

Pricing strategies within the South African veterinary profession

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ABSTRACT

The pricing strategies followed by any business are of paramount importance from both an operational as well as a strategic perspective in generating revenue. In order to mitigate against the unintended consequences of pricing incorrectly, there are a variety of factors that should be taken into consideration. Within the veterinary industry, the increasingly competitive market requires veterinarians to focus on delivering value to customers and setting their prices accordingly. As a result, veterinarians need to gain a better understanding of the pricing environment and develop a systematic process to pricing so that prices can be set in accordance to costs, customer and competitor factors.

This research seeks to identify the dominant pricing strategies used by South African veterinarians as well as expand on the understanding of whether the pricing strategies differ between the products and services offered.

A structured, electronic questionnaire was sent out nationally to all South African veterinarians and practice managers. 79 veterinarians participated in the study in order to identify the dominant pricing strategies used by the profession.

The results of the survey were analysed by means of a normal distribution fit algorithm and correspondence analysis. The results of the survey revealed that, similar to most small businesses and the majority of service industries, cost-plus pricing is the dominant pricing strategy used by veterinarians. Furthermore, it was identified that there are differences in the pricing strategies chosen by veterinarians for various products and services.

DECLARATION

I, Lauren Geraty, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

LAUREN GERATY

Signed at

On the day of 20.....

DEDICATION

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to determine the dominant pricing strategies used by veterinarians to price their products and services. This research will be conducted by means of a survey of South African veterinary practices.

1.2 Context of the study

Pricing decisions made by any business are of paramount importance from both an operational as well as a strategic perspective as it can be the key determinant of organisational success or failure. Pricing is known to influence a business' income, profitability and competitive positioning.

From a strategic perspective, the fit between the pricing decisions and the organisation's objectives will determine its overall performance and profitability (Myers, 2004). From an operational perspective, the marketing mix consists of four components of which only one, price, generates revenue for a business (Avlonitis & Indounas, 2007; Kotler et al., 2010; Piercy, Cravens & Lane, 2010; Shipley & Jobber, 2001). It is also the most flexible component of the marketing mix (Kotler et al., 2010). Price affects a multitude of stakeholders within the business' value system and is central to the company's competitive position (Avlonitis & Indounas, 2007; Shipley & Jobber, 2001). As a result, pricing should be used strategically as a tool to create and capture customer value (Kotler et al., 2010).

There are several consequences of a business setting the wrong price such as sacrificing margins resulting in the loss of potential revenue, incurring unnecessary costs, initiating aggressive responses from competitors, confusing customers and/or possibly the loss of current and potential customers (Amirault, Kwan & Wilkinson, 2006; Morris & Calantone, 1990; Myers, 2004). Within the veterinary industry, the prices charged will

also influence the type of treatment selected for patients as well as the choice of veterinary service provider.

The global economy has undergone significant change recently starting with the subprime crisis, triggered in the USA in late 2007, which spread through international financial markets during the late 2000's and early 2010's (Dominique-Ferreira, Vanconcelos & Proença, 2016). Consumers have changed a number of their spending habits as they become more price sensitive resulting in a downwards pressure on suppliers to lower their prices. This has the potential to lead to aggressive price-cutting which could initiate price wars between competitors in an attempt to secure revenue, further aggravating this downwards price spiral (Brennan, Canning & McDowell, 2007; Cravens & Piercy, 2013; Kotler & Keller, 2012). This has sparked a renewed interest within companies towards their pricing strategies in order to provide leverage on competitive positioning (Cravens & Piercy, 2013).

In addition, there have been many changes with regards to industry deregulations as well as the growing influence of e-commerce changing the way in which consumers and suppliers interact (Cravens & Piercy, 2013; Kotler and Keller, 2012). As a result, companies have had to approach their pricing methods in a more strategic manner in order to protect their revenue, sales volumes and market shares (Cravens & Piercy, 2013). Companies also need to find new ways to creatively communicate the value that they deliver with regards to their products and services, and ensure that they position themselves more strategically within the market (Cravens & Piercy, 2013).

South Africa has followed global trends. In a recent report published by McKinsey & Company, the growth of private consumption in South Africa has slowed in the past five years to an annual rate of 2.8%, with a mere 1.6% being achieved during the past year (Hatting, Magnus & Ramlakan, 2016). Hatting et al. (2016) demonstrated that of the 1000 South African consumers surveyed, consumers felt that they were under tremendous financial pressure which has resulted in some key behavioural shifts in their spending. South African businesses will have to be able to demonstrate the value that they deliver for the money consumers spend as well as clearly differentiate themselves given the tough economic conditions. The pricing strategies they follow will be a key determinant of this.

Small, micro and medium-sized enterprises (SMEs) are broadly defined as businesses in South Africa with less than 100 employees (Van Scheers, 2011; Jobber & Shipley, 2012). SME's contribute an estimated 52 to 57% towards South Africa's GDP (Groepe, 2015), account for roughly 91% of formal business entities and provide 60% of employment opportunities (Kongolo, 2010). Thus, SMEs significantly contribute towards the South African economy.

Due to a multitude of macro and micro economic challenges, SMEs experience an estimated 75% failure rate during the first two years of operation (Fatoki & Odeyemi, 2010; Fatoki & Garwe, 2010). Studies have identified these to be predominately related to issues around financing the SME as well as a lack of marketing skills, including difficulties in setting the correct pricing strategies (Cant & Wiid, 2013; Van Scheers, 2011).

The process of setting a price involves multiple steps and various frameworks have been described in the literature. In general, the process begins by defining the pricing objectives that the company aims to achieve (Kotler & Keller, 2012; Shipley & Jobber, 2001). This typically includes identifying whether the firm is trying to achieve high margins, high sales volumes, gain market share and/or influence competitors. This step is then followed by a pricing analysis which involves calculating the level of demand, the costs associated with producing the product or delivering a service, a thorough competitor analysis, and assessing the influence of non-price factors (Kotler & Keller, 2012). This essential information is then used to determine which pricing strategy the firm will follow. Normally one of a combination of cost, demand or competition-based methods is used (Cravens & Piercy, 2013). The final price is then determined by the company and implemented within the market. The company then needs to continuously monitor the internal and external environments for the multitude of factors which can influence it (Shipley & Jobber, 2001). The prices of specific products or services can then be adjusted temporarily, known as pricing tactics, in order to meet particular short-term business objectives.

Several authors have concluded that most companies, regardless of the industry, do not price correctly and predominately rely on cost-orientated pricing in which the costs associated with the product or service are calculated and a traditional industry margin is

added (Avlonitis & Indounas, 2007; Brennan et al., 2007; Kotler & Keller, 2012; Monroe & Cox, 2001; Shipley & Jobber, 2001). Although this method ensures that the costs are covered, it is prone to mistakes as it fails to conduct adequate research and subsequently assimilate the multitude of effective pricing determinants in terms of the market, customer or competition (Kotler et al., 2010; Monroe & Cox, 2001; Shipley & Jobber, 2001). Many companies tend to set prices annually and then use pricing tactics reactively to competitors within the market instead of considering these during the pricing process (Monroe & Cox, 2001). Another misconception about pricing is this that most consumers are highly price sensitive and that companies have to be price-takers in order to set their own prices within a given market (Hinterhuber, 2004).

Pricing is a powerful strategic tool that can be managed and controlled (Avlonitis & Indounas, 2006; Piercy et al., 2010). Several authors have stressed the need to become more focused on value pricing in today's economic environment (Kohli & Suri, 2011; Monroe & Cox, 2001; Piercy et al., 2010). In addition, Schindehutte and Morris (2001) indicated the importance of placing a greater emphasis on customer relationships due to the increasing intensity of the competitive environment in which companies operate. By following a systematic pricing process, companies are able to move away from the predominant cost-orientated pricing and make use of pricing strategies that are better suited to their customers and the requirements of the market (Avlonitis & Indounas, 2007; Kohli & Suri, 2011; Piercy et al., 2010).

The field of veterinary medicine is dynamic and diversified in nature (Lin & Brian, 1996). Veterinarians are highly skilled in scientific, technical and clinical skills that enable them to diagnose, treat and prevent a multitude of diseases and pathologies (Brown & Silverman, 1999). They also work together with the government and a variety of non-government welfare organisations to ensure the safe production of food, the health and welfare of animals, as well as aid in the prevention of zoonotic diseases (Henry, Rushton & Ballie, 2016). Veterinarians provide both products and services to the general public and can be broadly classified as a professional services industry with some retail functions (Kogan et al., 2015).

Over the past century, there has been a considerable shift in veterinary care from that of an agricultural basis to one of companion animal care (Hausman, 2003; Henry et al.,

2016; Lowe, 2009). Companion animal market is best described as households with cats and/or dogs as pets (Baguley, 2009). This shift was been linked to aging demographics, millennials choosing to have children later or not at all, and an increase in the general popularity of pets (Chen, Hung & Peng, 2012). As a result, there is a change in the nature of the human-animal bond as pets are increasingly being viewed and accepted as members of the family (Brockman, Taylor & Brockman, 2008). This bond has an impact on the relationship that the customers have with their veterinarian as well as how they value the veterinary services being provided (Brockman et al., 2008; Nestel, Robbé, & Jones, 2005).

An increase in the number of companion animal veterinary clinics has amplified competitive intensity placing further downward pressure on profit margins (Henry et al., 2016). Despite this, very little has been published on the pricing of veterinary services (Baguley, 2009) despite the fact that veterinarians claim to experience difficulties in pricing and subsequently the ability to remain competitive within the market (Henry et al., 2016). In addition, two large scale studies conducted in the USA revealed three major issues with regards to pricing. The first was that veterinarians do not believe that customers fully value the services being provided to their pets (Brown & Silverman, 1999). Shaw, Adams & Bonnett (2004) believe that this could be related to a lack of communication skills on behalf of veterinarians in practice. Second, veterinarians tend to change their prices based on their perception of the financial status of the customer, often without empirical evidence (Cron, Slocum, Goodnight & Volk, 2000). Lastly, Cron et al. (2000) found that veterinarians tend to have a low business acumen leading to a lack of uniform pricing strategies based upon sound business principles.

In addition to these global complications around pricing, the South African veterinary industry recently faced another dilemma. It is regulated by the South African Veterinary Council (SAVC) under the rules laid out in the Veterinary and Para-Veterinary Professions Act, number 19 of 1982 (Republic of South Africa, 2015). From January 2004 to December 2013, the SAVC would regulate the pricing structure of services offered by veterinarians through issuing an annual "*Tariff Guidelines*" specifying the minimum and maximum range that veterinarians could charge. On the 10th of September 2014, the Competition Commission found the SAVC to be in contravention of section 4(1)(b)(i) of the Competition Act 1989 with regards to price fixing and "acting outside of

its statutory mandate by regulating the economic activities of its members” (Competition Tribunal of South Africa, 2014, p.4). This ruling found the SAVC to be in contravention of free market principles and the aim was to allow the introduction of open market competition. Thus, only from 2014 have veterinarians been allowed to establish their own fees for services rendered. As a result, the prices of veterinary services vary extensively throughout the country and the factors influencing pricing decisions are largely unknown.

In summary, price plays an important strategic and operational role in generating revenue for a veterinary practice. There are a variety of negative consequences including loss of revenue that can result from selecting incorrect pricing strategies. This has been demonstrated within the small business environment in South Africa where a high failure rate has been shown to be related to a lack of financial and marketing capabilities. As a result, various internal and external factors should be considered when selecting a pricing strategy to avoid relying exclusively on cost-orientated pricing methods or using one pricing method exclusively for all products and/or services. Within the veterinary industry, the increasingly competitive market requires veterinarians to focus on delivering value to customers and price their services accordingly. Veterinarians have historically struggled with pricing policies and this was further complicated in the South African market due to the removal of standardised pricing tariffs. As a result, veterinarians will need to gain a better understanding of the pricing environment and develop a systematic process to pricing so that prices can be set in accordance to costs, customer and competitor factors.

1.3 Problem statement

1.3.1 *Main problem*

The problem to be resolved by doing this research is to identify the dominant pricing strategies used by veterinarians as well as to identify if any differences exist between the main pricing strategies used for frequently purchased products, highly shopped services and specialised services.

1.4 Significance of the study

Pricing is at the core of all economic interactions as it affects the development of an economic sector, has an effect on markets, influences consumer behaviour, influences a firm's revenue and incentives, and can be a powerful anti-competitive tool (Okholm et al., n.d.).

In recent years, there has been an increase in the number of empirical studies investigating how companies make their pricing decisions as well as the factors that influence them (Avlonitis & Indounas, 2007; Jobber & Shipley, 2012; Piercy et al., 2010; Rao & Kartono, 2009). Several authors have found that small businesses set prices in a less systematic manner as compared to larger enterprises (Avlonitis, Indounas, & Gounaris, 2005; Carson, Gilmore, Cummins, O'Donnell & Grant, 1998; Cunningham & Hornby, 1993; Jobber & Shipley, 2012). For this reason, cost-plus pricing tends to be the predominant pricing strategy used (Avlonitis & Indounas, 2006; Heinke, 2010; Siems, Kraus & Pollock, 2012).

The study aims to provide insight for price decision makers within the veterinary profession of the main pricing strategies used as well as if there are any differences between the pricing strategies used for products and/or services. This insight can assist veterinarians to make better informed pricing decisions so that they can gain a competitive advantage within the market.

According to Schindehutte and Morris (2001), there is a blurring of industry definitions which allows for the pricing approaches used in one industry to be adapted for use in another. Thus, in addition to the above, this study aims to provide a suggested framework which can be used to guide price setting decisions so that it can be done in a systematic manner.

1.5 Delimitations of the study

This study was conducted using quantitative research into the various pricing strategies currently being used by veterinary practices in South Africa. The research was

conducted by means of a structured electronic questionnaire accessible nationally to all veterinarians and the results were analysed through statistical methods.

This study will be limited by the following:

- It will focus exclusively on companion animal veterinary practices, registered with the SAVC.
- It will exclude evaluation of the pricing objectives of veterinarians.
- It will exclude evaluation of the internal and external factors influencing pricing strategies.
- It will exclude the evaluation of the pricing capabilities of veterinarians and its role in both pricing and the profitability of a veterinary practice.
- It will exclude evaluation of pricing strategies used at the manufacturer or supplier level.
- It will exclude in-depth analysis of the psychology behind pricing strategies.
- It will exclude price stickiness/ price revision and other macro-economic factors.
- It will exclude the positive and negative aspects of industry deregulation.
- It will exclude pricing tactics, such as discounting, used by veterinarians.
- It will exclude the influence of pet medical insurance on pricing strategies.
- It will exclude the ethical considerations of veterinarians prescribing and selling pharmaceutical drugs.

1.6 Definition of terms

Competition-based pricing is based on the analysis of a competitor's pricing, their strategies and anticipated actions (Shipley & Jobber, 2001).

Cost-based pricing is defined as "setting prices based on the costs of manufacturing, distribution, and selling of the product plus a fair rate of return for its effort and risks" (Kotler et al., 2010, p.308).

Demand-based pricing refers to the pricing strategy that estimates the quantity consumers are willing and able to pay at different price levels (Shipley & Jobber, 2001).

Ectoparasiticide: an over-the-counter tick and flea control medication (Khan, 2005).

Economic profit: the total revenue of the firm less its economic costs (which includes both explicit costs and implicit costs) (Janse van Rensburg, McConnell & Brue, 2011).

Interval scale is “a scale which ranges from low to high where the differences between the scores are meaningful but not the ratio of one score to another” (Lee, 2016, p.28).

Marginal benefit: “The extra (additional) benefit of consuming one more unit of some good or service; the change in total benefit when one more unit is consumed” (Janse van Rensburg et al., 2011, p.579).

Marginal cost: “The extra (additional) cost of producing one more unit of output; equal to the change in the total cost divided by the change in output (and, in the short run, to the change in total variable cost divided by the change in output). (Janse van Rensburg et al., 2011, p.579).

Monopoly is defined as “a market structure in which the number of sellers is so small that each seller is able to influence the total supply and the price of the good or service” (Janse van Rensburg et al., 2013, p.580).

Non-price factors can be defined as “factors other than price which may be important in analysing buying situations such as quality, uniqueness, availability, convenience, service and warranty” (Cravens & Piercy, 2013, p.327).

Ordinal scale is defined as one whose variables contain categories that can be rank ordered but the distances between the categories are not equal across the range” (Bryman, 2012, p.336).

Price band is a pricing policy instrument to create a maximum and minimum range in which the price for a product/service can be set (Ross, 1984).

Price elasticity of demand is a measure of the sensitivity of demand in proportion to it's to change in price (Kotler et al., 2010).

Price sensitivity is the degree to which the change in price affects the demand from consumers.

Pricing strategies are methods used by a company to determine what prices to charge customers for their products and/or services.

Pricing tactics are adjustments made to the price of a product or service within the existing price band of the industry due to competitor activities, changes in government legislation and/or to achieve other marketing objectives (Ross, 1984).

Professional services differ from those of other service industries in that they involved highly skilled professionals who act in a manner that is predominately advisory to their customers and often result in repeated interactions with the same individual (Gummesson, 1979; Hausman, 2003).

Veterinary medicine is defined as “the study, diagnosis, treatment and prevention of disease in animals both as individuals and as groups” (Henry & Treanor, 2010, p.612).

1.7 Assumptions

This study is based upon the following assumptions:

- The sample of veterinarians who complete the questionnaire were representative of the veterinary industry.
- The price decision makers answering the interview questions gave a true presentation of their strategies with regards to pricing.
- The pricing strategies discussed in the literature review as well as those used within the questionnaire are presentative of global pricing strategies.
- The pricing objectives of veterinarians are similar to that of other industries.
- The pricing strategies for retail products and services are not mutually exclusive. As such, the pricing strategies for medicines, surgical materials, anaesthetics and related products are priced in a manner similar to other products that are sold in the retail section of the veterinary practice. It is however assumed that the pricing objectives for professional services and products will differ, and as such veterinarians will follow different pricing methods for highly shopped services compared to more specialised services.

- There is an underlying professional dilemma for veterinarians to increase their revenue by means of price discrimination and product diversion into other retail channels.
- The pricing decisions are predominately made by the owner or senior partners of a practice.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

Pricing plays a key strategic role in generating revenue for a veterinary practice. As such, it is very important for price decision makers to understand the multitude of factors that influence the price setting process as well which pricing strategies are available for one to select from. There is minimal information available on pricing strategies in the veterinary profession, with even less that is focused on South Africa. As a result, the literature for this topic assesses a systematic approach to pricing that could be applied within the veterinary profession.

The first section focuses on small, micro and medium-sized enterprises (SME's) in South Africa. It discusses the macro and microeconomic challenges faced by small businesses and how pricing plays a key role in survival of a business. It also assesses how veterinary practices fit within the small business context.

The second section focuses on the key economic principles related to pricing's microeconomic roots. This demonstrates how prices are set under different market conditions.

The third section assesses pricing strategy through exploring the different steps of the pricing process. Each step has its own considerations and challenges leading up which pricing methods are selected and how the final pricing decision is made.

The literature review is then concluded by briefly assessing some ethical considerations around pricing that are relevant to the veterinary profession.

The aim of the literature review is to orientate the reader to the key principles in pricing and demonstrate the importance of veterinary practices adopting these strategies in order to meet their strategic objectives and maintain competitive advantage.

2.2 South African Small, Micro and Medium- sized Enterprises (SME's)

According to the National Small Business Act of South Africa of 1996, as amended in 2003, a SME can be defined as:

...a separate and distinct entity, including cooperative enterprises and non-governmental organisations, managed by one owner or more, including branches or subsidiaries, if any, is predominately carried out in any sector or subsector of the economy mentioned in the schedule of size standards and can be classified as SME by satisfying the criteria mentioned in the schedule of size standards (Republic of South Africa, 2003, p.3-4).

Small, micro and medium- sized businesses (SME's) are crucial to global economies and play a particularly important role within emerging markets (Cant & Wiid, 2013; Kraus, Fink, Rössel & Jensen, 2007). Given South Africa's high unemployment rate of an estimated 26.7% (Statistics South Africa, 2016), SME's present an important source of innovation, employment and equitable distribution of income (Fatoki & Odeyemi, 2010). According to the Small Enterprise Development Agency (SEDA) there are approximately 2.25 million SME's in South Africa (SEDA, 2016). Approximately 66% of these are informal while less than 34% are formal business enterprises (SEDA, 2016). Together they provide a 43% contribution towards South Africa's GDP (SEDA, 2016).

2.2.1 Challenges facing SME's

Despite their central role within the economy, approximately 75% of new SME's fail within their first two years of operation (Fatoki & Odeyemi, 2010; Smit & Watkins, 2012). Several authors have identified internal and external challenges for the growth of SME's locally (Cant & Wiid, 2013; Fatoki & Grawe, 2010; Kraus et al., 2007; Siems et al., 2012). These are discussed in further detail below.

From a macroeconomic perspective, a SME's success is largely tied to the performance of the local economy (Smit & Watkins, 2012). As a result, SME's will struggle during periods of economic downturn and experience growth during times of economic

expansion (Smit & Watkins, 2012). The main challenges are rising interest rates, falling rand-dollar exchange rates, crime, HIV/AIDS, technological advancements and changes to Government legislation resulting in challenging conditions for SME's to start up (Cant & Wiid, 2013). On occasion, SME's have had to pay exorbitant license and registration fees, which further limits their potential for growth (Fatoki & Garwe, 2010). These macroeconomic challenges simultaneously have an effect on their target market(s) impacting the consumption patterns of their consumers as well as the demand for particular goods and services (Cant & Wiid, 2013; Fatoki & Garwe, 2010).

From a microeconomic perspective, the challenges faced by SME's are more enterprise-related such as being resource poor (Smit & Watkins, 2012). Some examples of these deficits include:

- **Human resources:** Intellectual skills have been shown to be one of the critical success factors for SME's in South Africa (Fatoki & Odeyemi, 2010; Rogerson, 2001). To develop these skills requires adequate training and education.
- **Financial resources:** According to a study by Fatoki and Odeyemi (2010), the second greatest obstacle to an SME's growth was financial. In South Africa, banks are less likely to loan money to business start-ups due to their high risk and low expected rates of return (Smit & Watkins, 2012). Additionally, Siems et al. (2012) explained that the founding stages of the business are often characterised as having the highest costs and due to the small size cannot yet leverage off economies of scale, increasing their overall fixed costs. In order to finance their business, the entrepreneur needs to either finance the capital themselves or through friends and family members. Fatoki and Odeyemi (2010) found that either small business owners were unable to source formal finance or else they were greatly affected by the high interest rates charged on those loans (Fatoki & Odeyemi, 2010; Smit & Watkins, 2012). This is a contrast to developed countries where debt finance is more readily accessible, enabling higher success rates of SME's (Fatoki & Odeyemi, 2010).
- **Insufficient management skills and experience:** are another major deficit identified to be critical for success (Cant & Wiid, 2013; Fatoki & Odeyemi, 2010; Smit & Watkins, 2012; Van Scheers, 2011). Siems et al. (2012) found that during

the start-up phases of a new business, there is a general lack of experience and the management team is easily overwhelmed.

- **Marketing skills:** although this falls under management skills, it is a key area for development as research has shown it to be highly correlated with the success of a business in the long-term (Cant & Wiid, 2013; Van Scheers, 2011). Although there are a multitude of factors that can influence the marketing strategy, having the wrong pricing strategy as well as a low demand for one's product/service, are identified as the two major concerns for small business owners in South Africa (Cant & Wiid, 2013). This is often related to insufficient market analysis and a lack of focus on the SME's marketing strategies due to financial and time constraints (Siems et al., 2012).

To overcome some of these challenges for SME's- improved access to finance, training on business skills and less rigid regulations are essential (Rogerson, 2008). Small business owners will need to continuously scan their external environment and develop strategies for the future designed to mitigate these negative consequences and enable rapid adaption to their environments (Cant & Wiid, 2013). They will also need to have a good knowledge of their market environment, customers and competitors in order to compete effectively due to the high start-up costs and multitude of challenges facing SME's.

2.2.2 *Veterinary Practices within the context of South African small business*

According to the definition of SME's provided above, veterinary practices can be classified as small professional service businesses (Proudlock, 1999). Although they face the same macroeconomic challenges, veterinary practices have a few advantages with regards to the enterprise-related aspects. Veterinary science is a highly specialised, professional field whereby individuals have undergone a large amount of academic and technical training. As a result, access to finance may be more easily obtained due to carrying a professional degree as well as the high regulatory barriers to entry into the veterinary industry. Additionally, veterinarians tend to have a solid training enabling them to perform their services at a high standard further stimulating consumer demand for their services.

There are however many of the same microeconomic challenges faced by other SME's. These would include:

- **Human resources:** although the practice will employ veterinary surgeons and veterinary nurses, they also have the challenge of finding other forms of skilled labour. In addition, they face similar challenges of labour retention, difficulties in recruiting quality staff and experience high staff turnover rates due to the nature of work (Smit & Watkins, 2012).
- **Lack of business management skills:** this is due to the fact that business and marketing skills are not a core component of the veterinary curriculum globally (Henry, 2013). This implies that many veterinarians who start their own practice lack fundamental business, financial, management and marketing skills (Henry, 2013).
- **Reliance on larger corporations for R&D:** the veterinary profession tends to be more service focused and as a result, veterinarians are highly dependent on pharmaceutical companies and pet food companies to leverage off the innovative products being produced by them.

As a result of these challenges, veterinary practice owners may find that they are extremely busy balancing multiple aspects of their business simultaneously leaving little time to spend on their marketing strategies, and even less on their pricing strategies. Despite this, there is evidence demonstrating that investing time and resources into pricing strategies can increase the potential for growth in the future (Siems et al., 2012). This is further supported by Lancioni (2005, p. 183):

There is a real need for managers today to view pricing and price setting as a strategic process and not as a series of quick 'knee-jerk' decisions. A short-term perspective of pricing only results in lower sales volumes, lost customers, lower market share and decreased profits.

Thus, pricing strategies for veterinary practices play a pivotal role at both the strategic and operational level.

2.3 Pricing Fundamentals

2.3.1 Definition of Price

The concept of charging someone a particular price dates back to prehistoric times when buyers and sellers would barter goods and services from one another. After the innovation of modern day currency, the concept of price evolved through negotiation between buyers and sellers for the exchange of goods and services (Kotler & Keller, 2012; Lamb, Hair & McDaniel, 2001). Price can be expressed in several different forms such as rent, fares, tuition or wages, depending on the context (Kotler & Keller, 2012). Kotler et al. (2010, p.304) define price as “the amount of money charged for a product or service, or the sum of the value that consumers exchange for the benefits of having or using the product or service”.

2.3.2 The strategic role of price

Pricing plays a key strategic role within today’s competitive business environments (Cravens & Piercy, 2013; Perreault & McCarthy, 2002; Schindehutte & Morris, 2001; Shipley & Jobber, 2001).

Price is one of the most powerful levers a business has to increase its profitability (Kohli & Suri, 2011; Kotler et al., 2010; Ozer & Phillips, 2012). A study by Hunt (2005) discussed research findings that demonstrated a disproportionate effect in profit improvement by 12.5% can be achieved with a 1% price increase, leaving all other variables constant. Similarly, research conducted by Kohli and Suri (2011) demonstrated significant gains could be achieved by a company through manipulating the pricing. They demonstrated that in order to double profits, the business only needed to increase their prices by an average of 9% to 10% while leaving other costs constant. A deduction of their research would be that fine tuning prices a small percentage can have a significant and immediate impact on the business’s profitability.

Pricing likewise affects the overall sale volumes which the company aims to achieve. The prices charged will influence consumer demand and purchasing behaviour as they signal information to the buyer with regards to the quality and value of a product or service

(Kohli & Suri, 2011). In general, a higher price leads to the perception of a higher quality. Pricing is also a key instrument that customers use to compare brands (Kohli & Suri, 2011).

The pricing strategy followed by a company should be an integral part of the overall marketing strategy. This strategy in turn should reflect the organisation's overall strategy as pricing can directly influence market share and competitive positioning.

Despite the crucial role pricing plays for a business, several authors believe that the pricing function has been largely neglected (Hinterhuber, 2004; Monroe & Cox, 2001; Schindehutte & Morris, 2001; Shipley & Jobber, 2001). Several reasons have been stated for this:

- Pricing decision makers often found it easier to follow cost-based pricing with a traditional industry mark-up to ensure an adequate level of return was achieved (Kotler et al., 2010; Shipley & Jobber, 2001).
- Many managers presumed that they were pricing similar to their competitors, often without doing any market research (Monroe & Cox, 2001).
- Many managers assumed that they were constrained by certain legal and regulatory aspects and as a result chose to take more traditional approaches to pricing.
- Managers are often not knowledgeable on different pricing strategies and how they can be effectively leveraged (Kohli & Suri, 2011).
- Pricing has traditionally been left until the end after all other components of the marketing strategy had been finalised (Kohli & Suri, 2011). Holden and Nagle (1998) said that doing so meant that managers then use pricing tactically to capture whatever value they can. Cravens & Piercy (2013) pointed out that the problem with this is that it neglects the strategic role it can play in the marketing strategy and the overall value chain.
- Pricing falls under several different management topics such as marketing, economics, business operations, management science and finance (Ozer & Phillips, 2012; Iveroth et al., 2013). This explains why it is often a highly complex process involving multiple stakeholders and is influenced by a variety of competing objectives (Kotler & Keller, 2012).

Many managers have the mentality that one should always compete on a price basis. However, Schindehutte & Morris (2001) confer that while price is strategically important, more emphasis should be placed on non-price forms of competition.

Similar to all industries, the ultimate goal of a veterinary practice is to maximise their profits. As such, pricing similarly plays a key strategic role.

2.3.3 Price Theory

The principles of supply and demand, attributed to the economist Alfred Marshall in his book *Principles of Economics* (1890), brought together some of the founding microeconomic principles of price determination. These market-based factors have long been associated with classical economic theory (Jobber & Shipley, 2012).

2.3.3.1 Demand

Demand represents the amount of goods that buyers are willing and able to purchase at various prices defined at a specific period of time (Janse van Rensburg et al., 2011). The relationship between various price points and the demand from the market is frequently referred to as the law of demand which demonstrates a negative, inverse relationship between the two variables (Janse van Rensburg et al., 2011). This is illustrated in Figure 1 below. This principle applies to both products and services with a few exceptions namely:

- Giffen goods: these represent inferior goods whose quantity will decrease with a decrease in the price (White, 2015).
- Luxury goods: where there is often a high demand even with premium prices (McClure & Kumcu, 2008).
- Expectations that there will be a price change in the near future (Janse van Rensburg et al., 2011).
- Essential products such as insulin (Janse van Rensburg et al., 2011).

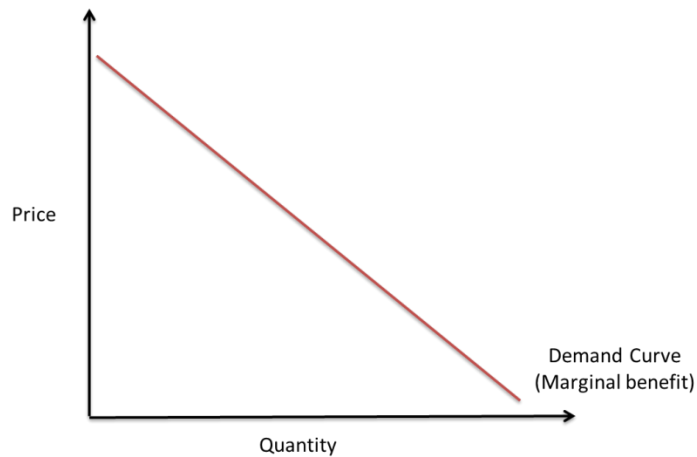


Figure 1: The demand curve (Janse van Rensburg et al., 2011, p.52)

The demand curve represents a concept known as a marginal utility or marginal benefit which is defined as the additional benefit that a consumer receives when purchasing one more unit of goods or services (Janse van Rensburg, 2011). A very important economic framework derived from this concept called the “law of diminishing marginal utility” states that the level of demand or the marginal benefit that consumers receives from a product or service diminishes as more of it is consumed (Janse van Rensburg, 2011). Eventually it will reach a point where no further benefit is derived and in some cases it can begin to bring a negative value (Janse van Rensburg, 2011).

Movements along the demand curve are due changes in the quantity demanded as a result of a change in price (Janse van Rensburg et al., 2011). Shifts of the demand curve are due to other factors other than price, known as the determinants of demand (Janse van Rensburg et al., 2011). Within the veterinary context, these include, but are not limited to, the following:

- An increase in pet ownership as the underlying driver for the demand of companion animal veterinary care resulting in a shift in the type of services demanded (Chen et al., 2012; Henry et al., 2016; Lowe, 2009).
- Change in the vet-owner-pet relationship resulting in higher switching costs to other veterinarians (Silvestro, 1999).

- The friendless, quality of service and convenience of the veterinary practice (Johnson & Kilkenny, 2014).
- The length of time that the pet owner has had a relationship with the veterinary practice (Johnson & Kilkenny, 2014).
- In comparison to the medical field, the pet owner acts as a “micro-level health policy decision-maker” leaving them influential to a variety of factors that influence the treatment choice such as moral and cost influences (Brockman et al., 2008, p.397). In the USA, this shift has resulted in customers being more willing to spend on healthcare if a strong human-companion animal bond exists (Lloyd, 2006).
- Entrants of cheaper alternatives into the veterinary market and their relative prices (Baguley, 2009; Johnson & Kilkenny, 2014).
- More knowledgeable customers and concern for pet healthcare due to increased access to the internet and social media.
- Increasingly competition from the development of vetshop chains and hospital chain groups (Baguley, 2009).

It is essential that all companies, regardless of the industry, estimate the level of demand for their product and/or services as accurately as possible at various price levels (Shipley & Jobber, 2001). For a veterinary practice, this can ensure that adequate inventory levels of products and medications are maintained, sufficient number of staff are available at peak times and that the practice remains competitive within the market place. Forecasting the demand can be difficult to predict, particularly in the veterinary field where the demand is often intermittent for different products and services (Prestwich, Rossi, Tarim, & Hnich, 2014). Various forecasting models are available for use and they range in terms of their complexity (Armstrong & Green, 2010; Prestwich et al., 2014). Due to their small size and generally limited amount of data, veterinary practices could make use of simpler forecasting techniques as such extrapolation from historical data in order to predict their future demand. However, this is not always as simple as it may appear in academic literature. In the veterinary field, customers have traditionally been relatively loyal towards their local veterinary practice creating a form of imperfect demand (Brockman et al., 2008; Daneshvary & Schwer, 2011; Ross, 1984). In addition, the effect was further encouraged through the SAVC’s tariff guidelines prohibiting veterinarians

from touting and canvassing for new customers. Since the removal of this rule from the SAVC guidelines in 2014, veterinarians are now able to entice customers to their practices particularly by offering specials and discounts on certain products and/or services. A common draw card in recent years has been highly shopped services such as vaccinations and sterilisations. Although this may be effective for highly price sensitive customers, it buys “cold loyalty” and when prices are increased again, they may lose some of these newly acquired customers (Siems et al., 2012).

2.3.3.2 Supply

Supply represents the quantity of a product or service that a supplier is willing and able to produce at each possible price point (Janse van Rensburg et al., 2011). This is best illustrated by means of a supply curve in Figure 2. The law of supply is a positive, linear relationship between the price charged and the quantity the producer is willing to supply, when all other variables are kept constant (Janse van Rensburg et al., 2011).

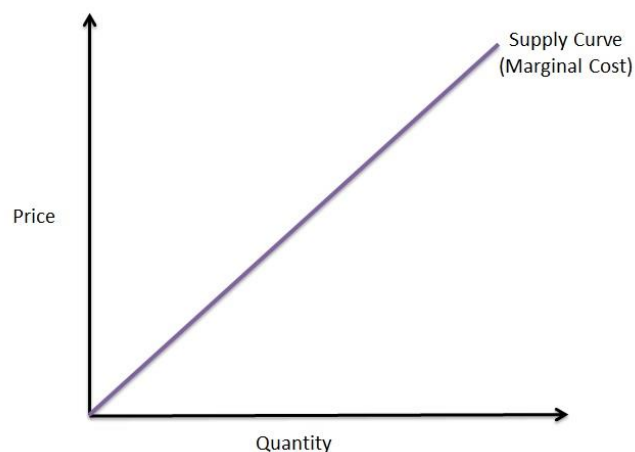


Figure 2: The supply curve (Janse van Rensburg et al., 2011, p.57)

The supply curve also represents the marginal cost which can be defined as the cost for the producer to manufacture one more unit of the product or service (Janse van Rensburg et al., 2011). The area under the graph equates to the revenue generated per

price point. Thus, there is an incentive for the seller to increase their price in order to try to sell higher quantities. However, one would have to consider the marginal costs associated with producing one more unit and its impact on the overall profitability.

Movements along the supply curve are defined as changes in the quantity of a product/service demanded due to a change in price (Janse van Rensburg et al., 2011). Shifts of the supply curve are due to other factors known as the determinants of supply (Janse van Rensburg et al., 2011). Within the veterinary context, these include, but are not limited to, the following:

- Improvements in technology that have enabled the average veterinary practice to offer services such as radiographs, ultrasounds, anaesthesia monitoring and bloodwork that were historically limited to larger, specialist practices due to the high fixed costs (Burrington, 2014). Similarly, veterinarians also have access to extensive veterinary knowledge on the internet and through online courses increasing the overall efficiency of the services provided.
- Technological advancements in pharmaceuticals had helped lead to greater options for veterinary healthcare and improved services at a general practitioner level (Catanzaro, Deegan & Guiducci, 2000). Some of these include innovative medicines in the field of anti-inflammatories, anti-parasitides and oncology.
- The entrance of new pharmaceutical companies offering generics as well new pet food entrants have increased the competitive landscape as suppliers to veterinary practices. Veterinarians now have more options, many of which are more affordable with regards to their input costs into some of the services offered (Janse van Rensburg et al., 2011).
- The use of standardised business management practices and financial acumen of the owners (Cron et al., 2000).
- Increasing number of both direct and indirect competitors within the veterinary market resulting in shifts in supplier power (Janse van Rensburg et al., 2011).
- Changes in regulations such as the removal of the SAVC's pricing tariff guidelines (Janse van Rensburg et al., 2011).

The supply side of the veterinary market is influenced by a number of variables. For example, a single-man practice may only operate during normal business hours and not

offer additional after hour services often found at large multi-man practices. They will experience differences in their costs structures, the quality of the services available, the number of staff members available at a given moment, differences in pricing terms and conditions, as well as differences in business efficiencies (Ross, 1984). As a result, these differences in competitive intensity will result in price variations between different practices even when operating in the same geographical region. According to Ross (1984), the range of prices a veterinary practice can charge will depend upon the way the customers perceive the value of the products/services and is partly influenced by the level of competitive intensity in that region leading to imperfections on the supply side of the market.

2.3.3.3 Equilibrium price

The equilibrium price as defined by Janse van Rensburg et al. (2011) is the price in a competitive market where the quantity supplied is equal to the quantity demanded resulting in neither a shortage nor surplus, and there is no tendency for the price to rise or fall. Under free market conditions, it is the interaction between the supply and demand forces which determines the equilibrium price. Under conventional neoclassical price theory, this equilibrium price is the one that maximises profit for the company under different market structures (Avlonitis & Indounas, 2007). This equilibrium price point is illustrated in Figure 3.

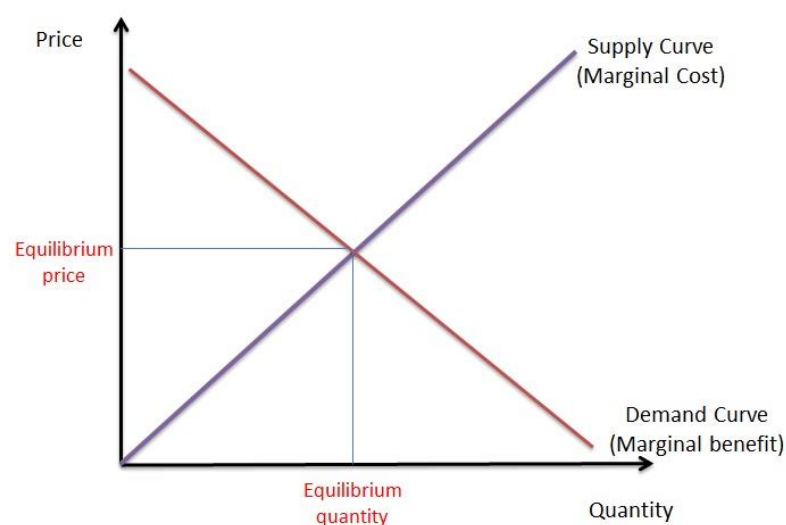


Figure 3: Equilibrium price (Janse van Rensburg et al., 2011, p.60)

Any changes in the market environment that causes a shift in the price will always ultimately revert back to the equilibrium price. This intersection of the marginal cost and marginal benefit curves is also referred to in economics as the market having achieved allocative efficiency, which essentially represents the particular mix of goods and services most highly valued by society (Janse van Rensburg et al., 2011).

It is important to note that Figures 1-3 are a static representation of a dynamic and ever-changing market. However, the various imperfections in supply and demand faced by the veterinary industry will affect this dynamic (Ross, 1984). As a result, it is essential for veterinary practices to continuously monitor the environment and seek opportunities to improve their profits through the use of proactive pricing strategies (Ross, 1984).

2.3.3.4 Price elasticity

Price elasticity of demand measures the change in the quantity demanded from consumers when there is a change in price, as measured by the slope in the demand curve (Kotler et al., 2010). There are three main types of price elasticity of demand that vets should be familiar with:

- **Elastic demand** is defined as a one percentage change in price that results in a larger than one percentage change in the quantity demanded (Brennan et al., 2007). This implies that a price increase will reduce revenue while a price cut will increase revenue.
- **Inelastic demand** is defined as when a one percentage change in price produces a less than one percentage change in the quantity demanded (Brennan et al., 2007). This implies that a price increase will increase revenue while a price cut will reduce revenue.
- **Perfectly elastic demand (unit elastic)** is defined as the percentage change in price producing the exact same percentage change in quantity demanded (Janse van Rensburg et al., 2011).

These three main types of demand are illustrated in Figure 4.

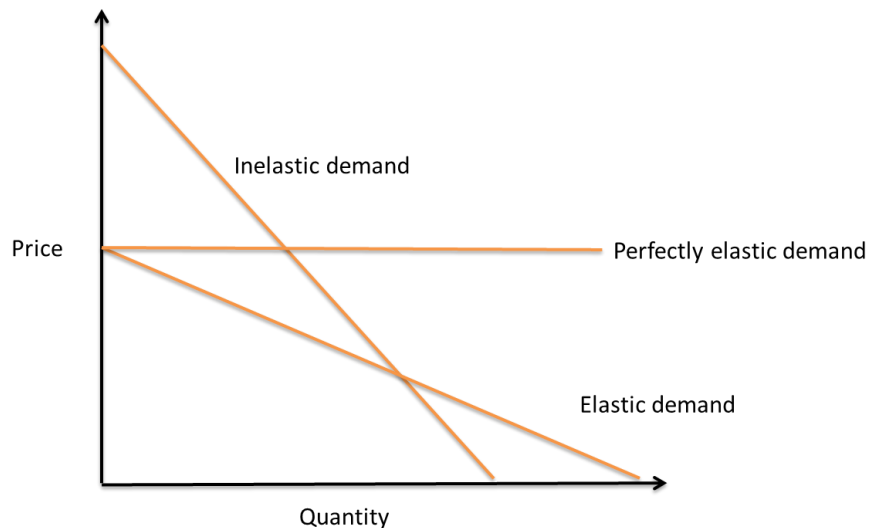


Figure 4: Elastic, inelastic and perfectly elastic demand curves (Janse van Rensburg et al, 2011, p.78)

It is important for veterinarians to recognise, understand and monitor how the elasticity of demand varies within different categories of products/services or animal species under consideration, as they may not remain constant even within the same price range (Cravens & Piercy, 2013; Daneshvary & Schwer, 2011; Johnson & Kilkenny, 2014; Monroe & Cox, 2001). For example, Daneshvary and Schwer (2011) found that pet owners have higher price sensitivity for cats than for dogs, while veterinary healthcare is more price sensitive than that of human health care. This could be as a result of non-price factors such as changes in the population, socioeconomic status, customer preferences, and the availability of substitutes (Daneshvary & Schwer, 2011; Knippenberg, 2014). Price elasticity of demand in the veterinary profession has not been extensively studied and as a result there are a limited number of references available (Johnson & Kilkenny, 2014). Most of the studies demonstrate an inelastic demand for general veterinary services (Daneshvary & Schwer, 2011; House & Associates, 1992, 1995; Johnson & Kilkenny, 2014). An understanding of price elasticity of various goods and services for a veterinary practice will have a direct effect on the pricing strategies chosen (Kotler & Keller, 2012; Shipley & Jobber, 2001).

Price elasticity of supply measures the change in the quantity supplied of a product or service when there is a change in the price, as measured by the supply curve (Janse van Rensburg et al., 2011). There are several factors that can affect this (Bittermann, 1934):

- The availability of resources plays a large role particularly with regards to specialist practices. Since specialist clinicians or surgeons are scarce, the elasticity of supply is affected.
- The development of technology enabling smaller private practices to perform diagnostic techniques such as radiographs and ultrasounds, which were once limited to academic hospitals and specialist practices, increases the elasticity of supply.
- The number of alternatives on the market. As the level of competition in a region increases, more producers can supply products/services. This will increase the elasticity of supply.

Although these are important considerations within the veterinary profession, these approaches require a basic economic and methodical understanding which is generally lacking within the profession as it employs staff qualified in other specialties (Siems et al., 2012).

2.3.4 Market models

Markets can be broadly defined according to the following classifications below based on the degree of competition within the industry. This is a key determinant to the price setting behaviour of an industry (Kwapil, Baumgartner & Scharler, 2005).

Perfectly competitive market: this type of market is defined as one in which the demand and supply forces determine the price of the product or service (Janse van Rensburg et al., 2011). As a result, the companies are known as price takers. The market is characterised as having multiple companies selling homogenous products, there are no barriers to entry/exit and buyers and sellers are well-informed about price (Janse van Rensburg et al., 2011). The company's main objective is to maximise their economic profit (Janse van Rensburg et al., 2011). To do so, they have to sell their products/services at the market price or will not be able to sell at all (Brennan et al.,

2007). The laws of supply and law of demand are derived from the assumption that a company operates within a perfectly competitive environment.

A perfectly competitive market is highly theoretical and the South African market suffers from a concept known as market failure. This can be defined as the inability of the market to bring about the most efficient allocation of resources to meet the needs of society due to regulations, government interventions, and barriers to entry/exit to name a few which all result in imperfect competition (Janse van Rensburg et al., 2011).

Monopoly market: this type of market is characterised as having a single company with no close substitutes, no price competition and there are generally very high barriers to entry/exit (Janse van Rensburg et al., 2011). The company is known as a price setter because it able to set its price anywhere along the demand curve thereby controlling the total quantity of the product/service being offered to the market (Janse van Rensburg et al., 2011). With the overall objective to maximise profits, prices can be set higher than what would have been established in a perfectly competitive market (Brennan et al., 2007). The pricing ceiling is however limited by the degree of price elasticity afforded to the product or service. As a result, as the elasticity of demand diminishes, the company has a greater ability to set higher prices.

Monopolistic competition: this type of market is characterised by companies that have a small degree of pricing power but a relatively high intensity of competition (Janse van Rensburg et al., 2011). This type of market sells heterogeneous products and services, has moderate barriers to entry/exit, is much more competitive by nature, and is more influenced by the elasticity of demand of the market (Janse van Rensburg et al., 2011).

Oligopolies: this type of market is characterised as having only a few companies concentrated within an industry (Janse van Rensburg et al., 2011). They have a large degree of pricing power however there is a strong inter-dependence between them. As a result, companies need to pay close and continuous attention to their rivals outputs, advertising and price changes. Shipley and Jobber (2001) found that the majority of companies tend to operate within oligopoly market structures. This type of market environment can lead to a number of ethical issues around pricing.

It is the researcher's opinions that based on the above definitions, South African veterinary practices are somewhere between the oligopoly structure and a monopolistic competition structure.

2.3.5 Price leadership strategies

Within a particular market context, there are four types of pricing behaviours that typically tend to occur (Brennan et al., 2007; Mouraviev & Rey, 2011):

- **Dominant price leadership:** this is when there is a dominant company which leads the pricing decision within their market and is closely followed by smaller rival companies who will adjust their prices accordingly (Brennan et al., 2007). Herewith the dominant company can leverage its power of monopoly (sometimes referred to a partial monopoly) to set prices that will maximise their profits (Deneckere & Kovenock, 1992). Their price setting ability is however limited by price elasticity of demand, the degree of market share, barriers to entry/exit (for example legislation like single-exit pricing) as well as influence of imperfect market knowledge.
- **Barometric leadership:** described by Mouraviev and Rey (2011) is similar to the dominant price leadership however there are two main differentiators:
 - The price leader has access to information that less informed companies do not (Mouraviev & Rey, 2011).
 - The company does not necessarily have to be in a dominant position (Deneckere & Kovenock, 1992)
 - The price setter in this instant will change their price(s) to reflect forecasted demand and cost conditions (Stigler, 1947 as cited in Deneckere & Kovenock, 1992). This move will entice the remainder of organisations in the industry to follow if the decision rests in their interest. The price setter will act as the standard reference point for the industry and is known as the barometer. This tends to be found more predominately within oligopoly-type markets (Deneckere & Kovenock, 1992).
- **Price stability:** this is when there is no acknowledged price leader, but the prices are determined by all players in the market. Prices tend to be very stable and

companies rather try to adjust their sales volumes through various tactics than change the actual prices of products or services (Brennan et al., 2007). If one company cuts its prices, it tends to lead to a short period of price cutting by all companies until the price stabilises again (Brennan et al., 2007). This is more characteristic of monopolistic competition type markets.

- **Collusive price leadership:** This is when companies, acting as a cartel, all tactically agree on pricing their products and services the same. This is typical of an oligopoly type market and the concept of price fixing is discussed in further detail in section 2.10.

These price leadership strategies are not seen in all markets (Deneckere & Kovenock, 1992), however they do occur within the veterinary industry. It is important for a veterinary practice, when implementing a pricing strategy, to be clear on whether they want to be a price leader in determining their pricing strategies, or if they would rather be a price follower and wait for competitors to initiate price changes first (Fabiani et al., 2006).

2.4 The Pricing Plan

The pricing strategies followed by an organisation could be described as the glue that holds together all the individual pricing decisions (Schindehutte & Morris, 2001). Historically, pricing strategies have been well defined in larger corporations but in modern times, they are being recognised for their importance within the small business context (Siems et al., 2012).

The key to strategic pricing is to follow a decision making process in a systematic manner so that the price can reflect the company's overall objectives, the marketing strategy, the positioning vis-à-vis competitors, price elasticity, the value propositions being offered as well as ensure that the products/services are accessible to the required target customer and market segments (Ozer & Phillips, 2012; Schindehutte & Morris, 2001). The pricing strategies need to follow a logical order and be laid out in a way that allows for internal consistency (Schindehutte & Morris, 2001). This process should also

take into account the price leadership strategies and competitive positioning that the veterinary practice aims to achieve.

Pricing should be viewed as a dynamic process that requires continuous monitoring and reassessment. The pricing requirements of the organisation will change with changes in the competitive environment, business strategies, and consumer demand. The company needs to gain a clear understanding of these dynamics of when to initiate price changes and when to respond to them (Kotler et al., 2010).

2.4.1 *An overview of the pricing process*

A revision of several key authors' pricing processes was conducted in order to find an approach that could be used within today's business context:

- Kotler and Keller (2012) described six step linear approach in their recommended pricing process.
- Cravens and Piercy in their book *Strategic Marketing* (2013) included four step linear approach to selecting a pricing strategy.
- Schindhutte and Morris (2001) described a five step linear approach to follow for their recommended strategic pricing programme.

Duke (1994) warned price decision makers against following a linear approach to pricing policies as it can result in one overlooking the interaction of other environmental and customer influences on the price. As a result, Shipley and Jobber (2001) recommended using an integrated pricing wheel. Shipley and Jobber (2001) found the pricing process to be a multistage and systemic process, rather than a once-off event that needs to be repeated whenever there are changes in the market and/or company conditions.

Using the aforementioned pricing processes as references, they were combined into the pricing process illustrated in Figure 5 which is subsequently followed for the literature review.

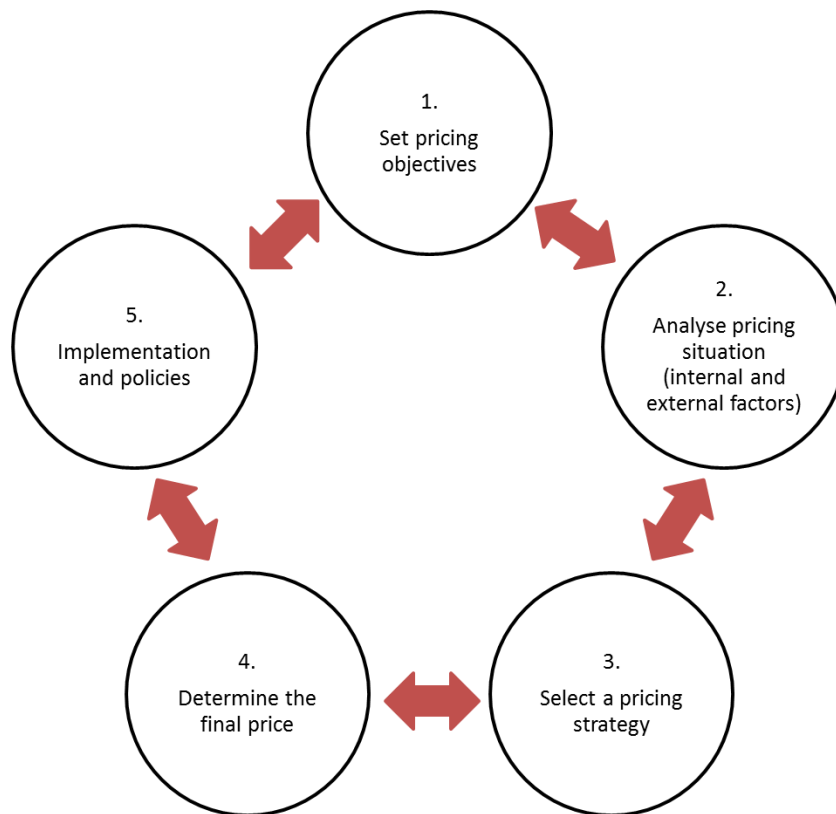


Figure 5: An integrated pricing process (adapted from Shipley & Jobber, 2001)

The five steps associated with the pricing process are not mutually exclusive but due to their interdependence, should rather be closely coordinated and provide direction for the proceeding steps (Morris & Calantone, 1990). This approach allows the pricing method to be highly innovative while still unanimous with the organisation's overall strategy. Morris and Calantone (1990) believe that if pricing is treated as an afterthought, whereby management is only concerned that the costs are covered and the organisation remains competitive, they will miss out on various opportunities.

2.5 Pricing Objectives

Deciding on the organisation's pricing objectives is the first step of the pricing process. A veterinary practice will need to prioritise which specific, measurable and actionable objectives they aim to achieve and then set their prices accordingly to achieve this goal (Avlonitis & Indounas, 2007; Cravens & Piercy, 2013; Schindehutte & Morris, 2001).

Pricing objectives should simultaneously be aligned to the organisation's overall strategic and marketing objectives (Monroe & Cox, 2001; Schindehutte & Morris, 2001).

A summary of the various quantitative and qualitative pricing objectives available to veterinarians is provided in Table 1. The choice of pricing objective should be done in accordance with the market, stage in product lifecycle and the organisation's marketing strategy. Despite the multiple pricing objectives identified in literature, research findings have shown that most companies usually confine themselves to a small number of objectives (Shipley & Jobber, 2001). These may sometimes be in conflict with one another and as such, they need to be prioritised into a hierarchy of importance (Shipley & Jobber, 2001). Also, due to the rapidly changing business environment, they should be continuously re-assessed and adjusted (Cravens & Piercy, 2013; Monroe & Cox, 2001; Schindehutte & Morris, 2001; Shipley & Jobber, 2001). Lastly, research has shown that the pricing objectives for services are broadly similar to that of products (McDonald & Payne, 2006). As a result, veterinarians can make use of any of the pricing objectives best aligned to their strategies.

Although profit maximising objectives tend to be the most prevalent, this may not be the most important for non-profit or social organisations such as veterinary welfare (Kuo & Jain, 1998). For them, they would need to consider break-even objectives and their related pricing strategies in order to ensure that they cover their costs and have a marginal profit to ensure they will remain sustainable in the long-term (Kuo & Jain, 1998).

Table 1: Pricing objectives identified by various authors (Cravens & Piercy, 2013; Kotler et al., 2010; Kotler & Keller, 2012; Morris & Calantone, 1990)

Profit orientated	Sales orientated	Competition-orientated	Customer-orientated	Market-orientated
Profit maximisation	Increase or maintain market share	Price cutting	Customer needs satisfaction	Price stability in the market
Revenue maximisation	Market share leadership	Match competitor pricing	Achievement of social goals	Sales stability in the market
Recover R&D costs	Achieve a satisfactory market share	Price leadership	Attraction of new customers	Market development
Target return on investment	Coverage of existing capacity	Raise barriers to entry or discourage market entry	Maintaining existing customers	Distributor needs satisfaction
Maintain or increase liquidity	Sales maximisation	Quality leadership	Price to be regarded as fair by customers	Determination of fair prices for customers
Achievement of satisfactory profits	Achieve satisfactory sales	Avoid price wars		Avoid government attention or intervention
Cost coverage	To use the price of one product to promote another products in the line	Speed up exit of marginal competitors		
Partial cost recovery	Generate sales volumes to drive down costs			
Long-term survival				

2.6 Pricing Analysis

This second step requires price decision makers to assess the various internal and external factors that affect the industry and how customers perceive price (Ross, 1984).

2.6.1 *Integrated price analysis framework*

Multiple authors have referred to Kenichi Ohmae's 3C's of strategy model which he originally discussed in his 1982 book, *The mind of the strategist- The art of Japanese business* (Avlonitis & Indounas, 2006; Cravens & Piercy, 2013; Hinterhuber, 2004; Kotler et al., 2010; Shipley & Jobber, 2001). Ohmae (1982) described three categories of factors considered to be the most important when implementing strategy namely customers, competition and the company itself. The three categories are interrelated and any movement on one will influence the others. These are used in combination to gain competitive advantage (Brennan et al., 2007). Lovelock and Wirtz (2001) as cited by Avlonitis and Indounas (2006) took this strategic model and applied it to pricing, referring to the three categories as the "pricing tripod".

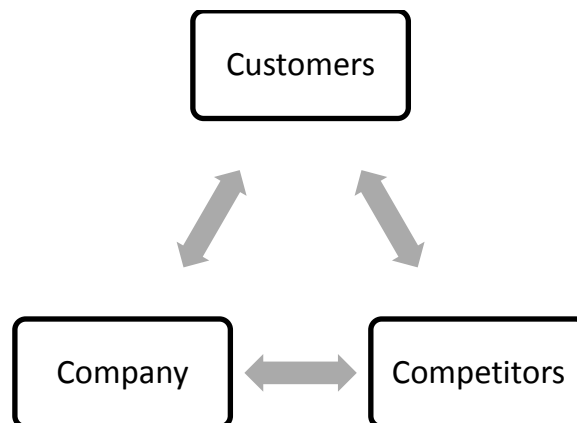


Figure 6: The 3 C's of strategy framework (adapted from Ohmane, 1982)

As there is no one definitive price is best for all market situations, this strategic model can be used by price decision makers to analyse the main factors influencing the overall pricing decision (Morris & Calantone, 1990).

2.6.2 Internal analysis

The internal analysis focuses on the first of the three C's: **Company**.

a. Cost analysis

Cost forms the minimum price that a veterinary practice should charge in order to ensure that all the costs associated with product/service are covered and that the practice will not make a loss (Shipley & Jobber, 2001). One needs to consider the fixed costs as well as the variable costs (Avlonitis & Indounas, 2006; Cravens & Piercy, 2013; Kotler & Keller, 2012). Fixed costs are those such as veterinary equipment, rent or mortgages, electricity, license fees, staff salaries and other costs which do not vary with the level of production (Catanzaro et al., 2000; Kotler et al., 2010). Variable costs are “those which do vary directly with the level of production” (Kotler et al., 2010, p.309). These typically include the cost of medicines and other medical supplies within a veterinary practice which varies with the number and types of patients seen per month. Fixed and variable costs are added together to find the total costs (Kotler et al., 2010). It is advisable to understand what percentage each contributes to the total as well as the main drivers of each within the practice. Once the total costs have been found, the average cost per unit can be found by dividing the total costs by the production level (Kotler & Keller, 2012). For many companies, these types of calculations are conducted using methods such as activity-based costing (ABC) or traditional costing systems (Avlonitis & Indounas, 2006; Cravens & Piercy, 2013).

In addition, there are other factors that influence the costs of a practice. These include the levels of production (output) as well as the experience curve (Cravens & Piercy, 2013; Kotler & Keller, 2012). Another consideration from Cravens and Piercy (2013) is that one should estimate how much control the veterinary practice management has over their costs internally and assess ways in which this can be improved to reduce the overall cost per unit.

b. ***Marketing strategies***

Price is one of the four P's which make up the marketing mix and as such plays a key role as part of the overall marketing strategy (Kotler & Keller, 2012). Decisions made for the other three P's (namely product, place and promotion), can have an effect on the pricing strategy chosen. As a result, these should not be considered in isolation to one another or the pricing process (Kotler & Keller, 2012).

2.6.3 External analysis

The external analysis evaluates the other two C's from Ohmae's strategy model, namely **customers** and **competition**.

a. ***Customers:***

This analysis will set the maximum or the upper limit for the price range that the veterinary practice will be able to charge for the product/service. It is based on an estimate of the customer's perception of the value of the associated product or service (Avlonitis & Indounas, 2006; Kotler et al., 2010). Using this, one can estimate the level of customer demand at various price levels as well as the price elasticity (Kotler & Keller, 2012). Cravens and Piercy (2013) describe this analysis as one of the most challenging in the pricing process. Customers differ in the amount of value they associate with products/services depending on how they are being used. As a result, market segment analysis of the customer's willingness to pay should be assessed through test marketing, historical price data analysis, end-user research and other market testing techniques (Cravens & Piercy, 2013; Jobber & Shipley, 2012). In addition, the socioeconomic status of the target market should be taken into consideration ie the customer's ability to pay. This is a key consideration when setting prices.

b. ***Competitor analysis***

A thorough strategic analysis always requires an assessment of direct and indirect competitors. This assessment should try to gather as much information as possible with regards to how many competitors there are, their characteristics, their market shares, their pricing structures, estimating their cost structures and attempts to predict their

reactions to alternative pricing strategies (Avlonitis & Indounas, 2006; Cravens & Piercy, 2013; Jobber & Shipley, 2012). This will enable veterinarians to have a thorough estimate of the degree of competition and opportunities that exist within the current market (Cravens & Piercy, 2013; Jobber & Shipley, 2012). In addition, it will provide insight into the number of alternatives available, influencing price elasticity of demand (Jobber & Shipley, 2012). Competitor analysis can also provide the veterinarian with some insights into the barriers to entry of the industry (Jobber & Shipley, 2012). An example of this would be the high fixed costs associated with setting up a veterinary practice.

c. ***Other external factors***

In addition to customer and competitor analysis, analysing macroeconomic factors such as the current economic conditions, government interventions, changes in technology and social concerns is recommended (Avlonitis & Indounas, 2006; Brockman et al., 2008; Kotler et al., 2010; Lee, 2006).

2.6.4 Combining the 3C's

The rich information gathered from the three different categories not only provides insight into value-creating opportunities but can also be combined to establish a potential “price band” for the product/service (Brennan et al., 2007; Monroe, 2003). The relevant costs form the price floor while the benefits the customer receives from the product/service form the price ceiling (Brennan et al., 2007). The competitor intensity, their strategies and the degree of flexibility form the feasible region in between the minimum and maximum ends of the range (Brennan et al., 2007). Competitor’s prices are a good reference point, particularly if one’s product/services are not well differentiated, as they will indicate the price ceiling between the customer’s price and value perceptions (Winer, 2005). The price that will finally be set should be a compromise between all of these elements and not just financial attributes (Avlonitis & Indounas, 2006; Myers, 2004). Veterinarians can have an idea of where to position the price based on the costs, customers and competitor analysis. It is important at this point to note that given this price band model, the pricing strategies are thus not considered to be mutually exclusive. For example, if a vet would like to charge premium pricing, he would need to price above competitors and

a price point that customers value/willing to pay. On the opposite end, if a veterinary practice aims to follow a low-cost strategy, they would need to be more focused on cost-information.

According to multiple authors (Ingenbleek, Debruyne, Frambach & Verhallen, 2003; Lee, 2006; Liozu & Hinterhuber, 2013; Lloyd, Leeper, Donovan, Camara & Smith, 2001) this approach is more beneficial than purely cost-based pricing strategy for services industries, such as that of veterinary medicine, where the offering provided is differentiated. According to Ross (1984), this price band can compensate to some extent for veterinarians' imperfect knowledge and variations in market demand (Ross, 1984).

2.6.5 *Alignment with Pricing Objectives*

By the end of the second step of the pricing process, veterinarians should be able to see if their original pricing objectives are still viable or if they need to be adjusted according to market conditions. This is an iterative process throughout the product/service lifecycle as the pricing objectives will vary depending on the situational factors and management's strategy at a particular point in time (Cravens & Piercy, 2013; Schindehutte & Morris, 2001). The analysis should have also provided information with regards to how flexible the pricing situation is and subsequently assist in determining the most appropriate pricing method(s) to use for their products/service in relation to all these factors (Cravens & Piercy, 2013; Morris & Cox, 2001).

2.7 Pricing Strategies

Morris and Calantone (1990) define pricing strategies as statements guiding how price can be used to accomplish the pricing objectives identified in step one. Avlonitis and Indounas (2006) describe using a pricing strategy similar to how one uses a formula- it coordinates the firm's pricing decisions around a particular product/service and is used for a specified time period (Morris & Calantone, 1990). Generally, pricing strategies are adopted for 6 months to 2 years, and its flexibility will depend upon the environmental conditions (Morris & Calantone, 1990). These pricing strategies can range from quite complicated to relatively simple to use.

Following on from the 3C's pricing model, the categories for the different pricing strategies will be assessed under cost, customer value and competition. On occasion, some authors combine the customer methods together with competitor methods to get a single category called market-based methods (Schindehutte & Morris, 2001). Regardless of the classification used, many companies focus on just one of the three categories when selecting a pricing strategy. Research has demonstrated that it is more beneficial for multiple strategies to be used in combination in both large organisations as well as small business contexts (Avlonitis & Indounas, 2006; Kotler & Keller, 2012; Shipley & Jobber, 2001; Siems et al., 2012). Table 2 demonstrates an adapted version of the classification of 12 pricing strategies under the 3C pricing model put forward by Avlonitis and Indounas (2006).

Table 2: Pricing Strategies (adapted from Avlonitis & Indounas, 2006, p.204)

Category	Pricing Method
Cost-based	Cost-plus method
	Break-even analysis
	Target-return pricing
	Contribution pricing
	Marginal pricing
	Loss-leader pricing
Competition-based	Pricing similar to, above or below competitors
Customer-based	Perceived-value pricing
	Value pricing
	Pricing according to the customers' needs

2.7.1 Cost-based pricing strategies

Various authors have found that cost-based pricing methods are amongst the most frequently used in all forms of business due to its objectivity (Avlonitis & Indounas, 2006; Hinterhuber, 2004; Kohli & Suri, 2011; Kotler & Keller, 2012; Schindehutte & Morris 2001; Shipley & Jobber, 2001; Siems et al., 2012).

Cost-based pricing strategies have the advantage of being easy to use, implement and adjust. In addition, these pricing strategies are highly intuitive to managers whereby they are able to cover the costs associated with production while still ensuring that they are able to make a required fixed return (Morris & Calantone, 1990). The main disadvantage of this category is that it ignores some of the key factors influencing the market resulting in prices that are either too high or too low (Morris & Calantone, 1990).

2.7.1.1 Cost-plus pricing strategy

The simplest definition of this particular pricing strategy is that one calculates the costs per unit based on a sales forecast and then adds a standard mark-up (Brennan et al., 2007; Kotler et al., 2010). The formulae defining this strategy as provided by Kotler and Keller (2012, p.418) are:

$$\text{Unit cost} = \frac{\text{variable costs}}{(\text{fixed costs/unit sales})} \qquad \text{Mark up price} = \frac{\text{unit cost}}{(1 - \text{desired return})}$$

Park, Rayner and D'arcy (2010) further defined this form of pricing into cost per unit plus either a fixed percentage mark-up or a variable percentage mark-up. This type of costing is also frequently referred to in the literature as absorption costing or cost accounting (Hinterhuber, 2008). Cost-plus pricing has been recognised as the most frequently used and reported pricing strategy within the veterinary profession (Heinke, 2010; Lloyd et al., 2001).

Several authors have offered various explanations as to why this pricing method is so popular:

- 1- It is conceptually simplistic and enables the price decision maker to ensure that they have covered their basic costs while not having to adjust the price on a regular basis due to fluctuations in demand (Kotler & Keller, 2012; Shipley & Jobber, 2001).
- 2- Due to its simplicity, it is frequently used as a standard operating procedure (SOP) between various departments within a business (Shipley & Jobber, 2001).
- 3- In industries, such as the veterinary sector, where the practices are all buying from the same few wholesalers, the prices tend to be very similar and price competition is reduced (Kotler & Keller, 2012).
- 4- There is a perception that this type of pricing is fairer to both sellers and consumers in terms of the return sellers receive while not taking advantage of the customers (Kotler et al., 2010).
- 5- It can be argued that this is one of the more profitable methods due to the lower risk associated with experimental pricing (Shipley & Jobber, 2001).

There are several disadvantages associated with this pricing method:

- 1- It is often difficult to calculate the individual unit costs as the variable costs will fluctuate depending on the volumes sold. The volume of units sold is highly dependent upon the price. This creates a fundamental flaw in the pricing process. Since demand and elasticity of the products/services are not taken into account using this method, it can lead to very inaccurate estimates being used for the unit costs (Kotler & Keller, 2012; Zeithaml, Bitner & Gremler, 2006).
- 2- A veterinary practice must also have clear understanding and control over their costs which is not always the case.
- 3- This pricing strategy does not consider what pricing range would be perceived to be “fair” by consumers (Siems et al., 2012; Shipley & Jobber, 2001).
- 4- This pricing method can result in charging prices lower than what customers may have actually been willing to pay, leading to suboptimal profitability for the veterinary practice (Liozu & Hinterhuber, 2013; Siems et al., 2012).
- 5- Once a SOP has been generated, often this pricing is left to more inexperienced junior managers who often lack an understanding of the market and its associated influences (Shipley & Jobber, 2001).

- 6- Although it allows for straight forward pricing, it does not allow for one to take advantage of various short-term opportunities to adjust prices within the market (Shipley & Jobber, 2001).
- 7- It ignores competitors' prices, their strategies and tactics as it does not take competitor activity into account (Schindehutte & Morris, 2001).

2.7.1.2 Break-even pricing strategy

This method determines the number of units of a product or service a company must sell at a specific price in order to cover its total costs (Kotler et al., 2010). The formula for the break-even volume defined by Kotler and Keller (2012, p.420) is:

$$\text{Break-even volume} = \frac{\text{fixed cost}}{(\text{price} - \text{variable cost})}$$

The best way to determine this break-even price is to make use of a break-even graph as illustrated in Figure 7.

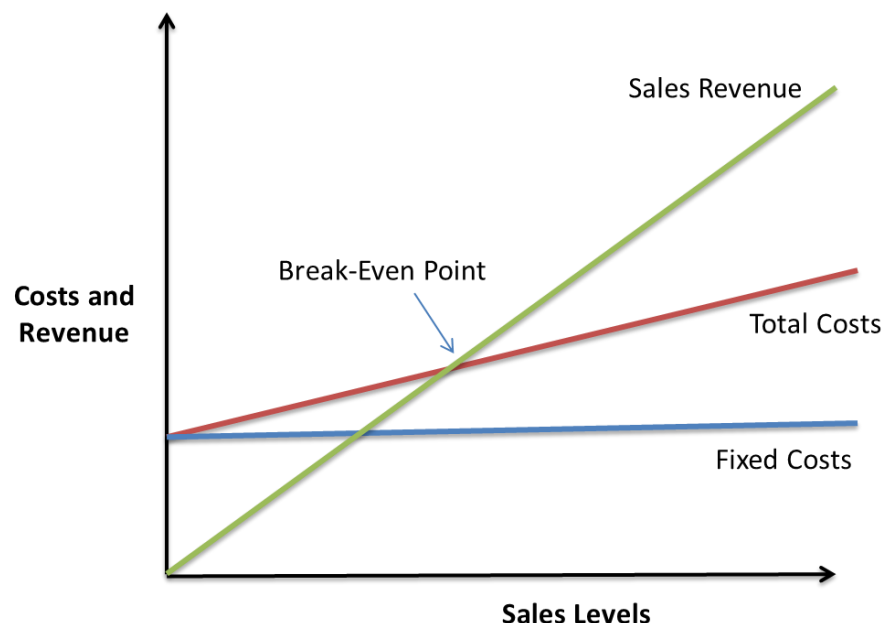


Figure 7: Break-even chart for determining the break-even price (Kotler & Keller, 2012, p.420)

Figure 7 illustrates the relationship between the total costs and the total revenue at various levels of output. The gradient of the revenue curve depends upon the price (Brennan et al., 2007). Below the break-even point, the company will be making a loss (Perreault & McCarthy, 2002). Above the break-even point, the company will be making a profit (Perreault & McCarthy, 2002).

This is another popular pricing method used by companies in a variety of industries (Cravens & Piercy, 2013; Perreault & McCarthy, 2002). There are several advantages to using this pricing method:

- 1- It is conceptually simple to use and requires only a limited number of resources (Perreault & McCarthy, 2002).
- 2- It enables a price decision maker to consider various different prices and their estimated break-even volumes, enabling one to evaluate various pricing alternatives (Cravens & Piercy, 2013; Kotler et al., 2010).
- 3- The break-even analysis can be used to demonstrate how cutting costs can lower the break-even volume and enable the business to start generating profits faster at the same price point (Perreault & McCarthy, 2002).
- 4- It can be used to set target-return pricing which is discussed as the next pricing method (Perreault & McCarthy, 2002).

There are however several disadvantages to this method of pricing:

- 1- This method of pricing is internally focused and does not take customer and competitor factors into account (Cravens & Piercy, 2013; Kotler & Keller, 2012).
- 2- Several authors believe that there is a misconception that there is a linear relationship between revenue and costs (Perreault & McCarthy, 2002).

This pricing method is useful for estimating the relationships between price, volume and profit (Hinterhuber, 2004). However, it should be used in combination with other pricing methods.

2.7.1.3 Target-return pricing strategy

This pricing strategy is sometimes also referred to as target-profit pricing. For this method, a veterinary practice determines its price based on the target rate of return they wish to achieve relative to the capital they have invested (Kotler & Keller, 2012). This technique can be quite complex in that the price decision maker needs to forecast the expected sales volumes for the product/service in order to calculate an estimated unit cost. Based on the volume of sales, they then need to calculate an estimated value for the capital that they have invested per unit. Using this, a target-return price can be calculated based on the desired return they would like to achieve. The following formula was taken from Kotler and Keller (2012, p.419):

$$\text{Target-return price} = \text{unit cost} + \frac{\text{desired return} \times \text{invested capital}}{\text{unit sales}}$$

The advantage of this pricing method is that it enables the practice to set prices that earn a decent return on the capital invested. In recent years this pricing strategy has gained popularity particularly within the Japanese manufacturing sector whereby they first determine the most likely price that will enable a product/service to succeed in the marketplace, then the costs involved in its production are targeted in ensure a target level of profit (Li, Wang, Yin, Kull & Choi, 2012). Similarly, the veterinary profession is also considering this pricing strategy particularly for welfare organisations whereby they determine their optimal pricing with a particular target return motive (Kuo & Jain, 1998).

The disadvantages associated with this method are that it relies on many estimates such as the sales volume, unit costs and capital costs per unit. If these are inaccurate, the price could be misleading and the desired return will not be achieved (Kotler & Keller, 2012).

2.7.1.4 Contribution pricing strategy

This method of pricing differs from the previous methods in that it only takes the variable costs per unit into consideration before adding a percentage mark-up (Schlissel & Chassin, 1991).

$$\text{Selling price} = \text{variable cost} + \text{mark-up percentage}$$

The mark-up percentage is usually calculated to include the desired profit the company aims to achieve as well as cover the total fixed and variable costs (Niemand, Meyer, Botes & Van Vuuren, 2006). The main advantage of this pricing method is that it does not require the allocation of fixed costs to an individual product or service (Schlissel & Chassin, 1991). However, this method of pricing is not frequently used as the marginal costs are often difficult to calculate and one has to consider how a large quantity of units that would need to be sold at a low price in order to recover the costs (Schlissel & Chassin, 1991). An example of this pricing strategy within the veterinary profession is that of vaccinations offered by veterinarians for both core and non-core vaccines programme (Williams, 2012).

2.7.1.5 Marginal pricing strategy

This pricing method is used when the price of a product or service is set below total and variable costs so as that only the marginal costs (i.e. the cost of producing one more item) are covered (Avlonitis & Indounas, 2005). This technique is simple to understand and better to use in a short-term situation where one does not have to consider all the fixed costs and overheads, only what is required for break-even (Avlonitis & Indounas, 2005). However, a problem with this method is that it ignores market prices i.e. a customer's willingness to pay as well as the competition.

2.7.1.6 Loss leader pricing strategy

This pricing method is when a practice charges less than the normal price for a product or service in order to stimulate additional traffic to the practice (Kotler & Keller, 2012). The objective would then be to cross-sell with other products or services to compensate for the loss on that particular product/service or attempt to "buy" consumer loyalty for future purchases (Kotler & Keller, 2012). Doherty (2015) and House and Associates (1992, 1995) found that Canadian veterinary practices frequently used loss leader pricing for sterilisation procedures such as canine spays to draw customers to their practice as it is one of the most frequently shopped services. However, one of the main disadvantages

of this strategy is that it can buy “cold loyalty” whereby highly price sensitive customers will move onto another practice when lower prices are offered there. In addition, veterinary practices would have to compensate for this loss by charging higher services elsewhere (House & Associates, 1992).

2.7.2 *Competition-based pricing strategies*

This method of pricing focuses predominately on competitor’s costs, prices, their market offerings and potential actions (Monroe, 2003; Jobber & Shipley, 2012). Companies that use this approach will either price similar to, above or below competitors depending to a large extent on the level of differentiation and the intensity of competition within the market (Monroe, 2003; Shipley & Jobber, 2001; Siems et al., 2012). This pricing method is also used for price adjustments to preserve the price differential between the company and its competitors (Shipley & Jobber, 2001).

Competition-based pricing is frequently referred to as going-rate pricing or parity-pricing (Kotler & Keller, 2012; Ingenbleek & Van der Lans, 2013; Morris & Calantone, 1990). The type of market in which the company is operating within plays a key role in this pricing strategy, as the company can either be a price setter or a price taker. The reader is referred back to section 2.3.5 on price leadership strategies.

According to Lloyd et al. (2001), veterinary practices in the USA have historically compared their fees to other veterinary practices around them to ensure that they are either in line or could justify the value of charging higher fees. Although this is important, some veterinary practices in the USA decided their prices exclusively based on competitive prices which lead to lower mean incomes as compared to practices who considered competitive pricing as part of their price setting strategy (Cron et al., 2000).

In recent years there has been an increase in the number of online veterinary outlets selling products that could traditionally only be purchased at a veterinary practice (Henry & Treanor, 2012). This indirect form of competition has put pressure on traditional industry margins. If this trend continues, veterinary practices will need to consider their pricing approach relative to competitors in order to remain sustainable (Henry & Treanor, 2012). Changing market conditions globally will require the broader veterinary industry to

be more commercially aware than they were in the past (Henry & Treanor, 2012; Lowe, 2009).

There are several advantages to this pricing method:

- 1- It is quite simple to administer as the company can usually gather information easily on competitors' pricing and replicate their pricing structure (Shipley & Jobber, 2001).
- 2- It leads to industry price stability, preventing price cutting and price wars (Shipley & Jobber, 2001).
- 3- It can help companies set prices more accurately in markets where customers are relatively price sensitive.

There are also a number of disadvantages to this particular pricing method:

- 1- The price is determined purely on competition and not on other pricing determinants such as cost and a customer's willingness to pay (Siems et al., 2012). This can be detrimental to the overall profitability and in the worst case scenario, it can lead to pricing below cost (Shipley & Jobber, 2001). Relying predominately on this type of pricing strategy can lead to industry-wide group think that can be detrimental to the profitability of all the businesses involved.
- 2- This method of pricing also ignores opportunities for using various price initiatives that can lead to better profitability (Shipley & Jobber, 2001). This is particularly important within the SME context whereby they need to be more strategic in creating competitive advantages and not just follow the market leader within the industry as their cost and demand structures may differ (Siems et al., 2012).
- 3- Although price equality is achieved, often it cannot account for rival's discounts which are often negotiated in secret or the fact that competitiveness is also affected by non-price benefits (Shipley & Jobber, 2001).
- 4- This pricing method has a higher degree of subjectivity compared to cost-based pricing strategies which can sometimes make it more difficult for veterinary practitioners.

2.7.3 Customer-based pricing strategies

These pricing methods involve estimating the value that customers place on a company's products or services (Avlonitis & Indounas, 2006). Sometimes referred to as demand-based pricing methods, they are influenced by customer price sensitivities at various price levels. As a result, the company will need to gather a large volume of information from the customer as they are the frame of reference (Cravens & Piercy, 2013). Both quantitative and qualitative data can be collected to assess the degree to which customers value the product/service(s) and these can be used to determine the actual price level that should be set (Lloyd et al., 2001). Quantitative data could also reveal the customer's willingness to pay specific prices at competitor practices, which could be used in the pricing strategies discussed above (Lloyd et al., 2001). This information can be used as a strategic tool to create and capture customer value (Kotler et al., 2010). In recent years this pricing strategy has gained ground as there has been a shift in thinking from the seller's cost perspective and operational efficiencies to one that is concerned about the customer's view of value (Morris & Calantone, 1990; Piercy et al., 2010).

According to Leszinski and Marn (1997), the value that the customer perceives is due to the trade-off between the benefits of the product/service and the price that they paid for it. The greater the perceived benefit relative to the price, the more likely the customer will choose that particular product or service (Leszinski & Marn, 1997). Essentially, customer-based pricing is not exclusively about charging premium prices but rather understanding and increasing a customers' willingness to pay (Liozu & Hinterhuber, 2013). These pricing strategies have gained significant popularity over the past few years as more empirical studies have demonstrated how these pricings strategies result in higher profitability (Liozu & Hinterhuber, 2013).

The advantages associated with these pricing methods are:

- 1- It estimates the prices that customers are willing and able to pay (Shipley & Jobber, 2001). It enables a business to charge more than cost-based and competitive pricing where the customer's perception is that of high value. As a result, value-based pricing is positively correlated with profitability for companies regardless of size or industry (Liozu & Hinterhuber, 2013).

- 2- It recognises that different customers will value the products/services differently; enabling a price disparity to be set in different market segments (Shipley & Jobber, 2001).
- 3- Even in tough economic times, these methods enable a company to communicate the value of the product/service that they are charging and not just focus solely on price.
- 4- Authors such as Morris and Calantone (1990) believe that ultimately all pricing should be considered from the customer's perspective as they ultimately define the company's success, mediocrity or failure.

The disadvantages of these pricing methods are:

- 1- It ignores costs, competition and other important determinants of price if it is applied too rigidly (Kotler et al., 2010; Perreault & McCarthy, 2002; Shipley & Jobber, 2001).
- 2- The demand curve and price sensitivity per market segment are difficult to estimate due to the multitude of factors which influence them (Avlonitis & Indounas, 2006; Perreault & McCarthy, 2002).
- 3- Similarly, the estimates of demand and price relationships are often calculated based on imperfect information (Shipley & Jobber, 2001). Sellers should avoid an overinflated view of the value of their products or services.
- 4- There are non-zero costs associated with these pricing strategies. For example, a change in the organisation's strategic mindset, a difference in organisational structure and need to collect adequate customer information (Liozu & Hinterhuber, 2013).

Some of the more frequently used customer-based pricing methods are briefly discussed below.

2.7.3.1 Perceived-value pricing

Several authors have discussed that even though most companies set prices predominately on cost-based methods, there is a growing emphasis being placed on setting prices based on the customers perceptions of the value of the product/service

(Cravens & Piercy, 2013; Kohli & Suri, 2011; Kotler & Keller, 2012). According to Kotler and Keller (2012), this perception is made up from a host of various inputs such as the buyer's perception of product performance; the deliverables of the product/service; customer support levels; the supplier's reputation; their trustworthiness and warranties associated. It is essential to fully understand these elements in order to leverage off them (Kotler and Keller, 2012). Similarly, Leszinski and Marn (1997) echoed this importance in gaining an understanding of what drives customer choice and their relative importance. It is important to do this on a regular basis as these customer perceptions can change rapidly.

Kotler and Keller (2012) suggested a number of techniques that can be used to determine this:

- Focus groups
- Managerial judgement and market research feedback
- Consumer surveys
- Analysis of historical data
- Conjoint analysis

Veterinary practices need to clearly communicate the value that their products and services deliver to customers through their marketing strategies, public relations and all forms of communications with the consumers (Kotler & Keller, 2012). It is essential that the practice then delivers on this value (Kotler & Keller, 2012). This strategy can lead to a differentiation from that of one's competitors.

2.7.3.2 Value-based pricing

Kotler et al. (2010, p.305) defined value-based pricing as a company "setting prices based on buyer's perceptions of value rather than on the seller's costs". Monroe and Cox (2001) also defined value-based pricing as a form of strategic pricing in which the company can define the value of their products/services in the eyes of their customers and competitors.

This strategy differs from the previous one in that the company aims to define the value offering to the customer (Kotler, 2000). An organisation can price the product/service

according either at a high price relative to specific quality or features which they wish to communicate or a lower price to present the cost benefits being offered (Siems et al., 2012). What is being communicated and how it being communicated is a key aspect of this pricing strategy.

If a veterinary practice aims to present a high value offer to their customers, they can become a form of “price champion” whereby the practice educates consumers on the value of the product/service(s) being offered, herewith justifying the prices being charged (Piercy et al., 2010). This pricing strategy requires extensive customer and market knowledge (Piercy et al., 2010).

If a veterinary practice aims to offer a more cost effective, “value for money” approach, there are two strategies that are typically followed. The first is good-value pricing in which the seller offers a combination of quality together with what they perceive to be a “fair” price. An example of this in the retail environment is large retail supermarkets that offer “everyday low prices (EDLP)” that follow a continuous low cost strategy without any additional promotional discounts (Kotler et al., 2010). The second form is called “high-low pricing” where the seller sells the product at higher prices daily but frequently runs promotions which lowers the pricing at strategic times (Kotler et al., 2010).

2.7.3.3 Pricing according to the customer’s needs

This pricing method is when one sets the price to try as best as possible to meet customer’s satisfaction. A study conducted by Hanif, Hafeez and Riaz (2010) demonstrated that customer service and price fairness play a very important role with regards to customer satisfaction. This pricing method can help build customer loyalty but surveying customers for this data can be challenging and costly.

2.7.4 Additional pricing strategies

There are several additional pricing strategies which have not been covered under the 3C’s pricing model as discussed above. These pricing methods were not considered to be important in relation to the veterinary industry but are included for completeness sake.

- **Auction pricing:** This pricing method involves the sale of products or services by offering bids and then selling to the highest bidder. This type of pricing can take place in many forms and is gaining ground particularly in the e-commerce field (Kotler & Keller, 2012).
- **Penetration pricing:** This is a pricing method is frequently used when a product is launched into a market. The price is initially set low to the whole market with the aim to accelerate product adoption and gain market share particularly for products/services intended to be regularly utilised by customers (Kotler & Keller, 2012; Rao & Kartono, 2009; Siems et al., 2012).
- **Market/Price skimming:** This pricing method is used when launching new products or services with the aim to get the most out of the innovators and early adopters by setting the price high initially and systematically reducing the price over time (Kotler & Keller, 2012; Rao & Kartono, 2009). This pricing strategy has the advantage of being able to leverage off the different levels of a customer's willingness to pay (Siems et al., 2012).
- **Geographical pricing:** This pricing method is used by companies to charge different prices in different geographical locations, often intended to incorporate the costs of shipping to different regions (Rao & Kartono, 2009). This pricing strategy is also known to be affected by socio-economic factors and distance of clients from the veterinary practice is influenced by factors such as travelling costs (Daneshvary & Schwer, 2011).
- **Product line pricing:** This pricing method involves the review, setting and interaction of prices for multiple items within a particular product line (Rao & Kartono, 2009).

2.8 Determine the final price

The pricing process up until this step has enabled the price decision maker to determine a range or even a base price as well as which pricing method (s) is/are the most appropriate for the given context as well as the pricing objectives (Kotler et al., 2010). When selecting the final price, the following variables need to be taken into context.

2.8.1 *Psychology of pricing*

Consumers actively process price information through the interpretation of the context such as their own personal experiences, formal communications with the company, informal communications, point-of-sale information and various online resources (Kotler & Keller, 2012). In the absence of adequate price information, customers tend to use the price as a measure of quality of the product or service (Cravens & Piercy, 2013; Kotler & Keller, 2012).

Customers tend to also make use of reference prices, which are internal prices used as a frame of reference against which to compare observed prices (Kotler and Keller, 2012). Kohli and Suri (2011) also described this as a means by which customers anchor prices and use them as benchmarks of what they perceive to be fair. The response to pricing is then has more to do with these reference points than with the actual costs (Kohli & Suri, 2011). Kohli and Suri (2011) found that these reference prices used by customers are often relatively inaccurate on their own; however they were quite accurate within a category range when compared with other leading brands. This is how customers often judge the fairness of an offer in comparison with competitor brands or services. They concluded that it is the relative price that matters the most to consumers (Kohli & Suri, 2011). Often sellers try to manipulate these reference prices used by customers (Kohli & Suri, 2011).

The psychological influence of the vet-owner-pet bond is also an important consideration when pricing products and/or services (Brockman et al., 2008). Brockman et al. (2008) demonstrated that the higher the degree of owner's emotional involvement, the less rational the decision making process and more likely they are to spend money on their pets. Baguley (2009) discussed the importance of these relationships in the ways in which vets develop their marketing strategies and price their products. Brockman et al. (2008) recommended that vets leverage this relationship to reassure their clients of the financial decisions and the quality of their services that they provide.

In addition, the majority of dog and cat-owning households have a regular veterinarian that they prefer to see. As a result, this creates an imperfect consumer demand that has the ability to reduce buyer power and move the clients towards habitual buyer behaviour.

Lastly, the psychology of the veterinarian is also an important consideration. The Brakke Study conducted in the USA in the late 1990's found that veterinarians quoted lower prices for clients that they perceived to have limited financial resources even if they did not have empirical evidence (Cron et al., 2000). Another interesting finding from the study was that assistant veterinarians tend to charge higher prices than that of the main practice owner or senior partners (Cron et al., 2000).

These complex underlying consumer psychological influences can have major implications on pricing strategies and thus should be considered when setting prices within a veterinary practice (Monroe & Cox, 2001).

2.8.2 *Influence of other marketing mix elements*

As mentioned previously, all the marketing mix elements should be evaluated collectively and none should be implemented in isolation. All four components should contribute towards the business strategy and objectives (Brennan et al., 2007).

2.9 Implementation and Policies

The pricing strategies used by veterinarians should be based on the pricing 3C's strategy as discussed above. Once all the steps have been followed and the psychological influences assessed, the practice can decide upon the best price for a particular product/service within the market. Veterinarians should understand that if one follows a simple cost-plus pricing method, whereby traditional margins are added, the practice could end up leaving money on the table. One needs to also consider a value-based pricing strategy whereby customers are charged a value which they are willing to pay for products/services. In addition, one needs to balance the influence of competitors on the pricing range created i.e. the incorporation of competitor-based pricing strategies. The goal should ultimately be however to maintain the highest price range possible and thus, understand the value of the offering for the customer and price accordingly. The preceding pricing strategies that were laid out for are all very important however for entrepreneurs, small to large businesses and veterinary practices in general (Siems et al., 2012).

2.9.1 *Limitations of this method for SMEs*

Although the researcher feels confident that this pricing framework can realistically be followed by veterinarians, there are several limitations which one should recognize:

- Starting up a small business is very time and resource consuming. As a result, many entrepreneurs or veterinarians will not have sufficient time to thoroughly work through a systematic pricing framework prior to starting up their business (Siems et al., 2012).
- Some of these approaches require an understanding of economic and marketing concepts which may be unfamiliar to the business owner particularly if they are very technically trained (Siems et al., 2012).
- Another barrier identified by Siems et al. (2012) is that these veterinary practices may lack the information base necessary to set prices. An example of this could be a specialist procedures or unique service whereby the vet may not have the resources to do market research whereby they could gain an understanding of how the price would be perceived by clients (Siems et al., 2012; Shipley & Jobber, 2001).

2.10 Ethical considerations

Various professional industries have undergone deregulation in recent years due to global changes in competition law which has resulted in an increased pressure for anti-competitive behaviours to be abolished. However in monopoly industries, such as the veterinary industry, deregulation of pricing can result in professionals acting with unethical conduct in pursuit of their own self-interest (Benjamin, 2001). There are several different ethical issues associated with pricing strategies. For purposes of this dissertation, the principle ethical issues that were identified by Brennan et al. (2007, p.228) will be discussed.

2.10.1 Anti-competitive pricing

Anti-competitive pricing, also known as price fixing, occurs when a group of sellers collude to set prices above or below what would normally have been set in a free market (Brennan et al., 2007; Mouraviev & Rey, 2011). This is illegal as it is considered to be unfair and damaging to the parties excluded from the agreement (Brennan et al., 2007). Referring back to the price leadership strategies discussed in section 2.3.5, some of the reasons that a veterinary practice might engage in this type of activity could be due to the asymmetry in the availability of information or conditions when practices face different cost conditions within different markets or when there are non-identical factors influencing the demand of certain products or service (Mouraviev & Rey, 2011).

2.10.2 Price discrimination

Price discrimination is used to increase veterinary practice revenue by charging different buyers different amounts for the same product or service, despite the fact that there are no differences in the cost to the practice (Janse van Rensburg et al., 2011). Price discrimination factors in the medical field were initially identified by Reuben Kessel in an article *Price Discrimination in Medicine* (1958). His work has subsequently been cited and further researched by a number of authors illustrating its role in the medical profession (Arrow, 1963; Folland, Goodman & Stano, 2007; Santerre & Neun, 2012). Little however is known about the extent of price discrimination or the factors influencing it within the veterinary profession.

There are three forms of price discrimination which occur, each associated with their own ethical concerns:

First degree price discrimination, also referred to as perfect price discrimination, is when a veterinary practice charges each consumer their own unique price (Samuelson & Marks, 2011). The veterinarian's intention in this situation is to charge the maximum that the customer is willing to pay in order to maximise revenue (Samuelson & Marks, 2011). An example of this would be an overly tailored treatment protocol for the consumer's pet. Some of the possible ethical concerns with this form of

price discrimination include the perceptions of unfairness and deception, as well as lowering of consumer welfare.

Second degree price discrimination is when the price is linked to either the quantity that is demanded (for example bulk deals) or the quality of the product or service (for example different class airline tickets) (Kuo, Rice, & Fennell, 2016; Samuelson & Marks, 2011). Within the context of veterinary practice, this is frequently seen with the purchase of over-the-counter medications such as a box of dewormer tablets, which will give the consumer a greater discount than purchasing individual treatments. From an ethical perspective, it may be socially unjust by favouring consumers who have greater buying power.

Third degree price discrimination, also referred to as variable consumer pricing, is the most prevalent and differs from the previous two in that it doesn't take the buyers maximum willingness to pay into consideration (Heyman & Mellers, 2007). Price setting involves segmenting customers by factors such as geographical location, real or perceived differences in similar products, demographics, and/or time of the day or year (Fitzsimmons & Donahue, 1992; Kuo et al., 2016). From an ethical perspective, the practice has to be able to defend to all consumers why they are charging these different prices as it will have a direct influence on how the consumer perceives the fairness of pricing. For example, veterinary practices will charge a surcharge for consultations after 19:00 in the evenings or on weekends. Another example is any practice which offers their senior consumers a standard discount rate. These are all ethical considerations. However, it is unethical if the way in which consumers are segmented is discriminatory (based on race, religion, gender, or educational background) or if it violates anti-trust laws or constitutes price-fixing (Shpanya, 2014).

2.11 Conclusion of Literature Review

The literature review assessed some of the key concepts behind pricing theory, the key determinants of the strategies which are selected, as well as the predominant pricing methods used.

From the literature it is evident that pricing is a complex decision influenced by a multitude of factors. As such, the price decision maker will need to follow a systematic and integrative process in order to set the price most appropriate to their particular context for a product or service.

2.11.1 *Proposition 1:*

The first proposition is that cost-plus pricing will be the dominant pricing strategy used by veterinarians.

2.11.2 *Proposition 2:*

The second proposition is that there will be a difference between the pricing strategies used for frequently purchased products, highly shopped services and specialised services.

CHAPTER 3. RESEARCH METHODOLOGY

The purpose of this research is to determine the dominant pricing strategies used by the South African veterinary profession as well as if a difference exists between the pricing strategies used for frequently purchased products, highly shopped services and specialised services. This chapter serves as a detailed discussion of the methodology that was followed to conduct the research study.

3.1 Research methodology / paradigm

According to Rao and Kartono (2009), pricing strategies are the means by which a veterinary practice's strategic objectives are achieved. In order to determine the dominant pricing strategies used by veterinarians, a quantitative methodology was followed. The primary data collected was analysed using the normal distribution algorithm approach and correspondence analysis.

3.1.1 *Descriptive statistics*

Descriptive statistics are used to describe or summarise quantitative data which has been collected into a simplified, easy to interpret format (Babbie & Mouton, 2010). This typically involves assessing the mean, median, mode and central tendencies. Some key assumptions include that the population has a normal distribution, equality in variance or homoscedasticity, and that the data is independent (Jensen & Laurie, 2016).

3.1.2 *Normal Distribution Fit Algorithm*

Normal distribution fitting algorithm (NDFA) is a mathematical modelling technique whereby ordinal Likert scale data is transformed into interval data so that parametric statistical estimates could be found. According to Stacey (2005), NDFA offers a greater accuracy and validity than other statistical techniques. It allows each pricing strategy to be analysed and ranked relative to one another. Some of the key assumptions of this technique is that the data obtained must be from a random sample of large enough size

to be representative of the population and that goodness-of-fit calculations accompany the analysis.

3.1.3 Correspondence analysis (CA)

Correspondence analysis is an exploratory, multivariate, graphical statistical technique designed to explore the relationships between categorical variables (Sourial et al., 2010). The data is usually collected by means of a contingency table. Although this is a relatively subjective technique, it can provide significant insight into the subject matter being evaluated (Hair, Black, Babin, & Anderson, 2010).

Some of the key assumptions associated with this technique include (Sourial et al., 2010):

- 1- The sample size of data must be large enough for statistical analysis.
- 2- The variables must be homogenous.

3.2 Research Design

The research was conducted by means of collecting data from the sample population, the results recorded and thereafter the data was analysed.

The data was collected by means of a pre-populated, online survey questionnaire on Qualtrics. This was accessible to all registered veterinarians or veterinary practice managers who work within a veterinary clinic environment. Veterinarians were able to access the site by means of a link directly to the survey.

There are number of advantages to using this online platform which include (Bryman, 2012):

- a more professional layout and appearance of the questionnaire;
- a faster response time than postal mail or face-to-face interviews;
- ease of use for the respondent;
- the ability for the researcher to make use of filter questions to assist in the survey method;

- a high degree of versatility of questioning;
- the ability to overcome geographical restrictions when trying to reach respondents;
- data could be automatically captured into a database reducing errors associated with capturing data.
- high degree of anonymity of respondent could be achieved.

There are also several limitations to using this method (Bryman, 2012):

- not all veterinarians have access to email or may have limited technical ability to handle the questionnaire.
- respondents often have more than one email address.
- respondents may use more than one internet service provider which may be problematic.
- the sample will be biased towards internet users.
- often the response rate is lower than other forms of interview or survey. As a result, the respondents may need to be motivated to go online to complete the survey.
- there is a risk of multiple replies from some respondents which will skew the accuracy of the data collected.
- there is a higher probability for the respondent misunderstanding the questions being asked.

3.3 Population and sample

3.3.1 *Population*

According to the South African Veterinary Council (personal communication, March 18, 2016), there are 2823 registered veterinarians and 1353 registered veterinary practices in South Africa. Although there are a high number of registered veterinarians, many of them are practicing outside of South Africa.

3.3.2 *Sample and sampling method*

Historically, authors have made several recommendations with regards to the minimum sample size required to perform accurate statistical analysis. Many researchers still use a minimum absolute sample size of approximately 30 respondents based on the Central Limit Theorem (Corder & Foreman, 2009). However, Israel (1992) recommended that one be more subjective and assess criteria such as the purpose of the study; population size; level of precision; level of confidence or risk; and the degree of variability of the attributes being measured. In addition to these criteria, one should also consider the statistical method being applied (Israel, 1992; Fabrigar, Wegener, MacCallum & Strahan, 1999; MacCallum, Widaman, Zhang & Hong, 1999). For descriptive statistics, almost any sample size should suffice but larger sample sizes are required for more complex methods such as multiple regression or factor analysis (Comrey & Lee, 1992; Israel, 1992).

As a result, an intended sample size of 100 respondents for this particular research was viewed as realistic given the constraints of a single researcher, and the short survey period timelines. The respondents were also incentivised by offering a R1500 Woolworths gift voucher as well as an executive summary of the result. In the end, 79 respondents partook in the study of which only 74 completed the survey.

The sample frame for this research was the same as that of the population and should be representative of the population (Malhorta & Birks, 2007). The survey was open to all veterinarians nationally with the aim to get as many veterinarians to answer the survey as possible. It was expected that the sample size would be smaller than the population; however the number of respondents would lead to a sample size that is representative of the industry and reliable for statistical inference (Upton & Cook, 2006).

3.4 The research instrument

The research instrument used was an online self-completion questionnaire utilising the University of the Witwatersrand Qualtrics site. The survey was pre-populated with questions derived from the conceptual framework developed in the literature review.

The questionnaires were composed of four sections. The complete questionnaire is provided in Appendix A. The first section was an introduction to the survey as well as an informed consent form. The second section was designed to capture information with regards to the respondent's position within the veterinary practice; the veterinarian's years of experience; the type of practice; and whether they are focused on products, services, or a combination of both. The type of practice was important to differentiate between:

- Private practices whose goals would be to maximise revenues.
- Welfare organisations whose goals would likely be to break-even with the ultimate objective being to uplift and support society.
- State veterinary services whose goal is to assist society particularly with regards to alleviating the incidence of zoonotic and endemic diseases.

The respondents were also asked their position within the practice, as it is common knowledge that most pricing policies are set by the owner or the practice manager. This could have an impact on the accuracy of the data obtained.

The third and fourth sections of the questionnaire were composed of questions relating to the pricing strategies frequently used by veterinarians. Efforts were made to avoid leading and unambiguous questions, with no open-ended questions. The survey was also structured in a manner that would enable the researcher to gather pertinent information while not overburdening the respondent (Amirault et al., 2006). The relevant information was collected using three questions:

- The first question was a matrix in which all respondents had to rate their extent of agreement with the long-term pricing strategies used within their practices and/or vetshops. The reason that long-term pricing strategies were chosen to be examined is that anecdotal evidence has shown that pricing goes beyond the

short-term financial gains of the firm and influences aspects such as the market share and potentially long-term profitability (Ingenbleek & Van der Lans, 2013). Verbal descriptors of each of the pricing strategies were provided and respondents were forced to provide a level of agreement per statement through adopting Likert scales. This multiple-item scale was used to measure the intensity of feelings in an area being surveyed (Bryman, 2012). This methodology has the advantage of being intuitively easy for the respondent by providing a finite number of choices without the respondent having to consciously consider other alternatives (Stacey, 2006). The scale used consisted of 7 options which assessed the degree of importance ranging from strongly disagree to strongly agree. This is based on research which demonstrates that the minimum number of options should be five while more than ten options makes the survey too complex (Lee, 2016). The data collected was ordinal in nature (Jamieson, 2004). It was then aggregated and analysed to identify the dominant pricing strategies used by veterinarians.

- The second question was restricted to respondents who had indicated in section two that they worked in either private practice, specialist practice, welfare practice and those who also owned a vetshop. The matrix table required respondents to indicate which pricing strategies were the most frequently used for either frequently purchased products, highly shopped services and specialised services. A brief definition of each pricing strategy was provided as a reference underneath the matrix table. The results were subsequently analysed using correspondence analysis. Since the veterinary population was nationally distributed, the products and services on offer may differ depending on the geographical location and disease epidemiology. As a result, the most prevalent over the counter products and standard veterinary services were examined. The aim was to provide a standard frame of reference for the profession.
- The third question, similar in nature to question two, was limited to respondents who had indicated that they only owned a vetshop. Respondents then had to select the pricing strategies used for frequently purchased products only. As per the previous question, a brief definition of each pricing strategy was provided as a reference underneath the matrix table.

3.5 Procedure for data collection

There were three methods by which the data was collected. Firstly, veterinarians were asked to participate in the survey through the following means:

- Email sent to all registered veterinarians via the South African Veterinary Association (SAVA).
- Face to face contact by means of the researcher's sales team.
- Contact with Veterinary social media platforms.

The email, social media and sales team's communications all contained a link to the qualtrics survey which one could either click upon or upload into the HTML bar in order to go through directly to the survey for completion. This was the main method of collecting data. All questions were mandatory and this enabled the researcher to not have to check whether all the sections had been answered.

No manual surveys were collected in order to minimise the risk of error in data capture.

3.6 Data analysis and interpretation

3.6.1 *Demographic profile of the respondents*

A total of 79 participants initially partook in the survey although only 74 respondents completed the survey.

3.6.1.1 *Number of respondents who own their own business*

The number of respondents in the survey who own their own practice and/or vetshop were classified as follows:

Table 3: Respondents who own their business

Classification	Owner of the business	
	Frequency of observations	% of total
No	32	41%
Yes	47	59%

Table 3 demonstrates that approximately 60% of the respondents owned their own business (practice and/or vetshop) which was important as they would most likely be the key decision makers and would be primarily responsible for the pricing policies.

3.6.1.2 Years in practice

The number of years of experience that the respondents had in veterinary practice was classified as follows:

Table 4: Respondents' years in practice

Years	Number of years in practice							
	0-5	6-10	11-15	16-20	20-25	26-30	31-35	36+
Respondents	26	16	9	6	7	5	4	6
Percentage	33%	20%	11%	8%	9%	6%	5%	8%

From Table 4 above it is evident that most of the respondents had less than ten years of experience in practice, with the cumulative percentage being 53%. The remainder of the sample had more than 11 years of experience and the spread varied between the different categories.

3.6.1.3 Managerial role

The respondents were asked if they were either the practice manager or had a managerial role. The complete results are provided in Appendix B while the summarised results from the survey are as follows:

Practice Manager or Managerial Role

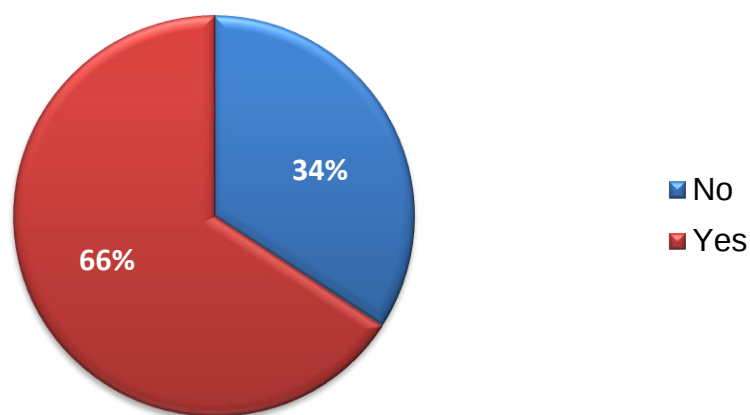


Figure 8: Percentage of respondents who hold a practice manager or managerial role

Figure 8 demonstrates 66% of the respondents were either the practice manager or held a managerial role. It is generally assumed that owners either set prices or work in collaboration with the practice manager to do so (Lloyd et al., 2001). This is important given the exploratory nature of the study and its role in management. For the other 34%, of respondents that answered no, they were then asked what their role was within the practice. Of these, 21 respondents (or 78%) could be broadly classified as Assistant Veterinarians.

3.6.1.4 Type of practice

Table 5: Respondents type of practice

Type of Practice	Observations	Frequency
Private practice	51	65%
Private practice, specialist practice	2	3%
Private practice, specialist practice & vetshop	1	1%
Private practice, vetshop	8	10%
Private practice, welfare	3	4%
Private practice, welfare, vetshop	3	4%
Specialist practice	4	5%
Specialist practice, welfare	1	1%
Vetshop chain only	1	1%
Vetshop(s)	1	1%
Welfare	2	3%
None of the above	1	1%
Total	78	100%

Table 5 demonstrated that 65% of the respondents worked in private practice and a further 10% worked in private practice with a vetshop. Thus, the focus of this dissertation was on companion animal care in private practice (75% cumulative total) with a further 10% of the respondents working in specialist practices and only 2% in welfare practices. As a result, the analysis of the results will focus almost exclusively on pricing strategies in private practice companion animal care. Thus, it is assumed that the predominant pricing objective for veterinarians would be profit-maximisation.

3.6.2 Respondent's type of activity

Table 6: Respondents' main activities

Respondent's activities	Observations	Frequency
Combination of veterinary products and services	74	94.87%
Veterinary products only	2	2.56%
Veterinary services only	2	2.56%

From Table 6, it is evident almost 95% of the respondents were involved with a combination of veterinary products and services which meant a survey focusing on both categories was important for both analysis and interpretation.

3.6.3 Normal Distribution Fit Algorithm (NDFA)

For the first sub-problem, a Likert scale was used to measure the relative importance of each pricing strategy that could potentially be used for veterinary products and/or services. The ordinal data produced had the limitation that little empirical evidence exists to show that the response categories can be interpreted as equally spaced, numeric scales (Jamieson, 2004; Stacey, 2005). As such, one cannot assume that there is a linear correlation between the variables and the underlying veterinarian's attitudes of the verbal descriptor scales of the survey (Stacey, 2005; Luiz & Charalambous, 2009). This would limit the use of the data to non-parametric statistical techniques as parametric statistics would contain a discretisation error- which is defined as the difference between the actual values obtained compared to the expected values if the data followed a normal distribution (Stacey, 2006). Thus, if statistical inference was conducted- it would be unreliable and inaccurate relative to the population (Stacey, 2006). To overcome these limitations, two approaches had been used historically when analysing Likert scale data:

- 1- Rescale ordinal data to continuous interval level data prior to conducting parametric statistical analysis (Granberg-Rademacker, 2009; Norman, 2010). This approach however did not include normalisation of the data and resulted in the limitations around the validity and reliability of the data as the linearity of the scale was unknown (Stacey, 2005). This could lead to a categorisation error.
- 2- Labovitz (1970) argued that in general, ordinal data could be considered as interval data for analysis purposes. However, he cautioned that further tests would be required to determine the level of confidence in interpreting the results as one could accidentally attribute a property to a scale where it does not exist (Labovitz, 1970).

Given the limitations of these two approaches and to ensure that the data was normalised, the distribution fitting algorithm methodology was applied (Stacey, 2005).

This technique enabled the responses to follow a normal distribution (Stacey, 2005). As a result, the pricing strategies could be analysed, interpreted and ranked through determining their means and t-values. The following methodology was used:

1. Collection and download of the data by the researcher.
2. An estimation of the population parameters using asymptotic analogy was conducted according to the following steps (Stacey, 2012):
 - a) The development of a simulation model in which the population parameters of means and standard deviations were arbitrarily assigned to each survey item with the objective to create an analogy of the cognitive process followed by the population.
 - b) Threshold values (τ_i) were then assigned to separate the participant's response categories into ordinal categories. These were applicable to all the survey items.
 - c) The expected frequency of each survey item was then calculated based on the assumption of an underlying normal distribution.
 - d) The chi-square (χ^2) contributions and p-values were then calculated to measure the goodness-of-fit between the arbitrarily assigned simulated population parameters and the outputs of the model. Essentially the chi-square value is produced by calculating the differences between the actual and expected values for each cell and then summing those differences.
 - e) The goodness-of-fit or χ^2 statistic were then improved through the adjustment of the simulated population parameters, namely μ_i , σ_i and τ_i .
 - f) Once the goodness-of-fit between the sample data and model were sufficient to ensure that the model fitted the data as accurately as possible, the parameters served as a reliable estimate of the true population statistics.

Pricing strategies that had positive means were to be the most important strategies used in the pricing process. Those with negative means were deemed to be not significantly important.

Some of the key advantages of this technique include:

- Through the use of a normal distribution fitting algorithm, the assumption of normality is fulfilled by the model (Stacey, 2012).

- Statistical parameters are more valid so that they can be more accurately inferred to the general population than alternative techniques (Stacey, 2005).
- Can be used on a relatively small sample size.
- The discretisation error is eliminated (Stacey, 2012).

3.6.4 Correspondence analysis (CA)

For the second sub-problem, which aimed to identify if any differences exist between the main pricing strategies used for different products and services, correspondence analysis was used.

Correspondence Analysis (CA) was initially championed by Jean-Paul Benzecri and his colleagues in France during the 1960's (Benzecri, 1969). The methodology used in this exploratory data analysis is similar to that of Benzecri's original work and involved the following steps:

- Collection and download of individual responses by the researcher.
- The creation of contingency tables indicating the frequency of observations from the survey.
- Although it would have been ideal to plot a graph with twelve individual axes, each representing its own pricing strategy and how the different products/services rated in comparison, it would have been complex to graph as well as analyse. As a result, matrix algebra was used to reduce the graph from a twelve-dimensional space down to a two-dimensional space through aggregating the pricing strategies that the respondents regarded as being closely related (adapted from Bendixen, 1996). The objective was to assign numerical scores to the various rows and columns in a manner that maximised their interrelationship (Hoffman & Franke, 1986).
- Prior to plotting a perceptual map, the vertical and horizontal axes were established. This was done by assessing each pricing strategy's contribution towards the total inertia accounted for by each axis to determine which pricing strategies the axes represent (Bendixen, 1996). A simple rule of thumb was used in which any pricing strategy contributing more than 8.33% of the responses would be attributable to a level of significance that was not due to purely random

chance (adapted from Bendixen, 1996). It is important to note that the pricing strategies with smaller contributions towards the total inertia were not separately considered in order to improve the overall understanding of the data. Thus, using this as well as the positive or negative sign of the pricing strategy, the poles of the axes were established (Bendixen, 1996).

- The different products and services assessed were then plotted within the perceptual map space based on their scores in relation to the pricing strategies most predominately associated with them (Bendixen, 1996; Hoffman & Franke, 1986).
- This map enabled the researcher to interpret the structural relationships between the categorical variables (Bendixen, 1996; Inman, Shankar & Ferraro, 2004).

Some of the key advantages of this technique include:

- It can transform multiple categorical variables into a two-dimensional graph which can be used to test the association or relationship between the variables (Hoffman & Franke, 1986). These relationships would possibly not have been as easily identified if they had been analysed by means of a series of pair-wise comparisons (Hoffman & Franke, 1986).
- The technique reduces the multiple dimensions to just two, enabling one to more easily identify and interpret the relationships between the different variables.
- It is highly flexible with regards to its data requirements enabling a researcher to gather suitable data quickly and analyse it with relative ease (Hoffman & Franke, 1986).

One of limitations of this technique is that some of the accuracy and richness of the data could be lost due to the dimension reduction. However, it allows for approximately ninety percent of the data's richness to be retained (Stacey, 2016, per.comms. 24 November).

3.7 Limitations of the study

This research was limited by not focusing on:

- The effects of macroeconomics on the pricing strategies used in the veterinary profession.
- The effects of the growing e-commerce field and the different pricing strategies used.
- It did not look at services and retail strategies in isolation, as they are considered to have a large degree of overlap.
- It did not focus on geographical differences in veterinarian's pricing strategies.
- It did not focus on the tactics that veterinarians use after the price has been set.
- It did not focus on price stickiness and factors that influence how frequently prices are reviewed and adjusted.
- It did not focus on the personal characteristics of the veterinarians such as level of work experience or self-esteem.
- It did not focus on gender differences and its influence on pricing strategies and tactics.
- It did not assess differences between single versus multiple vet practices despite recognised differences in demand, cost structures and the availability of services.
- It did not assess the various attributes of the vet-owner-pet relationship and its influence on pricing decisions made.
- It did not take into account the increasingly prevalence of pet medical insurance and its influence on pricing strategies.
- It did not assess the ethical issues of pricing within the veterinary profession such as price fixing or price discrimination.
- It did not assess the customer's view point of veterinary pricing strategies and related factors which could influence their purchase decision.
- Since the survey was self-administered, the results may not provide a completely true reflection of the pricing strategy process of veterinarians. To truly understand the pricing behaviour, more in depth research by means of field observations and qualitative research would be required.
- Although all efforts were made to minimize bias, there is no test to warrantee that the results were completely representative of the population.

3.8 Validity and reliability

The concepts of validity and reliability have to do with the integrity of the conclusions that have been derived from one's research (Bryman, 2012). Reliability differs from validity in that it measures the degree to which the concept is stable or repeatable (Bryman, 2012). These will be discussed in further detail below.

3.8.1 External validity

External validity, in simplistic terms, aims to ensure that the conclusions drawn from one's sample can be generalised to reflect that of the population (Bryman, 2012). There are several factors which have been identified which may decrease the external validity of this study:

1. Due to time constraints, it is not possible to replicate the survey at another time or under a different context (Gilbert, Ruigrok & Wicki, 2008).
2. Although the sample is identical to the population, an online survey may have restricted the sample that partook in the study.

3.8.2 Internal validity

Internal validity refers to the extent to which one can make accurate conclusions of cause and effect from the research design and data (Bryman, 2012). This essentially measures the confidence that can be placed on these relationships.

The construct validity ensures that the questions posed in the questionnaire are constructed on theoretical concepts covered in the literature review. Thus, the validity was increased through the use of reliable sources such as peer-reviewed journal articles, textbooks and other academic sources. Since the questionnaire was derived from the data assessed in the literature review, it formed a solid foundation for the research. The methodologies used for statistical analysis were published and well recognised (Bendixen, 1996; Hoffman & Franke, 1986; Stacey, 2005, 2006, 2012). In addition, these methods have been used by several authors across multiple industry sectors

increasingly the validity of its use for this research paper (Cline & Luiz, 2013; Luiz & Charalambous, 2009; Luiz & Stephan, 2012; Saini, Bick & Abdulla, 2011).

3.8.3 Reliability

The reliability, in simplistic terms, ensures that the results that are achieved by means of the research methodology are repeatedly consistent or the results are capable of being duplicated by means of similar studies at different points in time (Bryman, 2012).

In order to reduce measurement errors, a 7 point Likert scale was used for data collection and all respondents were given precisely the same questionnaire.

A method frequently used to improve the reliability of one's research method is to pre-test the questionnaire. The goal of the pilot study was to increase the validity of using a self-completion questionnaire (Avlonitis & Indounas, 2005). The questionnaire was assessed by eleven veterinarians to enable the researcher to detect any problems in the instructions, ambiguity in the questions, any signs of respondent fatigue, misunderstanding of the concepts being tested, as well as test the overall flow of the questionnaire (Zikmund, 2003). Feedback was asked from all the pilot respondents to assess whether they had a similar interpretation of the response categories based on the verbal descriptors. The feedback from the pilot study included:

- Initially the pilot study consisted of seven sections which the respondents found too long. The final questionnaire was reduced down to four sections through eliminating a sub-problem from the initial proposal.
- Respondents found the original pricing strategy definitions to be too long and detailed in section two. These were simplified and shortened for the final questionnaire.
- The respondents asked for a definition of the pricing strategies in each section to serve as a reference for them to refer to. This was added to all questions in the final questionnaire.

Once the questionnaire had been adjusted, the final questionnaire was used as per the example provided in Appendix A.

3.9 Ethical considerations

According to Lewis (1985, p.381), ethics can be defined as “rules, standards, codes or principles which provide guidelines for morally right behavior and truthfulness in specific situations”. The goal of ethics is also to protect others from harm or adverse consequences of research activities (Cooper & Schindler, 2011).

The research conducted involved human participants in the survey. The audience was limited to adult practicing veterinary professionals and thus did not knowingly include any vulnerable categories of respondents such as children, persons who have been retrenched or disabled.

Participants from the South African veterinary population were approached to partake in the survey and participation was on an individual, voluntary basis. Participants were asked to give their informed consent to participate in the research. This was achieved by providing a detailed first page of the questionnaire on Qualtrics outlining the objectives of the research and detailed that by participating in the research their personal information will be kept confidential and anonymous. Veterinarians and/or practice managers were also informed that they have the right to withdraw or terminate their participation in the survey at any point in time. Veterinarians and/or practice managers provided their consent by clicking on an agreement icon in order to proceed with the questionnaire at the end of the information page. Their privacy was to be further enhanced by the participant not having to disclose any personal or confidential information about their veterinary practice such as revenues and/or similar sensitive information. As a result, the researcher could guarantee confidentiality and anonymity. Additionally, the researcher did not anticipate that the participants would be exposed to any potential physical harm, risk of exploitation, discomfort or embarrassment.

The data was collected electronically from the online survey on the Qualtrics site where access to the data was restricted for use by the researcher only. The data was used for the purposes of determining the dominant pricing strategies used within the veterinary industry. After the data was analysed, it was archived in a secure place with restricted use for the researcher alone.

Once the research report has been marked and approved, it will be made available, in a pdf format, for the veterinary community and any other interested parties to read.

There are no known conflicts of interest for this particular research and the researcher does not anticipate any unintended consequences of this research. As part of the measures to mitigate against any possible unintended consequences of this research, the South African Veterinary Council (SAVC) was approached for ethical clearance and to discuss any potential conflicts of interest. Although several communications were sent, the SAVC declined on 6th October, 2016, due to a lack of resources on their behalf.

CHAPTER 4. PRESENTATION OF RESULTS

4.1 Introduction

This chapter is where the results of the research study survey are presented and analysed. The results are presented in a simplified manner for ease of analysis and interpretation as the complete set of results can be found in Appendix B. The results shown in the Chapter 4 are the means required to answer the research propositions developed in Chapter 2.

The first section of the chapter analyses the dominant pricing strategies identified using a distribution fit algorithm. Thereafter, the different pricing strategies used for frequently purchased products, highly shopped services and specialised services were analysed.

The chapter is closed by means of a conclusion of the survey results.

4.2 Proposition 1: Cost-plus pricing is the dominant pricing strategy used by veterinarians

This section evaluates the first proposition and the data collected originates from Section B of the survey. The data was analysed using the NDFA approach in which the dominant pricing strategy could be identified as the one with the highest, positive ranking. All the data and statistical analysis for this section is presented in Appendix B.

4.2.1 *Frequency of observed responses per pricing strategy*

The frequencies of responses for each of the 12 pricing strategies are demonstrated in the figures that follow to provide the reader with a visual presentation of the level of agreement veterinarians associated with each.

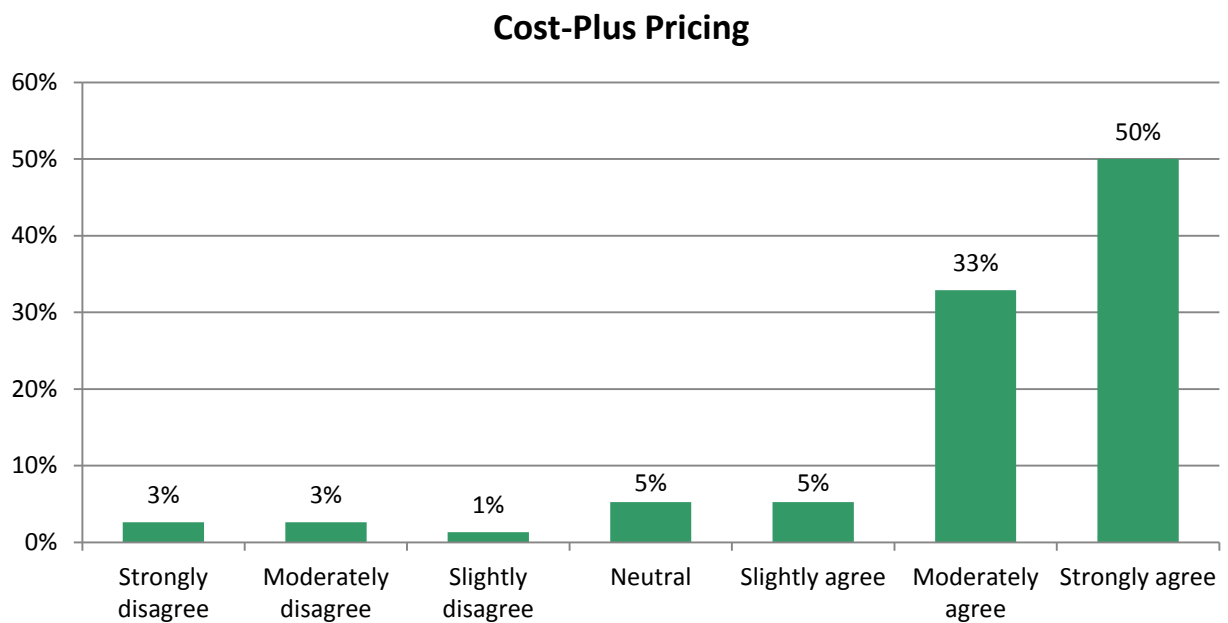


Figure 9: Percentage frequency of observed responses for cost-plus pricing

Figure 9 clearly demonstrates the high level of agreement veterinarians placed on using cost-plus pricing as a long-term pricing strategy. 83% of veterinarians rated their level of agreement as either moderately to strongly agree.

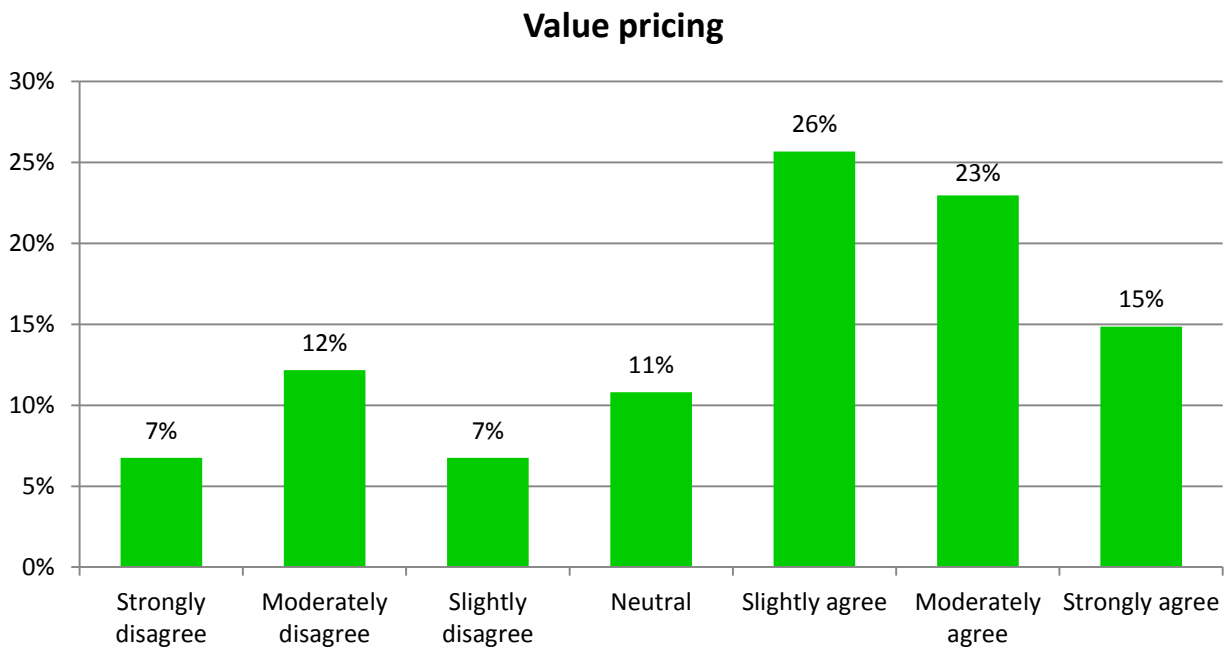


Figure 10: Percentage frequency of observed responses for value pricing

Figure 10 demonstrates that value pricing is also considered an important pricing strategy to veterinarians whereby 64% of respondents rated their level of agreement between slightly agree to strongly agree.

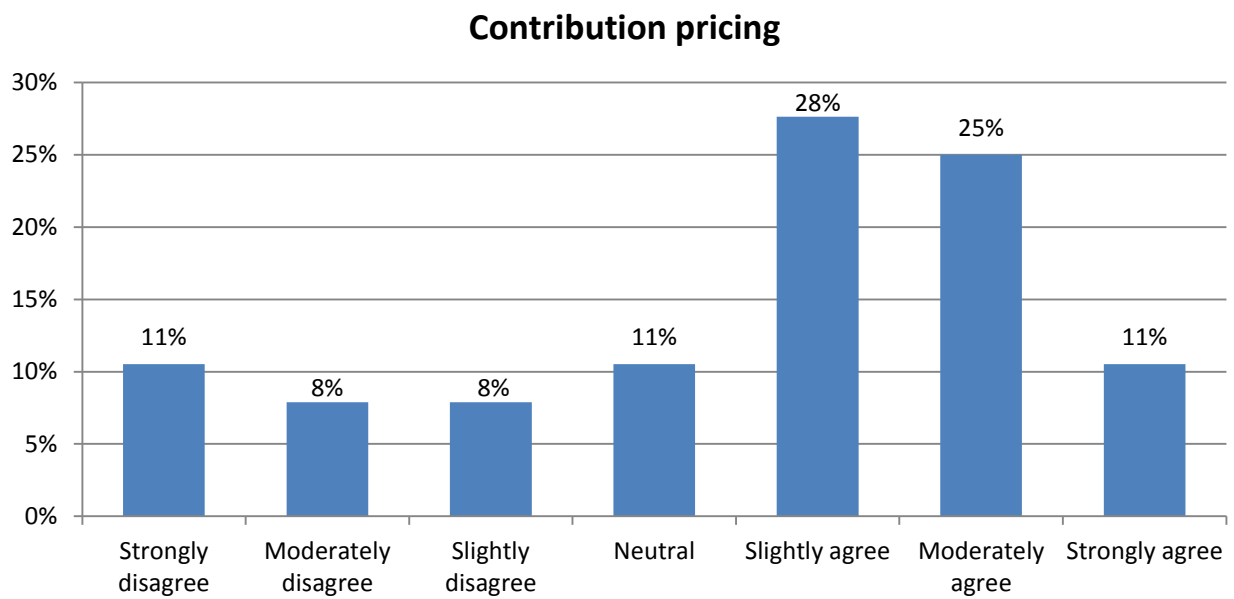


Figure 11: Percentage frequency of observed responses for contribution pricing

Figure 11 demonstrates that contribution pricing was rated as an important pricing strategy to veterinarians; however the level of agreement was less than for the previous two strategies. As demonstrated in the figure, 53% of respondents rated their level of agreement as either slightly or moderately agreed with only 11% strongly agreeing.

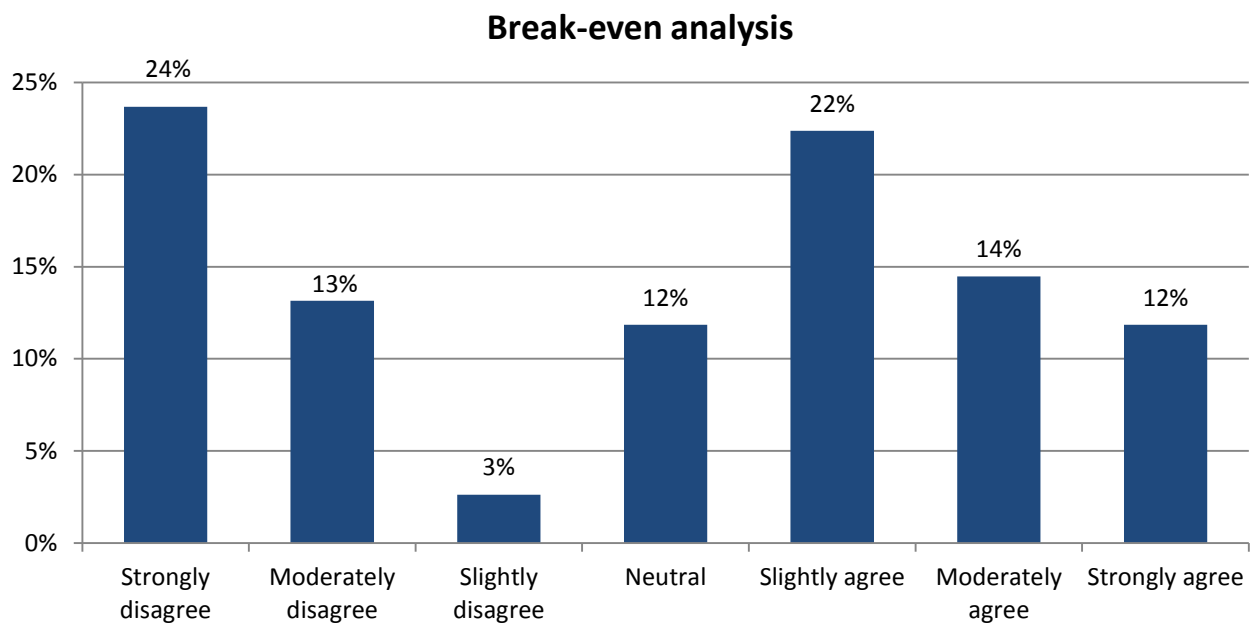


Figure 12: Percentage frequency of observed responses for break-even pricing

Figure 12 demonstrates that respondents had varying levels of agreement to their use of break-even analysis as a long-term pricing strategy. On average, 61% rated this as above neutral importance indicating that vets may not necessarily use it but still an important consideration in pricing.

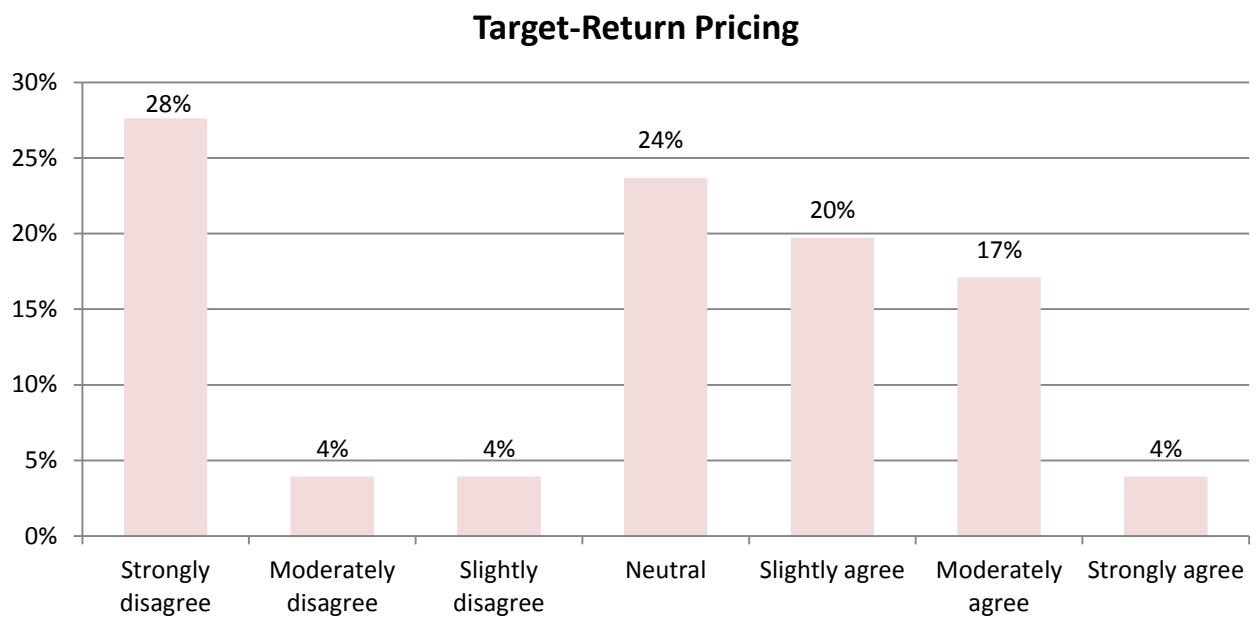


Figure 13: Percentage frequency of observed responses for target-return pricing

Figure 13 demonstrated quite a variable response from veterinarians with regards to the importance that they placed on this pricing strategy. 28% of respondents strongly disagreed with using this strategy while 43% of respondents ranked this as neutral to slightly agree.

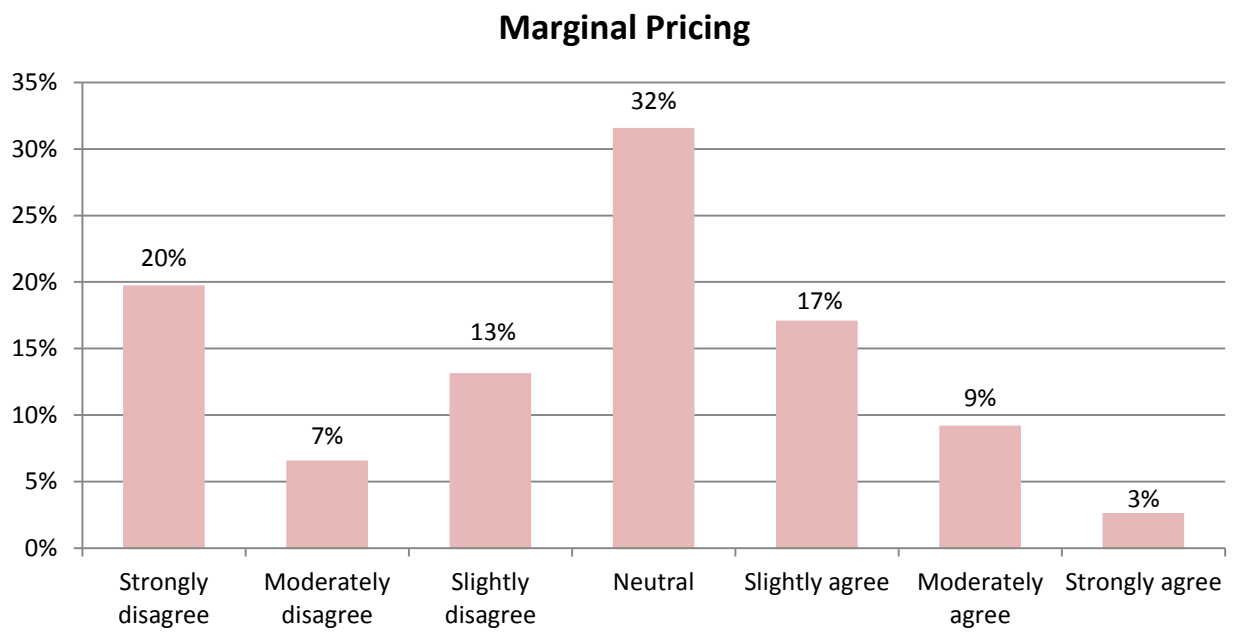


Figure 14: Percentage frequency of observed responses for marginal pricing

Marginal pricing strategy, as demonstrated in Figure 14, illustrated that the majority of respondents (i.e. 71%) chose between slightly disagree, neutral and slightly agree as their level of agreement.

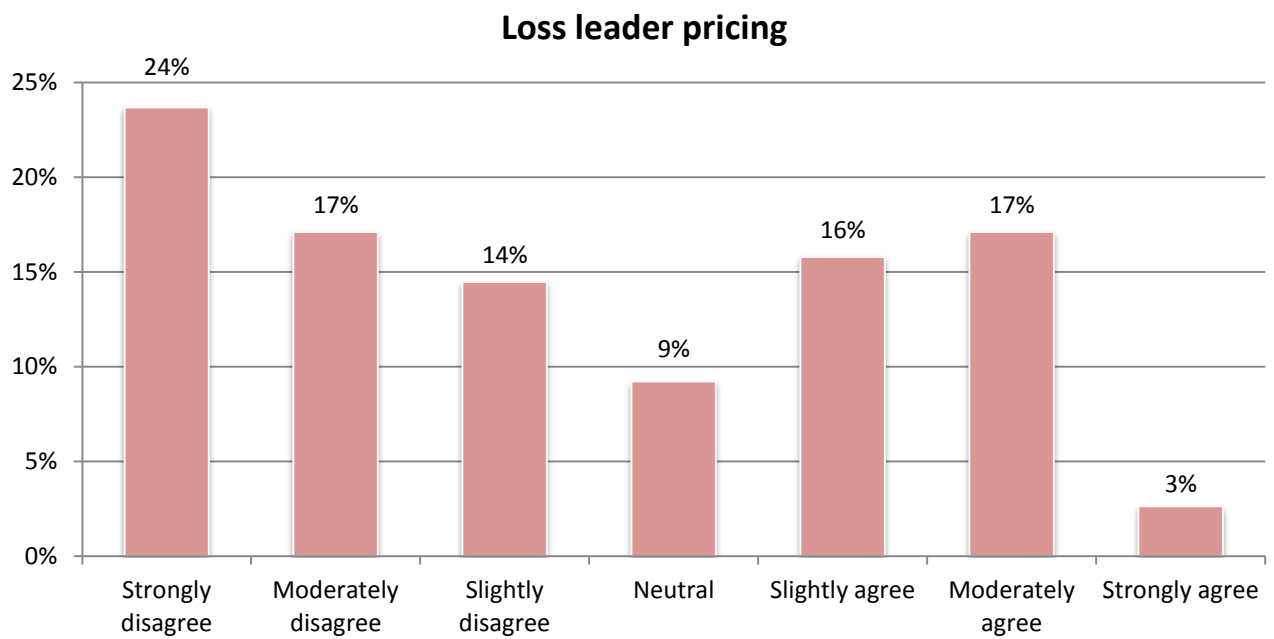


Figure 15: Percentage frequency of observed responses for loss leader pricing

According to Figure 15, the respondents level of agreement was relatively spread out between the different response scale items with the largest category (i.e. 24%) being strongly disagree to the use of this as a long-term pricing strategy.

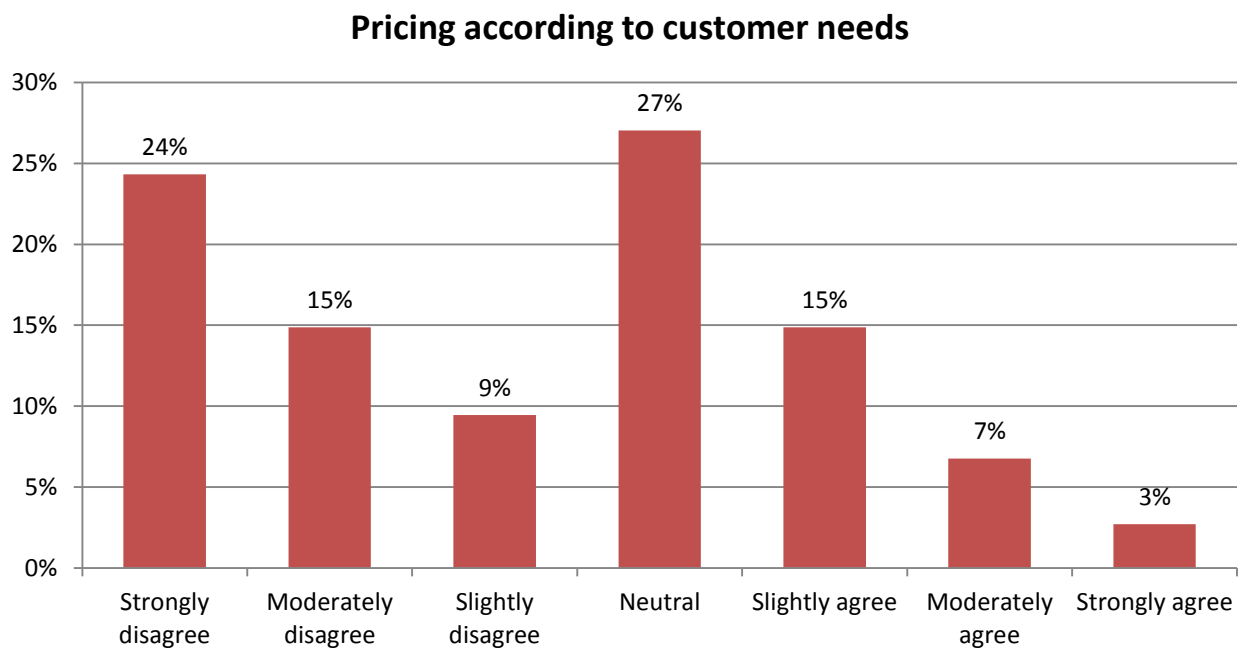


Figure 16: Percentage frequency of observed responses for pricing according to customer's needs

Figure 16 demonstrated that veterinarian's responses to the importance that they place on this pricing strategy were quite variable with 24% choosing strongly disagree and 27% selecting neutral.

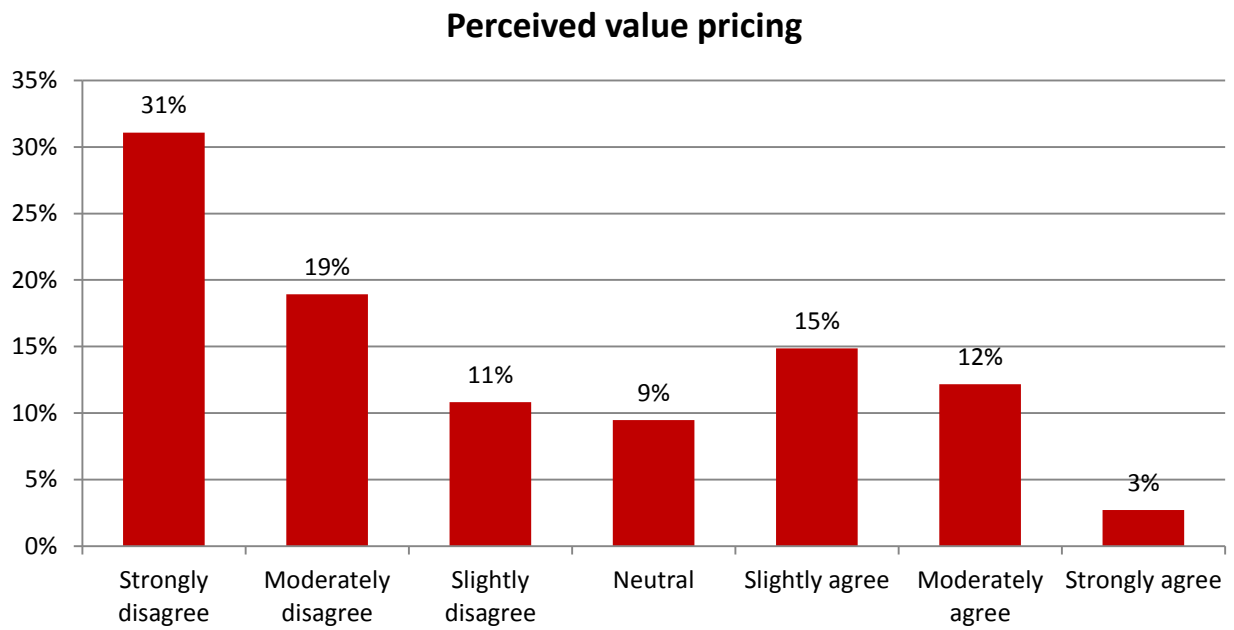


Figure 17: Percentage frequency of observed responses for perceived value pricing

Perceived value pricing, as shown in Figure 17, demonstrates that the respondents varied in their level of agreement to using this as a long-term pricing strategy. The highest level of agreement was strongly disagree (i.e. 31%). Overall, 70% of respondents rated this as neutral or below.

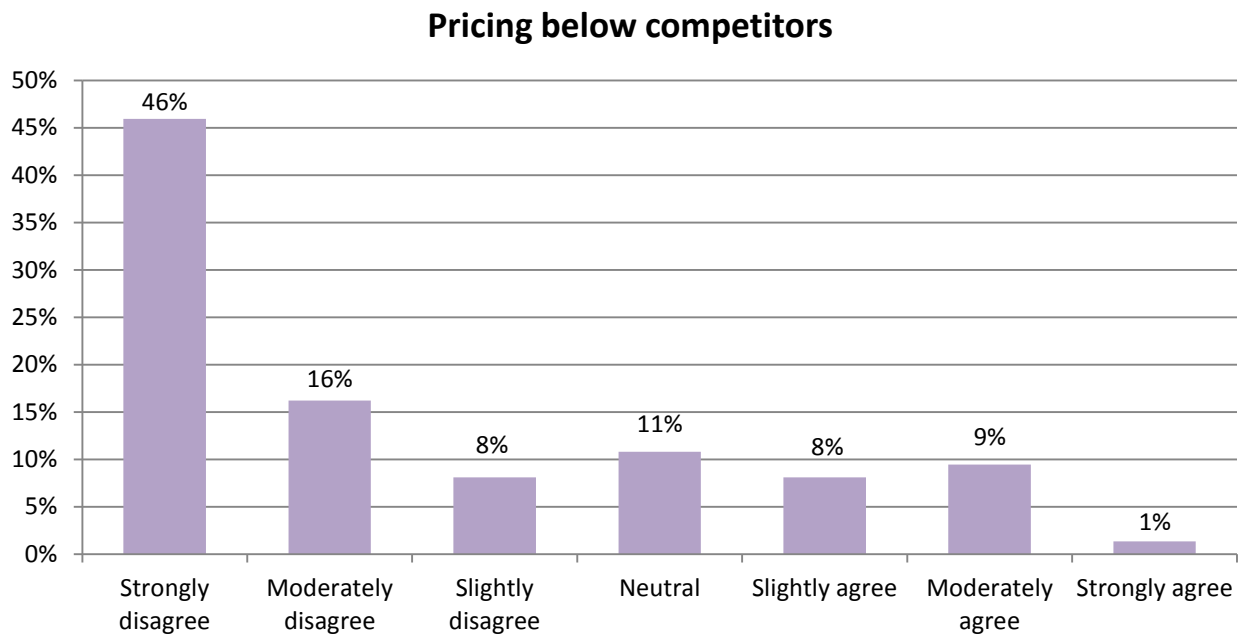


Figure 18: Percentage frequency of observed responses for pricing below competitors

Pricing below competitors was ranked the third last in terms of relevance as general long-term pricing strategies. The majority of respondents (i.e. 70%) had varying levels of disagreement with using this as a pricing strategy.

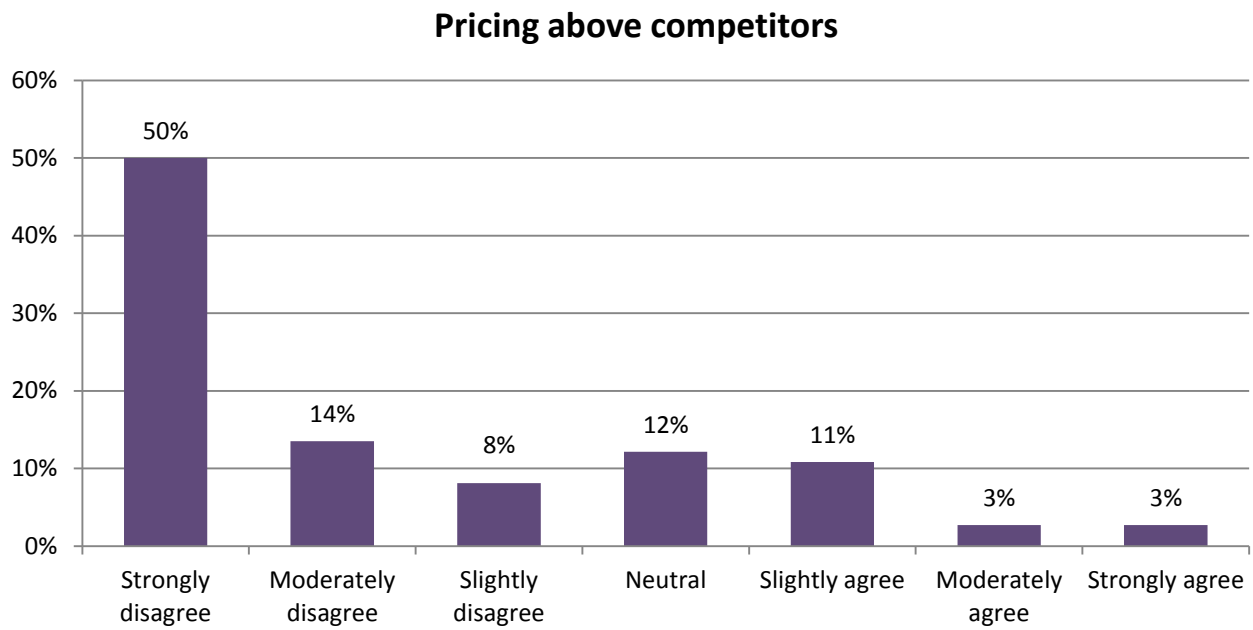


Figure 19: Percentage frequency of observed responses for pricing above competitors

Pricing above competitors was ranked as the second least relevant in terms of long-term pricing strategies with 50% of respondents ranked this pricing strategy with a strongly disagree level of agreement.

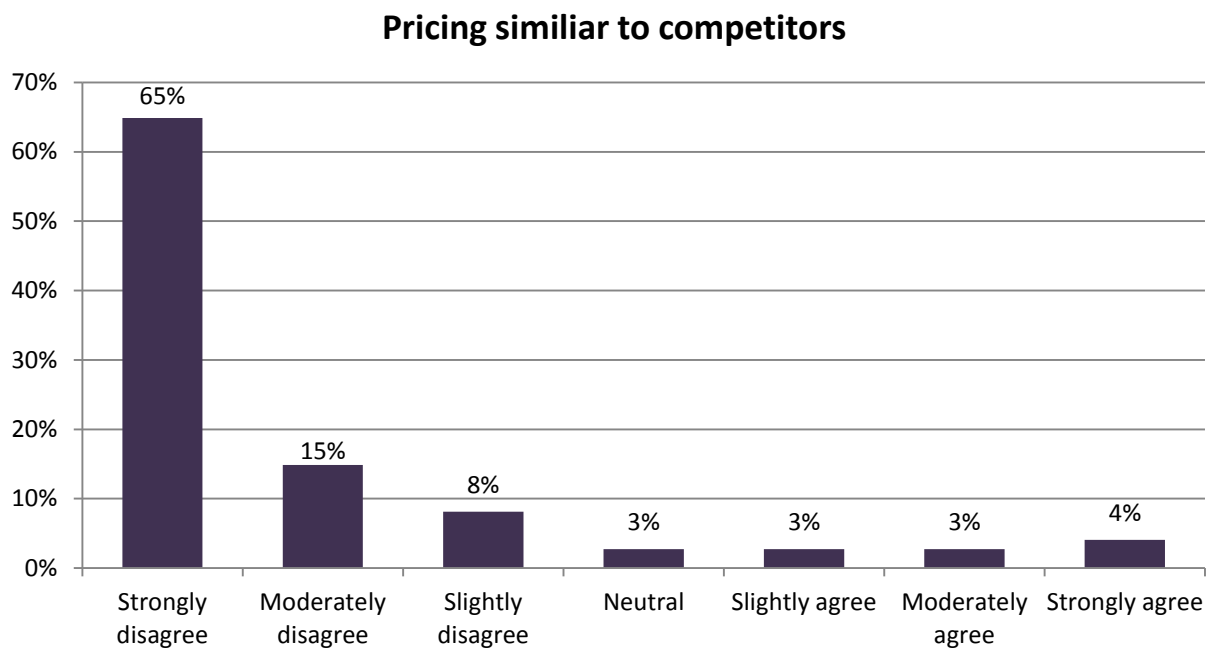


Figure 20: Percentage frequency of observed responses for pricing similar to competitors

Pricing similar to competitors was ranked the least relevant pricing strategy that is used by veterinarians whereby 65% of respondents rated this as strongly disagree.

4.2.2 Normal Distribution Fit Algorithm results

Figures 9 to 20 above all represent ordinal data which can't be readily compared with one another. As a result, a normal distribution fitting algorithm was then applied to these in order to rescale them into continuous variables. A summarised version of the results for each pricing strategy is tabulated in Table 7 below indicating the means, variances, ranked importance and t-values for each pricing strategy.

Table 7: Summary of pricing strategies and their descriptive values

Pricing strategy	Sample size (n)	Mean μ	Variance σ^2	Rank	t-value
Cost-plus	76	1.01	0.79	1	9.94***
Value pricing	74	0.18	0.58	2	2.00**
Contribution pricing	76	0.12	0.55	3	1.37
Break-even analysis	76	-0.16	0.93	4	-1.42
Target return pricing	76	-0.28	0.64	5	-3.05**
Marginal pricing	76	-0.29	0.37	6	-4.19**
Loss leader pricing	76	-0.34	0.56	7	-3.92**
Pricing according to our customer's needs	74	-0.40	0.44	8	-5.17**
Perceived value pricing	74	-0.49	0.63	9	-5.33**
Pricing below competitors	74	-0.78	0.77	10	-7.64**
Pricing above competitors	74	-0.86	0.82	11	-8.22**
Pricing similar to competitors	74	-1.24	1.28	12	-9.46**

* significant at p-value <0.10; ** significant at p-value <0.05; *** significant at p-value <0.01.

The significance of the results was interpreted using two assessments:

- **Level of agreement:** the p-values and the t-values for each pricing strategy were assessed individually. Cost-plus pricing had a positive t-value of 9.94 and was found to be statistically above average at a 1% significance level. Value pricing had a positive t-value of 2.00 and was found to be statistically above average at a 5% significance level. Contribution and break-even pricing were found to be not statistically significant. The remainder of the pricing strategies were found to be significantly below average at a 5% significance level.
- **Standardised means:** this technique of interpretation was provided by Luiz and Stephan (2012, p.625 citing Stacey, 2005) whereby a pricing strategy was classified as *very important*, *important* or *less important*. To determine this, the standardised means for each pricing strategy were used as follows:
 - If the standardised mean for a pricing strategy was appreciably greater than zero ($\mu \gg 0$) then that pricing strategy is statistically significantly more important than the overall average importance of all the other pricing strategies and hence can be interpreted as being *very important* relative to other pricing strategies.
 - If the standardised mean for a pricing strategy was very close to zero ($\mu = 0$), then that pricing strategy is considered to be *important* as it represents the average or general level of agreement in relation to the other pricing strategies.
 - If the standardised mean for a pricing strategy was appreciably less than zero ($\mu < 0$) then the pricing strategy could be interpreted as being *less important* relative to other pricing strategies.
- Using this method of analysis, it was evident that cost-plus pricing was rated as a *very important* pricing strategy for veterinarians and value pricing an *important* pricing strategy. Based on this classification, contribution pricing and break-even analysis were also ranked as *important* pricing strategies but were not considered to be different from the average. Target return, marginal pricing, loss leader pricing, pricing according to customer's needs and perceived value pricing were all considered to be *important* pricing strategies but less significant than average.

Lastly, competitor pricing strategies were classified as *less important* pricing strategies when compared to the average.

The conclusions from these two assessments are further enhanced when the standardised means, representing the overall level of agreement for each pricing strategy, were ranked and plotted on a graph as demonstrated in Figure 21 below.

Preferred pricing strategies in rank order

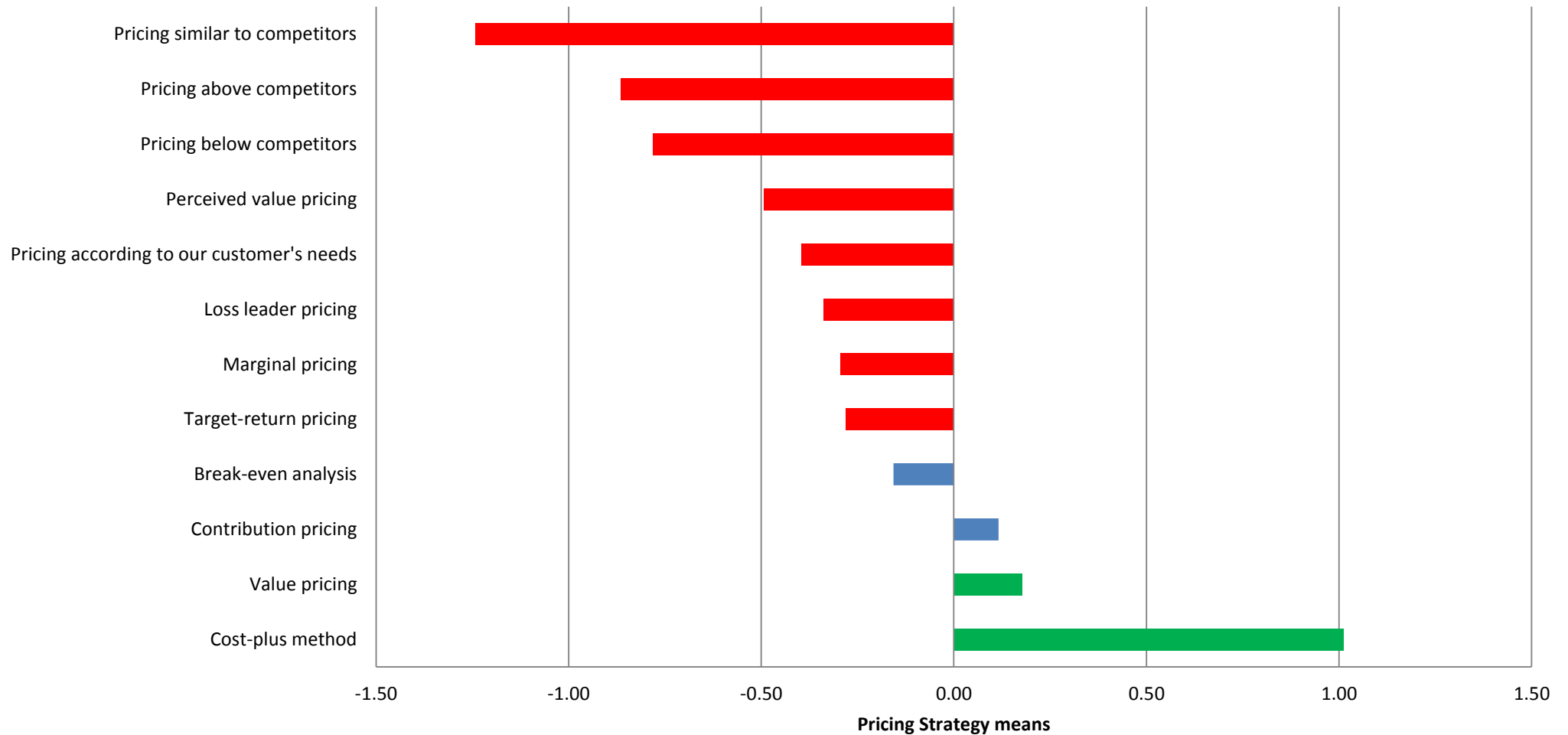


Figure 21: The level of agreement of pricing strategies based on their means after applying a Normal Distribution Fit Algorithm

4.2.3 *Conclusion to the dominant pricing strategies used by veterinarians*

The first proposition presented that cost-plus pricing is the dominant pricing strategy used by veterinarians is valid. The various results indicating the cost-plus pricing has the highest level of agreement, highest standardised mean and is significantly more important than average, all support this first proposition.

4.3 Proposition 2: There is a difference between the pricing strategies used for products and services

In order to evaluate this proposition, veterinarians and/or practice managers were asked to select which pricing strategies they associated with the most commonly sold products and/or services. Multiple answers were allowed per category. A two-way contingency table was created with the pricing strategies representing the rows and the categories of products/services representing the columns respectively. The reader is referred to Appendix C for the detailed data and results pertaining to this proposition.

The results of this section of the survey revealed that cost-plus pricing once again contained the highest number of associations per category while loss leader pricing had the least overall. On an individual category basis, petfood and ectoparasiticides had the highest frequency of responses for a particular pricing strategy (i.e. cost-plus pricing) while the other categories showed a larger degree of variability between the various pricing strategies selected.

Matrix algebra was applied to the consolidated data to reduce the number of dimensions from twelve to two through aggregation of closely associated pricing strategies so that a low-dimension perceptual map could be graphed and facilitate the researcher in the interpretation of the information (Greenacre, 2000). Through analysis of the plot detail section in Appendix C, the vertical and horizontal axes of the perceptual map could be established based on each pricing strategy's contribution to the total inertia as well as the positive or negative sign of the individual inertia (adapted from Bendixen, 1996 and Stacey, 2016 per personal communication). The contribution of each pricing strategy

followed the rule of thumb where inertias contributing more than 8.33% would represent significance greater than what would be expected in the case of a purely random distribution of statements over the axes (Bendixen, 1996). The sign of the inertia merely resembles that of the pricing strategy's position relative to the others and is in itself not a conclusive measurement (i.e. positive value does not indicate a positive response and vice versa). Table 8 below demonstrates the contribution of the various pricing strategies to defining their relative axes.

Table 8: Pricing strategies that define the horizontal and vertical axes

Pricing Strategy	Mass	Score in Dimension		Inertia
		1	2	
Cost-plus method	0.226	-1.162	0.151	0.15
Break-even analysis	0.078	0.671	-0.384	0.025
Target-return pricing	0.107	0.465	0.251	0.019
Contribution pricing	0.053	0.227	0.41	0.003
Marginal pricing	0.031	-0.01	-0.365	0.005
Loss leader pricing	0.021	0.03	-1.193	0.008
Pricing similar to competitors	0.131	-0.246	-0.406	0.009
Pricing below competitors	0.044	0.31	-0.626	0.011
Pricing above competitors	0.037	0.692	0.958	0.016
Perceived value pricing	0.1	0.47	0.23	0.009
Value pricing	0.068	0.555	0.228	0.014
Pricing according to our customer's needs	0.106	0.54	-0.093	0.016
Active Total	1			0.286

The horizontal axis (x-axis) negative pole was defined predominantly by *cost-plus pricing* and to a lesser extent *pricing similar to competitors*. This is due to the fact that cost-plus pricing's inertia is relatively large compared to the inertia of the other pricing strategies indicating that it is probably the most relevant pricing strategy to characterise the axis. It also has a negative value indicating that it would be located on the negative pole of the x-axis. The horizontal axis' positive pole was defined by several pricing strategies namely *pricing above competitors*; *break-even analysis*; *value pricing*; *pricing according to customer's needs* and to a lesser extent *perceived value pricing* and *target-return*

pricing. These were once again determined by their contribution to the overall inertia being higher than the average of other pricing strategies as well as having a positive value.

The vertical axis (y-axis) negative pole was defined by several pricing strategies including *loss-leader pricing*; *pricing below competitors*; and to a lesser extent *pricing similar to competitors* and *break-even analysis*. The pricing strategies that define the positive pole include *pricing above competitors* and to a lesser extent *contribution pricing*. Thus, the poles of the axes could be established.

The categories of commonly sold products and services were then positioned within the two-dimensional space based on their calculated coordinates. The positions that they occupied were a representation of the relation to the pricing strategies most closely associated with them as per Figure 22 below.

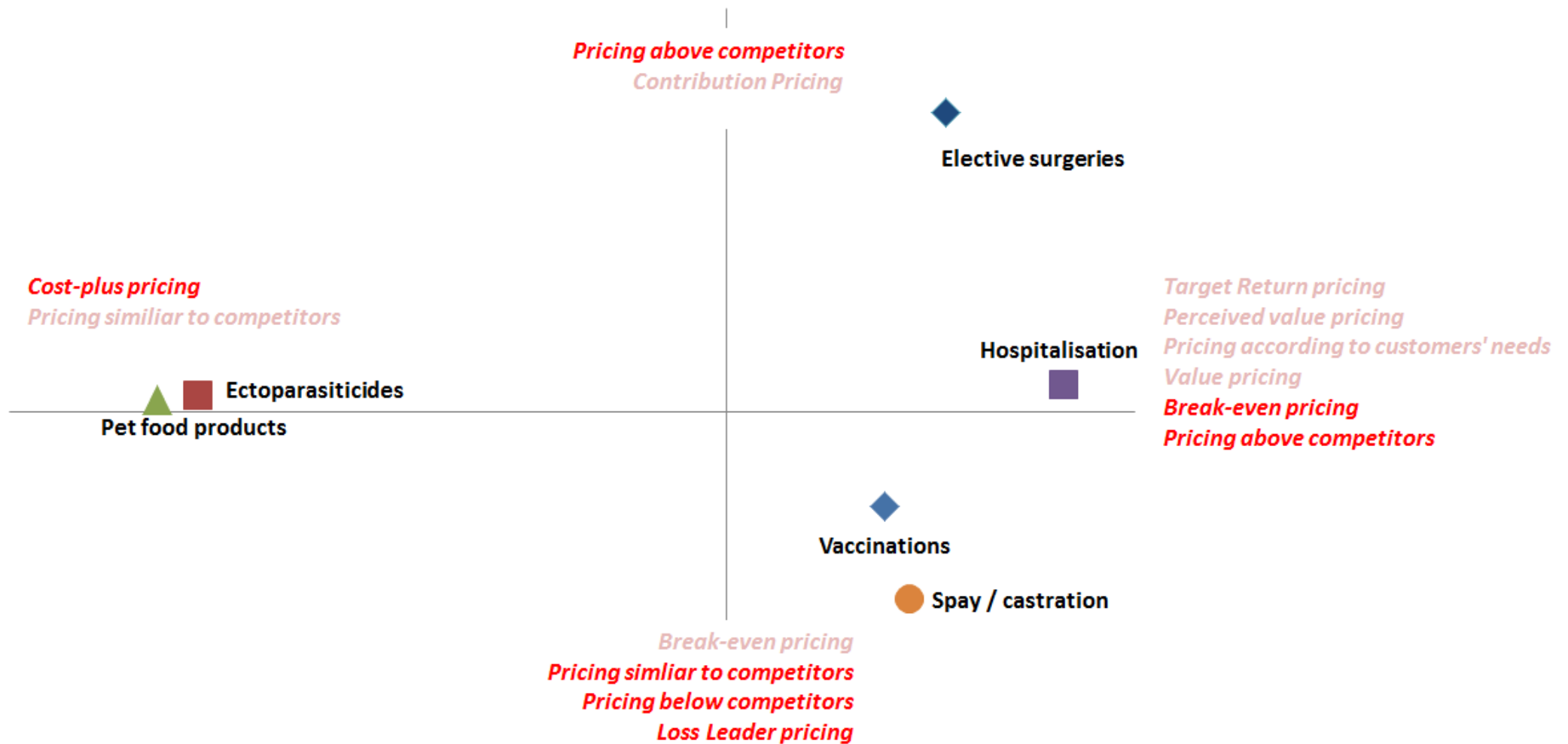


Figure 22: Correspondence Analysis plot

Figure 22 enables the structural relationships between the different categorical variables of products/service and their associated pricing strategies on the relevant axes to be easily viewed and interpreted.

It enables one to highlight which of the pricing strategies and the product/services were associated with each other (Bendixen, 1996). It has become common practice that one can interpret the map in terms of proximity of the product/service to either axes and/or other categories to reveal the underlying structure and positioning of the products/services in relation to the pricing strategy dimensions (Hair et al., 2010). Then when looking at the different categories- you can assess the degree of correlation by looking at their position relative to the axes. For example, ectoparasiticides and pet foods are strongly correlated with cost-plus pricing but poorly correlated with pricing above competitors. The closer the category (product/service) is to a pricing strategy- the stronger the likelihood that this is the predominant pricing strategy being used by veterinarians.

Hoffman and Franke (1986) noted that one should however take caution in this type of interpretation as the distances between the axes and the position of the categories can't be specifically interpreted as they are scaled independently.

The perceptual map demonstrates that the position of the ectoparasiticides and pet food categories are in very close proximity to one another as well as the negative pole of the horizontal axis. This may imply that these categories are likely associated with similar pricing strategies. Interestingly, the opposite/reverse is true of hospitalisation which is located at the positive pole of the x-axis. This pole is associated more with break-even pricing and a few other pricing strategies. Vaccinations are located equidistant from both the positive x-axis and the negative y-axis implying that it is less closely associated with the pricing strategies defining with these axes. However, it falls into the quadrant defined by loss leader pricing, pricing below competitors, break-even and pricing above competitors. Furthermore, sterilisations are also located in this quadrant, but even further from the axes. This implies that these procedures are more frequently characterised by break-even and loss-leader pricing strategies.

4.3.1 *Conclusion to differences between the pricing strategies used for products and services*

Using correspondence analysis, we were able to demonstrate that there is a difference between the pricing strategies most frequently used by veterinarians for different products and services.

4.4 Summary of the results

A total of 74 completed surveys were received and analysed by means of Stacey's distribution fit algorithm and correspondence analysis. The results from both statistical methods revealed that cost-plus pricing is the dominant pricing strategy used by veterinarians. In addition, the correspondence analysis revealed that when one considers products and services individually, there is a significant difference between the strategic choices of pricing strategy used per category. This chapter revealed that pricing strategies are still an important consideration for veterinarians when setting prices within their practices.

CHAPTER 5. DISCUSSION OF THE RESULTS

5.1 Introduction

This chapter presents an interpretation of the research survey results presented and described in Chapter 4. The objective is to further explore the research propositions and contextualise the relationship between pricing strategies and products/services. This chapter aims to provide the reader with a comparison of the results against the theoretical premise presented in literature review of Chapter 2.

5.2 Discussion pertaining to the dominant pricing strategies used by veterinarians

The objective of this section is to discuss the results of the survey with regards to the dominant pricing strategies used by veterinarians as analysed using Stacey's distribution fit algorithm.

5.2.1 *General overview of results*

The survey results, based on Stacey's distribution fitting algorithm as discussed in Chapter 4, demonstrated the level of agreement that veterinarians felt were the most frequently used general long-term pricing strategies. The results presented in Table 7 and Figure 21 reveal that the highest ranking, most important and dominant pricing strategy used by veterinarians was cost-plus pricing. Cost-plus pricing is described as the practice of veterinarians marking-up their products by a standard percentage in order to cover their costs and ensure an adequate level of return (Brennan et al., 2007). This strategy was aligned with the findings of the authors in the literature review whereby cost-plus pricing was the dominant strategy used across a multitude of industry sectors (Avlonitis & Indounas, 2006; Baguley, 2009; Fabiani et al., 2006; Greenslade & Parker, 2010; Heinke, 2010; Hinterhuber, 2004; Kohli & Suri, 2011; Kotler & Keller, 2012; Lloyd et al., 2001; Schindehutte & Morris, 2001; Shipley & Jobber, 2001).

In addition, the results of the survey revealed that veterinarians underestimate the importance of the customer's perception of value (demand-based pricing) and disregard competitor pricing strategies. Thus, there is not an equal consideration of the 3 C's associated with pricing as discussed during the literature review.

5.2.2 *Business implications of these results*

Cost-plus pricing has been shown to be particularly important within a small business (Siems et al., 2012) as well a retail context (Fabiani et al., 2006; Greenslade & Parker, 2010; Maharaj, 2013). It is highly objective, easy to use, implement and adjust with fluctuations in supplier prices and consumer demand.

Similar to the findings by Morris and Calantone (1990) as well as Brennan et al. (2007), a major advantage of this pricing method is that it ensures that the unit costs are covered while providing the illusion of security for the veterinarian that an adequate return will be obtained. Based on the researcher's personal experience and interaction with colleagues, a standard mark-up of 30-200% is applied to pet food, ectoparasiticides, over-the-counter medications, scheduled drugs and toys. This was similar to the findings by Lloyd et al. (2001) for sales of veterinary pharmaceutical medicines in the USA.

Another advantage of this method is that veterinarians often find it easier than other pricing strategies to implement as a standard operating procedure (SOP) within their practice. This correlates to the findings of Shipley and Jobber (2001) in that once a practice has decided upon a standard mark-up for a product range; the pricing can be left to practice managers, veterinary nurses and receptionists to implement. This frees up a practice owner/manager to focus on other aspects of running a small business (Cant & Wiid, 2013; Siems et al., 2012; Van Scheers, 2011).

Interestingly, the research demonstrated that veterinarians do not tend to use competitive pricing strategies. The researcher believes that there may be four plausible explanations for this:

- Given that veterinary practices purchase their inventory items from the same few veterinary wholesale distributors, each charging very similar prices for their stock, veterinarians tend to set comparative retail prices and

price competition is reduced (Kotler & Keller, 2012). This contrasts to the opinion of Morris and Calantone (1990) whereby they argued that adding a standard mark-up would result in prices that are either too high or too low when compared to competitor practices. Siems et al. (2012) believe that this is rather related to the fact that veterinarians consciously set equal prices to one another. This was supported by Brennan et al. (2007) who found this pricing strategy to be predominately used in monopolistic competitive markets whereby each practice is an independent price setter.

- The level of competition in the South African veterinary market is lower than that experienced in other global markets. As a result, veterinarians do not make frequent use of competitive pricing strategies. This would correlate with the findings by Fabiani et al. (2006) who found that as the competitive environment intensified, there was an increase in use of competitive pricing strategies. This is supported by the findings in veterinary markets of the USA and Australia (Liozu & Hinterhuber, 2013; Lloyd et al., 2001; Baguley, 2009). Although this may be true of direct competitors, veterinarians will need to consider the growing e-commerce field whereby lower mark-ups on highly-shopped products could have a strong influence on the margins and demand for various veterinary-exclusive products (Henry et al., 2016; Henry & Treanor, 2012).
- For many general private practices in South Africa, they offer similar products and services. As a result, due to the lack of differentiation and competitive advantage, cost-plus pricing is the dominant pricing strategy used (Siems et al., 2012).
- The history of the South African veterinary profession being found guilty of price fixing may have created a taboo around speaking about competitive pricing strategies. As a result, its possible that veterinarians are avoiding discussing prices or the fact that they investigate what other veterinary practices are charging.

Lastly, value-based pricing is limited for a veterinary private practice due to the lack of information and market research abilities. This is similar to the findings of Siems et al. (2012) of other small businesses in South Africa and Liozu and Hinterhuber (2013) in

that veterinary practices are thus likely to charge prices lower than what customers may actually have been willing to pay, leading to suboptimal profitability for the practice.

5.2.3 *Conclusion to the dominant pricing strategies used by veterinarians*

Based on the results and the interpretation of the survey, we are able to conclude that cost-plus pricing is the dominant pricing strategy used by veterinarians. In addition, it is evident that a variety of factors impact this decision within the veterinary industry. Given the importance of considering cost, competitors and customers in the pricing process, the researcher is in agreement with Siems et al. (2012) in that effective pricing can only work within the veterinary profession long-term if consideration is given to all three factors. These together enable the veterinarian to decide on the best pricing strategy to achieve the overall pricing objectives, marketing and business strategies.

5.3 Discussion pertaining to the differences between the pricing strategies used for products and services

The objective of this section is to discuss the differences between the pricing strategies used for various products and services offered by veterinarians as analysed using Correspondence Analysis. The perceptual map, originally shown in Figure 22, is repeated in Figure 23 below to serve as a reference for the reader.

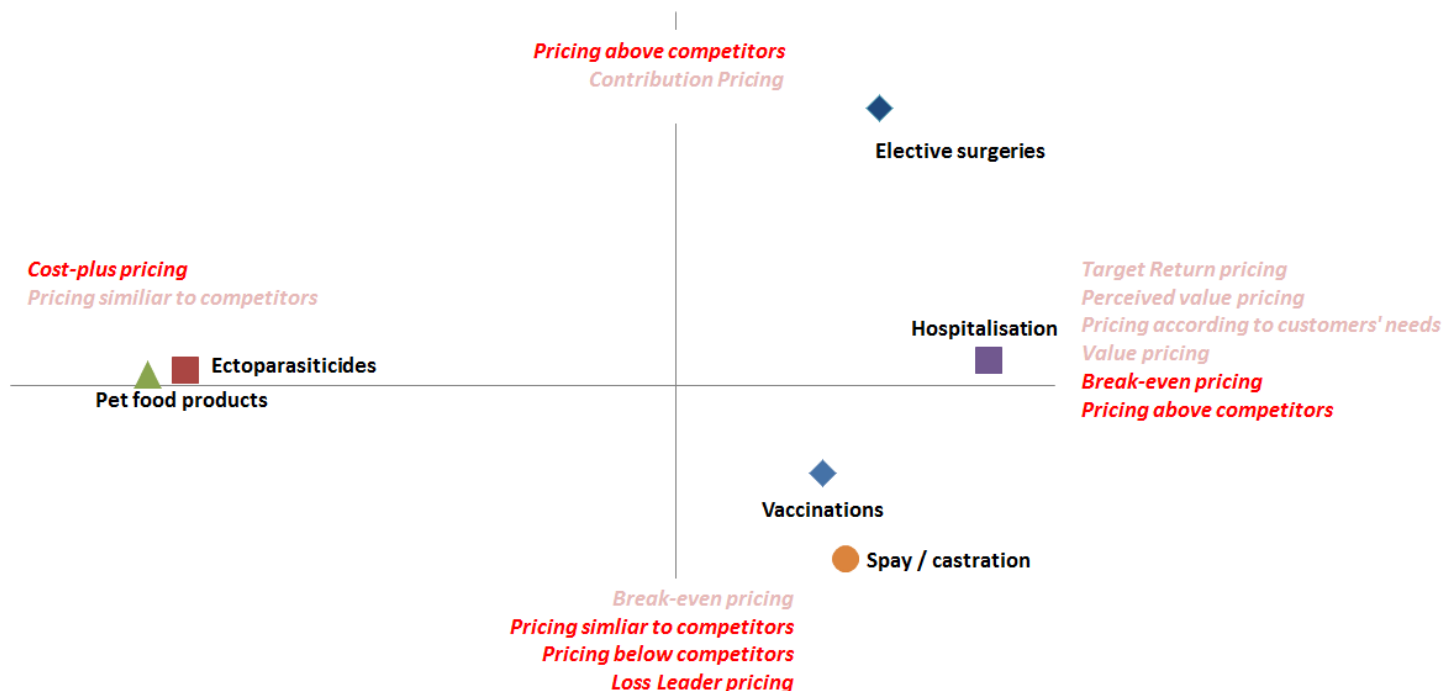


Figure 23: Correspondence Analysis plot

5.3.1 Top-left Quadrant: Ectoparasiticides and pet-food

Two frequently purchased items, ectoparasiticides and pet food, are located in the top-left quadrant of the perceptual map. Both have strong negative x-axis values and slightly positive y-axis values. Due to their close proximity with one another and the x-axis, one can imply a reasonable degree of correlation between these two as well as cost-plus pricing. On further examination of the perceptual map, one can also imply that these two categories of products are not correlated with either competitive or value-pricing strategies. Thus, it is evident that ectoparasiticides and pet food are being priced using the traditional approach of the profession, cost-plus pricing.

This correlation makes intuitive sense based on the following characteristics of these categories:

- Ectoparasiticides and petfood were selected for purposes of this dissertation as they are generally non-prescription, over-the-counter products that customers tend to purchase on a monthly basis.

- Both are inventory items whereby the costs and standard mark-ups are easily calculated and implemented.
- These tend to be veterinary-exclusive products i.e. sold only to registered veterinarians through veterinary wholesale distributors. This exclusivity has served as one of the barriers to entry for indirect competitors and enabled the profession to protect their margins on these products.

Given that ectoparasiticides and pet food are sold as a retail function within the veterinary industry, the finding that cost-plus pricing is the dominant pricing strategy is similar to dominant pricing strategy found in other retail sectors in South Africa (Maharaj, 2013) and globally (Fabiani et al., 2006; Greenslade & Parker, 2010).

Although cost-plus pricing has been a sustainable pricing strategy in the past, due to the increasingly prevalence of e-commerce stores and pet superstores being supplied with veterinary exclusive products, it is very likely that this will increase the pressure on veterinary retail sales (Lin & Brian, 1999; Baguley, 2009). As a result, if veterinarians continue to focus exclusively on cost-plus pricing, it could result price wars and declining profit margins. In order to stay competitive in the future, the researcher recommends that veterinarians move away from more traditional pricing strategies and find new ways to position themselves in order to remain profitable and sustainable.

5.3.2 Top-right Quadrant: Elective surgeries and hospitalisation

This quadrant is defined predominately by *pricing above competitors* and *break-even pricing*, while to a lesser extent *value-pricing*, *pricing according to customer's needs*, *perceived value pricing* and *target return pricing*. It could be perceived as being a quadrant representing premium pricing strategies.

Two categories of veterinary services fell into the quadrant. Elective surgeries, excluding sterilisations, are located quite centrally within the quadrant while hospitalisation lies relatively close to the positive pole of the x-axis. Therefore, it could be deduced that elective surgeries are correlated with premium pricing strategies while hospitalisations are correlated more with break-even pricing strategies. Each of these is discussed further below.

5.4.2.1 Elective surgeries

A non-exhaustive list of elective surgical procedures includes surgical removal of tumours, lancing and draining abscesses, surgical treatment of lacerations and the removal of urinary tract stones, just to name a few. These procedures are not always as routinely performed as sterilisation procedures.

Based on the results of the survey, elective surgeries were correlated with premium pricing strategies. This is similar to the findings by Lloyd et al. (2001) whereby veterinary practices in the USA would not typically base their surgical prices on either cost-plus pricing or that of competitive practices, but rather on the value offered to the client. In addition, they found that the more specialised the veterinary practice, the less they compared to their prices to other practices (Lloyd et al., 2001). Surgical prices were typically calculated based on the anaesthesia and surgical procedure time (which varied depending on the procedure performed), as well as predetermined fees for monitoring, surgical kits, swabs, drapes, catheters and surgical materials. Additional items such as post-operative analgesia were generally charged separately and on a cost-plus basis (Lloyd et al., 2001). Thus, even premium pricing strategies had some aspects of cost-plus pricing being included into the fee calculation.

There are a few other factors that one should take into consideration when it comes to elective surgical procedure pricing:

- More technically challenging and complicated procedures often require referral to specialist practices which typically charge premium prices for their services (Lloyd et al., 2001). This is due to the fact that they tend to provide high quality services to their clients in order to generate further referrals and maintain a solid reputation (Lloyd et al., 2001). They often strive for differentiation through quality and the value that they add enabling them to charge a premium for their services.
- The level of trust in the veterinarian's abilities is often more important than the fees associated with the procedure. Brockman et al. (2008) found that customers were willing to pay higher fees if they believed that the veterinarian had the skills to perform the procedure. This research is important for both private and specialist practices that they communicate the value of the services offered by their practice.

- The vet-owner-pet relationship can also serve as a source of competitive advantage as the veterinarian not only provides value through the services offered but also plays an emotional role for the pet owner (Brockman et al., 2008). This was similar to the findings of Coe, Adams and Bonnet (2007) who recommended that vets not only promote the value of their services but also what those services mean for the pet's health and the client's value system.

Lastly, the researcher feels that the influence of the historical SAVC "*Tariff Guidelines*" should not be discounted within the South African context. This implies that veterinarians may not necessarily be using value-based pricing strategies for surgical procedures, but rather using the old guidelines for a base price and annually adding inflationary increases to determine the current prices. This could be a possibility given the findings by Lloyd et al. (2001) whereby the majority of practices in the USA make use of this strategy for surgical procedure pricing in the USA and not the methodologies covered during the literature review.

5.4.2.2 Hospitalisation

Based on the researcher's personal experience in private practice, it was found that many customers were less willing to leave their pets overnight at the clinic if they considered the fee to be a high cost. As a result, hospitalisation fees were calculated at break-even costs whereby they would cover a portion of the after hour's service fees for a veterinary nurse/vet to monitor, kennel assistant fees, food, cleaning agents, and so forth. This correlates with position of the hospitalisation on the perceptual map with break-even pricing as well the theories put forth by Cravens and Piercy (2013), Kotler and Keller (2012), as well as Perreault and McCarthy (2002) in the literature review.

5.3.3 Bottom-right Quadrant: Vaccinations and Sterilisations

The two categories that fell into this quadrant of the perceptual map were vaccinations and sterilisations. Vaccinations were closer to the x-axis but still quite central within the quadrant implying that they are likely to be correlated with contribution pricing strategies. Sterilisations however were more likely to be associated with loss leader pricing and pricing below competitors strategies. These categories have the association of being

classified as forms of preventative medicine (Lin & Brian, 1996) which correlates with their positions within the same quadrant. Even though the pricing strategies differ for the two categories, they are both classified as cost-based pricing strategies.

5.4.2.3 Sterilisations

Sterilisation surgeries, such as spays and castrations, were found to be associated with loss leader and pricing below competitor pricing strategies. This is similar to the findings of Doherty (2015) whereby Canadian veterinary practices would price their canine spays at low prices to attract price sensitive customers as these are substitutable services and often not well differentiated between veterinary practices (Lee, 2006). The problem with this is that veterinarians were devaluing their high-quality services unnecessarily (Doherty, 2015). Veterinarians should rather teach their staff and customers the value of the services that they offer and price the procedures at a reasonable price (Doherty, 2015).

5.4.2.4 Vaccinations

Vaccinations were found to be more associated with contribution pricing strategies. These findings were similar to those of Williams (2012) whereby he found that vaccines were typically priced lower than value-added services such as elective surgeries, but above cost to compensate for the veterinarian's professional time. The revenues generated from vaccinations can be used to cross-subsidise other loss leader pricing strategies such as sterilisations (Williams, 2012). Although this is not a frequently used pricing strategy in many industries (Schlissel & Chassin, 1991), veterinarians frequently make use of this strategy due to its close similarities to cost-plus pricing. They can easily calculate the variable cost per dose through simple division calculations and then add a standard mark-up. Fixed costs are usually ignored as many vaccine manufacturers supply veterinary clinics with vaccine fridges, removing any equipment related costs. Although this is an effective strategy for veterinary practices in South Africa, veterinarians should be cautious in their approach to their preventative medicine pricing strategies. In the USA, vaccines are available directly to pet owners from non-veterinarians and deregulations in the UK have allowed veterinary vaccines to be purchased from non-

veterinary pharmacies with a prescription (Baguley, 2009). Should the same happen in South Africa, it could significantly impact this revenue stream to companion animal veterinary practices.

5.3.4 *Bottom-left Quadrant*

This last quadrant does not contain any of the categories of products or services which were assessed in the survey. However, based on the characteristics of the x and y-axes, this quadrant could be classified under competitive-pricing strategies, with pricing similar to competitive as the dominant strategy.

This quadrant is important from a validity perspective. The data gathered from the survey was analysed using two statistical techniques. Dominant long-term pricing strategies were assessed using Stacey's distribution fitting algorithm while the different products/services were analysed using correspondence analysis. Both statistical techniques testing the two different propositions gave rise to similar results. For both, cost-based pricing strategies were the dominant pricing strategies used and neither favoured the use of competitive pricing strategies. This supports the concept of triangulation, which was defined by Bryman (2012) as the use of more than one method in a social study so that the findings of the techniques could be cross-checked against one another. This method enables the reader to gain confidence in the findings of the study through supporting the validity of the two statistical techniques.

5.3.5 *Conclusion to differences between the pricing strategies used for products and services*

The second proposition aimed to find out if there were any differences between the pricing strategies used for frequently purchased products, highly shopped services and specialised services. Through the use of Correspondence Analysis, we were able to demonstrate that the pricing strategies used were not only different between the different categories, but also supported the findings from the first proposition.

5.4 Conclusion

This chapter aimed to discuss the results presented in Chapter 4 through assessing the propositions laid out in Chapter 2. Both proposition 1 and proposition 2 supported each other's findings in that cost-based pricing strategies are the predominant pricing strategies used by veterinarians to price products and services. Only elective surgeries are priced using premium pricing strategies that focus on the value delivered to the customer and no competitive pricing strategies were found.

CHAPTER 6. CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

This chapter summarises the key themes that have emerged from this research project. The chapter provides a conclusion around the pricing strategies used by veterinarians in South Africa, and thereafter provides some recommendations for the profession. The chapter is concluded with some suggestions for further research.

6.2 Conclusions of the study

Pricing plays a very important operational and strategic role for a business and has been identified as a key determinant to the success of a veterinary practice (Myers, 2004). Pricing is a tool that can be used to create and capture value (Kotler et al., 2010). Given the rapid and continuous changes experienced in global markets, veterinarians will not be immune to the effects of global recessions, industry deregulations, intensifying competition levels and changes in demand for veterinary services.

The purpose of this research was to determine the dominant pricing strategies used by veterinarians to price their products and services. The results of the survey revealed that, similar to most small businesses and the majority of service industries, cost-plus pricing is the dominant pricing strategy. Interestingly, the results also revealed that veterinarians make use of other pricing strategies for their services with premium pricing, contribution pricing and loss leader pricing being identified as important strategies. The results thus reveal that cost-based and to some extent value-based pricing strategies are currently being used. However, no competitive pricing strategies are used, as confirmed by both statistical analysis methods.

6.3 Recommendations

This study revealed some important insights that should be taken into consideration by price decision makers in the veterinary profession:

- The veterinary profession needs to recognise and respond to the changing needs and expectations of society. The historical method of relying on one predominant type of pricing strategy is no longer adequate in a highly integrated and complex market environment.
- Cost-plus pricing, as suggested by the first proposition, was found to be the dominant pricing strategy used by veterinarians. It was also found to be the pricing strategy associated with frequently purchased products such as ectoparasiticides and pet foods. Although this is the simplest and most intuitive pricing strategy, one needs to be aware of the limitations of this pricing strategy prior to setting and/or reviewing prices.
- Despite the fact that competition is intensifying within the profession, price decision makers are not taking competitive pricing strategies into consideration. Direct competition is expected to increase with the number and accessibility of companion animal veterinary practices expanding locally (Kogan, McConnell, & Schoenfeld-Tacher, 2005). Indirect competition from other avenues such as e-commerce and retail stores is expected to increase in the near future, all of which will siphon business away from the traditional veterinary channel (Kogan et al., 2005). Local competitive pressure is not always disadvantageous to a veterinary practice as Porter described in the 1980's. It provides an opportunity to develop new competitive advantages, achieve greater efficiencies of operation and find ways to market the practice accordingly to stimulate growth (Kotler & Keller, 2012; Lee, 2006; Stowe, 1999). Practices can then focus on increasing the perceived value that a customer associates with the services provided, which can lead to value-based pricing. It is well recognised that veterinary expertise have long been under-marketed and under-valued (Henry et al., 2016)
- Value-based pricing needs to be a balance between the demand requirements of the market and the high quality delivery of technical and functional veterinary services from the practice. It should also be aligned with the changing vet-owner-

pet relationships and the increasing propensity of customers to spend more on high quality veterinary services (Baguley, 2009). It is through correct pricing that veterinary hospitals can continue to be industry leaders with regards to excellent care and service, as well as maintain a sustainable, healthy economic status (Lloyd et al., 2001).

- In order to move towards a more value-based pricing structure, veterinarians will need to implement pricing strategies in a systematic manner. This dissertation aimed to provide a structured, systematic approach that veterinarians could potentially use. This integrated approach should combine cost, competitor and customer pricing strategies as one should not view them as mutually exclusive pricing strategies.
- To effectively implement pricing strategies, practice managers and owners need to find time to engage with employees on the financial aspects of running a practice. This should include cost structures, discussions around the fairness of fees charged and the importance of correctly charging customers for the services conducted (Heinke, 2010). Heinke (2010) believes that veterinarians need to have a mind shift from the unintended charitable mentality to one that acknowledges that a practice needs to remain profitable for its success as well as that of its employees (Heinke, 2010).
- Lastly, it is recommended that business management skills are developed within the veterinary profession. This should include introducing business management courses into the veterinary undergraduate programme, as well as CE courses for qualified veterinarians run through various veterinary associations. The focus of these courses should be on developing business skills, negotiation skills, marketing and pricing skills to ensure that veterinary practices can remain competitive (Henry & Treanor, 2010).

6.4 Suggestions for further research

The study of the dominant pricing strategies used in the South African veterinary industry is a relatively new field in South Africa, and there are many additional studies which

could be conducted. The following were identified as important areas of future research for the veterinary industry with regards to pricing:

- Given the dynamic and diversified nature of the veterinary profession (Lin & Brian, 1996), a comparative study could be conducted to determine the dominant pricing strategies in other sectors of the veterinary industry such as production animals, avian and exotics. These could be compared with pricing strategies found within the companion animal sector and together develop a more comprehensive overview of the entire industry.
- A comparative study could be conducted to investigate the type of pricing strategies used for various products/services and their influence on the overall profitability of veterinary practices (Cron et al., 2000; Liozu & Hinterhuber, 2013).
- Defining a veterinary practice's pricing objectives is the first step of the pricing process (Shipley & Jobber, 2001). A study could be conducted to investigate the various pricing objectives (qualitative and quantitative) used by companion animal veterinarians in private practice, state work, welfare and specialist practices. In addition, veterinarians could be surveyed to find out how frequently these objectives are reviewed and adjusted (Monroe & Cox, 2001; Schindehutte & Morris, 2001; Shipley & Jobber, 2001).
- The second step of the pricing process involves assessing the various internal and external factors that influence the pricing decisions made by veterinarians. A study could be conducted based on the 3C's pricing analysis framework presented within the literature review (Avlonitis & Indounas, 2006). Through understanding the factors that influence the pricing process, suggestions can be made as to how veterinarians can leverage various opportunities within the market.
- Price elasticities will have a direct effect on the pricing strategies chosen by veterinarians for various products/services and influence the overall revenues generated by a practice. Limited research is available on price elasticities within the veterinary profession, with most demonstrating an inelastic demand for veterinary services (Daneshvary & Schwer, 2011; House & Associates, 1992, 1995; Johnson & Kilkenny, 2014; Knippenberg, 2014; Lloyd et al., 2001). A study

could be conducted to determine these elasticities within the South African context and then compared with the findings in international markets.

- Lloyd et al. (2001) found that many companion animal veterinarians in the USA review and adjust their prices once per annum. A study could be conducted to assess how frequently veterinarians review their prices as well as the factors that influence price adjustments. In addition, it is recommended that the researcher assess the extent to which the historical SAVC pricing tariffs are still being used as a benchmark within the profession for pricing services.
- A study could be conducted on the influence of geographical location on veterinary pricing (Catanzaro & Seibert, 2000). This could include aspects such as differences in macroeconomic/microeconomic factors, cost structure differences, environmental influences (eg. disease epidemiology), and differences in regional marketing practices.
- Pricing tactics, such as discounting, affects the overall revenue of a veterinary practice (Kogan et al., 2015). There are a variety of reasons that veterinarians make use of these pricing tactics including philanthropic work, marketing and promotional tools, and charity work (Appelkvitz, 2012; Kogan et al., 2015). A study could be conducted to investigate the extent to which South African veterinarians make use of pricing tactics, the reasoning behind their use and a comparison could be done between the tactics used for products and services. In addition, the effect of these pricing tactics on the practice's overall revenue could also be assessed.
- Lastly, research could be conducted on the influence and importance that price has on the consumers of veterinary services. Limited studies provide feedback from the consumers' perspective with regards to the value pet owners place on the services provided by veterinarians, the prices charged for products/services, and the importance of providing feedback to the veterinary practice (House & Associates, 1992, 1995; Lloyd et al., 2001). These considerations are important for practicing veterinarians particularly in today's era of mass media and mass consumerism, both of which have increased the demands and expectations that consumers have on veterinarians (Neuberger, 2000). Brown and Silverman (1999) stated that the veterinary profession requires an understanding and acceptance of the changing needs and expectations of society in order to remain viable.

The following were identified as important areas of future research for the veterinary industry in general:

- Within the small business and entrepreneurship context, gender differences appear to play a major role in academic literature (Appelkvist, 2011; Lowe, 2009; Henry et al., 2016; Henry & Treanor, 2012). Although not a focus of this research, a study could be done to investigate gender differences within the veterinary industry and the effect it has on the changing nature of the profession. A recommended topic could be to focus on the feminisation of the veterinary industry and its influence on business ownership and entrepreneurship (Appelkvist, 2011; Henry & Treanor, 2012).
- It is evident that business skills have long been neglected by the veterinary profession and in today's highly competitive business environment, having only strong technical skills will not suffice (Cron et al., 2000; Henry et al., 2016; Kogan et al., 2015). Veterinarians are often not knowledgeable on the different pricing strategies available and how they can be effectively leveraged (Kohli & Suri, 2011). A study should be conducted to identify which business skills and capabilities veterinarians are perceived to lack. It is recommended that these are incorporated into a suitable model or plan that could address this deficiency within the profession.
- A study could be conducted on how veterinarians could effectively implement a health promotion programme given the changing protocols of vaccinations and sterilisations. Programmes could be based on value-added services such as grooming parlours, kennelling facilities, mobile home visits, pick-up and delivery services, loyalty programmes and puppy/kitten health programmes (Lloyd et al., 2001). Given the highly competitive veterinary environment, veterinarians will need to regularly review and update their services according to market demand. In addition to this investigation, the pricing strategies associated with these health promotion programmes should be considered (Lloyd et al., 2001).

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Appendix A: Research Instrument

Pricing strategies within the South African veterinary industry

Principal Investigator – Dr Lauren Geraty

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Research supervisor – Prof Anthony Stacey

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Informed Consent Form

Dear Veterinary Colleague,

You are being asked to please participate in a research study being conducted for the purposes of fulfilling the requirements of an MBA degree. This research is on the pricing strategies currently being used by South African veterinarians in small animal or mixed practices, as well as vetshops. The objective is to determine which are the dominant pricing strategies used. The survey consists of 3 sections and should take **approximately 6 minutes** to complete.

Risks/Discomforts

Risks are no known risks associated with your participation in this study.

Benefits

There are no direct benefits for participants however if you would like to be entered into the competition to **win R1500 Woolworth's gift voucher** or would like to receive an **Executive Summary** of the research findings, please provide an email

address at the end of the survey.

Confidentiality

Your participation in this survey is voluntary and you may withdraw at any time. All information provided by you will be kept confidential and analysed at an aggregated level.

The data collected will be stored in the HIPPA-compliant, Qualtrics-secure database until it has been deleted by the primary investigator.

Queries

If you have further questions about this research project, please contact:

Dr Lauren Geraty at e-mail: 1258008@students.wits.ac.za or 082 656 7794

or Prof. Anthony Stacey at e-mail: Anthony.Stacey@wits.ac.za.

Thank you in advance for your participation.

I have read the above and agree to continue with the survey

☐ Agree

When taking the survey, you navigate using the arrows at the bottom of the screen.

Section A: General information

Please state the number of years of experience you have in practice or within the veterinary industry?

Are you the owner of this business?

- ☐ Yes
- ☐ No

Are you the Practice Manager or have a Management role?

- ☐ Yes
- ☐ No

If you answered no to both these questions, please complete your role:

Which type of practice or vetshop are you in? (select as many as applicable)

- ☐ Private practice
- ☐ Specialist practice
- ☐ Welfare
- ☐ Vetshop(s)
- ☐ Vetshop chain only

Section B: Pricing Strategies

Please rate the extent of your agreement with each of the following statements regarding the general long-term pricing strategies used for your veterinary practice and/or vetshop. These are all different forms of pricing strategies and you are required to state your agreement **per row**.

	Strongly disagree	Moderately disagree	Slightly disagree	Neutral	Slightly agree	Moderately agree	Strongly agree
Cost-plus method We calculate the unit costs then add a standard mark-up.							
Break-even pricing We establish the unit price in a way that allows us to recover our costs.							
Target-return pricing We establish the unit price based on what return we would like to make on it.							
We set our prices similar to that of our competitors							
Contribution pricing We calculate the variable costs only per unit then add a mark up.							
Perceived value pricing We set our prices based on what customers believe							

the product/service is worth.							
Marginal pricing We set the price to only cover marginal costs but not make a profit.							
Loss leader pricing We charge a heavily discounted price for a product/service in order to draw customers to our practice.							
We set our prices below to that of our competitors							
Value pricing We set a fairly low price for a high quality offering with the aim of providing "value for money"							
Pricing accordingly to our customer's needs We set prices as best as possible to meet customer's satisfaction							
We set our prices above to that of our competitors							

Section C: Pricing Strategies (Conditional Questions)

If the participant had indicated that they work in private practice, specialist practice, welfare practices and/or also owned a vetshop, then they were asked to complete the following matrix table.

In the following table, please indicate in the tick box the pricing strategies (in the rows) associated with the various highly-shopped services, products and speciality services (in the columns). You may select as many as are applicable **per column**.

The pricing strategy descriptions are provided again below the matrix.

	Spay or castration	Vaccinations	Ectoparasiticides	Pet food products	Hospitalisation	Elective surgeries
Cost-plus method						
Break-even analysis						
Target-return pricing						
Contribution pricing						
Marginal pricing						
Loss leader pricing						
Pricing similar to competitors						
Pricing below competitors						
Pricing above competitors						
Perceived value pricing						
Value pricing						
Pricing according to our customer's needs						

Cost-plus pricing: we calculate the unit cost then add a standard mark-up.
Break-even pricing: we establish the unit price in a way that allows us to recover our costs.
Target-return pricing: we establish the unit price based on what return we would like to make on it.
Contribution pricing: we calculate the variable costs only per unit then add a mark-up.
Marginal pricing: we set the price to only cover marginal costs but not make a profit.
Loss leader pricing: we charge a heavily discounted price (possibly even a loss) for a product/service in order to draw customers to our practice and try make up for the loss with sales of other products/services.
Perceived value pricing: we set our prices on what customers believe the product/service is worth.
Value pricing: we set a fairly low price for a high quality offering with the aim of providing “value for money”.
Pricing according to the customer’s needs: we set prices as best as possible to meet customers’ satisfaction.

If the participant had indicated that they only owned a vetshop chain, then they were asked to complete the following matrix table:

In the following table, please indicate in the tick box the pricing strategies (in the rows) associated with the various highly-shopped services, products and speciality services (in the columns). You may select as many as are applicable **per column**.

The pricing strategy descriptions are provided again below the matrix.

	Ectoparasiticides	Pet food products
Cost-plus method		
Break-even analysis		
Target-return pricing		
Contribution pricing		
Marginal pricing		
Loss leader pricing		
Pricing similar to competitors		
Pricing below competitors		
Pricing above competitors		
Perceived value pricing		
Value pricing		
Pricing according to our customer’s needs		

Cost-plus pricing: we calculate the unit cost then add a standard mark-up.
Break-even pricing: we establish the unit price in a way that allows us to recover our costs.
Target-return pricing: we establish the unit price based on what return we would like to make on it.
Contribution pricing: we calculate the variable costs only per unit then add a mark-up.
Marginal pricing: we set the price to only cover marginal costs but not make a profit.
Loss leader pricing: we charge a heavily discounted price (possibly even a loss) for a product/service in order to draw customers to our practice and try make up for the loss with sales of other products/services.
Perceived value pricing: we set our prices on what customers believe the product/service is worth.
Value pricing: we set a fairly low price for a high quality offering with the aim of providing “value for money”.
Pricing according to the customer’s needs: we set prices as best as possible to meet customers’ satisfaction.

Section D: Competition and Executive Summary

Please provide your email address if you would like to enter the competition to win a R1500 Woolworth’s gift voucher

Please indicate if you would also like to receive an Executive Summary of the survey after completion of the dissertation.

- ☐ Yes
- ☐ No

Appendix B: Survey results and Distribution Fit Algorithm

Table 9: Respondents' managerial roles

Classification	Frequency of observations	% of total
No	27	34%
Yes	52	66%

Table 10: Respondent's non-managerial roles

Category	Number of respondents	Percentage
No answer provided	4	15%
Assisant veterinarian	21	78%
Kennel hand	1	4%
State vet	1	4%
Total	27	100%

Table 11: Tabulation of observed and expected responses and distribution parameters

	Cost-plus method	Break- even analysis	Target-return pricing	Contribution pricing	Marginal pricing	Loss leader pricing	Pricing similar to competitors	Pricing below competitors	Pricing above competitors	Perceived value pricing	Value pricing	Pricing according to our customer's needs
Observed frequencies												
Strongly disagree	2	18	21	8	15	18	48	34	37	23	5	18
Moderately disagree	2	10	3	6	5	13	11	12	10	14	9	11
Slightly disagree	1	2	3	6	10	11	6	6	6	8	5	7
Neutral	4	9	18	8	24	7	2	8	9	7	8	20
Slightly agree	4	17	15	21	13	12	2	6	8	11	19	11
Moderately agree	25	11	13	19	7	13	2	7	2	9	17	5
Strongly agree	38	9	3	8	2	2	3	1	2	2	11	2
n =	76	76	76	76	76	76	74	74	74	74	74	74
Distribution parameters												
$\mu =$	1.01	-0.16	-0.28	0.12	-0.29	-0.34	-1.24	-0.78	-0.86	-0.49	0.18	-0.40
$\sigma^2 =$	0.79	0.93	0.64	0.55	0.37	0.56	1.28	0.77	0.82	0.63	0.58	0.44
Ranking	1	4	5	3	6	7	12	10	11	9	2	8
Expected frequencies												
Strongly disagree	1.3	17.3	17.5	6.9	13.0	18.0	46.5	33.9	36.7	23.4	6.3	17.4
Moderately disagree	1.6	8.4	10.2	6.9	12.3	11.2	7.4	10.5	10.1	11.2	6.2	12.5
Slightly disagree	1.6	5.7	7.0	5.7	9.0	7.5	3.9	6.0	5.6	7.0	5.2	8.4
Neutral	4.6	10.6	12.6	12.5	16.3	13.3	5.8	9.1	8.4	11.6	11.5	14.3

	Cost-plus method	Break-even analysis	Target-return pricing	Contribution pricing	Marginal pricing	Loss leader pricing	Pricing similar to competitors	Pricing below competitors	Pricing above competitors	Perceived value pricing	Value pricing	Pricing according to our customer's needs
Slightly agree	9.3	12.5	13.5	17.1	15.4	13.4	5.0	7.8	7.1	11.0	16.1	12.9
Moderately agree	19.6	13.1	11.2	18.4	8.7	9.8	3.8	5.2	4.7	7.7	18.7	7.4
Strongly agree	37.9	8.5	4.1	8.5	1.2	2.7	1.7	1.5	1.4	2.1	10.1	1.2
χ^2 contributions												
Strongly disagree	0.4093	0.0253	0.7063	0.1813	0.2998	0.0001	0.0513	0.0002	0.0029	0.0059	0.2501	0.0239
Moderately disagree	0.0780	0.3182	5.1155	0.1125	4.2948	0.3037	1.7842	0.2158	0.0012	0.7052	1.3059	0.1706
Slightly disagree	0.2465	2.3849	2.2656	0.0136	0.1030	1.5769	1.1163	0.0003	0.0264	0.1331	0.0047	0.2420
Neutral	0.0683	0.2308	2.3350	1.6333	3.6005	2.9803	2.4490	0.1245	0.0449	1.8410	1.0432	2.2753
Slightly agree	3.0331	1.6541	0.1774	0.9148	0.3796	0.1453	1.8216	0.4279	0.1094	0.0002	0.5036	0.2743
Moderately agree	1.4617	0.3351	0.2850	0.0200	0.3349	1.0079	0.8403	0.6104	1.5487	0.2266	0.1530	0.7675
Strongly agree	0.0001	0.0298	0.2745	0.0353	0.4863	0.1914	0.9989	0.1824	0.2594	0.0100	0.0739	0.5286
63.2046	5.2971	4.9782	11.1593	2.9109	9.4989	6.2056	9.0616	1.5615	1.9929	2.9221	3.3343	4.2822
"Solver" parameters												
	τ_1	τ_2	τ_3	τ_4	τ_5	τ_6						
Thresholds	-0.87	-0.56	-0.37	-0.03	0.39	1.01						
Means	0.8285	0.1285	-0.2299	0.0950	0.2407	0.2761	-1.0169	-0.6397	-0.7071	-0.4034	0.1455	-0.3244
Variances	0.5279	0.6204	0.4318	0.3671	0.2502	0.3771	0.8559	0.5189	0.5477	0.4234	0.3915	0.2915
To prevent division by zero:												
Sample size, n =	69				0							
Hypothesis tests												
t-value	9.94	-1.42	-3.05	1.37	-4.19	-3.92	-9.46	-7.64	-8.22	-5.33	2.00	-5.17
p-value	0.0000	0.1592	0.0032	0.1759	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0492	0.0000

	Cost-plus method	Break- even analysis	Target-return pricing	Contribution pricing	Marginal pricing	Loss leader pricing	Pricing similar to competitors	Pricing below competitors	Pricing above competitors	Perceived value pricing	Value pricing	Pricing according to our customer's needs
	1	4	5	3	6	7	12	10	11	9	2	8
Rescaling of values												
"Expected value" within category:												
	-	-			-	-					-	
Strongly disagree	1.1932	1.4324	-1.3410	-1.2178	1.2015	1.3146	-1.9240	-1.5440	-1.5921	-1.3884	1.2243	-1.2600
Moderately disagree	-	-			-	-					-	
	0.6984	0.7114	-0.7108	-0.7039	0.7071	0.7108	-0.7198	-0.7171	-0.7179	-0.7135	0.7038	-0.7103
	-	-			-	-					-	
Slightly disagree	0.4580	0.4626	-0.4628	-0.4605	0.4623	0.4630	-0.4655	-0.4649	-0.4651	-0.4638	0.4604	-0.4632
	-	-			-	-					-	
Neutral	0.1855	0.1995	-0.2011	-0.1945	0.2023	0.2023	-0.2077	-0.2070	-0.2076	-0.2043	0.1939	-0.2042
Slightly agree	0.1961	0.1751	0.1699	0.1788	0.1619	0.1670	0.1640	0.1622	0.1617	0.1648	0.1805	0.1611
Moderately agree	0.7158	0.6740	0.6558	0.6699	0.6236	0.6463	0.6555	0.6440	0.6439	0.6449	0.6752	0.6272
Strongly agree	1.7222	1.4809	1.3536	1.3737	1.2331	1.3125	1.4369	1.3390	1.3442	1.3210	1.4021	1.2507
Squared differences from the mean:												
Strongly disagree	4.8651	1.6265	1.1237	1.7792	0.8233	0.9548	0.4641	0.5809	0.5299	0.8018	1.9660	0.7459
Moderately disagree	2.9271	0.3074	0.1848	0.6724	0.1706	0.1394	0.2734	0.0042	0.0214	0.0486	0.7773	0.0986
Slightly disagree	2.1623	0.0934	0.0331	0.3324	0.0283	0.0158	0.6041	0.1004	0.1592	0.0008	0.4073	0.0045
Neutral	1.4351	0.0018	0.0064	0.0965	0.0084	0.0183	1.0713	0.3303	0.4311	0.0833	0.1382	0.0369
Slightly agree	0.6664	0.1103	0.2033	0.0039	0.2080	0.2544	1.9788	0.8911	1.0523	0.4326	0.0000	0.3108
Moderately agree	0.0880	0.6906	0.8776	0.3067	0.8423	0.9678	3.6031	2.0328	2.2743	1.2947	0.2474	1.0478
Strongly agree	0.5037	2.6827	2.6718	1.5817	2.3326	2.7222	7.1802	4.4976	4.8768	3.2904	1.4988	2.7129
Variance with Discretisation Error:												
	0.6334	0.8491	0.5956	0.5160	0.3501	0.5195	0.9172	0.6458	0.6642	0.5676	0.5483	0.4018
Rescaled values												

	Cost-plus method	Break- even analysis	Target-return pricing	Contribution pricing	Marginal pricing	Loss leader pricing	Pricing similar to competitors	Pricing below competitors	Pricing above competitors	Perceived value pricing	Value pricing	Pricing according to our customer's needs
Strongly disagree	-1.45	-1.49	-1.38	-1.26	-1.23	-1.35	-2.05	-1.62	-1.67	-1.44	-1.27	-1.30
Moderately disagree	-0.90	-0.74	-0.73	-0.73	-0.72	-0.73	-0.63	-0.71	-0.70	-0.73	-0.73	-0.72
Slightly disagree	-0.63	-0.48	-0.47	-0.48	-0.47	-0.47	-0.33	-0.43	-0.42	-0.46	-0.48	-0.47
Neutral	-0.32	-0.20	-0.20	-0.20	-0.20	-0.20	-0.02	-0.15	-0.14	-0.19	-0.21	-0.20
Slightly agree	0.10	0.19	0.19	0.18	0.18	0.19	0.42	0.25	0.27	0.20	0.18	0.18
Moderately agree	0.68	0.71	0.69	0.69	0.65	0.69	1.00	0.78	0.81	0.71	0.69	0.67
Strongly agree	1.80	1.55	1.42	1.41	1.28	1.38	1.92	1.54	1.59	1.42	1.44	1.32

Appendix C: Correspondence Analysis Results

Table 12: Frequency of responses for the different pricing strategies

	Spay or castration	Vaccinations	Ectoparasiticides	Pet food	Hospitalisation	Elective surgeries	Total
Cost-plus method	16	17	49	50	7	15	154
Break-even analysis	15	10	2	3	16	7	53
Target-return pricing	12	18	7	4	17	15	73
Contribution pricing	6	7	4	4	7	8	36
Marginal pricing	7	2	2	4	3	3	21
Loss leader pricing	5	2	3	1	3	0	14
Pricing similar to competitors	21	19	14	17	8	10	89
Pricing below competitors	8	10	3	2	3	4	30
Pricing above competitors	6	3	1	1	5	9	25
Perceived value pricing	15	13	4	6	15	15	68
Value pricing	12	10	4	1	7	12	46
Pricing according to our customers' needs	19	18	4	4	12	15	72
Total	142	129	97	97	103	113	681

Table 13: Pricing strategies that define the horizontal and vertical axes

Pricing Strategy	Mass	Score in Dimension		Inertia
		1	2	
Cost-plus method	0.226	-1.162	0.151	0.15
Break-even analysis	0.078	0.671	-0.384	0.025
Target-return pricing	0.107	0.465	0.251	0.019
Contribution pricing	0.053	0.227	0.41	0.003
Marginal pricing	0.031	-0.01	-0.365	0.005
Loss leader pricing	0.021	0.03	-1.193	0.008
Pricing similar to competitors	0.131	-0.246	-0.406	0.009
Pricing below competitors	0.044	0.31	-0.626	0.011
Pricing above competitors	0.037	0.692	0.958	0.016
Perceived value pricing	0.1	0.47	0.23	0.009
Value pricing	0.068	0.555	0.228	0.014
Pricing according to our customer's needs	0.106	0.54	-0.093	0.016
Active Total	1			0.286

Table 14: Correspondence Analysis results per category

Overview Column Pointsa			
Service	Mass	Score in Dimension	
		1	2
Spay / castration	0.209	0.359	-0.466
Vaccinations	0.189	0.311	-0.237
Ectoparasiticides	0.142	-1.03	0.039
Pet food products	0.142	-1.112	0.029
Hospitalisation	0.151	0.661	0.063
Elective surgeries	0.166	0.431	0.74
Active Total	1		