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INSTITUTO UNIVERSITÁRIO DE LISBOA

# Characterization of Competitive Strategies and Identification of Purchase Drivers in the Fuel Retail Market in Portugal

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Master's in Management

Supervisor: PhD Daniela Langaro, Assistant Professor, ISCTE-IUL

September, 2021



BUSINESS SCHOOL

Department of Management

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#### Abstract

In the last years, the fuel market in Portugal has undergone several changes such as market liberalization, increased competition, difficulty in differentiating a similar offer and the appearance of low-price operators. Due to these changes and the fact that there is no existing literature on this industry, it became important to make an analysis of the fuel market in Portugal.

Therefore, this dissertation intends to identify the competitive strategies that are present in the Portuguese fuel market and to analyse its behaviour. Besides, the main competitive factors of consumer preference for each of the competitive strategies will also be analysed.

For this purpose, two studies will be carried out in this dissertation. The first study will be based on secondary data collected from institutes that regulate the fuel market and from an interview with a market specialist. The second study will be based on primary data collected from a consumer questionnaire.

The results suggest that there are two strategies in the fuel market. The Cost Leadership Strategy, used by Low-Cost companies and Hypermarkets, where price is their main competitive trigger of consumer preference (*less for much less* value proposition). And the Differentiation Strategy used by Branded Companies, in which service attributes are the main competitive trigger of consumer preference (*more for more* value proposition). Regarding the performance of the different strategies, the results indicate that companies that use a *more for more* value proposition have a better performance.

**Keywords:** Fuel retail market, competitive strategies, purchase drivers, value proposition, pricing strategies.

JEL Classification: L10, M10.

#### Sumário

Nos últimos anos, o mercado dos combustíveis em Portugal sofreu diversas alterações tais como a liberalização do mercado, o aumento da competição, a dificuldade em diferenciar uma oferta similar e o aparecimento de operadores com preços baixos. Devido a estas alterações e o facto de não haver literatura existente sobre esta indústria, tornou-se importante fazer uma análise do mercado de combustíveis em Portugal.

Sendo assim, esta dissertação, pretende identificar as estratégias competitivas que estão presentes no mercado de combustíveis português e analisar o seu comportamento. Para além disto, serão também analisados os principais fatores competitivos de preferência dos consumidores para cada uma das estratégias competitivas.

Para este efeito, serão realizados dois estudos nesta dissertação. O primeiro estudo será baseado em dados secundários recolhidos de institutos que regulam a área dos combustíveis e de uma entrevista com um especialista do mercado. O segundo estudo será baseado em dados primários recolhidos num questionário feito aos consumidores.

Os resultados sugerem que existem duas estratégias no mercado dos combustíveis. A Estratégia de Liderança de Custos, utilizada por empresas Low-Cost e Hipermercados, sendo o preço o seu principal fator competitivo de preferência dos consumidores (*less for much less value proposition*). E a Estratégia de Diferenciação utilizada pelas Branded Companies, no qual os serviços adicionais são o principal fator competitivo de preferência dos consumidores (*more for more value proposition*). Em relação à performance das diferentes estratégias, os resultados indicam que as empresas que utilizam uma *more for more value proposition* tem uma melhor performance.

**Palavras-chave:** *Mercado retalhista de combustíveis, estratégias competitivas, fatores de compra, proposta de valor, estratégias de preços.* 

Código de Classificação JEL: L10, M10.

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#### Introduction

I

The discovery of oil took place in the 19th century and since then there have been significant shifts in the sector, including cycles of prosperity and periods of global recession (Ali, 2019). Currently, several studies indicate that the oil industry is coming to an end, because of alternative energy sources (Penn, 2021). Technological developments such as photovoltaics and electric vehicles are challenging the oil markets.

One example of shifts in the sector is that previously, retail market prices were set freely up to price maximums set by the government, that is, all companies operating in this market had a price ceiling that they could not go beyond (Bello & Cavero, 2008; Maxim, 2020). The market consisted of operators who differentiated themselves by their location and customer service strategies.

It was only in January 2004 that the petroleum retail market was liberalized due to regulatory changes, establishing a new age for the sector (Domingos, 2003). From that point on, businesses were free to set their own prices. Consequently, there was a significant increase in operator rivalry (Maxim, 2020). Furthermore, emerging brands entered the industry with low-cost tactics, posing a significant challenge to big corporations (Maxim, 2020). These new operators were mainly Low-cost brands, Hypermarkets, and private labels.

Therefore, it can be stated that through the liberalisation of the Portuguese market, two distinct competitive strategies have emerged: operators with a strategy based on price (Low-Cost brands and Hypermarkets), that is, that offer a low price for fuel (*less for much less*); and operators with a more sophisticated offer (Branded Companies). The more sophisticated offer of the Branded Companies consists of additional services such as car wash, car maintenance, premium fuels and loyalty cards (*more for more*). Loyalty cards' main objective is to reward existing consumers and encourage them to return for further purchases. This information (categories existing in the market and what type of value proposition is used in each category) was given by the market specialist in an interview.

Furthermore, consumers' purchasing preferences have shifted, and they are now more price aware (Maxim, 2020). Rather than searching for the best location, they were looking for the best price and service available.

In conclusion, this sector has undergone major changes due to increased competition, difficulty in product differentiation, new customer purchasing intentions and the appearance of low-cost operators (Bello & Cavero, 2008). Given this scenario, it becomes important to

conduct an analysis of the current state of the market 16 years after its liberalisation. This analysis will contribute to the strategy and marketing literature, as well as to the managers and regulators operating in this industry, since the post-liberalisation effects of the industry will be presented.

#### **1.1. Objectives Definition**

As time evolves and knowledge is more widely accessible, the battle among companies and brands to differentiate among themselves is more and more intense. On the other hand, customers are also more informed and able to shift from brands at the distance of a click.

Marketing typical differentiating factors are increasingly difficult to achieve, namely in a sustainable way. The investment to achieve sustainable differentiation, is heavier and pressure from key stakeholders (specially shareholders) for fast investment returns, conditioned by volatile business environments is growing as uncertainty is a business given.

The retail fuels business is perceived as a "commoditized" highly competitive market with no room for differentiation, where price is king. Nowadays, there is a fierce battle for customers between fuel companies, using all kinds of marketing strategies, from pure price wars to loyalty programs and advertising top quality products.

Due to this, it would be interesting to see if the fuel retail market could give us relevant knowledge to understand the intrinsic value of the marketing elements that drive value perception.

This study will try to conclude how the different types of strategies behave against each other in a market where around 43% of the market share is composed by operators with a competitive strategy based on price (Low-Cost and Hypermarkets – *less for much less*) while 57% of the market share is represented by operators with a more sophisticated offer (Branded Companies – *more for more*). Given this new market configuration, it is important to understand how the different competitive strategies behave, as well as to identify the competitive differentials that trigger consumer preference for each of these competitive strategies.

For this purpose, two studies will be carried out in this dissertation. The first study will be based on secondary data collected from institutes that regulate the fuel area. The second study will be based on a questionnaire made to fuel consumers.

#### **1.2. Main Research Questions**

Currently, there is no literature that evaluates the previously mentioned factors. Hence, it is important to conduct this study, which will not only contribute to the literature, but also serve as support for managers and regulators in the fuel industry. Therefore, I propose as research questions:

- I. Which are the competitive strategies present in the Portuguese fuel market and how do they perform?
- II. What are the main competitive triggers of consumer preference for each of these competitive strategies?

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

This dissertation is divided into five main sections, to facilitate its understanding. The first section is the introduction, where an approach is made to the chosen theme. In this first section the research problematic is explained, the research questions are presented, and the objectives are defined.

In section two, a literature review will be conducted. In this section a deeper analysis will be done on the topic of the thesis.

Subsequently, the appropriate methodology used to address the gap in the literature will be presented as well as the appropriate research methods that will consequently answer the two research questions.

In section four, an in-depth analysis will be conducted to be able to give answers to all the research questions that were previously established.

The fifth section of the dissertation gathers the most important data from the discussion and presents the results of the study. In this section the limitations of the study are highlighted and suggestions for future research in the area are made.

The last section includes the references used throughout the dissertation.

#### **Literature Review**

This literature review begins with a brief presentation of the fuel market and the changes that have occurred in recent years. Next, competitive strategies and value propositions are presented, to later verify which strategy is used by each operator. Then, the elements of the Marketing Mix are presented since the value propositions are carried out through marketing mix decisions. Within the Marketing Mix, the price element is highlighted, since it has a special importance in the fuel market, as it is a determining factor in consumer's choice, as well as the different pricing strategies that can be used by the operators. Finally, the brand is analysed given that it is part of marketing decisions and contributes to the value proposition.

#### 2.1.Liberalization of energy markets and competitive development

In the 1990s, the fuel market was a monopoly in several countries, such as Spain and Portugal (Maxim, 2020). These markets had a strong presence of national brands, as several countries aimed to protect their national interests (Bello & Cavero, 2008). There was therefore strong state intervention and several barriers to entry for new brands (Bello & Cavero, 2008). These factors lead to high levels of concentration.

The interest of countries to be incorporated into the European Union brought about some changes. Countries like Spain saw the need to prepare the fuel industry for greater competition. To this end, they began the process of liberalizing the fuel market (Bello & Cavero, 2008). While Spain liberalized its market in 1998, Portugal only liberalized it in 2004. However, in both cases it was possible to observe a series of changes (Bello & Cavero, 2008). The market grew, as well as its competition. Both countries privatized their previously state-owned companies, namely Repsol and Galp (Maxim, 2020).

In addition, some regulatory measures such as maximum selling price and minimum distances between petrol stations were abolished (Bello & Cavero, 2008). These changes brought an increase in the number of petrol stations, new pricing strategies and less concentration in the commercialization of fuel (Bello & Cavero, 2008). It was also possible to observe the entry of new operators, of which companies with aggressive price competition, called Low-Cost brands and Hypermarkets, stood out (Bello & Cavero, 2008). Therefore, two types of strategy emerged: brands with customer orientation that started offering new non-fuel services (*more for more*) (Markard et al., 2004); and brands with aggressive price strategies

(*less for much less*). Finally, regulatory bodies were also created with the aim of auditing and monitoring all areas of the energy sector.

#### 2.2. Competitive strategies and value proposition

According to Michael Porter, there are three types of strategy that companies can use in order to create or maintain competitive advantage. These three strategies are: cost leadership strategy; differentiation strategy and focus strategy (Tanwar, 2013).

Figu	re 1	<ul> <li>Porter'</li> </ul>	s Generic	Competitive	Strategies.
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Source: (Tanwar, 2013, p.12)

The type of strategy used depends on two variables (Figure 1): competitive scope and competitive advantage. The competitive scope refers to the market size, while the competitive advantage refers to the core competency of the brand (Kotler & Armstrong, 2006; Tanwar, 2013). Therefore, companies should choose their position in both variables. Depending on the desired position, one of the three strategies will be used. According to Porter, it is essential to make this choice since pleasing everyone does not bring a competitive advantage (Porter, 1985; Tanwar, 2013).

The first strategy is the Cost Leadership Strategy. In this type of strategy, mass production of identical products is carried out at a low cost (Tanwar, 2013). This low cost is because companies benefit from economies of scale. The low cost of production allows for a low price to the final consumer. To use this type of strategy it is necessary to use cheap production materials, extensive distribution, and constant cost reduction. This type of strategy is normally associated with increases in market share. Nevertheless, it has some risks such as technological changes, lack of focus on customer needs and preferences and imitation by new entrants in the market (Porter, 1985; Tanwar, 2013).

The following strategy is called Differentiation Strategy. As its name indicates, this type of strategy is used by brands that seek to be unique and different, through their design,

technology, features or customer service (Tanwar, 2013). The fact that their products are perceived as unique, allows brands to charge higher prices. Even so, these brands usually have higher consumer loyalty and higher profits. The risks of this type of strategy are imitation by other brands, which in turn reduces their differentiation, and loss of customers due to high prices (Tanwar, 2013).

Last is Focus Strategy, in which brands focus on a segment in the industry or niche (Tanwar, 2013). In this type of strategy, there are two strands: Cost focus, which consists of having a cost advantage of a segment; and Differentiation Focus, which consists of being different within a segment. In this case, the risks are also imitation by other brands.

These three strategies are reflected in specific value propositions. Value proposition can be defined as "The full positioning of a brand – the full mix of benefits on which it is differentiated and positioned" (Kotler & Armstrong, 2006).

**Figure 2** – Possible Value Propositions



Source: (Opresnik et al., 2019)

Figure 2 shows the different value propositions that companies can use. In this dissertation, we will refer to the *more for more* and *less for much less* strategies. In the *more for more* strategy, consumers pay more for the product, but they also receive more benefits than the competition's products (Porter, 1985). This type of strategy is mainly used by high quality products. On the opposite side we have the *less for much less* strategy, which consists of offering the minimum features at a very low price (Kotler & Armstrong, 2006; Porter, 1985).

#### 2.3. Marketing Mix decisions for the implementation of the value proposition

Value proposition decisions are realised through marketing mix decisions. Marketing mix is a marketing tool that has been used for decades due to its effectiveness. It consists in the marketing instruments used by the company for influencing the customer and achieving the company's goals (Kotler & Armstrong, 2006; Londhe, 2014). This strategy, also known as the

"4Ps" includes all the decisions made by the company to shape its offers according to the consumers' needs, that is, which provide value to the consumers in order to later create a relationship with them (Kotler & Armstrong, 2006). The main elements of this tool are product, price, place and promotion.

Product can be defined as something that can be offered to the market for attention, purchase or use that satisfies wants or needs and for which the consumer is willing to pay (Kotler & Armstrong, 2006; Sudari et al., 2019). Given that consumers buy products according to their needs and wants, it is important for companies to create products that meet customers' needs (Kotler & Armstrong, 2006). These products should be consumer oriented. This element of the 4Ps includes product-related decisions such as design, technology, utility, convenience value, quality, packaging, branding, warranties, after-sales services, installation, etc (Maxim, 2020). Some examples in the fuel industry are premium fuel offers and customer loyalty cards (Maxim, 2020). Pre- and after-sales services are an important part of the product that can contribute to enhancing performance (Isoraite, 2016; Khan, 2004).

On the other hand, Price can be referred to as the amount or value the buyer has to pay or sacrifice to obtain a product or service (Khan, 2004; Kotler & Armstrong, 2006). This element of the marketing mix is considered one of the most important as it is the only one that generates revenue and the most flexible to changes in the environment (Isoraite, 2016). Furthermore, it is often considered as an indicator of quality for consumers and can therefore affect consumers' choice positively or negatively (Khan, 2004). It is also referred to as a determinant of customer satisfaction as well as customer loyalty (Isoraite, 2016). In this element of the marketing mix, managers can make decisions such as price setting, discounts, credit terms, payment methods, refund periods and promotions (Isoraite, 2016). In the fuel industry, discounts are used by many companies (Maxim, 2020).

Regarding Place, the company must analyze where its customers search for and purchase the product to maximize its customer service and minimize the cost of distribution (Kotler & Armstrong, 2006). Place includes all the activities required to deliver a product to the customer (Kotler & Armstrong, 2006). Thus, the manager should make decisions regarding channels, logistics, product inventory, transportation, and location (Isoraite, 2016). The company can choose two channels to make its products available to customers: direct and indirect (Dang et al., 2015). The direct channel occurs when the producer provides the product directly to the consumer. On the other hand, the indirect channel involves the use of

intermediaries such as wholesalers and retailers who deliver the products to the consumer. This type of channel involves a cost added to the product (Isoraite, 2016).

The last element is Promotion, a tool that enables the firm to provide information, encourage the purchase and affect the purchase decision process (Isoraite, 2016; Khan, 2004). From the consumer's perspective, promotion guides and teaches the customer about how to use the product and obtain benefits from it. Furthermore, this fourth element of the marketing mix leads to higher sales and helps to build brand loyalty (Isoraite, 2016). It includes decisions such as advertising; public relations; sales promotion; direct marketing; exhibitions and fairs; posters; discounts and promotions; coupons; samples; contests; and product demonstrations (Isoraite, 2016). For instance, BP is focusing its message on the benefits of its products, the company has incorporated carbon emissions compensation into its offer for the entire range of fuels. In other words, the benefit of their products is that they do not pollute the environment as much as other companies.

To sum up, companies must choose what their marketing mix strategy will be, bearing in mind that their choice may affect the company's competitive position as well as its sales and profits.

According to Booms & Bitner (1982), the services sector has three more marketing elements, that is, it has a total of seven elements. The elements of the services marketing mix are price, place, product, promotion, people, physical evidence, and process (Booms & Bitner, 1982). The people element refers to all the people who play a role in service delivery and therefore influence the consumer's perceptions (Yelkur, 2000). Some examples are the company's staff, the customer himself and other customers who are present at the moment of service delivery. In this sense it is necessary to select the right people to work in the company and train them to know how to act correctly in different situations that may arise (Yelkur, 2000). The physical evidence element corresponds to the environment in which the service is provided (Kumar & Director, 2013). This element is important because it influences the customer's expectations and perceptions. Some examples of physical evidence to which attention should be paid are the decoration of the environment, signs, smells, colours, and temperature (Yelkur, 2000). Finally, the process element comprises the procedures required to provide a service (Booms & Bitner, 1982).

#### 2.4. Price as part of the Marketing Mix decisions

The existing literature mentions that price is the most important factor by which customers evaluate fuel and electricity supply offers (Isoraite, 2016), therefore it is important to deepen this element of the marketing mix.

Price is the amount of money charged for a product or service. Broadly speaking, it is the sum of everything that customers give up to gain the benefits of having or using a product (Kotler et al 2010). Pricing is the key mechanism for the value created between the customer and the supplier (Töytäri et al., 2017).

According to (Hinterhuber, 2008a), pricing strategies differ according to industry, market conditions, and in some cases regulatory constraints. Product pricing is a strategic activity, where the price given to a product will influence the extent to which consumers view the company's products and decide to purchase them (Faith & Edwin, 2014a). In fact, several studies have proven that price is an important element in the purchase decision, especially for frequently purchased products, thus influencing the choices of the store, product and brand (Cataluña, 2004). Therefore, we can state that defining a proper pricing strategy is both complex and crucial (Johansson et al., 2012a; Monroe, 2003; Toni & Mazzon, 2013).

There is no unique way of setting prices. However, researchers generally agree that pricing strategies can be classified into three groups: Cost-based pricing; Competition-based pricing; and Customer Value-based pricing (Hinterhuber, 2008a).

#### 2.4.1. Cost-Based Pricing

Cost-based pricing strategy uses the supplier's own costs, such as production, distribution and selling costs, as a price reference, and adds a target margin to arrive at the final price (Johansson et al., 2012b). Meaning that decisions are influenced mainly by accounting data, with the aim of achieving a certain return on investment (Kumar Datta, 2017a). The main cost-based pricing approaches are cost-plus pricing (or markup pricing) and break-even pricing (or target return pricing).

Cost-plus pricing is the most commonly used strategy due to its simplicity; it consists in adding a predetermined mark-up to the product costs (Sammut-Bonnici & Channon, 2015). The main purpose of adding a markup is to cover costs and obtain the desired profit (Kerin et al., 2012). The target return approach is used mainly in capital intensive industries such as automobile manufacturers, electricity, and gas. The formula for calculating the price involves a percentage return on investment that varies with different production volumes in a particular

period. The main goal of this approach is to determine a price at which the company breaks even or makes the target return it is seeking (Sammut-Bonnici & Channon, 2015).

Although cost-based strategy is frequently used by firms, several authors have found problems related to this approach. For example, Myers et al. (2002) and Simon et al. (2003) state that cost-based pricing yields below-average profitability. Despite its disadvantages, there are two reasons why companies continue to use this approach: sellers have more knowledge about costs than about demand; and when all the companies in the industry use this approach, prices tend to be similar and price competition is minimized (Opresnik et al., 2019).

#### 2.4.2. Competition-Based Pricing

Competition-based pricing consists in determining the appropriate price for a company's product or service according to key competitor information, such as competitors' prices, strategies, costs, and market offerings (Johansson et al., 2012b). In other words, this approach uses competitors' pricing as a starting point for pricing (Blythe, 2005). Nevertheless, this does not mean that the firm will set the same price as its competitors, the firm may keep its prices lower or higher than its competitors (Kerin et al., 2012).

Before setting the price, the company should compare its market offer with that of its competitors in terms of value to the customer. If consumers perceive that the company's product or service provides more value, then the firm may charge a higher price. If consumers perceive a lower value compared to competitors' products, then the company should either charge a lower price or change the customer's perception to support a higher price (Opresnik et al., 2019).

The main advantage of this approach is that it considers the actual price situation of competitors, data which is readily available. However, several authors state that this approach has a drawback: demand-related aspects are ignored (Faith & Edwin, 2014b; Heil & Helsen, 2001; Kumar Datta, 2017b). Moreover, a strong competitive focus may lead to a price war between competitors in the market (Heil & Helsen, 2001). According to (Nagle et al., 2003), another risk in this approach is that companies do not have clear information about the costs of their competitors, who in certain situations may be operating with low margins.

#### 2.4.3. Customer Value-based pricing

Customer Value-based pricing is a more complex pricing practice than the ones mentioned previously. Under this approach pricing decisions are based on the customer's perception of value, i.e., the benefits identified by the customer and the weighting given to those benefits in

relation to price (Ingenbleek et al., 2010). Therefore, this pricing strategy requires a deep understanding of customers' value perceptions and customers' needs (Johansson et al., 2012b). Being that value perception can be defined as a set of tangible factors (such as the price of supplementary goods, the utility, or usefulness of the product) and intangible factors (such as the quality of the product, service, or brand attributes) (Sammut-Bonnici & Channon, 2015).

This pricing approach offers several advantages. Firstly, firms using this approach will not charge lower prices than required, as they will be informed about customers' willingness to pay. Secondly, firms can match customers' perceived benefits with the price of products to increase purchase intentions (Grewal et al., 1998). As a result, this type of strategy may lead to higher sales volume and higher profit margins (Codini et al., 2012). In fact, among the three strategies presented, several studies mention customer value-based pricing as the best pricing strategy due to its higher profitability (Cannon & Morgan, 1990; Docters et al., 2004; Ingenbleek et al., 2003; Monroe, 2003).

#### 2.4.4. The Best Strategy

Customer value-based pricing is widely recognised in the literature as being superior to all other pricing strategies (Docters et al., 2004; Ingenbleek et al., 2003). According to (Monroe, 2003), "...the profit potential for having a value-oriented pricing strategy that works is far greater than with any other pricing approach'. Furthermore, authors such as (Cannon & Morgan, 1990), recommend customer value-based pricing if profit maximisation is the objective, as it is the strategy that offers the greatest profitability. (Hinterhuber, 2008a) states that the main reason several academics support this strategy is because it focuses on understanding the sources of value for the customer.

Despite its benefits, the Customer value-based pricing strategy has rather limited application. According to several studies (Avlonitis & Indounas, 2006; Docters et al., 2004; Hinterhuber, 2008b), carried out in different countries, only a minority of companies use this strategy. According to (Calabrese & Francesco, 2014), most companies set their prices based on competitors' offers and their own costs.

Both Competition-based and Cost-based strategies have the advantage of easy access to relevant data. Yet, both have the disadvantage that they do not focus on customer needs and requirements. In contrast, customer value-based methods pay attention to the customer's perspective, however, data is more difficult to collect and interpret (Hinterhuber, 2008a).

As mentioned above, companies that use *more for more* value propositions offer more benefits than the core product, that is additional services, for a higher price (Porter, 1985). On the other hand, companies that use *less for much less* value propositions, offer only the core product at a lower price (Porter, 1985). Therefore, we can propose the following propositions:

**Proposition 1**: The price among operators focused on cost competitive strategies with *a less for much less* value proposition is significantly lower than the price charged by operators focused on differentiation competitive strategies with *more for more* value propositions.

*Proposition 2*: Price attributes are the main trigger for operators focused on cost competitive strategies with a *less for much less* value proposition.

**Proposition 3:** Service attributes are the main trigger for operators focused on competitive differentiation strategies with *more for more* value propositions.

#### 2.5. The Brand as part of the Marketing Mix decisions

The brand is part of the marketing mix decisions and makes an important contribution to the value proposition. Hence the inclusion of this topic in the Literature Review. According to the American Marketing Association, a brand is a "name, term, sign, symbol, or design, or a combination of them intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competition" (AMA, 2021). A brand indicates to the consumer the origin of the product and protects both the consumer and the producer from competitors trying to provide similar products.

Nevertheless, it can be stated that a brand also represents a variety of ideas and attributes, since it represents a set of associations that consumers create over time, through interactions with the brand (Gardner & Levy, 1955).

The first definition of brand equity appeared in 1989 by Farquhar, being "the added value with which a given brand endows a product". Over the years, other definitions have emerged. For instance, for (Aaker, 1992) brand equity is a set of assets and liabilities linked to the brand name and logo that add or subtract value to the product or service. In fact, it is possible to verify that different authors focus on the different ways how a brand can create value, brand equity from a financial perspective (financial-based brand equity) and brand equity based on the consumer (customer-based brand equity).

From a financial perspective, brand equity represents the incremental cash-flows resulting from a branded product compared to the cash-flows that would result from the same product without a brand, as defined by (Kapferer, 2008), i.e., the potential future contribution linked to the brand name.

On the other hand, from the consumer perspective, brand equity is the difference that the existence of a brand has on consumers' responses to product choice and responses to marketing stimuli (Keller, 1993; Kotler & Armstrong, 2006; Richelieu & Lessard, 2014; Yoo et al., 2000).

In this case, a consumer-based analysis of brand equity will be undertaken. Each consumer creates associations in his or her mind to each brand. A high brand equity implies that consumers have a large amount of positive and strong associations related to a brand (Yoo et al., 2000).

For (Kotler & Armstrong, 2006), if the consumer knows the brand (whether he likes it or not) his response to the company's marketing stimuli to the product/service will be different (for positive or negative) than if he had no knowledge of the brand in question.

Having said this, it can be stated that the concept of brand equity is closely linked to the value that a brand adds to its products when compared to a product that does not have a brand, that is, the difference in value that the presence of the brand creates when it is associated with a certain product (Keller, 1993). A brand is said to have positive customer-based brand equity when consumers react more positively to an element of the brand's marketing mix than to the same element of the marketing mix when it is assigned to an unbranded product or to a brand with a fictitious name.

Although there is no one-size-fits-all method for assessing brand equity, various theories have been designed to help. This dissertation will be focused on Kevin Keller's Theory.

Building a strong brand has been demonstrated to offer a variety of financial benefits to companies, and it has become a core concern for many. For instance, a strong brand is associated with benefits such as stronger consumer loyalty, lower sensitivity to competitor marketing actions, higher profits, better customer responsiveness to price increases and reductions, and improved marketing communication effectiveness (Keller, 2001).

According to Keller's Customer-Based Brand Equity (CBBE) model, the strength of a brand is in the consumers' minds, and it is translated into the set of perceptions and feelings that they have about the brand (Keller, 1993). Thus, for a brand to have more value, it is necessary to create experiences around the brand that transmit thoughts, sensations, attitudes, opinions, and positive perceptions towards the brand.

Building a strong brand, according to the theory, entails four phases: (1) developing a suitable brand identity, that is, establishing brand awareness on a broad and deep level; (2)

Creating the right brand meaning through a strong, favourable, and unique brand associations; (3) evoking positive and accessible brand responses; (4) establishing brand relationships with customers that are marked by active and intense loyalty (Keller, 2001). Establishing six brand-building blocks—brand salience, brand performance, brand imagery, brand judgments, brand feelings, and brand resonance—is required to complete these four phases (Keller, 2001). Reaching the top of the pyramid is the only way to develop considerable brand equity, and it can only happen if the appropriate brand-building bricks are in place.

Brand identity is the initial level. Creating brand salience is an important factor in achieving the correct brand identity. Brand salience refers to many elements of customer brand awareness, including not just the capacity to recall and recognize a brand but also the ability to link the brand to associations in memory (Keller, 2001). Since it impacts the probability that the brand will be a part of the consideration set, salience is a basic building block in establishing brand equity.

The depth and breadth of brand awareness are two essential characteristics to consider. The ease with which people can recall or recognize a brand is referred to as brand awareness depth (Keller, 2001). The spectrum of purchase and consumption scenarios in which the brand comes to mind is referred to as brand awareness breadth. A brand with both depth and breadth of brand awareness is considered extremely prominent (Keller, 2001).

The second level is the meaning of the brand. These brand associations can be established directly, based on a customer's personal experiences and interactions with the brand, or indirectly, based on the brand's representation in advertising or other sources of information (e.g., word-of-mouth). This means that there are two distinct dimensions: performance and imagery (Keller, 2001).

Brand performance relates to the ways in which the product or service attempts to meet customers' more functional needs in 5 categories: (1) Primary characteristics and secondary features; (2) Product reliability, durability, and serviceability; (3) Service effectiveness, efficiency, and empathy; (4) Style and design; (5) Price. The second dimension (Brand Imagery) defines how the product satisfies the consumer's needs at a social and psychological level. This dimension includes 4 categories: (1) User profiles; (2) Purchase and usage situations; (3) Personality and values; (4) History and heritage (Keller, 2001).

The third level corresponds to the responses to the brand which fall into two categories: Judgments and Feelings (Keller, 2001). Judgments tend to be rationally based: it evaluates the brand regarding its quality (real and perceived), credibility (in terms of knowledge, reliability, and brand likability), consideration (it suggests the likelihood that customers will include the brand in the set of brands they might buy or use) and superiority (by comparison with other competing brands). On the other hand, Feelings tend to be emotionally based, suggesting that consumers respond to the brand according to how it makes them feel in terms of six positive feelings: warmth, fun, excitement, security, social approval, and self-respect (Keller, 2001).

Finally, the fourth and final level is brand resonance, which happens when consumers have a deep psychological relationship with the brand and which translates into four effects: (1) Behavioural loyalty - when the consumer makes regular and repeated purchases; (2) Attitudinal attachment - when customers like the brand and see the purchase as special; (3) Sense of community - when consumers feel they are part of a community by associating with other people, also consumers or brand representatives, with similar feelings; (4) Active engagement - which happens when customers actively participate with the brand, even when they are not buying or consuming its products (Keller, 2001).

When all the other brand-building blocks have been created, the most valuable brandbuilding block, brand resonance, happens. Customers that have real brand resonance have a high level of devotion to the brand and actively seek ways to connect with it and share their experiences with others (Keller, 2001).

In conclusion, value propositions focused on cost (*less for much less*) are expected to have distinct brand equity from value propositions focused on differentiation (*more for more*) and that this distinction is reflected in the analysed dimensions of Brand Equity. I therefore propose the following proposition:

**Proposition 4:** The brand equity of cost-focused brands with *less for much less* value propositions will be different from the brand equity of *more for more* value propositions.

# III

#### Method

#### **3.1.** Data Collection

The methodological paradigms will be outlined in this chapter through an explanation of the research strategy and selection of appropriate research techniques.

There are two types of data that can be collected during marketing research, namely: primary and secondary data (Malhotra et al., 2017; Saunders et al., 2015). Secondary and primary data were collected by means of qualitative and quantitative methods.

For addressing Research Question 1, which intended to characterize the competitive strategies in the Portuguese fuel industry, secondary data was collected for all aspects that composed the offerings: retail price of each brand, weekly reference price, market shares, products and services offered by each brand, number of stores of each brand and costs of offers per trader. Regarding retail price and reference price, weekly data was obtained for 53 weeks in 2020 and 25 weeks in 2021 (Annex A, Annex B, Annex C and Annex D).

The following sources were used to obtain this information: DGEG website, ENSE website, Galp's website, BP's website, Repsol's website, Prio's website, Cepsa's website, Auchan's website and information provided in an interview with a market specialist of the fuel industry. To obtain the offer costs, a previous analysis of the offers of each operator was carried out and sent to the market specialist who made a cost estimate of how much each offer costs. It is important to mention that only simple fuels will be studied in this dissertation. Furthermore, fleet cards were also not included as the focus of this dissertation is the private consumer.

The brands that will be analyzed are: Galp, BP and Repsol which use a strategy of *more for more* and will be referred to as Branded Companies; Prio and Cepsa which use a strategy of *less for much less* and will be referred to as Low-Cost companies; and Auchan which also uses a *less for much less* strategy and will be referred to as Hypermarkets. This information (categories existing in the market, which brands belong to each category and what type of value proposition is used in each category) was given by the market specialist in an interview.

The methodology used to explore the answer to the second research question identified at the beginning of the dissertation, is different from the one used for the first research question. The aim of the second research question is to understand what are the main drivers of the value perceived by consumers of different fuel brands existing in the national market (more specifically, Galp, BP, Repsol, Cepsa, Prio and Auchan).

In this research question, primary data will be collected. This research question will be based on a quantitative research methodology. The survey method was chosen as the quantitative research approach to gather information by utilizing structured questionnaires sent to a sample of the target population. Additionally, the survey technique adopted was an online survey, that allowed respondents to complete the questionnaire from any location and using a variety of electronic devices.

#### 3.1.1. Survey with consumers: sample

The study's sample comprises people who are presently residing in Portugal which are at least 18 years old, that put fuel in regularly (at least once a month) and that do not have a fleet card. The answer to the questionnaire is not taken into consideration if the responder does not match the above-mentioned criteria.

#### 3.1.2. Survey with consumers: structure

The survey was designed by using Qualtrics platform, and it mostly consisted of closed questions to ensure data consistency. The anonymity of the respondents was emphasized at the beginning of the questionnaire. This questionnaire was distributed via social media platforms.

It is important to mention that the survey was only made public after a pilot test had been conducted and the elements of it had been rectified. The goal of the pilot test was to detect and remove any potential issues that responders could have. The 10 pilot test participants' adjustments and modifications were included into the revised and final version of the questionnaire (Annex E).

The information was gathered in Portuguese. In order to process the data, IBM SPSS Statistics 24 statistical software and Excel were used. The descriptive analysis of the responses to the questionnaire provided in the next chapter was carried out by using both software's.

As mentioned earlier, most of the survey questions were structured, i.e., respondents had to answer within the set of alternatives available (Multiple Choice, Likert Scale, etc). The questionnaire was structured into nine parts (Annex E). From these nine parts, six sections were based on Kevin Keller's CBBE Model. Keller's model includes the following dimensions Salience, Imagery, Performance, Feeling, Judgements and Resonance.

The first part of the survey consisted of filter questions. If respondents did not belong to the study's target group, they would be immediately directed to the end of the questionnaire, otherwise they would continue the survey. The following section of the questionnaire was related to the element "Salience" of Keller's pyramid, that is, the ability to evoke brands was tested. It is important to note that from this part of the survey, each respondent will be randomly assigned a brand name. Respondents will have to answer the rest of the survey on the brand they have been assigned.

The following 5 sections, related to the elements of Imagery, Performance, Feeling, Judgements and Resonance, were aimed at collecting data related to Kevin Keller's model. Annex F shows the items used to measure Brand Equity. These items were taken from Kevin Keller's study (Keller, 2003).

An additional section, not related with the model, was done in which the respondents' preferences as well as frequency of consumption of each brand were analysed and used as a dependent variable intended to measure the effects of behavioural triggers. Annex G presents the elements used as possible triggers of consumer preference. These triggers were developed by the author of the dissertation based on operators offering and based on a study provided by a market specialist.

The last section corresponded to demographics where questions such as "What is your gender?", "Where do you live?" and "What is your profession?" were asked.

With all the data collected from the questionnaire, a multiple regression between the marketing tactics and the respondents' behaviour will be performed. To test the strength of each of the dimensions in the model of the brands, the responses obtained from the questionnaire were grouped according to the dimension to be studied and an average of the values obtained for each of the dimension was taken. Furthermore, an ANOVA will be carried out to compare the extent to which the average of each dimension of brand equity differs between the three categories. It is important to mention that in the analysis of the data in SPSS, variables with a p<0.10 will be accepted, i.e., they will be considered significant.

#### Results

# **4.1. RQ1:** Which are the competitive strategies present in the Portuguese fuel market and how do they perform?

Research Question 1 aims to characterise the fuel brands' offerings. After analysing the offers of each brand, an analysis will be made of the different strategies in the fuel market in terms of price, as well as the respective costs and margins of the different operators. For this purpose, secondary data was collected. Six brands, also known as the biggest players in the market, were analysed: Galp, BP, Repsol, Prio, Cepsa and Auchan. As mentioned before, these brands are divided into two groups: those using a *more for more* strategy (Galp, BP and Repsol) and those using a *less for much less strategy* (Prio, Cepsa and Auchan). As previously mentioned, these six brands are divided into 3 categories: Branded Companies (Galp, BP and Repsol); Low-Cost companies (Prio and Cepsa); and Hypermarkets (Auchan). This information (categories existing in the market, which brands belong to each category and what type of value proposition is used in each category) was given by the market specialist in an interview.

#### 4.1.1. Characterization of the Offer

#### Galp

The first player to be analysed is Galp, which according to an interview with the market specialist had the largest number of gas stations (729) in the country in 2021. The brand also has 4 types of fuel: simple diesel, diesel, gasoline 95 and gasoline 98. The brand provides additional services such as the Galp Tangerina Shop and Café, a washing and cleaning service, and the App Mundo Galp, which allows efficient management of fuel consumption and the use of exclusive discounts.

As for discounts, on Wednesdays Galp offers additive fuel at the same price as regular fuel to all its clients at participating Galp service stations. In addition to this, the brand has a loyalty card, known as Galp+ card, which allows consumption management as well as discounts and offers. This card can be customized for each client, for example there is a Galp+ Tap card in which the client earns miles on Tap when filling up with fuel.

Galp also has partnerships with several brands such as Burger King, Via Verde, Go Natural, Meu Super, among others. One of the most important partnerships is with Continente, since it offers customers a fuel coupon for every €30 spent at Continente, and a coupon to be spent at Continente for every 60 litres filled up at Galp. Furthermore, all fuel purchases made at Galp gas stations with the Continente Card are considered for calculating the minimum 2% discount guaranteed by the Continente Card.

Besides the cards for private customers, Galp also has two types of fleet cards. The Galp Business fleet card was designed for companies with small or medium-sized fleets, giving immediate discounts on fuel, facilitating the management of their fleet, and having no minimum limit on the number of vehicles. The Galp Corporate Card is dedicated to large companies with consumption of over 9,000 litres / year, with advantages proportional to the size of their company - allowing the purchase of fuel (with discount), Galp products and services, on credit, throughout the Iberian Peninsula.

#### BP

Second is BP, which had about 521 gas stations in 2021 (Interview with market specialist). This brand offers a range of quality fuels for customers' vehicles: Simple Gasoline with Invigorate, BP Ultimate Gasoline 98, Simple Diesel with Invigorate and BP Ultimate Diesel. BP has as services offer, the automatic car wash and its Pingo Doce Go store.

This brand is known for its extensive offer of promotions and discounts through its loyalty and partnership cards. The brand offers local discounts of up to 7 cents per litre, which is specific to each adherent gas station and only on certain days. However, the brand also has two types of cards: the BP premierplus card and the Poupa Mais card.

The BP premierplus card allows the accumulation of points through the purchase of gasoline, diesel, Autogas, butane gas and lubricants at the gas stations (1 euro = 1 point / 1 litre = 1 point). Furthermore, it has several partnerships with brands such as 5àSec, BERTRAND, Castello Lopes, Decathlon, Delta Q, among others, allowing the exchange of points for vouchers in the respective brands or gifts.

The Poupa Mais card is a partnership between BP and Pingo Doce, in which for every  $40 \in$  of purchases at Pingo Doce, the customer accumulates  $2 \in$  of BP fuel balance on his card. It is also possible to associate this card with EDP Comercial to obtain a discount of  $2 \in$  on the EDP bill for every 40 litres of BP fuel accumulated monthly.

The Poupa Mais card can also be used with the ACP Master card, offering a discount of 15 cents per litre on Ultimate fuels every 15th of the month and 10 cents per litre on all fuels on the 10th, 20th and 30th of the month. On the remaining days of the month, it always provides a 6-cent discount on simple fuels and 9 cents on BP Ultimate fuels.

In addition to the cards for private customers, BP also has 3 types of fleet cards. The BP + Aral fleet card has been specifically designed to help international fleet managers save time and reduce expenses. The BP Fleet Card Plus is designed for both large and small fleets of light and heavy vehicles, giving access to a wide network of filling stations as well as a range of benefits. The BP Bonus fleet card was designed exclusively for groups and associations. It is not a form of payment but allows you to get an immediate discount whenever you fill up at a BP petrol station.

Besides all these offers, BP has the "Drive Carbon Neutral" project that aims to offset carbon emissions from all fuels. In order to do so, the company uses carbon credits generated from global projects, which finance the use of renewable energy, low carbon and forest protection.

#### Repsol

Repsol is present in the country with around 504 service stations (Interview with market specialist) and 4 types of fuel: diesel e+, diesel 10 e+, gasoline 95 effice and gasoline 98 effice. The brand also has a washing service and in-store products, but does not have any partnership with supermarkets like BP.

The brand has a loyalty card known as "Repsol Move", which allows customers to accumulate points and exchange them for millions of offers (1 litre = 2 points neotech gasoline, 1 litre = 1 point gasoline and simple diesel). In addition, customers can earn an extra 20% of points by indicating their favourite and usual Repsol service station. Some examples of the prizes are: an UCI cinema ticket,  $\in$ 10 at Decathlon,  $\in$ 10 at FNAC, among others.

Repsol has many partnerships such as Sport Lisboa e Benfica, Sporting Clube de Portugal, Fnac, Norauto, Staples and Santander. By presenting the card of these brands, the customer can get a discount on the value of the fuel. It is worth highlighting the partnership with El Corte Inglés, in which for purchases of  $\in$ 30 or more at El Corte Inglés stores, the customer is entitled to a card that allows him/her to save 6 cents/litre on fuel, while for every  $\in$ 30 at participating Repsol service stations, the customer earns  $\in$ 6 in El Corte Inglés vouchers.

Apart from cards for private customers, Repsol also has two types of fleet cards. The Solred Frota Card is a Repsol payment method for professional fuel consumption by businessmen and companies with their own fleet, who make journeys in Portugal and Spain. The Solred Frota DKV card has been designed for customers who travel in Portugal, Spain, and the rest of Europe.

#### Cepsa

At the moment, Cepsa has 267 gas stations around the country (Interview with market specialist), in which it offers its clients 5 types of fuel: simple diesel, optimal diesel, simple 95 gasoline, optimal 95 gasoline and optimal 98 gasoline.

Besides the fuel offer it also has other additional services, such as car washes, repair stores to fix any breakdown or replacement needed, vacuum service, stores, and restaurants. It is important to mention that the Depaso stores have a wide variety of products in which the customer can buy to consume immediately or to consume later at home.

As for loyalty cards, the brand has a card for private clients known as the "Cartão Porque EU Volto", which allows the accumulation of advantages and discounts every time the client fills up at one of Cepsa's gas stations. The brand's goal is to reward those who come back. Each card holder benefits from a 40% discount in every refuelling made at the "Usual Gas Station" previously chosen by the client. In addition, the card allows the accumulation of points (5 points for each liter of fuel), which can later be exchanged for services and products.

Finally, the brand has a partnership with DECO+, in which all customers with a DECO+ card have a discount of up to 11 cents/litre on gasoline, diesel and LPG, with this promotion being valid every day of the week.

Beside the cards for private clients, Cepsa also has 5 fleet cards. The Starressa Go Card is designed for small businesses. The Starressa Taxi Card was designed for taxi drivers, offering a direct discount of 3 cents/litre on petrol and diesel fuel filled up at Cepsa's member service stations. The Starressa Card is a payment method especially designed for transport professionals. The Starressa Eurotrafic Card covers all the needs of transport professionals travelling abroad. Finally, the Starressa Fleet Card offers numerous benefits for small fleets of vehicles

#### Prio

According to an Interview with a market specialist, Prio has, as of 2021, 208 service stations in Portugal. In its service stations, the clients can choose between 5 types of fuel: simple diesel, simple gasoline 95, simple gasoline 98, top diesel and top 95.

Regarding additional services, the brand has at the disposal of its customers: several Hyper Market convenience stores, car wash, PRIOpharma (an area specialized in the sale of Non-Prescription Medicines) and the App Prio.Go with several features such as paying for fuel
without leaving the car, check the car's fuel consumption, plan trips, and find Prio gas stations near your location.

Considering that it is a low-cost brand, there are no loyalty cards. The partnership with Crédito Agrícola, which offers clients with a Crédito Agrícola debit or credit card a discount of up to 11 cents per litre, valid for all fuels, should be highlighted.

However, Prio has 1 fleet card. The Prio Fleet Card guarantees competitive prices, updated weekly, of an additive fuel that allows the best performance. Furthermore, it is possible to choose the most convenient way of payment (credit or pre-payment) and electronic invoicing.

## Auchan

Finally, an analysis of Auchan, which is a Hypermarket, will be done. In its 34 service stations at Portugal (Interview with market specialist), the clients can choose between 3 types of fuel: simple diesel, additive diesel, and simple gasoline 95. Therefore, it can be claimed that this brand has a smaller range of fuel types.

This brand, unlike the others, has no additional services for its customers, that is, it only sells fuel allowing very low operational costs. This is because its main objective is to attract customers to its chain of Hypermarkets that are close to the brand's petrol stations.

# 4.1.2. Price strategy of *less for much less* value propositions VS *more for more value* propositions

After analysing the offer of each fuel brand, it becomes necessary to prove Proposition 1 which intends to validate that the price charged by operators focused on cost competitive strategies with a *less for much less* value proposition is significantly lower than the price charged by operators focused on differentiation competitive strategies with *more for more* value propositions. To validate this proposition, four Analysis of Variance were performed (Diesel 2020, Gasoline 2020, Diesel 2021, and Gasoline 2021).

According to the central limit theorem, the hypothesis of normality holds for a sample size greater than 30 observations. In Annex H, the sample size is greater than 30 observations, so it can be stated that normality exists in the four analyses that were carried out.

Regarding Diesel in 2020, in Annex I it was examined whether there is homogeneity of variances since a normal distribution is followed. Considering that sig > 0.10 (0.470) in the "based on mean", it can be stated that the groups are not statistically significantly different, which means that there is homogeneity of variances. In Annex J the table ANOVA is presented.

Considering that sig < 0.10 (<0,001), it can be stated that there is at least one mean different from the means of the remaining brands.

**Table 1** – ANOVA Post-Hoc Multiple Comparisons Diesel 2020 – Summary

 *The original table can be seen in Annex K*

				Post-Hoc	Multiple C	omparisons Die	sel 2020				
		Mean				Mean				Mean	
Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.
		(i-j)				(i-j)				(i-j)	
	Auchan	0,1534	<,001		Auchan	0,1907	<,001		Auchan	0,1728	<,001
	Вр	-0,0373	0,356		Cepsa	0,9733	<,001		Вр	-0,0180	0,937
Galp	Cepsa	0,0359	0,402	Вр	Galp	0,0373	0,356	Repsol	Cepsa	0,0553	0,035
	Prio	0,0545	0,040		Prio	0,0919	<,001		Galp	0,0194	0,913
	Repsol	-0,0194	0,913		Repsol	0,0180	0,937		Prio	0,0739	<,001
	Auchan	0,0988	<,001		Auchan	0,1174	<,001		Вр	-0,1907	<,001
	Вр	-0,0919	<,001		Вр	-0,0733	<,001		Cepsa	-0,1174	<,001
Prio	Cepsa	-0,0186	0,927	Cepsa	Galp	-0,0359	0,402	Auchan	Galp	-0,1534	<,001
	Galp	-0,0545	0,040		Prio	0,0186	0,927		Prio	-0,0988	<,001
	Repsol	-0,0739	<,001		Repsol	-0,0553	0,035		Repsol	-0,1728	<,001

Source: Developed by the author based on DGEG data

The Scheffe test was used since there is homogeneity of variances and the sample size is greater than 30 observations. In Table 1, it can be observed that considering that sig > 0.10, there is homogeneity in price between the brands BP, Galp and Repsol and between the brands Cepsa and Prio, regarding Diesel in 2020. There is no homogeneity between Auchan and the remaining brands. Nevertheless, there is also homogeneity between Galp and Cepsa brands. An explanation of the homogeneity between these brands will be made later.

Regarding Gasoline in 2020, in Annex L it was examined whether there is homogeneity of variances since a normal distribution is followed. Considering that sig > 0.10 (0.784) in the "based on mean", it can be stated that the groups are not statistically significantly different, which means that there is homogeneity of variances. In Annex M the table ANOVA is presented. Considering that sig < 0.10 (<0,001), it can be stated that there is at least one mean different from the means of the remaining brands.

 Table 2 – ANOVA Post-Hoc Multiple Comparisons Gasoline 2020 – Summary

				Post-Hoc	Multiple C	omparisons Pet	rol 2020				
		Mean				Mean				Mean	
Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.
		(i-j)				(i-j)				(i-j)	
	Вр	-0,0366	0,349		Auchan	0,1807	<,001		Вр	-0,0172	0,941
	Auchan	0,1440	<,001		Cepsa	0,0858	<,001		Auchan	0,1634	<,001
Galp	Cepsa	0,0491	0,077	Вр	Galp	0,0366	0,349	Repsol	Cepsa	0,0685	0,002
	Prio	0,0545	0,032		Prio	0,0911	<,001		Galp	0,0194	0,904
	Repsol	-0,0194	0,904		Repsol	0,0172	0,941		Prio	0,0739	<,001
	Вр	-0,0911	<,001		Вр	-0,0858	<,001		Вр	-0,1807	<,001
	Auchan	0,0895	<,001		Auchan	0,0949	<,001		Cepsa	-0,0949	<,001
Prio	Cepsa	-0,0054	1,000	Cepsa	Galp	-0,0491	0,077	Auchan	Galp	-0,1440	<,001
	Galp	-0,0545	0,032		Prio	0,0054	1,000		Prio	-0,0895	<,001
	Rensol	-0 0739	< 001		Rensol	-0.0685	0.002		Rensol	-0 1634	< 001

The original table can be seen in Annex N

Source: Developed by the author based on DGEG data

The Scheffe test was used once again. In Table 2, it can be observed that considering that sig > 0.10, there is homogeneity in prices between the brands BP, Galp and Repsol and between the brands Cepsa and Prio. There is no homogeneity between Auchan and the remaining brands.

Regarding Diesel in 2021, in Annex O it was examined whether there is homogeneity of variances since a normal distribution is followed. Considering that sig > 0.10 (0.759) in the "based on mean", it can be stated that the groups are not statistically significantly different, which means that there is homogeneity of variances. In Annex P the table ANOVA is presented. Considering that sig < 0.10 (<0,001), it can be stated that there is at least one mean different from the means of the remaining brands.

Table 3 – ANOVA Post-Hoc Multiple Comparisons Diesel 2021 – Summary

The original table can be seen in Annex Q	)		
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				Post-Hoc	Multiple C	omparisons Die	sel 2021				
		Mean				Mean				Mean	
Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.
		(i-j)				(i-j)				(i-j)	
	Вр	-0,0415	0,142		Auchan	0,1851	<,001		Вр	-0,0274	0,599
	Auchan	0,1436	<0,001		Cepsa	0,1125	<,001		Auchan	0,1577	<0,001
Galp	Cepsa	0,0710	<0,001	Вр	Galp	0,0415	0,142	Repsol	Cepsa	0,0851	<0,001
	Prio	0,0550	0,014		Prio	0,0965	<,001		Galp	0,0141	0,964
	Repsol	-0,0141	0,964		Repsol	0,0274	0,599		Prio	0,0691	<0,001
	Вр	-0,0965	<,001		Вр	-0,1125	<,001		Вр	-0,1851	<,001
	Auchan	0,0886	<,001		Auchan	0,0726	<,001		Cepsa	-0,0726	<,001
Prio	Cepsa	0,0160	0,939	Cepsa	Galp	-0,0710	<,001	Auchan	Galp	-0,1436	<,001
	Galp	-0,0550	0,014		Prio	-0,0160	0,939		Prio	-0,0886	<,001
	Repsol	-0,0691	<,001		Repsol	-0,0851	<,001		Repsol	-0,1577	<,001

Source: Developed by the author based on DGEG data

The Scheffe test was used since there is homogeneity of variances and the sample size is greater than 30 observations. In Table 3, it can be observed that considering that sig > 0.10, there is homogeneity in prices between the brands BP, Galp and Repsol and between the brands Cepsa and Prio, regarding Diesel in 2021. There is no homogeneity between Auchan and the remaining brands.

Finally, regarding Gasoline in 2021, in Annex R it was examined whether there is homogeneity of variances since a normal distribution is followed. Considering that sig > 0.10 (0.984) in the "based on mean", it can be stated that the groups are not statistically significantly different, which means that there is homogeneity of variances. In Annex S the table ANOVA is presented. Considering that sig < 0.10 (<0,001), it can be stated that there is at least one mean different from the means of the remaining brands.

**Table 4** – ANOVA Post-Hoc Multiple Comparisons Gasoline 2021 – Summary*The original table can be seen in Annex T* 

	Post-Hoc Multiple Comparisons Petrol 2021										
		Mean				Mean				Mean	
Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.
		(i-j)				(i-j)				(i-j)	
	Вр	-0,0394	0,441		Auchan	0,1722	<,001		Вр	-0,0253	0,85
	Auchan	0,1328	<,001		Cepsa	0,1166	<,001		Auchan	0,1469	<,001
Galp	Cepsa	0,0772	0,003	Вр	Galp	0,0394	0,441	Repsol	Cepsa	0,0913	<,001
	Prio	0,0526	0,093		Prio	0,0920	<,001		Galp	0,0141	0,987
	Repsol	-0,0141	0,987		Repsol	0,0253	0,850		Prio	0,0667	0,020
	Вр	-0,0920	<,001		Вр	-0,1166	<,001		Вр	-0,1722	<,001
	Auchan	0,0802	0,002		Auchan	0,0556	0,094		Cepsa	-0,0556	0,094
Prio	Cepsa	0,0246	0,864	Cepsa	Galp	-0,0772	0,003	Auchan	Galp	-0,1328	<,001
	Galp	-0,0526	0,093		Prio	-0,0246	0,864		Prio	-0,0802	0,002
	Rensol	-0.0667	0.020		Rensol	-0.0913	< 001		Rensol	-0 1469	< 001

Source: Developed by the author based on DGEG data

Since there is homogeneity of variances, Scheffe test will be used. In Table 4, it can be noted that considering that sig > 0,10, there is homogeneity in prices between BP, Galp and Repsol brands and between Cepsa and Prio. There is no homogeneity between Auchan and the remaining brands.

Thus, it can be concluded that proposition 1 is accepted. As it was shown, the price among operators focused on cost competitive strategies with a *less for much less* value proposition is significantly lower than the price charged by operators focused on differentiation competitive strategies with *more for more* value propositions. It can also be observed that Auchan, despite using a *less for much less* value proposition, is not in the same group as the Low-Cost companies since it has lower prices.

## 4.1.3. Reference Price vs Retail Price per Operator

In this part of the analysis, the retail prices of each operator during 2020 and 2021 will be presented. Afterwards, the gross margin of each operator was obtained by subtracting the reference price from the sales price of each operator applicable at the same time. It is important to mention that both retail prices and reference prices are updated once a week. In order to understand the results of this analysis, we first need to understand what reference prices are.

The Reference prices started to be disclosed by ENMC, as of June 2016, after the decision of all members of the National Fuel Council. The Reference prices result from the sum of the wholesale supply values, i.e., the international quotation, freight, unloading and storage, biofuel incorporation, filling, reserves, and taxes. In reference prices, unlike retail prices, retail components such as distribution to points of sale, marketing margin and related value added tax are excluded.

## 4.1.3.1. Gasoline

Since the publication of reference prices in 2016, it is possible to analyse the differences in margins according to the strategy used by each operator. For simple petrol, by analysing the reference price and the retail price of the three categories, from January to December 2020, it is possible to derive the margins obtained during the year for each operator.

Table 5 – Average Petrol Prices 2020 per operator (€/l)

Average Petrol Prices 2020 (€/I)	
Average Price BP	1,4978
Average Price Galp	1,4611
Average Price Repsol	1,4805
Average Price Prio	1,4066
Average Price Cepsa	1,4120
Average Price Auchan	1,3171

Source: Developed by the author based on DGEG data

In Table 5, it is possible to observe the average retail prices of the year 2020. This table allows us to differentiate the three categories mentioned above: Branded Companies, Low-Cost companies, and Hypermarkets. The Branded Companies stand out for having higher prices than the other brands, between 1,4611 (l and 1,4978). On the other hand, the Low-Cost companies (Prio and Cepsa) have an average price between 1.4066 (l and 1.4120). The Hypermarkets category stands out for having the lowest average sales price (1.3171).

# Table 6 – Average Margin Petrol 2020 per category (€/l)

Average Margin Petrol 2020 (€/I)						
"Branded Companies"	0,2947					
"Low-Cost"	0,2243					
"Hypermarkets"	0,1320					

Source: Developed by the author based on DGEG data

Regarding margins, Galp has a margin of  $0.2761 \notin /1$ ; BP  $0.3127 \notin /1$ ; Repsol  $0.2955 \notin /1$ ; Prio  $0.2216 \notin /1$ ; Cepsa  $0.2269 \notin /1$ ; and Auchan  $0.1320 \notin /1$ . Table 6 shows the average margins per category.

For simple petrol, by analysing the reference price and the retail price of the three categories, from January to June 2021, it is possible to derive the margins obtained during the year for each operator.

Average Petrol Prices 2021 (€/I)								
Average Price BP	1,6698							
Average Price Galp	1,6304							
Average Price Repsol	1,6445							
Average Price Prio	1,5778							
Average Price Cepsa	1,5532							
Average Price Auchan	1,4976							

Table 7 – Average Petrol Prices 2021 per operator (€/l)

Source: Developed by the author based on DGEG data

In Table 7, it is possible to observe the average retail prices of the year 2021. The Branded Companies stand out for having higher prices than the other brands, between  $1,6304 \notin /1$  and  $1,6698 \notin /1$ . On the other hand, the Low-Cost companies have an average price between  $1.5532 \notin /1$  and  $1.5778 \notin /1$ . The Hypermarkets category stands out for having the lowest average sales price  $(1.4976 \notin /1)$ .

Table 8 – ANOVA Multiple Correlation Gasoline 2021

Average Margin Petrol 2021 (€/I)						
"Branded Companies"	0,3039					
"Low-Cost"	0,2211					
"Hypermarkets"	0,1532					

Source: Developed by the author based on DGEG data

Regarding margins, Galp has a margin of  $0.2860 \notin |1|$ ; BP  $0.3254 \notin |1|$ ; Repsol  $0.3002 \notin |1|$ ; Prio  $0.2334 \notin |1|$ ; Cepsa  $0.2088 \notin |1|$ ; and Auchan  $0.1532 \notin |1|$ . Table 8 shows the average margins per category.

# 4.1.3.2. Diesel

For simple diesel, by analysing the reference price and the retail price of the three categories, from January to December 2020, it is possible to derive the margins obtained during the year for each operator.

Table 9 – Average	Diesel Prices 202	20 per operator (€	€/l)
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Average Diesel Price 2020 (€/I)							
Average Price BP	1,3488						
Average Price Galp	1,3115						
Average Price Repsol	1,3309						
Average Price Prio	1,2569						
Average Price Cepsa	1,2755						
Average Price Auchan	1,1581						

Source: Developed by the author based on DGEG data

In Table 9, it is possible to observe the average retail prices of the year 2020. The Branded Companies stand out for having higher prices than the other brands, between 1,3115€/l and

1,3488€/l. On the other hand, the Low-Cost companies have an average price between 1.2569€/l and 1.2755€/l. The Hypermarkets category stands out for having the lowest average sales price (1.1581€/l).

Table 10 – Average Margin Diesel 2020 per category (€/l)

Average Margin Diesel 2020 (€/I)							
"Branded Companies"	0,2795						
"Low-Cost"	0,2153						
"Hypermarkets"	0,1072						

Source: Developed by the author based on DGEG data

Regarding margins, Galp has a margin of  $0.2606 \notin /1$ ; BP  $0.2979 \notin /1$ ; Repsol  $0.2800 \notin /1$ ; Prio  $0.2060 \notin /1$ ; Cepsa  $0.2246 \notin /1$ ; and Auchan  $0.1072 \notin /1$ . Table 10 shows the average margins per category.

For simple diesel, by analysing the reference price and the retail price of the three categories, from January to June 2021, it is possible to derive the margins obtained during the year for each operator.

Table 11 – Average Diesel Prices 2021 per operator (€/l)

Average Diesel Prices 2021 (€/l)				
Average Price BP	1,4893			
Average Price Galp	1,4478			
Average Price Repsol	1,4619			
Average Price Prio	1,3928			
Average Price Cepsa	1,3768			
Average Price Auchan	1,3042			

Source: Developed by the author based on DGEG data

In Table 11, it is possible to observe the average retail prices of the year 2021. The Branded Companies stand out for having higher prices than the other brands, between  $1,4478\notin/1$  and  $1,4893\notin/1$ . On the other hand, the Low-Cost companies (Prio and Cepsa) have an average price of  $1.3768\notin/1$  and  $1.3928\notin/1$ . The Hypermarkets category stands out for having the lowest average sales price  $(1.3042\notin/1)$ .

Table 12 – Average Margin Diesel 2021 per category (€/l)

Average Margin Diesel 2021 (€/I)			
"Branded Companies"	0,2714		
"Low-Cost"	0,1899		
"Hypermarkets" 0,1093			

Source: Developed by the author based on DGEG data

Regarding margins, Galp has a margin of  $0.2529 \notin |1|$ ; BP  $0.2944 \notin |1|$ ; Repsol  $0.2670 \notin |1|$ ; Prio  $0.1979 \notin |1|$ ; Cepsa  $0.1819 \notin |1|$ ; and Auchan  $0.1093 \notin |1|$ . Table 12 shows the average margins per category.

Annex U shows all the operators being analysed and their spreads compared with Galp. All companies are compared with Galp because it is the largest company in the fuel market in Portugal. With Annex U it is also possible to conclude that most companies set their prices based on their competitors trying to keep spreads constant. However, there are two operators who, unlike the others, have a more volatile spread. These operators are Cepsa and Auchan.

In the case of Cepsa, it is a brand with some recognition and notoriety, but not enough to guarantee a solid/premium position as the Branded Companies. On the other hand, it also has operating costs and loyalty programs that do not allow it to have very low prices. Based on this, Cepsa is trying to find its optimal space in the market. This evolution can be seen from 2020 to 2021, where it is clear that Cepsa has established its spreads with a purely low-cost strategy. In 2020 (Annex U – Petrol 2020 and Diesel 2020) we can observe that Cepsa had prices above Prio, and very close to Galp. However, in 2021, it set its prices below Prio (Annex U – Petrol 2021 and Diesel 2021). This is a clear example that in this market it is necessary to have a clearly defined strategy, either to be premium and recognised as such, being able to have costs that support that offer or to be Low-Cost and work with the lowest costs and the fewest offers possible, trying to attract customers through direct price discounts. In the case of Auchan, it is clear that it uses price to massively attract consumers to their petrol stations as well as to their supermarket network.

With this analysis and the characterization of the offer of each operator, we can clearly distinguish the different pricing strategies that exist. In this market, there are essentially two pricing strategies that are used: Value Based Pricing and Competition Based Pricing. The Value Based Pricing strategy includes Galp, BP and Repsol brands, which set their prices according to consumers' perceptions of value. These brands have higher prices than the others because they offer a variety of additional services that add value to the main product. The Competition Based Pricing strategy includes Prio, Cepsa and Auchan brands, which set their prices according to important information about their competition, such as price, strategies, costs and offers. These brands have lower prices than the Branded Companies, since their focus is on consumer discounts, that is, unlike the other brands they do not add value through additional services.

# 4.1.4. Margin Evolution by Operator type

Average Simple Petrol Margins					
Type of Operator	2020 (cent/l)	2021 (cent/l)	Dif (%)		
Average Margins "Branded Companies"	0,2947	0,3039	3,10%		
Average Margins "Low Cost"	0,2243	0,2211	-1,39%		
Average Margins "Hypermarkets"	0,1320	0,1532	16,05%		
Average Simple D	iesel Margens				
Type of Operator	2020 (cent/l)	2021 (cent/l)	Dif (%)		
Average Margins "Branded Companies"	0,2795	0,2714	-2,89%		
Average Margins "Low Cost"	0,2153	0,1899	-11,82%		
Average Margins "Hypermarkets"	0,1072	0,1093	1,93%		

Table 13 - Average Gasoline and Diesel Margins by Type of Operator

Source: Developed by the author based on DGEG data

In Table 13 it is possible to observe the evolution of trade margins from 2020 to 2021 by type of operator, namely Branded Companies, Low-Cost and Hypermarkets. The evolution of the margins for the Branded Companies petrol was +3.10%. This increase is because this type of brands had to increase prices and consequently margins in line with their increased costs, which were more or less in line with the increase in inflation, in order to protect their results at the end of the year.

The Hypermarkets lost a lot of private sales volume (the Pandemic affected mainly the private volume, while the fleet volume did not lose so much because the minimum logistics of the country had to continue working). By losing so much volume they had to reduce discounts in order to balance their results, increasing their margin by 16.05%.

The Low-Cost brands had an evolution of -1.39%. This type of brands also lost sales volume but since they have higher margins, they didn't have to decrease the price so much. Among the Low-Cost brands, Prio had an increase in its margin compared to 2020 of +5.09%, having to increase more than the Branded Companies in order to maintain its results, but not as much as the Hypermarkets. In the case of Cepsa, there was a decrease in the margin of -8.67% due to the fact mentioned previously that Cepsa adopted a pure Low-Cost strategy compared to 2020 where this strategy was not so well defined.

Regarding the evolution of diesel margins (Table 13), it can be noted that both the Branded Companies and the Low-Cost had decreases in margins of -2.89% and -11.82% respectively. This decrease can be explained by the fast increase in the cost of oil, as in these situations the operators find it difficult to pass on this same increase to the retail selling price. On the other hand, since the Hypermarkets have cheaper prices, they feel more comfortable to raise prices right away, leading to an increase in margins of 1.93%.

With this analysis, it can also be mentioned that while on the one hand petrol margins followed the increase in oil prices, on the other hand, in diesel the increase in oil prices exceeded the growth in margins. The main reason for this is that diesel fleets are a more price sensitive segment, namely the transporters. For this reason, the increases are socially and politically more sensitive. This in turn also explains why Hypermarkets are the only ones to follow the rise in oil prices, as they have few transporters as customers.

#### 4.1.5. Market Share

In this market the main factor to measure a company's performance is through market shares. This is done by comparing market shares vs. market shares in previous years to assess performance vs. the market and vs. the competition.

	Market Share per Operator						
	1T2020	2T2020	3T2020	4T2020	1T2021	2T2021	
Galp	24,5	24,5	24	24,5	25	24,5	
BP	16	16,7	16,8	17	17,2	17,2	
Repsol	15,5	15,5	15,7	15,7	15,9	15,8	
Cepsa	7	6,5	6,8	6,5	6,4	6,5	
Prio	8,5	8,3	8,2	8,2	8,5	8,4	
Hipers	21	21	21,5	21	20,5	20,8	
Others	7,5	7,5	7	7,1	6,5	6,8	
Total	100	100	100	100	100	100	

 Table 14 - Market Share per Operator

Source: Interview with market specialist

As it can be seen in Table 14, this is a market where companies have already stabilized their position and where the variations in market share are not very significant. This stability results from the fact that there are no great growth opportunities (organic and inorganic). Furthermore, in Portugal the number of petrol stations is above the European average and each operator has consolidated its position based on the offer it has and tries to maintain this same balanced position.

Despite this stability, there were still some variations in market share. It can be observed that all Branded Companies increased their market share during the most aggressive lock-up periods, since during these periods the fleet cardboard volumes were less penalised because the country's logistics base did not stop working. On the other hand, in periods of lower constraints, the brands that are more oriented to purely private volume recovered part of the lost share.

It can be noted that BP had a significantly higher increase than any other operator, because it continued to develop the offer and the network. BP strengthened its partnership with Pingo Doce through strong one-off initiatives on the "cartão poupa mais", and also grew its network by converting petrol stations (Prio/Pingo Doce) into BP stations. BP also launched the Drive Carbon Neutral program, creating a line of differentiated offers that had a positive influence on the increase in its market share.

The "Others" (petrol stations with no brand) have been consistently losing due to lack of supply and the fact that their position of low-price offers is being depleted by the Hypermarkets. The latter have managed to maintain a relatively stable market share during the evaluated period.

# 4.1.6. Cost of Offers per Operator

Finally, it is necessary to determine the cost of each operator's offers to discount the gross margin previously calculated. With this new data, it is possible to understand the margin that each operator has to support its operating costs and thus try to understand how each type of offer behaves in this market. This analysis can only be carried out because this is a market with very stable market shares and offers, otherwise it would be much more difficult to perform the analysis.

ļ	Table of Offers		
Brands	Offers	Cost	Share of Sales
	Discount (Wednesday)	5cpl	10%
	Galp+Card	5cpl	5%
	Partnerships (Burguer King, Meu Super, Continente Card)	3cpl	50%
Galp	Galp Tangerina Shop and Coffe	Global brand buid	NA
	Washing and Cleaning Service	Global brand build	NA
	App Mundo Galp	Global brand build	NA
	Total	2,25 c	pl
	Local Discount	4cpl	10%
	Bp PremierPlus Card	0,5cpl	70%
	Poupa Mais Card	2cpl	45%
Вр	Pingo Doce Go Store	Global brand build	NA
	Washing and Cleaning Service	Global brand build	NA
	Drive Carbon Neutral	1.5cpl	70%
	Total	2,7cp	bl
	Repsol Move	2cpl	15%
	Partnerships (El Corte Ingles, Norauto, Fnac, Benfica)	2cpl	50%
Repsol	In Store Products	Global brand build	NA
	Washing and Cleaning Service	Global brand	NA
	Total	1,3cp	bl
	Cartão Porque eu Volto	5cpl	5%
	Partnerships (DECO+)	15cpl	5%
Consa	Washing and Cleaning Service	Global brand build	NA
cepsa	Repair Stores	Global brand build	NA
	Depaso Stores	Global brand build	NA
	Total	1cpl	
	Partnerships (Credito Agricola)	12cpl	5%
	Hiper Market Convenience Store	Global brand build	
Prio	PRIOpharma	Global brand build	
1110	App prio.go	Global brand build	
	Car Wash	Global brand bild	
	Total	0,6cp	bl
Auchan	No additional Services		
Auchan	Total	0cpl	



\*cpl = cost per litre
\*NA = not applicable

Source: Interview with market specialist

In Table 15, the cost per litre of each of the offers and its respective impact on total sales can be seen. The sum is greater than 100% because there are many offers that accumulate. It is important to note that this table only includes offers with an impact on simple fuels. Furthermore, fleet cards were also not included as the focus of this dissertation is the private consumer.

It can be seen that Branded Companies have higher costs of offer than the other operators (Galp: 2,25 cents per litre; Bp: 2,7 cents per litre; Repsol: 1,3 cents per litre). In the case of the Low-Cost Companies, this value is slightly lower (Prio: 0,6 cents per litre; Cepsa: 1 cents per litre). In the case of Hypermarkets, the value of the offers is 0 cents per litre because they do not have additional services.

Margin for operating Costs 0,2635 € 0,2984 € 0,2872 € 0,2274 € 0.1988 €

	Petrol 2020					
Operator	Gross Margin	Cost of Offers	Net Margin for operating Costs	Gross Margin	Cost of Offers	Net
Galp	0,2761€	0,0225€	0,2536€	0,2860€	0,0225€	
Вр	0,3127€	0,0270€	0,2857€	0,3254€	0,0270€	
Repsol	0,2955€	0,0130€	0,2825€	0,3002€	0,0130€	
Prio	0,2216€	0,0060€	0,2156€	0,2334€	0,0060€	
Cepsa	0,2269€	0,0100€	0,2169€	0,2088€	0,0100€	
Auchan	0,1320€	0,0000€	0,1320€	0,1532€	0,0000€	

 Table 16 - Net Margin per Trader

Auchan	0,1520 £	0,0000 £	0,1520 €	0,1552 t	0,0000€	0,1552 €	
		Dies	el 2020	Diesel 2021			
Operator	Gross Margin	Cost of Offers	Net Margin for operating Costs	Gross Margin	Cost of Offers	Net Margin for operating Costs	
Galp	0,2606€	0,0225€	0,2381€	0,2529€	0,0225€	0,2304€	
Вр	0,2979€	0,0270€	0,2709€	0,2944€	0,0270€	0,2674€	
Repsol	0,2800€	0,0130€	0,2670€	0,2670€	0,0130€	0,2540€	
Prio	0,2060€	0,0060€	0,2000€	0,1979€	0,0060€	0,1919€	
Cepsa	0,2246€	0,0100€	0,2146€	0,1819€	0,0100€	0,1719€	
Auchan	0,1072€	0,0000€	0,1072€	0,1093€	0,0000€	0,1093€	

Source: Developed by the author based on DGEG data and Cost of Offer data

Table 16 shows the result obtained by subtracting each operator's offers from its gross margin. The net margin that each operator has to pay its operating costs is therefore obtained. It can be noted that the Branded Companies are the ones with the highest margins, ranging between 23,81 and 27,09 cent/l for diesel in 2020 and 25,36 and 28,57 cent/l for gasoline in 2020. In 2021, the diesel margins decreased slightly to between 23,04 and 26,74 cents/l for diesel, while for gasoline there was a small increase in the margins, which are now between 26,35 and 29,84 cents/l. As previously stated, these differences may be justified by the fact that the increases in the price of diesel are made gradually since diesel fleets are more sensitive to price. In the case of gasoline, the price directly follows the rise in the price of crude and inflation.

Regarding the margins obtained by the Low-Cost to pay operating costs in 2020, they were between 20.0 cent/l and 21.46 cent/l for diesel. For gasoline, the margins were between 21.56 cents/l and 21.69 cents/l also in 2020. For the year of 2021, similarly to the case of the Branded Companies, there was a decrease in the diesel margins, which are now comprised between 17,19 cent/l and 19,19 cent/l. In the case of gasoline in 2021, the margins are now between 19.88 cent/l and 22.74 cent/l. The reason why Cepsa's margins have fallen significantly in 2021 is because it has adopted a purely Low-Cost strategy regarding 2020.

Finally, regarding the margin to pay the operational costs of Hypermarkets, in 2020 the margin for diesel was around 10.72 cent/l and for gasoline 13.20 cent/l. In the year of 2021 the margins for diesel were 10.93 cent/l and 15.32 cent/l for gasoline. The latter were the only ones that managed to follow the rise in prices for both gasoline and diesel. This is because most of their sales are for private consumption, with little sales volume to transportation companies. Another factor that allowed them to follow the price increase was the fact that they had very cheap prices giving them more margin to increase the price.

In conclusion, there are two strategies to maintain competitive advantage in the fuel market: Cost Leadership Strategy and Differentiation Strategy. The Cost Leadership Strategy is used by operators that have low operating costs resulting in a low price for consumers (Low-Cost companies and Hypermarkets). These operators use a *less for much less* value proposition, as they only offer the minimum possible at a low price. The Differentiation Strategy is used by operators who want to differentiate themselves from the other operators by offering additional services, which result in higher prices (Branded Companies). These operators use a *more for more* value proposition.

Furthermore, according to what was referred in the literature review together with what was observed in the analysis of spreads and market offers, it can be concluded that in the fuel market in Portugal there are two pricing strategies: Value Based Pricing and Competition Based Pricing. The Value Based Pricing strategy includes Galp, BP and Repsol brands, which set their prices according to consumers' perceptions of value. These brands have higher prices than the others because they offer a variety of additional services that add value to the main product. The Competition Based Pricing strategy includes Prio, Cepsa and Auchan brands, which set their prices according to important information about their competition, such as price, strategies, costs and offers. These brands have lower prices than the Branded Companies, since their focus is on consumer discounts, that is, unlike the other brands they do not add value through additional services.

Finally, having analysed the Reference Price VS Retail Price, the evolution of margins, market share, operators' supply costs and net margins, we can conclude that the *more for more* value proposition has a better performance than the *less for much less* value proposition.

# **4.2. RQ2:** What are the main competitive triggers of consumer preference for each of these competitive strategies?

# 4.2.1. Sample characterisation

To validate the remaining propositions, a survey was conducted and a total of 388 responses were obtained in the period between the 30<sup>th</sup> of June and 16<sup>th</sup> of July.

Firstly, filter questions were presented to ensure that the respondents corresponded to the target under study. Only the answers of respondents who were currently living in Portugal, over 18 years of age and who put petrol at least once a month on their car were considered valid.

From the 388 answers, 88 answers were eliminated due to not matching the target requirements. Of the 88 invalid responses, 4,12% did not live in Portugal, 6,44% were under 18 years of age, 7,22% did not fill up with petrol at least once a month and 4,9% used a fleet card. By removing the responses that did not match the target, there were left 300 valid answers to analyse.

After eliminating the answers that did not correspond to the previously mentioned requirements, the next step was to carry out a characterisation of the sample according to the demographic information included in the questionnaire.

	Frequency	Percent	Cumulative Percent
18-30	129	43,0	43,0
31 - 45	53	17,7	60,7
46 - 55	69	23,0	83,7
56 - 65	35	11,7	95,4
> 66	14	4,7	100,0
Total	300	100,0	

<b>Table 17</b> – Sam	ple Charac	terisation	(Age)
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Source: Developed by the author based on the answers to the questionnaire

The most represented age group (Table 17) was 18-30 years old (43%), followed by 46-55 years old (23%). A low percentage (4.7%) of respondents over the age of 66 years is noteworthy.

#### Table 18 – Sample Characterisation (Gender)

	Frequency	Percent
Feminino	155	51,7
Masculino	145	48,3
Total	300	100,0

Source: Developed by the author based on the answers to the questionnaire

As it can be seen in Table 18, 51.7% of the respondents are female. Regarding males, 145 responses were obtained, representing 48.3% of the total.

 Table 19 – Sample Characterisation (Location)

	Frequency	Percent	Cumulative Percent
Lisboa	236	78,7	78,7
Setúbal	27	9,0	87,7
Santarém	16	5,3	93,0
Porto	7	2,3	95,3
Coimbra	4	1,3	96,7
Braga	3	1,0	97,7
Leiria	3	1,0	98,7
Évora	2	,7	99,3
Outro	1	,3	99,7
Portalegre	1	,3	100,0
Total	300	100,0	

Source: Developed by the author based on the answers to the questionnaire

Regarding the place of residence (Table 19), most respondents live in the district of Lisbon, representing 78.7% of the answers.

# Table 20 – Sample Characterisation (Occupation)

		Frequency	Percentage	Cumulative Percentage
Valid	Trabalhador a tempo inteiro	208	69,3	97,0
	Estudante	63	21,0	21,7
	Reformado	12	4,0	27,7
	Trabalhador em part-time	9	3,0	100,0
	Outro	6	2,0	23,7
	Desempregado	2	,7	,7
	Total	300	100,0	

Source: Developed by the author based on the answers to the questionnaire

Furthermore, in the occupation (Table 20) we can see that 69.3% of the respondents are full time workers, 21% being students and 4% retired.

		Frequency	Percent	Cumulative Percent
Valid	Galp	88	29,3	29,3
	BP	73	24,3	53,7
	Repsol	60	20,0	73,7
	Prio	41	13,7	87,3
	Cepsa	23	7,7	95,0
	Auchan	15	5,0	100,0
	Total	300	100,0	

#### **Table 21** – Sample Characterisation (Most used Brands)

Source: Developed by the author based on the answers to the questionnaire

Finally, concerning the brands most used by the respondents (Table 21), it can be observed that the most consumed brands are the Branded Companies, namely Galp (29.33%), BP (24.33%) and Repsol (20%). Next come the Low-Cost Companies, which once again show a slight difference between Prio (13.67%) and Cepsa (7.67%). Finally, the least consumed brand belongs to the Auchan supermarket chain, with 5%.

#### 4.2.2. Validation of Measures

In order to test Propositions 2 and 3, questions about consumption and competitive triggers of consumer preference were asked in the questionnaire.

Proposition 2 it was intended to validate that price attributes are the main trigger for operators focused on cost competitive strategies with a *less for much less* value proposition. On the other hand, Proposition 3 intended to validate that service attributes are the main trigger for operators focused on competitive differentiation strategies with *more for more* value propositions. For validating both propositions, a multiple regression was carried out for each category (Branded Companies, Low-Cost Companies and Hypermarkets). However, due to the sample being too small for the Hypermarkets category (N=15), it was not possible to carry out the analysis since the results would be inconclusive. It is important to mention that in this dissertation, variables with a p<0.10 will be accepted.

# Table 22 – Linear Regression Coefficients (Low-Cost)

The original table can be seen in Annex V

Coefficient	ts			
	Standardised Coefficients		Collinearity	Statistics
	Beta	Sig.	Tolerance	VIF
(Constant)		0,079		
Q31_1: The brand has high quality fuel	0,224	0,191	0,346	2,886
Q31_2: Getting in and out of the brand's petrol station is fast	0,138	0,276	0,629	1,590
Q31_3: The brand has a low fuel price	0,286	0,037	0,555	1,801
Q31_4: I feel safe at the brand's petrol station	0,051	0,748	0,404	2,477
Q31_5: I like to shop at the brand's Convenience Store	0,217	0,103	0,581	1,721
Q31_6: The brand has a wide range of fuels	0,074	0,638	0,408	2,450
Q31_7: I like the brand's car wash service	0,257	0,175	0,495	2,018
Q31_8: I consider the brand loyalty card good	-0,401	0,003	0,579	1,727
Q31_9: The brand's petrol stations are conveniently located	-0,093	0,485	0,563	1,775
Q31_10: The brand is concerned with sustainability	0,195	0,210	0,418	2,394
Q31_11: I often see advertising of the brand	-0,131	0,290	0,655	1,527

Source: Developed by the author based on the answers to the questionnaire

Regarding Low-Cost brands, we can observe in Annex W that the sample is 63. The first table of interest is the Model Summary (Annex X), in which we can observe that 49.5% of the variation in the dependent variable is explained by the model. The second table of interest is the ANOVA table (Annex Y), where we can state that the independent variables predict the dependent variable significantly because the p is less than 0.10 (<,001). The third table of interest is the one that presents the regression coefficients (Table 22). Firstly, it can be stated that there is no multicollinearity, since the VIF is less than 10 and the Tolerance is greater than 0.10 in all independent variables. Besides this, it is possible to observe that only 2 variables are considered significant (p<0.10), namely the variables Q31\_3 ("The brand has a low fuel price") and Q31\_8 ("I consider the brand's loyalty card good"). Finally, it is necessary to analyse the weight that each variable has in the model through the standardised Beta coefficient. It can be claimed that the variable with the greatest weight in the frequency of consumption of the Low-Cost companies is the fact that the brands have a low fuel price, something that goes in line with the strategy used by the brands. Regarding variable Q31\_8 ("I think the brand's loyalty card is good"), although it is significant, it has a negative Beta standardized coefficient (-0.401), which means that this is not a reason why consumers go frequently to the Low-Cost brands.

# Table 23 – Linear Regression Coefficients (Branded Companies)

The original table can be seen in Annex Z

Coefficie	nts				
	Standardised Coefficients		Collinearity Statistics		
	Beta	Sig.	Tolerance	VIF	
(Constant)		<0,001			
Q31_1: The brand has high quality fuel	0,217	0,033	0,388	2,575	
Q31_2: Getting in and out of the brand's petrol station is fast	0,078	0,313	0,669	1,495	
Q31_3: The brand has a low fuel price	0,030	0,653	0,909	1,100	
Q31_4: I feel safe at the brand's petrol station	-0,066	0,496	0,427	2,342	
Q31_5: I like to shop at the brand's Convenience Store	-0,106	0,200	0,576	1,737	
Q31_6: The brand has a wide range of fuels	0,038	0,712	0,371	2,693	
Q31_7: I like the brand's car wash service	-0,057	0,447	0,702	1,424	
Q31_8: I consider the brand loyalty card good	0,151	0,082	0,531	1,883	
Q31_9: The brand's petrol stations are conveniently located	0,067	0,408	0,609	1,642	
Q31_10: The brand is concerned with sustainability	0,169	0,042	0,577	1,733	
Q31_11: I often see advertising of the brand	-0,015	0,862	0,547	1,827	

Source: Developed by the author based on the answers to the questionnaire

For the Branded Companies, in which the brands Galp, BP and Repsol are included, the sample is 221, as can be seen in Annex AA. The first table of interest is the Model Summary (Annex AB), in which we can observe that 17.6% of the variation in the dependent variable is explained by the model. The second table of interest is the ANOVA table (Annex AC), where we can state that the independent variables predict the dependent variable significantly because the p is less than 0.10 (<,001). In other words, the regression model fits the data well. The third table of interest is the one that presents the regression coefficients (Table 23). Firstly, it is possible to state that there is no multicollinearity, since the VIF is less than 10 and the Tolerance is greater than 0.10 in all independent variables. Furthermore, it is possible to observe that only 3 variables are considered significant (p<0.10), namely the variables Q31\_1("The brand has high quality fuel"), Q31\_8 ("I consider the brand's loyalty card good") and Q31\_10 ("The brand cares about sustainability"). Finally, it is necessary to analyse the weight that each variable has in the model through the standardised Beta coefficient. It can be stated that the variable with the greatest weight in the frequency of consumption of the Branded Companies is the fact that the brands have a high-quality fuel. In second place we have the fact that brands care about sustainability, followed by "I think the brand's loyalty card is good" with a slight difference.

Therefore, it can be stated that Proposition 2 is accepted. As it was shown, price attributes are the main trigger for operators focused on cost competitive strategies with a *less for much less* value proposition, since the main trigger of consumer preference for these brands is that "The brand has a low fuel price". Regarding Proposition 3, this is also accepted. That is, service attributes are the main trigger for operators focused on competitive differentiation strategies with *more for more* value propositions. This is because the main trigger of consumer

preference for these brands is "I consider the brand's loyalty card good". However, the fact that the fuel is of high quality is also one of the main triggers.

Before starting the analysis of the different dimensions of the Kevin Keller Model, it is important to mention that a Principal Component Analysis was performed regarding all questions concerning Kevin Keller's theory (except the salience questions). It was therefore necessary to remove some questions from the questionnaire and group dimensions. Annex AD shows the final table of items from Kevin Keller's model after 14 items were removed. Annex AE shows the table with all the items that were removed. In this analysis, all items with a value lower than 0.5 in the Rotating Component Matrix were removed (Mazzocchi, 2008). Due to this, it was necessary to group dimensions. Therefore, we were left with 4 dimensions: Salience, Performance/Judgments, Imagery/Feelings and Resonance.

# Table 24 - Reliability Statistics

Perform	nance/Judg	gments	Ima	igery/Feeli	ngs	1	Resonance	
Alfa de Cronbach	Alfa de Cronbach com base em itens padronizados	N de itens	Alfa de Cronbach	Alfa de Cronbach com base em itens padronizados	N de itens	Alfa de Cronbach	Alfa de Cronbach com base em itens padronizados	N de itens
,971	,971	10	,960	,960	8	,974	,975	14

Source: Developed by the author based on the answers to the questionnaire

After the Principal Component Analysis, the Cronbach Alpha was calculated for each of the final dimensions (except for the Salience questions). The Cronbach Alpha is a method of calculating the reliability coefficient, which identifies reliability as internal consistency. In Table 24, we can observe that the value of Cronbach's Alpha for Performance/Judgments is more than 0.7, namely 0.971; the value of Cronbach's Alpha for Imagery/Feelings is greater than 0.7, namely 0.960; and the value of Cronbach's Alpha for Resonance is higher than 0.7, namely 0.975, this means that there is a very good consistency for the three dimensions.





Source: Developed by the author based on the answers to the questionnaire

The first question in the Kevin Keller Model questionnaire, aimed at measuring awareness (Salience), asked individuals to list all the gas station brands they could recall without any help to understand how easily and frequently brands are evoked. Figure 3 shows the distribution of the brands Galp, BP, Repsol, Cepsa, Prio and Auchan. Other brands were also listed, such as Shell, Alves Bandeira, Oz Energia and Intermarché, however, these answers were not considered since they do not belong to the brands included in the analysis. Among the fuel brands listed, the Branded Companies were the ones with the highest percentage of unaided awareness. Although Cepsa and Prio use a similar strategy (Low-Cost companies), it was possible to observe a difference in the percentage of times that the brands were remembered, namely 34,67% for Cepsa and 65,33% for Prio. The Hypermarket brand was the one with the lowest percentage (17,33%).





Source: Developed by the author based on the answers to the questionnaire

Afterwards, the respondents were asked, from the various options given, to indicate which fuel brands they had already heard of, in other words, in this case the respondents had help (aided awareness). With this help it was possible to observe a greater balance between brands (Figure 4). The Branded Companies continued to stand out with an average of 99,78%. Low-Cost brand increased their percentage of awareness and reduced the gap between them. The Hypermarket brand remained in the last position (78,67%), although with a smaller difference with the other brands.

Media Perfor	mance/Julgamentos	Media Imagem/Sentimentos	Media Resonancia
Galp		Galp	Galp
	6,26	5,28	3,96
Вр		Вр	Вр
	6,54	5,78	4,28
Repsol		Repsol	Repsol
	6	5,26	3,7
Prio		Prio	Prio
	3,88	4,04	2,34
Cepsa		Cepsa	Cepsa
	4,2	4,02	2,6
Auchan		Auchan	Auchan
	3,16	2,92	1,82

<b>Table 25</b> –	Average	of Kevin	Keller	Dimen	sion's	per Brand
						p • • • • • • • • • • • • • •

Source: Developed by the author based on the answers to the questionnaire

Table 25 represents the averages per dimension for each fuel brand. In this chart, it is possible to identify the three types of strategy previously mentioned: Branded Companies, Low-Cost and Hypermarkets.

The Branded Companies stand out for having a very high score in the three dimensions (Performance/Judgements, Imagery/Feelings and Resonance), that is, above 3.5. This means that the three brands (Galp, BP and Repsol) are strong brands, since they were able to: (1) establish their own brand identity, (2) create appropriate brand meaning through strong, favourable, and unique brand associations, (3) elicit positive and accessible brand responses, and (4) build brand relationships with customers that are characterised by intense and active loyalty (Keller, 2003). According to Keller (2003), companies that can achieve brand resonance should reap several benefits, for example, higher price premiums and more efficient and effective marketing programmes. This description can be associated with Branded Companies, which due to having high Resonance, have a variety of benefits such as premium prices and more efficient marketing programs.

The second type of strategy, Low-Cost Companies, includes Prio and Cepsa brands. It can be observed in Table 25, that both brands have similar values in the three dimensions, especially in the Imagery/Feelings dimension. Both brands have high scores in the Performance/Judgments and Imagery/Feelings dimensions, that is, above 3.5. However, unlike the Branded Companies, these Low-Cost brands have a low value in the Resonance dimension. This means that although they are brands with strong, favourable, and unique associations and that elicit positive and accessible brand responses, they do not have strong customer loyalty.

Finally, regarding Auchan, it can be seen in Table 25 that the brand has a low value in the three dimensions, which means that it is not a strong brand with brand equity. This means that the brand does not meet customers' expectations, nor their social and psychological needs. In addition, the brand is not associated with terms such as quality, credibility, consideration, and superiority. Customers do not feel secure with the brand, nor do they feel proud to use the brand, which results in a low resonance value as there is very little loyalty.

Having analysed the different dimensions of Kevin Keller by brand, it becomes necessary to prove Proposition 4 which intended to validate that there were significant differences between the dimensions of brand equity across strategies. To validate this proposition, three Analysis of Variance were performed, one for each dimension of Brand Equity (except the salience dimension).

According to the central limit theorem, the hypothesis of normality holds for a sample size greater than 30 observations. In Annex AF, Annex AJ and Annex AN the sample size is greater than 30 observations, so it can be stated that normality exists in the three analyses that were carried out.

Regarding the Performance/Judgments dimension, in Annex AG it was examined whether there is homogeneity of variances since a normal distribution is followed. Considering that sig < 0.10 (<,001) in the "based on mean", it can be stated that the groups are statistically significantly different, which means that there is no homogeneity of variances. In Annex AH the table ANOVA is presented. Considering that sig < 0.10 (<,001), it can be stated that there is at least one mean different from the means of the remaining brands.

**Table 26** – ANOVA Post-Hoc Multiple Comparisons (Performance/Judgments) – Summary

 *The original table can be seen in Annex AI*

			Post	-Hoc Multip	le Compari	sons Performan	ce/Judgen	nents			
		Mean				Mean			Mean		
Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.
		(i-j)				(i-j)				(i-j)	
	Auchan	2,5360	<,001		Auchan	2,6840	<,001		Auchan	2,4460	<,001
	Вр	-0,1480	0,981		Cepsa	1,8440	<,001		Вр	-0,2380	0,870
Galp	Cepsa	1,6960	<,001	Вр	Galp	0,1480	0,981	Repsol	Cepsa	1,6060	<,001
	Prio	1,6640	<,001		Prio	1,8120	<,001		Galp	-0,0900	0,996
	Repsol	0,0900	0,996		Repsol	0,2380	0,870		Prio	1,5740	<,001
	Auchan	0,8720	0,042		Auchan	0,8400	0,030		Вр	-2,6840	<,001
	Вр	-1,8120	<,001		Вр	-1,8440	<,001		Cepsa	-0,8400	0,030
Prio	Cepsa	0,0320	1,000	Cepsa	Galp	-1,6960	<,001	Auchan	Galp	-2,5360	<,001
	Galp	-1,6640	<,001		Prio	-0,0320	1,000		Prio	-0,8720	0,042
	Repsol	-1,6740	<,001		Repsol	-1,6060	<,001		Repsol	-2,4460	<,001

Source: Developed by the author based on the answers to the questionnaire

The Games-Howell test was used since there was no homogeneity of variances. In Table 26, it can be observed that taking into account that sig > 0.10, there is homogeneity in the means between the brands BP, Galp and Repsol and between the brands Cepsa and Prio, regarding Performance/Judgments. There is no homogeneity between Auchan and the remaining brands.

Regarding the Imagery/Feelings dimension, in Annex AK it was examined whether there is homogeneity of variances since a normal distribution is followed. Considering that sig < 0.10 (0,004) in the "based on mean", it can be stated that the groups are statistically significantly different, which means that there is not homogeneity of variances. In Annex AL the table ANOVA is presented. Considering that sig < 0.10 (<,001), it can be stated that there is at least one mean different from the means of the remaining brands.

**Table 27** – ANOVA Post-Hoc Multiple Comparisons (Imagery/Feelings) – Summary*The original table can be seen in Annex AM* 

				Post-Hoc M	ultiple Com	nparisons Image	ry/Feeling	s			
		Mean			Mean					Mean	
Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.
		(i-j)				(i-j)				(i-j)	
	Auchan	2,6450	<,001		Auchan	2,9475	<,001		Auchan	2,4700	<,001
	Вр	-0,3025	0,862		Cepsa	1,9300	<,001		Вр	-0,4775	0,413
Galp	Cepsa	1,6275	<,001	Вр	Galp	0,3025	0,862	Repsol	Cepsa	1,4525	<,001
	Prio	1,8200	<,001		Prio	2,1225	<,001		Galp	-0,1750	0,974
	Repsol	0,1750	0,974		Repsol	0,4775	0,413		Prio	1,6450	<,001
	Auchan	0,8250	0,023		Auchan	1,0175	<,001		Вр	-2,9475	<,001
	Вр	-2,1225	<,001		Вр	-1,9300	<,001		Cepsa	-1,0175	<,001
Prio	Cepsa	-0,1925	0,952	Cepsa	Galp	-1,6275	<,001	Auchan	Galp	-2,6450	<,001
	Galp	-1,8200	<,001		Prio	0,1925	0,952		Prio	-0,8250	0,023
	Repsol	-1,6450	<,001		Repsol	-1,4525	<,001		Repsol	-2,4700	<,001

Source: Developed by the author based on the answers to the questionnaire

The Games-Howell test was used since there was no homogeneity of variances. In Table 27, it can be observed that considering that sig > 0.10, there is homogeneity in the means between the brands BP, Galp and Repsol and between the brands Cepsa and Prio, regarding Imagery/Feelings. There is no homogeneity between Auchan and the remaining brands. This

means that although it belongs to the *less for much less* strategy, the fact is that it has some differences compared to Prio and Cepsa, because it uses a more aggressive price setting strategy.

Finally, regarding the Resonance dimension, in Annex AO it was examined whether there is homogeneity of variances since a normal distribution is followed. Considering that sig < 0.10 (<,001) in the "based on mean", it can be stated that the groups are statistically significantly different, which means that there is not homogeneity of variances. In Annex AP the table ANOVA is presented. Considering that sig < 0.10 (<,001), it can be stated that there is at least one mean different from the means of the remaining brands.

 Table 28 – ANOVA Post-Hoc Multiple Comparisons (Resonance) – Summary

*The original table can be seen in Annex AQ* 

				Post-Ho	c Multiple (	Comparisons Re	sonance				
		Mean			Mean					Mean	
Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.	Brand (i)	Brand (j)	Differerence	Sig.
		(i-j)				(i-j)				(i-j)	
	Auchan	1,9242	<,001		Auchan	2,0871	<,001		Auchan	1,6914	<,001
	Вр	-0,1629	0,996		Cepsa	1,5300	<,001		Вр	-0,3957	0,807
Galp	Cepsa	1,3671	<,001	Вр	Galp	0,1629	0,996	Repsol	Cepsa	1,1342	<,001
	Prio	1,4328	<,001		Prio	1,5957	<,001		Galp	-0,2329	0,962
	Repsol	0,2329	0,962		Repsol	0,3957	0,807		Prio	1,2000	<,001
	Auchan	0,4914	0,234		Auchan	0,5571	0,113		Вр	-2,0871	<,001
	Вр	-1,5957	<,001		Вр	-1,5300	<,001		Cepsa	-0,5571	0,113
Prio	Cepsa	-0,0657	1,000	Cepsa	Galp	-1,3671	<,001	Auchan	Galp	-1,9242	<,001
	Galp	-1,4328	<,001		Prio	0,0657	1,000		Prio	-0,4914	0,234
	Repsol	-1,2000	<,001		Repsol	-1,1342	<,001		Repsol	-1,6914	<,001

Source: Developed by the author based on the answers to the questionnaire

Due to the lack of homogeneity of variances, the Games-Howell test had to be used. In Table 28, it can be noted that considering that sig > 0,10, there is homogeneity in the means between BP, Galp and Repsol brands and between Cepsa, Prio and Auchan brands, concerning Resonance. The reason why Auchan is homogeneous to Cepsa and Prio is due to the fact that these brands follow a low-cost model of offer, in which there is usually no loyalty from the consumer.

Thus, it can be concluded that proposition 4 is accepted. As it was shown, the brand equity of cost-focused brands with *less for much less* value propositions is different from the brand equity of *more for more* value propositions. However, it can be observed that within the *less for much less* strategy, we have two branches: the Low-Cost companies and the Hypermarkets. These last ones have a more aggressive price strategy, because their goal is to attract customers to their supermarket chains.

#### Conclusion

V

This study had the purpose of identifying the different strategies in the Portuguese fuel market and how they behave and to identify the main competitive triggers of consumer preference for each of these competitive strategies.

According to what was referred in the literature review (Hinterhuber, 2008b; Porter, 1985; Tanwar, 2013) together with what was observed in the analysis of Research Question 1, it can be concluded that in the fuel market in Portugal there are two main strategies to maintain competitive advantage: Cost Leadership Strategy and Differentiation Strategy. The Cost Leadership Strategy is used by operators that have low operating costs resulting in a low price for consumers (Low-Cost companies and Hypermarkets). These operators use a *less for much less* value proposition, as they only offer the minimum possible at a low price. The Differentiation Strategy is used by operators who want to differentiate themselves from the other operators by offering additional services, which result in higher prices (Branded Companies). These operators use a *more for more* value proposition.

Furthermore, it can also be concluded that in the Portuguese fuel market there are two pricing strategies: Value Based Pricing and Competition Based Pricing. The Value Based Pricing strategy includes Galp, BP and Repsol brands, which set their prices according to consumers' perceptions of value. These brands have higher prices than the others because they offer a variety of additional services that add value to the main product. The Competition Based Pricing strategy includes Prio, Cepsa and Auchan brands, which set their prices according to important information about their competition, such as price, strategies, costs and offers. These brands have lower prices than the Branded Companies, since their main focus is on consumer discounts, that is, unlike the other brands they do not add value through additional services.

Regarding the behaviour of the different strategies in the Portuguese fuel market, it can be stated that Proposition 1 is accepted, which means that that the price among operators focused on cost competitive strategies with a *less for much less* value proposition is significantly lower than the price charged by operators focused on differentiation competitive strategies with *more for more* value propositions. Furthermore, it can be observed that Branded Companies have higher net margins than operators with Low-cost offers and Hypermarkets.

In this market the main factor to measure the performance of a company is market shares. Through this analysis, it was possible to conclude that Branded Companies have superior market shares than Low-Cost companies and Hypermarkets. This means that, brands who use a *more for more* value proposition have greater market shares than brands who use *less for much less* value proposition. It can therefore be concluded that a *more for more* value proposition (Branded Companies), i.e., a strategy that sets prices based on consumers' perception of value and whose main goal is to differentiate itself from the other operators, performs better in this market as it allows the company to have a larger offer together with higher prices, margins and market shares than its competitors.

Regarding Research Question 2, several conclusions were reached. First, Proposition 2 was accepted by performing a multiple regression that showed that the main trigger for operators focused on cost competitive strategies with a *less for much less* value proposition are price attributes. The main reason why consumers go to low-cost companies is because "The brand has a low fuel price". Proposition 3 was also accepted by performing a multiple regression which showed that the main trigger for operators focusing on competitive differentiation strategies with a *more for more* value proposition is service attributes. One of the main reasons why consumers go to Branded Companies is because "I consider the brand's loyalty card good". Nevertheless, the fact that fuel is of high quality is also one of the main triggers.

In terms of brand equity, the ANOVA analysis allowed to accept Proposition 4. As it was shown, the brand equity of cost-focused brands with *less for much less* value propositions is different from the brand equity of *more for more* value propositions. However, it can be observed that within the *less for much less* strategy, we have two branches: the Low-Cost companies and the Hypermarkets. These last ones have a more aggressive price strategy, because their goal is to attract customers to their supermarket chains.

In conclusion, there are two main strategies to maintain competitive advantage in the fuel market in Portugal. The Cost Leadership Strategy is used by operators that have low operational costs resulting in a low price for consumers (low-cost companies and hypermarkets), being price their main competitive trigger of consumer preference (*less for much less* value proposition). These operators use the Competition Based Pricing strategy to set their prices. The Differentiation Strategy is used by operators who want to differentiate themselves from other operators by offering additional services, which result in higher prices (Branded Companies). These operators use a *more for more* value proposition and therefore service attributes are their main competitive trigger of consumer preference. Furthermore, these operators use the Value Based Pricing strategy to set their prices.

#### 5.1. Limitations

This dissertation has some limitations, like any other dissertation. Regarding the first Research Question, one limitation was the fact that there is no database in which weekly prices of each operator from previous years are stored. Due to this limitation, it became necessary to resort to a company in the fuel sector to obtain data. However, it was only possible to obtain data for 2020 from the company and for 2021 from the DGEG website. This implied a less extensive analysis, with data for only 2 years. Apart from this, another limitation was that only simple gasoline and Simple Diesel were studied, that is, premium fuel was not studied in this dissertation.

Regarding the second Research Question, the data collection was made through an online survey that was distributed through social networks, so only people with internet and belonging to a network of friends could answer. This also resulted in 75% of the respondents being from the Lisbon area, something negative given that this is a national study, and that the majority age was between 18 and 30 years old. There were very few responses over the age of 56. Furthermore, the length of the questionnaire caused many people to stop before the end, namely 147 people did not finish the questionnaire. Finally, it was not possible to carry out an analysis of the main reasons why people frequently consume Auchan (Hypermarket), as there were not enough answers to carry out the multiple regression.

# **5.2. Suggestions for Future Research**

Considering the limitations presented above, some suggestions for future research are given below. Firstly, future research could be done on premium petrol and diesel since they were not included in this study and it is where there is a greater differentiation between brands, as well as identifying the main differences between simple and premium fuel. Additionally, it can also be suggested future research with a longer timeframe than two years to reach more precise conclusions.

Another suggestion is correcting the sampling errors, using a larger and more representative sample of the population in order to obtain better conclusions about the fuel market in Portugal. Another possible future research would be to carry out the analysis of the main reasons that lead people to frequently consume the Auchan brand, for which a larger sample will be necessary.

Finally, given that this dissertation was carried out on a specific sector (Fuel Market in Portugal), a suggestion could be that future research should be carried out in other countries.

By increasing the number of countries in which the research is done, it will be possible to draw broader and more diversified conclusions. These conclusions may help companies in the fuel market to improve and adapt their strategy according to the country where they operate.

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# VI

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# Annexes

	REFERENCE PRICE AND RETAIL PRICE OF EACH OPERATOR PETROL 2020												
Week	Weekly Reference Price Petrol	BP	GALP	REPSOL	AUCHAN	PRIO	CEPSA						
WK1	1,3480	1,6333	1,6056	1,6161	1,4665	1,5590	1,4990						
WK2	1,3520	1,6404	1,6140	1,6247	1,5040	1,5590	1,4990						
WK3	1,3500	1,6390	1,6040	1,6197	1,5004	1,5547	1,4990						
WK4	1,3500	1,6290	1,5990	1,6147	1,4804	1,5454	1,5190						
WK5	1,3140	1,6190	1,5940	1,6097	1,4690	1,5397	1,5283						
WK6	1,3020	1,5990	1,5690	1,5847	1,4433	1,5047	1,5097						
WK7	1,3050	1,5904	1,5640	1,5790	1,4390	1,4990	1,4969						
WK8	1,3520	1,5990	1,5740	1,5876	1,4476	1,5076	1,5111						
WK9	1,3590	1,6190	1,5940	1,6061	1,4576	1,5261	1,5354						
WK10	1,2890	1,5833	1,5490	1,5669	1,4333	1,5033	1,5240						
WK11	1,2120	1,5504	1,5240	1,5426	1,4033	1,4819	1,4490						
WK12	1,0800	1,4419	1,4040	1,4419	1,3119	1,3676	1,3340						
WK13	1,0330	1,3776	1,3390	1,3690	1,2290	1,2890	1,2540						
WK14	1,0350	1,3590	1,3240	1,3540	1,1990	1,2704	1,2926						
WK15	1,0440	1,3590	1,3190	1,3540	1,1990	1,2604	1,2840						
WK16	1,0400	1,3590	1,3240	1,3583	1,1990	1,2676	1,2869						
WK17	1,0260	1,3590	1,3240	1,3590	1,1990	1,2690	1,2919						
WK18	1,0310	1,3333	1,2990	1,3361	1,1790	1,2519	1,2940						
WK19	1,0440	1,3390	1,3090	1,3426	1,1990	1,2576	1,2826						
WK20	1,0690	1,3790	1,3490	1,3740	1,2047	1,2847	1,2969						
WK21	1,0970	1,4090	1,3740	1,3983	1,1590	1,3147	1,3283						
WK22	1,1330	1,4490	1,4140	1,4376	1,2090	1,3533	1,3619						
WK23	1,1370	1,4404	1,4040	1,4304	1,2090	1,3504	1,3733						
WK24	1,1680	1,4590	1,4240	1,4419	1,2290	1,3661	1,3733						
WK25	1,1650	1,4790	1,4390	1,4569	1,2390	1,3861	1,3904						
WK26	1,1950	1,4990	1,4590	1,4719	1,2476	1,3976	1,4104						
WKZ7	1,1770	1,4990	1,4740	1,4869	1,2001	1,4101	1,4247						
WK20	1,1940	1,5090	1,4740	1,4933	1,2701	1,4190	1,4319						
WK20	1,1930	1,5190	1,4640	1,3020	1,2901	1,4270	1,4397						
WK30	1,1870	1,5090	1,4030	1 / 800	1,2330	1 / 1 00	1 4200						
WK31	1,1870	1,3030	1 4540	1,4050	1,2990	1 4019	1 4290						
WK33	1 1790	1 4990	1 4590	1 4783	1 2990	1 3990	1 4290						
WK34	1 1890	1,5090	1 4690	1 4876	1 3090	1 4161	1 4290						
WK35	1 2070	1,5090	1 4690	1 4890	1 3090	1 4190	1 4290						
WK36	1.2020	1.5190	1,4790	1,4990	1.3176	1.4190	1,4290						
WK37	1.1910	1.5104	1.4690	1,4861	1.3190	1.4190	1,4290						
WK38	1,1790	1,4904	1,4490	1,4640	1,3090	1,4076	1,4204						
WK39	1,1980	1,4990	1,4590	1,4740	1,3090	1,3990	1,4197						
WK40	1,1940	1,4990	1,4590	1,4740	1,3090	1,3990	1,4240						
WK41	1,1930	1,4990	1,4640	1,4740	1,3161	1,4076	1,4240						
WK42	1,1930	1,5190	1,4740	1,4869	1,3290	1,4176	1,4304						
WK43	1,1820	1,5090	1,4640	1,4804	1,3290	1,4104	1,4390						
WK44	1,1670	1,4990	1,4540	1,4704	1,3190	1,4004	1,4276						
WK45	1,1450	1,4790	1,4340	1,4519	1,3190	1,3819	1,4047						
WK46	1,1570	1,4790	1,4340	1,4490	1,3190	1,3790	1,3940						
WK47	1,1620	1,4990	1,4540	1,4740	1,3340	1,4015	1,3940						
WK48	1,1730	1,4904	1,4497	1,4654	1,3190	1,3990	1,4190						
WK49	1,1810	1,5090	1,4690	1,4840	1,3440	1,4190	1,4190						
WK50	1,1850	1,5004	1,4640	1,4797	1,3390	1,4090	1,4190						
WK51	1,1960	1,5190	1,4740	1,4876	1,3490	1,4190	1,4140						
WK52	1,1990	1,5276	1,4840	1,4976	1,3590	1,4290	1,4140						
WK53	1,2030	1,5290	1,4890	1,4990	1,3590	1,4290	1,4140						

# Annex A – Reference Price and Retail price of each Operator (Petrol 2020) Data

Source: Developed by the author based on DGEG data

	REFERENCE PRICE AND RETAIL PRICE OF EACH OPERATOR DIESEL 2020												
Week	Weekly Reference Price Diesel	вр	GALP	REPSOL	AUCHAN	PRIO	CEPSA						
WK1	1,2300	1,5333	1,5034	1,5197	1,3365	1,4590	1,4215						
WK2	1,2290	1,5490	1,5160	1,5297	1,3804	1,4590	1,4590						
WK3	1,2170	1,5390	1,5040	1,5204	1,3747	1,4547	1,4590						
WK4	1,2010	1,5019	1,4740	1,4904	1,3576	1,4283	1,4361						
WK5	1,1710	1,4890	1,4640	1,4804	1,3419	1,4026	1,4133						
WK6	1,1510	1,4690	1,4340	1,4504	1,3047	1,3733	1,3919						
WK7	1,1600	1,4504	1,4190	1,4340	1,2990	1,3519	1,3726						
WK8	1,2020	1,4590	1,4290	1,4426	1,3019	1,3576	1,3783						
WK9	1,1940	1,4690	1,4390	1,4526	1,3033	1,3676	1,3947						
WK10	1,1410	1,4247	1,3940	1,4119	1,2733	1,3347	1,3790						
WK11	1,0810	1,4004	1,3740	1,3919	1,2604	1,3204	1,3526						
WK12	1,0200	1,3276	1,2940	1,3233	1,1861	1,2419	1,2826						
WK13	1,0190	1,2933	1,2540	1,2790	1,1433	1,1947	1,2426						
WK14	1,0020	1,3090	1,2690	1,2976	1,1047	1,2119	1,2240						
WK15	0,9980	1,2904	1,2490	1,2861	1,0990	1,2019	1,2169						
WK16	0,9800	1,2890	1,2590	1,2883	1,0990	1,2076	1,2197						
WK17	0,9550	1,2576	1,2190	1,2519	1,0990	1,1747	1,2040						
WK18	0,9370	1,2233	1,1890	1,2211	1,0890	1,1433	1,1890						
WK20	0,9440	1,2190	1,1040	1,2147	1,0790	1,1304	1,1090						
WK20	0,9430	1,2290	1,1990	1,2240	0.0080	1,1401	1,1020						
WK22	0,9780	1 2800	1 2400	1,2520	1 0300	1 1033	1 2010						
WK23	0,9850	1 2804	1,2490	1 2554	1,0390	1 1904	1 2161						
WK24	1 0080	1 2890	1 2540	1 2711	1 0590	1 1976	1 2183						
WK25	1 0120	1 2990	1 2690	1 2869	1,0000	1 2076	1 2333						
WK26	1 0350	1,2000	1 2840	1,2000	1 0776	1 2261	1 2476						
WK27	1.0300	1.3290	1.2940	1.3083	1.0876	1.2376	1.2569						
WK28	1,0480	1,3390	1,2990	1,3176	1,0961	1,2476	1,2647						
WK29	1,0460	1,3490	1,3090	1,3276	1,1076	1,2490	1,2747						
WK30	1,0480	1,3490	1,3040	1,3247	1,1090	1,2490	1,2761						
WK31	1,0410	1,3540	1,3090	1,3283	1,1090	1,2576	1,2740						
WK32	1,0380	1,3404	1,2990	1,3204	1,1090	1,2419	1,2740						
WK33	1,0400	1,3476	1,3040	1,3233	1,1204	1,2476	1,2740						
WK34	1,0410	1,3490	1,3040	1,3240	1,1290	1,2490	1,2740						
WK35	1,0380	1,3490	1,3040	1,3240	1,1290	1,2490	1,2740						
WK36	1,0300	1,3404	1,2990	1,3190	1,1290	1,2490	1,2740						
WK37	1,0020	1,3290	1,2840	1,3061	1,1290	1,2319	1,2620						
WK38	0,9960	1,3004	1,2590	1,2790	1,1190	1,2176	1,2420						
WK39	1,0050	1,2990	1,2640	1,2840	1,1190	1,2090	1,2319						
WK40	1,0070	1,2990	1,2640	1,2840	1,1190	1,2090	1,2340						
WK41	1,0090	1,2990	1,2640	1,2840	1,1190	1,2176	1,2340						
WK42	1,0210	1,3190	1,2740	1,2926	1,1290	1,2190	1,2383						
WK43	1,0190	1,3190	1,2790	1,2940	1,1290	1,2190	1,2440						
WK44	1,0090	1,3190	1,2740	1,2897	1,1290	1,2190	1,2440						
WK45	1,0010	1,2990	1,2590	1,2701	1,1290	1,2104	1,2354						
WK40	1,0200	1,2990	1,2040	1 3040	1,1290	1,2090	1,2290						
W/K48	1,0200	1,3290	1 2940	1,3040	1 1490	1 2300	1,2290						
WK49	1 0580	1,3590	1,2340	1 3340	1 1790	1 2690	1 2590						
WK50	1,0500	1,3590	1,3190	1 3340	1 1790	1 2690	1 2590						
WK51	1.0760	1,3690	1,3290	1,3426	1,1890	1,2790	1,2690						
WK52	1,0800	1,3790	1,3390	1,3526	1,1990	1,2790	1,2790						
WK53	1,0800	1,3790	1,3390	1,3540	1,1990	1,2790	1,2790						

# Annex B – Reference Price and Retail price of each Operator (Diesel 2020) Data

Source: Developed by the author based on DGEG data
	REFERENCE PRICE AND RET	AIL PRICE OF	FEACH OPE	RATOR PETR	OL 2021		
Week	Weekly Reference Price Petrol	BP	GALP	REPSOL	AUCHAN	PRIO	CEPSA
WK1	1,2190	1,5390	1,5040	1,5161	1,3690	1,4490	1,4340
WK2	1,2490	1,5590	1,5190	1,5319	1,3790	1,4690	1,4490
WK3	1,2550	1,5790	1,5390	1,5540	1,3990	1,4890	1,4690
WK4	1,2540	1,5790	1,5390	1,5540	1,3990	1,4890	1,4690
WK5	1,2640	1,5890	1,5490	1,5690	1,3990	1,4890	1,4690
WK6	1,2890	1,6090	1,5690	1,5819	1,4390	1,5190	1,4940
WK7	1,2970	1,6190	1,5790	1,5926	1,4490	1,5290	1,5040
WK8	1,3260	1,6390	1,5990	1,6140	1,4590	1,5490	1,5240
WK9	1,3410	1,6590	1,6190	1,6311	1,4790	1,5690	1,5440
WK10	1,3580	1,6776	1,6390	1,6469	1,4890	1,5790	1,5590
WK11	1,3780	1,6990	1,6540	1,6661	1,5090	1,5990	1,5790
WK12	1,3440	1,6904	1,6490	1,6647	1,5090	1,5990	1,5690
WK13	1,3670	1,6890	1,6440	1,6597	1,5040	1,5890	1,5640
WK14	1,3740	1,6990	1,6640	1,6761	1,5190	1,6090	1,5790
WK15	1,3640	1,6890	1,6540	1,6704	1,5190	1,5990	1,5790
WK16	1,3790	1,6990	1,6640	1,6776	1,5290	1,6090	1,5890
WK17	1,3710	1,6990	1,6640	1,6790	1,5290	1,6090	1,5840
WK18	1,3950	1,6990	1,6640	1,6790	1,5290	1,6190	1,5840
WK19	1,3950	1,7290	1,6890	1,7040	1,5590	1,6390	1,6090
WK20	1,3840	1,7204	1,6790	1,6954	1,5590	1,6290	1,5990
WK21	1,3760	1,7104	1,6690	1,6854	1,5590	1,6190	1,5890
WK22	1,3930	1,7276	1,6890	1,7011	1,5790	1,6390	1,6090
WK23	1,4010	1,7390	1,6990	1,7126	1,5890	1,6490	1,6190
WK24	1,4090	1,7476	1,7040	1,7183	1,5890	1,6490	1,6240
WK25	1,4270	1,7590	1,7190	1,7319	1,5990	1,6590	1,6390

# Annex C – Reference Price and Retail price of each Operator (Petrol 2021) Data

Source: Developed by the author based on DGEG data

<b>Annex D</b> – Reference Price and Retail price of each Operator (Diesel 2021) Data
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	REFERENCE PRICE AND RET	AIL PRICE O	F EACH OPE	RATOR DIES	EL 2021		
Week	Weekly Reference Price Diesel	BP	GALP	REPSOL	AUCHAN	PRIO	CEPSA
WK1	1,0950	1,3876	1,3490	1,3626	1,1990	1,2990	1,2890
WK2	1,1170	1,3990	1,3540	1,3683	1,1990	1,2990	1,2940
WK3	1,1260	1,4190	1,3790	1,3890	1,2190	1,3190	1,3140
WK4	1,1200	1,4190	1,3790	1,3890	1,2190	1,3190	1,3140
WK5	1,1310	1,4290	1,3890	1,4040	1,2190	1,3190	1,3140
WK6	1,1560	1,4490	1,4090	1,4211	1,2490	1,3590	1,3390
WK7	1,1690	1,4690	1,4290	1,4411	1,2690	1,3740	1,3590
WK8	1,1830	1,4890	1,4440	1,4640	1,2790	1,3890	1,3790
WK9	1,1860	1,4990	1,4540	1,4683	1,2990	1,3990	1,3840
WK10	1,2030	1,4990	1,4540	1,4690	1,2990	1,3990	1,3840
WK11	1,2040	1,5090	1,4690	1,4819	1,3090	1,4190	1,3990
WK12	1,1810	1,4990	1,4540	1,4711	1,3090	1,3990	1,3840
WK13	1,1820	1,4804	1,4390	1,4561	1,3090	1,3790	1,3690
WK14	1,1930	1,4876	1,4490	1,4626	1,3190	1,3890	1,3740
WK15	1,1980	1,4890	1,4440	1,4597	1,3190	1,3890	1,3740
WK16	1,2050	1,4990	1,4590	1,4719	1,3290	1,4090	1,3890
WK17	1,2040	1,4990	1,4590	1,4740	1,3290	1,3990	1,3890
WK18	1,2250	1,5090	1,4690	1,4826	1,3390	1,4190	1,3940
WK19	1,2330	1,5290	1,4890	1,5040	1,3590	1,4290	1,4140
WK20	1,2310	1,5290	1,4890	1,5040	1,3590	1,4290	1,4140
WK21	1,2280	1,5204	1,4790	1,4954	1,3590	1,4290	1,4040
WK22	1,2540	1,5376	1,4940	1,5069	1,3690	1,4490	1,4190
WK23	1,2720	1,5490	1,5090	1,5219	1,3790	1,4590	1,4340
WK24	1,2830	1,5590	1,5190	1,5326	1,3790	1,4690	1,4390
WK25	1,2940	1,5776	1,5340	1,5469	1,3890	1,4790	1,4540

Source: Developed by the author based on DGEG data

### Annex E – Survey

#### Block 1

Caro participante,

Este questionário é realizado como parte da minha dissertação de Mestrado em Gestão no ISCTE Business School. Todas as respostas são anónimas e utilizadas apenas para o mero propósito desta dissertação. O preenchimento do questionário não deve demorar mais de 6 minutos.

Muito obrigado pelo tempo dispensado!

#### Block 2

Vive atualmente em Portugal?

🔘 Sim

🔵 Não

#### Qual é a sua idade?

0 < 18

- 0 18 30
- 0 31 45
- 0 46 55
- 0 56 65
- ) > 66

Põe combustível regularmente? (pelo menos uma vez por mês)

🔿 Sim

🔿 Não

#### Usa um cartão de frota? (cartão da empresa)

🔿 Sim

🔵 Não

#### Block 3

Por favor, indique todas as marcas de postos de combustível de que se consiga lembrar.

De qual das seguintes marcas já ouviu falar? Por favor, indique todas as que se aplicam.

- Galp BP Repsol Cepsa

galp energia

bb

REPJOL

🗲 CEPSA

Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.

Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.

Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.

Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.

Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.

63

Block 9

- Prio
- Auchan



Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.



#### Block 11

Conhece a marca que lhe foi atribuída?

🔵 Sim

🔵 Não

random 2x

Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.



Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.



Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.



Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.



Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.



Por favor responda às restantes perguntas sobre a marca que lhe foi atribuída na imagem.



#### Block 4

#### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Considero esta marca de confiança	0	0	0	0	0	0	0
Considero os fornecedores do serviço desta marca atenciosos e úteis	0	0	0	0	0	$\circ$	0
Considero que esta marca fornece as funções básicas quando comparada com outras marcas da categoria	0	0	0	0	0	0	0
Considero que os preços da marca são geralmente mais elevados do que os dos	0	0	0	0	0	0	0

#### concorrentes

#### Block 5

#### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Posso comprar esta marca em vários sítios	0	0	$\bigcirc$	0	0	0	0
As pessoas que admiro e respeito utilizam esta marca	0	0	$\bigcirc$	0	0	$\circ$	0

### Por favor, classifique os seguintes atributos relativos à personalidade da Marca

	1	2	3	4	5	6	7	
Desonesto	0	0	0	0	0	0	0	Sincero (realista, honesto)
Indiferente	$\bigcirc$	0	0	0	0	0	$\circ$	Emocionante (ousado, moderno)
Incompetente	0	0	0	0	0	0	$\circ$	Competente (fiável, bem-sucedido)
Simples	$\circ$	0	0	0	0	0	$\circ$	Sofisticado (classe alta, encantador)
Frágil	0	0	0	0	0	0	$\circ$	Robusto

#### Block 6

### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 -Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
A minha opinião geral sobre esta marca é boa	0	0	0	0	0	0	0
Considero que a marca tem um produto de boa qualidade	0	0	0	$\circ$	0	$\circ$	0
Considero que a marca satisfaz as minhas necessidades	0	0	0	0	0	0	0
Considero que esta marca oferece uma boa relação preço-qualidade	0	0	0	0	0	$\circ$	0

### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Considero os criadores desta marca inovadores	0	0	$\bigcirc$	0	0	0	0
Confio nos criadores desta marca	0	0	$\circ$	0	0	$\circ$	0

Considero os criadores desta marca experientes	0	$\circ$	$\circ$	$\circ$	0	$\circ$	0
Considero que os criadores desta marca compreendem as minhas necessidades	0	$\circ$	0	0	0	0	$\circ$

#### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Recomendaria esta marca a outra pessoa	0	0	0	0	0	0	0
Esta marca é relevante para mim	0	$\circ$	$\circ$	0	$\circ$	0	$\circ$

#### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 -Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 -Concordo	7 - Concordo totalmente
Considero a marca única	0	0	0	0	0	0	0
A marca oferece vantagens que outras marcas não podem	0	0	$\bigcirc$	0	$\circ$	0	0
Esta marca é superior a outras na categoria	0	0	0	$\circ$	0	0	$\circ$

### Por favor, avalie os seguintes sentimentos provocados pela marca.

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Calma	0	0	0	0	0	0	0
Diversão	0	0	0	0	0	0	0
Entusiasmo	0	0	0	0	0	$\circ$	0
Segurança	0	0	0	0	0	$\circ$	0
Aprovação social	0	0	0	$\circ$	0	0	0
Auto-respeito	0	0	0	0	0	0	0

#### Block 7

#### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Considero-me leal a esta marca	0	0	$\circ$	0	0	0	0
No caso de a marca não estar disponível, poderia facilmente	0	0	0	0	0	0	0

usufruir de outra marca							
Alteraria o meu percurso para usar esta marca	0	0	0	0	0	0	0
Compro esta marca sempre que posso	0	0	0	0	0	$\bigcirc$	0

#### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Gosto muito desta marca	0	0	0	0	0	0	0
Sentiria realmente falta desta marca se ela desaparecesse	0	0	$\bigcirc$	0	0	0	0
Esta marca é especial para mim	0	0	$\bigcirc$	0	0	0	0
Esta marca é mais do que um produto para mim	0	0	$\bigcirc$	0	0	0	0

### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Identifico-me com as pessoas que utilizam esta marca	0	0	0	0	0	0	0
Sinto uma ligação com outras pessoas que utilizam esta marca	0	0	0	0	0	$\bigcirc$	0
Sinto-me quase como se pertencesse a um clube com outros utilizadores desta marca	0	0	0	0	0	0	0
Esta é uma marca utilizada por pessoas como eu	0	0	$\circ$	0	0	$\circ$	$\circ$

#### Em que medida concorda com as seguintes afirmações?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
Gosto muito de falar sobre esta marca com outros	0	0	0	0	0	0	0
Estou sempre interessado em saber mais sobre esta marca	0	0	$\bigcirc$	0	0	$\circ$	0
Estaria interessado em comprar merchandising com o nome desta marca	0	0	0	0	0	0	0
Tenho orgulho em que outros saibam que eu uso esta marca	0	0	0	0	0	$\circ$	0

#### Default Question Block

Qual a marca de combustível que consome mais frequentemente?

Galp

- 🔿 вр
- Repsol
- Cepsa
- 🔿 Prio
- O Auchan

De cada 10 vezes que vai a um posto de abastecimento, em média quantas vezes vai à marca que identificou como a que consome mais frequentemente?

01

- 0 2
- 03

04

- 05
- 06
- 07
- 0 8
- 0 9
- 0 10

#### Em que medida concorda com as seguintes afirmações sobre a marca que consome mais frequentemente?

	1 - Discordo totalmente	2 - Discordo	3 - Discordo ligeiramente	4 - Não concordo nem discordo	5 - Concordo ligeiramente	6 - Concordo	7 - Concordo totalmente
A marca tem combustível de alta qualidade	0	0	0	0	0	0	0
Entrar e sair do posto de abastecimento da marca é rápido	0	0	0	0	0	0	0
A marca tem um preço de combustível baixo	0	0	$\bigcirc$	0	0	$\bigcirc$	0
Sinto segurança no posto de abastecimento da marca	0	0	0	0	$\circ$	$\bigcirc$	0
Gosto de fazer compras na Loja de Conveniência da marca	0	0	0	0	0	$\circ$	0
A marca possuí uma vasta Gama de Combustíveis	0	0	0	0	$\circ$	$\bigcirc$	0
Gosto do serviço de lavagem de automóveis da marca	0	0	$\bigcirc$	0	$\circ$	0	0
Considero o cartão de fidelização da marca bom	0	0	0	0	$\circ$	$\bigcirc$	0
Os postos de abastecimento da marca estão convenientemente localizados	0	0	$\circ$	0	0	$\circ$	0

A marca preocupa-se com a sustentabilidade	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	0
Vejo frequentemente publicidade da marca	0	$\bigcirc$	0	0	0	$\bigcirc$	0

Possui algum cartão de fidelização? (exemplo: BP Pingo Doce, cartão Galp+, cartão Repsol Move, Cartão Porque Eu Volto – Cepsa, etc)

🔵 Sim

🔿 Não

#### De que marca é o seu cartão de fidelização?

Galp

- BP
- Repsol
- Cepsa
- Prio
- Auchan

#### Block 8

#### Género

- Feminino
- Masculino

#### Local de Residência

- Aveiro
- 🔵 Beja
- Braga
- 🔵 Bragança
- O Castelo Branco
- Coimbra
- Ó Évora
- Faro
- Guarda
- 🔵 Leiria
- 🔿 Lisboa
- O Portalegre
- O Porto
- Santarém
- Setúbal

Viana do Castelo

🔵 Vila Real

Viseu

Outro

#### Profissão

- Estudante
- Trabalhador a tempo inteiro
- Desempregado
- Reformado
- O Trabalhador em part-time

Outro

# Annex $\mathbf{F}$ – Kevin Keller Items used in survey to measure Brand Equity

	Q6 - Please list all the brands of petrol stations that you can remember.
	Q7 1 - Which of the following brands have you heard of? Please check all that apply Galp
	Q7 2 - Which of the following brands have you heard of? Please check all that apply BP
Salience	Q7 3 - Which of the following brands have you heard of? Please check all that apply Repsol
	Q7_4 - Which of the following brands have you heard of? Please check all that apply Cepsa
	Q7_5 - Which of the following brands have you heard of? Please check all that apply Prio
	Q7_6 - Which of the following brands have you heard of? Please check all that apply Auchan
	Q11_1 - To what extent do you agree with the following statements? - I consider this brand to be trustworthy
	Q11_2 - To what extent do you agree with the following statements? - I consider the service providers of this brand to be attentive and helpful
Performance	Q11_3 - To what extent do you agree with the following statements? - I consider that this brand provides the basic functions when compared to other brands in the category
	Q11_4 - To what extent do you agree with the following statements? - I believe that the brand's prices are generally higher than those of competitors
	Q12 1 - To what extent do you agree with the following statements? - I can buy this brand in several places
	Q12 2 - To what extent do you agree with the following statements? - People I admire and respect use this brand
	Q13 1 - Please rate the following attributes regarding the Brand personality - Dishonest: Sincere (realistic, honest)
Imagery	Q13 2 - Please rate the following attributes related to the Brand personality - Indifferent: Exciting (bold, modern)
<b>U 1</b>	Q13 3 - Please rate the following attributes regarding the Brand personality - Incompetent: Competent (reliable, successful)
	Q13 4 - Please rate the following attributes related to the Brand personality - Simple: Sophisticated (high class, charming)
	Q13 5 - Please rate the following attributes related to the Brand personality - Fragile: Robust
	Q14 1 - To what extent do you agree with the following statements? - My overall opinion of this brand is good
	Q14 2 - To what extent do you agree with the following statements? - I consider that the brand has a good quality product
	Q14 3 - To what extent do you agree with the following statements? - I consider that the brand meets my needs
	014 4 - To what extent do you agree with the following statements? - I consider that this brand offers a good price-guality ratio
	Q15 1 - To what extent do you agree with the following statements? - I consider the creators of this brand to be innovative
	Q15 2 - To what extent do you agree with the following statements? - I trust the creators of this brand
Judgments	Q15 3 - To what extent do you agree with the following statements? - I consider the creators of this brand to be experienced
	Q15 4 - To what extent do you agree with the following statements? - I feel that the creators of this brand understand my needs
	216 1 - To what extent do you are with the following statements? - I would recommend this brand to someone else
	016 2 - To what extent do you aree with the following statements? - This brand is relevant to me
	018 1 - To what extent do you agree with the following statements? - I consider the brand to be unique
	Q18 2 - To what extent do you agree with the following statements? - The brand offers advantages that other brands cannot
	Q18 3 - To what extent do you agree with the following statements? - This brand is superior to others in the category
	Q19 1 - Please rate the following feelings provoked by the brand Calm
	Q19_2 - Please rate the following feelings provoked by the brand Fun
	Q19_3 - Please rate the following feelings provoked by the brand Enthusiasm
Feelings	Q19_4 - Please rate the following feelings provoked by the brand Safety
	Q19_5 - Please rate the following feelings provoked by the brand Social approval
	Q19_6 - Please rate the following feelings provoked by the brand Self-respect
	Q20_1 - To what extent do you agree with the following statements? - I consider myself loyal to this brand
	Q20_2 - To what extent do you agree with the following statements? - In case the brand is not available, I could easily use another brand
	Q20_3 - To what extent do you agree with the following statements? - I would change my route to use this brand
	Q20_4 - To what extent do you agree with the following statements? - I buy this brand whenever I can
	Q21_1 - To what extent do you agree with the following statements? - I like this brand a lot
	Q21_2 - To what extent do you agree with the following statements? - I would really miss this brand if it disappeared
	Q21_3 - To what extent do you agree with the following statements? - This brand is special to me
	Q21_4 - To what extent do you agree with the following statements? - This brand is more than a product for me
Resonance	Q22_1 - To what extent do you agree with the following statements? - I identify with the people who use this brand
	Q22_2 - To what extent do you agree with the following statements? - I feel a connection with other people who use this brand
	Q22_3 - To what extent do you agree with the following statements? - I feel almost like I belong to a club with other users of this brand
	Q22_4 - To what extent do you agree with the following statements? - This is a brand used by people like me
	Q23_1 - To what extent do you agree with the following statements? - I really enjoy talking about this brand with others
	Q23_2 - To what extent do you agree with the following statements? - I am always interested in knowing more about this brand
	Q23_3 - To what extent do you agree with the following statements? - I would be interested in buying merchandising under this brand name
	Q23_4 - To what extent do you agree with the following statements? - I am proud that others know that I use this brand

Source: Developed by the author based on (Keller, 2003)

# Annex G – Triggers of Consumer Preference

	High quality fuel	
	Fast in and out	
	Safety at the Brand's petrol station	
	Good Convenience Store	
Triggers of Consumer Preference	Wide range of Fuels	
inggers of consumer Preference	Good Car wash service	
	Good loyalty card	
	Conveniently located	
	Concern for Sustainability	
	Brand Advertising	

Source: Developed by the author based on a study provided by market specialist

## Annex H – ANOVA (Between Subjects Factors)

# Diesel 2020

		N
Brand	Auchan	53
	BP	53
	Cepsa	53
	Galp	53
	Prio	53
	Repsol	53

### Gasoline 2020

		N
Brand	BP	53
	Auchan	53
	Cepsa	53
	Galp	53
	Prio	53
	Repsol	53

### Diesel 2021

		N
Brand	BP	25
	Auchan	25
	Cepsa	25
	Galp	25
	Prio	25
	Repsol	25

### Gasoline 2021

		N
Brand	BP	25
	Auchan	25
	Cepsa	25
	Galp	25
	Prio	25
	Repsol	25

Source: Developed by the author

## Annex I – ANOVA Diesel 2020 (Homogeneity of Variances)

		Estatística de Levene	df1	df2	Sig.
Price	Com base em média	,916	5	312	,470
	Com base em mediana	,347	5	312	,884
	Com base em mediana e com gl ajustado	,347	5	301,066	,884
	Com base em média aparada	,842	5	312	,521

Testa a hipótese nula de que a variância do erro da variável dependente é igual entre grupos.

a. Variável dependente: Price

b. Design: Intercepto + Brand

### Annex J – ANOVA Diesel 2020

### Variável dependente: Price

Origem	Tipo III Soma dos Quadrados	df	Quadrado Médio	Z	Sig.	Eta parcial quadrado	Noncent. Parâmetro	Poder observado <sup>b</sup>
Modelo corrigido	1,257 <sup>a</sup>	5	,251	37,717	<,001	,377	188,587	1,000
Intercepto	521,254	1	521,254	78184,329	,000,	,996	78184,329	1,000
Brand	1,257	5	,251	37,717	<,001	,377	188,587	1,000
Padrão	2,080	312	,007					
Total	524,591	318						
Total corrigido	3,337	317						

a. R Quadrado = ,377 (R Quadrado Ajustado = ,367)

b. Calculado usando alfa = ,05

## Source: Developed by the author

# Annex K – ANOVA Post-Hoc Multiple Comparisons Diesel 2020

Variavel dependente: Price Scheffe								
					Intervalo de C	onfiança 95%		
(I) Brand	(J) Brand	Diferença média (I-J)	Estatística do teste Padrão	Sig.	Limite inferior	Limite superior		
Auchan	BP	-,190710243	,0158614069	<,001	-,243827321	-,137593164		
	Cepsa	-,117433962	,0158614069	<,001	-,170551041	-,064316884		
	Galp	-,153365229	,0158614069	<,001	-,206482308	-,100248151		
	Prio	-,098830189	,0158614069	<,001	-,151947267	-,045713110		
	Repsol	-,172758760	,0158614069	<,001	-,225875839	-,119641682		
BP	Auchan	,190710243	,0158614069	<,001	,1375931641	,2438273211		
	Cepsa	,073276280	,0158614069	<,001	,0201592019	,1263933588		
	Galp	,0373450135	,0158614069	,356	-,015772065	,0904620919		
	Prio	,091880054	,0158614069	<,001	,0387629754	,1449971324		
F	Repsol	,0179514825	,0158614069	,937	-,035165596	,0710685610		
Cepsa	Auchan	,117433962	,0158614069	<,001	,0643168838	,1705510407		
	BP	-,073276280	,0158614069	<,001	-,126393359	-,020159202		
	Galp	-,035931267	,0158614069	,402	-,089048345	,0171858116		
	Prio	,0186037736	,0158614069	,927	-,034513305	,0717208521		
	Repsol	-,055324798	,0158614069	,035	-,108441876	-,002207719		
Galp	Auchan	,153365229	,0158614069	<,001	,1002481506	,2064823076		
	BP	-,037345013	,0158614069	,356	-,090462092	,0157720650		
	Cepsa	,0359312668	,0158614069	,402	-,017185812	,0890483453		
	Prio	,054535040	,0158614069	,040	,0014179620	,1076521189		
	Repsol	-,019393531	,0158614069	,913	-,072510609	,0337235475		
Prio	Auchan	,098830189	,0158614069	<,001	,0457131102	,1519472671		
	BP	-,091880054	,0158614069	<,001	-,144997132	-,038762975		
	Cepsa	-,018603774	,0158614069	,927	-,071720852	,0345133049		
	Galp	-,054535040	,0158614069	,040	-,107652119	-,001417962		
	Repsol	-,073928571	,0158614069	<,001	-,127045650	-,020811493		
Repsol	Auchan	,172758760	,0158614069	<,001	,1196416816	,2258758386		
	BP	-,017951482	,0158614069	,937	-,071068561	,0351655960		
	Cepsa	,055324798	,0158614069	,035	,0022077194	,1084418763		
	Galp	,0193935310	,0158614069	,913	-,033723547	,0725106095		
	Prio	,073928571	,0158614069	<,001	,0208114930	,1270456499		

Com base em médias observadas.

O termo de erro é Quadrado Médio (Erro) = ,007.

\*. A diferença média é significativa no nível ,05.

## Annex L – ANOVA Gasoline 2020 (Homogeneity of Variances)

		Estatística de Levene	df1	df2	Sig.
Price	Com base em média	,489	5	312	,784
-	Com base em mediana	,547	5	312	,740
	Com base em mediana e com gl ajustado	,547	5	308,868	,740
	Com base em média aparada	,499	5	312	,777

Testa a hipótese nula de que a variância do erro da variável dependente é igual entre grupos.

a. Variável dependente: Price

b. Design: Intercepto + Brand

Source: Developed by the author

### Annex M – ANOVA Gasoline 2020

Variável dependente: Price									
Origem	Tipo III Soma dos Quadrados	df	Quadrado Médio	Z	Sig.	Eta parcial quadrado	Noncent. Parâmetro	Poder observado <sup>b</sup>	
Modelo corrigido	1,151ª	5	,230	36,259	<,001	,368	181,297	1,000	
Intercepto	649,543	1	649,543	102272,801	,000	,997	102272,801	1,000	
Brand	1,151	5	,230	36,259	<,001	,368	181,297	1,000	
Padrão	1,982	312	,006						
Total	652,676	318							
Total corrigido	3,133	317							

a. R Quadrado = ,368 (R Quadrado Ajustado = ,357)

b. Calculado usando alfa = ,05

# Annex N – ANOVA Post-Hoc Multiple Comparisons Gasoline 2020

Variável dependente: Price Scheffe

					Intervalo de Confiança 95%			
		Diferença	Estatística do			Limite		
(I) Brand	(J) Brand	média (I-J)	teste Padrão	Sig.	Limite inferior	superior		
BP	Auchan	,180653639	,0154810685	<,001	,1288102468	,2324970308		
	Cepsa	,085754717*	,0154810685	<,001	,0339113250	,1375981090		
	Galp	,0366415094	,0154810685	,349	-,015201883	,0884849014		
	Prio	,091138814	,0154810685	<,001	,0392954220	,1429822060		
	Repsol	,0172237197	,0154810685	,941	-,034619672	,0690671117		
Auchan	BP	-,180653639	,0154810685	<,001	-,232497031	-,128810247		
	Cepsa	-,094898922	,0154810685	<,001	-,146742314	-,043055530		
	Galp	-,144012129	,0154810685	<,001	-,195855521	-,092168737		
	Prio	-,089514825	,0154810685	<,001	-,141358217	-,037671433		
	Repsol	-,163429919	,0154810685	<,001	-,215273311	-,111586527		
Cepsa	BP	-,085754717	,0154810685	<,001	-,137598109	-,033911325		
	Auchan	,094898922	,0154810685	<,001	,0430555298	,1467423138		
	Galp	-,049113208	,0154810685	,077	-,100956600	,0027301844		
	Prio	,0053840970	,0154810685	1,000	-,046459295	,0572274890		
	Repsol	-,068530997	,0154810685	,002	-,120374389	-,016687605		
Galp	BP	-,036641509	,0154810685	,349	-,088484901	,0152018826		
	Auchan	,144012129	,0154810685	<,001	,0921687374	,1958555214		
	Cepsa	,0491132075	,0154810685	,077	-,002730184	,1009565995		
	Prio	,054497305	,0154810685	,032	,0026539126	,1063406966		
	Repsol	-,019417790	,0154810685	,904	-,071261182	,0324256022		
Prio	BP	-,091138814	,0154810685	<,001	-,142982206	-,039295422		
	Auchan	,089514825	,0154810685	<,001	,0376714328	,1413582168		
	Cepsa	-,005384097	,0154810685	1,000	-,057227489	,0464592950		
	Galp	-,054497305	,0154810685	,032	-,106340697	-,002653913		
	Repsol	-,073915094	,0154810685	<,001	-,125758486	-,022071702		
Repsol	BP	-,017223720	,0154810685	,941	-,069067112	,0346196723		
	Auchan	,163429919	,0154810685	<,001	,1115865271	,2152733111		
	Cepsa	,068530997	,0154810685	,002	,0166876053	,1203743893		
	Galp	,0194177898	,0154810685	,904	-,032425602	,0712611817		
	Prio	,073915094	,0154810685	<,001	,0220717023	,1257584863		

Com base em médias observadas. O termo de erro é Quadrado Médio (Erro) = ,006.

\*. A diferença média é significativa no nível ,05.

### Annex O – ANOVA Diesel 2021 (Homogeneity of Variances)

		Estatística de Levene	df1	df2	Sig.
Price	Com base em média	,523	5	144	,759
-	Com base em mediana	,468	5	144	,799
	Com base em mediana e com gl ajustado	,468	5	142,621	,799
	Com base em média	,507	5	144	,770

Testa a hipótese nula de que a variância do erro da variável dependente é igual entre grupos.

a. Variável dependente: Price

b. Design: Intercepto + Brand

Source: Developed by the author

### Annex P – ANOVA Diesel 2021

Variável dependente: Price								
Origem	Tipo III Soma dos Quadrados	df	Quadrado Médio	Z	Sig.	Eta parcial quadrado	Noncent. Parâmetro	Poder observado <sup>b</sup>
Modelo corrigido	,574 <sup>a</sup>	5	,115	45,018	<,001	,610	225,088	1,000
Intercepto	299,118	1	299,118	117221,466	<,001	,999	117221,466	1,000
Brand	,574	5	,115	45,018	<,001	,610	225,088	1,000
Padrão	,367	144	,003					
Total	300,060	150						
Total corrigido	,942	149						

a. R Quadrado = ,610 (R Quadrado Ajustado = ,596)

b. Calculado usando alfa = ,05

# Annex Q – ANOVA Post-Hoc Multiple Comparisons Diesel 2021

Variável dependente: Price Scheffe

					Intervalo de Confiança 95%		
		Diferença	Estatística do	0:-	Limite inferior	Limite	
(I) Brand	(J) Brand	niedia (i-J)		Sig.		2222052040	
вр	Auchan	,185085714	,0142877141	<,001	,1368761246	,2332953040	
	Cepsa	,112485714	,0142877141	<,001	,0642761246	,1606953040	
	Galp	,0414857143	,0142877141	,142	-,006723875	,0896953040	
	Prio	,096485714	,0142877141	<,001	,0482761246	,1446953040	
	Repsol	,0273714286	,0142877141	,599	-,020838161	,0755810183	
Auchan	BP	-,185085714	,0142877141	<,001	-,233295304	-,136876125	
	Cepsa	-,072600000*	,0142877141	<,001	-,120809590	-,024390410	
	Galp	-,143600000	,0142877141	<,001	-,191809590	-,095390410	
	Prio	-,088600000*	,0142877141	<,001	-,136809590	-,040390410	
	Repsol	-,157714286	,0142877141	<,001	-,205923875	-,109504696	
Cepsa	BP	-,112485714	,0142877141	<,001	-,160695304	-,064276125	
	Auchan	,072600000	,0142877141	<,001	,0243904103	,1208095897	
	Galp	-,071000000*	,0142877141	<,001	-,119209590	-,022790410	
	Prio	-,016000000	,0142877141	,939	-,064209590	,0322095897	
	Repsol	-,085114286	,0142877141	<,001	-,133323875	-,036904696	
Galp	BP	-,041485714	,0142877141	,142	-,089695304	,0067238754	
	Auchan	,143600000	,0142877141	<,001	,0953904103	,1918095897	
	Cepsa	,071000000*	,0142877141	<,001	,0227904103	,1192095897	
	Prio	,055000000	,0142877141	,014	,0067904103	,1032095897	
	Repsol	-,014114286	,0142877141	,964	-,062323875	,0340953040	
Prio	BP	-,096485714	,0142877141	<,001	-,144695304	-,048276125	
	Auchan	,088600000*	,0142877141	<,001	,0403904103	,1368095897	
	Cepsa	,0160000000	,0142877141	,939	-,032209590	,0642095897	
	Galp	-,055000000	,0142877141	,014	-,103209590	-,006790410	
	Repsol	-,069114286	,0142877141	<,001	-,117323875	-,020904696	
Repsol	BP	-,027371429	,0142877141	,599	-,075581018	,0208381611	
	Auchan	,157714286	,0142877141	<,001	,1095046960	,2059238754	
	Cepsa	,085114286	,0142877141	<,001	,0369046960	,1333238754	
	Galp	,0141142857	,0142877141	,964	-,034095304	,0623238754	
	Prio	,069114286	,0142877141	<,001	,0209046960	,1173238754	

Com base em médias observadas. O termo de erro é Quadrado Médio (Erro) = ,003.

\*. A diferença média é significativa no nível ,05.

### Annex R – ANOVA Gasoline 2021 (Homogeneity of Variances)

		Estatística de Levene	df1	df2	Sig.
Price	Com base em média	,135	5	144	,984
	Com base em mediana	,129	5	144	,986
	Com base em mediana e com gl ajustado	,129	5	143,724	,986
-	Com base em média	,137	5	144	,983

Testa a hipótese nula de que a variância do erro da variável dependente é igual entre grupos.

a. Variável dependente: Price

b. Design: Intercepto + Brand

Source: Developed by the author

## Annex S – ANOVA Gasoline 2021

Variável dependente: Price									
Origem	Tipo III Soma dos Quadrados	df	Quadrado Médio	Z	Sig.	Eta parcial quadrado	Noncent. Parâmetro	Poder observado <sup>b</sup>	
Modelo corrigido	,521 ª	5	,104	25,929	<,001	,474	129,646	1,000	
Intercepto	381,868	1	381,868	95079,984	<,001	,998	95079,984	1,000	
Brand	,521	5	,104	25,929	<,001	,474	129,646	1,000	
Padrão	,578	144	,004						
Total	382,967	150							
Total corrigido	1,099	149							

a. R Quadrado = ,474 (R Quadrado Ajustado = ,456)

b. Calculado usando alfa = ,05

# Annex T – ANOVA Post-Hoc Multiple Comparisons Gasoline 2021

Variável dependente: Price Scheffe

					Intervalo de C	onfiança 95%
		Diferença	Estatística do	0.0	Lingita inferier	Limite
(I) Brand	(J) Brand	media (I-J)	teste Padrao	Sig.	Limite interior	superior
BP	Auchan	,172200000	,0179249165	<,001	,1117177662	,2326822338
	Cepsa	,116600000	,0179249165	<,001	,0561177662	,1770822338
	Galp	,0394000000	,0179249165	,441	-,021082234	,0998822338
	Prio	,092000000*	,0179249165	<,001	,0315177662	,1524822338
	Repsol	,0252857143	,0179249165	,850	-,035196520	,0857679481
Auchan	BP	-,172200000*	,0179249165	<,001	-,232682234	-,111717766
	Cepsa	-,055600000	,0179249165	,094	-,116082234	,0048822338
	Galp	-,132800000*	,0179249165	<,001	-,193282234	-,072317766
	Prio	-,080200000*	,0179249165	,002	-,140682234	-,019717766
	Repsol	-,146914286	,0179249165	<,001	-,207396520	-,086432052
Cepsa	BP	-,116600000*	,0179249165	<,001	-,177082234	-,056117766
	Auchan	,0556000000	,0179249165	,094	-,004882234	,1160822338
	Galp	-,077200000*	,0179249165	,003	-,137682234	-,016717766
	Prio	-,024600000	,0179249165	,864	-,085082234	,0358822338
	Repsol	-,091314286	,0179249165	<,001	-,151796520	-,030832052
Galp	BP	-,039400000	,0179249165	,441	-,099882234	,0210822338
	Auchan	,132800000*	,0179249165	<,001	,0723177662	,1932822338
	Cepsa	,077200000*	,0179249165	,003	,0167177662	,1376822338
	Prio	,0526000000	,0179249165	,133	-,007882234	,1130822338
	Repsol	-,014114286	,0179249165	,987	-,074596520	,0463679481
Prio	BP	-,092000000*	,0179249165	<,001	-,152482234	-,031517766
	Auchan	,080200000*	,0179249165	,002	,0197177662	,1406822338
	Cepsa	,0246000000	,0179249165	,864	-,035882234	,0850822338
	Galp	-,052600000	,0179249165	,133	-,113082234	,0078822338
	Repsol	-,066714286	,0179249165	,020	-,127196520	-,006232052
Repsol	BP	-,025285714	,0179249165	,850	-,085767948	,0351965196
	Auchan	,146914286	,0179249165	<,001	,0864320519	,2073965196
	Cepsa	,091314286	,0179249165	<,001	,0308320519	,1517965196
	Galp	,0141142857	,0179249165	,987	-,046367948	,0745965196
	Prio	,066714286	,0179249165	,020	,0062320519	,1271965196

Com base em médias observadas. O termo de erro é Quadrado Médio (Erro) = ,004.

\*. A diferença média é significativa no nível ,05.





Petrol 2020



Diesel 2021







Source: Developed by the author based on DGEG data

					Coe	ficientes <sup>a</sup>	1						
		Coeficientes nã	o padronizados	Coeficientes padronizados			90,0% Intervalo para	de Confiança a B	с	orrelações		Estatísticas de	colinearidade
Modelo		в	Erro Erro	Beta	t	Sig.	Limite inferior	Limite superior	Ordem zero	Parcial	Parte	Tolerância	VIF
1	(Constante)	2,518	,663		3,797	<,001	1,422	3,614					
	Q31_1	,251	,117	,217	2,151	,033	,058	,444	,315	,147	,135	,388	2,575
	Q31_2	,093	,092	,078	1,012	,313	-,059	,246	,269	,070	,064	,669	1,495
	Q31_3	,023	,051	,030	,450	,653	-,061	,106	,069	,031	,028	,909	1,100
	Q31_4	-,085	,125	-,066	-,682	,496	-,292	,121	,215	-,047	-,043	,427	2,342
	Q31_5	-,068	,053	-,106	-1,285	,200	-,155	,019	,126	-,089	-,081	,576	1,737
	Q31_6	,040	,107	,038	,370	,712	-,137	,217	,227	,026	,023	,371	2,693
	Q31_7	-,044	,058	-,057	-,763	,447	-,141	,052	-,008	-,053	-,048	,702	1,424
	Q31_8	,126	,072	,151	1,747	,082	,007	,246	,305	,120	,110	,531	1,883
	Q31_9	,076	,092	,067	,828	,408	-,076	,229	,238	,057	,052	,609	1,642
	Q31_10	,098	,048	,169	2,044	,042	,019	,178	,263	,140	,128	,577	1,733
	Q31_11	-,010	,058	-,015	-,174	,862	-,105	,085	,204	-,012	-,011	,547	1,827

Annex V – Linear Regression	Coefficients (Low-Cost	)
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a. Variável Dependente: Q40

Source: Developed by the author

# Annex W – Linear Regression Descriptive statistics (Low-Cost)

	Média	Erro Desvio	N
Q40	5,144444444	1,022611738	63
Q31_1	4,76	1,456	63
Q31_2	5,71	1,113	63
Q31_3	6,03	1,135	63
Q31_4	5,52	1,045	63
Q31_5	2,52	1,090	63
Q31_6	4,19	1,533	63
Q31_7	2,75	1,204	63
Q31_8	3,21	1,310	63
Q31_9	3,98	1,442	63
Q31_10	2,87	1,651	63
Q31_11	3,62	1,430	63

### Annex X – Linear Regression Model Summary (Low-Cost)

Modelo	Modelo R R quadrado Erro padrão   Modelo R R quadrado ajustado da estimativa						
1	1 ,704 <sup>a</sup> ,495 ,386 ,8011290885						
a. Preditores: (Constante), Q31_11, Q31_5, Q31_9, Q31_3, Q31_8, Q31_2, Q31_4, Q31_10, Q31_7, Q31_6, Q31_1							
b. Variável Dependente: Q40							

Source: Developed by the author based on the questionnaire

## Annex Y – Linear Regression ANOVA (Low-Cost)

Modelo		Soma dos Quadrados	df	Quadrado Médio	Z	Sig.
1	Regressão	32,103	11	2,918	4,547	<,001 <sup>b</sup>
	Resíduo	32,732	51	,642		
	Total	64,836	62			

a. Variável Dependente: Q40

b. Preditores: (Constante), Q31\_11, Q31\_5, Q31\_9, Q31\_3, Q31\_8, Q31\_2, Q31\_4, Q31\_10, Q31\_7, Q31\_6, Q31\_1

Source: Developed by the author based on the questionnaire

## Annex Z – Linear Regression Coefficients (Branded Companies)

	Coeficientes <sup>a</sup>												
		Coeficientes nã	o padronizados	Coeficientes padronizados			90,0% Intervalo par	i de Confiança a B	с	orrelações		Estatísticas de	colinearidade
Modelo	)	в	Erro Erro	Beta	t	Sig.	Limite inferior	Limite superior	Ordem zero	Parcial	Parte	Tolerância	VIF
1	(Constante)	1,784	,997		1,790	,079	,115	3,454					
	Q31_1	,157	,119	,224	1,324	,191	-,042	,356	,426	,182	,132	,346	2,886
	Q31_2	,127	,115	,138	1,102	,276	-,066	,320	,261	,152	,110	,629	1,590
	Q31_3	,257	,120	,286	2,140	,037	,056	,459	,392	,287	,213	,555	1,801
	Q31_4	,050	,153	,051	,323	,748	-,207	,306	,406	,045	,032	,404	2,477
	Q31_5	,203	,122	,217	1,662	,103	-,002	,409	,329	,227	,165	,581	1,721
	Q31_6	,049	,104	,074	,473	,638	-,125	,223	,330	,066	,047	,408	2,450
	Q31_7	,218	,120	,257	1,821	,175	,017	,420	,180	,247	,181	,495	2,018
	Q31_8	-,313	,102	-,401	-3,066	,003	-,484	-,142	-,148	-,395	-,305	,579	1,727
	Q31_9	-,066	,094	-,093	-,703	,485	-,224	,091	,217	-,098	-,070	,563	1,775
	Q31_10	,121	,095	,195	1,270	,210	-,039	,281	,326	,175	,126	,418	2,394
	Q31_11	-,094	,088	-,131	-1,069	,290	-,241	,053	,103	-,148	-,106	,655	1,527

a. Variável Dependente: Q40

|--|

	Média	Erro Desvio	N
Q40	5,451131222	1,060557780	221
Q31_1	6,28	,915	221
Q31_2	5,83	,881	221
Q31_3	3,86	1,382	221
Q31_4	6,35	,816	221
Q31_5	5,02	1,662	221
Q31_6	6,15	1,020	221
Q31_7	5,48	1,364	221
Q31_8	5,80	1,264	221
Q31_9	6,24	,925	221
Q31_10	4,53	1,823	221
Q31_11	5,09	1,563	221

### Estatística Descritiva

Source: Developed by the author based on the questionnaire

Annex AB – Linear Regression Model Summary (Branded Companies)

Resumo do modelo <sup>b</sup>							
Modelo	R	R quadrado	R quadrado ajustado	Erro padrão da estimativa			
1 ,420 <sup>a</sup> ,176 ,133 ,9876726828							
a. Preditores: (Constante), Q31_11, Q31_7, Q31_3, Q31_2, Q31_4, Q31_9, Q31_5, Q31_10, Q31_8, Q31_1, Q31_6							
b. Variável Dependente: Q40							

Source: Developed by the author based on the questionnaire

### Annex AC – Linear Regression ANOVA (Branded Companies)

			ANOVA <sup>a</sup>			
Modelo		Soma dos Quadrados	df	Quadrado Médio	Z	Sig.
1	Regressão	43,573	11	3,961	4,061	<,001 <sup>b</sup>
	Resíduo	203,879	209	,975		
	Total	247,452	220			

a. Variável Dependente: Q40

b. Preditores: (Constante), Q31\_11, Q31\_7, Q31\_3, Q31\_2, Q31\_4, Q31\_9, Q31\_5, Q31\_10, Q31\_8, Q31\_1, Q31\_6

# Annex AD – Kevin Keller Items used in to measure Brand Equity after PCA

	Q6 - Please list all the brands of petrol stations that you can remember.
	Q7_1 - Which of the following brands have you heard of? Please check all that apply Galp
	Q7_2 - Which of the following brands have you heard of? Please check all that apply BP
Salience	Q7_3 - Which of the following brands have you heard of? Please check all that apply Repsol
	Q7_4 - Which of the following brands have you heard of? Please check all that apply Cepsa
	Q7_5 - Which of the following brands have you heard of? Please check all that apply Prio
	Q7 6 - Which of the following brands have you heard of? Please check all that apply Auchan
	Q11 1 - To what extent do you agree with the following statements? - I consider this brand to be trustworthy
	Q11 3 - To what extent do you agree with the following statements? - I consider that this brand provides the basic
	functions when compared to other brands in the category
	Q14_1 - To what extent do you agree with the following statements? - My overall opinion of this brand is good
	Q14_2 - To what extent do you agree with the following statements? - I consider that the brand has a good quality
	product
	Q14_3 - To what extent do you agree with the following statements? - I consider that the brand meets my needs
Performance/Judgments	Q14_4 - To what extent do you agree with the following statements? - I consider that this brand offers a good price-
	quality ratio
	Q15_2 - To what extent do you agree with the following statements? - I trust the creators of this brand
	Q15_4 - To what extent do you agree with the following statements? - I feel that the creators of this brand understand
	my needs
	Q16_1 - To what extent do you agree with the following statements? - I would recommend this brand to someone else
	Q16_2 - To what extent do you agree with the following statements? - This brand is relevant to me
	Q13_1 - Please rate the following attributes regarding the Brand personality - Dishonest: Sincere (realistic, honest)
	Q13_2 - Please rate the following attributes related to the Brand personality - Indifferent: Exciting (bold, modern)
	Q13_3 - Please rate the following attributes regarding the Brand personality - Incompetent: Competent (reliable,
	successful)
Imagery / Feelings	Q13_4 - Please rate the following attributes related to the Brand personality - Simple: Sophisticated (high class,
inagery / reenings	charming)
	Q13_5 - Please rate the following attributes related to the Brand personality - Fragile: Robust
	Q19_4 - Please rate the following feelings provoked by the brand Safety
	Q19_5 - Please rate the following feelings provoked by the brand Social approval
	Q19_6 - Please rate the following feelings provoked by the brand Self-respect
	Q20_1 - To what extent do you agree with the following statements? - I consider myself loyal to this brand
	Q20_3 - To what extent do you agree with the following statements? - I would change my route to use this brand
	Q20_4 - To what extent do you agree with the following statements? - I buy this brand whenever I can
	Q21_2 - To what extent do you agree with the following statements? - I would really miss this brand if it disappeared
	Q21_3 - To what extent do you agree with the following statements? - This brand is special to me
	Q21_4 - To what extent do you agree with the following statements? - This brand is more than a product for me
	Q22_1 - To what extent do you agree with the following statements? - I identify with the people who use this brand
	Q22_2 - To what extent do you agree with the following statements? - I feel a connection with other people who use this
	brand
Resonance	Q22_3 - To what extent do you agree with the following statements? - I feel almost like I belong to a club with other
	users of this brand
	Q22_4 - To what extent do you agree with the following statements? - This is a brand used by people like me
	Q23_1 - To what extent do you agree with the following statements? - I really enjoy talking about this brand with others
	Q23_2 - To what extent do you agree with the following statements? - I am always interested in knowing more about this brand
	023 3 - To what extent do you agree with the following statements? - I would be interested in huving marchandicing
	under this brand name
	022 A To what extent do you parago with the following statements? I am provid that others know that I use this bread
	dz 3_4 - to what extent do you agree with the following statements? - I am proud that others know that I use this brand

Annex AE – Kevir	Keller Items	removed after PCA
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_ /	Q11_2 - To what extent do you agree with the following statements? - I consider the service providers of this brand to be attentive and helpful
Performance	Q11_4 - To what extent do you agree with the following statements? - I believe that the brand's prices are generally higher than those of competitors
Imagony	Q12_1 - To what extent do you agree with the following statements? - I can buy this brand in several places
Intagery	Q12_2 - To what extent do you agree with the following statements? - People I admire and respect use this brand
	$Q15_1$ - To what extent do you agree with the following statements? - I consider the creators of this brand to be innovative
	Q15_3 - To what extent do you agree with the following statements? - I consider the creators of this brand to be experienced
Judgments	Q18_1 - To what extent do you agree with the following statements? - I consider the brand to be unique
	Q18_2 - To what extent do you agree with the following statements? - The brand offers advantages that other brands cannot
	Q18_3 - To what extent do you agree with the following statements? - This brand is superior to others in the category
	Q19_1 - Please rate the following feelings provoked by the brand Calm
Feelings	Q19_2 - Please rate the following feelings provoked by the brand Fun
	Q19_3 - Please rate the following feelings provoked by the brand Enthusiasm
Resonance	Q20_2 - To what extent do you agree with the following statements? - In case the brand is not available, I could easily use another brand
	Q21_1 - To what extent do you agree with the following statements? - I like this brand a lot

Source: Developed by the author based on the questionnaire

Annex AF – ANOVA Between Subject Factors (Performance/Judgements Analysis)

		N
Brand	Auchan	50
	Вр	50
	Cepsa	50
	Galp	50
	Prio	50
	Repsol	50

Source: Developed by the author based on the questionnaire

### Annex AG – ANOVA Homogeneity of Variances (Performance/Judgements Analysis)

		Estatística de Levene	df1	df2	Sig.
Mean	Com base em média	4,982	5	294	<,001
Performance/Judgement	Com base em mediana	4,102	5	294	,001
3	Com base em mediana e com gl ajustado	4,102	5	262,591	,001
	Com base em média aparada	4,779	5	294	<,001

Testa a hipótese nula de que a variância do erro da variável dependente é igual entre grupos.

a. Variável dependente: Mean Performance/Judgements

b. Design: Intercepto + Brand

Annex AH – ANOVA	A (Performance/	Judgements	Analysis)
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Origem	Tipo III Soma dos Quadrados	df	Quadrado Médio	Z	Sig.	Eta parcial quadrado	Noncent. Parâmetro	Poder observado <sup>b</sup>
Modelo corrigido	321,312 <sup>a</sup>	5	64,262	44,209	<,001	,429	221,043	1,000
Intercepto	6229,875	1	6229,875	4285,774	<,001	,936	4285,774	1,000
Brand	321,312	5	64,262	44,209	<,001	,429	221,043	1,000
Padrão	427,363	294	1,454					
Total	6978,550	300						
Total corrigido	748,675	299						

Variával dependente: Mean Performanea/Judgemente

a. R Quadrado = ,429 (R Quadrado Ajustado = ,419)

b. Calculado usando alfa = ,05

### Source: Developed by the author based on the questionnaire

Annex AI - ANOVA Post-Hoc Multiple Comparisons (Performance/Judgements)

Variável dependente: Mean Performance/Judgements

Games-H	owell					
					Intervalo de C	onfiança 95%
(I) Brand	(J) Brand	Diferença média (I-J)	Estatística do teste Padrão	Sig.	Limite inferior	Limite superior
Auchan	Bp	-2,68400000*	,2715894260	<,001	-3,47447039	-1,89352961
	Cepsa	-,840000000	,2710225535	,030	-1,62886224	-,051137758
	Galp	-2,53600000	,2498597157	<,001	-3,26562762	-1,80637238
	Prio	-,872000000*	,2932717622	,042	-1,72459710	-,019402904
	Repsol	-2,44600000	,2516948266	<,001	-3,18069252	-1,71130748
Вр	Auchan	2,68400000	,2715894260	<,001	1,893529610	3,474470390
	Cepsa	1,84400000	,2343710646	<,001	1,162710271	2,525289729
	Galp	,1480000000	,2095386575	,981	-,461912404	,7579124041
	Prio	1,81200000*	,2597785556	<,001	1,056358879	2,567641121
	Repsol	,2380000000	,2117235394	,870	-,378116666	,8541166664
Cepsa	Auchan	,840000000*	,2710225535	,030	,0511377582	1,628862242
	Вр	-1,84400000	,2343710646	<,001	-2,52528973	-1,16271027
	Galp	-1,69600000	,2088033935	<,001	-2,30373989	-1,08826011
	Prio	-,032000000	,2591858525	1,000	-,785946980	,7219469795
	Repsol	-1,60600000	,2109958893	<,001	-2,21996943	-,992030569
Galp	Auchan	2,53600000*	,2498597157	<,001	1,806372380	3,265627620
	Вр	-,148000000	,2095386575	,981	-,757912404	,4619124041
	Cepsa	1,69600000	,2088033935	<,001	1,088260113	2,303739887
	Prio	1,66400000*	,2369682662	<,001	,9727388032	2,355261197
	Repsol	,0900000000	,1830189017	,996	-,442022560	,6220225603
Prio	Auchan	,872000000	,2932717622	,042	,0194029042	1,724597096
	Вр	-1,81200000	,2597785556	<,001	-2,56764112	-1,05635888
	Cepsa	,0320000000	,2591858525	1,000	-,721946980	,7859469795
	Galp	-1,66400000	,2369682662	<,001	-2,35526120	-,972738803
	Repsol	-1,57400000	,2389024222	<,001	-2,27064378	-,877356216
Repsol	Auchan	2,44600000*	,2516948266	<,001	1,711307482	3,180692518
	Вр	-,238000000	,2117235394	,870	-,854116666	,3781166664
	Cepsa	1,60600000	,2109958893	<,001	,9920305693	2,219969431
	Galp	-,090000000	,1830189017	,996	-,622022560	,4420225603
	Prio	1,57400000	,2389024222	<,001	,8773562160	2,270643784

Com base em médias observadas. O termo de erro é Quadrado Médio (Erro) = 1,454.

\*. A diferença média é significativa no nível ,05.

		N
Brand	Auchan	50
	Вр	50
	Cepsa	50
	Galp	50
	Prio	50
	Repsol	50

## Annex AJ – ANOVA Between Subject Factors (Imagery/Feelings Analysis)

Source: Developed by the author based on the questionnaire

A A TZ	ANOVA	TT	- <b>f v</b> <i>t</i>	(I	A
Annex AK –	·ANUVA	Homogeneity	of variances	(Imagery/Feelings)	Analysis)

		Estatística de Levene	df1	df2	Sig.
Mean Imagery/Feelings	Com base em média	3,570	5	294	,004
	Com base em mediana	1,966	5	294	,084
	Com base em mediana e com gl ajustado	1,966	5	242,776	,084
	Com base em média aparada	3,237	5	294	,007

Testa a hipótese nula de que a variância do erro da variável dependente é igual entre grupos.

a. Variável dependente: Mean Imagery/Feelings

b. Design: Intercepto + Brand

Source: Developed by the author based on the questionnaire

## Annex AL – ANOVA (Imagery/Feelings Analysis)

Variável dependente: Mean Imagery/Feelings								
Origem	Tipo III Soma dos Quadrados	df	Quadrado Médio	Z	Sig.	Eta parcial quadrado	Noncent. Parâmetro	Poder observado <sup>b</sup>
Modelo corrigido	357,455 <sup>a</sup>	5	71,491	47,576	<,001	,447	237,879	1,000
Intercepto	5803,601	1	5803,601	3862,170	<,001	,929	3862,170	1,000
Brand	357,455	5	71,491	47,576	<,001	,447	237,879	1,000
Padrão	441,788	294	1,503					
Total	6602,844	300						
Total corrigido	799,243	299						

a. R Quadrado = ,447 (R Quadrado Ajustado = ,438)

b. Calculado usando alfa = ,05

## Annex AM - ANOVA Post-Hoc Multiple Comparisons (Imagery/Feelings)

Variável dependente: Mean Imagery/Feelings

Games-H	owell					
		Dif	Estation de		Intervalo de Co	nfiança 95%
(I) Brand	(J) Brand	Diferença média (I-J)	Estatistica do teste Padrão	Sig.	Limite inferior	superior
Auchan	Bp	-2,94750	,279364	<,001	-3,75959	-2,13541
	Cepsa	-1,01750	,240883	<,001	-1,71908	-,31592
	Galp	-2,64500	,260995	<,001	-3,40389	-1,88611
	Prio	-,82500	,258172	,023	-1,57578	-,07422
	Repsol	-2,47000*	,248498	<,001	-3,19314	-1,74686
Bp	Auchan	2,94750	,279364	<,001	2,13541	3,75959
	Cepsa	1,93000	,244814	<,001	1,21677	2,64323
	Galp	,30250	,264627	,862	-,46705	1,07205
	Prio	2,12250	,261843	<,001	1,36093	2,88407
	Repsol	,47750	,252310	,413	-,25689	1,21189
Cepsa	Auchan	1,01750	,240883	<,001	,31592	1,71908
	Вр	-1,93000*	,244814	<,001	-2,64323	-1,21677
	Galp	-1,62750	,223625	<,001	-2,27808	-,97692
	Prio	,19250	,220324	,952	-,44836	,83336
	Repsol	-1,45250	,208904	<,001	-2,05985	-,84515
Galp	Auchan	2,64500	,260995	<,001	1,88611	3,40389
	Bp	-,30250	,264627	,862	-1,07205	,46705
	Cepsa	1,62750	,223625	<,001	,97692	2,27808
	Prio	1,82000*	,242150	<,001	1,11609	2,52391
	Repsol	,17500	,231808	,974	-,49903	,84903
Prio	Auchan	,82500	,258172	,023	,07422	1,57578
	Вр	-2,12250	,261843	<,001	-2,88407	-1,36093
	Cepsa	-,19250	,220324	,952	-,83336	,44836
	Galp	-1,82000*	,242150	<,001	-2,52391	-1,11609
	Repsol	-1,64500	,228624	<,001	-2,30970	-,98030
Repsol	Auchan	2,47000*	,248498	<,001	1,74686	3,19314
	Вр	-,47750	,252310	,413	-1,21189	,25689
	Cepsa	1,45250	,208904	<,001	,84515	2,05985
	Galp	-,17500	,231808	,974	-,84903	,49903
	Prio	1,64500	,228624	<,001	,98030	2,30970

Com base em médias observadas. O termo de erro é Quadrado Médio (Erro) = 1,503.

\*. A diferença média é significativa no nível ,05.

## Source: Developed by the author based on the questionnaire

## Annex AN – ANOVA Between Subject Factors (Resonance Analysis)

		N
Brand	Auchan	50
	Вр	50
	Cepsa	50
	Galp	50
	Prio	50
	Repsol	50

### Annex AO – ANOVA Homogeneity of Variances (Resonance Analysis)

		Estatística de Levene	df1	df2	Sig.
Mean Resonance	Com base em média	7,703	5	294	<,001
	Com base em mediana	7,376	5	294	<,001
	Com base em mediana e com gl ajustado	7,376	5	285,105	<,001
	Com base em média aparada	7,697	5	294	<,001

Testa a hipótese nula de que a variância do erro da variável dependente é igual entre grupos.

a. Variável dependente: Mean Resonance

b. Design: Intercepto + Brand

## Source: Developed by the author based on the questionnaire

## Annex AP – ANOVA (Resonance Analysis)

Variável dependente: Mean Resonance								
Origem	Tipo III Soma dos Quadrados	df	Quadrado Médio	Z	Sig.	Eta parcial quadrado	Noncent. Parâmetro	Poder observado <sup>b</sup>
Modelo corrigido	193,746 <sup>a</sup>	5	38,749	21,375	<,001	,267	106,873	1,000
Intercepto	2863,547	1	2863,547	1579,570	<,001	,843	1579,570	1,000
Brand	193,746	5	38,749	21,375	<,001	,267	106,873	1,000
Padrão	532,982	294	1,813					
Total	3590,276	300						
Total corrigido	726,728	299						

a. R Quadrado = ,267 (R Quadrado Ajustado = ,254)

b. Calculado usando alfa = ,05

# Annex AQ - ANOVA Post-Hoc Multiple Comparisons (Resonance)

Variável dependente: Mean Resonance

Games-Howell

					Intervalo de Confiança 95%	
(I) Brand	(J) Brand	Diferença média (I-J)	Estatística do teste Padrão	Sig.	Limite inferior	Limite superior
Auchan	Bp	-2,08714286	,2926511399	<,001	-2,94198476	-1,23230095
	Cepsa	-,557142857	,2161483671	,113	-1,18552563	,0712399184
	Galp	-1,92428571	,2582371436	<,001	-2,67678171	-1,17178972
	Prio	-,491428571	,2204472754	,234	-1,13239123	,1495340902
	Repsol	-1,69142857*	,2379362540	<,001	-2,38383650	-,999020639
Bp	Auchan	2,08714286	,2926511399	<,001	1,232300954	2,941984761
	Cepsa	1,53000000	,2983383805	<,001	,6594566546	2,400543345
	Galp	,1628571429	,3301092167	,996	-,797310032	1,123024318
	Prio	1,59571429	,3014675337	<,001	,7164794528	2,474949119
	Repsol	,3957142857	,3144826444	,807	-,520019338	1,311447910
Cepsa	Auchan	,5571428571	,2161483671	,113	-,071239918	1,185525633
	Bp	-1,53000000*	,2983383805	<,001	-2,40054335	-,659456655
	Galp	-1,36714286	,2646649238	<,001	-2,13773812	-,596547593
	Prio	,0657142857	,2279431964	1,000	-,596907164	,7283357358
	Repsol	-1,13428571	,2448974490	<,001	-1,84655967	-,422011763
Galp	Auchan	1,92428571	,2582371436	<,001	1,171789719	2,676781710
	Вр	-,162857143	,3301092167	,996	-1,12302432	,7973100319
	Cepsa	1,36714286	,2646649238	<,001	,5965475927	2,137738122
	Prio	1,43285714	,2681872601	<,001	,6522859240	2,213428362
	Repsol	,2328571429	,2827385121	,962	-,589290432	1,055004717
Prio	Auchan	,4914285714	,2204472754	,234	-,149534090	1,132391233
	Bp	-1,59571429	,3014675337	<,001	-2,47494912	-,716479453
	Cepsa	-,065714286	,2279431964	1,000	-,728335736	,5969071644
	Galp	-1,43285714	,2681872601	<,001	-2,21342836	-,652285924
	Repsol	-1,20000000*	,2486999098	<,001	-1,92318334	-,476816659
Repsol	Auchan	1,69142857	,2379362540	<,001	,9990206392	2,383836504
	Вр	-,395714286	,3144826444	,807	-1,31144791	,5200193383
	Cepsa	1,13428571	,2448974490	<,001	,4220117629	1,846559666
	Galp	-,232857143	,2827385121	,962	-1,05500472	,5892904316
	Prio	1,20000000	,2486999098	<,001	,4768166593	1,923183341

Com base em médias observadas. O termo de erro é Quadrado Médio (Erro) = 1,813.

\*. A diferença média é significativa no nível ,05.