The Impact of the Internet on the profitability of retail business models:

An empirical analysis of the profitability of e-tailing vis-à-vis traditional retailing.

By

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Dedication

To my parents, for the person I am; and to God, for the life and the blessings!

Certification

I, CHINYAMAKOBVU Taurai, do hereby declare that this thesis is the result of my own investigation and research, except to the extent indicated in the Acknowledgements, References and by comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.

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Student signature   Date

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Preface

I have long been interested in understanding the goings on the cutting edge of technology. The main reason I chose to study in Japan is the widely held perception that Japan is on that cutting edge. As I embarked on this MBA journey, I took great interest, not just in global and Japanese technology, but also in classes such as Management of Technology (MOT) by Namba-sensei, Strategy of Technology (SOT) by Nakata-sensei, National Innovation Systems by Asgari-sensei and Entrepreneurship and New Business, again by Namba-sensei. Professor Namba's deep and unique insights in MOT reinvigorated my interests in this area.

As an aspiring technology entrepreneur, I wanted my thesis to combine aspects of technology, innovation, e-commerce, marketing, finance, and invariably – business models. It was not until I read Chris Anderson's book, ***The Long Tail – Why the future of business is selling less of more***, that I decided to explore the profitability of retail business models to see if indeed the often-hyped impact of the Internet in the retail sector has in fact led to better profitability for Internet based retailers vis-à-vis traditional retailers. Of course, such an investigation requires a comparative analysis of e-tailers and traditional retailers, which is the approach this paper took.

Philosophically, this research is anchored on logical positivism. It's an empirical study which uses a statistical approach to test a hypothesis, and combines theories and ideas from finance, accounting, innovation, marketing and MOT. Clearly, from the work in this paper, technology has ushered in new business models, and opened up new frontiers in business, which would have been difficult to imagine thirty years ago, yet those new business models give the players competitive impetus, but not necessarily better profitability.

List of abbreviations

GICS…………………Global Industry Classification Standard

NP Margin…….……..Net profit margin

GP Margin…………. .Gross Profit Margin

ROA…………………Return on assets

ROE………………….Return on equity

ROIC………….……...Return on invested capital

IT…. …………………Information technology

PC……………………Personal computer

CLUMPS…………….Computer literate upwardly mobile professionals

H_0…………………….Null hypothesis

H_1…………………….Alternative hypothesis

Abstract

The Internet has revolutionized businesses, giving rise to retailers whose value proposition and business model is entirely based on the Internet. This paper argues that despite the cost advantage of online retailers, their profitability is not different from traditional retailers. This study synthesizes ideas from innovation, economics, finance and marketing to evaluate the profitability of two business models. It investigates retail companies to determine the difference in profitability between retailers using an Internet-only business model and those that use a traditional brick and mortar business model. The theoretical framework is anchored on financial analysis ratios, and statistical methods are used to test the hypothesis. The study uses profitability measures such as GP Margin and NP Margin among others to address the research question. Samples of listed firms were drawn from Standard & Poor's Compustat database. The findings show that there is no difference between the profitability of both models as measured by NP margin, ROA, ROE and ROIC. However, the GP margin of e-tailers is statistically much higher than that of traditional retailers.

Key words

Chapter 1: Introduction & Background

1.1   Introduction

The trading of goods and services has been in existence for as long as mercantile capitalism. What has transformed and evolved over the years are various players in the value chain, business models, as well as the distribution channels used to avail products and services to consumer markets. Technological advancement has played a fundamental role in this transformation. In the last decade or so, this change has played out in large part due to the phenomenal evolution of e-commerce (Ow & Wood, 2009).

The transition in the retail sector has brought with it evolution of retail business models. While Porter (2001:13) scoffs at the term business model as one of the phrases in the 'destructive Internet's lexicon', calling its definition 'murky at best'; the term has gained significant traction over the years and is now widely applied even outside the realm of Internet dot com firms. Business models have evolved over the years. For example, many *bait and hook* business models have been used extensively in business up to this day. Some cellular network companies, for instance, provide a mobile phone at a very low cost, and then gain revenue from selling airtime. It follows from the foregoing examples that different businesses adopt different business models in line with their mission strategic goals and competitive environment. There is no doubt therefore, that a poorly thought out business model can fail a business, since it has a strong bearing on its ability to generate profits and create a return for its investors.

Notwithstanding the business model adopted, distribution channels are a critical and integral component of the business model as they provide the interface

where the customer will interact with the firm's value offering, and pay a price for it. For example, automakers depend extensively on car dealers and their showrooms. Retailers on the other hand may depend on the physical stores where customers walk in and buy groceries; whereas banks may use their branches, ATMs and other remote terminals to deploy their services.

Technology has over the years played a greater part in defining a firm's business model, extensively shaping how it interfaces with customers, generates revenues and makes profits. This power of transformation of technology is clearly demonstrated by how the Internet has changed the dynamics in the retailing industry, where internet-based companies such as Amazon.com and Rakuten.co.jp among others have changed the competitive landscape. From the time retailers were just tiny grocery shops, to warehouses, to catalogue-based distributors[1], to supermarkets to modern day Internet based retailers, (also known as e-tailers); technology and innovation has stimulated this evolution (Anderson, 2008). Various technologies are applied in different industries and settings, in both business-to-business (B2B) and business-to-customer (B2C) environments (Timmers, 1998).

As noted by Teece, (2010:172), "Whenever a business enterprise is established, it either explicitly or implicitly employs a particular business model that describes the design or architecture of the value creation, delivery, and capture mechanisms it employs. The essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit." The advent of the Internet and subsequent related technologies has certainly revolutionized business models (Porter, 2001; Coltman, et al,

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[1] This evolution is adequately covered in Chapter 2.

2001), creating opportunities and new distribution channels. This is profoundly evident in the B2C markets. Consequently, highly optimistic prognostications have been made that the Internet business models will grow radically, eclipsing traditional ones. However, in spite of this optimism, the early results of Internet businesses were rather overly optimistic as shown by the dot-com bubble and bust.

The Internet has been touted as a revolutionary technological innovation that lowers the cost of doing business and transforming the shopping experience (Hemp, 2006). With regards to retailing, its potential has been noted, evidenced by the rise of internet-only retailers, known as e-tailers (Wang, Head, & Archer, 2002). Interest in the e-tailing business model by investors, entreprenuers, venture capitalists and managers alike has increased over the years (Maubossin & Kawaja, 1999). While a lot of questions have been posed regarding various aspects of e-tailing vis-à-vis the traditional brick-and-mortar retail business model, existing research has not investigated the profitability of the two retailing models to assess the impact of the Internet on retailing. Many authors have asserted that traditional retailers have a higher costs compared to their online counterparts (Maubossin & Kawaja, 1999; Latcovich & Smith, 2001), a view which comes from the logic that they they employ more people and have higher fixed costs due to their physical assets. While this view is widely held, and is commonsensical, research is lacking, which explores this view further by examining if by virtue of their lower costs, online retailers actually have better profitability compared to traditional brick and mortar ones.

This paper therefore zeroes in on that question - whether the internet-only retailers are in fact more profitable than traditional retailers, on the back of assertions and the assumption that the Internet lowers the cost of doing business. By evaluating the

differences between the profitability of the two business models, it becomes possible to see if the internet has in fact had any impact.

This chapter puts into perspective the issue under investigation. It lays out the research problem and its background. It explains the scope, significance and objectives of the research. It also details the hypothesis and further clarifies the operational definitions of the key terms and concepts to put the research into perspective.

1.2 Background

The Internet has many uses. Upon its commercialization, one of its earliest applications was in retailing. The Internet is one of the many channels that retail businesses have adopted over the years. These channels range from general grocery stores, to supermarkets, to megastores, to catalogues. Yet the internet has been different in that it created a host of companies that are capable of entirely interacting with their customers in cyberspace, and transactions can be conducted remotely without any geographical restrictions. It has also created new opportunities and capabilities where, for example, digital products such as e-books, games and software can be retailed (Anderson, 2008).

Many scholars have focused on the competition and the revolutionary nature of the internet in retailing. Yet its adoption has been successful to varying degrees. The dot-com crash in 2000 is an indication of the problems that such a business model faces. Some management scholars such as Porter (2001) actually question the whole essence of the Internet business model. He argues that they make the industry unattractive by simply driving prices down.

There is consensus among scholars that the Internet brings the cost of doing

business down, the logic being, Internet companies have lower fixed costs and overheads, and employ fewer people. Many of these assumptions will be dealt with in detail in chapter 2. But the core of the arguments are aptly and succinctly posited by Anderson (2008) who argues that technological advances have democratised the means of production helping to drive prices down. For example, the advent of the computer spawned desktop publishing, which means publishing companies do not have a monopoly over the trade anymore. Likewise, mega studios do not have a monopoly over recording and distributing music anymore. In fact, according to Conneally (2008), Apple's iTunes is now the largest music retailer in the United States, surpassing the previous number one music seller, Walmart. This demonstrates the rise of the online retailing model against the traditional brick and mortar one.

The Internet indeed brought new opportunities through e-commerce. In spite of the cost advantages of e-tailing, this does not guarantee that investors, managers, venture capitalists and other stakeholders will have better returns if they run an internet business. As a matter of fact, in many cases, it has taken time for some Internet companies to make a profit. Teece (2010), asserts that;

> "Notwithstanding how the Internet has devastated the business models of industries like music recording and news, internet companies themselves have struggled to create viable business models. Indeed, during the dot.com boom and bust of 1998-2001, many new companies with zero or negative profits (and unprecedentedly low revenues) sought financial capital from the public markets, which - at least for a short while - accommodated them. Promoters managed to persuade investors that traditional revenue and profitability models no longer applied - and that the dot.com companies would (eventually) figure out (highly) profitable business models. Few have, causing

one commentator to remark that 'the demise of a popular but unsustainable business model now seems inevitable'." [pp 174]

For those firms, their investors have kept them going by investing more money in those ventures based on optimism (Zacharakisa, Shepherd, & Coombs, 2003). In selecting a business model and distribution channel, investors, venture capitalists and managers certainly need to know which of the two retailing models produces better profitability. It is therefore necessary to put the profitability of e-tailers vis-à-vis traditional retailers to the test. That is the is the fundamental purpose of this research paper.

1.3 Research Problem

Is the growth in Internet retailing, (also known as e-tailing) a reflection of better returns from the e-tailing business model compared to the traditional brick and mortar retailing model? Does e-tailing, rather than traditional retailing, lead to better returns? These are questions that are of interest to many stakeholders, hence this research paper. If e-tailing growth has not been fueled by better profitability, then factors other than better profitability are at play. The key question to be answered by this research is: *Is there a difference between the profitability of e-tailers and that of traditional retailers?* The question is of interest to academics, managers, investors, venture capitalists and entrepreneurs alike.

To answer this question, it is important to investigate how companies using the e-tailing business model have performed compared to the ones that use the traditional model. This is particularly important for entrepreneurs trying to enter the highly competitive retail markets, where there are already large and established competitors with strong customer bases, capital access, supply chain bargaining power and a

location advantages.

1.4   Research Objectives

The objective of this research is:

i.   To determine the extent to which Internet retailers have performed in terms of profitability after the dot-com bust.

ii.   Compare the profitability of Internet retailers with that of traditional retailers to determine which of the two models has better profitability.

iii. Make recommendations regarding model choice for retailers.

1.5   Research scope

There are various units of analysis for research on economic agents, such as nation states, firms or individuals (Whitley, 1999).The unit of analysis in this paper is the firm. It explores the general trend in the profitability of firms in one industry.

This research analyses the financial statements of listed companies from the period 2002 to 2009. The focus on listed companies is justified by the fact that listed companies are required to have their data published in terms of various regulations of the stock exchanges on which they are listed. This makes it a lot easier to collect secondary data in the form of published and independently audited financial statements.

The performance analyzed is from the year 2002 to 2009. 2002 was viewed as a prudent starting point because Internet firms had just started recovering from the dotcom bust which occurred in 2000. More importantly, more companies were listed after the year 2000 which makes it possible to make meaningful analyses. Analyzing the profitability over the eight year period will help generalize the performance of the firms

over time.

There is no geographical restriction on companies evaluated in this research. So for example, they can have their head-offices in Japan, or the US. The reasons for this are; first, the internet retailers have no geographical restrictions as they are able to trade across national borders. This shows how the Internet has rendered geographical boundaries irrelevant. Second, globalization has just made markets more integrated, and for comparison purposes, most of traditional retailers that are listed operate in many countries. Third, the database from which data is collected, namely the Compustat database, is synchronized to eliminate geographical differences that emanate from different accounting jurisdictions to enhance comparability of the data.

1.6   Significance of the research

The choice of a business model was critical in causing the failure of many dotcom companies at the turn of the new millennium. As noted above, entrepreneurs invest capital and skills into a venture for a return. The return they seek is as much a function of market forces as it is of their ability to increase the spread between total costs and total revenues. The outcome of this investigation will help in determining whether entrepreneurs in the retail business, whose interest, *ceteris paribus,* is to maximize profits, should pursue a full online business model anchored entirely on online distribution channels, retain a traditional model or combine both.

The outcome of this research will also be useful for academia. It will assists in the development of academic models and theory that will advance new ideas in the business of retailing in general as well as channel selection and marketing strategy in particular.

1.7   Operating definitions

de Vaus (2001:24) argues that carrying out research requires developing a nominal definition and operational definition of each concept. He asserts thus,

> Concepts are by their nature not directly observable. …To use concepts in research, we need to translate concepts into something observable – something we can measure. This involves defining and clarifying abstract concepts and developing indicators of them. This process of clarifying abstract concepts and translating them into specific, observable measures is called operationalisation and involves descending the ladder of abstraction.

The logic behind specifying definitions is that words or terms do not have fixed meanings. For instance, the word father can be defined in terms of a blood relationship, social relationship, and level of dependency or even legal relationship.

The fundamental concepts in this paper are defined thus:

i. **E-tailers**: These are full online retailers. They only use the Internet as a distribution channel to distribute their products. Their key distinctive feature is that they customers interface with the firm remotely through a website where sales are executed and delivery of the purchased product happens subsequent to the online transaction.

ii. **Traditional retailers**: These are sellers of general retail merchandise who rely on a chain of physical brick and mortar as well as other traditional channels such as catalogue. Some of these retailers have added created websites online sales. However, the online sales are not as fundamental to the business model as the physical distribution channels. As noted by Maubossin & Kawaja (1999), these traditional retailers have struggled to create an effective online presence because

they suffer cultural and structural drag from their existing physical infrastructure.

For purposes of this research, the fundamental distiction between e-tailers and traditional retailers as defined above is anchored on the dichotomy posited by Christensen (1997) when he suggested that innovation is either sustaining or disruptive. A review of this argument is adequately covered in Chapter 2, suffice to say here that e-tailers use the internet as a disruptive innovation whereas traditional retailers that have websites for online sales use it as a sustaining innovation.

iii. **Profitability:** While in economics profitability is looked at from the perspective of nominal and economic profits (McConnell & Brue, 2001), which also incorporate opportunity costs, this paper looks at profitability from an accounting perspective. The difference being that the economics perspective includes implicit and explicit costs whereas the accounting perspective which looks at profit as the difference between revenues and explicit costs.

In line with the foregoing, the following profitability ratios/ measures are used to evaluate the two retailing models. These measures are popularly used yardsticks of finanicial performance (Higgins, 2009). Wang, Chen, & Chang (2004), citing Brown, Gatian and Hicks (1995) state that **return on equity**, **return on investment** and **return on assets** are all closely related and widely used and accepted measures of profitability. Their definitions according to the Compustat database from which the data is extracted are as follows:

i. GP Margin[2] $= \frac{Revenue\ -Total\ costs\ of\ goods\ sold}{Revenue} \times 100$

ii. NP Margin $= \frac{Income\ before\ extraordinary\ items}{Revenue} \times 100$

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[2] *Abbreviations are defined in the list of abbreviations.*

iii.   ROA $= \frac{Income\ before\ extraordinary\ items}{Total\ Assets} \times 100$

iv.   ROE $= \frac{Income\ before\ extraordinary\ items - dividends}{Comon\ equity} \times 100$

v.   ROIC $= \frac{Income\ before\ extraordinary\ items \times (1 - tax\ rate)}{Invested\ capital} \times 100.$

In operationalising these measures, the ratios for each firm that is identified in a sample will be used to generalise the performance of each business model through statistical testing.

1.8   Hypotheses

On the basis of the research problem detailed above, the following is the hypothesis for this paper.

H_0 : *At a 0.05 level of significance, there is no difference in profitability measures between online retailers and traditional retailers. (H_0: $\mu_1 - \mu_2 = 0$).*

H_1:   *At a 0.05 level of significance, there is a significant difference in the profitability measures of online retailers and traditional retailers. (H_1: $\mu_1 - \mu_2 \neq 0$).*

1.9   Chapter Conclusion

This chapter put into perspective the issue under investigation. It laid out the research problem, its background, the scope, significance and objectives of the research. It also stated the hypothesis, and clarified the operational definitions of the key terms and concepts.

In is important to locate the research in the context of theoretical work and research conducted by other scholars. That way, it is possible to determine where the research is going to make an addition to the existing body of knowledge. Chapter two

reviews the existing body of literature and theory relating to this research. It explores the key developments in retailing, with a particular focus on innovation and profitability. It highlights the gap being filled by this research.

Chapter three explores the methodology adopted in carrying out the research to address the research question. It spells out the research's philosophical grounding. The empirical methodology used is designed to generalize the characteristics and analyze relationships between the business models which is achieved through statistical analysis.

The fourth chapter details the results from the statistical tests. Furthermore, it discusses the results by analyzing the characteristics and relationships between the variables. It also seeks to interpret the findings by addressing the hypothesis, and drawing conclusions on the output from the statistical computations. Chapter five on the other hand highlights the most important findings of the study. It further notes the limitations of the research and also identifies the area that needs further research.

Chapter 2: Literature Review

2.1   Retailing and the Supply Chain

The purpose of this research is to determine if there is a difference in profitability between two retailing business model, *viz.,* online retailing and traditional retailing. These terms have been defined in chapter one and they are explored further in this chapter. If indeed there is a difference in profitability between the two models, then, it provides insight for investors, entrepreneurs, venture capitalists as well as academics, especially given that the primary motive for businesses is to make a profit.

This chapter explores the existing literature and theories posited by other scholars relating to the research question. It details the evolution the retail industry has undergone, and presents a framework which highlights the gap which this research fills. The concept of business models is clearly defined. Since innovation has given rise to the development of various business models in use today, this chapter also explores the theories of innovation, with a particular emphasis on the work by Christensen, which is critical for the operational definitions given in chapter 1. The concept of the long tail, which flows from innovation and the Internet, is also discussed. Figure 6 shows the theoretical framework and important concepts from the work by other scholars which builds up to this research. This figure locates the area where this research adds value to the existing body of knowledge.

2.2   Retailing and the Supply Chain

Retailing is a critical part of the supply chain. It is useful in that chain because it delivers value to the customer by breaking bulky goods and services from

manufacturers and other suppliers, selling those goods off to consumers in smaller quantities. Its importance is underscored by the large contribution it makes to the world economy.

Yet the industry has certainly evolved over the century with innovation taking place at different times as businesses sought to compete and create competitive advantage. One of the arguably most profound developments the retail industry has seen is the use of the Internet as a delivery channel to conduct business. Some academics and analysts have predicted the beginning of the end of the traditional brick and mortar retailer due to the growth in Internet retailing (Schlauch & Laposa, 2001). Yet since the advent of the Internet sixteen years ago, online trade, despite getting a boost from the worldwide recession over the last three years has generated between 2% to 3% of traditional retailers' total turnover (PricewaterhouseCoopers, 2010).

2.3   Evolution of the retail industry.

The only thing that does not change is change itself. For everything else, particularly in business, there is a continuous evolution of ideas and technologies driven by a desire to, not only compete for sales, but to survive. The Darwinism notion of survival of the fittest cannot be separated from the way businesses compete and continuously evolve to remain afloat. Some of the factors that spurred the growth and evolution of the retail sector were exogenous, meaning that they did not originate from within the sector itself. For example, the retail industry benefitted in part due to innovations in the payment systems in the financial sector – the personal cheques and credit cards (Berger, Hancock, & Marquardt, 1996).

2.3.1 From grocery store to warehouses and catalogues

Anderson (2008) comprehensively explores the growth and developments in the retailing industry, mostly led by companies in the United States. From the old grocery store, innovators created catalogue selling, and also invented one of the major innovations in retailing, the supermarket. This section will draw in large part from Anderson's work. He notes that,

> "It took decades for these innovations to emerge and evolve. …Indeed, the true roots of the Long Tail and unlimited shelf space go back to the late nineteenth century and the first giant centralized warehouses… starting in Chicago. Under the steel roofs, the era of massive choice and availability arose on towers of wooden pallets built with purchasing afforded by then-new mass production. [pp 41-42].

These retailers led by Richard Sear, founder of Sears, Roebuck & Co. employed volume buying; and utilized railroads, catalogues and the postal system to sell their products. Then it was a new frontier.

2.3.2 Supermarkets

This was followed in 1930 in New York by the advent of the supermarket whose value proposition was offering self-service, abundance, lower prices, one-stop-shopping and choice (Ortega, 1999). The shopping cart/trolley was an effective accessory in the evolution of the supermarket. To underscore the importance and profound impact of the supermarket as a retailing innovation, Anderson (2008) citing the Food Marketing Institute, asserts that during the cold war period from 1985 to 1988, around 50 000 citizens visited the US from Soviet Union mostly 'touring' an American supermarket as part of their visit.

2.3.3 Revitalization of catalogue shopping

The era of catalogue shopping was revitalized in the 1960s, largely due to a new telecommunications innovation called toll-free numbers. Started by AT&T in 1967 as a way of combating the then looming shortages of telephone operators, the toll-free numbers enabled retailers to target the niche markets of suburban consumers with branded goods through the use of the catalogue. The advent of colour printing capabilities also made way for attractive catalogues which were used to 'carpet-bomb' the consumers, and they would easily call back on the toll-free numbers. Of course, this was enabled and abated by the evolution in payment systems such as checks and credit cards.

2.3.4 E-commerce and e-tailing

As posited by Anderson (2008), the advent of the Internet in 1994 created the birth of the 'ultimate catalogue'. The supermarket, or shop front or catalogue had been a delivery channel which was core to the business model of traditional retailers. The invention of the Internet was profound, not only because it connected the world digitally, but it revolutionized the retail sector, as it did several other industries. It opened a new low-cost channel which altered business models profoundly, targeting various market niches and opening unprecedented access to global markets. PricewaterhouseCoopers (2010) notes that,

> "In the west, remote retailing has been developing since the late 1940s. Several generations have grown up on mail orders. The logistics of mail order processing had already been streamlined as new technologies appeared; the principles of catalogue

retailing were just transferred to the Internet. [pp 11].

Given that e-tailing is core to this paper's thesis, it shall be discussed in detail below.

2.4   Innovation and types of innovation

The foregoing points to how the retail industry has evolved over the years. It can be argued that there have been fundamental changes to the industry. This evolution cannot be addressed adequately without discussing the issue of innovation. To adequately address innovation as it relates to traditional retailing and e-tailing, it is important to explore the definition of innovation, its nature as well as sources.

2.4.1   What is innovation?

Innovation is defined as a change in the product or service range an organization takes to the market (Johnson, 2001). Johnson's view is certainly inadequate. Levitt (1966) posits that innovation can be viewed from two perspectives: something new that has never been done; or may not be entirely new elsewhere, but new to a specific industry or company. This latter perspective can be stretched to include taking a not so new product to a new market (Foster, 1986). Innovation seems to be distinct from invention, which is the embodiment of something new. Innovation happens when an invention has been accepted by society which often manifests through high sales as well as social and commercial reorganization.

It can be argued that there is an obvious Schumpeterian characteristic to the innovation that has taken place in the retail sector in the sense that it has been destructive, with older concepts being replaced or overshadowed by new ones. Yet this is not so in many respects, especially when e-tailing is comparatively evaluated against

traditional retailing from a profitability perspective – which forms the essence of this research paper.

2.4.2   Sources of innovation

Drucker (1993) suggests timeless and persuasive 'sources' of innovation, which shed great insights on innovation. In his arguments, he asserts that innovation and entrepreneurship are closely intertwined, and that innovation is an economic or social and not a technical term. With regards to the seven sources of innovation, Drucker writes that;

> "The first four sources lie within the enterprise, whether business or public-service institution, or within an industry or service sector. They are therefore visible to people within that industry…. They are basically symptoms. But they are highly reliable indicators of changes that have already happened or can be made to happen…. [These] are:
>
> ● The unexpected – the unexpected success, the unexpected failure, the unexpected outside event;
>
> ● The incongruity – between reality as it actually is and reality as it is assumed to be, or as it 'ought to be';
>
> ● Innovation based on process need;
>
> ● Changes in industry structure or market structure that catches everyone unawares.
>
> [pp 35]

He further argues that the second set of sources of innovation, which entail changes exogenous to the enterprise or industry are demographic changes; changes in perceptions and moods; and new scientific and non-scientific knowledge.

It is submitted here that the innovation that gave rise to the new business model called e-tailing, was a combination of exogenous and endogenous factors, yet the most profound was the opportunity based on process need. Internet technology, itself having been developed exogenously to retailing provided an opportunity to profoundly revamp the process of selling products and services to customers. The premise for its development was that, just like the catalogue retailing channel, customers could still obtain products and services without coming to the physical store as is the case with traditional brick and mortar retailing. This is why Anderson (2008: 47) calls e-tailing the 'ultimate catalogue'. It's an innovation that not only automated the process of retailing, but capacitated retailers to sell to niches at a lower cost.

2.4.3   Types of innovation

Christensen (1997); and Christensen & Raynor, (2003) make a profound distinction between innovations by arguing that a technology is either sustaining or disruptive. The first sort may be incremental, radical or even discontinuous in nature, but "ultimately improves the performance of established products along the dimensions that mainstream customers in major markets have historically valued", (Maubossin & Kawaja, 1999). On the other hand disruptive innovations disrupt and redefine "performance trajectories", according to Christensen. There is a tendency by incumbent established firms to ignore disruptive technology because it is pursued by small firms operating in market niches whose profit margins are tight. He asserts that when carrying out his research;

> "Generally, disruptive innovations were technologically straightforward, consisting of off-the-shelf components put together in a product architecture that was often simpler than prior approaches. They offered less of what customers in established markets

wanted and so could rarely be initially employed there. They offered a different package of attributes valued only in emerging markets remote from, and unimportant to, the mainstream." [pp 15].

An important concept that Christensen posits is the *value network*, which is the context within which a firm identifies and responds to customers' needs, solves problems, procures inputs, reacts to competitors, and strives for profit. He defines it as,

"The collection of upstream suppliers, downstream channels to market, and ancillary providers that support a common business model within an industry. When would-be disruptors enter into existing value networks, they must adapt their business models to conform to the value network and therefore fail that disruption because they become co-opted [pp, 296].

Christensen's dichotomy is not without criticism. Danneels (2004) contends that a disruptive technology is one that alters the competition basis by altering the performance metrics on which firms compete. He further argues that Christensen does not set clear criteria for determining a disruptive technology. Notwithstanding this limitation, it is submitted here, in agreement with Mauboussin & Kawaja (1999) that Christensen's framework holds tremendous explanatory power for assessing the transformation going on in business and is also useful in understanding the nature of the "disruptive" change that the Internet has brought upon the retail industry. The key question, in light of the foregoing theory by Christensen is, *is e-tailing, spawned by the Internet and e-commerce a sustaining or a disruptive technology?* This paper takes the view that the Internet significantly altered the competition metrics in the retail industry, which renders it a disruptive technology.

The importance of the **sustaining** versus **disruptive** technology dichotomy to

this thesis is underscored by Mauboussin and Kawaja (1999)'s position that traditional retailers have a dilemma. They argue thus;

> 'The dilemma for traditional retailers is how to deal with this new value network [the Internet]. This is especially important because most retailers are highly leveraged to changes in incremental revenue. Some view the Internet as a sustaining technology that merely adds another node of distribution to the traditional retail operation. We prefer to view online retail as a disruptive technology.' [pp 3]

This argument forms the basis upon which this paper distinguishes the two business models. Pure online retailers are utilizing disruptive technology. On the other hand traditional brick and mortar retailers, despite that they may have adopted the Internet to notch up some online sales, maintain brick and mortar outlets and have only adopted e-commerce as a sustaining technology to avoid the so-called death from below the 'S-curve'.

2.5   Business models

The relevance of a business model in this discussion cannot be overemphasized. This is precisely because retailing and e-tailing are, albeit sometimes complimentary where a multi-channel approach is taken, arguably competing models. To adequately locate the arguments in existing literature and theory into context, it is necessary to look at what a business model is and how the two marketing channels are viewed differently in the context of this paper, and how these arguments underpin the research question.

2.5.1   What is a business model?

Shin & Yongtae (2009) citing the work of Applegate (2001), Timmers (1988),

and Weill & Vitale (2001) argue that a number of studies have tried to define the concept of a business model or its major components yet the concept as grounded in its multiple domains remains unclear and poorly defined. They suggest that put simply; the purpose of a business model is to show how to make money, making that economic dimension core to any definition of a business model. They further argue that at the core of a business model are business processes. Following this later logic, this point about processes ties in with Drucker (1993)'s assertion on process-driven innovation. It therefore "*seems to refer to a loose conception of how a company does business and generates revenue*," (Porter, 2001). It addresses questions about, "who is the customer?", "what does the customer value?", "how do we make money in this business?", "what is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost?" (Magretta, 2002).

Timmons & Spinelli (2009) suggest that strategies of any firm are driven by its business model. They define a model as comprising the revenue component as well as the cost element, the former being a breakdown of sources of revenue and the latter being a breakdown of how resources are spent to make money; often as represented by the income statement. For instance, they suggest that Amazon.com's business model is to become the Wal-Mart of the Internet; pursuing different categories purely using the web as its store front. Therefore its business model is pure online retailing. This is notwithstanding the fact that it has physical real estate in the form of warehousing.

Other examples of business models would be the licensing route that is pursued by software companies; the Internet based downloads of music and applications, anchored on controlling content, pursued by Apple Inc. for its iPod and iTunes platform; the Internet based download-as-needed model followed by companies such as Google

and Amazon that are pursuing cloud computing; and the advertisement-supported models followed by television broadcasters. It is irrefutable that a business that plans to not only sustain itself, but also develop a competitive advantage has to be clear about its business model. It should also ensure the business model evolves through innovation to stay ahead of the game.

Johnson, Christensen, & Kagermann (2008) in the article 'Reinventing your business model', suggest that a business model comprises four connected and interlocking elements that create and deliver value, namely key resources, key processes, a customer value proposition and a profit formula. They further argue that a business model innovation is critical to successful market disruption by any innovation.

This paper juxtaposes two business models on the basis of Christensen's innovation dichotomy - whether a firm views technology as sustaining or disruptive. On this basis, two business models emerge. The first category is that of retailers that use only the Internet as a delivery channel. They may in some cases have real estate in the form of warehouses for storage of stock, but their interface with the customer is purely online. Also known as e-tailers, or online retailers or pure-play Internet retailers, these businesses view the Internet as a disruptive technology (Mauboussin & Kawaja, 1999). On the other hand, the second category comprises traditional retailers. These retailers primarily rely on the traditional brick and mortar physical store as a critical delivery channel. Some of them have websites for selling their merchandise online, which may contribute significantly to revenues, but the important thing is that they take a multi-channel approach because they view the Internet as a sustaining technology, which simply improves the retailing process.

To emphasize this point, Chen & Liteney (2000) point out that;

"… it is necessary to understand how Internet retailing differs from conventional forms of retailing. Unfortunately …there is no generally accepted classification of different types of retailing in the literature. …. Therefore, we suggest a useful way to begin to understand how Internet retailing is different from other forms of retail is to compare Internet retailing with the conventional stores and direct formats". [pp 520]

On the basis of these arguments, this research paper explores profitability between the two retailing business models.

2.5.2   The traditional brick and mortar model

As argued above, the traditional brick and mortar business model views the Internet as a sustaining technology and operates physical stores among other channels. In anecdotal parlance, they are also referred as '***bricks and click**s*' retailers because they may have a multi-channel offline and online combination. For instance, a bookstore chain such as Barnes and Noble, has online and offline channels. Customers can go into a Barnes and Noble store and buy a book. But they may also order online and go pick up their ordered books from the nearest store. Hereinafter, brick and mortar or brick and click retailers will **be referred to as traditional retailers.**

As chronicled above, traditional retailers have evolved over the years, adopting many sustaining innovations that have seen many of them grow into global companies. Companies such as Wal-Mart, Toys 'R' Us, K-Mart and convenience store chains such as Seven Eleven and Family Mart in Japan have all evolved over the years by adopting sustaining innovations, sometimes radical, but without changing the business model with regards to delivery channels like the brick and mortar store. This model has no doubt worked. For example, Wal-Mart was the world's largest public company by revenue in 2010, with a turnover of $408 billion (Forbes.com, 2010).

As noted above, some traditional retailers have adopted online selling as a sustaining innovation, hence the term 'brick and click'. However, Mauboussin and Kawaja (1999) point out that traditional retailers encounter problems in changing their business model. One of the challenges is culture, implying that they fail to '…build a new thrust into their DNA and adequate incentives are not put in place quickly enough to attract talent'. The other challenge is capital, as it takes capital muscle to transition to an infrastructure that supports an online delivery channel. Moreover, there is a steep learning curve to be navigated by a traditional retailer planning to add 'clicks' to the existing brick and mortar outlets. Johnson, Christensen, & Kagermann (2008) argue that the reason why traditional businesses cannot adopt disruptive innovations is because even if the idea had been disruptive, innovators will have to evolve and morph the disruptive idea to conform to existing rigidities such as expected margins usually formulated on the basis of the economic model of equating marginal costs to marginal revenue.

Yet traditional retailers have thrived on the basis of not just appealing to the sense of hobby that consumers experience when they 'go shopping', but also what Mauboussin and Kawaja (1999: 7) refer to as the "instant gratification problem" where a customer, after physically going to a brick and mortar shop gets fulfillment at the point of sale by walking out with the product, which is not possible with online shopping. They don't have to wait for the product to be delivered after paying for it. Associated with this is the problem of uncertainty customers have after buying a product online. PricewaterhouseCoopers (2010) carried out research in Russia and concluded that after making an online payment for an online purchase, customers were generally uncertain about the condition of goods delivered, and many named problems

with returned or faulty goods as a major issue with online shopping.

Another issue that makes traditional retailers thrive is, as noted by PricewaterhouseCoopers (2010), consumers draw value from the economics of information spawned by the growth of the Internet where they can search freely about products (Anderson, 2008), and then go to the physical store to buy, which points to a lack of consumer trust in businesses other than brick and mortar, in emerging markets such as Russia. So in this case, customers in these markets trust the information they get on the Internet more than the information they get from the retailer, yet they may prefer to go to the physical store to execute the purchase.

Chen & Liteney (2000: 519) make a valid argument that much of the online threat posed by full online retailers was overhyped. They argue that,

> "Early predictions were that the new web-based retailers would wipe out many existing retailers since they had lower property and stock-keeping costs than brick and mortar businesses and also lower printing and postage costs than catalogue retailers.

Yet the same authors assert that the greatest threat to traditional retailers is "disintermediation and new intermediaries"[3]. Many traditional retailers however, enjoy the advantage of brand recognition (PricewaterhouseCoopers, 2010; Yan, 2008). This is bacause of their history and age related to their brands and their association with a community of customers over time; which gives them a good share of mind of the customer. In many cases, traditional retailers spend a lot on promoting their brands.

Anderson (2008) argues that traditional retailers suffer from the "the tyranny of geograpy". As such, they cannot tap into the distributed demand outside their geographical zones, which makes them lose out. While traditional retailers can be

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[3] *See framework in figure 3*

criticised for inconvenience arising from the fact that they have opening and closing hours, convenience stores have attempted to mitigate this by opening for twenty-four hours a day. The convenience comes at a cost though, as prices of goods in convenience stores are high.

Anderson further argues that they suffer from the '**tyranny of shelf-space**'. This means that traditional retailers, because of their use of physical retail outlets can only accommodate as much as their shelf space can allow them. Moreover, the physical item can only be in one place at one time.

2.5.3 Online retailing/e-tailing

Online retailing, also known as electronic retailing, and shortened as e-tailing is a business model that entails the trading of goods and services to consumers via the Internet (Wang, Head & Archer , 2002; Xu & Quaddus, 2010). This paper will look at full online retailers/ e-tailers as distinct from traditional retailers. The distinct feature of e-tailers is that they sell their products over the Internet and do not run any physical stores as a distribution channel, other than distribution warehouses. In line with Christensen's framework on innovation, e-tailers adopt disruptive innovation because e-tailing developed in its own value network (Maubossin & Kawaja, 1999). Despite suffering from the dot.com collapse of 2000, e-tailing as a business model has evolved to challenge the status quo for traditional retailers. As alluded to earlier, a disruptive technology will have to satisfy the performance demanded by users in the traditional value network.

E-tailing according to Chen & Liteney (2000) involves the use of different technologies and the Internet as a medium. Retailers can choose one or more of the technologies. They posit the following framework as an internet retail model:
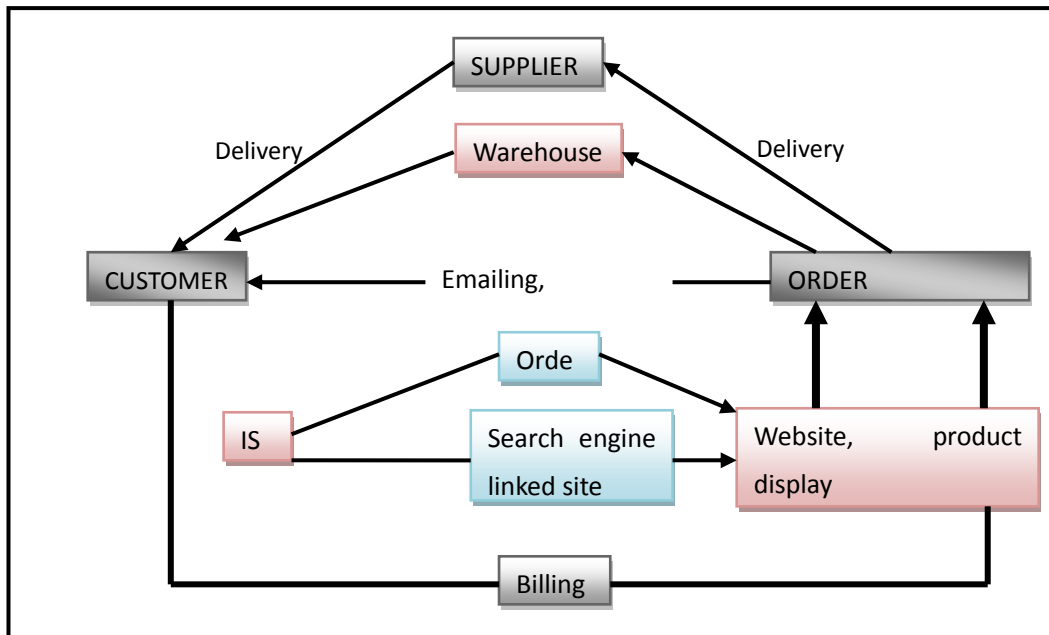
Figure 1: Internet Retailing Model

E-tailing explores the performance limits of two key retail drivers namely price and assortment; over and above the unique value of offering twenty four hour service and access. If properly maintained, an e-tailer's website also offers reliability through updates and tracking, as well as quick execution of orders (Maubossin & Kawaja, 1999). This means the e-tailer's back office systems have to be efficient to properly perform. Whilst they assert that e-tailers are also investing in physical assets to build competitive advantage, recent literature shows that e-tailors are gravitating towards the concept of aggregation (Anderson, 2008). This concept will be covered under 2.6 below.

Many writers attribute the growth of e-tailing not just to the advent of the internet and disruptive innovation, but also to "CLUMPS scenario" ((Maubossin & Kawaja, 1999; Anderson, 2008). This means that '*computer literate upwardly mobile professionals*' who seek convenience and pursue new brands and activities spurred the growth of Internet shopping.

Clearly, the advantage of Internet shopping for customers is not just that it saves on the cost of travelling to the physical store. In a survey conducted by PricewaterhouseCoopers in Russia, they found that 75% of the respondents who shop online do so because its convenient and it saves time (PricewaterhouseCoopers, 2010).

In general, e-tailing has enhanced the availability of information on products and services to the benefit of consumers. The fact that e-tailers are available on the Internet ensures that search engines, which aggregate information, are able to provide information to customers who search the Internet for product information. Customers are able to compare products and prices at their own convenience before deciding what to buy (Boston Consulting Group, 2000). In a testimony before the US Congress, Amazon.com's Cohen (2009:1) asserted that:

"Consumers who use the Internet are able to easily find, compare and purchase products because of the convenient access to vast amounts of information. …Because of the Internet, businesses and consumers are no longer bound by geography and may sell and trade with one another through local, national and global markets. Businesses are able to offer, and consumers are able to compare more products and brands, effectively increasing the depth of the market. These and other benefits inherent in Internet technologies have resulted in new and innovative retail business models and growing retail commerce that brings benefits to consumers, retailers and the overall economy. [1].

Despite this informational advantage that comes with the Internet, it can also be argued that for traditional retailers, a customer is able to buy goods in the same category from one place instead of spending time searching.

There is consensus among scholars that e-commerce lowers the costs of doing

business. This is based on the premise that they have lower physical capital requirements, which lowers the cost of running an e-store (Srinivasan, Anderson, & Ponnavolu, 2002; Brynjolfsson & Smith, 2000; Anderson, 2008); Brynjolfsson & Smith carried out a survey and concluded that prices were lower by 9-16% on the Internet than in conventional outlets in the USA. Srinivasan, Anderson, & Ponnavolu (2002) write thus;

> "This rapid growth of e-retailing reflects the compelling advantages that it offers over conventional brick-and-mortar stores, including greater flexibility, enhanced market outreach, lower cost structures, faster transactions, broader product lines, greater convenience, and customization" [pp41].

All this has greater economic value to the consumer.

However, it has been noted that e-tailing has its own problems. One of the greatest challenges encountered by e-tailers is the issue of security in carrying out transactions over the Internet. According to Mazur, Mazur, & Mendyk-Krajewska (2009), IT and e-commerce solutions make transactions easier, but they also bring with them tremendous threats such as computer viruses, spam, network traffic eavesdropping aimed at stealing personal data, as well as undesirable activities such as phishing. They argue that it is **impossible** to secure eletronic transactions 100%. They write that:

> "The most cautious internet users are the Americans and the French who are very mistrustful about making payments online. Research conducted by F-Secure among people aged 20-40 from different countries (the USA, Canada, Great Britain, France, Germany, Italy, India and Hong Kong) has shown that on average around 31% of people are afraid of making financial transactions via the Internet with a credit card."[pp244]

The fact that computer intrusions have increased, is evidenced by the fact that even intrusions into the USA's Pentagon system increased in 2008 to 360 million (Newsweek, 2011). Again, the US's amarment programs such as the joint strike fighter project, have been hacked costing $100 million to rebuild the systems (Mazur, Mazur, & Mendyk-Krajewska, 2009). These developments expose the weaknesses that online e-tailers have to content with as fruadsters and hackers can steal customer credit card information and commit fraud.

It has also been argued by traditonal retailers that e-tailers are free-riders who ride on the wave of promotional expenditure by traditional retailers. However, a counter argument can be made that traditional retailers can actually free-ride as well on e-tailers as some customers tend to search information on a product on the Internet but then go on to buy it from a physical store (PricewaterhouseCoopers, 2010). Cohen (2009) asserts that the free-riding argument against e-tailers can actually be turned on its head as e-tailers cannot depend on their competitors to provide information and create sales because it is strategically risky as it amounts to trading off their competitive advantage which is core to their business model.

2.6   The long tail

This section looks at the pertinent concept of the long tail propounded by Anderson, (2008). It will largely draw from his work. This concept is critical in evaluating the evolution of business models in and outside the retail industry. The long tail concept puts into perspective the capabilities of the traditional retailing model vis-à-vis the e-tailing one.

2.6.1   What is the Long tail?

The term **long tail** derives from the statistical reality that the majority of the population under a normal distribution curve actually lies under the tails rather than under the bell part of the curve. Anderson (2008) posits that there is a rising crop of businesses that make huge profits by selling small volumes of items to a large number of people. His **Long Tail** theory therefore derives from the fact that contrary to the Pareto rule[4], which has been applied in business for many decades; millions of the world's population lies as viable market niches under the tails of the curve; hence the tails are 'long'. The long tail has gained tremendous traction over the last few years, in the retailing industry.   According to Anderson;

> "The theory of the long tail can be boiled down to this: our culture and economy are increasingly shifting away from a focus on a relatively small number of hits (mainstream products and markets) at the head of the demand curve and moving towards a number of niches in the tail. … without the constraints of physical shelf space and bottlenecks of distribution, narrowly targeted goods and services can be as equally attractive as mainstream fare." [pp52]

The advent of the computer in the later part of the 20th century and the development of the Internet and the World Wide Web presented a way to eliminate most of the physical barriers to unlimited selection. Brick and mortar retailers may have economies of scale, but, they have to deal with *'the economics of shelves, walls, locations, working hours and weather'* (Anderson, 2008). The Internet presents a way to surmount these barriers. As a result, it has replaced catalogue shopping in a big way. Anderson posits that there is everything in the long tail. It has every product and idea

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[4] *The 80/20 rule – the notion that a small number have a much larger impact, low frequency – high amplitude.*

that has never made it into the mainstream of hits. For example, movies that never become blockbusters in the movie circuit still have market niches in the long tail. He argues that there are long tails everywhere, not just in retailing but also in the following instances:

- The long tail of advertising; e.g. Google and online social media.

- The long tail of video games; e.g., Microsoft's small and cheap games downloadable on Xbox Live network.

- Long tail of software programming; e.g. Linux and Firefox open source platforms.

- Long tail of beer; e.g.; proliferation of microbrews and Anheuser-Busch's creation of a unit called *Long Tail libations* to sell niche drinks.

- Long tail of fashion; e.g., customized casual and formal wear,

- Long tail of education; e.g., online universities.

- Long tail of broadcasting; e.g., online broadcasters like Justin TV.

- The long tail of encyclopedias; e.g., Wikipedia.

- The long tail of newspapers and journalism; e.g. Wikipedia and he blogosphere.
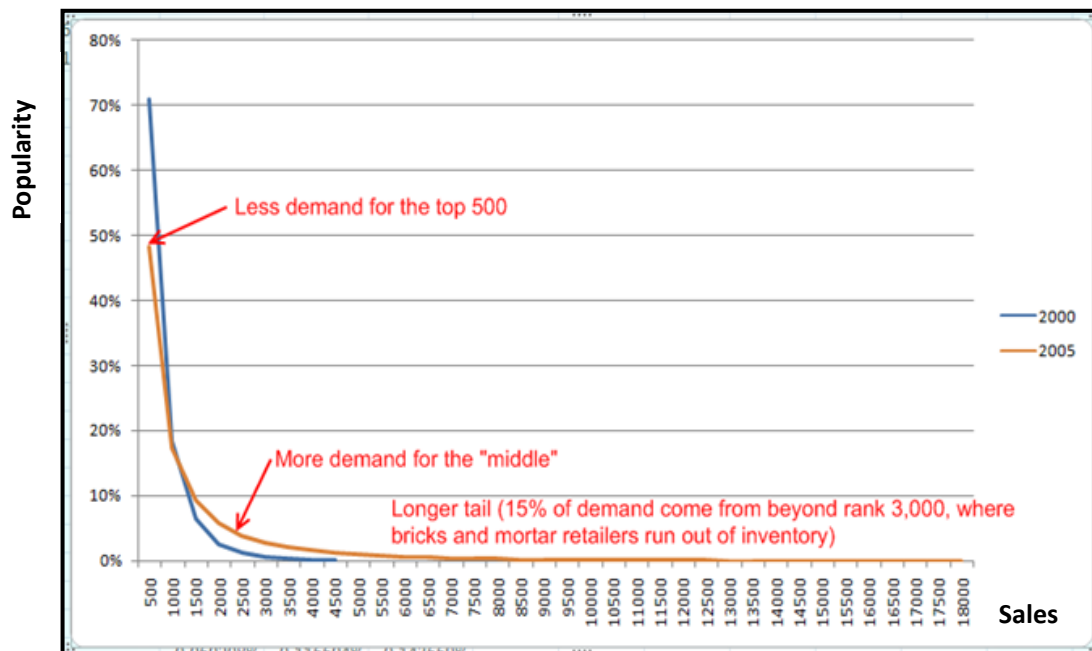
Figure 2: Graphical depiction of the long tail. (Source: www.longtail.com)

2.6.2   Why the long tail?

According to Anderson the long tail has developed due to innovation and IT advances. Three forces explain the concept. The first one is '**democratization of the tools of production'**. Personal computers and increasingly user-friendly software has enabled everyone to become a low cost producer. For example, making a magazine used to the preserve of large scale publishers, yet nowadays, high quality magazines can be made through desktop publishing capabilities and high quality home printers that are available to almost anyone with a low budget. As more products are created, this extends the tail further to the right, lowering the cost of the products.

The second force is what he terms 'democratization of distribution'. While the PC created a multiplicity of producers and drastically reduced capital as a barrier to entry, the Internet has enabled everyone to do distribution, taking away the barrier to entry that comes with brick and mortar distribution channels. Anderson calls this the

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'*economics of bits versus atoms'*. People do not need decades of spending billions of dollars building supply chain infrastructure such as super-centres, warehouses and trucks. He argues that;

> "The Internet simply makes it cheaper to reach more people, effectively increasing the liquidity of the market in the tail. That, in turn translates to more consumption, effectively raising the sales line and increasing the sales under the curve". [pp 55]

The third force put forward by Anderson is what he terms **'connecting supply and demand'**. This force is largely an informational one. One of the factors that restrict consumers' access to unlimited choice is search costs. Information search costs such as time and money tend to increase costs of buying a product or service, yet information availability tends to make the task of finding the right product at the right price much easier. With the availability of internet search engines, internet-driven recommendations, blogs and product reviews, consumers now have more information about a product, its performance and price than they had ten years ago.

A combination of these forces has the great impact of stretching the tail further out making it *longer and longer,* hence the 'long tail'. One of the major trends that make the tail longer is the conversion of certain products to electronic formats – the so-called conversion *'from atoms to bits'* which significantly reduces the costs of these products. For examples, books are now available as e-books which can be downloaded on an e-book reader. The same applies to airline e-tickets among other things.

As such, the impact of technology on the long tail can be summarized as follows:

Table 1: Forces & Impact of the Long Tail

Force	Business	Example
Democratize production	Long tail toolmakers, producers	Digital video cameras, desktop music and video editing software, blogging tools
Democratize distribution	Long tail aggregators	Amazon, eBay, iTunes, Netflix
Connect Supply & Demand	Long tail filters	Google, blogs, recommendations and best seller lists.

Source: Anderson (2008: 57)

A critical term in the table 1 above is '*aggregators*' - a business model arising from the democratisation of distribution. Anderson defines an aggregator as a a firm or service 'that collects a huge variety of goods and makes them available and easy to find, typically in a single place'. He further posits that in general, business aggregators fall into five categories, namely; physical goods, digital goods, advertising services, information, and comunities/user generated content. These firms can range from one man operations to large firms like Google, eBay, Rakuten, Wikipedia and MySpace.

Physical goods and digital goods have varying impacts on the long tail. The former extends the long tail, yet the latter can extend the tail even further down. The reason is, if for example, Amazon.com can sell physical books over the Internet and stretch the tail much further than a brick and mortar store would, but the fact that they are physical books means they eventually reach a limit. However, if it sells e-books over the Kindle[5], it is able to stretch the tail much much longer. Anderson calls this digital impact on the long tail the economic advantage of bits over atoms.

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[5] *The Kindle is an e-book reader sold by Amazon.com to which e-books are downloaded for reading*

2.6.3 Why this is important to retailing

The foregoing evaluation of physical goods and digital goods is important to the business of retailing in that it helps determine how retailing has evolved. In fact the notion of democratisation of distribution is about expanding the scope and scale of retailing. On the basis of the dichotomy between physical and digital goods described above, Anderson asserts that the retail aggregators are also dichotomous, and can be categorised into hybrid retailers and pure digital retailers.

The hybrid retailer is defined by Anderson as a cross between economies of mail order (physical) and Internet (digital) goods. Goods purchased by customers online are delivered through mail or courier. The advantage of this model comes in through the efficiences amassed through lowering supply chain costs with centralised warehouses and being able to offer unlimited catalogue and search informational capabilities. The only limit to its impact on the long tail is the reality that physical stock has to be stored somewhere. Therefore, holding physical stock comes with inventory risk, and add to that the cost of shipping the product. So, for instance, Amazon.com may have physical CDs in stock which may sell or may not sell (inventory risk), and they have a shipping cost when purchased. However, Apple's iTunes can actually sell that music without the inventory risk of holding stock in a warehouse, and with no shipping costs as the customer simply needs to download it to an iPod.

The iTunes example above represents the pure digital retailer category. Each product sold is a pure database digital entry sitting on a server somewhere which costs effectivley nothing. There is no inventory risk. The distribution costs are mere broadband megabytes bought in bulk by the customer and incurred when the product is

downloaded, but the cost is next to nothing. The retailer can choose whether to sell a product which will be a download (eg, iTunes) or as a service through unlimited service subscriptions. The important thing is that pure downloads have *'near-zero marginal costs of manufacturing and distribution"*.

2.6.4   The difference between traditional retailers and Long tail retailers

Quite clearly, the distinction between the two retail business models in line with the theory of the long tail is very thin. According to Anderson (2008),

> "…there is no simple divide between traditional retailers and long tail ones. Instead it's a progression from the ecomics of pure atoms, to a hybrid of bits and atoms, to the ideal domain of pure bits. Digitial catalogues of physical goods lower the economics of distribution far enough to get part way down the potential tail. The rest is left to the even more efficient economics of pure digital distribution. Both are long tails, but one is potentially longer than the other." [pp91].

The economics of manufacturing and distribution noted above demonstrate the low cost argument pushed through by many scholars as the advantage of e-tailers over traditional retailers.

Another major difference between traditional retailers and e-tailers is an informational one. E-tailers tend to have more data and insights about their customers than traditional retailers because of their unique ability to capture information about the customer's country, state, precise location, age, and previous purchases among other characteristics. They can also get instantaneous feedback and can make recommendations on what customers looking for a similar product have purchased.

2.7   The Economics of retail models and returns.

Many scholars are in agreement that e-commerce reduces the cost structure of businesses, due to its wider reach. As asserted by Anderson (2008), online businesses do not suffer from the limitations or tyranny of geography, weather or shelves. Vulkan (2003) suggests that notwithstanding the misfortunes of many dotcoms at the turn of the millenium, e-commerce will have major and lasting effects on economic activity, yet the rise and fall in the valuations of the first wave of e-commerce companies show that vague promises of distant profits are insufficient. This suggests that only business models based on sound economic propositions will fulfill those promises.

2.7.1   Disintermediation & Customer satifaction vs shareholder value argument

Chen & Liteney (2000) posit that the traditional retailer suffers from two threats, namely new intermediaries and disintermediation as shown in the figure below. This disintermediation is premised on the economics of low cost propositions from the new intermediaries. Yan (2008) did a comparative review of multi-channel traditional retailers and pure play online retailers and concluded that pure play online retailers offer lower prices. An empirical study by Ankaran and Shanker (2004) revealed that multi-channel retailers have the highest prices while pure play retailers have the lowest prices (Yan, 2008).
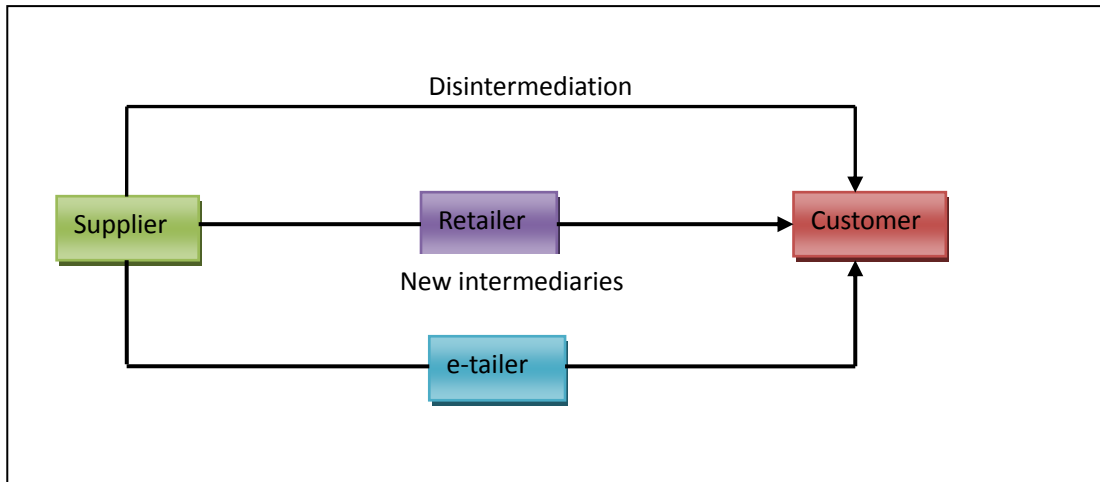
Figure 3: Threats to retailing   (Source: Chen & Liteney, 2000)

There is an apparent conflict between the economics of information and the economics of physical goods which accounts for the higher prices offered by traditional retailers (Maubossin & Kawaja, 1999). This conflict is solved in the new value network (Christensen, 1997). Traditional retailers suffer from the conflict between customer satisfaction and shareholder value as customer satisfaction can only be increased up to a certain level after which shareholder value begins to get decimated as the cost of giving more customer satisfaction increase at the expense of shareholder value. Maubossin & Kawaja (1999) use the following framework to illustrate this point.
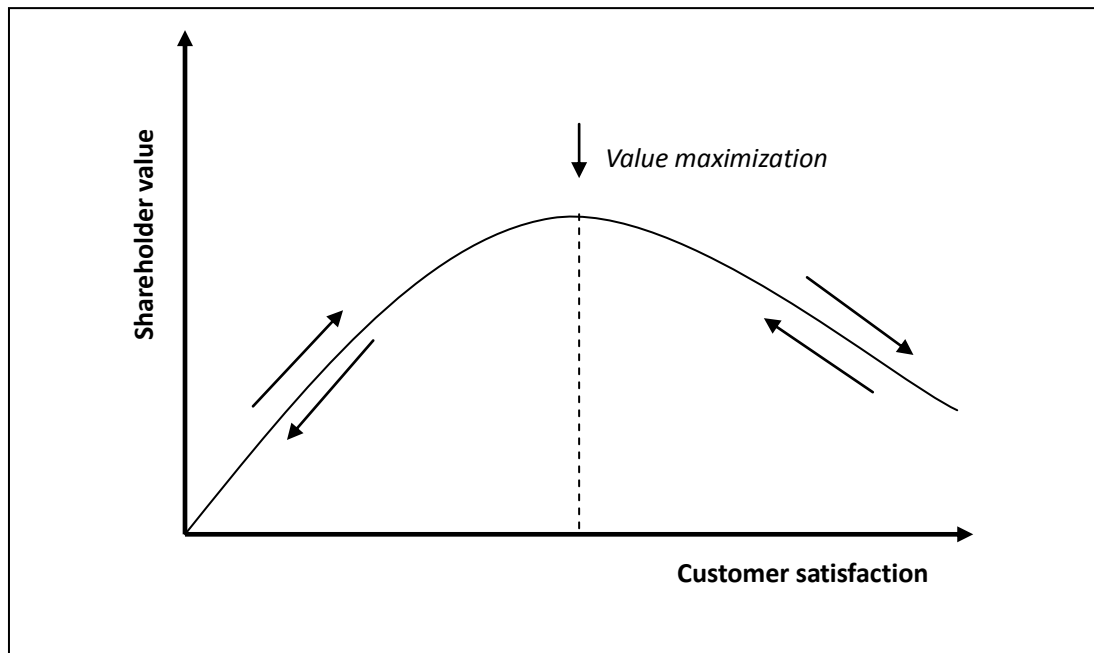
Figure 4: Conflict between shareholder value and customer satisfaction. (Source: Maubossin & Kawaja, 1999)

E-tailers, however, due to the conveniences they offer are able to stretch the capability of traditional retailers to offer more customer satisfaction without destroying shareholder value. This fact is also consistent with Anderson (2008)'s theory that e-tailing is able to stretch the curve further down the tail, making the tail longer. From a competitive strategy point of view, it can be argued that competitive advantage can be achieved if the value maximization level is higher for one business model or company than it is for a competing business model or firm. It therefore follows that if a business can give customer satisfaction at a lower cost than competitors, then it is able to build a sustainable competitive advantage, and e-tailers seem to have that.

2.8   The cost advantage of e-tailers

In advancing the long tail theory, Anderson (2008) uses the 'from atoms to bits' argument which posits that the more the business is modelled on the Internet and the more it deals with digital inventory, the lower its costs structure becomes. E-tailers'

maintentance costs are much lower than those of traditional retailers as they save significantly on labour as well as real estate costs (PricewaterhouseCoopers, 2010).

The lower costs culminate in lower prices for consumers. Vulkan (2003) suggests that when e-commerce forces firms to compete on price, this leads to game theory behaviour. He further asserts that:

> "Cost advantage may be the reason for the success of Internet retailers like Amazon , CDNow and Travelocity. But a closer look at the profits of the low cost firm suggests that these profits diminish with the difference between ther own costs and those of their second cheapest competitor (… to gain demand, the retailer needs to set his price below that of his competitor). The per item profits are therefore equal to the difference in costs." [pp 31]

This view is consistent with Porter (2001)'s criticism that the Internet solely competes on price with the result that it makes industries unattractive as this lowers profits. However, contrary to this Bertrand view to e-tailer pricing, it can be argued that e-tailers have the capability to engage in dynamic pricing. Technology used by e-tailers can enable them to offer different prices to different markests − price discrimation. In its most advanced form, e-tailer technology can even be used to collect data on a specific shopper and using trends to offer prices ideal to that shopper.

2.9   Theoretical Framework

Pricing and the cost structure of a business have an impact not only on its viability, but also its profitability and the ability to give a return to investors. To do a comparative evaluation of the viability and profitability of business models used by different firms, it is important to look at their respective return on investment. This

makes profitability ratios an ideal analytical tool for analysing the profitability of traditional retailers vis-à-vis e-tailers.

2.9.1 Theoretical framework for this paper

The theory and concepts from existing theory on retail economics, business models, innovation, the long tail concept and return on investment in the sections above helps put into perspective work done by other scholars related to this research. This paper adds value if it is appropriately located in the existing realm of scholarly work done by others.

As noted in Chapter one, this paper aims to evaluate the profitability of the two retailing business models with a view to evaluating if one makes more profit that the other. It is designed to test the often held assumptions about the low cost of e-tailers as described in section 2.8 above. These assumptions can be summarised as follows:

- That the Internet retailer has low costs due to less physical infrastructure and low labour costs.

- That due to efficiencies on the cost management side, it should be able to make better margins and hence better profitability.

- That it should generate better revenues because it is able to sell across geographical bounderies because there is no 'tyranny of geography', (Anderson, 2008).

As noted earlier, this paper will explore an empirical approach to answering the research question by evaluating this research question from a financial perspective. Profitability is explored using financial analysis tools/ratios; namely GP margin, NP margin, ROA, ROE and ROIC. These financial tools are themselves anchored on accounting theory, which unlike economic theory, looks at profitability differently

(Long & Ravenscraft, 1984). As already noted, while economic theory looks at profit as nominal and economic profit, which incorporates opportunity costs, accounting theory only looks at profit as the difference between revenues and explicit costs (Higgins, 2009). This paper will follow the accounting approach in evaluating the profitability of the two business models because it is not only widely accepted and practical, but also because all companies use the eccouting approach to do financial reporting.

The theory on innovation by Christensen (1997) forms a strong theoretical underpinning for this paper in that it clarifies the distinction between the two business models in that e-tailing uses the Internet as a disruptive innovation while the others uses the Internet as a sustaining innovation.

This paper is also underpinned by the Schumpeterian theory of creative destruction. The evolution of retailing described above points to the reality that as retailing evolves, business models evolve to replace and cause the death of other models – which is consistent with Schumpeter's view. However, the Internet has not as yet replaced traditional retailing and indeed some traditional retailers have adopted it as a sustaining innovation. Evaluating the profitability is key to predicting if the e-tailing will eventually eclipse traditional retailing. Figures 5 and 6 below frames the theoretical framework for this paper.
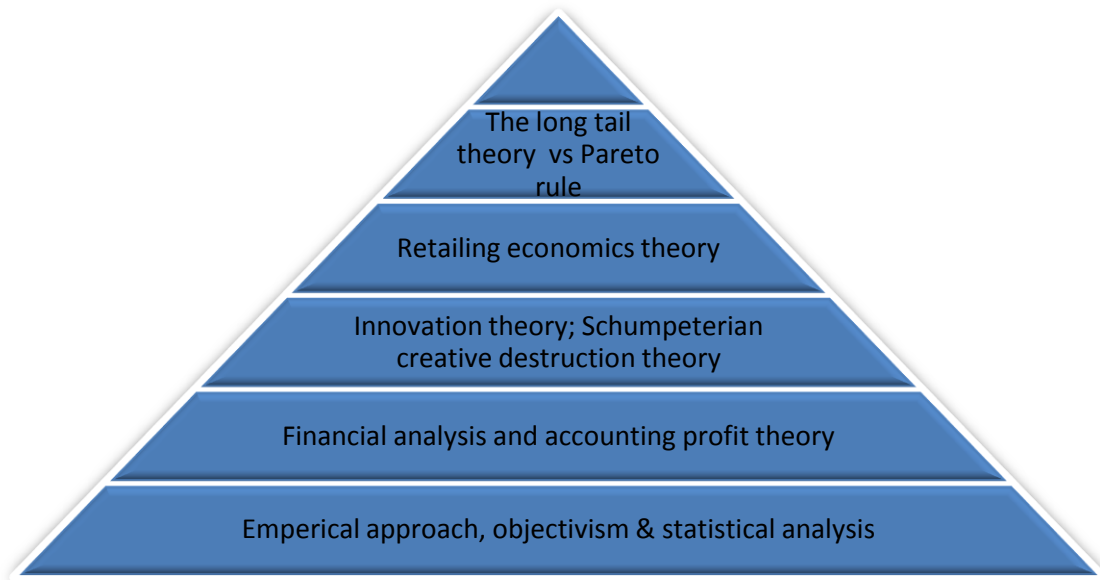
Figure 5: Theoretical basis/framework for the study
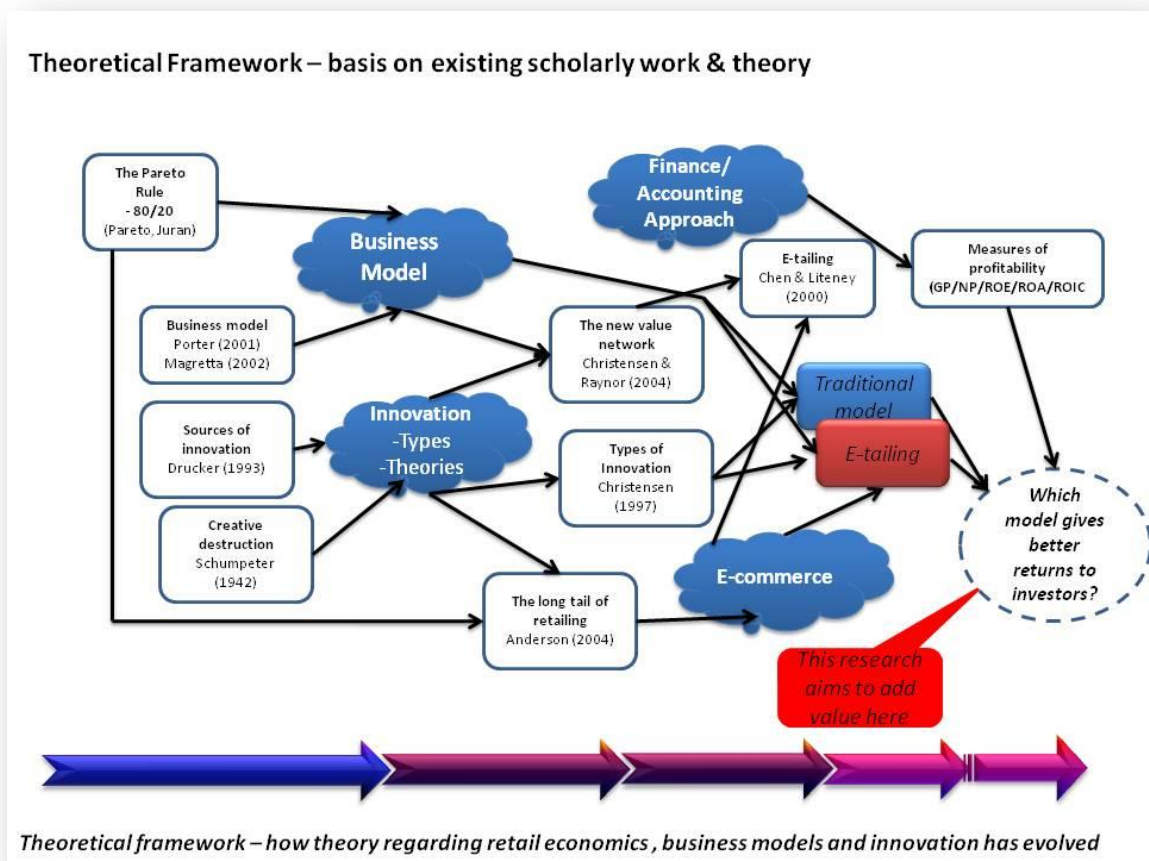
Figure 6: Locating where this research adds value to the existing scholarly work.

2.10   Conclusion

This chapter reviewed literature and showed the theoretical framework on the evolution of the retailing industry; innovation and types of innovation; business models and how innovation impacts on them; and the theory of the long tail. It also explored the economics of retail business models and looked at financial ratios as a way of analysing the profitability of specific businesses.

The literature review explores how retailing has transformed over the years with the help of innovation, which stimulated a multi-channel approach by traditional retailers as competition and the pursuit for profit increased in the retail sector. The innovation theories by Drucker, Christensen, as well as Christensen and Raynor, help create a distinction between traditional retailers and e-tailers since their view to innovation is different. In other words, we cannot just use physical stores to make the distinction between retailers and e-tailers because some traditional retailers with physical stores also have websites. Therefore the approach to innovation, i,e whether used disruptively or for sustaining the business, helps clarify and make a clear distinction.

In the past, the Pareto rule has been applied extensively in the retail business. For example, it is commonly held that 80% of the sales come from 20% of the products held by a traditional retailer. However, the long tail theory by Anderson (2008) argues that innovation, technological advances and the Internet have rendered the Pareto rule irrelevant particularly in the retail industry due to democratisation of production and distribution resulting in a long tail of the bell-curve. This concept ties in well with this research as it seeks to explore if indeed the longer tail results in better profitability. The outcome of this research serves to either reaffirm or disprove Porter (2001)'s contention

that the Internet businesses tend to cause severe pricing competition thereby lowering industry attractiveness and profitability.

In carrying out a comparative analysis of the traditional retailing and e-tailing models, there are many analytical tools that can be utilised. Given that profitability is generally evaluated using financial analysis tools, which utilise accounting data, this paper utilises financial ratios based on published accounts to assess if indeed there is a difference in profitability between the two models.

Chapter 3: Research Methodology

3.1 Introduction

This research, as stated in Chapter 1, aims to determine the impact of the Internet on retailing by empirically assessing if there is a difference between the profitability of traditional retailers and e-tailers. The purpose of this chapter is to describe and explain the methodology used in carrying out this research. It lays out the research approach and design used, the paradigm applied, as well as the data collection method used. It also shows how the data collected was analyzed to address the research question.

The quantitative approach taken in carrying out the research suggests objectivism as the core philosophical assumption, anchored on the epistemological foundation that reality can be quantitatively constructed and tested. Research requires clarity in determining the methodology used in answering the research question. When the research question is clear, and there is adequate knowledge of the literature and theoretical underpinnings; the research approach, design, and research method must be determined (de Vaus, 2001). This chapter provides clarity on these issues.

The chapter is arranged into sections that explain the research approach, the research method, how data was collected and how it was analyzed.

3.2 Research Approach/Paradigm

Roberts (2010) suggests that there are two broad generic approaches to research methodology, namely the quantitative and qualitative approaches. She asserts that, philosophically, quantitative research is "logical positivism" in that the research begins with a clear and specific question and hypothesis, and quantitative data is used to

falsify the hypothesis. It also employs concepts like variables, validity and statistical significance (Glatthorn & Joyner, 2005). On the other hand, qualitative research takes a phonomenological dimension in which "reality inheres in the perceptions of individuals to explore meaning and understanding".

This study takes a quantitative orientation which implies that positivism is its epistemological foundation. It is an empirical study which seeks to answer the research question using quantitaive techniques namely stastical testing to falsify or confirm the hypothesis.

While there are many quantitative sub-approaches that fall under the quantitative paradigm such as simulation and experiments, this study pursues an inferential approach. As noted by Kothari (2008), the inferential approach creates a database from which inferences and conclusions are drawn about the nature, features and relationships of the population. This invariably entails survey research in which features of a population sample are studied to understand their characteristics and relationships and then inferences are made that the population has the same characteristics.

This approach was used in exploring the research question. It was deemed appropriate because the research question is fundamentatlly a quantitative one. It seeks not just to find the difference in profitability between two business models, but also evaluates their comparative performance in terms of specific profitability measures. Profitability itself is a quantitative dimension measured in numbers. Moreover, it is important to check if the difference in profitability of the two models is statistically significant in order to address the research question and confirm the claim in the hypothesis. It is also necessary to assess the reliability of the computations from a

statistical perspective and then come up with conclusions. In addition, there is precedent of the use of this approach in making an analysis of a similar nature by Wang, Chen, & Chang (2004) where they analysed profitability of Internet and catalogue channels.

3.3   The Research method

3.3.1   Type of data used

A research method refers to the technique used to collect the data used to address the research question (Glatthorn & Joyner, 2005). Such techniques explain how data is collected to empirically answer the research question. The research method also clarifies how the collected data is analysed to come to the expected conclusion, which is, to test and/or falsify the hypothesis.

In carrying out this research, secondary data was used. This type of data was used for a number of reasons. The first one being that collecting primary data would have been a very difficult exercise precisely because it would be cumbersome, time-consuming and costly. The second reason is that any primary data would have been difficult to get from companies as many companies are unwilling to provide profitability and other accounting data beyond what they are required to publish by law, or by the respective stock exchanges if they are listed. Third, the required data was available in secondary form. More importantly, the data used was already processed and in the appropriate format from the Compustat database.

Therefore, the advantage of using secondary data in this research is that the process of getting it was cost-effective in terms of both time and money. In addition, the quality of the data is impeccable given that listed firms are audited independently by

audit firms meaning that the accounts have been authenticated by an independent accounting firm.

However, the use of secondary data resulted in the limitation that only data for listed companies could be obtained because they are required to publish accounting information, unlike unlisted firms. This data is then compiled in secondary commercial databases. The other drawback that flows from this is the fact that many retail companies, in partcular online retailers, are not listed because the majority of them are start-ups and have not gained enough traction to sustain successful initial public offerings (IPOs) and other forms of listing.

3.3.2 Data Sources and Data Collection

To answer the research question secondary data was extracted from Standard & Poor's **Compustat** database. This commercial database is accessible through subscription. Online retailers and traditional retailers were selected from the database using the GICS[6] for retailing. The database has a specific industry subgroup for Internet retail. It was accessed using code 25502020 available in May 2011. Other codes were used for traditional retailers, such as code 301010 for food and general retailing.

As described in the scope of the research in section 1.5 in Chapter 1, the data collected was from the year 2002 to 2009, meaning the analysis covered a periood of 8 years. The search queries used for the database search were the exact financial ratios, namely GP margin, NP margin, ROA, ROE and ROIC. This means there was no need to process the information further to get to the specific accounting ratios for each company. For each retailing model, data was extracted seperately for each of the ratios.

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[6] *See Appendix 2 for the GICS codes for Compustat.*

3.3.3   Samples

After extracting all the data for companies using each of the business models from Compustat, samples were randomly picked for e-tailers and retailers respectively. For each of the five profitability ratios and each retailing model, samples of at least thirty companies were selected using Microsoft Excel. However, for the Internet retailers, some of them were eliminated first because they did not have adequate financial data for the eight year period. One of the reasons for this is the fact that after the dot-com bust of 2000, many internet firms did not go public, which is why their data for some years in the early 2000s is unavailable.

In extracting random samples using Microsft Excel, the following steps were followed.

i.   For each of all the companies extracted from the database, a number (integer) was allocated in Excel.

ii.   A random sample with more than 30 elements was selected for each business model by going through 'tools'→'data analysis', and then selecting sampling from the menu and clicking 'ok'. Thereafter, the dialogue box was completed with the cells containing the numbers in step 1 and the sample size. After clicking ok, the software created a random sample.

3.3.4   Appropriateness of using ratios & Analysis of data

Financial ratios are generally used to analyse financial data. (Wang, Chen, & Chang, 2004) note that financial ratios are appropriate as measures of profitability. Brown, Gatian, & Hicks (1995) in their research on the impact of strategic information systems on performance asserted that financial ratios such as return on assets, return on

equity and return in investment are not only closely related, but widely acceptable measures of profitability used both by managers and external analysts alike. Each of operational definitions of these ratios was defined and explained in Chapter 1.

To analyse the data, these financial ratios were used in this paper, together with gross profit margin as well as net profit margin. For each firm selected in the sampling process decribed above, its ratios were extracted from the Compustat database using the process decribed above.

The extracted data was entered into an Excel spreadsheet. The mean profitability ratios for each firm over the eight-year period was calculated. The mean ratio for each firm in the sample was used in performing the test used to address the hypothesis, and hence the research question.

The hypothesis claims that there is no significant difference in each of the profitability ratios between the two retailing business models. Falsifying that hypothesis requires a two sample-test of the hypothesis, which can either be a t-test or a z-test (Lind, Marchal, & Mason, 2002). Given that independent samples were drawn, were large enough to exceed thirty $(n > 30)$ and assumed a normal distribution, a z-test of a comparison between 2 independent samples was perfomed to test the hypothesis for each of the ratios.

The z-test was carried out using Microsoft Excel. The outcome of the statistical analysis was tabulated to show the contrast in the statistics and analysed. In carrying out the test in Excel, the following steps were followed:

    i.   Sample data for each of the profitability ratios for both business models was input in colums in Excel.

    ii.   The variance for each sample was calculated.

iii. "Data analysis" toolpack was activated as an add-in.

iv. Through "data"→"data analysis"→"z-test: two sample means", the columns with sample data were highlighted. The level of significance of 0.05 was entered, as well as the variances for the two independent samples.

v. The process was repeated for each profitability ratio.

3.4 Conclusion

To answer the research question required quantitative and positivist epistemology anchored on a objectivism philosophy. Secondary data was used to perform the statistical test required. The data was obtained from Standard & Poor's Compustat database as at May 2011. The data collected was used in performing a z-test in Microsoft Excel. The z-test was used because sample sizes greater than thirty were selected from the database.

Chapter 4. Research Findings, Analysis and Discussions

4.1   Introduction

The purpose of this research as noted in Chapter 1 is to determine the impact of the Internet on profitability of retail business models. This is to be achieved specifically by a comparison of the profitability of e-tailers and traditional retailers that predominantly use brick and mortar distribution channels. The profitability is evaluated using financial ratios, namely GP Margin, NP margin, ROA, ROE and ROIC. The use of these ratios to assess firm profitability is not new. As noted in section 3.34 above, Wang, Chen, & Chang (2004), citing Brown, Gatian & Hicks (1995) state that ROA, ROE and ROIC are related and widely accepted measures of profitability, acceptable to both management and analysts in business. The difference in the mean performance (as measured by these profitability ratios) of a sample of businesses using either of the model was used to assess if the Internet has brought any change or impact on profitability.

As noted in the research methodology in Chapter 3, this assessment was carried out through statistical testing, based on the hypotheses shown section 1.8 in Chapter 1. The hypothesis posits that there is no significant difference in the mean profitability of businesses using either of the two models to a 95% percent confidence level. A statistical evaluation of the difference between the profitability measures of the two retail business models helped to answer the research question. As such, data on the profitability measures was taken from the Standard & Poor Compustat database. Two samples of internet-only retailers and traditional retailers were drawn for the period 2002 to 2009 for each of the ratios. The mean profitability as measured by each of the

ratios over the period was calculated for each firm in each of the samples. A z-test was performed for each of the profitability ratios using Microsoft Excel.

By looking at the means of each of the profitability ratios over the eight year period, this generalizes the performance of each business model in terms of the financial measure over the eight year period. This chapter first describes the results from the study. It spells out the specific outcomes from the statistical tests carried out. It should be noted here that because of the nature of the statistical test (z-test), the findings can only be best presented in tables, meaning that there is no other appropriate graphical format. The second part of the chapter discusses the results and makes interpretation thereof.

4.2   Z-Tests and sample sizes

As noted in the methodology, the statistical test for this research is essentially a two sample test of hypothesis. Two samples were drawn from Compustat data on companies that use each of the two models. Different samples with varying samples sizes were extracted randomly using Excel to for each profitability measure. In each case, a sample size of $n \geq 30$ was used, confirming it as a comparison of the means of two independent samples. Given that $n \geq 30$ was used in each of the cases a Z-test was used to test the hypothesis (Weiers, 2011).

The null hypothesis (H_0) in Chapter 1 states that at a 95% confidence level, or alternatively at a 0.05 level of significance, there is no difference between the mean profitability of the two business models over the period under review, using gross profit margin, net profit margin, return on assets, return on equity and return on invested capital. The findings from the statistical tests are described hereunder.

4.3 Results

4.3.1 Gross Profit Margin

As noted in Chapter 1, gross profit margin is the difference between company turnover and costs of goods sold multiplied by 100. The statistical computation in Excel produced the results shown in Table 2 below.

Table 2: Z-test for mean GP Margin for e-tailers and traditional retailers

Gross Profit Margin		
z-Test: Two Sample for Means $(\mu_1 - \mu_2)$		
	e-Tailers	Retailers[7]
Mean	39.21126	25.5221
Known Variance	436.3963	244.8906
Observations (n)	31	32
Hypothesized Mean Difference	0	
Z	2.936604	
P(Z<= z) one-tail	0.001659	
z Critical one-tail	1.644854	
P(Z<= z) two-tail	0.003318	
z Critical two-tail	1.959964	
Conclusion	Reject H_0 and accept H_1	

Based on computation of the z-test in Excel, the conclusion was to reject that the hypothesized mean difference between the two samples is zero at the 0.05 level of significance. Two samples were drawn comprising 31 e-tailing companies and 32 traditional retailers. The sample sizes were large enough for the sample means to follow a normal distribution, according to Weiers (2011), and for the sample standard deviations to substitute population standard deviations. In line with the hypothesis, the

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[7] In all the tables, "Retailers" is used to denote retailers predominantly using the traditional retail business model.

difference of the gross profit margin of the two models was zero, implying that there is no difference between the GP margins between the two models. The variance of the samples was calculated at 436.3963 for Internet retailers and 244.8306 for traditional retailers, and was used in this test to estimate population variance.

Given a sample size of $n = 31$ for e-tailers and $n > 32$ for traditional retailers, this rendered it a z-test of the means of two independent samples [Lind, Marchal, Mason, 2002]. The hypothesis was a two-tailed test as it equated population mean μ_1 to μ_2. At the 95% confidence interval, the computed z- value was ± 1.959964 whereas the *p-value*, a probability of finding a test statistic on the extreme when the null hypothesis is true, was 0.003318.

4.3.2   Net Profit Margin

After running a z-test on the NP margin of the two samples, it was concluded that the hypothesis not be rejected, because the hypothesized mean difference of the two independent samples was zero at the 95% confidence interval.

Chapter 1 noted that net profit margin is a profitability measure that is calculated by dividing the income before extraordinary items by the total turnover of the firm. An Excel computation of the z-test produced the results as shown in Table 3 below. To compare the mean net profit margins for the two business models, a sample of $n = 31$ was randomly drawn from the Compustat data of Internet retailers while another sample of traditional retailers was drawn with a sample size $n = 34$. The mean net profit margin was a negative 1.25376% and positive 3.295935% for Internet retailers and traditional retailers respectively. The variance was 147.4193 and 55.63398 for the Internet and traditional retailers respectively.

In line with the claim made in the hypothesis, the hypothesized mean difference was 0. The z-value for the test was -1.79958. The test was a 2-tailed (non-directional) with a critical value of ± 1.959964, based on the 95% confidence interval. The conclusion was to accept the null hypothesis.

Table 3: Z-test for mean NP Margin for e-tailers and traditional retailers

Net Profit Margin		
z-Test: Two Sample for Means		
	e-Tailers	Retailers
Mean	-1.25376	3.295935
Known Variance	147.4193	55.63398
Observations	31	34
Hypothesized Mean Difference	0	
Z	-1.79958	
P(Z<=z) one-tail	0.035963	
z Critical one-tail	1.644854	
P(Z<=z) two-tail	0.071926	
z Critical two-tail	1.959964	
Conclusion	Do not reject H_0	

4.3.3   Return on Assets (ROA)

A z-test test carried out in Excel revealed that the differences in the mean ROA for the two business models were not statistically significant. This led to the conclusion that the null hypothesis be accepted because the hypothesized mean difference is zero at the 0.05 level of significance.

The return on assets is defined as a as a quotient of net income divided by assets. The mean return on assets was 0.997% and 2.317% for e-tailers and traditional retailers respectively. In line with the null hypothesis, the hypothesized mean difference

used in the calculation was zero. The z statistic was 0.51114. In carrying out this z-test, sample sizes of $n = 31$ and $n = 35$ were used for e-tailers and traditional retailers respectively.

The z-statistic was -0.51114 whereas the critical value for a confidence level of 95% was ±1.959964. The p-value for the two-tailed test was 0.609254. The Excel z-test output is shown in Table 4 below.

Table 4: Z-test for the mean ROA for e-tailers and traditional retailers

Return on Assets		
z-Test: Two Sample for Means		
	e-Tailers	Retailers
Mean	0.997363	2.317726
Known Variance	135.418	80.65777
Observations	31	35
Hypothesized Mean Difference	0	
Z	-0.51114	
P(Z<=z) one-tail	0.304627	
z Critical one-tail	1.644854	
P(Z<=z) two-tail	0.609254	
z Critical two-tail	1.959964	
	Do not reject H_0	

4.3.4 Return on Equity (ROE)

At the 95% confidence interval, it was concluded not to reject the hypothesized mean difference of zero for the two sample means drawn for e-tailing and traditional retailing businesses, following a z-test computation in Excel.

The return on assets is an important performance/profitability measure for a company as it shows the level to which shareholders equity has been utilized to create a return for shareholders. Sample sizes of $n = 30$ and $n = 35$ were used for e-tailers

and traditional retailers respectively. The mean return on equity for the two models was 2.888153% and 2.03559% respectively. The variance of each of the samples was 3967.909 and 1692.199 respectively, implying a standard deviation of 62.9 and 41.1 respectively.

The z-statistic was 0.064201. The critical value determined by the 95% confidence interval was ± 1.959964 whereas the p-value for the test was 0.9. A summary of the test statistics results are shown in Table 5 below.

Table 5: Z-test for the mean ROE for e-tailers & traditional retailers.

Return on Equity		
z-Test: Two Sample for Means		
	e-Tailers	Retailers
Mean	2.888153	2.03559
Known Variance	3967.909	1692.199
Observations	30	35
Hypothesized Mean Difference	0	
Z	0.064201	
P(Z<=z) one-tail	0.474405	
z Critical one-tail	1.644854	
P(Z<=z) two-tail	0.94881	
z Critical two-tail	1.959964	
Conclusion	Do not reject H_0	

4.3.5 Return on Invested Capital (ROIC)

Following a Z-test performed using Excel to check if there is a significant difference on the mean performance of both business models, it was concluded that there is no difference in the mean ROIC at the 95% confidence interval. This test was

performed with sample sizes of $n = 31$ and $n = 33$ for e-tailers and traditional retailers respectively, drawn from Compustat data for each of the two business models.

The test hypothesized a mean difference of zero in line with the null hypothesis. The z-statistic was -1.36777, whereas the two-tailed critical value was ± 1.959964, determined by the 95% confidence interval. The mean return on invested capital was 1.687148% and 12.20% for e-tailers and retailers respectively. The P-value for the two-tailed test was 0.171384. Table 6 below shows the outcome from the Excel statistical computation.

Table 6:   Z-test for the mean ROIC for e-tailers and traditional retailers

z-Test: Two Sample for Means		
	e-Tailers	Retailers
Mean	1.687148	12.20625
Known Variance	460.3932	1461.75
Observations	31	33
Hypothesized Mean Difference	0	
Z	-1.36777	
P(Z<=z) one-tail	0.085692	
z Critical one-tail	1.644854	
P(Z<=z) two-tail	0.171384	
z Critical two-tail	1.959964	
Conclusion	Do not reject H_0	

Tables 7 and 8 below summarize the findings from the statistical test. The last column in Table 7 shows the summary of conclusions based on the 95% confidence level. This column shows that the hypothesized mean difference of zero between the two business models was contained in the 95% confidence interval for Net Profit Margin, Return on Assets, Return on Equity and Return on Capital Invested, whereas the gross profit margin was not contained in the 95% confidence interval.

Table 7:   Summary Z-Test statistics of profitability measures

Measure	Model	n. (n>30)	Mean	Standard Deviation	Variance $s^2 = \sigma^2$	P Value
GP Margin	e-Tailers	31	39.21126	20.8901	436.3963	0.003318
	Retailers	32	25.5221	15.64898	244.8907	
NP margin	e-Tailers	31	-1.25376	12.14164	147.4193	0.071926
	B & M	34	3.295935	7.68921	55.6340	
ROA	e-Tailers	31	0.997363	11.6369	135.4180	0.609254
	Retailers	35	2.317726	9.32855	80.6578	
ROE	e-Tailers	31	2.888153	62.9913	3967.9093	0.94881
	Retailers	35	2.03559	41.1363	1692.199	
ROIC	e-Tailers	31	1.687148	21.4568	460.3932	0.171384
	Retailers	33	12.20625	38.8194	1461.7495	

Table 8: Summary Z-Test statistics for etailers and retailers

Z-Test statistics	Test statistics			
Measure	Z	Critical Value (2 tailed)	P-value	95% Interval contains 0 [8]
Gross Profit margin	2.936604	1.959964	0.003318275	No
Net profit margin	-1.79958	1.959964	0.071926222	Yes
Return on Assets	-0.51114	1.959964	0.609254257	Yes
Return on equity	0.064201	1.959964	0.948809944	Yes
Return on invested capital	-1.36777	1.959964	0.171384327	Yes

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[8] *Is the hypothesized difference of zero contained within the 95% confidence interval? If yes, we are 95% confident the population means could be the same.*

4.4   Discussion of the findings.

It is prudent to recap on the purpose of the study as well as the hypothesis here. As entrepreneurs and/or investors in the retail sector map out plans to start or expand their operations, they have to make choices about their distribution channels (Wang, Chen, & Chang, 2004). Decisions about the distribution channel for any retail business, determine its business model because retailers are in effect distributors in the value and supply chain. Tavlaki & Loukis (2005) suggest that one of the important preconditions for the success of a business is the business model. Consistent with this perspective, Porter (2001) argues that while the advent of the Internet brought new ways of doing business, it has led companies, both dotcoms and industry incumbents to 'make bad decisions' that have eroded industry attractiveness due to competition based on price, in the process undermining their own competitive advantage. This therefore makes it harder to turn in a profit., according to Porter.

The purpose of this paper is to determine if the Internet has had an impact on the profitability of e-tailing business models by statistically testing if there are significant differences between the profitability of a full online retailing model compared with a traditional brick and mortar one. This purpose is captured through the hypothesis below, which has already been discussed in Chapter 1:

H_0: *At 0.05 level of significance, there is no difference in profitability measures between online retailers and traditional retailers.*

H_1: *At 0.05 level of significance, there is a significant difference in the profitability measures.*

The results of the statistical test will be discussed hereunder, for each of the profitability measures.

4.4.1 Gross Profit Margin

Gross profit is the excess of revenue over the cost of goods sold which goes to cover the firm's expenses, taxes and profits. Therefore, the larger the firm's gross profits, the higher the net income assuming expense are constant. The GP margin is often an indicator of industry attractiveness (Driffield & Munday, 2000). As discussed above, the z-test yielded a critical value of ± 1.95996. Since the z-statistic was 2.9366, it fell into the region of rejection. This effectively warrants a rejection of the null hypothesis and acceptance of the alternative hypothesis.

This position was supported by the low p-value of 0.003318. According to Lind, Marchal, & Mason (2002: 347), the p-value refers to the probability of seeing a sample value, "as extreme as, or more extreme than the observed, given that the null hypothesis is true". Because the p-value for the z-test for the hypothesised mean difference of zero was much lower than the level of significance ($p - value < \alpha$), then the null hypothesis is unlikely to be true, justifying the rejection. With that p-value, there is extremely strong evidence that H_0 is not true.

The foregoing conclusion means that the hypothesized mean difference of zero is not contained in the 95% confidence interval. In other words, since the claim is that there is no difference of statistical significance between the population mean gross profit margin of e-tailers and traditional retailers, we can conclude with 95% confidence that mean gross profit margin between the two models are not the same. The difference in the means is not emanating from chance or sampling error. On this basis, we can infer that over the eight year period under review, full online retailers had a higher mean gross profit margin of 39% to the 25% of compared to their traditional counterparts.

4.4.2   Net Profit Margin

Since net profit is the income after covering business expenses, it is logical to argue that it can be enhanced by controlling the business expenses. On the basis of $\alpha = 0.05$, the critical value for the z-test was± 1.95996. The computed Z-statistic of -1.79958 fell within this critical value for the two-tailed test. Consequently, there was insufficient statistical evidence to falsify the hypothesis, meaning that the null hypothesis was not rejected.

The p-value of 0.0719, which was larger than the level of significance lends credence and provides additional insight into this conclusion, i.e., $p\ value > \alpha$.

At the 5% significant level, the mean net profit margin data available over the eight year period for the two business models does not provide sufficient evidence to falsify or reject the claim that there is no difference in their average net profit margins. This means that the difference in the mean NP Margin of - 1.25% for e-tailers and +3.29% for traditional retailers emanated from sampling error. Because the net profit is the residual of gross profit after accounting for expenses, the fact that there was no difference in the net profit margins leads to the inference that the general contention that traditional retailers have more overhead expenses (in the form of labour and rentals for brick and mortar) cannot be sustained on the grounds of the foregoing conclusion, in particular given the fact that as shown in Table 6 above, the mean GP margin for e-tailers at 39% was higher than that of traditional retailers at 25%. This conclusion warrants further research into the expense structure of e-tailers and retailers.

4.4.3   Return on Assets

With regards to the return on assets for the two business models, the calculated z-statistic of -0.511138 falls within the critical value ± 1.95996. Consequently, at the

5% level of significance, the data did not provide sufficient statistical evidence to falsify or reject the claim that the mean return on assets for both business models is the same. We are therefore 95% confident that there is no difference between the mean return on assets for the two business models. In line with the foregoing conclusion, the difference between the two mean returns on assets of 0.99% for e-tailers and 2.31% for traditional retailers arose due to sampling error.

This conclusion was reinforced by evidence from the p-value computation. The calculated p-value of 0.609254 is much greater than the α of 0.05. Therefore, the evidence suggests that there is little likelihood that the null hypothesis is false (Lind, Marchal, & Mason, 2002).

4.4.4   Return on Equity

The calculated z-statistic for the mean difference between the return on equity for the two models was 0.0642. This value fell between the critical value ± 1.95996. On this basis, there was insufficient evidence to reject the null hypothesis. Consequently, at the 5% level of significance, the hypothesized mean difference between the average return on equity for e-tailers and retailers is the same. It therefore follows that the different average returns on equity of 2.888153% and 2.03559% respectively was due to sampling error.

The p-value calculation supported the above conclusion because at 0.94881, it is greater than the α of 0.05. The evidence therefore suggests that there is little likelihood that the null hypothesis is false. As such there is no difference in the return on equity of e-tailers and traditional retailers over the eight year period.

4.4.5 Return on capital invested

For this profitability measure, the calculated z-statistic -1.36777 lies between the critical value of ± 1.95996. On the basis of this scenario, the conclusion is that at the 0.05 level of significance, the data on the return of invested capital does not provide sufficient evidence to reject or falsify the null hypothesis. Consequently, we are 95% confident that the mean difference between the two mean ROICs is zero, meaning there is no difference between the ROIC of e-tailers and that of traditional retailers for the period in question.

It follows that the mean ROIC of 1.687148% and 12.20625% for e-tailers and traditional retailers are different due to sampling error. This conclusion was reinforced by the p-value calculation of 0.171384. This p-value was much greater than the significance level of 0.05, meaning that the evidence against the hypothesized mean difference of zero is very weak.

4.5 Possible underlying causes of the findings

4.5.1 Statistically different GP Margin

As clearly demonstrated above, at the 0.05 level of significance, for the eight year period from 2002 to 2009, the average GP margin for online retailers was statistically different and much higher at 39% than that of traditional retailers at 25%. This means that on average, e-tailers have higher amounts available to contribute to fixed costs and profits.

This finding is profound in that the conventional argument has always been that traditional retailers have higher expenses emanating from their physical network and labour costs compared to their counterparts, as already noted in Chapter 1. E-tailers, in

theory, are able to operate without the expensive brick-and-mortar infrastructure of their physical competitors (Enders & Jelassi, 2000). However, none of these reasons can explain a higher gross profit for e-tailers since gross profit margin is calculated as gross profit divided by sales multiplied by 100. The gross profit itself is calculated as turnover minus costs of goods sold.

A plausible underlying cause for e-tailers' higher GP margin is either because they get favorable prices from suppliers, which is unlikely, or they have substantial economic advantages from their ability to not hold stock, which has an impact in the calculation of gross profit. Another reason could be that some e-tailers, such as booksellers, do sell some of their stock in digital form (e-books), which substantially lowers the cost of goods sold, unlike their traditional counterparts. This is the so-called from 'atoms to bits' argument put forward by Anderson (2008).

4.5.2   Statistically similar NP Margin, ROA ROE & RIOIC

The hypothesis test found that the NP margin was not statistically different for the two business model at the 95% confidence interval. This finding is also profound and contrary to the coventional arguments (noted in section 2.9.1 in Chapter 2) that traditional retailers have more fixed costs and expenses due to their physical infrastructure and high labour requirements. As such, traditional retailers would be expected to have lower net profit margins. However, evidence from the test shows that the margins are not different.

The surprising fact from the findings is that the mean net profit margin for e-tailers is not different from that of traditional retailers yet e-tailers have a higher GP margin. The only plausible reason for this finding is that e-tailers have more expenses to cover from their gross profits, and this is contrary to the conventional wisdom explained

above. The negative mean net profit margin for e-tailers shown in Table 6 is consistent with the Porter's (2001) questions about the profitability of internet companies. There is a possibility that the average return for these companies was aslso affected by the fact that after the dotcom bust around 2000-2001, most of these companies were affected, and their business model has been evolving ever since, going through the learning curve (Bughin & Hagel III, 2001). Since the figures of early 2000 were incorporated in coming up with the avarage margin calculation, this may have lowered the mean percentage return.

The fact that the ROA, ROE and ROIC are not different at the 5% significant level shows that for the investor, the return was not different whether they invested in an online retailer or a traditional one.

Do these results give new insights? Yes they do. They challenge the commonly held assumptions, as noted in section 2.9.1 in Chapter 2, that e-tailers have lower costs that should lead to better profit margins and returns. The argument by Porter (2001), that Internet companies choose to compete on price which has the result of significantly lowering margins making the industry unattractive cannot be sustained by these findings given that e-tailers actually seem to have a higher mean gross profit margin than their counterparts. Indeed, in the same way, the point noted in chapter 1, that e-tailers have to offer lower prices to counter the advantages that physical stores have can also not be sustained by the finding that e-tailers have a higher GP margin.

4.6   Conclusion

This chapter laid out the findings from the statistical tests and discussed them. It also explored likely causes and mechanisms underlying these patterns and results, in

the process interpreting the results. The significance of the findings I this chapter is that it challenges the popularly held notions as well as common wisdom, particularly relating to the costs structures of both models which impact the profitability measures used in this test.

The statistical test found that at the 0.05 level of significance, the mean profitability of e-tailers compared to traditional retailers for the eight year period from 2002 to 2009, as measured by NP margin, ROE, ROA and ROIC was not different. However, the GP margin for the two business models was statistically different.

However, as noted by Lind, Marchal, & Mason (2002), the fact that the null hypotheses was accepted for the NP margin, ROA, ROE and ROIC, does not in itself prove the accuracy of that hypothesis. Rather, what it technically does is to fail to disprove the null hypothesis.

Chapter 5: Conclusions & Recommendations

5.1   Introduction

This study was carried out to determine if there are differences in the profitability of two retail business models, namely a full online retail business model, and a traditional one that runs a significant physical infrastructure. To evaluate the differences, if any, accounting measures , *viz.*, GP margin, NP margin, ROA, ROE and ROIC were used and compared using statistical techniques

To carry out this test, data from public companies, listed in various stock exchanges was used. The data, drawn from Standard & Poor's Compustat database was statistically tested to see if there is a difference in the profitability measures of the companies using either model.

This chapter will summarize the most important findings and conclusions from this study. It will suggest recommendations that are useful to practicing managers, investors and other users such as venture capitalists. It also includes suggestions for further research on grey areas that need further illumination. It further highlights the limitations of this research.

5.2   Conclusions from the study

This research makes a number of revelations, some of them contrary to assumptions that are commonly made about the online businesses in comparison with their traditional counterparts. These assumptions were noted in section 2.9.1 in Chapter 2.

i. This empirical study of an eight year period (from 2002 to 2009) shows that for the profitability ratios that are pertinent for investors, venture capitalists, entrepreneurs and even managers, such as NP Margin, ROA, ROE and ROIC; there is no significant statistical difference in the mean performance of these e-tailers and traditional retailers. These ratios are important in that they measure the so-called bottom-line. They reflect how well the business has managed its sales, controlled costs and generated a return for investors. This is also contrary to the commonly held view that, e-tailers have lower cost and expense structures which should theoretically enable them to have a higher NP margin.

In short, theoretically, investors and managers would be indifferent to any of the business models on the basis of the NP Margin, ROA, ROE and ROIC. Therefore, profitability using these measures is not an important factor in making a choice between these two models. This means that the Internet did not have any effect/impact on these profitability measures in the retailing business.

ii. The study also revealed that there is a significant statistical difference between the GP margin of e-tailers and that of traditional retailers. E-tailers have a higher GP margin. This means that per dollar of sales, e-tailers have more available to meet the fixed costs of the business as well as the profit. This may emanate either from their ability to price with higher margins, or their ability to get favorable prices from suppliers. The latter reason is unlikely give that traditional retail chains also get bulk purchasing discounts. It can also possibly be related to the stock management factors relating to each model, with e-tailers unlikely to be holding large stocks at any point in time, since their business model allows them to ship

goods ordered online directly from manufacturers to customers. More importantly, e-tailers can also retail digital stocks whose holding costs are very close to zero.

iii. Another startling take-away from his study is the fact that even though the GP Margin for e-tailers is significantly higher than that of traditional retailers, the NP margin is not statistically different. The difference between the gross profit and the net profit are the expenses that are charged to the income statement. It therefore follows logically that e-tailers likely have more expenses than traditional retailers, though it is not clear which types of expenses contribute towards this situation. This is an area requiring further research.

iv. Since there is a difference in the GP Margin for the two models, this ratio is particularly important for management as they can manage the factors that have a bearing on gross profit such stockholding, returns inwards and outwards and pricing.

5.3   Further Insights

Whilst this research offers deep insights into the profitability of the two business models, this is not to say that the profitability of online businesses will in future not turn out to be better than that of brick and mortar businesses, especially in line with the trends observed by Anderson (2008), such as the transition of some retail products from 'atoms to bits'. So for instance, the costs of CDs sold by WalMart, will probably have a lower margin compared to the 99 cents a song sales made by Apple's iTunes. This is because Apple's song on iTunes has a cost of sales close to zero. Also the cost of shelfspace that holds a CD in a store is much higher than Apple's cost of keeping a song on the iTunes server.

In future, as more traditional retailers adopt more use of the Internet, the distinction between these two models will increasingly become blurred. This blurring trend will increase as more and more online retailers modify their business models towards what Anderson (2008) refers to as aggregators in which they perform the role of creators of liquid markets by selling online stocks owned by other small retailers. Amazon and Rakuten have started doing this. An example is Amazon's marketplace program.

5.4   Broader Implication of the Findings

The broader implication from the findings from this study on profitability are that given the similarity between the profitability measures of the two business models, model choice on the part of investors, entrepreneurs, retailers and venture capitalist has to be made on the basis of factors other than profitability. The reason is because whichever model they choose, it will produce more or less the same NP Margin, ROE, ROA and ROIC.

5.5   Recommendation

It s recommended based on this research that investors, venture capitalists, managers and entrepreneurs should not use the profitability to choose a business model for a retail business. The reason is because, as found from this study, the bottom-line ratios are not different. Rather, they should consider other factors such as the amount of capital required to finance the venture, among others.

5.6   Limitations of the research

A number of limitations with this research need to be noted. These are as follows:

i.   The data used to make these evaluations was based on data on listed companies only. There are several e-tailers and traditional retailers that are not listed and therefore their data did not have the chance to be used in this analysis. This therefore has limitations on the extent to which this data can be generalized.

ii. This study used financial ratios to assess the profitability of the two retailing business models, in effect assessing the impact of the internet in retailing using these ratios. As noted by Wang, Chen, & Chang (2004) in their study of the internet and catalogue channels, there are other quantitative variables that may be used such as market value, stock return and qualitative variables such as leadership, form of ownership, and organisational intellectual capital.

iii. While these findings are of value to investors, academics, and entreprenuers among other users, they may not have much predictive value. This is particularly valid given that with more and more inovations and evolution in business models, especially in retailing, these findings may lose relevance.

iv. Another limitation of this research is that because it examined the differences in the means of the proftability ratios over an eight year period. This tends to mask yearly as well as geographical differences, which limits the aplicability of the conclusions.

5.7   Suggestions for future research

The experience from carrying out this study has revealed that there is scope for further research on the following issues:

i. The results reveal that e-tailers have a higher GP margin compared to the traditional retailers, yet both business models yield the same profit margins. If e-tailers have a higher GP margin, yet they eventually end up with the same net profit as the other model, it means that they have a lot expenses, fixed and variable chewing up much of their gross income from trading. Therefore there is a need to carry out further research on the expense structure of the two business models to see which types of costs contribute to higher total expenses for e-tailers compared with traditional retailers.

ii. There is also a need to determine why the GP margin of the two models is different. Such an investigation would invariably have to explore the components of 'costs of goods sold' which is an important part of the gross profit formula. In line with this, there is need to explore the procurement and stockholding practices of each of these business models.

iii. This study has shown that profitability does not account for the growth in e-tailing since there is no difference in most of profitability measures. Therefore there is need to investigate the role other factors such as low capital required to start a business, has played in advancing the growth of online retailers.

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7 Appendices

Appendix 1 : GICS Codes as at June 30 2010

NB: This is the relevant portion of the whole set of GICS codes*

GICS (Global Industry Classification Standard)

Effective after close of business (US, EST) Wednesday June 30, 2010

Industry Group	Industry		Sub-Industry	
Retailing	255010	Distributors	25501010	**Distributors**
				Distributors and wholesalers of general merchandise not classified elsewhere. Includes vehicle distributors.
	255020	Internet & Catalog Retail	25502010	**Catalog Retail**
				Mail order and TV home shopping retailers. Includes companies that provide door-to-door retail.
			25502020	**Internet Retail**
				Companies providing retail services on the internet, not classified elsewhere.
	255030	Multiline Retail	25503010	**Department Stores**
				Owners and operators of department stores.
			25503020	**General Merchandise Stores**
				Owners and operators of stores offering diversified general merchandise. Excludes hypermarkets and large-scale super centers classified in the Hypermarkets & Super Centers Sub-Industry.
	255040	Specialty Retail	25504010	**Apparel Retail**
				Retailers specialized mainly in apparel and accessories.
			25504020	**Computer & Electronics Retail**
				Owners and operators of consumer electronics, computers, video and related products retail stores.
			25504030	**Home Improvement Retail**
				Owners and operators of home and garden improvement retail stores. Includes stores offering building materials and supplies.
			25504040	**Specialty Stores**
				Owners and operators of specialty retail stores not classified elsewhere. Includes jewelry stores, toy stores, office supply stores, health & vision care stores, and book & entertainment stores.
			25504050	**Automotive Retail**
				Owners and operators of stores specializing in automotive retail. Includes auto dealers, gas stations, and retailers of auto accessories, motorcycles & parts, automotive glass, and automotive equipment & parts.
			25504060	**Homefurnishing Retail**
				Owners and operators of furniture and home furnishings retail stores. Includes residential furniture, home furnishings, housewares, and interior design. Excludes home and garden improvement stores, classified in the Home Improvement Retail Sub-Industry.
Food & Staples Retailing	301010	Food & Staples Retailing	30101010	**Drug Retail**
				Owners and operators of primarily drug retail stores and pharmacies.
			30101020	**Food Distributors**
				Distributors of food products to other companies and not directly to the consumer.
			30101030	**Food Retail**
				Owners and operators of primarily food retail stores.
			30101040	**Hypermarkets & Super Centers**
				Owners and operators of hypermarkets and super centers selling food and a wide-range of consumer staple products. Excludes Food and Drug Retailers classified in the Food Retail and Drug Retail Sub-Industries, respectively.

Appendix 2: Mean data for sample elements for the profitability measures

NB This data has been converted as a picture to make it fit on the pages.

Mean GP margin for the sample elements for the years 2002-2009

Mean Gross Profit Margin	eTailers	Retailers		Z Test		
	24.92513	27.50713		z-Test: Two Sample for Means		
	75.03363	28.04625			eTailers	Retailers
	48.26775	35.03138		Mean	39.2112552	25.5221
	22.21875	28.8995		Known Variance	436.3963	244.8906
	22.88588	12.29429		Observations	31	32
	63.14475	25.715		Hypothesized Mean Difference	0	
	46.28725	4.797625		z	2.93660401	
	77.21163	30.42288		P(Z<=z) one-tail	0.00165914	
	30.56775	28.83975		z Critical one-tail	1.64485363	
	24.1875	28.997		P(Z<=z) two-tail	0.00331828	
	23.98429	37.609		z Critical two-tail	1.95996398	
	34.67063	13.36938		Conclusion	Reject Ho	
	16.16213	68.69363		Conclusion based on p-value	Reject Ho	
	73.13238	20.12375		If p-value > LOS, then accept Ho		
	37.6505	27.83888				
	41.7205	24.72763				
	4.845375	9.7135				
	64.22038	4.68575				
	28.1215	28.6185				
	56.12875	31.00238				
	24.90525	17.64963				
	41.0625	78.68788				
	48.1815	32.10688				
	17.475	15.05363				
	39.9635	34.34863				
	25.09925	24.551				
	85.70775	18.70425				
	48.63913	23.38813				
	6.9235	9.905375				
	36.40163	25.82288				
	25.8235	10.177				
		9.378875				
Standard Deviation	20.8901	15.64898				
Variance	436.3963	244.8906				

Z-test output from Excel

Mean GP Margin for each company in the sample for the 2002-2009

Mean NP margin for the sample elements for the years 2002-2009

Mean Net Profit Margin	eTailers	Retailers		z-Test: Two Sample for Means	eTailers	Retailers
	2.66375	1.441875		Mean	-1.2537609	3.295935
	2.947125	0.151875		Known Variance	147.4193	55.63398
	0.329125	0.995125		Observations	31	34
	0.631125	-0.24225		Hypothesized Mean Difference	0	
	6.800625	2.100714		z	-1.7995848	
	2.575	1.458		P(Z<=z) one-tail	0.03596311	
	-25.5683	0.101875		z Critical one-tail	1.64485363	
	13.52425	3.134125		P(Z<=z) two-tail	0.07192622	
	-23.0963	3.597		z Critical two-tail	1.95996398	
	-7.42463	1.34475		Conclusion	Accept Ho	
	-1.97871	2.805		Conclusion based on p-value	Accept Ho	
	1.34875	1.766875				
	-25.7694	5.42425				
	7.58825	43.25338				
	0.4445	1.179625		Z-test output from Excel.		
	1.99275	1.183625				
	0.737625	2.234625				
	18.77913	-4.7385				
	-0.13975	3.546125				
	2.740875	4.101375				
	1.686875	8.21625				
	2.739875	6.451125				
	8.11675	3.573		Mean NP Margin for each company in the sample for the 2002-2009		
	-4.049	2.363625				
	8.649	1.896375				
	-3.47563	-3.67063				
	-40.7555	1.948625				
	5.988	1.100875				
	0.50925	4.017625				
	2.823375	1.8682				
	-0.2255	4.56675				
		0.559875				
		2.592375				
		1.73825				
Standard deviation	12.14164	7.689206				
Variance	147.4193	55.63398				

Mean ROA for the sample elements for the years 2002-2009.

Mean ROA	eTailers	Retailers		z-Test: Two Sample for Means		
					eTailers	Retailers
	5.90075	2.726875		Mean	0.9973629	2.317726
	1.320625	0.453375		Known Variance	135.418	80.65777
	6.133125	1.438875		Observations	31	35
	−1.43357	−0.48513		Hypothesized Mean Difference	0	
	13.78038	7.094714		z	−0.5111382	
	4.865875	4.45525		P(Z<=z) one-tail	0.30462713	
	−23.2501	0.457375		z Critical one-tail	1.64485363	
	9.789875	7.8825		P(Z<=z) two-tail	0.60925426	
	−13.9261	9.976125		z Critical two-tail	1.95996398	
	−14.3191	1.8415				
	−7.32714	6.950125		Conclusion	Accept Ho	
	2.868375	5.84325		Conclusion based on p-value	Accept Ho	
	−27.0401	4.454625				
	2.577375	10.853				
	1.2735	2.592375				
	6.600875	3.50775				
	3.487625	6.35425				
	2.483375	−43.436				
	−0.17088	7.875125				
	6.984625	3.743875				
	5.030714	−7.14575				
	5.195	4.816				
	24.99363	6.421375				
	−12.4284	10.54425				
	28.5235	2.92525				
	−8.21725	−7.09938				
	−4.96338	3.31925				
	9.383375	2.179625				
	3.943375	6.212375				
	2.138375	3.3862				
	−3.28	−2.489				
		1.9275				
		8.558				
		2.85775				
		0.127125				
Standard Deviation	11.63692	8.980967				
Variance	135.418	80.65777				

Z-test output from Excel

Mean ROA for each company in the sample for the 2002-2009

Mean ROE data for the sample elements for the years 2002-2009

Mean ROE	eTailers	Retailers	z-Test: Two Sample for Means	eTailers	Retailers
	52.1026	8.915625	Mean	2.88815265	2.03559
	247.1794	0.94025	Known Variance	3967.909	1692.199
	13.85538	6.54925	Observations	31	35
	−194.508	−2.90925	Hypothesized Mean Difference	0	
	28.83617	23.59243	z	0.0642013	
	6.233625	10.16575	P(Z<=z) one-tail	0.47440497	
	−53.0521	0.578875	z Critical one-tail	1.64485363	
	15.52575	22.87063	P(Z<=z) two-tail	0.94880994	
	−34.9003	16.6535	z Critical two-tail	1.95996398	
	−23.2835	4.315625	Conclusion	Accept Ho	
	−29.9713	11.66538	Conclusion based on p-value	Accept Ho	
	5.672875	12.0315			
	−42.8906	8.685125			
	1.74925	19.94713			
	4.352125	5.82925			
	11.897	16.38925			
	7.920375	14.08888			
	2.44	−216.406			
	10.56186	14.415			
	15.38725	8.223625			
	14.69586	−62.9452			
	7.90825	10.57338			
	35.14975	11.189			
	−58.0803	31.96238			
	34.90688	6.56325			
	−20.7676	−11.6244			
	−25.6693	18.26725			
	30.28163	12.51813			
	15.43063	16.10438			
	2.578	8.4264			
	7.990714	−6.47113			
		6.524625			
		36.87175			
		6.55			
		0.194			
Standard Deviation	62.99134	41.13635			
Variance	3967.909	1692.199			

Z-test output from Excel

Mean ROE for each company in the sample for the 2002-2009

Mean ROIC margin for the sample elements for the years 2002-2009

Mean ROIC	e-Tailers	Retailers		z-Test: Two Sample for Means	eTailers	Retailers
	17.41146	5.34775		Mean	1.68714765	12.20625
	62.47341	0.885		Known Variance	460.3932	1461.75
	6.994156	2.756		Observations	31	33
	−49.8339	−1.57863		Hypothesized Mean Difference	0	
	18.32592	13.19886		z	−1.3677692	
	6.430125	9.63175		P(Z<=z) one-tail	0.08569216	
	−18.8165	0.6875		z Critical one-tail	1.64485363	
	14.01719	16.30663		P(Z<=z) two-tail	0.17138433	
	−5.54919	15.8115		z Critical two-tail	1.95996398	
	−7.86138	3.187625		Conclusion		Accept Ho
	−4.67073	9.438375		Conclusion based on p-value		Accept Ho
	6.604	10.07138				
	−14.1978	8.33175				
	8.781688	16.62975				
	3.511813	4.397625				
	9.598719	6.093625				
	7.962781	14.05113				
	−63.7297	215.4549				
	8.170277	14.5205				
	8.584844	5.419875				
	−12.5911	−44.4894				
	7.123156	10.26675				
	19.43844	9.424875				
	−7.00051	27.7445				
	18.22972	4.929625				
	−11.9272	−11.1646				
	−2.26153	8.71525				
	13.59069	5.822625				
	10.42269	10.23725				
	4.132244	4.2286				
	−1.06235	−4.57263				
		6.488625				
		4.531875				
Standard deviation	21.45678	38.81937				
Variance	460.3932	1461.75				

Z-test output from Excel.

Mean ROIC for each company in the sample for the 2002-2009.

Appendix 3: Profitability sample data from Compustat for e-tailers and traditional retailers

Gross Profit Margin data from Compustat for e-tailers and traditional retailers (2002-2009)

E-Tailers

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
AMAZON.COM INC	27.331	25.319	24.23	25.33	24.9	24.34	23.902	24.134	24.9251
ARTNET AG	89.17	82.971	81.835	79.34	80.99	81.17	59.888	85.21	75.0090
ASOS PLC	93.058	54.399	51.087	49.08	43.83	33.91	30.411	30.573	48.2877
B2W – COMPANHIA GLOBAL DO	8.306	12.854	13.941	27.78	29.75	29.87	29.371	28.051	22.2187
BLUE NILE INC	27.807	23.827	23.14	23.07	20.98	20.98	21.029	22.498	22.9358
BUCH.DE INTERNETSTORES AG	100	100	100	100	28.99	25.88	28.027	28.29	63.1447
CENTRO HL DISTRIBUZIONE SPA	100	100	100	20.55	15.31	13.88	10.787	9.989	46.2872
DENA CO LTD	59.482	79.855	81.839	77.78	75.09	82.92	80.238	80.942	77.2119
DIGITAL ADVENTURE INC	8.977	33.389	35.52	34.31	25.4	39.18	41.873	25.921	30.5873
DRUGSTORE.COM INC	24.217	23.058	22.525	21.87	21.59	23.29	28.085	28.89	24.1875
EXPANSYS PLC	20.12	28.138	23.482	23.03	24.75	22.79	28.488	21.235	23.5012
GOLF DIGEST ONLINE	27.555	29.402	33.212	34.84	35.04	38.21	37.838	40.874	34.8708
HOLLYWOOD MEDIA CORP	10.179	29.485	28.993	12.15	15.85	11.88	9.304	11.889	16.1921
INTERPARK CORP	12.79	100	100	100	90.51	41.1	100	40.855	73.1329
KENKO.COM INC	47.418	40.929	37.496	35.78	35.85	35.22	33.844	34.85	37.6800
KOMPLETT ASA	100	100	100	7.553	5.155	8.533	5.377	8.148	41.7200
LDLC.COM	4.902	8.113	3.71	-0.53	-0.04	9.204	8.817	7.589	4.8453
MEDIANTIS AG	100	100	100	49.74	39.79	37.79	39.879	48.809	64.2200
MINERVA HOLDINGS CO LTD	24.58	31.073	28.51	30.05	28.85	28.22	28.248	27.402	28.1213
NETFLIX INC	88.193	84.235	82.812	47.41	52.88	53.44	51.29	50.802	58.1273
NETONNET AB	12.142	15.042	15.385	100	13.18	14.04	15.359	14.139	24.9002
NETPRICE.COM LTD	50.989	39.822	40.118	41.81	41.81	38.58	39.111	38.859	41.0821
NUTRISYSTEM INC	43.088	40.798	43.12	48.51	52.24	53.18	50.758	53.823	48.1815
OVERSTOCK.COM INC	22.029	11.825	14.187	18.94	18.13	20.11	19.844	18.935	17.475
PETMED EXPRESS INC	42.87	40.809	40.291	39.5	39.9	39.41	38.889	38.554	39.9835
RACCOON CO LTD	32.528	29.438	34.002	29.05	22.85	18.89	17.427	18.778	25.0892
RAKUTEN INC	82.08	99.284	90.122	90.01	37.00	81.84	78.307	77.024	85.7077
START TODAY CO LTD	38.538	35.531	37.899	43.89	54.81	59.82	60.574	60.448	48.8391
STREAM CO LTD	8.094	4.774	4.594	8.48	7.425	7.824	8.378	9.809	8.9233
VECTOR INC	34.385	34.825	30.824	30.05	31.85	38.22	39.014	52.889	36.4019
YES24 CO LTD	19.158	24.104	27.048	28.22	27.07	28.28	28.059	27.874	25.8225

Retailers

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
VALOR CO LTD	28.583	28.788	28.98	28.77	28.48	28.748	28.957	28.788	27.5071
CFS CORP	27.458	27.492	27.37	28.18	28.275	28.714	28.313	28.582	28.0488
AEON CO LTD	34.331	33.923	33.82	34.78	38.238	35.991	35.882	35.48	35.0314
MARUETSU INC	28.522	28.929	28.82	27.8	29.126	29.293	29.278	29.832	28.8990
SCHUITEMA NV	11.484	12.847	11.38	12.07	12.918	13.22	12.152	#N/A	12.2943
MAXVALU NISHINIHON CO LTD	25.223	24.442	24.89	25.94	25.98	28.301	28.557	28.404	25.715
CHUO GYORUI CO LTD	4.411	4.579	4.818	4.882	4.688	4.585	4.909	5.513	4.7978
PRESIDENT CHAIN STORE CORP	30.988	30.188	30.41	29.37	29.499	29.215	32.109	32.857	30.4229
WALGREEN CO	27.587	28.135	28.28	29.07	28.984	29.812	29.815	29.449	28.8390
WALMART CHILE SA	28.05	25.747	28.39	31.34	30.80	31.889	30.815	29.357	28.997
WHOLE FOODS MARKET INC	37.877	37.434	37.7	38.17	37.83	37.8	38.988	37.472	37.809
COSTCO WHOLESALE CORP	13.212	13.401	13.42	13.35	13.188	13.34	13.25	13.775	13.3894
FAMILY MART CO LTD	70.33	89.513	88.8	85.04	83.458	82.989	75.115	78.525	82.0908
FOODCO HOLDING PJSC	20.822	21.442	24.37	21.78	18.075	18.285	19.35	20.102	20.1229
HARASHIN NARUS HLDGS CO LTD	29.08	28.231	27.81	28.04	28.12	27.484	27.154	28.75	27.8389
KROGER CO	27.131	28.042	25.58	24.75	24.19	23.43	22.942	23.185	24.7229
SIAM MAKRO PCL	8.57	10.022	10.17	9.952	9.53	9.997	9.778	9.89	9.7133
BOOKER GROUP PLC	4.983	5.518	8.319	8.003	3.473	3.803	3.743	3.844	4.8857
CONVENIENCE RETAIL ASIA LTD	28.923	27.478	27.5	28.52	28.57	29.378	32.488	32.097	28.6181
CENCOSUD SA	32.875	30.18	31.47	32.23	32.89	30.008	29.183	29.388	31.0081
CP LOTUS CORP	17.983	18.137	12.98	14.47	14.98	20.329	20.851	21.504	17.8499
LAWSON INC	77.245	81.384	83.39	83.98	82.298	81.298	75.898	84.185	78.8879
SAN-A CO LTD	31.758	32.073	31.81	32.23	32.100	32.182	32.078	32.825	32.1089
AXFOOD AB	14.703	15.041	13.5	15.13	15.89	15.485	14.97	15.325	15.0638
JOHN LEWIS PARTNERSHIP PLC	34.498	35.148	38.58	35.99	32.356	33.879	33.94	32.397	34.3489
MARUYA CO LTD	25.023	24.787	24.37	25.05	23.9	23.392	24.983	24.927	24.351
CARREFOUR SUPERMARCHE SA	22.82	22.495	22.18	21.3	20.485	20.412	10.57	9.57	18.7043
METRO AG	24.044	24.131	24.34	23.09	22.88	22.918	22.849	22.955	23.3881
TESCO PLC	9.789	10.09	10.31	9.778	9.498	9.888	9.837	10.282	9.9063
DELHAIZE AMERICA INC	28.854	27.852	28.77	29.57	27.375	#N/A	#N/A	#N/A	28.4452
HIPERMARC SA	28.2	25.829	25.84	28.14	27.88	24.187	23.473	25.254	25.8229
ITOCHU-SHOKUHIN CO LTD	9.48	10.12	9.947	10.25	10.48	10.358	10.208	10.812	10.177
MASSMART HOLDINGS LTD	7.585	7.123	7.245	7.528	10.855	11.479	11.751	11.487	9.3788

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Net Profit Margin data from Compustat for e-tailers and traditional retailers (2002-2009)

Retailers

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
VALOR CO LTD	2.035	1.851	2.191	0.647	1.359	1.301	1.007	1.144	1.441875
CFS CORP	0.639	0.564	0.442	0.703	-2.217	0.292	0.351	0.441	0.151875
COSTCO WHOLESALE CORP	1.806	1.695	1.834	2.008	1.834	1.668	1.77	1.52	1.766875
MARUETSU INC	0.324	0.288	-5.992	-2.92	1.079	1.404	1.812	2.067	-0.24225
MAXVALU NISHINIHON CO LTD	1.268	0.707	1.09	1.075	1.675	1.973	1.981	1.895	1.458
CHUO GYORUICO LTD	-0.102	0.16	0.331	0.319	0.663	-0.047	-0.798	0.289	0.101875
PRESIDENT CHAIN STORE CORP	3.239	4.218	3.312	3.218	3.046	2.702	2.494	2.844	3.134125
WALGREEN CO	3.554	3.617	3.599	3.695	3.693	3.797	3.654	3.167	3.597
WALMART CHILE SA	2.268	1.79	0.369	2.376	2.337	2.764	0.982	-2.128	1.34475
WHOLE FOODS MARKET INC	3.14	3.293	3.432	2.9	3.635	2.772	1.44	1.828	2.805
SIAM MAKRO PCL	2.528	2.342	2.409	2.189	2.146	2.031	2.274	1.958	2.234625
FAMILY MART CO LTD	5.922	6.021	4.991	5.135	5.025	5.146	5.725	5.429	5.42425
FOODCO HOLDING PJSC	5.359	8.604	84.722	130.952	51.796	22.922	17.445	24.227	43.25338
HARASHIN NARUS HLDGS CO LTD	1.257	0.879	1.222	1.412	1.168	1.376	0.916	1.207	1.179625
KROGER CO	2.382	0.58	-0.177	1.582	1.687	1.681	1.643	0.091	1.183625
LAWSON INC	3.54	7.561	8.033	8.217	7.413	7.344	6.812	2.689	6.451125
BOOKER GROUP PLC	-17.078	-11.928	-8.877	-3.993	0.362	0.968	1.233	1.405	-4.7385
CONVENIENCE RETAIL ASIA LTD	5.175	3.978	3.81	3.688	3.364	2.978	2.675	2.701	3.546125
CENCOSUD SA	6.232	4.794	3.64	4.047	4.118	5.559	2.612	1.809	4.101375
CP LOTUS CORP	113.17	18.777	-13.299	-26.484	-16.026	-7	-0.724	-2.684	8.21625
METRO AG	0.86	0.925	1.466	0.897	1.525	1.326	1.224	0.584	1.100875
SAN-A CO LTD	3.362	3.381	3.41	3.443	3.661	3.945	3.737	3.645	3.573
AXFOOD AB	1.887	2.035	1.963	2.613	2.958	2.676	2.328	2.449	2.363625
JOHN LEWIS PARTNERSHIP PLC	0.97	1.371	1.478	1.841	1.902	2.302	3.726	1.581	1.896375
MARUYA CO LTD	1.395	1.171	0.234	-3.205	-12.035	-8.061	-5.538	-3.326	-3.67063
CARREFOUR SUPERMARCHE SA	2.021	2.298	2.287	2.43	2.384	2.275	1.444	0.45	1.948625
TESCO PLC	3.592	3.57	4.021	4.005	4.395	4.491	3.978	4.089	4.017625
DELHAIZE AMERICA INC	1.673	1.435	1.957	2.062	2.214	@NA	@NA	@NA	1.8682
HIPERMARC SA	-0.256	-3.332	-5.957	-7.372	-6.694	-17.343	65.179	12.309	4.56675
ITOCHU-SHOKUHIN CO LTD	0.729	0.628	0.629	0.425	0.761	0.424	0.307	0.576	0.559875
MASSMART HOLDINGS LTD	1.925	2.108	2.364	2.285	2.759	3.042	3.36	2.896	2.592375
SAINSBURY (J) PLC	2.605	2.31	0.396	0.398	1.895	1.844	1.528	2.93	1.73825
OLYMPIC CORP	1.328	1.262	-0.279	0.255	-2.864	0.074	0.347	0.111	0.02925
ABON CO LTD	1.661	1.56	1.479	0.653	1.195	0.85	-0.053	0.616	0.995125

E-tailers

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
KOMPLETT ASA	100	100	100	7.553	8.155	6.533	5.377	6.146	41.7205
ARTNET AG	69.17	82.971	81.639	79.336	80.882	81.173	59.888	65.21	75.03363
ASOS PLC	93.056	54.399	51.087	49.075	43.631	33.91	30.411	30.573	48.26775
B2W - COMPANHIA GLOBAL DO	6.306	12.854	13.941	27.764	29.791	29.672	29.371	28.051	22.21875
AMAZON.COM INC	27.331	25.319	24.23	25.347	24.797	24.341	23.902	24.134	24.92513
BUCH.DE INTERNETSTORES AG	100	100	100	100	26.982	25.884	26.027	26.265	63.14475
CENTRO HL DISTRIBUZIONE SPA	100	100	100	20.545	15.313	13.684	10.787	9.969	46.28725
DIGITAL ADVENTURE INC	8.977	33.369	35.52	34.307	25.4	39.175	41.873	25.921	30.56775
DRUGSTORE.COM INC	24.217	23.058	22.525	21.867	21.584	23.289	28.065	28.895	24.1875
EXPANSYS PLC	@NA	26.136	23.462	23.031	24.749	22.789	26.488	21.235	23.98429
GOLF DIGEST ONLINE	27.555	29.402	33.212	34.842	35.636	38.208	37.836	40.674	34.67063
HOLLYWOOD MEDIA CORP	10.179	29.485	28.993	12.145	15.847	11.656	9.304	11.688	16.16213
INTERPARK CORP	12.79	100	100	100	9051	41.104	100	40.655	73.13238
KENKO.COM INC	47.418	40.929	37.496	35.762	35.689	35.216	33.844	34.85	37.6505
DENA CO LTD	59.482	79.655	81.638	77.757	75.058	82.923	80.238	80.942	77.21163
LDLC.COM	4.902	6.113	3.71	-0.527	-0.044	8.204	8.817	7.588	4.845375
MEDIANTIS AG	100	100	100	49.738	39.755	37.785	39.879	46.606	64.22038
MINERVA HOLDINGS CO LTD	24.58	31.073	26.51	30.045	28.893	28.223	28.246	27.402	28.1215
NETFLIX INC	66.193	64.235	62.812	47.41	52.858	53.44	51.28	50.802	56.12875
NETONNET AB	12.142	15.042	15.365	100	13.156	14.039	15.359	14.139	24.90525
NETPRICE.COM LTD	50.988	39.622	40.116	41.614	41.611	36.58	39.111	38.858	41.0625
NUTRISYSTEM INC	43.088	40.766	43.12	48.505	52.237	53.155	50.758	53.823	48.1815
OVERSTOCK.COM INC	22.026	11.625	14.187	16.94	16.13	20.113	19.844	18.935	17.475
PETMED EXPRESS INC	42.67	40.609	40.291	39.495	39.795	39.405	38.889	38.554	39.9635
RACCOON CO LTD	32.528	29.438	34.002	29.052	22.885	18.686	17.427	16.776	25.09925
RAKUTEN INC	82.08	99.264	90.122	90.005	87.019	81.841	78.307	77.024	85.70775
START TODAY CO LTD	36.538	35.531	37.699	43.89	54.812	59.623	60.574	60.446	48.63913
STREAM CO LTD	6.094	4.774	4.594	6.487	7.429	7.824	8.378	9.808	6.9235
VECTOR INC	34.365	34.625	30.624	30.054	31.648	38.215	39.014	52.668	36.40163
YES24 CO LTD	18.158	24.104	27.046	26.217	27.067	28.263	28.059	27.674	25.8235
BLUE NILE INC	27.607	23.827	23.14	23.065	20.955	20.978	21.029	22.486	22.88588

ROA data from Compustat for e-tailers and traditional retailers (2002-2009)

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
CARREFOUR SUPERMARCHE SA	3.568	4.147	4.264	3.914	3.907	3.598	2.411	0.745	3.31925
METRO AG	1.933	1.866	2.944	1.738	2.84	2.518	2.46	1.138	2.179625
MAXVALU NISHINIHON CO LTD	3.989	2.193	3.261	3.229	5.346	6.103	6.201	5.32	4.45525
CHUO GYORUI CO LTD	-0.524	0.812	1.638	1.528	3.104	-0.221	-4.011	1.333	0.457375
PRESIDENT CHAIN STORE CORP	8.853	11.402	8.984	8.125	7.763	6.324	5.523	6.086	7.8825
WALGREEN CO	10.317	10.308	10.117	10.675	10.219	10.569	9.625	7.979	9.976125
AEON CO LTD	2.546	2.12	2.255	0.988	1.631	1.223	-0.074	0.822	1.438875
MARUETSU INC	0.73	0.644	-14.996	-7.389	2.891	3.788	4.932	5.519	-0.48513
COSTCO WHOLESALE CORP	6.024	5.466	5.847	6.438	6.306	5.522	6.202	4.941	5.84325
FAMILY MART CO LTD	5.139	4.457	4.402	4.519	4.748	4.68	4.132	3.56	4.454625
FOODCO HOLDING PJSC	2.969	3.711	23.036	28.707	12.916	4.559	5.973	4.953	10.853
HARASHIN NARUS HLDGS CO LTD	2.501	1.783	2.658	3.255	2.557	3.154	2.044	2.787	2.592375
KROGER CO	6.134	1.503	-0.488	4.677	5.256	5.296	5.381	0.303	3.50775
SIAM MAKRO PCL	5.713	5.838	5.971	5.992	6.343	6.222	8.093	6.662	6.35425
BOOKER GROUP PLC	-162.09	-150.151	-33.753	-17.562	1.453	3.823	5.057	5.731	-43.436
CONVENIENCE RETAIL ASIA LTD	11.922	8.82	8.595	8.366	7.672	5.84	5.853	5.933	7.875125
CENCOSUD SA	3.955	3.986	3.219	4.077	4.453	5.416	2.901	1.944	3.743875
CP LOTUS CORP	11.656	4.956	-8.984	-25.733	-22.697	-12.465	-0.538	-3.361	-7.14575
LAWSON INC	2.586	5.234	5.735	5.872	5.269	5.57	5.459	2.803	4.816
SAN-A CO LTD	6.533	6.107	6.791	6.376	6.681	7.122	6.088	5.673	6.421375
AXFOOD AB	8.498	9.804	9.429	9.697	14.025	11.819	10.027	11.055	10.54425
JOHN LEWIS PARTNERSHIP PLC	1.515	2.206	2.331	2.718	2.937	3.654	5.779	2.262	2.92525
MARUYA CO LTD	2.461	2.192	0.427	-5.867	-23.552	-16.314	-10.329	-5.813	-7.09938
WALMART CHILE SA	3.148	2.465	0.51	3.44	3.29	3.68	1.241	-3.042	1.8415
WHOLE FOODS MARKET INC	8.958	8.664	8.571	7.217	9.977	5.687	3.388	3.139	6.950125
TESCO PLC	5.733	5.926	6.693	7.003	7.554	7.042	4.692	5.056	6.212375
DELHAIZE AMERICA INC	2.915	2.574	3.472	3.704	4.266 @NA	@NA	@NA		3.3862
HIPERMARC SA	-0.157	-2.356	-4.074	-5.262	-5.267	-19.338	14.863	1.679	-2.489
ITOCHU-SHOKUHIN CO LTD	2.609	2.235	2.288	1.517	2.348	1.297	1.073	2.053	1.9275
MASSMART HOLDINGS LTD	6.506	7.409	7.987	7.501	8.594	9.759	11.042	9.666	8.558
SAINSBURY (J) PLC	3.774	3.145	0.525	0.502	3.394	3.253	2.88	5.389	2.85775
OLYMPIC CORP	2.242	2.045	-0.412	0.365	-4.111	0.122	0.586	0.18	0.12712 5
VALOR CO LTD	3.853	3.568	3.863	1.285	2.508	2.513	1.989	2.236	2.726875

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
RAKUTEN INC	-9.62	-27.999	-4.64	1.173	0.208	3.184	-5.058	3.045	-4.96338
BLUE NILE INC	5.263	43.313	7.779	9.531	10.699	10.872	12.971	9.815	13.78038
ASOS PLC	-53.693	13.542	13.636	13	14.78	13.894	16.291	17.615	6.133125
B2W - COMPANHIA GLOBAL DO	-26.981	-1.802	4.424	5.685	@NC	3.436	3.155	2.048	-1.43357
NETPRICE.COM LTD	23.385	18.216	12.827	3.115	-5.12	-12.584	0.427	1.294	5.195
BUCH.DE INTERNETSTORES AG	-10.162	35.86	0.875	3.809	4.706	-1.691	2.883	2.647	4.865875
CENTRO HL DISTRIBUZIONE SPA	-51.741	-37.41	-35.812	-10.805	-1.891	-4.416	-44.139	0.213	-23.2501
DENA CO LTD	-30.141	14.785	7.957	11.185	12.022	20.629	21.31	20.572	9.789875
DIGITAL ADVENTURE INC	-27.018	3.766	-4.237	-22.676	-58.676	8.531	1.411	-12.51	-13.9261
DRUGSTORE.COM INC	-32.303	-10.113	-30.115	-12.253	-7.739	-6.562	-10.729	-4.739	-14.3191
EXPANSYS PLC	@NA	18.921	2.34	-5.686	-3.431	-9.916	-30.951	-22.567	-7.32714
GOLF DIGEST ONLINE	-9.496	5.805	7.578	3.152	-0.556	3.522	5.373	7.569	2.868375
HOLLYWOOD MEDIA CORP	-131.386	-13.083	-16.613	-10.699	-7.435	-10.498	-15.783	-10.824	-27.0401
INTERPARK CORP	-21.17	-16.467	-8.742	1.97	13.775	-2.738	0.968	53.023	2.577375
KENKO.COM INC	0.272	15.31	-3.654	1.82	0.357	-3.004	-2.438	1.525	1.2735
KOMPLETT ASA	13.389	12.368	5.629	9.54	10.697	3.247	-4.854	2.791	6.600875
LDLC.COM	13.128	15.22	6.636	-8.056	-5.984	2.69	3.384	0.883	3.487625
MEDIANTIS AG	6.292	7.841	7.701	5.788	1.814	1.728	-9.756	-1.541	2.483375
MINERVA HOLDINGS CO LTD	-27.17	7.807	-22.363	8.148	16.475	8.939	6.61	0.187	-0.17088
NETFLIX INC	-16.814	3.7	8.576	11.524	8.062	10.348	13.436	17.045	6.984625
NETONNET AB	8.084	3.681	4.811	@NC	2.41	6.22	7.614	2.395	5.030714
NUTRISYSTEM INC	26.713	5.932	5.717	19.595	43.024	52.854	29.113	17.001	24.99363
OVERSTOCK.COM INC	-18.095	-12.431	-1.252	-7.702	-37.079	-19.084	-7.34	3.556	-12.4284
PETMED EXPRESS INC	36.096	31.459	28.486	28.303	23.594	27.257	28.032	24.961	28.5235
RACCOON CO LTD	-44.369	-21.97	11.509	7.668	-19.255	-9.975	5.251	5.403	-8.21725
VECTOR INC	3.01	3.644	5.057	2.353	-1.488	-1.914	-1.727	8.172	2.138375
START TODAY CO LTD	0	2.899	8.48	4.779	12.406	15.742	15.642	15.119	9.383375
STREAM CO LTD	3.454	2.619	-1.207	5.151	8.384	7.175	4.283	1.688	3.943375
YES 24 CO LTD	-43.855	-20.982	0.581	3.581	5.139	13.838	8.692	6.766	-3.28
AMAZON.COM INC	-7.533	1.632	18.114	9.01	4.355	7.34	7.758	6.53	5.90075
ARTNET AG	-25.936	-46.86	-39.663	50.839	53.138	32.572	-6.421	-7.104	1.320625

ROE sample data from Compustat for e-tailers and traditional retailers (2002-2009)

E-tailors

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
BUCH.DE INTERNETSTORES AG	-15.912	46.632	1.115	5.302	6.325	-2.433	4.496	4.344	6.233625
EXPANSYS PLC	@NA	74.654	21.556	-86.126	-6.425	-29.064	-96.582	-87.812	-29.9713
B2W - COMPANHIA GLOBAL DO	-1.356.33	@NC	106.093	9.941	@NC	19.287	34.686	19.277	-194.508
BLUE NILE INC	@NC	@NC	11.943	16.136	27.618	27.504	60.234	29.582	28.83617
ARTNET AG	@NC	@NC	@NC	1.106.73	102.344	51.228	-11.667	-12.739	247.1794
CENTRO HL DISTRIBUZIONE SPA	-131.542	-100.256	-77.314	-16.015	-2.928	-7.146	-89.57	0.354	-53.0521
ASOS PLC	-9.2597	20.457	24.308	27.143	28.849	31.692	38.932	32.059	13.85538
DIGITAL ADVENTURE INC	-44.485	5.102	-4.923	-42.787	-187.041	13.029	1.934	-20.031	-34.9003
DENA CO LTD	-39.856	22.456	9.443	13.657	18.799	33.826	33.022	32.859	15.52575
KENKO.COM INC	1.19	44	-5.132	3.15	0.615	-7.045	-5.241	3.28	4.352125
AMAZON.COM INC	@NC	@NC	@NC	135.366	44.084	39.766	24.139	17.158	52.1026
GOLF DIGEST ONLINE	-19.277	14.426	113.27	5.108	-1.098	8.496	11.45	14.951	5.672875
HOLLYWOOD MEDIA CORP	-197.491	-21.706	-24.599	-21.022	-13.35	-17.744	-28.013	-19.2	-42.8906
INTERPARK CORP	-42.717	-37.43	-31.468	15.357	42.442	-6.445	2.167	72.088	1.74925
MEDIANTIS AG	6.848	8.401	8.372	9.529	2.843	2.619	-16.705	-2.387	2.44
KOMPLETT ASA	24.434	22.261	10.653	17.101	19.467	5.353	-8.529	4.436	11.897
LDLC.COM	28.829	46.194	18.566	-31.189	-21.862	9.344	10.786	2.695	7.920375
DRUGSTORE.COM INC	-44.102	-14.545	-54.787	-21.708	-14.055	-12.198	-17.375	-7.498	-23.2835
MINERVA HOLDINGS CO LTD	@NC	59.155	-50.316	14.785	27.713	12.421	9.852	0.323	10.56186
NETFLIX INC	-24.561	5.778	13.818	18.575	11.85	15.543	23.916	58.179	15.38725
NETONNET AB	16.932	8.19	14.12	@NC	8.383	21.365	24.398	9.483	14.69586
NETPRICE.COM LTD	35.185	27.172	16.963	4.813	-7.151	-16.372	0.6	2.056	7.90825
NUTRISYSTEM INC	42.122	8.74	8.37	26.613	58.588	74.166	40.084	22.515	35.14975
OVERSTOCK.COM INC	-29.47	-22.124	-2.784	-27.97	-153.287	-242.214	@NC	71.287	-58.0803
PETMED EXPRESS INC	58.345	41.57	33.088	32.06	26.821	29.872	30.651	26.848	34.90688
RACCOON CO LTD	-95.588	-75.325	26.012	10.049	-32.038	-20.305	10.045	11.009	-20.7676
RAKUTEN INC	-10.84	-199.67	-31.123	25.407	1.433	19.841	-36.665	26.263	-25.6693
START TODAY CO LTD	0	32	67.089	40.741	27.539	24.157	23.769	26.958	30.28163
STREAM CO LTD	30.882	21.429	-5.319	23.214	25.654	14.953	8.338	4.294	15.43063
VECTOR INC	3.528	4.228	6.259	2.852	-1.862	-2.49	-2.243	10.352	2.578
YES24 CO LTD	@NC	-64.588	2.018	19.133	23.669	44.532	18.013	13.158	7.990714

Retailers

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
VALOR CO LTD	14.221	12.776	12.387	3.425	7.804	7.754	6.169	6.789	8.915625
WHOLE FOODS MARKET INC	14.343	13.359	13.695	9.984	14.516	12.527	7.604	7.295	11.66538
COSTCO WHOLESALE CORP	12.293	10.999	11.573	11.97	12.066	12.556	13.955	10.84	12.0315
MARUETSU INC	1.649	1.459	-43.124	-25.226	8.386	10.06	11.702	11.82	-2.9909 25
WALGREEN CO	16.359	16.339	16.583	17.543	17.306	18.383	16.761	13.954	16.6535
FAMILY MART CO LTD	9.357	9.346	8.044	8.438	9.143	8.971	8.624	7.558	8.685125
PRESIDENT CHAIN STORE CORP	21.97	26.665	21.204	24.073	23.915	22.286	21.399	21.453	22.87063
HARASHIN NARUS HLDGS CO LTD	5.665	4	5.968	6.617	6.033	7.226	4.893	6.232	5.8292 5
WALMART CHILE SA	7.907	6.698	1.154	7.778	7.656	9.363	3.375	-9.406	4.3156 25
MAXVALU NISHINIHON CO LTD	10.622	5.521	7.824	7.031	11.132	13.166	13.764	12.266	10.16575
CHUO GYORUICO LTD	-1.058	1.461	2.815	2.547	5.208	-0.405	-8.761	2.824	0.578875
AXFOOD AB	36.917	32.158	26.423	25.982	35.207	36.292	32.625	30.095	31.96238
FOODCO HOLDING PJSC	6.624	8.481	41.895	48.562	23.603	7.166	13.701	9.545	19.94713
CONVENIENCE RETAIL ASIA LTD	20.581	15.13	15.134	15.186	14.187	11.939	11.597	11.566	14.415
KROGER CO	32.026	7.829	-28.25	21.822	22.649	24.033	24.131	1.449	16.38925
SIAM MAKRO PCL	10.519	10.785	11.873	12.857	13.991	15.573	19.631	17.482	14.08888
BOOKER GROUP PLC	-1.246.19	@NC	-53.774	-42.251	@NC	11.705	14.899	17.172	-216.406
CENCOSUD SA	8.507	8.941	6.999	8.296	9.493	12.256	6.87	4.427	8.22362 5
CFS CORP	4.867	4.179	3.188	4.862	-18.008	2.43	2.726	3.278	0.94025
AEON CO LTD	12.022	11.546	9.82	4.279	6.315	5.049	-0.336	3.699	6.5492 5
SAN-A CO LTD	14.453	13.421	12.24	10.386	10.252	10.539	9.395	8.826	11.189
JOHN LEWIS PARTNERSHIP PLC	2.777	3.987	4.358	6.743	6.56	8.274	13.557	6.25	6.5632 5
MARUYA CO LTD	3.509	2.945	0.576	-8.048	-36.991	-26.134	-18.02	-10.832	-11.6244
LAWSON INC	5.835	12.034	12.749	12.572	10.748	11.935	12.181	6.533	10.57338
METRO AG	10.716	11.92	17.451	9.79	15.679	13.637	14.296	6.656	12.51813
CP LOTUS CORP	15.92	9.124	-24.457	-193.259	@NC	@NC	-10.343	-174.656	-62.9452
DELHAIZE AMERICA INC	8.269	6.671	8.686	8.986	9.52	@NA	@NA	@NA	8.4264
HIPERMARC SA	-0.279	-4.338	-7.827	-9.789	-10.234	-46.919	24.969	2.648	-6.47113
CARREFOUR SUPERMARCHE SA	22.537	24.698	24.133	21.589	19.578	17.523	12.357	3.723	18.26725
TESCO PLC	14.518	13.845	15.168	16.844	17.837	17.977	16.703	15.943	16.10438
SAINSBURY (J) PLC	9.075	7.759	1.395	1.647	7.473	6.667	6.604	11.78	6.55
OLYMPIC CORP	5.855	4.955	-1.069	0.927	-11.254	0.304	1.407	0.427	0.194
BEBE STORES INC	14.669	9.575	13.816	19.905	18.08	15.315	12.982	2.75	13.3865
ITOCHU-SHOKUHIN CO LTD	9.331	7.726	7.528	4.849	8.016	4.605	3.532	6.61	6.52462 5
MASSMART HOLDINGS LTD	22.751	25.767	30.391	37.545	43.482	47.306	48.067	39.665	36.87175

ROIC sample data from Compustat for e-tailers and traditional retailers (2002-2009)

Retailers

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
KROGER CO	9.647	2.386	-0.808	8.043	9.45	10	9.491	0.54	6.093625
WALMART CHILE SA	5.575	4.367	0.774	6.247	5.071	6.377	2.005	-4.915	3.187625
FAMILY MART CO LTD	9.06	9.055	7.755	8.076	8.745	8.594	8.328	7.041	8.33175
MARUETSU INC	1.059	0.952	-27.011	-16.949	5.063	6.189	8.723	9.345	-1.57863
MAXVALU NISHINIHON CO LTD	9.477	4.872	7.284	6.717	10.882	13.116	13.726	10.98	9.63175
BOOKER GROUP PLC	-1,176.96	2,954.94	-53.774	-41.005	3.848	8.701	12.719	15.164	215.4549
PRESIDENT CHAIN STORE CORP	16.196	21.311	16.582	17.457	19.027	13.906	12.194	13.78	16.30663
WALGREEN CO	15.881	15.808	15.955	17.009	17.003	18.063	14.983	11.79	15.8115
VALOR CO LTD	7.445	7.229	7.344	2.567	5.052	4.887	3.884	4.374	5.34775
WHOLE FOODS MARKET INC	11.25	11.012	11.625	9.89	14.428	8.326	4.704	4.272	9.438375
COSTCO WHOLESALE CORP	9.786	8.843	9.939	10.814	11.513	9.913	11.064	8.699	10.07138
CHUO GYORUI CO LTD	-0.967	1.363	2.689	2.443	5.014	-0.363	-6.945	2.266	0.6875
FOODCO HOLDING PJSC	4.513	6.188	32.736	43.527	20.39	6.499	11.045	8.14	16.62975
HARASHIN NARUS HLDGS CO LTD	4.761	2.913	4.548	5.37	4.576	5.176	3.412	4.425	4.397625
SIAM MAKRO PCL	10.519	10.785	11.873	12.857	13.991	15.573	19.631	17.18	14.05113
CONVENIENCE RETAIL ASIA LTD	20.563	15.189	15.364	15.278	14.41	12.071	11.723	11.566	14.5205
CENCOSUD SA	5.54	5.843	5.072	5.815	6.275	7.887	4.205	2.722	5.419875
CP LOTUS CORP	12.887	7.973	-20.187	-144.111	-105.585	-90.969	-2.464	-13.459	-44.4894
MARUYA CO LTD	3.434	2.873	0.576	-7.958	-35.173	-25.467	-17.206	-10.396	-11.1646
SAN-A CO LTD	9.701	10.074	9.979	9.163	9.428	9.934	8.886	8.294	9.424875
AXFOOD AB	23.295	26.512	23.664	24.631	34.705	32.678	28.39	28.081	27.7445
JOHN LEWIS PARTNERSHIP PLC	2.123	3.01	3.271	4.87	5.187	6.576	10.222	4.178	4.929625
CARREFOUR SUPERMARCHE SA	9.033	11.087	11.295	10.639	10.298	9.321	6.137	1.912	8.71525
LAWSON INC	5.75	11.813	12.478	12.304	10.518	11.73	11.767	5.774	10.26675
TESCO PLC	8.975	8.937	10.068	11.982	12.734	11.883	8.513	8.806	10.23725
DELHAIZE AMERICA INC	3.57	3.082	4.185	4.859	5.447	@NA	@NA	@NA	4.2286
HIPERMARC SA	-0.26	-3.687	-6.792	-8.769	-7.725	-29.772	18.431	1.993	-4.57263
ITOCHU-SHOKUHIN CO LTD	9.284	7.691	7.5	4.842	8.005	4.605	3.532	6.45	6.4886325
MASSMART HOLDINGS LTD	19.299	22.163	26.982	33.837	33.407	39.664	43.3	37.292	31.993
SAINSBURY (J) PLC	6.641	5.449	0.99	1.042	5.047	4.687	4.41	7.989	4.531875
METRO AG	4.918	4.686	7.277	4.402	7.407	7.392	7.492	3.007	5.822625
CFS CORP	3.552	2.851	2.164	3.524	-12.099	1.933	2.405	2.75	0.885
AEON CO LTD	4.855	4.407	4.381	1.864	2.918	2.279	-0.147	1.491	2.756

E-Tailers

Firm	2002	2003	2004	2005	2006	2007	2008	2009	Mean
NETPRICE.COM LTD	35.185	27.172	16.963	4.786	-6.599	-16.238	0.593	1.931	7.974125
EXPANSYS PLC	@NA	65.677	7.272	-32.181	-6.166	-28.077	-91.218	-84.314	-24.1439
OVERSTOCK.COM INC	-26.488	-20.955	-1.631	-14.685	-67.256	-47.01	-19.911	10.72	-23.402
PETMED EXPRESS INC	57.552	41.543	33.076	32.052	26.816	29.868	30.648	26.784	34.79238
DIGITAL ADVENTURE INC	-37.672	4.796	-4.77	-26	-71.399	11.823	1.723	-17.871	-17.4213
BUCH.DE INTERNETSTORES AG	-15.9	46.608	1.115	5.298	6.32	-2.431	4.496	4.344	6.23125
CENTRO HL DISTRIBUZIONE SPA	-121.602	-91.866	-71.283	-16.015	-29.28	-6.986	-87.963	0.354	-49.7861
DENA CO LTD	-39.856	22.456	9.443	13.145	17.498	31.911	31.011	31.024	14.579
NUTRISYSTEM INC	42.122	8.74	8.37	26.527	58.255	74.166	40.084	22.515	35.09738
DRUGSTORE.COM INC	-43.89	-14.477	-53.674	-20.92	-13.645	-11.924	-16.749	-7.205	-22.8105
MEDIANTIS AG	6.848	8.401	8.372	9.529	2.843	2.619	-16.705	-2.387	2.44
GOLF DIGEST ONLINE	-19.277	14.426	11.327	5.108	-1.098	7.652	11.139	13.06	5.292125
HOLLYWOOD MEDIA CORP	-182.21	-19.323	-24.109	-18.582	-13.325	-17.633	-27.836	-19.145	-40.2704
INTERPARK CORP	-31.429	-37.43	-27.385	11.956	40.843	-6.33	2.168	71.419	2.9765
KENKO.COM INC	1.01	26.143	-4.95	2.338	0.491	-4.465	-3.737	2.449	2.409875
KOMPLETT ASA	24.434	22.261	10.653	17.101	19.467	5.353	-8.529	4.436	11.897
LDLC.COM	27.919	44.418	18.078	-25.982	-21.679	9.234	10.711	2.595	8.16175
MINERVA HOLDINGS CO LTD	-900	37.168	-45.954	14.249	27.29	12.421	9.852	0.308	-105.583
NETFLIX INC	-24.436	5.776	13.818	18.575	11.85	15.543	21.557	26.591	11.15925
NETONNET AB	14.037	6.974	12.486	@NC	8.383	19.682	18.922	9.483	12.85243
RAKUTEN INC	-10.765	-198.241	-29.668	6.901	0.588	9.842	-15.583	14.248	-27.8348
VECTOR INC	3.528	4.228	6.101	2.779	-1.81	-2.42	-2.181	10.352	2.572125
YES24 CO LTD	-268.458	-64.588	2.018	9.786	17.623	44.532	18.013	13.158	-28.4895
RACOON CO LTD	-59.908	-54.717	20.362	9.606	-29.64	-18.433	9.9	9.457	-14.1716
START TODAY CO LTD	0	8.989	25.481	26.506	27.539	24.157	23.769	26.958	20.42488
STREAM CO LTD	17.949	11.345	-3.937	15.532	20.538	14.953	8.338	3.652	11.04625
AMAZON.COM INC	-16.792	3.968	36.32	18.846	11.19	18.733	20.125	16.373	13.59538
ARTNET AG	80.93	85.237	49.053	1,106.73	102.344	51.228	-11.409	-123.28	181.4733
ASOS PLC	-92.597	20.457	24.308	27.143	28.849	31.692	38.932	32.059	13.85538
BZW - COMPANHIA GLOBAL DO	-393.105	-29.001	323.27	9.941 @NC		14.463	9.174	3.606	-50.3707
BLUE NILE INC	43.619	89.219	11.943	16.136	27.618	27.128	57.726	29.048	37.80463

Summary of Master Thesis Interim Review Committee Comments

Review Committee Members

I made an interim presentation of this thesis to a review committee on 18 May 2011. The committee comprised Professors TAJEDDINI Kayhan and SUZUKI Ken. Following my presentation, the professors made the following comments:

Professor TAJEDDINI

- Overall, the paper is good.
- The methodology needs further clarification.
- The findings need to be made clear.

Professor SUZUKI

- Develop the literature review more.
- Prepare reasons against the results.
- Add a table of contents and introduction.

How these issues were addressed

- The methodology was broadly and adequately covered in Chapter 3 [pp 49-55]. This chapter explains the research methodology used, its philosophical grounding, epistemological foundation, type of data used, sources of the data, how the sampling was done and how the data was processed.
- The findings have been clarified in detail in chapter 4 [pp 56-71]. At the time of the interim review, the data had not yet been processed so there were no findings at that stage.
- The literature review in Chapter 2 was developed to explore the contributions made by other scholars in this research area. The review details the evolution of retailing, theories relating to innovation, development of e-commerce, business models and the long tail concept. A theoretical framework clearly showing the fundamental basis for this paper and another one showing where this thesis adds value to the

existing body of literature is shown in figures 5 and 6 on page 46.

- The Introduction is shown in Chapter 1 [pp2-12]. In addition, every chapter has an introduction and a conclusion.

- The Table of Contents is shown on pages v-vi. In addition, on page vii is a list of all the figures and tables in this thesis.