. Three hypotheses (plus alternatives) were developed. The testing of further business relationships in the initial model were left to the data analysis tools. It was hypothesised that Trust, Security, and Price all impact positively on the online customer's intention to purchase.

To test the initial model, a systematic methodology was developed that sequenced a series of activities to achieve the research output. Statistical analysis methods were employed to test the data and validate the research model and hypotheses. The following Chapter will now report the findings from the proposed field work.

## **Chapter 4**

### **Report on Field Findings**

#### **4.1 Introduction**

In the previous Chapter 3 the research methodology was specified. In this Chapter the variations from the specification are reported and the findings presented. The steps that the research followed are reported in sequential order and the testing of the research model follows the seven steps that Anderson et al. (1998) defines. The pilot study was restricted to an expert sample on account of the time resource constraint and the modification of items is reported. The survey was administered thru a viral approach and 158 respondents completed the survey. This is better than the minimum response required by the 80% power function specified in Chapter 3.

There were a number of variations in the field to report and to account for the implementation of the research plan. Descriptive reports are also included to cover the demographics and sample responses. This is followed by the core structural equation model (SEM) steps and the testing for validation of the initial model proposed in Chapter 3. The SEM process starts with normality tests of the data and then proceeds through metric fits, parameter estimates, model measures, indices and a judgement regarding confirmation.

#### **4.2 Pilot study**

The full pilot study was not completed on account of the time constraint in this research project. However an expert pilot was conducted with five experts to provide feedback on the questionnaire. There was a 100% response rate. The result was changing of Question 2 to a qualitative scale from an attribute indicator. Also grammatical changes were made to several questions. The final questionnaire had 21 questions and a text box for unstructured feedback.

#### **4.3 Survey Response**

A total of 158 responses were collected from a random sample of business people. The respondents were selected in keeping with the specification in Chapter 3 and no

responses were rejected for incompleteness. The distribution of age groups tended to be in the 18 to 38 years and the majority of respondents had done online shopping before.

The following two sub sections report the particulars of the demographics and online shopping frequencies of the respondents.

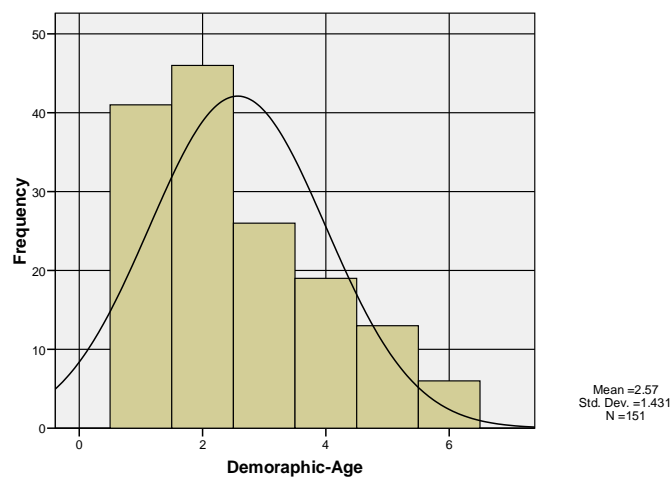
#### 4.3.1 Demographics of Sample

**Demographic-Age**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30	41	27.2	27.2	27.2
	31-35	46	30.5	30.5	57.6
	36-40	26	17.2	17.2	74.8
	41-50	19	12.6	12.6	87.4
	51-60	13	8.6	8.6	96.0
	60 +	6	4.0	4.0	100.0
	Total	151	100.0	100.0	

**Table 4.1 : Demographic -Age**

**Histogram**



**Figure 4.1 : Demographic Age Histogram**

The above graph shows that respondent were mostly from the age group of 20-40 years. The Likert scale points for the age groups in the questionnaire are as follows:

**1. Please select your age?**

- 20-30       31-35       36-40       41-50       51-60       60 +

(See Appendix A)

**Table 4.0: Descriptive statistics**

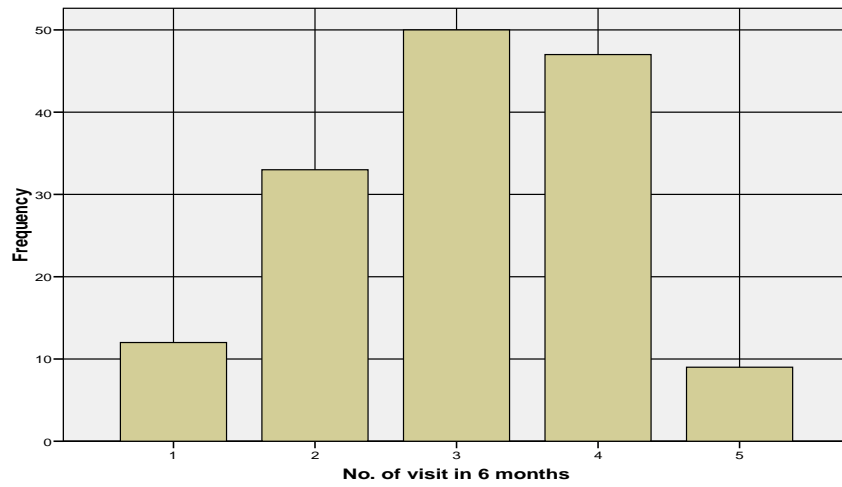
		Percentage
<b>Age Group</b>	20-30	27.2%
	31-35	30.5%
	36-40	17.2 %
	41-50	12.6 %
	51-60	8.6 %
	60+	4%
<b>Number of Visits in 6 months</b>	0-5	7.9%
	6-10	29.8%
	11-15	33.1%
	16-20	31.1%
	20+	6%
<b>Number of visits in past 2 weeks</b>	0	6%
	1-5	12.6%
	6-10	31.1%
	11-15	38.4%
	16-20	11.9%
	20+	0%

**4.3.2 Shopping Frequencies**

The intention to buy was measured by the number of visits respondents made to the shopping website in past 6 months and then in past 2 weeks. The question 5 and 6 (See Appendix A) was asked to understand the number of visits, these were confirmatory questions to understand the number of visit made by respondent online which was interpreted as intention to buy for this research. The below analysis shows clearly that only 7.9 % were the lowest visitor to the site visits, this is important finding showing that 98% respondent are among the moderate to high online shopping visitors.

**No. of visits in 6 months**  
**Table 4.2: Six months visits data**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	12	7.9	7.9	7.9
2	33	21.9	21.9	29.8
3	50	33.1	33.1	62.9
4	47	31.1	31.1	94.0
5	9	6.0	6.0	100.0
Total	151	100.0	100.0	

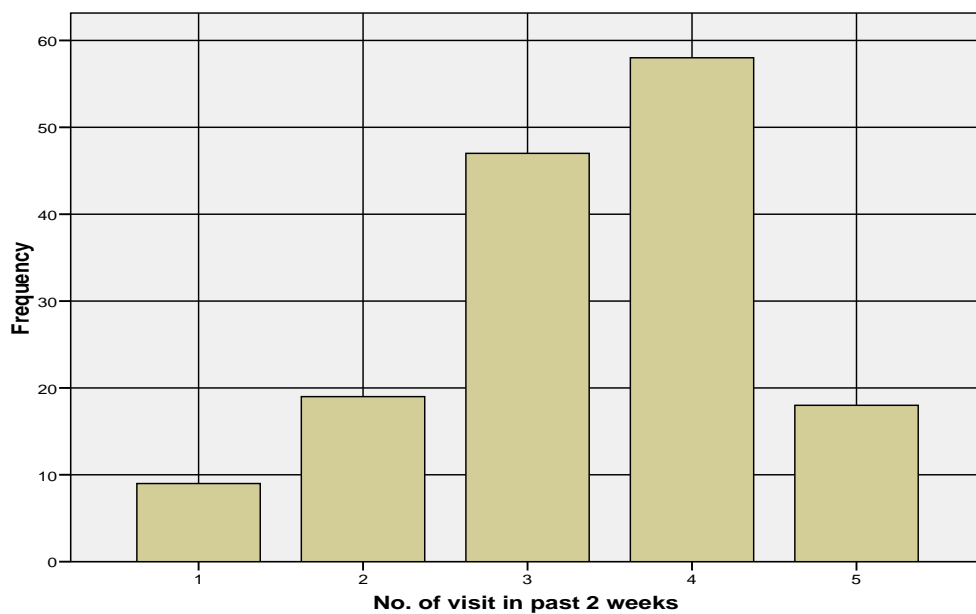


**Figure 4.2: Bar graph of 6 months visit data**

**No. of visits in two weeks**

**Table 4.3: Two weeks visits data**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	9	6.0	6.0	6.0
2	19	12.6	12.6	18.5
3	47	31.1	31.1	49.7
4	58	38.4	38.4	88.1
5	18	11.9	11.9	100.0
Total	151	100.0	100.0	



**Figure 4.3: Bar Graph of 2 weeks visit data**

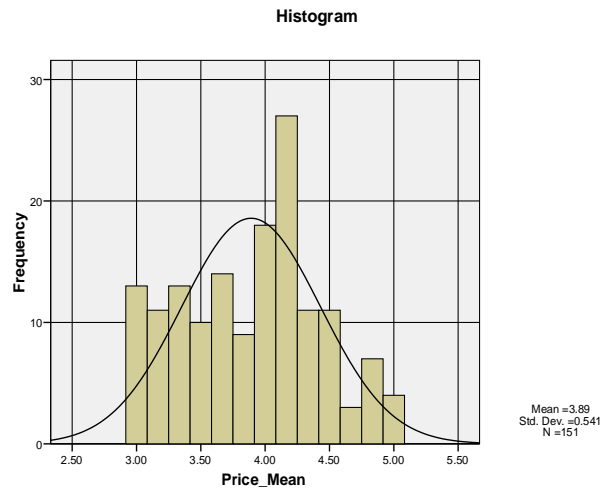
The above data is clear indication of the awareness of people towards online shopping. These results start the basis of understanding the motivation of users for buying online. The above data analysis shows that 92% of the respondents have visited online shops in past two weeks. This is a huge percentage of people and shows the changing culture of people buying online. This study is focused to understand the relationship of price with security and trust which leads to intention to buy. In further section we analyse the affect of these factors and their relationships with each other. The two different questions were asked from the respondent to understand the behaviour of going online. This helped us to confirm the frequency of their visits online which resulted in interpreting these visits as intention to buy.

### 4.3.3 Price

#### Price

Table 4.4: Price data

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3.00	13	8.6	8.6	8.6
	3.17	11	7.3	7.3	15.9
	3.33	13	8.6	8.6	24.5
	3.50	10	6.6	6.6	31.1
	3.67	14	9.3	9.3	40.4
	3.83	9	6.0	6.0	46.4
	4.00	18	11.9	11.9	58.3
	4.17	27	17.9	17.9	76.2
	4.33	11	7.3	7.3	83.4
	4.50	11	7.3	7.3	90.7
	4.67	3	2.0	2.0	92.7
	4.83	7	4.6	4.6	97.4
	5.00	4	2.6	2.6	100.0
Total		151	100.0	100.0	



**Figure 4.4: Price Data histogram**

The research survey asked six different questions to understand the motivation of price in online shopping environment. We took the mean of all the six factors and run a frequency histogram to understand the responses. The above graph gives a clear understanding of the price as a driver for the respondent to visit online shopping website. The data shows that only 8.6% of the respondents could be indecisive as they are in middle of the Likert scale but other 91.2% are above value of 3 and are on positive side of the scale. There were no respondents below the value of 3 which shows that price was a major factor for buying online, confirming the research question. The highest numbers of respondents were on scale of 4, which means that they are motivated by price in order to visit online shopping websites.

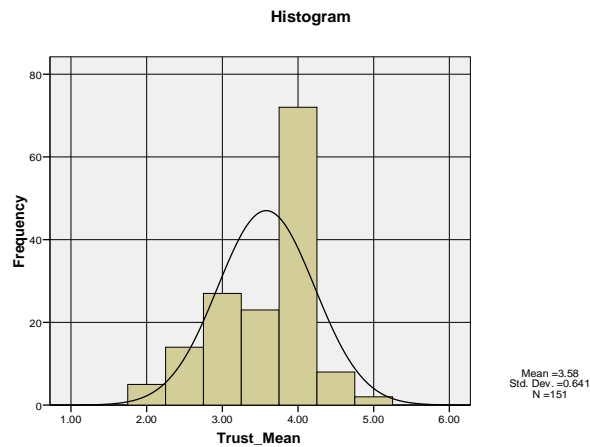
#### **4.3.4 Trust**

The data analysis was conducted on the questions asked on trust. There were two questions asked to understand the impact of trust as motivation factor. The mean of the two questions shows (Table 4.5) that 30.5% rated trust as not an important factor on likert scale. The data shows (Fig. 4.5) the positive affect of trust on the respondent as 70% are in the positive range of the scale. This is important for business to understand the trust is still important for their buyers while buying online.

## Trust

**Table 4.5: Trust Data**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	5	3.3	3.3	3.3
	2.50	14	9.3	9.3	12.6
	3.00	27	17.9	17.9	30.5
	3.50	23	15.2	15.2	45.7
	4.00	72	47.7	47.7	93.4
	4.50	8	5.3	5.3	98.7
	5.00	2	1.3	1.3	100.0
Total		151	100.0	100.0	



**Figure 4.5: Trust Data Histogram**

### **4.3.5 Security**

The data analysis was conducted on the questions asked on security. There were two questions asked to understand the impact of security as motivation factor to buy online. The mean of the two questions shows (Table 4.6) that only 6.6% rated security as not an important factor on Likert scale. The data shows (Fig. 4.6) the positive affect of security on the respondent as 93.4% are in the positive range of the scale. This is important for business to understand the security is an important factor for their buyers while buying online and is more important than trust. This is important finding for the new business opening online which shows that if they have secured website still they can have buyer with low trust level.



## Security

Table 4.6: Security Data

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 2.50	1	.7	.7	.7
3.00	9	6.0	6.0	6.6
3.50	13	8.6	8.6	15.2
4.00	112	74.2	74.2	89.4
4.50	7	4.6	4.6	94.0
5.00	9	6.0	6.0	100.0
Total	151	100.0	100.0	

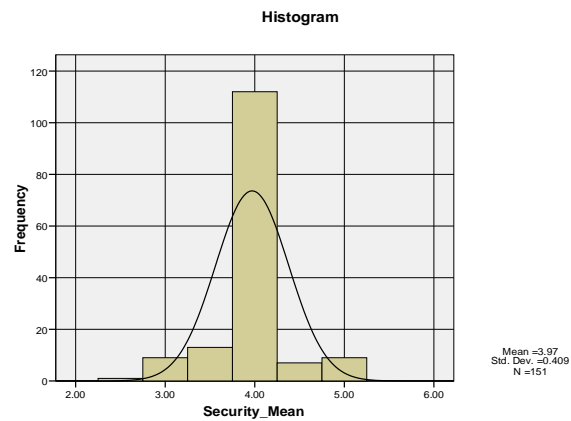


Figure 4.6: Security Data Histogram

The above analysis confirms the affect of trust, security and price positively affect the intention to buy and plays important role in online purchases. The further analysis is carried out to understand the relationship of trust, security and price and their impact on intention to buy.

## 4.4 Field Findings

The model developed in Chapter 3 represents the relationships between different the constructs. This model was validated with SEM using software packages SPSS 15.0 and AMOS 7.0. Before the model was validated, the measurement items of the

questionnaire were studied for reliability and validity. The information related to the data collected and the results of the analysis are discussed in this section.

The descriptive statistics of the participants are presented in section 4.4.1. The initial steps of the SEM technique which include building a theoretical, path, measurement and structural model are explained in Section 4.4.2. This is followed by the specification of the analysis techniques (Section 4.4.3.) and analysis of the measurement items (Section 4.4.4). Analyses of the fit indices are explained in Section 4.4.5 (Overall fit indices), Section 4.4.6 (Measurement Fit indices) and Section 4.4.7 (Structural fit indices)

#### ***4.4.1 Reliability Tests on Responses***

The purpose of reliability testing is to make sure that each class of the section is above .7 on Cronbach Alpha test to make sure that each question is measuring the entity property. Any respondents or questions that reduced the Cronbach Alpha below .7 are investigated and removed. Any data that is removed is explained within the research framework. Given that I have more respondents (158) than as required to meet the minimal of 80% in the power function (138) then the deletion with explanation of data will not affect the power of my survey. Any outlier groups have to be investigated and their business value established. This means that outliers will be rejected from the study but will provide valuable information to the study for business purposes.

To achieve the following Cronbach Alpha values above .7 (Table 4.7) the following data has been deleted. This was done to achieve the reliability and validity of the data. The details of the questions removed are as below:

#### **Deleted Questions**

**Question 18**– I believe that currently most of the online businesses in New Zealand are an extension of the brick and mortar business (researcher). They are not true reflection of online business model and hence do not provide the true benefits of price to the consumers.

**Question 11 & 10**– Reliability test showed a significant behaviour change in perception of respondent towards trust and security. The respondents had different perspective towards New Zealand websites versus website outside New Zealand.

**Table 4.7: Cronbach Alpha Values**

<b>Construct</b>	<b>Cronbach's Alpha (&gt;0.7)</b>
Price	0.827
Trust	0.835
Security	0.737
Intention to Buy	0.734

#### ***4.4.2 Normality Test of Data***

The purpose of normality test is to make sure that there are no wrong answers and frivolous answers in the data set. The initial frequency test was run on each question of the questionnaire to identify any wrong answers. As the data was collected electronically hence the chances of wrong answers were almost nil. The frequency graphs and data frequency tables in section 4.3 shows that the responses received were in the scale limits defined in the questionnaire.

The second normality test on data was of finding the outliers in the data set affecting the normality curve of histogram. After testing the normality curve on trust, price and security we had to remove some respondent to achieve the normal curve skewness. The details and reason of removing the respondents are below

- 4 out of 158 were deleted: The reason of deleting four respondents as they were showing outliers in the price histogram.
- 3 out of 154 were deleted: These respondents were deleted as they were identified as outliers while testing trust data.

The large number of respondents gave the flexibility to reject the outliers and frivolous answers to maintain the integrity of the data. After deleting the above respondents we had total 151 respondents remaining, for which all the further data analysis was carried out.

#### 4.4.3 Demographic Distribution of Sample Data

As noted in Section 4.3, the number of respondents reported was mostly in the age group of 31-35 following by 20-30. The survey was not limited to any age group as this was a random sample.

A large number of participants ( $\approx 92\%$  +) had been visiting online shop from past 6 months at the time the survey was conducted. From this sample the number of people with online shopping experience in past two weeks was marginally more. The higher percentage of respondent visiting online shopping website is an important discovery for the businesses in New Zealand as this shows the awareness of the buyers towards the online shopping environment.

A summary of the descriptive statistics of the participants is presented in Table 4.8.

**Table 4.8 Participant Descriptive Statistics**

		Percentage
	60+	4%
<b>Number of Visits in 6 months</b>	0-5	7.9%
	6-10	29.8%
	11-15	33.1%
	16-20	31.1%
	20+	6%
<b>Number of visits in past 2 weeks</b>	0	6%
	1-5	12.6%
	6-10	31.1%
	11-15	38.4%
	16-20	11.9%
	20+	0%
<b>Age Group</b>	20-30	27.2%
	31-35	30.5%
	36-40	17.2 %
	41-50	12.6 %
	51-60	8.6 %

#### 4.4.4 Analysis of Research model

Analysing the research model that was developed in Chapter 3 would make use of the Structured Equation Modelling technique. SEM uses a measurement and a structural model to analyse the data and validate the relationships between constructs (Anderson et al., 1998). The measurement model establishes a link between the latent

variables and their indicators and the structural model studies the relationships between the constructs.

According to Anderson et al. (1998), the first step in SEM is to develop a theoretical model that represents the relationships between the constructs as indicated by previous studies. Schumaker & Lomax (2004), state that all available theory, research and information should be used to determine the variables that are included and the relationships between them. The theoretical model is developed prior to data analysis and the research model presented in Chapter 3 (Figure 3.2) represents the theoretical model for this study.

Further, the measurement and structural models are developed based on the theoretical model. The measurement model represents the confirmatory factor model that is used to test if the latent variables are measured well using the by using the available observed variable data and the structural model represents the relationship between these variable (Schumaker & Lomax, 2004). A path model that shows the causal relationships between the variables is used to represent this information.

A conceptual model that represents the path model and includes information on the measurement and structural models of SEM is defined as described by Merisavo et al. (2007). This model shows the causal pathways between the constructs and the relationship between the observed and latent variables (See Figure 4.14). While this model captures the measurement and structural model, these models are analysed independently used separate fit indices. Thus, a two-step SEM modelling approach is used (Anderson et al., 1998).

The hypothesised model described in Figure 4.7 for this study. The variables defined in the model are related to the representation of the questions asked in the survey and their descriptions are as follows: (See Appendix A)

**Table 4.9 Initial Model relationship questions**

<b>Variable</b>	<b>Description</b>
T2	13 Do you Trust New Zealand websites when you shop online?
T3	14 Do you Trust New Zealand online shops more than traditional shops?
S2	15. Are New Zealand shopping websites sufficiently secure to do financial transactions online?

S3	16. Do you consider shopping online in New Zealand is more secured than shopping in traditional shops?
P1	4. Do you think you may get better offers on internet than traditional shops in New Zealand?
P2	8. Do you believe that internet shopping website offer better prices for the products?
P3	9. Do you think better prices are obtained in traditional shops rather than on internet shopping website?
P4	12. Do you consider "PRICE" as a factor when you buy online?
P5	17. Do you think New Zealand retail websites are more expensive than overseas retail websites?
P7	18. Do you consider New Zealand online shops are more expensive than traditional shops?
IB1	3. Do you check prices on internet of the product you want to buy before you finally buy the product?
IB3	4. Do you shop on internet?

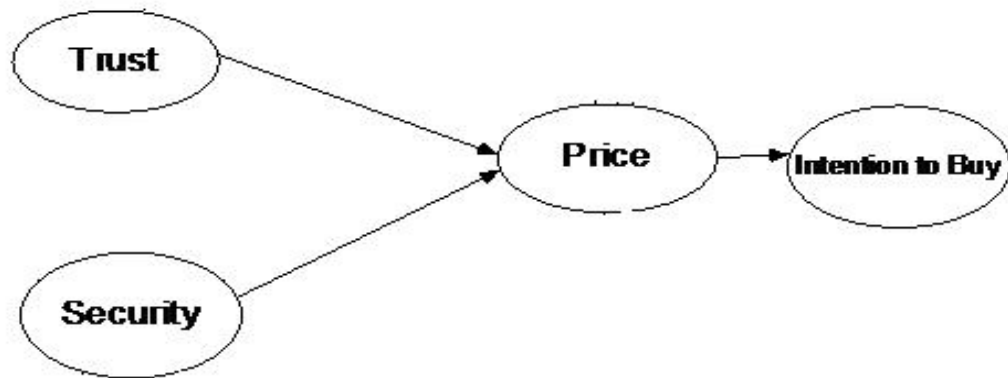


Figure 4.7: Path model

#### 4.4.5 Specification of the Analysis techniques

SEM involves a number of analyses properties and techniques that must be identified before the model is tested. It was ensured that each construct has multiple indicators as a single indicator would require an estimation of the reliability before analyses (Anderson et al., 1998). Instead, the reliabilities of each construct would be empirically estimated to test the measurement model fit (See Section 4.4.4).

The correlation matrix (Table 4.10) was chosen as the matrix for inputting data as opposed to the variance-covariance matrix. The correlation matrix as it allows us to directly compare the coefficients in a model (Anderson et al., 1998) and is also useful when a single sample is tested (Suh & Han, 2003). The correlation matrix is also considered to be a standardised variance –covariance matrix (Anderson et al., 1998).

Maximum Likelihood estimation was used for estimation of the parameters and standard errors for each parameter. This procedure was chosen as it appropriate for a sample size between 100 and 150 (Anderson et al., 1998) and does not become extremely sensitive to data changes for this sample size. Also, direct estimation was chosen as the estimation technique as it is appropriate for calculating model estimates for a single sample (Anderson et al., 1998).

#### Correlations Matrix

**Table 4.10 :Correlation Matrix**

	P5	P1	P2	P3	T3	P4	P7	IB3	IB1	S3	S2	T2
P5	1.000											
P1	.250	1.000										
P2	.393	.608	1.000									
P3	.441	.581	.712	1.000								
T3	.377	.561	.524	.561	1.000							
P4	.327	.317	.389	.432	.328	1.000						
P7	.375	.392	.431	.360	.373	.495	1.000					
IB3	.195	.404	.297	.238	.320	.208	.374	1.000				
IB1	.317	.498	.340	.289	.349	.181	.304	.587	1.000			
S3	.236	.096	.156	.119	.114	.172	.179	.106	.065	1.000		
S2	.304	.070	.186	.115	.012	.131	.211	.162	.120	.570	1.000	
T2	.371	.624	.482	.523	.677	.330	.445	.376	.376	.115	.094	1.000

#### 4.4.6 Analysis of Measurement Items

Reliability and validity of the items was tested using several measurements. The reliability of the measurement items was tested using Cronbach’s alpha. Cronbach’s alpha is dependent on the correlation between the items, and a higher degree of correlations is represented by a higher value of alpha. Thus, this provides an indication of the internal reliability of the measurement items under consideration.

The suggested alpha value should be greater than 0.7 for the items to be considered reliable (Suh & Han, 2003; Merisavo et al., 2007). Items with lower alpha values display low internal reliability and should not be considered for while analysing testing the model. In this study, Price and Trust displayed the highest internal reliability (alpha = 0.827 & 0.835 respectively) and Security and Intention to buy had the lowest alpha value of 0.737 & 0.734 (See Table 4.11). As all the constructs had alpha values greater than the acceptable alpha value all items were retained in the study.

**Table 4.11: Reliability of Measurement Items**

<b>Construct</b>	<b>Cronbach's Alpha (&gt;0.7)</b>
Price	0.827
Trust	0.835
Security	0.737
Intention to Buy	0.734

The validity of the measurement items was analysed using construct validity test. Construct validity tests if the items are measuring the construct they are meant to measure. This include analysis of convergent and discriminate validity. Convergent validity examines if the measurement items all correspond with the construct. This validity was tested by examining the factor loadings of each item and the fit indices of the model. Estimating the factor loadings with the Maximum Likelihood Estimation procedure resulted in a small residual error variance on item PAT1 (Refer to table 4.12). To remove the identification problem a single additional constraint was added. As the negative residual value obtained was almost negligible (-0.05), Anderson et al. (1998) recommend that the variance be fixed to a small positive value to enable the researcher to continue with the calculation of the model estimates. Thus, this variance was set to small positive value of 0.05 and it would not greatly affect the estimated values obtained for the causal paths because this value is also negligible.

The recommended level of factor loadings, as noted by Suh & Han (2003), should be above the value of 0.6. All items except P5, IB3, S3 and S2 (Refer to table 4.9) are above this level. Suh & Han (2003) also noted that items that surpass the



lower limit of 0.3 can still be used for analysis of the model fit. Hence, these items were retained for analysis. Along with these measurements, the fit indices of the model also suggested the data fit the model (See Section 4.4.5 for discussion of fit indices). Thus, convergent validity was verified for the items. Table 4.12 summarizes the factor loadings of each item.

**Matrices (Group number 1 - Default model)**

**Factor Score Weights (Group number 1 - Default model)**

**Table 4.12: Factor loadings of measurement items**

	P5	P1	P2	P3	T3	P4	P7	IB3	IB1	S3	S2	T2
Security	.036	.060	.018	.017	-.042	.008	.012	.004	.007	.034	.415	.067
Trust	.063	.105	.032	.030	.199	.014	.022	.007	.013	-.005	-.057	.318
Price	.166	.276	.085	.080	.077	.038	.057	.018	.034	.005	.060	.124
Intention to Buy	.057	.095	.029	.027	.027	.013	.019	.241	.466	.002	.021	.042

Discriminate validity ensures that the individual constructs are indeed distinct and that no similarities exist between them *Assessing Overall Model Fit*

A number of fit indices are generated to test how well the data fits the model defined. There are varying opinions on the fit indices that are most appropriate to be taken into consideration while studying the overall model fit, most researchers rely on the indices such as Chi-square statistics, GFI, AGFI, TFI (or NNFI) and so on. Each index is calculated and used to examine a certain aspect of the model, but when considered together they provide an overall view of how well the data fits the given model. Table 4.13 summarises the values of some of the commonly examined indices.

**Table 4.13: Model Fit Indices**

<b>Index</b>	<b>Value</b>	<b>Recommended Value</b>
Chi-square( $\chi^2$ )	57.58	
P-value	0.162	
Degrees of Freedom (df)	48	
$\chi^2/df$	1.2	<5.0
Goodness of Fit (GFI)	0.941	>0.8
Adjusted Goodness of Fit (AGFI)	0.904	>0.8
Root-mean-square error of approximation (RMSEA)	0.036	<0.05
Tucker-Lewis index (TFI)	0.981	>0.9

Comparative Fit Index (CFI)	0.986	>0.9
-----------------------------	-------	------

Amos 7.0, along with the proposed model, also provides the indices for a saturated and an independence model. In the independence model the variables are assumed to be uncorrelated with the dependents, i.e., there are no paths in the models and the saturated model has no constraints and all paths are included in this model (Schumaker & Lomax, 2004). Thus, the first check while evaluating the model is to ensure the chi-square value does not exceed the chi-square value of the independence model. The value should be in between the chi-square values of the saturated and independence models. The obtained value lies between the chi-square value for the saturated model ( $\chi^2 = 0$ ) and the independence model ( $\chi^2 = 1002.933$ ).

The recommended chi-square should be close to zero to indicate that proposed model matches the actual mode. A significant Chi-square value is obtained ( $\chi^2 = 242.469$ ) showing that the actual model differs from the proposed model. But, the Chi-square statistics are sensitive to sample sizes and not always accurate in determining the model fit (Schumaker & Lomax, 2004). Instead, the ratio of Chi-square to the degrees of freedom ( $\chi^2/df$ ) is considered a better measure and it is recommended to be below 5.0 (Suh & Han, 2003). The value of  $\chi^2/df$  is obtained as 1.228 and hence shows the proposed model is close to the actual model.

The Goodness of Fit Index (GFI) is considered acceptable above 0.9 by some researchers (Schumaker & Lomax, 2004) but a value above 0.8 is considered to an acceptable indication of a good fit (Suh & Han, 2003). Similarly, the Adjusted Goodness of Fit Index (AGFI) is above the suggested value of 0.8. Other indices such as TFI and CFI surpass the recommended level of 0.9 and RMSEA is below the 0.05 value mark. All these indices are suggestive of a good model and indicate that the data fits the given model well. Thus, overall model fit is evaluated.

#### ***4.4.7 Assessing Measurement model fit***

The measurement model fit evaluates the measurement of each construct (Anderson et al., 1998) and is considered to be a more rigorous test for assessing the items being used. The method of evaluating the measurement model fit is primarily tested the

composite reliability and variances extracted for each construct (Anderson et al., 1998). Composite reliability tests the reliability of each construct based on the item loadings and the variance captures the amount of variance in the construct based on the measurement errors.

Confirmatory factor analysis was also used to evaluate the composite reliability of the items. The standardized factor loadings and the measurement error of each item was used to calculate this measure based on the formula defined by (Anderson et al., 1998). According to Anderson et al. (1998), the composite reliability should exceed 0.7 and all the constructs are above this threshold value. The average variance extracted should be above 0.5, which is demonstrated by all the constructs showing that the indicators represent their respective variables.

#### 4.4.8 Assessing Structural model fit

The structural model fit is examined by studying the estimated coefficients of the causal pathways along with the critical ratio (t-value) for the estimates. A model is found to be structurally fit if path estimates that are obtained support the underlying hypotheses of the model. Therefore, the hypotheses developed in Chapter 3 will also be tested while assessing the structural model.

For analyses of the structural model, the significance level ( $\alpha$  - value) was specified to be 0.05. The estimates and p-values for the causal paths between perception of security and trust at this significance level are shown in Figure 4.15. The t-values appear in brackets in the diagram. The critical ratio for the path between perception of privacy and trust is significant at the significance level of 0.05 as it is above 1.96 (Anderson et al., 1998).

#### Regression Weights

Table 4.14: Regression Weights

			Estimate	S.E.	C.R.	P	Label
Price	<---	Security	.470				
Price	<---	Trust	.997	.127	7.849	***	
Intention to Buy	<---	Price	.989	.160	6.183	***	
T2	<---	Trust	1.000				
S2	<---	Security	1.000				
S3	<---	Security	.603	.265	2.272	.023	
IB1	<---	Intention to Buy	1.000				
IB3	<---	Intention to Buy	.847	.138	6.143	***	

			Estimate	S.E.	C.R.	P	Label
P7	<---	Price	.683	.107	6.377	***	
P4	<---	Price	.508	.095	5.366	***	
T3	<---	Trust	1.364	.134	10.189	***	
P3	<---	Price	1.000				
P2	<---	Price	.969	.090	10.790	***	
P1	<---	Price	1.139	.128	8.869	***	
P5	<---	Price	.803	.125	6.430	***	

Each indicator shows the significant relationship with the factors. Fig 4.16 shows the significant relationship of Price and Trust and also Price with Intention to buy. The first Hypothesis which I wanted to test is the significant relationship of Price with Intention to buy which is proved in the above table. The other two factors trust and security have their own relationship with price. Trust still has significant relationship with price but security is itself come up as significant determinant not dependent on price.

#### **4.5 Individual Analysis of trust, security and price**

To analyse the impact of each factor individually respondents were asked to select the factor which they believe will motivate them to buy. The following analysis of the survey data shows how important each factor was by respondents as an motivation to buy online.

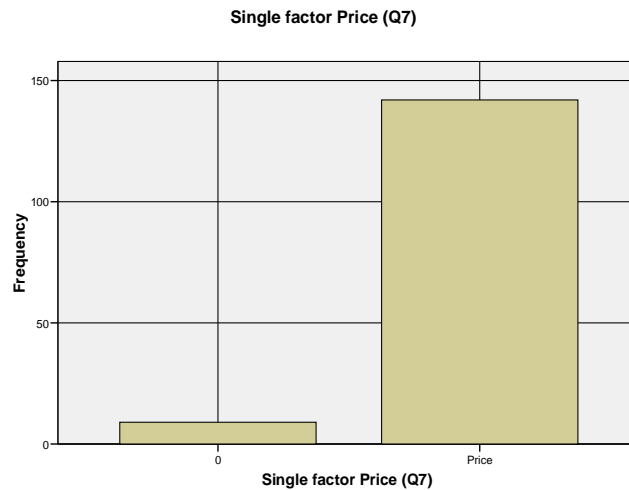
##### **4.5.1 Price**

The below graph is derived from the question number 7. The X axis of the graph has two values zero and price and Y axis has frequency as the number of respondents. The zero scale here shows the number of users did not selected price as motivation factor and price scale show the number of respondents considered price as a factor for their motivation to buy online. The analysis clearly shows that out of 151 respondents 94 % of respondents (Figure 4.17) acknowledged price as the motivation factor for them to buy online.

**Single factor Price (Q7)**

**Table 4.15: Price Factor**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	9	6.0	6.0	6.0
Price	142	94.0	94.0	100.0
Total	151	100.0	100.0	



**Figure 4.8: Price Factor**

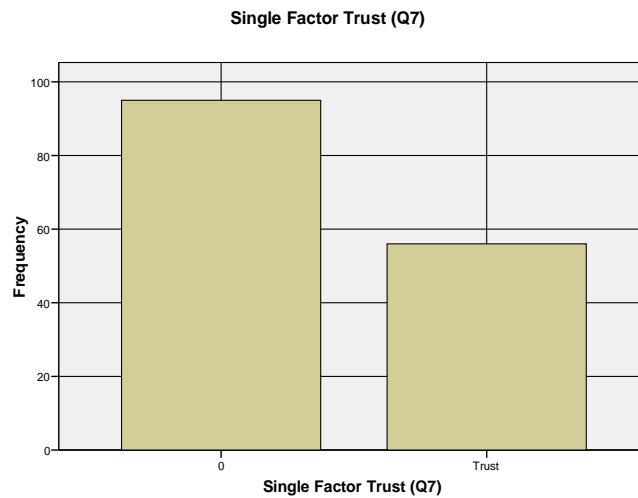
**4.5.2 Trust**

Figure 4.9 below is derived from the question number 7. The X axis of the graph has two values zero and trust and Y axis has frequency as the number of respondents. The zero scale here shows the number of users did not select trust as motivation factor and trust scale show the number of respondents considered trust as a factor for their motivation to buy online. The analysis clearly shows that out of 151 respondents only 37 % of respondents (Table 4.16) acknowledged trust as the motivation factor for them to buy online. This is interesting outcome from the research as trust has been always strong factor considered in relation to online purchasing behaviour.

**Single Factor Trust (Q7)**

**Table 4.16: Data Trust as single factor**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	95	62.9	62.9	62.9
	Trust	56	37.1	37.1	100.0
	Total	151	100.0	100.0	



**Figure 4.9: Trust Factor**

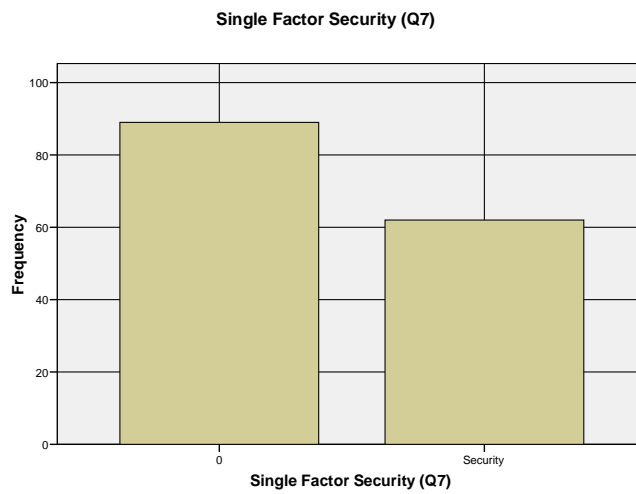
**4.5.3 Security**

Figure 4.10 below is derived from the question number 7. The X axis of the graph has two values zero and security and Y axis has frequency as the number of respondents. The zero scale here shows the number of users did not select security as motivation factor and security scale show the number of respondents considered security as a factor for their motivation to buy online. The analysis clearly shows that out of 151 respondents only 41 % of respondents (Table 4.17) acknowledged security as the motivation factor for them to buy online. This is interesting outcome from the research as security has been always strong factor considered for online shopping as discussed in Chapter 3.

**Single Factor Security (Q7)**

**Table 4.17 :Data Mapping**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	89	58.9	58.9	58.9
	Security	62	41.1	41.1	100.0
	Total	151	100.0	100.0	



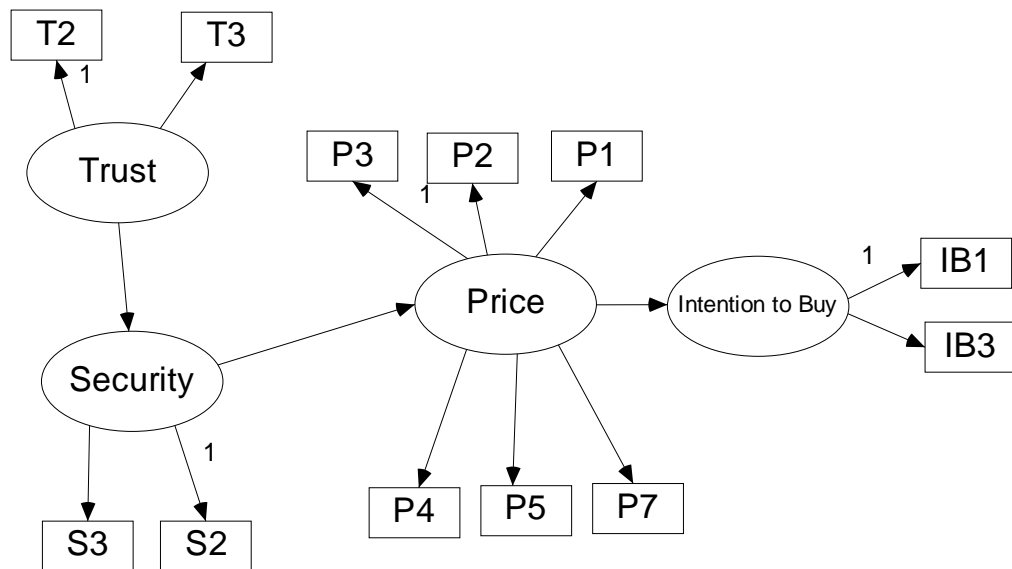
**Figure 4.10: Security Factor**

The above analysis shows that price was the strongest motivating factor while trust and security did not have much impact to motivate respondents to buy online. This was interesting discovery as the model proposed in hypotheses had direct relationship on price. This was reflected in the findings below, showing that trust and security have no significant relationship with price in online shopping environment on the other hand price is a major motivation factor impacting the intention to buy.

**4.6 Alternate Model Fit**

The proposed model fit was not the best as per Structure Equation model hence I tried the alternate model (Figure 4.11) to identify the best fit and the following model provided the best fit. The various combinations were tried to test the relationships of

all the factors in the model. I tried relationship of trust with price but the model fit was unsuccessful, which shows that the trust does not have significant relationship with price. The other relationship tested was trust directly with intention to buy but this was also not significant and minimum model fit was not achieved. Then I tested the relationship of security with intention to buy, this was also not a significant relationship and did not achieve the minimum model fitness. This shows that trust and security do not have significant relationship with intention to buy when price factor is in between. To achieve the best fit model I tried the relationship of trust with security and removed the relationship of trust with price. The model achieved the minimum fit as per AMOS.



**Figure 4.11: Best Fit Data Mapping**

The above model shows the better fit. The factor description please refer to table 4.9.

#### **4.6.1 Result**

Minimum was achieved  
 Chi-square = 56.747  
 Degrees of freedom = 47

#### **Correlations Matrix**



**Table 4.18: New Model Correlation matrix**

	P5	P1	P2	P3	T3	P4	P7	IB3	IB1	S3	S2	T2
P5	1.000											
P1	.250	1.000										
P2	.393	.608	1.000									
P3	.441	.581	.712	1.000								
T3	.377	.561	.524	.561	1.000							
P4	.327	.317	.389	.432	.328	1.000						
P7	.375	.392	.431	.360	.373	.495	1.000					
IB3	.195	.404	.297	.238	.320	.208	.374	1.000				
IB1	.317	.498	.340	.289	.349	.181	.304	.587	1.000			
S3	.236	.096	.156	.119	.114	.172	.179	.106	.065	1.000		
S2	.304	.070	.186	.115	.012	.131	.211	.162	.120	.570	1.000	
T2	.371	.624	.482	.523	.677	.330	.445	.376	.376	.115	.094	1.000

**4.6.2 Regression Weights**

The following table (4.19) shows that the relationship of security and trust is not significant as the P value is > 0.05 and similarly the relationship of price and security is not significant with P value of .313 which is > 0.05. The proposed model for the research showed a significant relationship of trust with price but the overall model did not achieve the best fit.

**Regression Weights**

**Table 4.19: New Model Regression Weights**

			Estimate	S.E.	C.R.	P	Label
Security	<---	Trust	.085	.086	.995	.320	
Price	<---	Security	11.799	11.689	1.009	.313	
Intention to Buy	<---	Price	.989	.158	6.246	***	
T2	<---	Trust	1.000				
S2	<---	Security	1.000				
S3	<---	Security	.707	.265	2.673	.008	
IB1	<---	Intention to Buy	1.000				
IB3	<---	Intention to Buy	.847	.137	6.206	***	
P7	<---	Price	.683	.106	6.445	***	
P4	<---	Price	.509	.094	5.427	***	
T3	<---	Trust	1.353	.133	10.179	***	
P3	<---	Price	1.000				
P2	<---	Price	.969	.089	10.903	***	
P1	<---	Price	1.140	.127	8.978	***	
P5	<---	Price	.803	.123	6.503	***	

The alternate model did achieve the minimum fit but show insignificant relationship between trust and security. This is important for the business managers to understand

that when price is important then security is not highly significant but trust do have significant relationship with price which leads to intention to buy.

#### 4.6.3 Factor Weighting

##### Factor Score Weights

**Table 4.20: New Model Factor Weights**

	P5	P1	P2	P3	T3	P4	P7	IB3	IB1	S3	S2	T2
Trust	.063	.105	.032	.030	.196	.014	.021	.007	.013	-.010	-.035	.326
Security	.064	.107	.033	.031	-.051	.015	.022	.007	.013	-.010	-.036	-.085
Price	.166	.277	.084	.079	.075	.038	.056	.018	.034	.015	.053	.125
Intention to Buy	.057	.095	.029	.027	.026	.013	.019	.241	.466	.005	.018	.043

#### 4.6.4 Model Fit

**Table 4.21: New Model Fit**

Index	Value	Recommended Value
Chi-square( $\chi^2$ )	56.747	
P-value	0.156	
Degrees of Freedom (df)	47	
Goodness of Fit (GFI)	0.941	>0.8
Adjusted Goodness of Fit (AGFI)	0.902	>0.8
Root-mean-square error of approximation (RMSEA)	0.037	<0.05
Tucker-Lewis index (TFI)	0.980	>0.9
Comparative Fit Index (CFI)	0.986	>0.9

The proposed model did not achieve the minimum fit as per SEM, which challenged the relationship of the determinants. The above alternate model achieved the minimum fit but showed insignificant relationship of trust and security with price. This also correspond to the finding of individual determinant analysis, this is important finding for the online shopping business as trust and security have been major factor for online shopping environment as mentioned in the literature review chapter. The Goodness of Fit Index (GFI) is considered acceptable above 0.9 some researcher (Schumaker & Lomax, 2004) and the value for this model is 0.941 which indicate a good fit for the model. All these indices are suggestive of a good model and indicate model fits well but we lost the significant relationship of trust with price. Thus, over all model fit is evaluated and tested.

## 4.7 Conclusion

The first phase in this research, which included the modification of measurement items and the survey questionnaires through a pilot study, resulted in a few changes in the items. Rewording of non-repudiation items and including a section on general questions were some of the most significant changes introduced.

The survey achieved a respondent sample size of 151 (excluding 7 respondent data deleted after normalisation), to obtain a power function of 80% at a significance level of 0.05. The performance marginally exceeded the expected size of 130 participants. The participants were random and no control over age and gender was maintained while carrying on the survey.

The reliability measures, using Cronbach's alpha, showed that all the items used for each construct passed the accepted value of 0.7. Similarly, validity testing of the items, using convergent validity showed that most items were above the expected 0.6 value while the all items were above the acceptable 0.3 threshold; hence all items were retained in the analysis. Discriminate validity testing using Chi-square difference tests showed that each construct of perceived security was indeed distinct. The overall fit indices indicate a good model fit. The chi-square value was significant showing that the proposed model an actual model differs, but as it is dependent on sample size, the ratio of chi-square to degrees of freedom was considered. The GFI and AGFI indices were above the accepted value of 0.8 while TFI and CFI above 0.9 and RMSEA below the 0.05 threshold.

Composite validity and average variance tests, used to test the measurement model fit index showed were both above the 0.7 and 0.5 thresholds that indicate a good level of fit.

The path estimates that were obtained for the structural model validated both hypothesis. The mechanisms indicating the relationship of trust and security with price varied and security was not having any significant relationship with Price. The analysis shows that price has bigger impact on intention to buy.

The trust, price and security were tested as individual factors for the motivation for buying online and significant results were reported by the analysis. Price was the highest motivational factor as 94% believed that price driver is important for them to

buy online. Trust and security were 37 % and 41% respectively. The lower percentage of respondents provides useful information for business managers to design their online business strategies with higher focus on price than trust and security. Also, it was found that in the presence of price as a driver, trust and security do have a significant relationship with intention to buy.

## **Chapter 5**

### **Discussion and Recommendations**

#### **5.1 Introduction**

The primary research question for this study is to find out the impact of price on intention to buy. As it was formalised in Chapter 3, Trust and Security are two other factors for people buying online. Thus, to explore the relationship two sub-questions were formulated. One to study the impact of trust and security on intention to buy, and then the other to look at the impact of price separately on intention to buy.

In the previous chapter, Chapter 4, the findings of the survey undertaken were presented. The results of analysing the data using Structure Equation Modelling showed that Trust has significant impact on Price but security has negligible impact on price. In this Chapter, the comparison of the findings of this research would be compared and contrasted with findings from similar research.

In the following section the discussion of the findings are presented. This includes assessing the link of the findings to the main theoretical questions and comparing similar studies. Section 5.3 then discussed the limitations of the study which leads into the discussion of further research opportunities in Section 5.4. Finally, the conclusion is presented in section 5.5.

#### **5.2 Discussion of Findings**

The results obtained from the analysis presented in Chapter 4 confirm the existence of a relationship between price and intention to buy in the online environment. Further insight is also found into the relationship between the two concepts. As the aim of this research is largely decomposed into assessing the impact of trust and security on price and studying the impact of price on intention to buy, the findings related to the hypotheses developed are discussed in Section 5.2.1.

##### ***5.2.1 Security and Price***

In Chapter 2 it was noted that security has been identified as factor that has a strong potential of affecting trust. The first hypothesis developed in this study stated that the

relationship of security may have positive or negative affects on the motivation of the customer to buy online.

The results from the analysis of the data collected in this research suggested that presence of security do not have significant affect on the intention to buy in online environment while the price has a greater impact on the intention to buy. It was found that security does not have any significant relationship with price. The results show that security plays an important role for a customer to buy online but not a significant factor when price is a driver.

The finding of this research has significant implications for online shopping sellers. It shows that the security has the limited impact on the customers to buy online. The change of perception of customer towards the security is when minimum security standards are not perceived then it triggers lack of trust. This can be further investigated further as a part of future research.

The main question in this research addresses is the impact of price and the affects of security and trust on intention to buy. The results provide vital feedback for business and especially to the online industry that the customer is now not considering security an exclusive top factor or motivation to buy online. The changed perception of the customer gives more understanding for business managers when designing their online business models.

### ***5.2.2 Trust and Price***

The second hypothesis which was tested was the impact of trust on intention to buy. The data analysis reported a significant relationship of trust with price but the relationship of trust with security was not significant. In the initial model generated from the literature review of Chapter 2 it was believed that trust and security have strong relationship but the field study found that in an online environment trust does not impact security. Different combinations of relationship variables were tested to understand the relationship of these factors.

The relationship of trust directly with intention to buy was not significant which has implication on the business managers for online business. This shows that any new online business can easily have customers buying from their site in absence

of strong trust in the website. This has been visible in the real world with the success of various online businesses with none or limited trust Park & Kim (2003).

Trust showed a significant relationship with price. The data analysis from the research identified a significant relationship of trust and price which again has implication on the business managers to understand the motivation driver of the customers. The research model that was built in this study chose to study the impact of trust, security on price. The result shows that the relationship is indeed verified between trust and price and the relationship does contribute to the development of intention to buy for customers.

### ***5.2.3 Trust & Security – Intention to buy***

The focus of this research was only limited to test the affect of price change to intention to buy in an online environment but we tested the relationship of trust and security directly with intention to buy. The finding shows that these relationships were not statistically not significant in an online business environment. This can be further tested as a part of future research as the time and resource limitation did not allow us to test them in detail.

### ***5.2.4 Price as motivation driver to buy online***

The price as a motivation factor was the main research question for this study. Price was tested with intention to buy to understand the relationship. The data analysis collected from this research shows a very strong and significant relationship of price with intention to buy. The data shows that 94% (Table 4.15) of the respondents reported price as the motivation factor to them to buy online. The proposed model was evaluated with a high goodness of fit which shows the strong relationship of price with intention to buy.

The results from the analysis of the data collected in this research suggested that the presence of price in online buying have a positive impact on intention to buy. As seen in Chapter 2, previous research had confirmed that price plays a role in motivating buyers to buy online. The result shows that the price factor has a very significant positive impact on a buyer's intention. These studies were the basis for hypotheses as indicated in Chapter 2 and 3.

The set of subset research questions reported by the data analysis collected by this study are as follows:

What is the impact of Trust on online buying?

Trust has significant impact on the price but do not have direct significant impact on intention to buy which supports the flow of the proposed model.

What is the impact of Security on online buying?

Security has no significant impact on price and intention to buy. Only 41% respondent reported security as a factor affecting the motivation but overall the relationship had no significant impact on relationship with price and intention to buy.

What is the impact of Price on online buying?

Price was reported as one the major and significant factor affecting intention to buy and has a direct impact. This was reported by 94% respondent reporting price as motivational factor to buy online.

Do Trust and Security affect customer intention to buy online?

Trust and security do not have significant relationship with intention to buy online as reported by the data collected by this research.

Does Price have a strong relationship with Trust and Security or is it independent?

The research reported a significant relationship of trust and price but the relationship of security with price was not significant. The results implies that trust leads to price and price positively affect the intention to but security is independent variable and have no significant relationship with price.

The findings of this research have significant implications for online shopping sellers. They show that the buyer gets motivated with the price while he/she is buying online and trust and security has no significant affect on the intention of the buyer. Thus the importance of price is shown in the online shopping environment. The other two



factors of trust and security had shown a significant relationship with each other but were not directly correlated to the price and finally intention to buy. The result shown in chapter 4 also indicated that the model hypothesised initially was not the best fit model though with limited respondents it was acceptable with goodness of fit  $>0.8$ . An alternate model combination achieved the minimum fit as per the constraints of structure equation model confirmatory process and it was concluded that trust and security are independent to price. The result shows that price has high impact on intention to buy with an insignificant affect to trust but not security. This result was significant for the hypotheses as it shows an independent affect of price on intention to buy. For a buyer security and trust in online shopping environment do not have the impact of price for buying motivation. The affirmative of the research question is supported as price is shown to be the main driver for the people to buy online.

### **5.3 Limitations of the Research**

Constraints in terms of time and budget introduced several limitations in this research. Time restrictions defined the scope of the dissertation and the sample to be accessed. The environment chosen for studying the link between trust, security and price was also limited to the scope defined in Chapter 3. Along with this several limitations related to the theoretical model are noted.

In section 5.2.3 the impact of price was found to be significant on the intention to buy with no significant affect on price from trust and security, but certainly there are other factors which may affect the intention to buy. Other factors also affect perception of price. One of the factors which were commented by the survey participant was Convenience. This was one of the main limitations in the theoretical model, that it did not include other factors such as convenience, and study the role of these factors.

The restricted time frame also introduced certain limitations in the research methodology. The research is limited by the scope and the expected resource requirements to do more than what is proposed. A restricted set (2 in number) of constructs were selected from a far greater set in the literature review. Other constructs are possible but the proposed research is limited to two. In addition (See

Section 4.4 above) it was asserted that confirmation is the best way (amongst other alternatives) of testing the asserted initial model. Other approaches and choices are possible. This was the best sample available following the theoretical design of the research. In statistics it may not be able to generalise to the whole population without further consideration of the errors and the assumptions & the best fit measures. The proposed sample and sampling methodology also placed limitations on the extent to which the findings may be generalised, while reviewing the research design. Analysis of data further revealed that the sample which was restricted to only working New Zealand people with majority of participants under 40 years. While not all age groups were represented equally, random sampling did ensure diversity in the sample in terms of gender and online shopping experience.

Another limitation in the methodology was the use of only quantitative data to validate the research model. Using qualitative data would increase the range of evidence that could be used to explain the context and possibly the research findings. The data collected in this study did pass the reliability and validity tests but collecting qualitative data would provide rich and informative details on the role of price on intention to buy in online shopping.

The analysis in this research shows the affect of trust, security and price towards intention to buy in online shopping environment by considering all participants as a single sample. Further descriptive statistics of participants would also help analysing these relationships for different groups of buyers based on prior online shopping experience, age group and so on. Limited time for analysis prevented the research from expanding the analysis to study how different demographics of people perceive trust, security and price and its impact on intention to buy.

These were some of the major limitations of this study and these limitations were mainly introduced due to time and budget restrictions.

## **5.4 Further Research**

The limitations of this research outlines various opportunities for further research work in understanding the relationship of trust, security and price to intention to buy in online shopping and other ecommerce applications in general. Due to time and

budget constraints the scope of this dissertation was restricted. Using the findings of this study gives a deeper understanding of the relationship between trust, security and price and the relationship with intention to buy online.

This research concentrated on the relationship of trust and security with price and finally intention to buy. The research only focused on trust and security as secondary elements of the construct. A further investigation can be carried out to understand the various other determinants to the construct and can be tested. Two other determinants which were reported by the respondents were convenience and usability of the website. The research was only focused on the shopping environment within a limited demographic region of New Zealand. This can be further investigated in other demographic regions to test the validity and acceptance of the relationship between trust security and price.

The research only focused on the online shopping environment and tested the relationship of trust security and price and the impact on intention to buy. The scope can be broaden for the further investigation including the 'brick and mortar' type establishments to understand the relationship of these determinants.

## **5.5 Conclusion**

The discussion of the findings reported the significance of the results of this research for literature and practitioners dealing with online shopping establishments. The strong relationship of price with intention to buy shows that users are aware of the price validity on the online shops and lower price motivates them to buy online. The in significant relationship of trust and security towards price gives better understanding of buyer's motivation. This shows that a new online business can still attract buyers with lower price as trust is not significant with price and intention to buy online. Trust and security still have significant relationship with each other but in the online environment price is a major driver for customers to buy online.

The findings of this study have important implications for online business managers when formalising their business strategies. The change in perception towards security in online shopping was a significant finding reported from this study, as only 41% of the respondents believed security was a factor affecting their

motivation to buy online. The price was reported as a major driver for buying online by 94% of the respondents. The relationship of price was reported as highly significant with intention to buy. The business managers for online business will get a better understanding with these results. The research findings help to understand the motivation factors affecting customer to buy online and affect of trust and security on price. The data showed that customers perceive online shops to be cheaper than brick and mortar businesses. The success of various aggregators' websites worldwide also shows price as motivation for customers to look for bargain online. The online business is growing at rapid speed worldwide and we still have only experienced the small part of online revolution. This study will help business managers to understand the importance of price as a motivational factor.

The limitations on this study are mainly introduced due to time and budget restrictions. The theoretical model considered on a limited definition of trust, security and price and thus results differed from other studies. The time restrictions were taken into consideration while developing the research design and introduced some limitations in the research methodology. The sample had participants that were working people mostly in age bracket of 20-40 years. Also, the questionnaire concentrated on collecting quantitative information and qualitative data was not considered.

Further research opportunities include studying the role of other factors such as gender, knowledge, convenience, usability and so on in defining trust, security and price and its impact on intention to buy. The role of price as compared to other intention to buy attributes and factors can also be evaluated. The research model can be extended to other type of environments to study the relationship of trust, security and price. The model can also be extended to include factors such as convenience and usability and study the interrelationship between these components.

Thus, the discussion highlights the importance of price in the online shopping environment and indicates that security has no significant impact on users to buy online but trust still has a significant impact on price which directly affects the intention to buy positively.

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## Appendix A – Questionnaire



### ONLINE SURVEY

**1. Please select your age?**

- 20-30       31-35       36-40       41-50       51-60       60+

**2. Do you shop on internet?**

- Never       Rarely       Sometimes       Most of the time       Always

**3. Do you check prices on the internet of the product you want to buy before you finally buy the product?**

- Never       Rarely       Some Times       Most of the time       Always

**4. Do you think you may get better offers on internet than the traditional shops in New Zealand?**

- Strongly Disagree       Disagree       Undecided       Agree       Strongly Agree

**5. How many time have you visited an online shop in past 6 months to check for the prices of the product you want to buy?**

- 0-5       6-10       11-15       16-20       20+

**6. How many times have you visited internet to check online deals in past 2 weeks?**

- Never       1-5       6-10       11-15       16-20       20+

**7. Please identify from the following factors, that which you think motivates you to buy online?**

- Trust       Security       Price

**8. Do you believe that internet shopping website offer better prices for the products?**

- Strongly Disagree       Disagree       Undecided       Agree       Strongly Agree

**9. Do you think better prices are obtained in traditional shops rather than on internet shopping website?**

- Strongly Disagree       Disagree       Undecided       Agree       Strongly Agree

**10. Do you consider SECURITY as a factor when you buy online?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**11. Do you consider "TRUST" as a factor when you buy online?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**12. Do you consider "PRICE" as a factor when you buy online?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**13. Do you Trust New Zealand websites when you shop online?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**14. Do you Trust New Zealand online shops more than traditional shops?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**15. Are New Zealand shopping websites sufficiently secure to do financial transactions online?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**16. Do you consider shopping online in New Zealand is more secured than shopping in traditional shops?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**17. Do you think New Zealand retail websites are more expensive than overseas retail websites?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**18. Do you consider New Zealand online shops are more expensive than traditional shops?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**19. Do you consider Price as motivation for you to buy online?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**20. Will you consider to buy online if price is low and you trust the shopping website?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

**21. Will you consider to buy online if price is low and shopping website is secured?**

Strongly Disagree  Disagree  Undecided  Agree  Strongly Agree

***Thank you for participating!***

## Appendix B – Correlation Matrix

	P5	P1	P2	P3	T3	P4	P7	IB3	IB1	S3	S2	T2
P5	1.000											
P1	.250	1.000										
P2	.393	.608	1.000									
P3	.441	.581	.712	1.000								
T3	.377	.561	.524	.561	1.000							
P4	.327	.317	.389	.432	.328	1.000						
P7	.375	.392	.431	.360	.373	.495	1.000					
IB3	.195	.404	.297	.238	.320	.208	.374	1.000				
IB1	.317	.498	.340	.289	.349	.181	.304	.587	1.000			
S3	.236	.096	.156	.119	.114	.172	.179	.106	.065	1.000		
S2	.304	.070	.186	.115	.012	.131	.211	.162	.120	.570	1.000	
T2	.371	.624	.482	.523	.677	.330	.445	.376	.376	.115	.094	1.000