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## Abstract

The strategy of a franchise influences the control over the franchisees depending on its type. To exercise control in a franchisor-franchisee relationship, contractual restraints are implemented in franchise contracts. Previous research has not explained the influence of these strategies on contractual restraints in franchise contracts. This thesis examines the individual effect of the adaptation, defender, and prospector strategy on each of the following clauses: tying, resale price maintenance, and exclusive territory. The aggregated approach recommended in prior studies cannot be applied in this thesis. The results of the probit regression analyses based on the survey data from the Austrian and German franchise sectors provide support for one hypothesis. Overall, this thesis contributes to the franchising literature by presenting a new approach to analyze the strategic consequences of individual contractual restraints in franchise contracts.



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## 1. Introduction

Franchising has become an important economic contributor in many countries, with an increase in popularity in the past decades. This approach of doing business offers both the franchisor and franchisees, their business partners, potential benefits. The success of a franchise system relies heavily on the chosen strategy by the franchisor and the franchisee's implementation. Therefore, the franchisor needs to ensure that the strategy is applied accordingly. In order to achieve such adherence of the franchisees, contracts are set up defining the relationship between both business partners. The terms of franchise contracts determine the degree of flexibility and independence of franchisees. Thus, the franchisor is mostly in the position to decide how restrictive the agreement is going to be.

On the one hand, contracts that grant a higher degree of flexibility can result in higher monitoring costs for the franchisor to control the franchisee's actions and enhance the innovativeness of franchisees at the same time. On the other hand, rather restrictive agreements may cause opportunistic behavior of the franchisees but increase the adherence to the franchisor's plans. Hence, it is important that the number and type of the contractual restraints used in franchise contracts fit to the strategy of a franchise business.

### 1.1. Research gap

Despite many important insights of previous studies, scholars examined the effects of contractual restrictions and strategies separately but paid little attention to the influence strategies may have on contractual restraints.

The academic research on contractual restraints, on the one hand, looks at contractual clauses from an individual perspective, for example, examining the relationship between territorial exclusivity and sales royalty (Schmidt, 1994), the initial franchise fee and royalty rate (Kaufmann and Dant, 2001), or tying and franchisor profits (Michael, 2000). However, the downside of the individual approach is that it does not consider possible association effects between contractual restraints. Other scholars view contractual provisions from a holistic perspective. For instance, Hendrikse, Hippmann, and Windsperger (2015) show that general trust is an important influencing factor on the completeness of franchise contracts; Solis-Rodriguez and Gonzalez-Diaz (2012) research the effect of contract design capabilities and different contractual hazards on the completeness of franchise contracts. This approach addresses all possible contingencies but hides the influence of the chosen antecedents on the contractual clauses (Hajdini and Raha, 2018; Hajdini and Windsperger, 2019).

On the other hand, research in the field of franchising strategies discusses various aspects of these. Several studies focus more on the ownership perspective of franchise systems, such as Dunning, Pak, and Beldona (2007) test ownership strategies of international franchisors by using the Ownership, Location and Internationalization

(OLI) paradigm. Lafontaine and Kaufmann (1994) examine the ownership structure of franchised chains. Other studies that emphasize the performance aspects of strategies, such as Kim and Lee (2020), investigate the effect of the sustainable investing strategy with the focus on the investment in CSR/sustainability activities on firm performance. Martin-Herrán, Sigué and Zaccour (2011) examine under which conditions franchisees form cooperatives, and franchisors may implement franchise contracts where franchisees do not cooperate. Wu (2015) investigates the antecedents of franchise strategy and performance by adapting a resource-based view and relationship-marketing theory to explain the differences in strategy and performance in chain stores. Additional perspectives are covered in the studies from, for example, Falbe, Dandridge, and Kumar (1999). They focus their research on the effect of the organizational context (size, age, growth, and time) on entrepreneurial strategies (proactivity, willingness to take risks, and promoting innovation). Gillis and Combs (2009) argue that successful franchisors try to minimize costs and create value differently depending on their strategy and strategic resources. They differentiate between two franchise strategies, the chain builder and the turnkey strategy. Sun and Lee (2019) examine in their study how organizational characteristics' interplay with a firm's engagement in franchising to generate competitive advantages by using the generic model of Porter (1980) to investigate the strategic benefits of franchising from a firm performance perspective by looking at efficiency- and differentiation-oriented strategies.

## 1.2. Aim and method of the thesis

Despite the growing evidence that contractual restrictions influence the performance and survival of franchise systems (Shane 1998; Azoulay and Shane, 2001; Hajdini et al., 2017), previous literature has not examined the potential influence of certain strategies on contractual restraints. Hence, this thesis aims to fill this gap in the literature by exploring the likelihood of implementing clauses in franchise contracts depending on the strategic choice of franchise systems.

The underlying assumption is that the strategic setting of a franchise business influences the use of certain contractual restraints. As most franchise systems start as small firms, the decision to license their business idea and know-how to new business partners is typically made after proofing their business concept's success. Consequently, the strategic direction of a franchise system is already set before franchisees sign franchise contracts. Therefore, the argumentation is that the strategy influences the use of certain contractual restraints and not vice versa. To be more precise, the strategies considered in this thesis are adaptation, defender, and prospector. Their influence on the most important contractual clauses, namely tying, resale price maintenance, and exclusive territory, is examined.

To find evidence for potential effects, theory-based hypotheses are developed and empirically tested. The basis for the analysis builds the data acquired through a survey conducted in 2019, focusing on franchise systems in Austria and Germany.



### 1.3. Structure of the thesis

The first part of this thesis concentrates on the definition of franchising (chapter 2.1) and the development of franchising in Austria and Germany (chapter 2.2). The theoretical section discusses the theories on contractual restraints (chapter 3) and strategy (chapter 4). Subsequently, the hypotheses are developed and presented in chapter 5.

The second part focuses on the empirical analysis based on the survey data. The data collection process is described in chapter 6.1. Next, the design of the questionnaire (chapter 6.2) and necessary measures (chapter 6.3) are discussed. The results of the empirical analysis are shown in chapter 7. The discussion and implications (chapter 8) and limitations and future research (chapter 9) compose the last part of the thesis. The appendix (chapter 10) consists of the German version of the abstract, the original questionnaire, and the code used for the statistical analysis. The references are displayed in chapter 11.

## 2. Franchising

### 2.1. Definition of franchising

*“Franchising is a form of licensing whereby a parent company, the franchiser (franchisor), grants an independent entity, the franchisee, the right to do business in a prescribed manner.”* (Rosado-Serrano, Paul, and Dikova, 2018, p.238) In a franchise system, all franchised and company-owned units share an identity towards customers and operate under the same business format (Croonen, 2010).

In the past decades, franchising has become an important strategy for firms to distribute their products (Hoffman et al., 2016), as this way of doing business offers franchisors and franchisees potential benefits (Altinay et al., 2014). *“Most franchisors operate some of their stores directly and franchise the others.”* (Lafontaine, 1992, p.263) Nonetheless, franchisors desire to maintain uniformity and strict adherence to preserve brand integrity, while franchisees often seek to operate their franchised unit with greater autonomy (Altinay et al., 2014). Contracts are used as an alternative to ownership or integration to exercise decision control; they are an important method of governing interorganizational relationships (Heide, 1994; Weitz and Jap, 1995; Stump and Heide, 1996). The allocation of decision control as a formal authority in business relationships can be exercised through contractual provisions (Hajdini and Windsperger, 2019). Formal authority in franchise contracts restrains the activities of franchise partners in the desired manner (Lafontaine and Slade, 2014). For instance, the franchisor can influence the set and quality of products available to consumers by authorizing its franchisees to acquire raw materials from appointed suppliers and to sell exclusively brand-related products (Marvel, 1982).

## 2.2. Franchising in Austria and Germany

In the 1970s international franchise systems started the development of franchising in Austria and Germany by gaining increasing economic importance since that time (Glatz and Chan, 1999; Wessels, 1999). Due to smaller markets with higher barriers for expanding in other countries and better development of voluntary cooperation systems, the rise of franchise systems was slower in European countries compared to the US (Glatz and Chan, 1999).

The European Union was a steppingstone for developing franchising in Europe by granting union member countries easier access to bigger markets. The growth of the European Union in member states helped franchise systems overcome entry barriers and opened new possibilities for expansion into new countries (Glatz and Chan, 1999). With the entry of Austria into the European Union in 1995 its market became attractive for foreign franchise systems to expand into, especially for German franchises. However, at that time, many Austrian franchise systems were comparably young and tried to establish themselves on the Austrian market (Glatz and Chan, 1999).

	Austria	Germany
Revenue	10.3 billion €	129 billion €
Number of franchise systems	480	960
Number of franchisees	9,400	133,424
Number of franchise outlets	11,700	171,824
Number of employees	87,300	716,935

*Table 1. The Austrian and German franchise sectors*

The franchising sector of German-speaking countries within Europe includes Austria, Germany, and Switzerland. However, in this thesis the country of Switzerland was excluded from the research due to the difficulty of obtaining representative data. Recent studies of the Austrian and German Franchise Associations conducted in 2019 are shown in Table 1. Referring to the Austrian Franchise Association (2019), in 2019, the Austrian franchise sector had total revenue of 10.3 billion euros, with 480 active franchise systems. The number of franchisees amounted to 9,400 with 11,700 outlets and 87,300 employees in the franchising sector. According to the German Franchise Association (2019), in 2019, the German franchise sector had total revenue of 129 billion euros, 960 active franchise systems, 133,424 franchisees, 171,824 outlets, and 716,935 employees.

### 3. Contractual restraints

Contractual restraints are incorporated in franchise contracts to limit and control the actions of franchise partners. Since one of the franchisors' interests is to maximize the benefit of the franchise system they manage, contractual restrictions are implemented in franchise contracts to facilitate the adherence of their franchise partners. Hence, such limitations prevent the franchisees from making decisions solely on their behalf. The inclusion of contractual restraints in contracts increases the efficiency of franchise networks (Hajdini and Raha, 2018).

There are different types of contractual restraints found in franchise contracts, depending on the franchise system and its strategy. Referring to Hajdini and Raha (2018), they argue that tying, exclusive territory, exclusive dealing, and non-competition arrangements are the most present restrictions. The contractual clauses examined in this thesis are tying, exclusive territory, and resale price maintenance (RPM). In the following sections, the literature about these restrictions is presented to provide a basis for understanding the development of the hypotheses.

#### 3.1. Tying

Tying arrangements in franchise contracts are used to “*oblige franchisees to buy all or at least a proportion of their supplies from the franchisor or its appointed suppliers*” (Hajdini and Raha, 2018, p.782).

*A tying contract is a vertical restraint that involves a conditional sale. [...] the essence of tying is the condition that limits the buyer's freedom to purchase the tied good(s) wherever he deems optimal from his own perspective. In the franchising context, the alleged tying good is usually the franchise license, which is normally subject to intellectual property protection. The tied goods may be other goods that are resold with little modification, or they may be inputs into the production of a final good.* (Blair and Lafontaine, 2005, p.139)

According to Marvel (1995), the franchisor must be induced to monitor the supply of goods and performance of services to increase the brand's awareness. In contrast, the franchisee needs to promote the product and avoid actions that could potentially damage the brand image of the franchisor (Marvel, 1995). Therefore, tying clauses are mainly used to lower the franchisor's monitoring costs, improve quality control, or protect goodwill (Michael, 2000). For instance, Michael (2000) argues that equipment requirements positively and local advertising negatively affect tying. However, it is not affected by market or outlet share (Michael, 2000).

### 3.2. Exclusive territory

Exclusive territory assures franchisees that the franchisor will not establish new franchised or company-owned outlets near the specified territory (Lafontaine and Slade 2014). In terms of economic effect, both franchise partners benefit from an exclusive territory agreement since an increased competition in a certain geographical area leads to increased intra-brand competition and threatens the financial well-being of the incumbent franchisees (Blair and Lafontaine, 2005). Furthermore, adding new units to franchised areas significantly reduces the revenues of other units in the same area (Kalnins, 2004). However, this is not the case for company-owned outlets (Kalnins, 2004). Dutta et al. (1999) argue that when there are high transaction-specific investments, territorial restrictions reduce a manufacturer's transaction costs from its distributor's free riding and information asymmetry.

### 3.3. Resale price maintenance

Resale price maintenance (RPM) is a very complex and questionable restriction from a legal perspective. It can be defined as price restrictions set by the franchisor to prevent franchisees from charging more or less than the franchisor would prefer (Umit, Kucuk, and Timmermans, 2012). The franchisor can use RPM to control the pricing strategy of its franchisees by recommending either minimum prices or maximum prices (Hajdini and Raha, 2018). Such arrangements prevent price competition within the franchise system and encourage the franchisor's intangible advertising and marketing investments (Hajdini and Raha, 2018).

Perrigot and Basset (2018, pp.210-211) about price restrictions:

*A maximum resale price implies that the franchisee is free to offer a lower price, and this option is what justifies acceptance of a maximum price as an authorised practice. However, such an imposed maximum price cannot also serve as a minimum price to be imposed since, in this case, it would be seen as franchisors imposing their prices upon their franchisees. [...] If this occurs, the franchisor may be accused of breaching the fundamental rules of healthy competition and can be penalised. [...] Fixed prices cannot, by definition, change once they have been communicated from one market operator to another, in our case from the franchisor to its franchisees. [...] At the European Union level, imposing prices is prohibited.*

Blair and Lafontaine (2005) examine whether contractually restricting prices is a violation of antitrust regulations. According to Umit Kucuk and Timmermans (2012) it is still unclear which forms of RPM are legal and whether they are suitable for the competition on the market.

## 4. Strategy

A strategy can be defined as a plan for achieving a long-term objective under conditions of uncertainty by describing how a particular outcome can be accomplished by exploiting resources. It is an important factor that influences the success or failure of a franchise system.

As already discussed in chapter 1.1, studies related to strategy within the franchising sector cover different aspects of strategies. However, scholars have paid little attention to the examination of the influence of strategies on contractual restraints. The strategies examined in this thesis are partly related to competitive strategies and corporate strategies. In general, competitive strategies are concerned with improving the businesses' market position through customer satisfaction (Thompson and Strickland, 1992). In contrast, corporate strategy deals with gaining a corporate advantage (Pidun, 2019) by defining an organization's overall goal and direction. In the following sections, the strategies examined in this thesis are presented.

### 4.1. Adaptation versus standardization strategy

In essence, franchising is benefiting from both the system-wide standardization and local adaptation strategy. From a franchisor's perspective, one of the most challenging management issues is to define *"the appropriate boundaries of their format, i.e., maintaining the required level of uniformity for the system to obtain economies of scale, while avoiding the danger of stifling efficient local market adaptation."* (Kaufman and Eroglu, 1999, p.69)

Kaufman and Eroglu (1999) suggest identifying the core and peripheral elements of a franchise system to find the right balance between necessary system-wide standardization and efficient local adaptation. They define these two elements as follows. Core elements – such as the trademark, logo, uniforms, and operation manuals – are those that are critical to a franchise system's survivability. Therefore, they must be standardized across all franchisees, without exceptions. Franchisors must decide whether peripheral elements – for example opening hours, decoration, local advertising, and price – are standardized across the franchise system or adapted to the demand of local markets. However, the same element can be deemed as central for one business while it is peripheral to another. (Kaufman and Eroglu, 1999, pp.70-72) While examining the appropriateness and performance consequences of the standardization and adaptation strategies, Katsikeas, Samiee, and Theodosiou (2006) found that the

*[...] degree of standardization is significantly related to the similarity between markets in terms of regulatory environments, technological intensity and velocity, customs and traditions, customer characteristics, a product's stage in its life cycle, and competitive intensity.* (Katsikeas, Samiee and Theodosiou, 2006, p.867)

To sum up, standardization, as well as adaptation, can be beneficial for franchise systems depending on the extent to which either of those strategies is implemented. Both competitive strategies provide franchise businesses with a different set of advantages and shortcomings. The following paragraphs take a deeper look at the standardization and adaptation strategy.

#### 4.1.1. Standardization

The franchisor's desired outcome by using a standardization strategy is to create standards that franchisees use. These typically concern the trademarks, product operating procedures, suppliers, and advertising and promotion material (Michael, 1996). At the franchisee level, standardization limits the decision-making to local operations, such as pricing, human resources, location, and hours of service (Cox and Mason, 2007). The primary motive for using this competitive strategy is to minimize cost, achieve image uniformity, and introduce new product/service deliverables (Kaufman and Eroglu, 1999).

Cost minimization can be achieved in terms of economies of scale by purchasing large amounts of goods (Douglas and Wind, 1987), marketing (Buzzell, 1968; Keegan, 1969; Onkvisit and Shaw, 1987), R&D [research and development] (Buzzell, 1968; Keegan, 1969; Terpstra, 1987), and facilitating the implementation and management of programs (Samiee and Roth, 1992).

Standardization makes it easier to create and maintain a consistent image across the franchise system (Cox and Mason, 2007). In the customer's mind, a uniform system image, leads to them expecting the same experience at every outlet of the franchise business (Falbe and Dandridge, 1992). Thereby, interdependence between the franchisees is created since each franchisee has a potential impact on others (Kaufman and Dant, 2001). To achieve image uniformity, it is essential that there are no deviations from the standards of the franchise system on the franchisee level (Cox and Mason, 2007).

The development and testing of new products/services is another driver for standardization (Kaufman and Eroglu, 1999). Since franchisees who adapt to local market conditions often change their operating routines, the ability to identify and implement innovations across the franchise system is reduced (Cox and Mason, 2007). Moreover, the knowledge acquired through adaptation often has little relevance for franchisees operating in different market environments (Kaufmann and Eroglu, 1999; Sorenson and Sørensen, 2001). Through standardized products/programs, the franchisor gains accurate assessments and continuous feedback on the goods/services offered by their franchisees (Kaufman and Eroglu, 1999). A higher degree of standardization within a franchise system results in a "*higher probability for overlapping experiences and gains from synchronized creativity*" (Kaufman and Eroglu, 1999, p.77; Cox and Mason, 2007). Additionally, original products/services which are carefully standardized facilitate extensions into new products (Kaufman and Eroglu, 1999).



#### 4.1.2. Adaptation

In contrast to standardization, the goal of the adaptation strategy is generating revenues that exceed the costs of deviation through better local market fit (Kaufman and Eroglu, 1999). Thereby, the franchisees are granted a higher degree of freedom for their decision (Kaufman and Eroglu, 1999). Prior studies show 3 reasons why local adaptation is more beneficial than system-wide standardization (Cox and Mason, 2007; Kaufman and Eroglu, 1999).

First, in heterogenic markets, the franchisees are more familiar with the domestic conditions. The franchisors are dependent on their franchisees to acquire and use their knowledge of the local market to promote market development (Dandridge and Falbe, 1994; Kaufmann and Dant, 2001; Cox and Mason, 2007). Under such circumstances, the benefits of adaptations to some products/services exceed those of standardized deliverables (Kaufman and Eroglu, 1999; Jain, 1989).

Second, entrepreneurial behavior by franchisees is desired, especially in growing franchise systems (Tuunanen and Hyrsky, 2001). The value of the entire system increases through the franchisee's effort to experiment and innovate to adapt to the local market environment (Phan et al., 1996). Further, Kaufman and Eroglu (1999) argue that maturation at the industry, franchise system, and franchisee levels call for higher degrees of adaptation.

Third, *"franchisees seeking cost minimization or revenue maximization solutions to their specific problems often provide solutions that can be extended throughout the system"* (Kaufman and Eroglu, 1999, p.81). In other words, if the requested adaptation concerns a peripheral element and has no negative effects on the franchise system, such as additional cost or deviation, the entire system can benefit from it. Preventing franchisees from pursuing their entrepreneurial interest may result in *"misrepresentation of costs and revenues, withholding royalty payments, refusing to participate in innovative marketing, and resisting changes needed to keep the system competitive"* (Cox and Mason, 2007, p.1057).

To sum up, local market adaptation can be beneficial when the franchise system faces heterogenic markets, maturation effects, and the franchisee's motivation to seek solutions for their specific problems. In the following section, the corporate strategies introduced by Miles et al. (1978) are presented.

#### 4.2. The defender, prospector, analyzer and reactor strategies

Miles et al. (1978) examine an organization's choice of strategy to adapt to its environment and the influence this may have on the technology and structure of an organization. They introduced four different organizational strategies, namely the defender, prospector, analyzer, and reactor strategy. In the following paragraphs each strategy is presented in detail.

#### 4.2.1. Defender strategy

The Defenders' main objective is to create an environment of stability for the organization. Through continuous attempts to achieve greater operational efficiency within a certain market segment, they try to prevent competitors from entering their domain. (1) From an entrepreneurial perspective, the focus lies on producing a limited set of products for a narrow segment of the total potential market. The economic actions of the defender typically include competitive pricing or high-quality products to create market barriers for their competitors. The main strategies for growth are through market penetration and limited product development. (2) From a technological perspective, the defenders typically develop a single core technology that is highly cost-efficient. A key feature of this strategy is to maintain/improve technological efficiency through continuous improvements or vertical integration. Since the developments and trends outside the domain are likely to be ignored, the primary risk of this strategy is ineffectiveness as there is a major change in the market environment. (3) From an administrative perspective, the defenders aim to achieve strict control of the organization to ensure efficiency. Characteristics of a defender strategy include production and financial experts at the top-management level, limited environmental scanning, intensive cost- and efficiency-oriented planning, functional structures with a high degree of formalization, centralized control, and communication through formal hierarchical channels. (Miles et al., 1978, pp.550-551)

#### 4.2.2. Prospector strategy

The prospectors' goal is to innovate through locating and exploiting new products and market opportunities by maintaining a reputation as innovators. Since constant product- and market innovation is inevitably associated with failures, their primary risks are low profitability and overextension of resources. (1) From an entrepreneurial perspective, the prospector operates within a broad and continuously changing domain. Generally, there is a wide range of environmental conditions, trends, and events monitored to initiate changes in the respective industries. Prospectors use change as a tool to gain a competitive advantage. Hence, the managers perceive environmental shifts and uncertainty more frequently compared to other strategies. Therefore, more emphasis is put on the development of individuals for screening the changes rather than the technology. The growth of such organizations happens through the development of the product and market. (2) From a technological perspective, prospectors need to be flexible to adapt to the changing domain appropriately. Typically, they do not limit their products and markets to the current capability of the organization. The prospector avoids long-term commitments to a single technological process by creating multiple prototypical technologies with a low degree of routinization and mechanization. In contrast to defenders, prospectors cannot obtain complete efficiency due to the presence of various technologies. (3) From an administrative perspective, the main objective is to maintain flexibility. In comparison to the centralized planning and control of operations by defenders, the prospectors must be capable of



coordinating and allocate resources among numerous decentralized units and projects. Characteristics of a prospector strategy include marketing and development experts at the top-management level, broad result-oriented planning, decentralization with a low degree of formalization, and lateral and vertical communication. The downside of this flexibility is that there may be a temporary underutilization or misuse of physical, financial, and human resources. (Miles et al., 1978, pp.551-553)

#### 4.2.3. Analyzer and reactor strategy

In addition to the defender and prospector strategy, Miles et al. (1978) introduced the analyzer and reactor strategy. The main objective of the analyzer is to minimize risk while maximizing the opportunity for profit by combining the strengths of both the defender and prospector (Miles et al., 1978, pp.553-557). The reactor is a strategy that arises when neither the defender, prospector, nor analyzer strategy is improperly pursued (Miles et al., 1978, pp .557-558). Please note that the analyzer and reactor strategies are not further examined in this thesis due to the difficulty of obtaining reliable data.

## 5. Hypothesis development

### 5.1. Adaptation strategy

In the business format of franchising, the relationship between the franchisor and its franchisees is somewhat contradicting. The reason why franchising is appealing to many entrepreneurs is that they can be their own boss in an already established system (Dant and Grundlach, 1999). Since one crucial success factor of a franchise system is to provide standardized products or services across all outlets, franchisors do not tolerate departures from the standard franchise contract (Cox and Mason, 2007). Therefore, contractual restraints are often used to limit the franchisees' freedom to develop their initiative.

The aim of franchises to penetrate geographically dispersed markets puts franchisees under pressure to deviate from the franchise format due to the different nature of markets and availability of resources. On the one hand, performance maximization is difficult to obtain with standardized operating procedures. Therefore, adaption is necessary to respond to the varying local market conditions. (Cox and Mason, 2007) On the other hand, Sorenson and Sørensen (2001) argue that the franchise system's competitive advantage of brand name and consistency dissent with adaptation.

Franchisees typically have limited autonomy to adapt to local market conditions. The areas in which franchisees could deviate from the standard included price setting, marketing, and recruitment. However, products and services were considered to be primarily standardized. (Cox and Mason, 2007, pp:1069-1070) As Kaufman and Eroglu (1999) argue, the desire to purchase inputs from local sources may have a severe

impact on the buying power of the franchisor and the franchise system's economies of scale. By implementing tying agreements in franchise contracts, the franchisor appoints qualified suppliers to their franchisees to increase the purchasing power and thereby generate economies of scale for the whole system. However, in markets with differing environmental conditions, it is crucial to have a certain degree of flexibility concerning the input resources used in the final product or service to achieve a better market fit. If the economic efficiency of using local input sources surpasses the benefits of the franchise system's buying power, franchisors cannot justify the use of tying restrictions and the desired level of standardization (Kaufman and Eroglu, 1999). Hence, it is predicted:

**H1:** *An adaptation strategy will negatively influence tying restraints in franchise contracts.*

In the customers' mind, one of the most important factors that influence the decision to purchase a product or service at a certain place is the price. For franchisees and almost every other business, the consumers provide the main source of revenue (Hajdini and Windsperger, 2019). If potential buyers consider that the price of a product or service is too high, they look for alternatives on the market. Therefore, it is essential to have a profound knowledge of the customers and the environmental conditions. Especially franchise systems operating in geographically dispersed areas, the market differences, for example, in income level, taste, or habits, may be varying significantly (Kaufman and Eroglu, 1999). Typically, franchisees are likely to have a better understanding of the local market conditions than the franchisor (Cox and Mason, 2007). By granting the franchisee the freedom to adapt prices to environmental circumstances, a better market fit can be acquired.

If franchisees choose to compete by lowering prices at the expense of quality to maximize their short-term profits, it is possible that it increases intra-brand competition and free-riding (Hajdini and Windsperger, 2019). As franchisees decide to keep the prices high, a double marginalization problem can occur, resulting in high-profit margins for both franchise partners (Rey and Verge, 2008). For a franchisor to exercise control over the prices, resale price maintenance can be implemented as a restraint in franchise contracts. Thereby, the franchisees are incentivized to compete in other areas than pricing and, in turn, mitigate the effect of the double marginalization problem on the customers (Hajdini and Windsperger, 2019). Furthermore, through higher intangible advertising and marketing investments from the franchisor, intra-brand competition, and free-riding can be reduced (Rey and Verge, 2008).

In franchise systems pursuing an adaptation strategy due to the differences in market conditions, the franchisor typically does not have the knowledge of the specific markets and customers. Therefore, the use of resale price maintenance would result in a decrease in profitability for both franchise partners. In other words,

**H2:** *An adaptation strategy will negatively influence resale price maintenance in franchise contracts.*

As franchises expand and new franchises join the franchise system, the number of outlets increases. On the one hand, this leads to an increase in market presence in different areas, thereby raising the brand's awareness and creating opportunities to penetrate previously foreign markets. On the other hand, the expansion of a franchise system may result in the emergence of new problems, such as encroachment or free-riding. To mitigate the negative of these problems, scholars suggest the use of an exclusive territory agreement (Nair, Tikoo, and Liu, 2009; Dutta et al., 1999). This contractual clause legally assures the franchisee that within a specified territory, no new outlets will be established (Lafontaine and Slade, 2014). In the absence of such an agreement, the revenue of incumbent units decreases significantly if new outlets are added to their areas (Kalnins, 2004). Territorial exclusivity can further prevent free riding since the franchisees' efforts, and returns on specific investments within a specified area, cannot be misused by other franchisees (Dutta et al., 1999; Zananone, 2009). If franchisees feel safe from potential nearby competitors and subsequently reduce service quality or increase prices, such behavior may damage brand reputation and reduce revenue, which in turn negatively affects the franchisor (Smith, 1982; Hajdini and Windsperger, 2019).

Within the scope of an adaptation strategy, free-riding is considered a serious problem because it may damage the overall performance of a franchise system (Shane, 1996). Since the maintenance of systems standards requires franchise investments in operations, franchisees tend to cut costs on the operational side, leading to a decrease in customer satisfaction and the overall system's performance (Kaufman and Eroglu, 1999; Cox and Mason, 2007). According to Kaufman and Eroglu (1999), the corner-cutting behavior of franchisees may result in other franchisees '*free-riding on the quality execution*' (Kaufman and Eroglu, p: 82).

Therefore, the argumentation is that the free-riding problem can be mitigated in franchise systems, pursuing an adaptation strategy, by implementing exclusive territory clauses. On the one hand, territorial restraints will increase the effort and specific investment of franchisees within a specific area and further mitigating free riding. On the other hand, the freedom for franchisees to adapt to certain markets includes a higher risk to free-riding than a standardization strategy. Thus, the argumentation is that adaptation strategies may benefit from the mitigation of potential free riding problems through territorial exclusivity. Hence, the prediction is that:

**H3:** *An adaptation strategy will positively influence exclusive territory restraints in franchise contracts.*

## 5.2. Defender strategy

Defenders concentrate on existing products or services and try to protect their market share through superior quality, low prices, and good customer service (Law, 2016). Usually, they operate with a limited product set in a narrow market segment, use a highly cost-efficient single-core technology, attempt to improve technological efficiency, maintain strict centralized organizational control with a high degree of formalization, and focus their planning on cost and efficiency (Miles et al., 1978). The defender strategy is especially beneficial in already established and stable markets characterized by low innovativeness (Law, 2016).

In franchising, defenders aim to differentiate themselves from their competition through competitive pricing, high-quality products, and customer service (Miles et al., 1978). Since this business format typically is organized rather centralized than decentralized, the franchisee's autonomy is limited concerning a decision on the products and services (Cox and Mason, 2007). As discussed in the previous section (5.1), the franchisee's desire to purchase local input products can negatively affect the buying power of the franchisor, resulting in a decreased benefit from economies of scale (Kaufman and Eroglu, 1999). Further, franchises choosing a defender strategy can increase the system's competitive advantage of brand name and consistency through standardized products and services (Sorenson and Sørensen, 2001).

For defenders to achieve low prices and offer high-quality products at the same time, they may use tying clauses. This restraint legally binds the franchisees to buy, at least a proportion, of their inputs from appointed suppliers (Hajdini and Raha, 2018). Thus, the franchisor has a more substantial basis when negotiating with these suppliers because they can speak for the whole franchise system. This results in higher economies of scale for the franchise and allows for setting the prices at lower levels. Furthermore, tying also decreases the franchisor's monitoring costs and improves quality control (Michael, 2000). As the franchisor has the autonomy to choose the suppliers for the franchisees, the quality of the inputs is directly influenced by the franchisor's decision on the suppliers. Thus, the prediction is that:

**H4:** *A defender strategy will positively influence tying restraints in franchise contracts.*

As defenders aim to operate in a narrow market segment, brand uniformity and brand image become increasingly important. Agreements on resale price maintenance help to improve these aspects, according to Perrigot et al. (2016). Through RPM, the franchisor can either directly or indirectly influence the resale price of the products. However, from a legal perspective, the franchisor is only allowed to impose maximum prices on their franchisees or recommended prices for the products (Perrigot and Basset, 2018). Such a clause is especially interesting for businesses that adopt a defender strategy where the price level affects the success of a business. In the study

of Perrigot et al. (2016), find that consistent pricing policy within the chain is of great importance for the loyalty and trust of the customers. Defenders benefit from uniform pricing across the outlets because it increases their market share and creates barriers for potential competitors to enter their market segment. Hence, the hypothesis is:

**H5:** *A defender strategy will positively influence resale price maintenance in franchise contracts.*

As mentioned above, territorial exclusivity can mitigate the risk of free-riding through the efforts and specific investments of the franchisees (Dutta et al., 1999). However, such agreements may also lead to a decrease in the quality of the products and customer service. Franchisees in exclusive territories may create a false feeling of safety from competitors, which results in a subsequent decrease of service quality and an increase in prices (Smith, 1982; Hajdini and Windsperger, 2019). Especially for defenders, this is extremely dangerous since it damages the brand's reputation and image over time. Moreover, as prices may rise and service quality drops as a consequence of an exclusive territory agreement, competitors will gain more presence in the market. This would result in a situation where the defender is no longer able to protect its market segment through the original goals of competitive pricing and products and services of high quality. Thus, the argumentation is that:

**H6:** *A defender strategy will negatively influence exclusive territory restraints in franchise contracts.*

### 5.3. Prospector strategy

In general, the aim of prospectors is to gain a competitive edge over their market opposition through identifying and exploiting new product and market opportunities (Miles et al., 1978). This strategy requires organizational flexibility, creativity, and high levels of environmental scanning to be able to adapt to dynamic environments (Law, 2016; Daft and Weick, 1984). Prospectors engage in product and market innovation and are the first-movers on the market (Basharat, 2012).

In the context of franchising, prospectors differentiate themselves from competitors through innovation and thereby attracting new franchisees (Wu, 2015). In the innovation process, the franchisor has a leading role (Cliquet and Nguyen, 2004; Bradach, 1998) and uses R&D and marketing services as primary resources in the development of innovations (Lewin, 1999). Franchisees contribute to innovation through “*developing new or adjusting existing ideas*” (Kermeni et al., 2018, p: 1478), problem-solving (Kaufman and Erolgu, 1999), and pressuring the franchisor to develop new products (Bradach, 1998). Yang et al. (2005) argue that innovation drives a culture of solidarity within a franchise system, where the franchisor and franchisees can communicate open-mindedly. As franchisees typically have deep knowledge of the

dynamics and environmental factors of the areas they are operating in (Kaufman and Eroglu, 1999), a regular exchange of information may increase the franchisor's awareness of new opportunities and pressure them to develop innovations.

On the contrary, innovation may create negative effects when it is not aligned with the strategy (Kuratko et al., 2014), especially in franchise systems rejecting franchisee innovation (Watson et al., 2005). In franchise systems with a wide geographical dispersion of outlets, the franchisor is challenged to adapt innovation to various regions or countries (Cliquet and Nguyen, 2004). Other studies show that franchisees with a limited degree of autonomy, a missing support structure for creative ideas, and a lack of communication with the franchisors negatively impact the innovativeness of a franchise system (Paynter and Terry, 2002). Therefore, the franchisor needs to balance the maintenance of chain uniformity while encouraging innovation to increase the chain's competitiveness (Kermenı et al., 2018; Cox and Mason, 2007).

Typically, franchisors use different forms of control mechanisms, for example, contractual restraints, to prevent negative effects on the franchise system (Mellewigt et al., 2011). Franchisees accept a certain degree of control. However, too much control may result in opportunistic behavior and conflict (Boulay, 2010). The successful application of the prospector strategy in a franchise system is strongly dependent on the balance between control mechanisms and the autonomy of franchisees.

The means of control examined in this thesis are exclusively focused on contractual restraints. In this context, the first restriction is tying, which legally binds the franchisees to buy all or at least a proportion of resources from suppliers chosen by the franchisor (Hajdini and Raha, 2018). The main reason for implementing this clause is to lower monitoring costs, benefit from economies of scale, and improve quality control (Michael, 2000). Despite a positive relationship between input, outcome, and behavior control and radical innovation, and input and outcome control enhancing incremental innovation (Cardinal, 2001; Kermenı et al., 2018), the prediction is that a prospector strategy negatively influences tying restraints. The reason for this argumentation is that with an increase in geographical dispersion of outlets, the adaptation of innovations across the whole franchise system becomes increasingly difficult (Cliquet and Nguyen, 2004). Franchisees operating in heterogeneous markets tied to buy their inputs from certain suppliers may develop new products and services that better fit their specific clientele. However, these innovations may not be beneficial to the franchisees finding themselves in different market environments. As a result, their innovations may get rejected by the franchisor since they would not benefit the whole franchise system. Franchisees who get rejected too often can lose their interest to innovate, leading to a situation where only the franchisor tries to develop new ideas. Hence, the prediction is that:

**H7:** *A prospector strategy will negatively influence tying restraints in franchise contracts.*

Resale price maintenance is concerned with attracting customers, maintaining franchise uniformity, and strengthening the brand image and can be considered part of the knowledge transfer to franchisees (Perrigot et al., 2016). Since the goal of prospectors is to position themselves as innovators on the market, the franchisor's cost for R&D is likely to be high (Miles et al., 1978; Lewin, 1999). Through the use of RPM agreements, franchisors are in a position to better monitor the returns of their prior development investments. Thereby, they can prevent franchisees from setting prices at a level that would not be profitable in the long run. Another interesting thought is that through the proficiency of prospectors in scanning the environment (Wuryan and Sony, 2013), deep knowledge on the price sensitivity of their customers may be acquired as a side effect. With the use of RPM clauses, this expertise can be transferred to the franchisees through price recommendations. Thus, the hypothesis is:

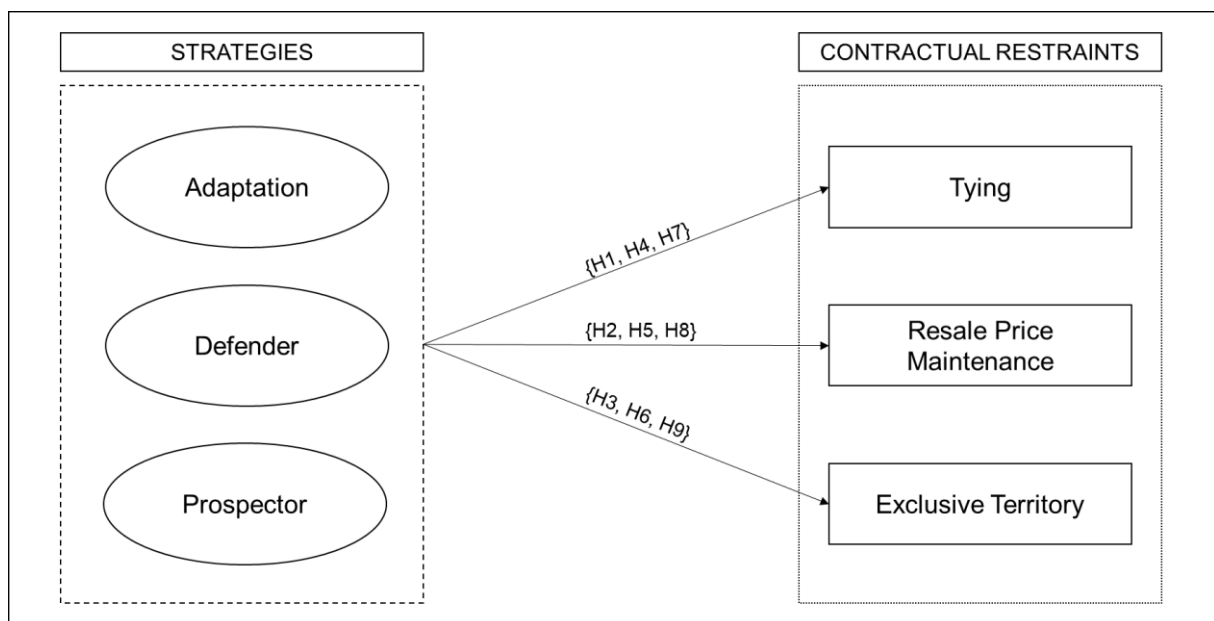
**H8:** *A prospector strategy will positively influence resale price maintenance in franchise contracts.*

Exclusive territory restraints guarantee the franchisees that there will not be new franchised or company-owned outlets established in a certain territory (Lafontaine and Slade 2014). This leads to a decrease in intra-brand competition and improvement of the financial well-being of the incumbent franchisees (Blair and Lafontaine, 2005). The reduced intra-brand competition within exclusive territories may result in higher investments in R&D through the increased availability of financial resources (Wuryan and Sony, 2013). Furthermore, due to the monopolistic environment in a certain territory, at least within a franchise system, the franchisees have the possibility to try innovative ideas without the fear of others free-riding on them. If an innovation is not conforming with its customer's desires, the fear of losing clients to other outlets of the franchise system is minimized when an exclusive territory is granted. For franchises pursuing a prospector strategy, it may also be beneficial to use exclusive territories for detecting new market and product opportunities. By limiting the number of outlets in a certain area, the franchisees are likely to protect their territory from other competitors. To do so, franchisees constantly scan their market environment and look for new opportunities to stay ahead of their competition. This results in an increased awareness of new trends and developments, leading to a higher degree of innovativeness throughout the franchise system. Since the likelihood of innovations can be increased by such an agreement, it may be beneficial for prospectors to incorporate this contractual restraint in the franchise contracts. Therefore, the prediction is that:

**H9:** *A prospector strategy will positively influence exclusive territory restraints in franchise contracts.*

Strategy	Tying	Resale price maintenance	Exclusive territory
Adaptation	H1: An adaptation strategy will negatively influence tying restraints in franchise contracts.	H2: An adaptation strategy will negatively influence resale price maintenance in franchise contracts.	H3: An adaptation strategy will positively influence exclusive territory restraints in franchise contracts.
Defender	H4: A defender strategy will positively influence tying restraints in franchise contracts.	H5: A defender strategy will positively influence resale price maintenance in franchise contracts.	H6: A defender strategy will negatively influence exclusive territory restraints in franchise contracts.
Prospector	H7: A prospector strategy will negatively influence tying restraints in franchise contracts.	H8: A prospector strategy will positively influence resale price maintenance in franchise contracts.	H9: A prospector strategy will positively influence exclusive territory restraints in franchise contracts.

*Table 2. Overview of the developed hypotheses used in the theoretical model*



*Figure 1. Theoretical model*

The theoretical model presented in Figure 1 is used to analyze the hypotheses further. Table 2 provides an overview of the hypotheses that were developed in the previous sections. The next chapter concentrates on the empirical analysis. Hence, the following sections provide detailed descriptions of the data collection process, the item analyses, and the measures used to test the hypotheses.



## 6. Empirical analysis

### 6.1. Data collection process

The empirical setting for testing these hypotheses is the franchising sector of Austria and Germany. Based on the expertise and relevance to the subject under investigation, senior managers that are considered to be responsible for the franchise system were the focus of this research.

As Lehman (1985) suggests sampling all relevant entities in industrial surveys, the first step was to obtain a list of registered franchise systems within the German-speaking region. The basis for the data collection built the publication of Unternehmerververlag (2019) that provides information on 1000 different franchise systems within Austria, Germany, and Switzerland. To extract relevant data from this list, such as contact information, Microsoft Excel was used to gather the information in a single document. In addition, a file with contact information of franchise firms that participated in previous research projects was provided. After combining these two sources, the spreadsheet contained information on 1913 franchise systems in Austria and Germany.

The data collection was conducted in the form of an email survey. Additionally, a website was set up with an online version of the questionnaire. In the period from July to October 2019, questionnaires were mailed to 1913 franchise systems. The first email sending was at the beginning of July 2019. The second mailing took place in September 2019, followed by a reminder in October 2019. To further increase the response rate, phone calls were made after sending the reminder emails.

The total number of participants amounts to 256 out of 1913, representing a response rate of approximately 14%. However, many respondents were not consistent with filling out all questions. After removing missing values from the dataset, 123 completed observations are further used for empirical testing.

### 6.2. Questionnaire design

The questionnaire was designed to cover various aspects of franchise systems. After several preliminary steps in questionnaire development and refinement, there was a total of 14 sections, each focusing on another theoretical topic. To be more precise, these were the points of interest: (1) environmental and technical uncertainty, (2) strategy, (3) decision rights, (4) stakeholder groups, (5) organizational structure, (6) performance, (7) system-specific investments, (8) franchisees intangible assets, (9) behavioral uncertainty, (10) trust, (11) adaptation, (12) contractual restraints, (13) organizational lifecycle, and (14) general information.

The question design varied from Likert-scale items, 'yes/no'-questions, single choice, and open questions. The topics (1) to (11) consisted of multiple items rated by the participants on a 7-point Likert scale. Section (12), which focused on contractual restraints, used 'yes/no'-questions to find out whether a contractual clause is in use or

not. The part concerned with the lifecycle stage of a franchise system contained five items, where the participant had to choose one of these. The last part of the survey was about general information of the franchise system, such as the business sector, number of franchisees, and foundation year. On average, it took the participants 20 minutes to complete the questionnaire.

The questionnaire covered several aspects that were not considered in this thesis. The main topics of interest are (2) strategy and (12) contractual restraints. However, the information on environmental uncertainty, behavioral uncertainty, trust, and age was also used in the form of control variables for the regression analyses.

Since the focus of the research lies on franchises in Germany and Austria, the questions were formulated using the German language. For the complete questionnaire used to gather the data, please refer to Appendix B.

### 6.3. Measures

#### 6.3.1. Dependent variables

The variables of interest in this thesis are the contractual restraints. In the questionnaire, the franchisors were asked to indicate whether they use restraint clauses in their franchise contracts. The participants had the option to choose between yes (=1) and no (=0). The relative frequencies of contractual restraints are shown in Table 3. The exclusive territory is the most frequently used contractual clause (74.0%), followed by resale price maintenance (59.3%). Tying (56.1%) is the restraint that was applied the least frequently.

Reuer and Arino (2007) suggest treating contractual restraints in an aggregated/disaggregated manner. To assess whether their recommendation is applicable in this thesis, exploratory factor analysis was conducted. The analysis with a 'varimax' rotation shows that the contractual restraints were not loading on a single construct (tying = 1.0; rpm = 0.4; territory = 0). Therefore, the approach in this thesis is to examine the influence of strategies on each of these clauses separately, instead of Reuer and Arino's (2007) recommendation to bundle the contractual provisions.

Restraint type	Restraint Presence <sup>1)</sup>	Frequency	Percent
Tying	No	54	43.9
	Yes	69	56.1
Resale price maintenance	No	50	40.7
	Yes	73	59.3
Exclusive territory	No	32	26.0
	Yes	91	74.0

<sup>1)</sup> Yes means that the restraint was present in the franchise contract.

Table 3. The allocation of contractual restraints in franchise contracts

#### 6.3.1. Independent variables

The explanatory constructs in this thesis are the strategies introduced in chapter 4. All independent variables were assessed via multi-item measures. Franchisors were asked to rate each statement on a 7-point Likert scale. A detailed analysis of these items is presented in the following sections. The following figures contain an illustration of the allocation tables. There, the x-axis represents the Likert scale, while the frequency is shown on the y-axis.

##### 6.3.1.1. Adaptation strategy: item analysis

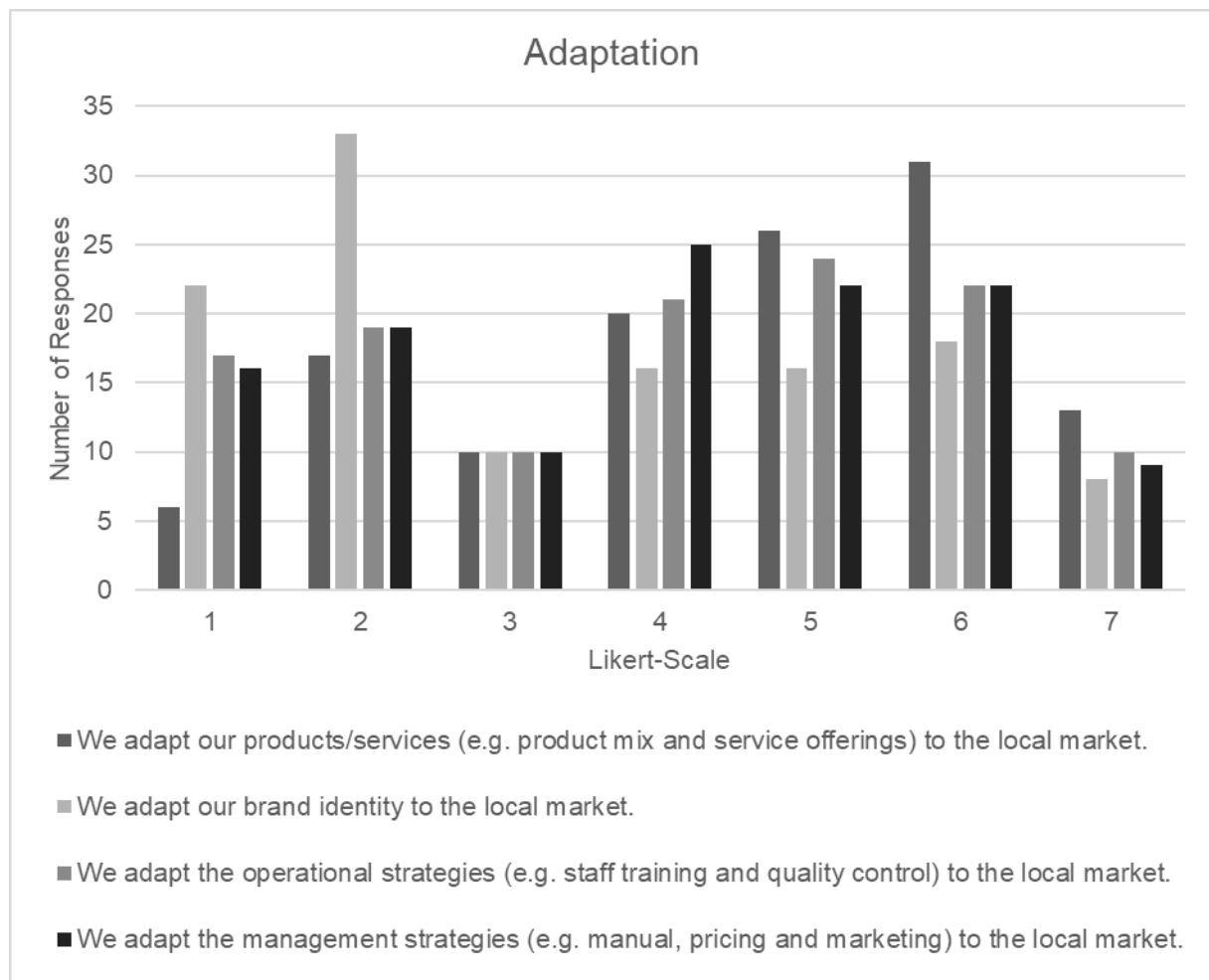
The adaptation strategy part of the questionnaire consisted of four items. The franchisors were asked to ‘*Please comment on the adaptation of your franchise business model to the market conditions.*’ To formulate the following statements, the publications of Kaufmann and Eroglu (1999), Katsikeas, Samiee and Theodosiou (2006), Cox and Mason (2007), Drogendijk and Slangen (2006), and Pehrsson (2008) were used.

- Item 1: We adapt our products/services (e.g. product mix and service offerings) to the local market.
- Item 2: We adapt our brand identity to the local market.
- Item 3: We adapt the operational strategies (e.g. staff training and quality control) to the local market.
- Item 4: We adapt the management strategies (e.g. manual, pricing and marketing) to the local market.

	Item 1		Item 2		Item 3		Item 4	
Scale <sup>1)</sup>	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	6	4.9	22	17.9	17	13.8	16	13.0
2	17	13.8	33	26.8	19	15.4	19	15.4
3	10	8.1	10	8.1	10	8.1	10	8.1
4	20	16.3	16	13.0	21	17.1	25	20.3
5	26	21.1	16	13.0	24	19.5	22	17.9
6	31	25.2	18	14.6	22	17.9	22	17.9
7	13	10.6	8	6.6	10	8.2	9	7.4

<sup>1)</sup> The Likert scale ranges from 1 = not at all, to 7 = to a large extent.

*Table 4. The allocation of the adaptation strategy items*



*Figure 2. The allocation of adaptation strategy items in absolute values*

The analysis of the adaptation strategy items is presented in Table 4 and Figure 2. The results indicate that most franchisors tended to adapt their products and services, such as the product mix and services offerings, to local markets. The majority of the participants said that they tend not to adapt their brand identity. The survey outcomes of items three and four showed mixed results. About 45 percent of the franchisors indicated to adapt the operational strategies to local markets, while around 37 percent said they rather did not do so. The statement on management strategies, such as the manual, pricing, and marketing, shows a distribution of roughly 43 percent on the side of adaptation and 37 percent on the side of no adaptation to local the market. Among all four items, the last one has the highest percentage (20.3) of franchisors with a neutral opinion.

#### 6.3.1.2. *Defender strategy: item analysis*

The defender, prospector, and analyzer strategy were all examined in one construct since each of these theories is based on the article by Miles et al. (1978). The participants were asked to *'Please indicate the extent you agree with the following statements?'*. In this construct, the statements of the defender strategy are the following:

- Item 1: We focus on increasing share in existing markets by providing products at the best prices.
- Item 2: We focus on providing superior service and/or product quality.
- Item 3: Our superior services/products are typically higher than the industry average.

	Item 1		Item 2		Item 3	
Scale <sup>1)</sup>	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	19	15.4	1	0.8	1	0.8
2	27	22.0	2	1.6	2	1.6
3	16	13.0	2	1.6	0	0.0
4	22	17.9	4	3.3	13	10.6
5	14	11.4	12	9.8	18	14.6
6	19	15.4	35	28.5	33	26.8
7	6	4.9	67	54.4	56	45.6

<sup>1)</sup> The Likert scale ranges from 1 = strongly disagree, to 7 = strongly agree.

Table 5. The allocation of the defender strategy items

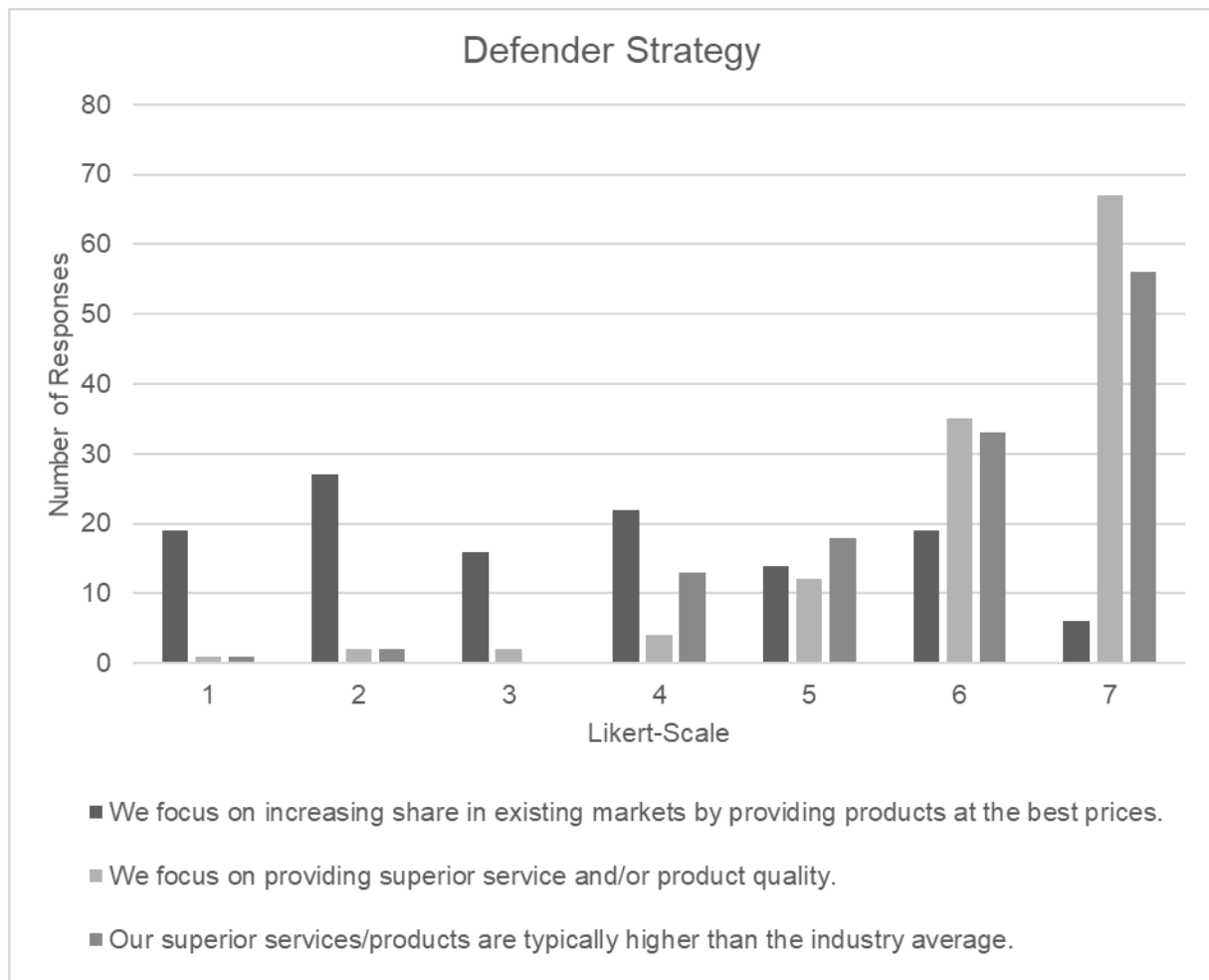


Figure 3. The allocation of defender strategy items in absolute values

The survey outcomes presented in Table 5 and Figure 3 provide information on the allocation of responses of the defender strategy items. The majority of franchisors indicated that they focus on providing superior service or product quality, as well as that their superior products/services are typically higher than the industry average. About 50 percent of them rather disagreed to concentrate on providing products at the best prices to increase their share in existing markets. Among the defender strategy items, the first one shows the highest percentage of neutral answers (17.9), while only 3.3 percent of the participants chose to neither agree nor disagree with the second statement.

### 6.3.1.3. *Prospector strategy: item analysis*

The prospector items were also part of the Miles et al. (1978) strategy construct described in chapter 6.3.1.2. There, the franchisors were asked to rate the following statements:

Item 1: We are frequently the first-to-market with new product or service concepts.

Item 2: We do not hesitate to enter new market segments in which appears to be opportunity.

Item 3: We offer the most innovative products, whether it is based on substantial performance improvement or cost reduction.

Item 4: We concentrate on offering products that push performance boundaries.

	Item 1		Item 2		Item 3		Item 4	
Scale <sup>1)</sup>	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	7	5.7	3	2.4	8	6.5	1	0.8
2	12	9.8	10	8.1	20	16.3	6	4.9
3	10	8.1	15	12.2	17	13.8	9	7.3
4	21	17.1	15	12.2	16	13.0	20	16.3
5	28	22.8	27	22.0	28	22.8	29	23.6
6	24	19.5	32	26.0	23	18.7	36	29.3
7	21	17.0	21	17.1	11	8.9	22	17.8

<sup>1)</sup> The Likert scale ranges from 1 = strongly disagree, to 7 = strongly agree.

*Table 6. The allocation of the prospector strategy items*

The results shown in Table 6 and the chart in Figure 4 both represent the allocation of responses to the items of the prospector strategy. Most franchisors indicated that being first to the market with new products, entering new market segments when opportunities arise, and offering products that push performance boundaries are important. Half of the participants rather agreed to concentrate on offering innovations to enhance performance or reduce cost. Among all items, the first has the highest percentage (17.1) of undecided franchisors.

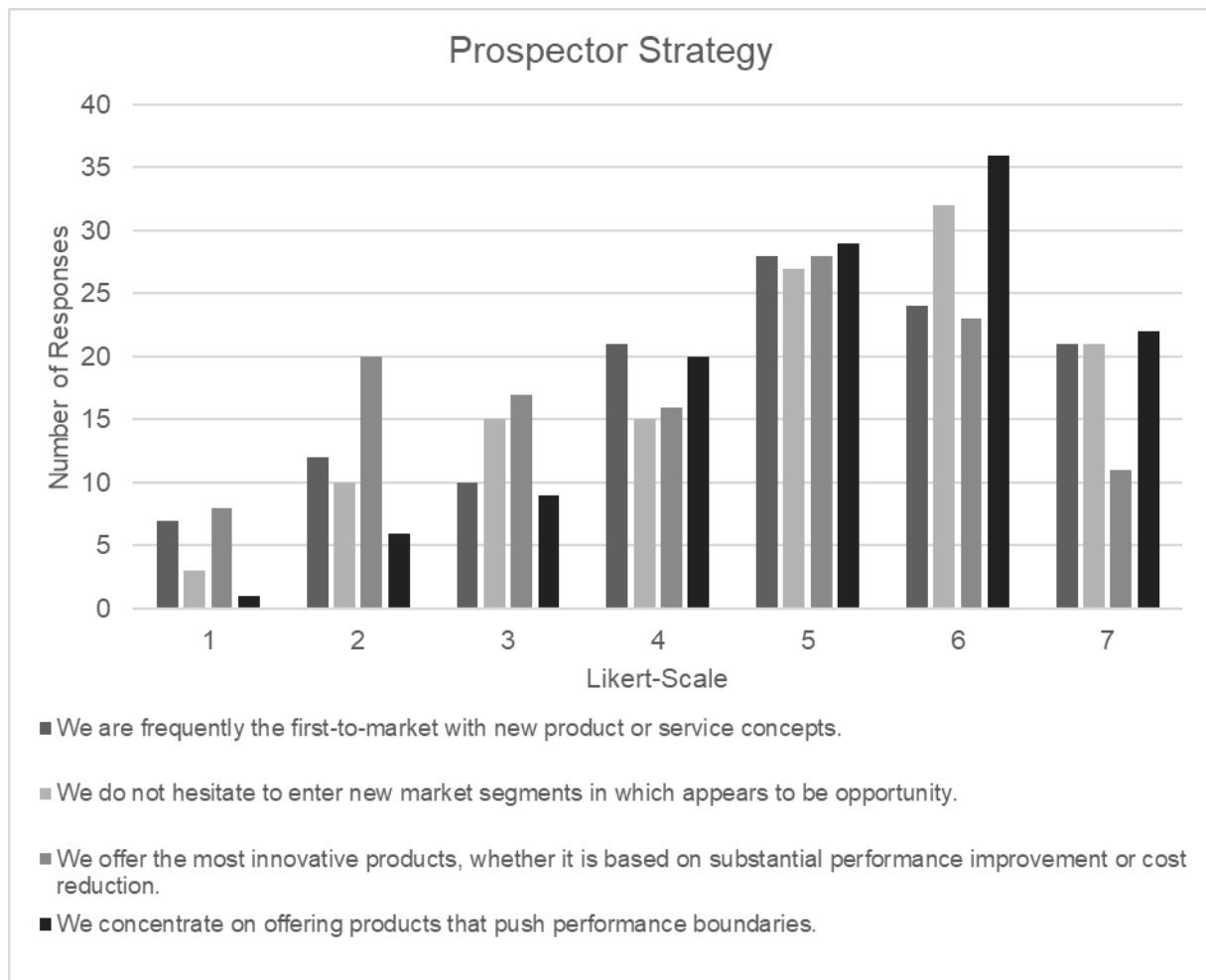


Figure 4. The allocation prospector strategy items in absolute values

#### 6.3.1.1. Independent variables: factor analysis

To assess whether the mentioned items of the independent variables load on different strategical constructs, exploratory factor analysis was applied. The results are shown in Table 7. For the full statements, refer to the section of the item analysis. The bold numbers represent the largest factor loading for each strategy item. Each item reached one threshold level of 0.40, except for the first item of the defender strategy (*'We focus on increasing share in existing markets by providing products at the best prices'*). Since the factor loadings do not exceed the recommended threshold of 0.40 on neither construct, it was removed from the further analysis.

The internal consistency of these strategy constructs is tested with Cronbach's alpha. The defender strategy construct was analyzed, only containing items number two and three, due to the results of the factor analysis. According to Kline (1999), the adaptation ( $\alpha = 0.79$ ), defender ( $\alpha = 0.79$ ) and prospector ( $\alpha = 0.82$ ) all indicate good reliability with  $\alpha$ -values  $\geq 0.7$  or 0.8.



Item	Adaptation	Defender	Prospector
Adapt products/services to local market	<b>0.61</b>	0.12	0.17
Adapt brand identity to local market	<b>0.81</b>	-0.05	-0.02
Adapt operational strategies to local market	<b>0.69</b>	0.04	0.19
Adapt management strategies to local market	<b>0.69</b>	0.08	-0.05
Focus on increasing market share by providing products at the best prices	0.26	-0.02	0.12
Focus on providing superior service and/or product quality	-0.04	<b>0.92</b>	0.20
Superior services/products are typically higher than the industry average	0.08	<b>0.67</b>	0.21
Frequently first-to-market with new products or service concepts	0.05	0.17	<b>0.77</b>
No hesitation to enter new market segments with new products/services	0.07	0.18	<b>0.69</b>
Offer the most innovative products	0.22	0.07	<b>0.79</b>
Offer that push performance boundaries	0.13	0.37	<b>0.56</b>

*Table 7. Varimax rotated factor loadings of franchise strategies*

### 6.3.2. Control variables

#### 6.3.2.1. Age

To control for possible interference factors, age is used as the first control variable. The age represents the number of years a franchise system has been on the market. According to previous research, the pressure to increase formalization and standardization to maintain internal consistency grows with the age of an organization (Aldrich and Auster, 1986). The growing age of franchise systems forces franchisors to focus on product and efficiency-enhancing innovations and an aggressive positioning when operating in markets characterized by strong competition (Falbe et al., 1999). Hence, franchise systems with advanced age are more likely to develop new products and services and expand to new markets when the opportunity arises. In contrast, younger franchises may be more concerned with defending their share of the existing market to create a stable environment of operation. Prior literature suggests that young businesses are often concerned with stability matters. Therefore, it is more likely for older franchises to pursue entrepreneurial strategies as their support systems for innovations are already developed (Shane, 1996; Falbe et al., 1999; Weaven and Frazer, 2007). In terms of cooperating with franchisees, it can be

predicted that the experience of a franchise system increases with its age (Reuer and Arino, 2007; Hajdini and Windsperger, 2020).

In the survey, franchisors were asked: ‘*Since when are you in the franchise business?*’. As most franchisors responded by indicating the year of their franchise business foundation, the variable ‘age’ needed to be derived by using the following scheme:

$$Age = 2019 - [Year\ of\ Foundation] \quad (1)$$

The distribution of franchise systems regarding their age is presented in Figure 5. For a better illustration of the results, the displayed categories were created. The results show that there is a 45-year difference between the oldest and youngest franchise system. As this chart highlights, the foundation of a franchise became an interesting business opportunity, especially in the last 15 years (2005-2019). In this time period, the number of foundations accounts for 56% of the overall franchise system establishments, according to the survey data.

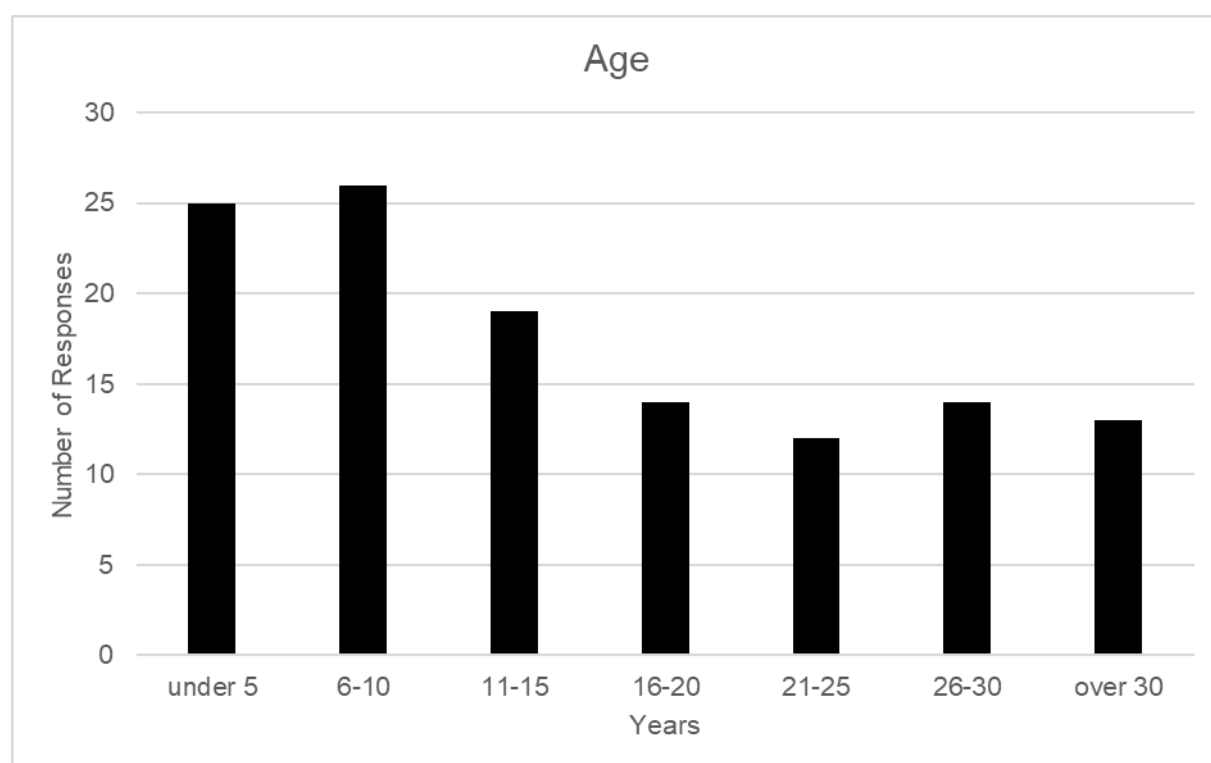


Figure 5. Categorized overview of the age of the franchise systems

#### 6.3.2.2. Behavioral uncertainty: item analysis

Behavioral uncertainty describes the difficulty of monitoring the compliance of franchise partners to contractual clauses (John and Weitz, 1989; Rindfleisch and Heide, 1997; Hajdini and Windsperger, 2020). Hence, opportunistic behavior can be mitigated by specifying more terms in their contracts. Prior literature suggests that threatened franchisors tend to exercise greater control over the activities of their partners

(Williamson, 1985; Geyskens et al., 2006; Hajdini and Windsperger, 2020). Thereby, behavioral uncertainty and the risk of opportunism may be reduced. Based on the theory of John and Weitz (1989), Agarwal and Ramaswami (1992), Brouthers et al. (2003), and Cai et al. (2003), the franchisors were asked to assess the following items on a 7-point Likert scale in order to operationalize this control variable.

Item 1: It is very difficult to control the behavior of the franchisee.

Item 2: It is very difficult to measure the franchisee's performance.

Item 3: It is very difficult to measure the franchisee's skills and abilities.

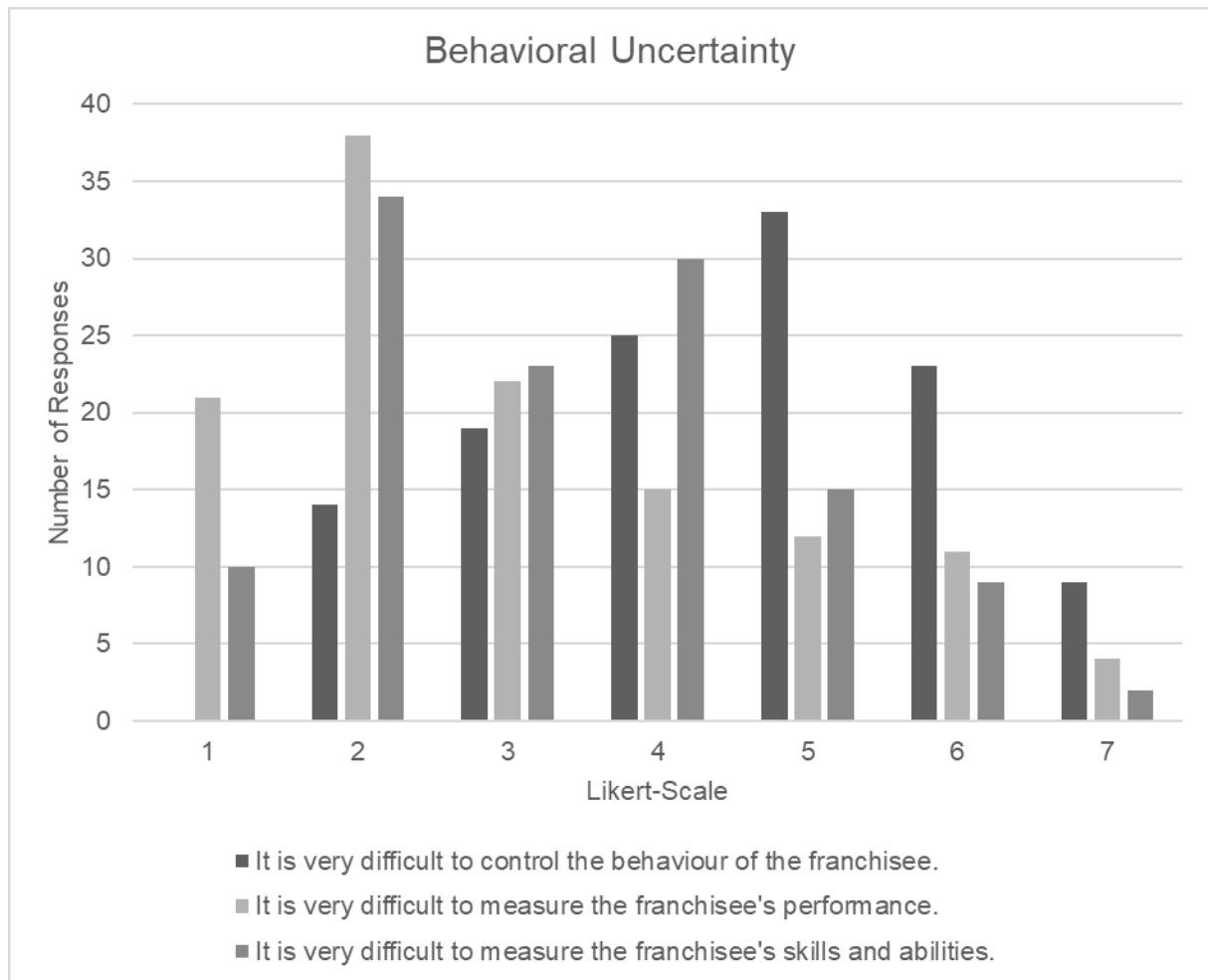


Figure 6. The allocation of behavioral uncertainty items in absolute values

The survey results presented in Table 8 and illustrated in Figure 6 show the response allocation on the items of the behavioral uncertainty construct. More than half of the participants (52.9 percent) indicated that it is rather difficult for them to control the behavior of the franchisee. The franchisors perceived the measurement of the franchisee's performance (65.9 percent) and their skills and abilities (54.4 percent) to be rather not difficult. The highest number of undecided participants, among these three statements, is shown on item three (24.4 percent).

	Item 1		Item 2		Item 3	
Scale <sup>1)</sup>	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	0	0.0	21	17.1	10	8.1
2	14	11.4	38	30.9	34	27.6
3	19	15.4	22	17.9	23	18.7
4	25	20.3	15	12.2	30	24.4
5	33	26.8	12	9.8	15	12.2
6	23	18.7	11	8.9	9	7.3
7	9	7.4	4	3.2	2	1.7

<sup>1)</sup> The Likert scale ranges from 1 = not at all, to 7 = to a large extent.

Table 8. The allocation of behavioral uncertainty items

#### 6.3.2.3. Environmental uncertainty: item analysis

'Environmental uncertainty refers to market, competitive and institutional uncertainty' (Hajdini and Windsperger, 2020, p.318). Many scholars often use the unpredictability of the environment to operationalize environmental uncertainty (e.g., Rindfleisch and Heide, 1997; Geyskens et al., 2006). During the Covid-19 pandemic, environmental uncertainty drastically increased due to constantly changing government restrictions and lockdowns. Especially in Europe, the regulations varied significantly among the member states of the European Union. Prior literature suggests a U-shaped relationship between contractual restraints and environmental uncertainty (Hajdini and Raha, 2018; Hajdini and Windsperger, 2020). Up to a certain degree of uncertainty, more local responsiveness is needed (Williamson, 1973). This can be achieved by motivating franchisees to acquire and share local market information by reducing the amount of contractual restraints (Hajdini and Windsperger, 2020). However, with rising environmental uncertainty, the effect of local responsiveness is compensated by increasing control in terms of contractual restraints (Hajdini and Raha, 2018).

To address environmental uncertainty, items were constructed based on the literature of John and Weitz (1989), Klein, Frazier, and Roth (1990), Kim and Hwang (1992), Ganesan (1994), Rajan and Pangarkar (2000), Lin (2000), Erramilli and Rao (2002), Zhou et al. (2003), and Brouthers et al. (2003). The survey participants were asked to assess the following statements on a 7-point Likert scale.

- Item 1: In our business, customers' product change quite a bit over time.
- Item 2: Our customers tend to look for new products or services to satisfy their needs.
- Item 3: Sales at the local markets are very unpredictable.
- Item 4: It is very difficult to forecast the market development in the local markets.
- Item 5: The economic environment is changing quickly in the local markets.

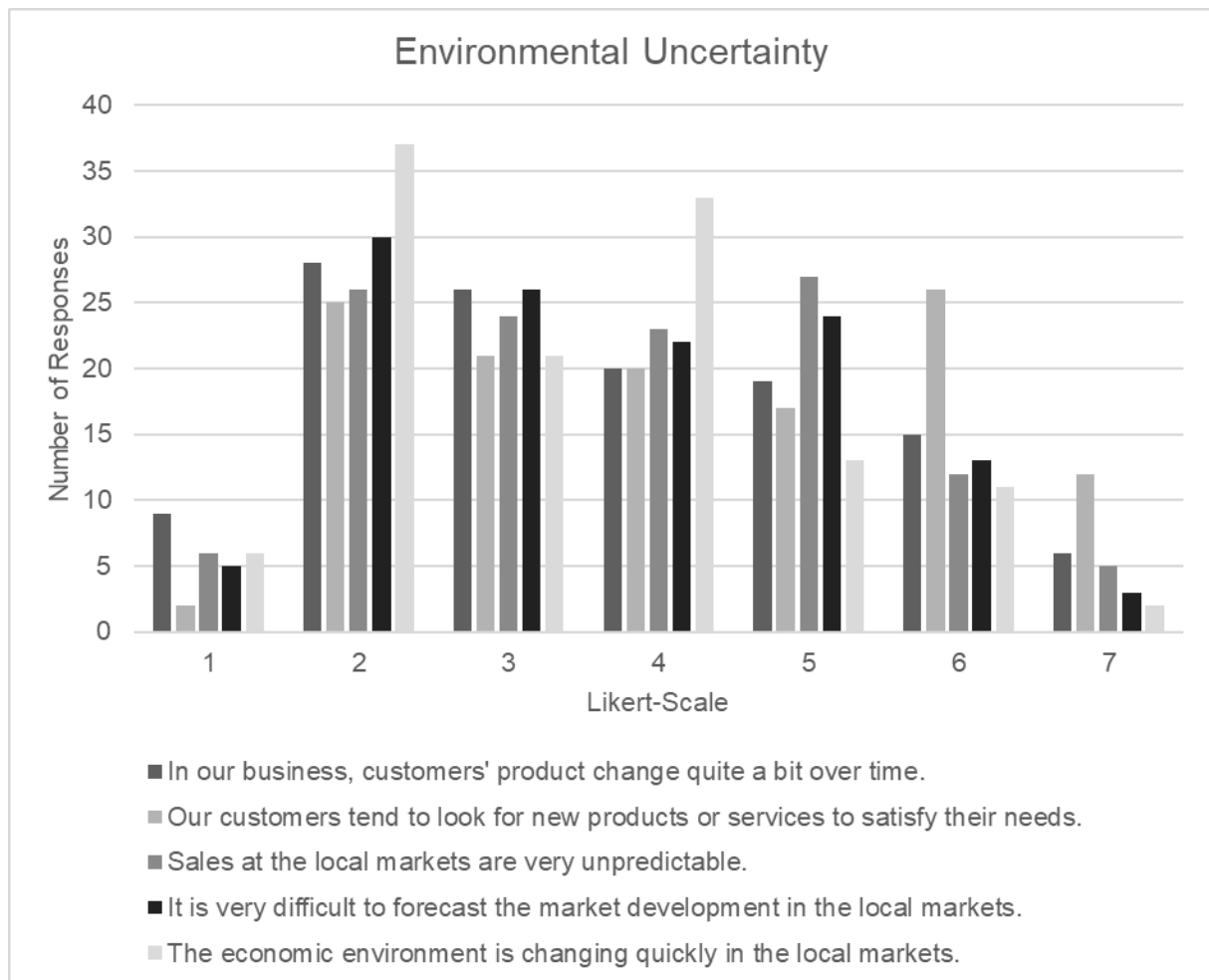


Figure 7. The allocation of environmental uncertainty items in absolute values

The allocation of responses to the items on environmental uncertainty is displayed in Figure 7 and Table 9. Most franchisors rather disagreed that the customers' product change over time (51.2 percent). The item on the tendency of customers to look for new products or services to satisfy their needs shows mixed results, with 39.0 percent rather disagreeing while 44.7 percent tended to agree. Franchisors more likely contradicted the statement of the unpredictability of sales at local markets (45.5 percent) and forecast difficulties of market developments (49.6 percent). More than half of the participants stated that the environment is not changing quickly. However, this statement also shows the highest number of undecided responses (26.8 percent) among all items.

	Item 1		Item 2		Item 3		Item 4		Item 5	
Scale <sup>1)</sup>	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	9	7.3	2	1.6	6	4.9	5	4.1	6	4.9
2	28	22.8	25	20.3	26	21.1	30	24.4	37	30.1
3	26	21.1	21	17.1	24	19.5	26	21.1	21	17.1
4	20	16.3	20	16.3	23	18.7	22	17.9	33	26.8
5	19	15.4	17	13.8	27	22.0	24	19.5	13	10.6
6	15	12.2	26	21.1	12	9.8	13	10.6	11	8.9
7	6	4.9	12	9.8	5	4.0	3	2.4	2	1.6

<sup>1)</sup> The Likert scale ranges from 1 = strongly disagree, to 7 = strongly agree.

*Table 9. The allocation of environmental uncertainty items*

#### 6.3.2.4. Trust

Trust represents the final control variable. As mutual trust mitigates the threat of opportunistic behavior, it encourages the exchange of information, coordination, and cooperation with franchisees (Weitz and Jap, 1995; Das and Teng, 2004; Gulati et al., 2012; Hajdini and Windsperger, 2018). A franchise relationship flourishes if both the franchisor and franchisees trust each other. In an environment with a high level of trust, franchisors are likely to give up parts of their contractual control. Franchisees avoid taking actions that potentially damages their relationship with the franchisor to keep the level of trust. This may result in greater adherence to the strategies and plans of the franchisor. Prior research suggests that trust reduces relational risk and the monitoring of contractual rights (Mellewigt et al., 2007; Gulati and Nickerson, 2008).

	Item 1		Item 2		Item 3		Item 4	
Scale <sup>1)</sup>	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
1	1	0.8	2	1.6	2	1.6	4	3.3
2	2	1.6	2	1.6	6	4.8	0	0.0
3	4	3.3	2	1.6	4	3.3	1	0.8
4	7	5.7	5	4.1	19	15.4	9	7.3
5	25	20.3	37	30.1	27	22.0	18	14.6
6	58	47.2	46	37.4	38	30.9	38	30.9
7	26	21.1	29	23.6	27	22.0	53	43.1

<sup>1)</sup> The Likert scale ranges from 1 = not at all, to 7 = to a large extent.

*Table 10. The allocation of trust items*

To operationalize the trust variable, franchisors had to assess the following statements on a 7-point Likert scale.

Item 1: There is great trust between us and the franchisee(s).

Item 2: There is an atmosphere of openness and honesty.

Item 3: The exchange of information goes beyond the agreed extent.

Item 4: The cooperation is based on partnership.

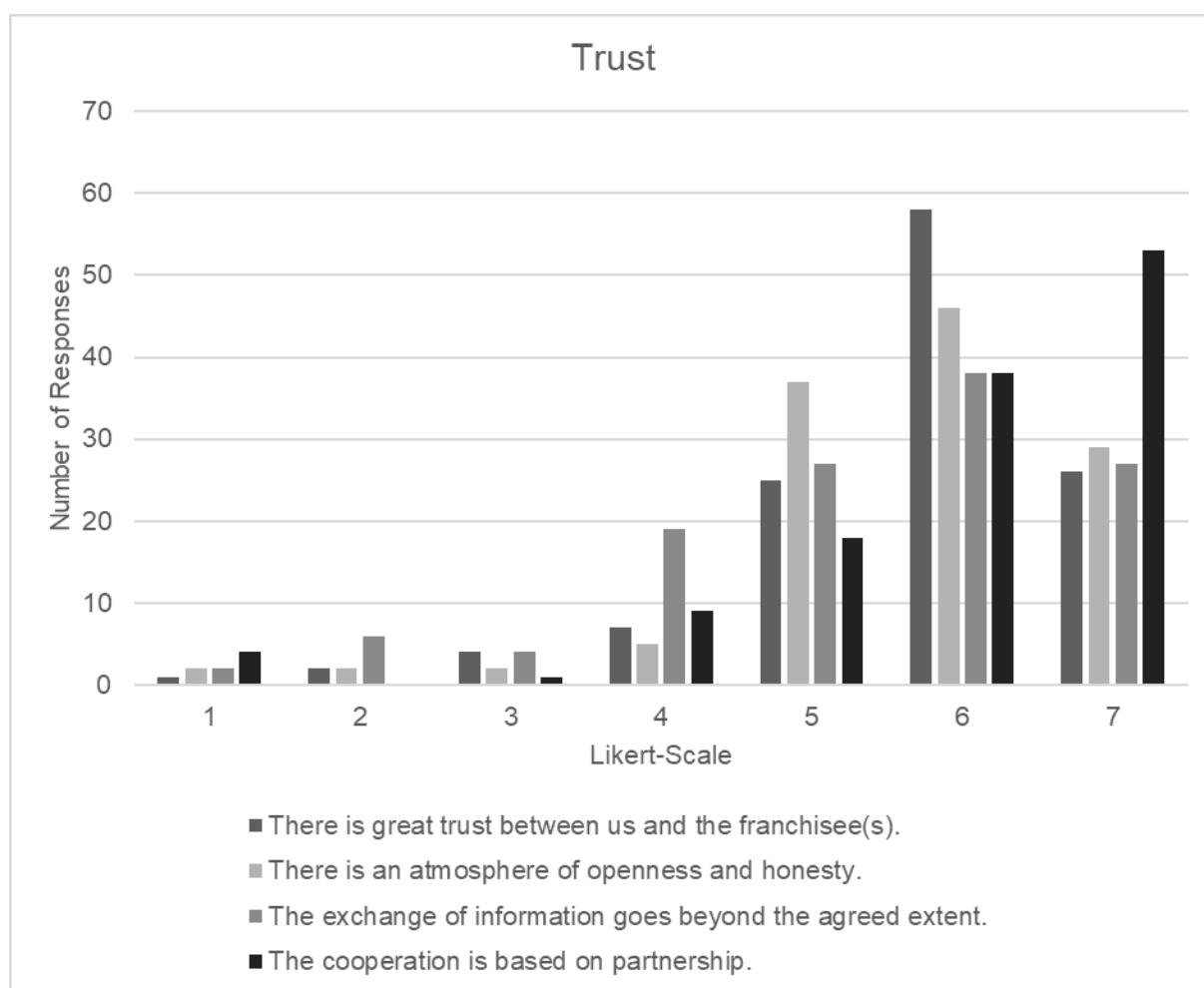


Figure 8. The allocation of trust items in absolute values

The results on the items of the trust construct display a general tendency of most participants rating these statements rather high on the Likert scale. The franchisors indicated that there is great trust between them and the franchisees (88.6 percent), an atmosphere of openness and honesty (91.1 percent), and partnership-based cooperation (88.6 percent). An information exchange beyond the agreed terms shows a tendency towards 'to a large extent', with 74.9 percent of the participants rating this statement above 4. The highest number of undecided franchisors has item three, with 15.4 percent.

#### 6.3.2.5. Control variables: factor analysis

Exploratory factor analysis is applied to assess whether the constructs of the control variables show factor loadings over the threshold of 0.40. The results are displayed in Table 11 indicate that each construct has at least three items with a loading value over 0.40. Item 3 (*'Sales at the local markets are very unpredictable.'*) and item 4 (*'It is very difficult to forecast the market development in the local markets.'*) of environmental uncertainty show no factor loading above the threshold. Consequently, both were removed from this construct.

To assess the internal consistency of the control variables, after removing the two cross-loaded items, Cronbach's alpha was calculated. Behavioral uncertainty ( $\alpha = 0.75$ ) and trust ( $\alpha = 0.91$ ) both indicate good reliability, with  $\alpha$ -values  $\geq 0.7$  (Kline, 1999). According to Streiner (2003), items with an alpha above 0.6 are acceptable, hence Environmental uncertainty with an  $\alpha = 0.68$  is accepted in this thesis.

Item	Behavioral Uncertainty	Environmental Uncertainty	Trust
Difficult to control franchisee behavior	<b>0.69</b>	0.00	-0.04
Difficult to measure franchisee's performance	<b>0.79</b>	-0.05	-0.13
Difficult to measure franchisee's skills and abilities	<b>0.64</b>	0.08	-0.08
Customer's product change over time	-0.04	<b>0.82</b>	-0.02
Customers tend to look for new products or services	0.04	<b>0.79</b>	0.00
Unpredictability of sale at local markets	0.31	0.14	-0.24
Forecast difficulties of market developments at local markets	0.33	0.18	-0.19
Quickly changing economic environment	0.23	<b>0.43</b>	-0.17
Great trust between franchisor and franchisee(s)	-0.13	-0.21	<b>0.90</b>
Atmosphere of openness and honesty	-0.16	-0.15	<b>0.92</b>
Information exchange goes beyond agreed extent	-0.21	-0.02	<b>0.73</b>
Cooperation based on partnership	-0.08	0.10	<b>0.91</b>

Table 11. Varimax rotated factor loadings of control variables



#### 6.4. Calculation of measures

Before starting off with the presentation of the results, it is important to note that in the next chapter, the multi-item variables display the mean of a construct as its representative. Consequently, the mean and SD [standard deviation] of each independent and control variable, except for *age*, were derived by using the following scheme:

$$\text{Mean of item } (\mu_z) = \frac{\sum_{i=1}^N x_i}{N} \quad (2)$$

$$\text{SD of item } (\sigma_z) = \sqrt{\frac{\sum (x_i - \mu_z)^2}{N}} \quad (3)$$

$$\text{Mean of a variable construct} = \frac{\sum_{i=1}^z \mu_z}{z} \quad (4)$$

$$\text{SD of a variable construct} = \frac{\sum_{i=1}^z \sigma_z}{z} \quad (5)$$

In these formulas,  $z$  presents the number of items in a variable construct. The size of the population is  $N = 123$ . Each value from the population is represented by  $x_i$ , whereby  $i$  indicates the exact position in the data set. These constructs consider the removal of cross-loaded items discussed in chapters 266.3.1.1 and 6.3.2.5.

For example, the mean of the defender strategy construct was derived as follows:

$$\mu \text{ of defender item}_2 = \frac{\text{sum of values of defender item}_2}{N = 123} \quad (6)$$

$$\mu \text{ of defender item}_3 = \frac{\text{sum of values of defender item}_3}{N = 123} \quad (7)$$

$$\mu \text{ of the defender strategy} = \frac{\mu \text{ of defender item}_2 + \mu \text{ of defender item}_3}{z = 2} \quad (8)$$

Since the contractual restraints were dichotomous variables, dummy variables were created. Consequently, these dummies were coded by using *yes* = 1 and *no* = 0. In the following formulas for calculating the mean and SD of each constraint,  $y$  is referring to one contractual restraint.

$$\text{Mean of Restraint } \mu_y = \frac{\sum_{i=1}^N x_i}{N} \quad (9)$$

$$\text{SD of Restraint } (\sigma_y) = \sqrt{\frac{\sum (x_i - \mu_y)^2}{N}} \quad (10)$$

## 7. Results

Version 4.0.3 of R was used for the empirical analysis. R is an open-source software environment for statistical computing and graphics. For the underlying code of the analysis, please refer to Appendix C.

Since the contractual restraints are dichotomous variables, Table 12 shows the tetrachoric correlation coefficients, mean, and standard deviation of the dependent variables. The results indicate a weak positive correlation between tying and resale price maintenance (0.36) and tying and exclusive territory (0.19). The correlation between resale price maintenance and exclusive territory is -0.07, which indicates that they are not correlated.

Restraint Type	Mean	S.D.	1	2
Tying	0.56	0.50		
Resale price maintenance	0.59	0.49	0.36	
Exclusive territory	0.74	0.44	0.19	-0.07

*Table 12. Descriptive statistics: contractual restraints*

The descriptive statistics and Pearson correlation coefficients of the independent and control variables are presented in Table 13. In general, the results indicate that the displayed variables show mostly no correlation effects. The correlation between the defender and prospector strategy (0.40), defender strategy and trust (0.39), and prospector strategy and trust (0.30) show all a weak positive correlation.

	Mean	S.D.	1	2	3	4	5	6
Adaptation	3.99	1.86						
Defender	6.11	1.19	0.10					
Prospector	4.74	1.65	0.22	0.40				
Age	16.50	12.60	-0.04	-0.06	-0.14			
Behavioral uncertainty	3.63	1.53	0.20	-0.03	-0.03	-0.10		
Environmental uncertainty	3.77	1.61	0.02	-0.07	0.21	0.08	0.05	
Trust	5.66	1.28	0.17	0.39	0.30	0.01	-0.22	-0.16

*Table 13. Descriptive statistics: strategies and control variables*

To test the hypotheses regarding the influence of strategies on contractual restraints in franchise systems, the regression models were created by using the following schemes:

$$\text{Contractual restraints} \sim \text{Adaptation} + \text{Age} + \text{Behavioral uncertainty} + \text{Environmental uncertainty} + \text{Trust} \quad (11)$$

$$\text{Contractual restraints} \sim \text{Defender} + \text{Age} + \text{Behavioral uncertainty} + \text{Environmental uncertainty} + \text{Trust} \quad (12)$$

$$\text{Contractual restraints} \sim \text{Prospector} + \text{Age} + \text{Behavioral uncertainty} + \text{Environmental uncertainty} + \text{Trust} \quad (13)$$

Thereby, for each contractual clause and strategy, probit regressions were conducted. In addition, to examine whether the results of the analyses are affected by multicollinearity, the variance inflation factors (VIF) were computed. The range of the VIF between 1.01 and 1.26 indicates that there is no problem with multicollinearity in all three regression models. The estimates of the probit regressions of hypotheses H1-H3 (Table 14), H4-6 (Table 15), H7-H9 (Table 16) are presented below. In this thesis, the significance level for not rejecting a hypothesis was considered  $p < 0.05$ .

Variable	Tying	RPM	Territory
Intercept	-0.10 (0.92)	0.17 (0.90)	2.93** (1.07)
Age	-0.01 (0.01)	-0.02 (0.01)	-0.02 (0.01)
Behavioral uncertainty	0.04 (0.10)	-0.08 (0.10)	-0.03 (0.11)
Environmental uncertainty	0.21** (0.10)	0.16 (0.10)	-0.11 (0.10)
Trust	0.07 (0.11)	0.02 (0.11)	-0.22 (0.14)
H1-H3: Adaptation	-0.22** (0.09)	-0.02 (0.08)	-0.05 (0.09)
Log Likelihood	-78.66	-80.41	-66.59
Akaike Inf. Crit.	169.31	172.82	145.18

Note. N = 123. Standard errors are shown in parentheses.

\* $p < 0.1$ ; \*\* $p < 0.05$ , \*\*\* $p < 0.01$

Table 14. Regression results – adaptation strategy

Variable	Tying	RPM	Territory
Intercept	-0.10 (1.00)	0.47 (1.01)	2.74** (1.18)
Age	-0.01 (0.01)	-0.02* (0.01)	-0.02 (0.01)
Behavioral uncertainty	-0.02 (0.10)	-0.09 (0.10)	-0.05 (0.10)
Environmental uncertainty	0.19** (0.09)	0.15 (0.09)	-0.12 (0.10)
Trust	0.02 (0.12)	0.05 (0.12)	-0.26* (0.14)
H4-H6: Defender	-0.06 (0.12)	-0.08 (0.12)	0.05 (0.13)
Log Likelihood	-81.93	-80.17	-66.67
Akaike Inf. Crit.	175.86	172.34	145.33

Note. N = 123. Standard errors are shown in parentheses.

\*p<0.1; \*\*p<0.05, p\*\*\*<0.01

Table 15. Regression results – defender strategy

Variable	Tying	RPM	Territory
Intercept	-0.18 (0.90)	0.21 (0.91)	3.34*** (1.12)
Age	-0.01 (0.01)	-0.02* (0.01)	-0.02* (0.01)
Behavioral uncertainty	-0.02 (0.10)	-0.09 (0.10)	-0.04 (0.10)
Environmental uncertainty	0.21** (0.10)	0.17* (0.10)	-0.06 (0.11)
Trust	0.04 (0.11)	0.03 (0.11)	-0.18 (0.14)
H7-H9: Prospector	-0.09 (0.10)	-0.04 (0.10)	-0.19* (0.11)
Log Likelihood	-81.61	-80.36	-65.19
Akaike Inf. Crit.	175.22	172.71	142.37

Note. N = 123. Standard errors are shown in parentheses.

\*p<0.1; \*\*p<0.05, p\*\*\*<0.01

Table 16. Regression results – prospector strategy

First, the potential influence of age, behavioral uncertainty, environmental uncertainty, and trust was controlled for. The results indicate that a marginal increase in the level of environmental uncertainty increases the likelihood of tying restraints while considering the potential effects of all other variables. This view is supported by prior literature (e.g., Hajdini and Raha, 2018; Hajdini and Windsperger, 2020), showing the existence of a U-shaped relationship between contractual restraints and environmental uncertainty. There was no significant effect shown between environmental uncertainty and resale price maintenance and exclusive territory. In all three regression models the remaining control variables, age, behavioral uncertainty, and trust, display no statistical evidence for a relationship between them and the contractual restraints.

The first hypothesis that predicts a negative influence of the adaptation strategy on tying is supported by the data (H1). Consistent with previous literature (e.g., Kaufman and Eroglu, 1999; Cox and Mason, 2007) that the franchisees' flexibility to change suppliers may be important for chains with a wide geographical dispersion of their outlets. Hence, a certain degree of adaptation is necessary to achieve a better market fit.

However, the argument that the adaptation strategy negatively influences resale price maintenance is rejected (H2). This finding is important because it shows that increasing brand uniformity through recommending price ceilings may be more beneficial in franchises applying an adaptation strategy than encouraging the franchisees to compete with other means than price, e.g., higher service quality (Hajdini and Windsperger, 2019; Cox and Mason, 2007).

The third hypothesis that the adaptation strategy positively influences exclusive territory in franchise contracts shows no significant support (H3). Consistent with prior literature (e.g., Lafontaine and Slade, 2014; Hajdini and Windsperger, 2019) arguing that exclusivity clauses might protect opportunistic franchisees that are not motivated to compete from the interference of franchisors until the exclusivity right is expired.

As shown in Table 15, a positive influence of the defender strategy on tying restraints is not supported (H4). This outcome is interesting because it indicates that the benefits of tying restraints, such as uniform quality and reduced monitoring costs, may be annihilated by opportunistic franchisors demanding higher prices for the tied supplies (Michael, 2000; Grimes, 1999).

The prediction that the defender strategy has a positive influence on resale price maintenance is rejected (H5). Prior literature (e.g., Perrigot et al., 2016) argues that defender strategies benefit from uniform pricing policies through increasing their market share and creating entry barriers for competitors. However, this view was not supported in the data.

The argument that the defender strategy negatively influences territorial exclusivity is not supported by the data (H6). This finding shows that defenders may benefit more from granting exclusive territories to motivate franchisees to concentrate on enhancing

cost- and efficiency, compared to not assigning certain areas to their business partners because of the fear of quality cutoffs and price upturns (Smith, 1982).

Hypothesis seven, predicting that the prospector strategy has a negative influence on tying restraints, is rejected (H7). This might be due to the fact that the disadvantages of tying in terms of a decrease in flexibility of franchisees to choose their suppliers may be canceled out by the positive relationship between certain types of control and innovation (Cardinal, 2001; Kermen et al., 2018). Further, for chains with a high brand reputation, the franchisees' freedom to switch suppliers may be damaging (Hajdini and Windsperger, 2019).

The positive influence of the prospector strategy on resale price maintenance is not supported (H8). The reason for the rejection of this argument might be the fact that franchises that try to separate themselves from other firms through innovation can charge fairly high prices (Porter, 1980; Miller, 1986). However, uniform pricing policies that focus on high prices may not be efficient for firms operating in dispersed markets with a strong variance in demographics.

The results of the hypothesis on the prospector strategy positively influencing exclusive territory restraints shows no support for the set significance level (H9). This finding indicates that the safeguarding effect of the exclusive rights for franchisees' opportunistic behavior may deny the franchisor the possibility to change this behavior for a long time (Lafontaine and Slade, 2014). Especially in the rapidly changing environment a prospector is operating in, such a behavior might be more damaging than the advantages an exclusive territory restraint may bring.

## 8. Discussion and implications

To the best of the author's knowledge, there is no study that explores the effect of more than one contractual restraint on different strategies, despite the growing literature on contractual restraints. By addressing this gap in the literature, the aim of this thesis was to examine the influence of multiple strategies on the most important contractual restraints in franchising. Evidence on the effects of the strategies on the constraints is provided by choosing an approach in which each contractual clause was analyzed separately.

First, the results show that the likelihood of the franchisor's implementing tying restraints decreases with the adaption strategy. The benefit of the franchisees' flexibility in changing suppliers by not using tying clauses outweighs the increased quality control and reduced monitoring cost in franchise settings where adaptation is important. Likely, franchise systems that need a higher degree of adaptation do not use tying restrictions due to the significant differences in terms of environmental circumstances shown in the regions they operate in. In other words, franchisors that

apply an adaptation strategy achieve better market fit by not specifying tying clauses in their contracts.

Second, the findings show statistical evidence that franchisors will more likely use tying restraints if environmental uncertainty increases. This outcome highlights the trade-off between motivating the franchisees to acquire and share market information and stricter contractual control, with an incrementing level of uncertainty. This result is consistent with prior literature suggesting a U-shaped relationship between environmental uncertainty and contractual restraints (Hajdini and Raha, 2018; Hajdini and Windsperger, 2020). In other words, in environments characterized by high levels of uncertainty, franchisors are likely to specify more tying clauses to increase their control over the franchisees. However, through higher contractual control, the motivation of franchisees declines.

Finally, the results show no significant relationships between adaptation and resale price maintenance, adaptation and exclusive territory, defenders and tying, defenders and resale price maintenance, defenders and exclusive territory, prospectors and tying, prospectors and resale price maintenance, and prospectors and exclusive territory. Hence, the data does not support arguments on these hypotheses.

This thesis has important implications for researchers and franchisors as it is the first study to empirically explain the influence of the adaptation, defender, and prospector strategy on tying, resale price maintenance, and exclusive territory clauses in the franchise sector. It adds to the franchising literature by showing that an adaptation strategy negatively affects the use of tying restrictions. Further, the results indicate a higher usage of tying in environments with high uncertainty. However, this finding was not formulated as a hypothesis.

The study has important managerial implications: Franchisors pursuing an adaption strategy should consider the quality control and protection of goodwill function, as well as reduced monitoring costs when deciding about the use of tying clauses in franchise contracts. Based on the results, the conclusion can be made that franchisors should exclude tying restraints if an adaptation strategy is applied. Further, it is suggested that under high levels of environmental uncertainty, tying restraints should be used to increase control.

This thesis is the first empirical attempt to examine the influence of strategies on contractual restraints in franchising. The approach was to separately highlight the effects on provisions, instead of applying a bundled approach of contractual restraints. A theory-based model was developed to explain the likelihood of franchisors using certain clauses in franchise contracts under different strategical circumstances.

## 9. Limitations and future research

Several limitations of this thesis have to be acknowledged. First, the data used in this thesis were based on the evaluation of franchisors. Therefore, it is recommended that future research should also include data from franchisees to assess the efficiency of contractual restraints under different strategical settings. Due to different perceptions on the benefits of provisions in franchise contracts between franchisors and franchisees, the results might show different effects (Lusch and Brown, 1996; Bercovitz and Tyler, 2014; Howard et al., 2017; Hajdini and Raha, 2018). Second, due to the narrow focus of the data collection on Austria and Germany, a larger dataset containing franchise systems of more countries might show different results. Third, this thesis has not examined the performance outcome of the different combinations between strategies and contractual restraints. Hence, future research should focus on examining the performance effect of such combinations. Finally, the thesis used a small set of strategies and contractual restraints that were analyzed. Since the spectrum of strategies and contractual restraints is very large, future research might find interesting insights using a different set of strategies and provisions. Fourth, due to the narrow focus of the data collection on Austria and Germany, a larger dataset containing franchise systems of more countries might show different results.



## 10. Appendix

### Appendix A. Abstract – German version

Die Strategie eines Franchiseunternehmens beeinflusst die ausgeübte Kontrolle über die Franchisenehmer abhängig von der Art der Strategie. Um die Kontrolle in einer Franchisegeber-Franchisenehmer-Beziehung auszuüben, werden in Franchiseverträgen vertragliche Beschränkungen eingeführt. Die bisherige Forschung hat den Einfluss dieser Strategien auf vertragliche Beschränkungen in Franchiseverträgen nicht erklärt. In dieser Arbeit werden die individuellen Auswirkungen der Anpassungs-, Verteidigungs- und Prospektionsstrategie auf jede der folgenden Klauseln untersucht: Lieferantenbindung, Preisbindung und Gebietsexklusivität. Der in vorhergehenden Studien empfohlene aggregierte Ansatz kann in dieser Arbeit nicht angewendet werden. Die Ergebnisse der Probit-Regressionsanalyse, die auf den Umfragedaten des österreichischen und deutschen Franchisesektors basieren, bestätigen eine Hypothese. Insgesamt trägt diese Arbeit einen Beitrag zur Franchising-Literatur, indem sie einen neuen Ansatz zur Analyse der strategischen Auswirkungen auf einzelne vertragliche Beschränkungen bei Franchise-Verträgen vorstellt.

## Appendix B. Questionnaire

Page 1:



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Wien, 25.6.2019

Sehr geehrte Frau Geschäftsführerin/Sehr geehrter Herr Geschäftsführer!

Das Institut für Betriebswirtschaftslehre der Universität Wien führt unter meiner Leitung ein Forschungsprojekt zum Thema „**Strategie und Organisation von Franchisesystemen**“ durch.

Die Untersuchung wird mit Hilfe eines Fragebogens durchgeführt, der allen Franchisegebern übermittelt wird. Die erfolgreiche Durchführung der Fragebogenuntersuchung setzt eine enge Zusammenarbeit zwischen Unternehmenspraxis und Wissenschaft voraus. Die wissenschaftliche Verwertbarkeit der Ergebnisse ist nur dann sichergestellt, wenn eine große Anzahl von Franchisegebern den Fragebogen ausfüllt.

Wir wissen, dass Ihre Unternehmertätigkeit kaum Zeit für zusätzliche Aufgaben lässt. Andererseits ist die Wissenschaft auf eine enge Zusammenarbeit mit der Unternehmenspraxis angewiesen, um neue Forschungsergebnisse zu erzielen, die auch für die Praxis von Relevanz sind.

Wir ersuchen Sie daher höflichst, uns bei dieser wissenschaftlichen Untersuchung zu unterstützen und den Fragebogen auszufüllen. Sie finden den Fragebogen auch unter folgendem Link: [http://im.univie.ac.at/Windsperger/news/?no\\_cache=1](http://im.univie.ac.at/Windsperger/news/?no_cache=1). Diesen können sie uns faxen (00431427738174) oder per Post übermitteln. Ferner können Sie auch eine Online-Version ausfüllen: <https://www.soscisurvey.de/FranchiseRelationships/?q=de>

Für etwaige Probleme beim Ausfüllen des Fragebogens stehe ich Ihnen gerne persönlich zur Verfügung (Email: [josef.windsperger@univie.ac.at](mailto:josef.windsperger@univie.ac.at) oder 00431427738180).

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Als Projektleiter möchte ich mich für Ihre freundliche Unterstützung schon im Voraus recht herzlich bedanken. Die Untersuchungsergebnisse werden im Rahmen eines Workshops an der Universität Wien präsentiert, zu dem Sie eingeladen werden.

Mit freundlichen Grüßen,

1. Bitte bewerten Sie, welche der folgenden Aussagen den Bedingungen Ihres Marktes am besten entspricht.							
	Stimme überhaupt nicht zu						Stimme vollständig zu
	1	2	3	4	5	6	7
In unserem Geschäftsbereich ändern sich die Produkte im Laufe der Zeit häufig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Kunden tendieren dazu, nach neuen Produkten oder Dienstleistungen zu suchen, um ihre Bedürfnisse zu befriedigen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die Umsatzentwicklung in den lokalen Standorten ist schwer zu prognostizieren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es ist sehr schwierig, die Marktentwicklung in den lokalen Märkten vorherzusagen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Das wirtschaftliche Umfeld in den lokalen Märkten ändert sich schnell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die technologische Entwicklung der Produkte in dieser Branche verändert sich rasant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovationen in dieser Branche sind nicht sehr häufig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Der technologische Wandel bietet große Chancen in unserer Branche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Viele neue Produktideen wurden durch den technologischen Fortschritt in unserer Branche ermöglicht	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die Absatzmenge auf den lokalen Standorten ist starken Schwankungen unterworfen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Bitte geben Sie an inwieweit Sie den folgenden Aussagen zustimmen?							
	Stimme überhaupt nicht zu						Stimme vollständig zu
	1	2	3	4	5	6	7
Wir sind häufig die Ersten, die neue Produkt- oder Dienstleistungskonzepte auf den Markt bringen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir zögern nicht in neue Marktsegmente einzutreten, welche uns neue Möglichkeiten bieten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir bieten die innovativsten Produkte bzw. Dienstleistungen an, unabhängig davon, ob es dadurch zu einer wesentlichen Leistungssteigerung oder zu einer Kostenreduzierung kommt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir konzentrieren uns darauf, Produkte anzubieten, welche die bisherige Performance übersteigen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir sind selten die Ersten, die neue Produkte oder Dienstleistungen anbieten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir versuchen durch aggressive Maßnahmen unsere Position auf dem Produktmarkt möglichst stabil zu halten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Durch ständige Marktbeobachtung versuchen wir die Branchenfürer zu imitieren um eine effizientere Strategie, verbesserten Kundennutzen oder geringeren Gesamtkosten realisieren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir konzentrieren uns darauf, Waren oder Dienstleistungen so effizient wie möglich zu produzieren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir konzentrieren uns darauf, den bestehenden Marktanteil zu erhöhen, indem wir Produkte zu den besten Preisen anbieten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir konzentrieren uns auf das Anbieten von erstklassiger Dienstleistung und / oder Produktqualität	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Dienstleistungen / Produkte liegen normalerweise über dem Branchendurchschnitt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. In welchem Ausmaß entscheidet der Franchisenehmer über folgende Bereiche?							
	Überhaupt nicht						In sehr großem Ausmaß
	1	2	3	4	5	6	7
Durchführung von Investitionsprojekten am lokalen Standort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Finanzierung von lokalen Investitionsprojekten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auswahl von Lieferanten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anstellung von Mitarbeitern am lokalen Standort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ausbildung der Mitarbeiter am lokalen Standort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Produkt- bzw. Dienstleistungsangebot am lokalen Markt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Verkaufspreise am lokalen Standort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Einsatz von Werbe- und Verkaufsförderungsmaßnahmen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ausstattung des Franchisenehmer-Standortes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beschaffung der Betriebsmittel/Vorprodukte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Einführung neuer Produkte am lokalen Markt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Einsatz des Controllingsystems am lokalen Standort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 4. Inwieweit stimmen Sie folgenden Aussagen zu?

	Stimme überhaupt nicht zu	1	2	3	4	5	6	Stimme vollständig zu
Wir produzieren Produkte/Dienstleistungen billiger als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir senken die Kosten bei der Produktherstellung und/oder Dienstleistung stärker als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir nutzen innovativere Geschäftsprozesse als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir erzielen höhere Größenvorteile als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir nutzen unser Kapazitäts- / Produktionspotenzial stärker als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir sind produktiver als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir sind innovativer in Marketingtechniken als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir legen mehr Wert auf die Marketingabteilung als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir nutzen mehr Werbung als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir investieren mehr in gut ausgebildete Verkaufskräfte als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir fördern das Image unserer Firma mehr als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir konzentrieren uns mehr auf Kunden mit hohem Einkommen als an unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir bieten unseren Kunden mehr zusätzliche Dienstleistungen als unsere Konkurrenten an	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir investieren mehr in Forschung und Entwicklung für die Produktentwicklung als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die Häufigkeit von Prozessinnovationen in unseren Franchisesystemen ist höher als die unserer Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir sind im Wettbewerb unseren Konkurrenten voraus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die Häufigkeit von Produktinnovationen in unseren Franchisesystemen ist höher als die unserer Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir liefern unsere Produkte / Dienstleistungen schneller als unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 5. Bitte bewerten Sie die folgenden Aussagen basierend auf Ihren Erfahrungen mit den folgenden Stakeholdern während des letzten Jahres.

5.1. Die hier angeführte Stakeholdergruppen haben im vergangenen Jahr von unserem Management-Team hohe Priorität erhalten:

	Stimme überhaupt nicht zu	1	2	3	4	5	6	Stimme vollständig zu
Unsere Franchisenehmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Shareholder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Kunden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere MitarbeiterInnen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Lieferanten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die lokale Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geldgeber z.B. Banken oder andere Fremdkapitalgeber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geschäftspartner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.2. Wir haben im vergangenen Jahr die Interessen der folgenden Stakeholdergruppen bei wichtigen Entscheidungen berücksichtigt:



## Page 4:

	Stimme überhaupt nicht zu	1	2	3	4	5	6	Stimme vollständig zu
Unsere Franchisenehmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Shareholder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Kunden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere MitarbeiterInnen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Lieferanten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die lokale Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geldgeber z.B. Banken oder andere Fremdkapitalgeber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geschäftspartner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.3. In unseren routinemäßigen Meetings haben wir häufig über die Erwartungen der folgenden Stakeholder diskutiert:

	Stimme überhaupt nicht zu	1	2	3	4	5	6	Stimme vollständig zu
Unsere Franchisenehmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Shareholder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Kunden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere MitarbeiterInnen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Lieferanten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die lokale Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geldgeber z.B. Banken oder andere Fremdkapitalgeber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geschäftspartner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.4. Wir haben einen beträchtlichen Teil unserer Zeit und Ressourcen (finanziell oder nichtfinanziell) aufgewendet, um die Bedürfnisse der folgenden Stakeholdergruppen zu befriedigen:

	Stimme überhaupt nicht zu	1	2	3	4	5	6	Stimme vollständig zu
Unsere Franchisenehmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Shareholder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Kunden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere MitarbeiterInnen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Lieferanten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die lokale Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geldgeber z.B. Banken oder andere Fremdkapitalgeber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geschäftspartner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.5. Wir haben uns stets bemüht, die Interessen der folgenden Stakeholder zu berücksichtigen:

	Stimme überhaupt nicht zu	1	2	3	4	5	6	Stimme vollständig zu
Unsere Franchisenehmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Shareholder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Kunden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere MitarbeiterInnen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Lieferanten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die lokale Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geldgeber z.B. Banken oder andere Fremdkapitalgeber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geschäftspartner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5.6. Wir haben ständig daran gearbeitet, auf offene Probleme mit folgenden Stakeholdern einzugehen:

Stimme überhaupt nicht zu	1	2	3	4	5	6	Stimme vollständig zu
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Unsere Franchisenehmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Shareholder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Kunden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere MitarbeiterInnen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Lieferanten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die lokale Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Konkurrenten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geldgeber z.B. Banken oder andere Fremdkapitalgeber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Geschäftspartner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 6. Inwieweit stimmen Sie folgenden Aussagen zu?

	Stimme überhaupt nicht zu						Stimme vollständig zu
	1	2	3	4	5	6	7
Von unseren Franchisenehmern werden nur wenige Maßnahmen ergriffen, die nicht den standardisierten Arbeitsanweisungen entsprechen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Franchisepartner unseres Franchisesystems bezeichnen dieses häufig als bürokratisch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wenn Franchisenehmer ihre eigenen Entscheidungen treffen möchten, werden sie schnell auf ein Handbuch verwiesen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In diesem System werden Entscheidungen in der Regel auf einer höheren Hierarchieebene getroffen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsere Franchisenehmer haben einen großen Spielraum bei der Auswahl der Mittel, um Ziele zu erreichen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Den Franchisenehmern wird Flexibilität bei der Erledigung ihrer Aufgaben eingeräumt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es wird einem Franchisenehmer schnell davon abgeraten eigene Entscheidungen zu treffen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selbst kleine Angelegenheiten wird auf eine höhere Hierarchieebene im Franchisesystem verwiesen, um eine Entscheidung zu treffen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Viele wichtige Entscheidungen werden eher lokal als zentral getroffen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 7. Inwieweit haben Sie im letzten Jahr die Ziele in Bezug auf folgende Punkte besser realisiert als Ihre Konkurrenten?

	überhaupt nicht besser						viel besser
	1	2	3	4	5	6	7
Systemwachstum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kostenreduktion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Erlöse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innovationen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profitabilität	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verbessertes Kundenservice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marktanteil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verbesserte Reputation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gesamtkapitalrentabilität	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F&E Fähigkeiten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Management Fähigkeitkeit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Firmenimage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 8. In welchem Ausmaß entstehen dem Franchisegeber am Beginn der Vertragsbeziehung Investitionsaufwendungen?

	überhaupt nicht besser						in sehr großem Ausmaß
	1	2	3	4	5	6	7
Aufwendungen für die Franchisenehmerschulungen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aufwendungen für technische Unterstützung des Franchisenehmers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aufwendungen für den Aufbau der Organisation des lokalen Standortes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 9. Worin sehen Sie die Vorteile durch Franchisenehmerbetriebe im Vergleich zu eigenen Filialbetrieben?

	überhaupt nicht besser						in sehr großem Ausmaß
	1	2	3	4	5	6	7
Größere Finanzierungsvorteile durch Franchisenehmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bessere Qualitätskontrolle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mehr Innovationen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Niedrigere Betriebskosten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Größere administrative Fähigkeiten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Effizienteres Personalmanagement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Größeres lokales Marktwissen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bessere lokale Serviceleistungen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**10. Nehmen Sie bitte aus Ihrer Sicht (als Franchisegeber) zu folgenden Aussagen Stellung:**

	Trifft überhaupt nicht zu						Trifft vollständig zu
	1	2	3	4	5	6	7
Es ist sehr schwierig, das Verhalten des Franchisenehmers zu kontrollieren.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es ist sehr schwierig, die Leistungen des Franchisenehmers zu messen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es ist sehr schwierig, die Kompetenzen und Fähigkeiten des Franchisenehmers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**11. Welche der folgenden Aussagen treffen auf Ihre Beziehung zu den Franchisenehmern zu?**

	Trifft überhaupt nicht zu						Trifft vollständig zu
	1	2	3	4	5	6	7
Es herrscht großes Vertrauen zwischen uns und dem (den) Franchisenehmer(n).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es herrscht eine Atmosphäre von Offenheit und Ehrlichkeit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Der Informationsaustausch geht über das vereinbarte Ausmaß hinaus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die Zusammenarbeit beruht auf partnerschaftlicher Basis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**12. Bitte nehmen Sie Stellung zur Anpassung Ihres Franchisemodells an die lokalen Marktgegebenheiten.**

	Überhaupt nicht						In sehr großem Ausmaß
	1	2	3	4	5	6	7
Wir passen unsere Produkte/Dienstleistungen (z.B. Produkt-Mix und Serviceangebote) an den lokalen Markt an.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir passen unsere Markenidentität an den lokalen Markt an.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir passen die operativen Strategien (z.B. Schulung von Mitarbeitern und Qualitätskontrolle) an den lokalen Markt an.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wir passen die Managementstrategien (z.B. Handbuch, Preisgestaltung und Marketing) an den lokalen Markt an.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**13. Bitte beantworten Sie die folgenden Fragen zu Ihrem Franchisesystem.**

Anzahl der Franchisegeber firmeneigenen Filialstandorte Anzahl: \_\_\_\_\_

Anzahl der Franchisenehmerstandorte: \_\_\_\_\_

Anzahl der Franchisenehmer: \_\_\_\_\_

In welchem Land befindet sich der Hauptsitz des Franchisesystems? \_\_\_\_\_

Wie viele MitarbeiterInnen sind in Ihrem Hauptsitz tätig? \_\_\_\_\_

Seit wann sind Sie im Franchise-Business? \_\_\_\_\_

Welche Art von Franchising betreibt Ihr Unternehmen? ☐ Produktion ☐ Vertrieb ☐ Dienstleistung

Welche Art von Unternehmenstätigkeit betreiben Sie (z. B. Kleidung, Restaurants etc.)? \_\_\_\_\_

Höhe der fixen Einstiegsgebühr zur Eröffnung einer Franchisefiliale in Euro: \_\_\_\_\_

Höhe der laufenden Gebühr (in % des Umsatzes): \_\_\_\_\_

Höhe der laufende Werbegebühr (% des Umsatzes): \_\_\_\_\_

Höhe der Anfangsinvestition (ohne Einstiegsgebühr) für die Eröffnung einer Franchisefiliale in Euro: \_\_\_\_\_

Wie lange beträgt die durchschnittliche Vertragsdauer, die Sie einem Franchisenehmer anbieten? \_\_\_\_\_

Anzahl der Franchisenehmer-Schulungstage vor Eröffnung eines Franchisebetriebes: \_\_\_\_\_

Anzahl der laufenden Schulungstage pro Jahr für einen Franchisenehmer: \_\_\_\_\_

Anzahl der offiziellen Besuche des Franchisegebers beim Franchisenehmer pro Jahr: \_\_\_\_\_

Haben Sie eine vertragliche Option, den Franchisebetrieb bei Vertragsbeendigung zurückzukaufen? ☐ Ja ☐ Nein

Muss ein Franchisenehmer mehr als 50% der Rohstoffe/Vorprodukte von Ihnen (Franchisegeber) oder Ihnen vorgegebenen Lieferanten beziehen? ☐ Ja ☐ Nein

Können Franchisenehmer andere Produkte als die des Franchisegebers verkaufen? ☐ Ja ☐ Nein

Setzen Sie unverbindliche Preise für die angebotenen Produkte / Dienstleistungen der Franchisenehmer fest? ☐ Ja ☐ Nein

Ist das Marktgebiet der Franchisenehmer geografisch abgegrenzt? ☐ Ja ☐ Nein

Wie oft finden formelle Treffen zwischen Franchisegeber und Franchisenehmer (z.B. Tagungen, Ausschüsse) pro Jahr statt? \_\_\_\_\_

**14. Bitte kreisen Sie nur EINE der folgenden Beschreibungen ein, die dem Lebenszyklus Ihrer Organisation im letzten Jahr am ehesten entsprach. (Bitte betrachten Sie Ihr Unternehmen als Ganzes und beachten Sie, dass keiner der unten aufgeführten Typen von Natur aus "gut" oder "schlecht" ist.)**

**Typ 1** In dieser Phase versucht das Unternehmen eine lebensfähige Einheit zu werden.

**Typ 2** In dieser Phase erwirbt das Unternehmen seine ausgeprägten Kompetenzen und erzielt erste Erfolge auf dem Produktmarkt. Der Schwerpunkt liegt auf einem schnellen Umsatzwachstum und schnellen Ressourceneinsatz, um Größenvorteile zu erzielen. In der Regel wächst der Umsatz zu diesem Zeitpunkt um mehr als 15%. Einige Entscheidungen werden an mittlere Hierarchieebenen delegiert, und die Prozesse werden formalisiert.

**Typ 3** Diese Phase wird nach einer Wachstumsphase erwartet, da sich das Umsatzniveau stabilisiert, der Innovationsgrad sinkt und eine Organisationsstruktur mit einem höheren Bürokratiegrad aufgebaut wird. In dieser Phase sind Unternehmen in der Regel größer, aber ihr Umsatz wächst um weniger als 15%.

**Typ 4** Dies ist in der Regel eine Phase der Erweiterung des Produkt- Marktbereiches, um die komplexeren und heterogeneren Märkte zu bewältigen. In dieser Phase sind die Unternehmen sehr groß, und es wird erwartet, dass ihr Umsatz wieder um mehr als 15% steigt.

**Typ 5** In dieser Phase des Rückgangs nimmt die Nachfrage nach Produkten / Dienstleistungen ab, weiters vermindert sich die Innovationsintensität, und es werden Preissenkungen durchgeführt und die Rentabilität sinkt. Zu diesem Zeitpunkt sind Unternehmen in der Regel risikoavers; die Unternehmung ist charakterisiert durch formale und bürokratische Strukturen, die auf homogenen Märkten einem intensiven Wettbewerb ausgesetzt sind.

Vielen Dank für Ihren Beitrag zu unserer Studie. Wenn Sie am Ergebnis interessiert sind, geben Sie bitte Ihre E-Mail-Adresse  
Email:



## Appendix C. Empirical analysis: R-code

### 1. Load packages, import dataset

```
library(haven)
library(dplyr)
library(stringr)
library(stargazer)
library(ggplot2)
library(readxl)
library(tidyr)
library(lavaan)
library(psych)
library(openxlsx)
library(Hmisc)
library(corrplot)
library(rms)
library(reghelper)
library(stargazer)
library(nnet)
```

### 2. Dataset

```
data <- read_excel("C:/Users/Dataset_Thesis.xlsx")

#Select Variables
data_thesis <- select(data,
  -(tech_uncert_1:tech_uncert_5),
  -(formalization_1:formalization_4),
  -(centralization_1:centralization_5),
  -(decright_1:decright_12),
  -(stakeholder_1_1:stakeholder_1_9),
  -(stakeholder_2_1:stakeholder_2_9),
  -(stakeholder_3_1:stakeholder_3_9),
  -(stakeholder_4_1:stakeholder_4_9),
  -(stakeholder_5_1:stakeholder_5_9),
  -(stakeholder_6_1:stakeholder_6_9),
  -(performance_1:performance_12),
  -(spec_investment_1:spec_investment_3),
  -(int_assets_1:int_assets_8),
  -nr_franchisee_sites,
  -nr_franchisees,
  -country_hq,
  #-employees_hq,
  -royalty_fee,
  -advertising_fee,
  #-foundation_year,
  -business_type,
  -contract_duration,
  -training_days_before,
  -training_days_during,
  -nr_franchisor_visits,
  -formal_meetings,
  -initial_fee,
  -upfront_investment) %>%
  rename("marketing_diff_8" = innovation_diff_5) %>%
  na.omit(data)
```

### 3. Contractual restraints

```
#Coding of contractual restraints variables (1 = yes, 0 = no)
data_thesis <- mutate(data_thesis,
  tying = dummy.code(data_thesis$tying, group = 1),
  rpm = dummy.code(data_thesis$rpm, group = 1),
  territory = dummy.code(data_thesis$territory, group = 1))

data_restraints <- select(data_thesis, tying, rpm, territory)
```

### 3.1. Allocation of contractual restraints

```
restraints <- rbind("Tying", "", "Resale price maintenance", "", "Territory", "")

colnames_all <- c("Restriction clauses", "Presence", "Frequency", "Percent")

all_tying <- data.frame(table(data_restraints$tying),
  round(prop.table(table(data_restraints$tying))*100, 2))

all_rpm <-
  data.frame(table(data_restraints$rpm), round(prop.table(table(data_restraints$rpm))*100, 2))

all_territory <-
  data.frame(table(data_restraints$territory), round(prop.table(table(data_restraints$territory))*100, 2))

all_table <- rbind(all_tying, all_rpm, all_territory)

all_table <- select(all_table, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

all_table$Presence <- str_replace(all_table$Presence, "1", "yes")
all_table$Presence <- str_replace(all_table$Presence, "0", "no")

all_table <- cbind("Restriction clauses" = restraints, all_table)
all_table
```

## Restriction clauses	Presence	Frequency	Percent
## 1 Tying	no	54	43.90
## 2	yes	69	56.10
## 3 Resale price maintenance	no	50	40.65
## 4	yes	73	59.35
## 5 Territory	no	32	26.02
## 6	yes	91	73.98

### 3.2. Descriptive statistics: summarized results for dependent variables

```
#Row names
names_cr <- c("Tying", "RPM", "Territory")

#Mean of each CR
mean_tying <- mean(data_thesis$tying)
mean_rpm <- mean(data_thesis$rpm)
mean_territory <- mean(data_thesis$territory)

mean_cr <- rbind(mean_tying, mean_rpm, mean_territory)

#SD of each CR
sd_tying <- sd(data_thesis$tying)
sd_rpm <- sd(data_thesis$rpm)
sd_territory <- sd(data_thesis$territory)

sd_cr <- rbind(sd_tying, sd_rpm, sd_territory)

#Descr. Statistic CR
dep_var_stat <- data.frame("Mean" = round(mean_cr, 2), "SD" = round(sd_cr, 2),
  row.names = names_cr)
```

## 4. Strategies

### 4.1. Prospector strategy

#### 4.1.1. Response allocation: prospector strategy

```
#Item 1
all_prospector_1 <- data.frame(table(data_thesis$prospector_1),
  round(prop.table(table(data_thesis$prospector_1))*100, 2))

all_prospector_1 <- select(all_prospector_1, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 2
```

```

all_prospector_2 <- data.frame(table(data_thesis$prospector_2),
                                round(prop.table(table(data_thesis$prospector_2))*100, 2))

all_prospector_2 <- select(all_prospector_2, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 3
all_prospector_3 <- data.frame(table(data_thesis$prospector_3),
                                round(prop.table(table(data_thesis$prospector_3))*100, 2))

all_prospector_3 <- select(all_prospector_3, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 4
all_prospector_4 <- data.frame(table(data_thesis$prospector_4),
                                round(prop.table(table(data_thesis$prospector_4))*100, 2))

all_prospector_4 <- select(all_prospector_4, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

```

#### 4.1.2. Mean and standard deviation: prospector strategy

*#Summarized Mean, SD*

```

item_mean_prospector <- c(
  mean(data_thesis$prospector_1),
  mean(data_thesis$prospector_2),
  mean(data_thesis$prospector_3),
  mean(data_thesis$prospector_4))

item_sd_prospector <- c(
  sd(data_thesis$prospector_1),
  sd(data_thesis$prospector_2),
  sd(data_thesis$prospector_3),
  sd(data_thesis$prospector_4))

item_vector_prospector <-
  cbind("Mean" = item_mean_prospector, "SD" = item_sd_prospector)

items_prospector <- data.frame("Item" = c(1:4), item_vector_prospector)

mean_prospector <- mean(item_mean_prospector)
sd_prospector <- mean(item_sd_prospector)

prospector <- cbind("Mean" = mean_prospector, "SD" = sd_prospector)

prospector <- data.frame(prospector)

```

## 4.2. Defender strategy

### 4.1.1. Response allocation: defender strategy

*#Item 1*

```

all_defender_1 <- data.frame(table(data_thesis$defender_1),
                              round(prop.table(table(data_thesis$defender_1))*100, 2))

all_defender_1 <- select(all_defender_1, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

```

*#Item 2*

```

all_defender_2 <- data.frame(table(data_thesis$defender_2),
                              round(prop.table(table(data_thesis$defender_2))*100, 2))

all_defender_2 <- select(all_defender_2, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

```

*#Item 3*

```

all_defender_3 <- data.frame(table(data_thesis$defender_3),
                              round(prop.table(table(data_thesis$defender_3))*100, 2))

```

```
all_defender_3 <- select(all_defender_3, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)
```

#### 4.1.2. Mean and standard deviation: defender strategy

```
#Summarized Mean, SD
item_mean_defender <- c(
  mean(data_thesis$defender_2),
  mean(data_thesis$defender_3))

item_sd_defender <- c(
  sd(data_thesis$defender_2),
  sd(data_thesis$defender_3))

item_vector_defender <-
  cbind("Mean" = item_mean_defender, "SD" = item_sd_defender)

items_defender <- data.frame("Item" = c(1:2), item_vector_defender)

mean_defender <- mean(item_mean_defender)
sd_defender <- mean(item_sd_defender)

defender <- cbind("Mean" = mean_defender, "SD" = sd_defender)

defender <- data.frame(defender)
```

### 4.3. Adaptation strategy

#### 4.1.1. Response allocation: adaptation strategy

```
#Item 1
all_adaptation_1 <- data.frame(table(data_thesis$adaptation_1),
  round(prop.table(table(data_thesis$adaptation_1))*100, 2))

all_adaptation_1 <- select(all_adaptation_1, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 2
all_adaptation_2 <- data.frame(table(data_thesis$adaptation_2),
  round(prop.table(table(data_thesis$adaptation_2))*100, 2))

all_adaptation_2 <- select(all_adaptation_2, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 3
all_adaptation_3 <- data.frame(table(data_thesis$adaptation_3),
  round(prop.table(table(data_thesis$adaptation_3))*100, 2))

all_adaptation_3 <- select(all_adaptation_3, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 4
all_adaptation_4 <- data.frame(table(data_thesis$adaptation_4),
  round(prop.table(table(data_thesis$adaptation_4))*100, 2))

all_adaptation_4 <- select(all_adaptation_4, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)
```

#### 4.1.2. Mean and standard deviation: adaptation strategy

```
#Summarized Mean, SD
item_mean_adaptation <- c(
  mean(data_thesis$adaptation_1),
  mean(data_thesis$adaptation_2),
  mean(data_thesis$adaptation_3),
  mean(data_thesis$adaptation_4))

item_sd_adaptation <- c(
  sd(data_thesis$adaptation_1),
```

```

sd(data_thesis$adaptation_2),
sd(data_thesis$adaptation_3),
sd(data_thesis$adaptation_4))

item_vector_adaptation <-
  cbind("Mean" = item_mean_adaptation, "SD" = item_sd_adaptation)

items_adaptation <- data.frame("Item" = c(1:4), item_vector_adaptation)

mean_adaptation <- mean(item_mean_adaptation)
sd_adaptation <- sd(item_sd_adaptation)

adaptation <- cbind("Mean" = mean_adaptation, "SD" = sd_adaptation)

adaptation <- data.frame(adaptation)

```

#### 4.4. Descriptive statistics: summarized results for strategies

```

ind_var_names <- c("Adaptation", "Defender", "Prospector")

ind_var_table <-
  rbind.data.frame(adaptation, defender, prospector)

ind_var_stat <- data.frame(ind_var_table, row.names = ind_var_names)

```

## 5. Control variables

### 5.1. Age

```

#Age
data_thesis <- mutate(data_thesis, age = 2019 - foundation_year)

mean_age <- mean(data_thesis$age)
sd_age <- sd(data_thesis$age)

age <- cbind("Mean" = mean_age, "SD" = sd_age)

#Response Allocation
all_age <- data.frame(table(data_thesis$age),
  round(prop.table(table(data_thesis$age))*100, 2))

all_age <- select(all_age, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

```

### 5.2. Environmental uncertainty

#### 5.2.1. Response allocation: environmental uncertainty

```

#Item 1
all_env_1 <- data.frame(table(data_thesis$env_uncert_1),
  round(prop.table(table(data_thesis$env_uncert_1))*100, 2))

all_env_1 <- select(all_env_1, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 2
all_env_2 <- data.frame(table(data_thesis$env_uncert_2),
  round(prop.table(table(data_thesis$env_uncert_2))*100, 2))

all_env_2 <- select(all_env_2, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 3
all_env_3 <- data.frame(table(data_thesis$env_uncert_3),
  round(prop.table(table(data_thesis$env_uncert_3))*100, 2))

all_env_3 <- select(all_env_3, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 4

```

```

all_env_4 <- data.frame(table(data_thesis$env_uncert_4),
  round(prop.table(table(data_thesis$env_uncert_4))*100, 2))

all_env_4 <- select(all_env_4, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 5
all_env_5 <- data.frame(table(data_thesis$env_uncert_5),
  round(prop.table(table(data_thesis$env_uncert_5))*100, 2))

all_env_5 <- select(all_env_5, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

```

## 5.2.2. Mean and standard deviation: environmental uncertainty

```

#Mean
item_mean_env_uncert <- c(
  mean(data_thesis$env_uncert_1),
  mean(data_thesis$env_uncert_2),
  mean(data_thesis$env_uncert_5))

#SD
item_sd_env_uncert <- c(
  sd(data_thesis$env_uncert_1),
  sd(data_thesis$env_uncert_2),
  sd(data_thesis$env_uncert_5))

#Mean, SD for each Item
item_vector_env_uncert <-
  cbind("Mean" = item_mean_env_uncert, "SD" = item_sd_env_uncert)

items_env_uncert <- data.frame("Item" = c(1:3), item_vector_env_uncert)

#Mean, SD overall
mean_env_uncert <- mean(item_mean_env_uncert)
sd_env_uncert <- mean(item_sd_env_uncert)

env_uncert <- cbind("Mean" = mean_env_uncert, "SD" = sd_env_uncert)

env_uncert <- data.frame(env_uncert)

```

## 5.3. Trust

### 5.3.1. Response allocation: trust

```

#Item 1
all_trust_1 <- data.frame(table(data_thesis$trust_1),
  round(prop.table(table(data_thesis$trust_1))*100, 2))

all_trust_1 <- select(all_trust_1, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 2
all_trust_2 <- data.frame(table(data_thesis$trust_2),
  round(prop.table(table(data_thesis$trust_2))*100, 2))

all_trust_2 <- select(all_trust_2, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 3
all_trust_3 <- data.frame(table(data_thesis$trust_3),
  round(prop.table(table(data_thesis$trust_3))*100, 2))

all_trust_3 <- select(all_trust_3, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 4
all_trust_4 <- data.frame(table(data_thesis$trust_4),
  round(prop.table(table(data_thesis$trust_4))*100, 2))

```

```
all_trust_4 <- select(all_trust_4, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)
```

### 5.3.2. Mean and standard deviation: trust

```
#Mean
item_mean_trust <- c(
  mean(data_thesis$trust_1),
  mean(data_thesis$trust_2),
  mean(data_thesis$trust_3),
  mean(data_thesis$trust_4))

#SD
item_sd_trust <- c(
  sd(data_thesis$trust_1),
  sd(data_thesis$trust_2),
  sd(data_thesis$trust_3),
  sd(data_thesis$trust_4))

#Mean, SD for each Item
item_vector_trust <-
  cbind("Mean" = item_mean_trust, "SD" = item_sd_trust)

items_trust <- data.frame("Item" = c(1:4), item_vector_trust)

#Mean, SD overall
mean_trust <- mean(item_mean_trust)
sd_trust <- mean(item_sd_trust)

trust <- cbind("Mean" = mean_trust, "SD" = sd_trust)

trust <- data.frame(trust)
```

## 5.4. Behavioral uncertainty

### 5.4.1. Response allocation: behavioral uncertainty

```
#Item 1
all_behav_1 <- data.frame(table(data_thesis$behavior_uncert_1),
  round(prop.table(table(data_thesis$behavior_uncert_1))*100, 2))

all_behav_1 <- select(all_behav_1, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 2
all_behav_2 <- data.frame(table(data_thesis$behavior_uncert_2),
  round(prop.table(table(data_thesis$behavior_uncert_2))*100, 2))

all_behav_2 <- select(all_behav_2, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)

#Item 3
all_behav_3 <- data.frame(table(data_thesis$behavior_uncert_3),
  round(prop.table(table(data_thesis$behavior_uncert_3))*100, 2))

all_behav_3 <- select(all_behav_3, - Var1.1) %>%
  rename("Presence" = Var1, "Frequency" = Freq, "Percent" = Freq.1)
```

### 5.4.2. Mean and standard deviation: behavioral uncertainty

```
#Mean
item_mean_behavior_uncert <- c(
  mean(data_thesis$behavior_uncert_1),
  mean(data_thesis$behavior_uncert_2),
  mean(data_thesis$behavior_uncert_3))

#SD
item_sd_behavior_uncert <- c(
  sd(data_thesis$behavior_uncert_1),
  sd(data_thesis$behavior_uncert_2),
  sd(data_thesis$behavior_uncert_3))
```

```

#Mean, SD for each Item
item_vector_behavior_uncert <-
  cbind("Mean" = item_mean_behavior_uncert, "SD" = item_sd_behavior_uncert)

items_behavior_uncert <- data.frame("Item" = c(1:3), item_vector_behavior_uncert)

#Mean, SD overall
mean_behavior_uncert <- mean(item_mean_behavior_uncert)
sd_behavior_uncert <- mean(item_sd_behavior_uncert)

behavior_uncert <- cbind("Mean" = mean_behavior_uncert, "SD" = sd_behavior_uncert)

behavior_uncert <- data.frame(behavior_uncert)

```

## 5.5. Descriptive statistics: summarized results for control variables

```

contr_var_names <- c("Age", "Behavioral Uncertainty", "Environmental Uncertainty", "Trust")

contr_var_table <- rbind.data.frame(age, behavior_uncert, env_uncert, trust)

contr_var_stat <- data.frame(contr_var_table, row.names = contr_var_names)

```

## 6. Add calculated variables to the dataset

```

data_thesis <-
  mutate(data_thesis,
    "prospector" = ((prospector_1 + prospector_2 + prospector_3 + prospector_4)/4),
    "analyzer" = ((analyzer_1 + analyzer_2 + analyzer_3 + analyzer_4)/4),
    "defender" = ((defender_1 + defender_2 + defender_3)/3),
    "adaptation" = ((adaptation_1 + adaptation_2 + adaptation_3 + adaptation_4)/4),
    "environmental_uncertainty" = ((env_uncert_1 + env_uncert_2 +
      env_uncert_3 + env_uncert_4 +
      env_uncert_5)/5),
    "behavioral_uncertainty" = ((behavior_uncert_1 + behavior_uncert_2 +
      behavior_uncert_3)/3),
    "trust" = ((trust_1 + trust_2 + trust_3 + trust_4)/4))

```

## 7. Descriptive statistics

```

descr_stat <- rbind(dep_var_stat, ind_var_stat, contr_var_stat)
descr_stat

```

##	Mean	SD
## Tying	0.560000	0.500000
## RPM	0.590000	0.490000
## Territory	0.740000	0.440000
## Adaptation	3.989837	1.859748
## Defender	6.109756	1.191409
## Prospector	4.737805	1.647149
## Age	16.504065	12.598057
## Behavioral Uncertainty	3.626016	1.532012
## Environmental Uncertainty	3.766938	1.611155
## Trust	5.654472	1.276678



## 8. Factor analysis

### 8.1. Factor analysis – contractual restraints

```
cor_mat_cr <- cbind("tying" = c(1, 0.36, 0.19), "rpm" = c(0.36, 1, -0.07),
                    "territory" = c(0.19, -0.07, 1))

cor_mat_cr <- as.data.frame(cor_mat_cr, row.names = c("tying", "rpm", "territory"))

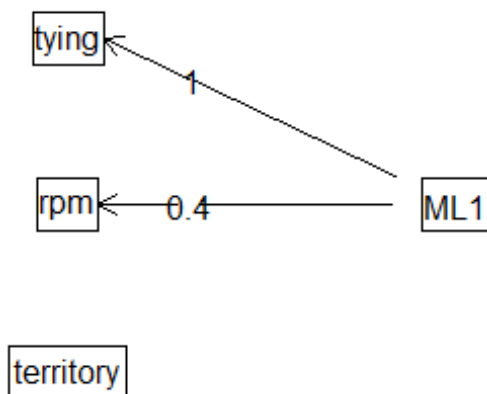
restraints_fact <- fa(cor_mat_cr, nfactors = 1, rotation = "varimax", fm = "ml", cor = "tet")

print(restraints_fact$loadings, digits = 2, cutoff = 0.3)

##
## Loadings:
##                ML1
## tying           1.00
## rpm             0.36
## territory
##
##                ML1
## SS loadings     1.16
## Proportion Var  0.39

fa.diagram(restraints_fact)
```

### Factor Analysis



## 8.2. Factor analysis - strategies

### 8.2.1. Factor analysis: all items included

```
strat_1_table_1 <- select(data_thesis,
                           prospector_1:prospector_4,
                           defender_1:defender_3,
                           adaptation_1:adaptation_4)

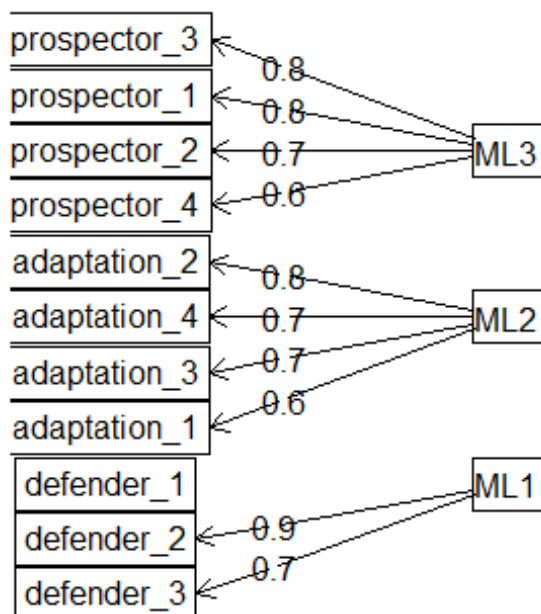
#Correlation Table for FA
strat_1_pear_cor_1 <- cor(strat_1_table_1)

#Factor Analysis with Correlation Table
strat_1_fa_1 <- fa(strat_1_pear_cor_1, nfactors = 3, rotate = "varimax", fm = "ml", cor = "poly")

#Output FA
print(strat_1_fa_1$loadings, digits = 2, cutoff = 0.0)
```

```
##
## Loadings:
##
##      ML3      ML2      ML1
## prospector_1  0.77  0.05  0.17
## prospector_2  0.69  0.07  0.18
## prospector_3  0.79  0.22  0.07
## prospector_4  0.56  0.13  0.37
## defender_1    0.12  0.26 -0.02
## defender_2    0.20 -0.04  0.92
## defender_3    0.21  0.08  0.67
## adaptation_1  0.17  0.61  0.12
## adaptation_2 -0.02  0.81 -0.05
## adaptation_3  0.19  0.69  0.04
## adaptation_4 -0.05  0.69  0.08
##
##      ML3      ML2      ML1
## SS loadings  2.18  2.12  1.52
## Proportion Var 0.20  0.19  0.14
## Cumulative Var 0.20  0.39  0.53
fa.diagram(strat_1_fa_1)
```

## Factor Analysis



### 8.2.2. Factor Analysis: cross-loaded items removed

```
strat_1_table_2 <- select(strat_1_table_1, -defender_1)

#Kaiser-Meyer-Olkin Test
KMO(strat_1_table_2)

## Kaiser-Meyer-Olkin factor adequacy
## Call: KMO(r = strat_1_table_2)
## Overall MSA = 0.75
## MSA for each item =
## prospector_1 prospector_2 prospector_3 prospector_4 defender_2 defender_3
##      0.80      0.84      0.81      0.82      0.66      0.70
## adaptation_1 adaptation_2 adaptation_3 adaptation_4
##      0.75      0.71      0.70      0.71

#Correlation Table for FA
strat_1_pear_cor_2 <- cor(strat_1_table_2)

#Factor Analysis with Correlation Table
```

```
strat_1_fa_2 <- fa(strat_1_pear_cor_2, nfactors = 3, rotate = "varimax", fm = "ml", cor = "poly")
```

*#Output FA*

```
print(strat_1_fa_2$loadings, digits = 2, cutoff = 0.3)
```

```
##
```

```
## Loadings:
```

```
##           ML3      ML2      ML1
## prospector_1  0.77
## prospector_2  0.69
## prospector_3  0.80
## prospector_4  0.57  0.37
## defender_2           0.92
## defender_3           0.67
## adaptation_1           0.61
## adaptation_2           0.80
## adaptation_3           0.68
## adaptation_4           0.70
```

```
##
```

```
##           ML3 ML2 ML1
```

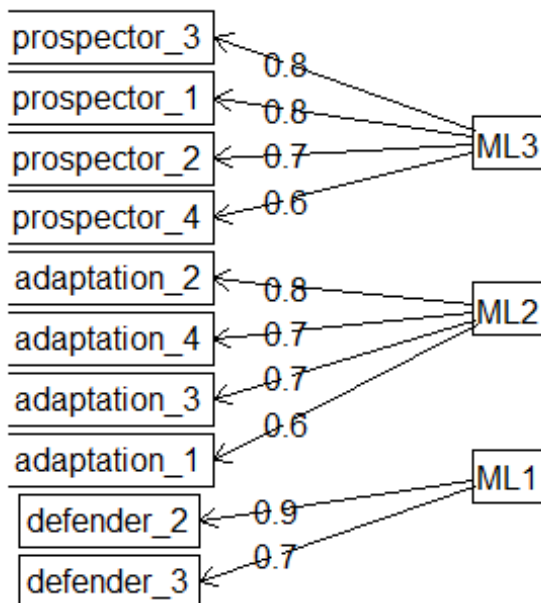
```
## SS loadings      2.19 2.03 1.52
```

```
## Proportion Var   0.22 0.20 0.15
```

```
## Cumulative Var   0.22 0.42 0.57
```

```
fa.diagram(strat_1_fa_2)
```

## Factor Analysis



### 8.3. Factor analysis - control variables

#### 8.3.1. Factor analysis - all items

```
contr_var_table_1 <- select(data_thesis,
  env_uncert_1:env_uncert_5,
  behavior_uncert_1:behavior_uncert_3,
  trust_1:trust_4)
```

*#Correlation Table for FA*

```
contr_var_table <- cor(contr_var_table_1)
```

*#Factor Analysis with Correlation Table*

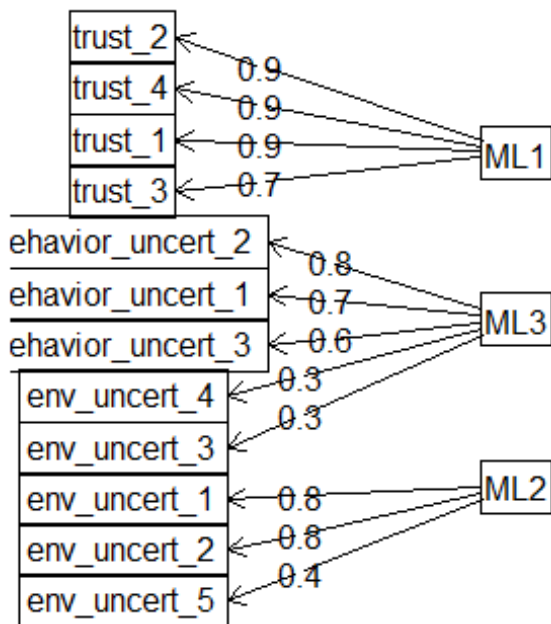
```
contr_var_fa <- fa(contr_var_table_1, nfactors = 3, rotate = "varimax", fm = "ml", cor = "poly")
```

*#Output FA*

```
print(contr_var_fa$loadings, digits = 2, cutoff = 0)
```

```
##
## Loadings:
##
## env_uncert_1      ML1      ML3      ML2
## env_uncert_2      0.00     0.04     0.79
## env_uncert_3     -0.24     0.31     0.14
## env_uncert_4     -0.19     0.33     0.18
## env_uncert_5     -0.17     0.23     0.43
## behavior_uncert_1 -0.04     0.69     0.00
## behavior_uncert_2 -0.13     0.79    -0.05
## behavior_uncert_3 -0.08     0.64     0.08
## trust_1           0.90    -0.13    -0.21
## trust_2           0.92    -0.16    -0.15
## trust_3           0.73    -0.21    -0.02
## trust_4           0.91    -0.08     0.10
##
##
## SS loadings      ML1      ML3      ML2
## Proportion Var   0.26     0.16     0.14
## Cumulative Var   0.26     0.42     0.55
fa.diagram(contr_var_fa)
```

## Factor Analysis



### 8.3.2 Factor analysis - cross-loaded items removed

```
contr_var_table_2 <- select(contr_var_table_1, -env_uncert_3, -env_uncert_4)
```

```
#Correlation Table for FA
```

```
contr_var_table <- cor(contr_var_table_2)
```

```
#Factor Analysis with Correlation Table
```

```
contr_var_fa <- fa(contr_var_table_2, nfactors = 3, rotate = "varimax", fm = "ml", cor = "poly")
```

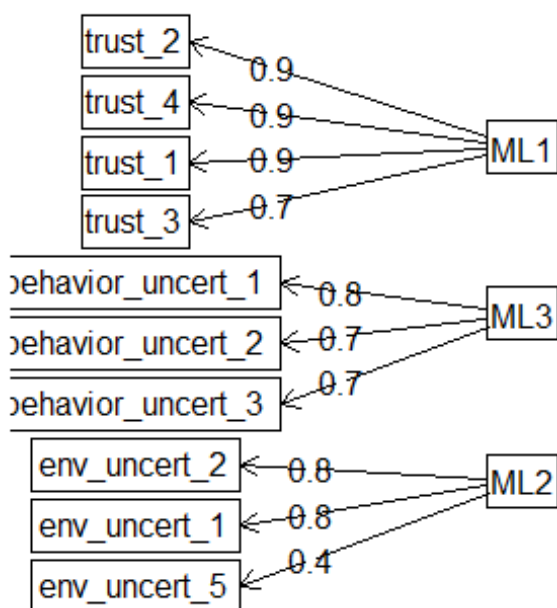
```
#Output FA
```

```
print(contr_var_fa$loadings, digits = 2, cutoff = 0.3)
```

```
##
## Loadings:
##
## env_uncert_1      ML1      ML3      ML2
## env_uncert_2      0.00     0.00     0.80
## env_uncert_3      0.00     0.00     0.82
## env_uncert_5      0.00     0.00     0.42
```

```
## behavior_uncert_1      0.78
## behavior_uncert_2      0.70
## behavior_uncert_3      0.66
## trust_1      0.91
## trust_2      0.92
## trust_3      0.73
## trust_4      0.91
##
##
## SS loadings      ML1      ML3      ML2
## Proportion Var      0.31      0.16      0.16
## Cumulative Var      0.31      0.47      0.63
fa.diagram(contr_var_fa)
```

## Factor Analysis



## 9. Cronbach's alpha

### 10. 9.1. Cronbach's alpha: contractual restraints

```
alpha(data_restraints)

##
## Reliability analysis
## Call: alpha(x = data_restraints)
##
## raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
## 0.27 0.26 0.21 0.1 0.34 0.11 0.63 0.3 0.11
##
## lower alpha upper 95% confidence boundaries
## 0.04 0.27 0.49
##
## Reliability if an item is dropped:
## raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## tying -0.079 -0.079 -0.038 -0.038 -0.073 0.19 NA -0.038
## rpm 0.197 0.199 0.110 0.110 0.248 0.14 NA 0.110
## territory 0.381 0.381 0.235 0.235 0.615 0.11 NA 0.235
##
## Item statistics
## n raw.r std.r r.cor r.drop mean sd
## tying 123 0.73 0.71 0.48 0.254 0.56 0.50
## rpm 123 0.65 0.63 0.29 0.143 0.59 0.49
## territory 123 0.52 0.56 0.10 0.046 0.74 0.44
##
## Non missing response frequency for each item
```

```
##      0  1 miss
## tying  0.44 0.56  0
## rpm    0.41 0.59  0
## territory 0.26 0.74  0
```

## 9.2. Cronbach's alpha: strategies

### #Prospector Strategy

```
strat_1_alpha_1 <- select(strat_1_table_2, prospector_1:prospector_4)
alpha(strat_1_alpha_1)

##
## Reliability analysis
## Call: alpha(x = strat_1_alpha_1)
##
## raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
## 0.82 0.82 0.78 0.54 4.7 0.025 4.7 1.3 0.54
##
## lower alpha upper 95% confidence boundaries
## 0.77 0.82 0.87
##
## Reliability if an item is dropped:
## raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## prospector_1 0.76 0.76 0.69 0.52 3.2 0.036 0.00330 0.51
## prospector_2 0.78 0.78 0.71 0.54 3.5 0.034 0.00658 0.51
## prospector_3 0.75 0.75 0.68 0.51 3.1 0.038 0.00394 0.47
## prospector_4 0.81 0.81 0.75 0.59 4.4 0.029 0.00082 0.58
##
## Item statistics
## n raw.r std.r r.cor r.drop mean sd
## prospector_1 123 0.84 0.83 0.75 0.68 4.7 1.8
## prospector_2 123 0.81 0.81 0.72 0.65 4.9 1.6
## prospector_3 123 0.85 0.84 0.77 0.70 4.2 1.8
## prospector_4 123 0.73 0.76 0.62 0.56 5.2 1.4
##
## Non missing response frequency for each item
## 1 2 3 4 5 6 7 miss
## prospector_1 0.06 0.10 0.08 0.17 0.23 0.20 0.17 0
## prospector_2 0.02 0.08 0.12 0.12 0.22 0.26 0.17 0
## prospector_3 0.07 0.16 0.14 0.13 0.23 0.19 0.09 0
## prospector_4 0.01 0.05 0.07 0.16 0.24 0.29 0.18 0
```

### #Defender Strategy

```
strat_1_alpha_2 <- select(strat_1_table_2, defender_2:defender_3)
alpha(strat_1_alpha_2)

##
## Reliability analysis
## Call: alpha(x = strat_1_alpha_2)
##
## raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
## 0.79 0.79 0.65 0.65 3.8 0.038 6.1 1.1 0.65
##
## lower alpha upper 95% confidence boundaries
## 0.72 0.79 0.86
##
## Reliability if an item is dropped:
## raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## defender_2 0.62 0.65 0.43 0.65 1.9 NA 0 0.65
## defender_3 0.69 0.65 0.43 0.65 1.9 NA 0 0.65
##
## Item statistics
## n raw.r std.r r.cor r.drop mean sd
## defender_2 123 0.90 0.91 0.74 0.65 6.2 1.2
## defender_3 123 0.91 0.91 0.74 0.65 6.0 1.2
##
## Non missing response frequency for each item
## 1 2 3 4 5 6 7 miss
```

```
## defender_2 0.01 0.02 0.02 0.03 0.10 0.28 0.54 0
## defender_3 0.01 0.02 0.00 0.11 0.15 0.27 0.46 0

#Adaptation Strategy
strat_1_alpha_3 <- select(strat_1_table_2, adaptation_1:adaptation_4)
alpha(strat_1_alpha_3)

##
## Reliability analysis
## Call: alpha(x = strat_1_alpha_3)
##
## raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
## 0.79 0.79 0.76 0.49 3.8 0.03 4 1.5 0.52
##
## lower alpha upper 95% confidence boundaries
## 0.73 0.79 0.85
##
## Reliability if an item is dropped:
## raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## adaptation_1 0.77 0.77 0.70 0.53 3.4 0.035 0.00056 0.53
## adaptation_2 0.70 0.70 0.63 0.44 2.4 0.046 0.01133 0.42
## adaptation_3 0.75 0.75 0.67 0.50 3.0 0.039 0.00528 0.51
## adaptation_4 0.74 0.74 0.67 0.48 2.8 0.041 0.01342 0.53
##
## Item statistics
## n raw.r std.r r.cor r.drop mean sd
## adaptation_1 123 0.73 0.74 0.61 0.53 4.5 1.7
## adaptation_2 123 0.83 0.83 0.76 0.67 3.5 2.0
## adaptation_3 123 0.78 0.78 0.67 0.59 4.0 1.9
## adaptation_4 123 0.79 0.79 0.69 0.61 4.0 1.9
##
## Non missing response frequency for each item
## 1 2 3 4 5 6 7 miss
## adaptation_1 0.05 0.14 0.08 0.16 0.21 0.25 0.11 0
## adaptation_2 0.18 0.27 0.08 0.13 0.13 0.15 0.07 0
## adaptation_3 0.14 0.15 0.08 0.17 0.20 0.18 0.08 0
## adaptation_4 0.13 0.15 0.08 0.20 0.18 0.18 0.07 0
```

### 9.3. Cronbach's alpha: control variables

```
#Environmental Uncertainty
contr_var_alpha_1 <- select(contr_var_table_2, env_uncert_1, env_uncert_2, env_uncert_5)
alpha(contr_var_alpha_1)

##
## Reliability analysis
## Call: alpha(x = contr_var_alpha_1)
##
## raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
## 0.68 0.68 0.62 0.41 2.1 0.048 3.8 1.3 0.32
##
## lower alpha upper 95% confidence boundaries
## 0.59 0.68 0.78
##
## Reliability if an item is dropped:
## raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## env_uncert_1 0.48 0.49 0.32 0.32 0.96 0.092 NA 0.32
## env_uncert_2 0.46 0.46 0.30 0.30 0.85 0.097 NA 0.30
## env_uncert_5 0.76 0.76 0.61 0.61 3.18 0.043 NA 0.61
##
## Item statistics
## n raw.r std.r r.cor r.drop mean sd
## env_uncert_1 123 0.83 0.82 0.71 0.58 3.7 1.7
## env_uncert_2 123 0.85 0.83 0.73 0.59 4.2 1.7
## env_uncert_5 123 0.66 0.69 0.40 0.35 3.4 1.4
##
## Non missing response frequency for each item
## 1 2 3 4 5 6 7 miss
## env_uncert_1 0.07 0.23 0.21 0.16 0.15 0.12 0.05 0
```

```

## env_uncert_2 0.02 0.20 0.17 0.16 0.14 0.21 0.10 0
## env_uncert_5 0.05 0.30 0.17 0.27 0.11 0.09 0.02 0

#Behavioral Uncertainty
contr_var_alpha_2 <- select(contr_var_table_2, behavior_uncert_1:behavior_uncert_3)
alpha(contr_var_alpha_2)

##
## Reliability analysis
## Call: alpha(x = contr_var_alpha_2)
##
## raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
## 0.75 0.75 0.67 0.5 3 0.039 3.6 1.3 0.49
##
## lower alpha upper 95% confidence boundaries
## 0.67 0.75 0.82
##
## Reliability if an item is dropped:
## raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r
## behavior_uncert_1 0.65 0.66 0.49 0.49 1.9 0.062 NA
## behavior_uncert_2 0.65 0.65 0.49 0.49 1.9 0.062 NA
## behavior_uncert_3 0.68 0.68 0.52 0.52 2.2 0.057 NA
## med.r
## behavior_uncert_1 0.49
## behavior_uncert_2 0.49
## behavior_uncert_3 0.52
##
## Item statistics
## n raw.r std.r r.cor r.drop mean sd
## behavior_uncert_1 123 0.81 0.82 0.67 0.58 4.5 1.4
## behavior_uncert_2 123 0.84 0.82 0.68 0.59 3.1 1.7
## behavior_uncert_3 123 0.80 0.81 0.65 0.56 3.3 1.5
##
## Non missing response frequency for each item
## 1 2 3 4 5 6 7 miss
## behavior_uncert_1 0.00 0.11 0.15 0.20 0.27 0.19 0.07 0
## behavior_uncert_2 0.17 0.31 0.18 0.12 0.10 0.09 0.03 0
## behavior_uncert_3 0.08 0.28 0.19 0.24 0.12 0.07 0.02 0

#Trust
contr_var_alpha_3 <- select(contr_var_table_2, trust_1:trust_4)
alpha(contr_var_alpha_3)

##
## Reliability analysis
## Call: alpha(x = contr_var_alpha_3)
##
## raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
## 0.91 0.92 0.9 0.73 11 0.013 5.7 1.1 0.73
##
## lower alpha upper 95% confidence boundaries
## 0.88 0.91 0.94
##
## Reliability if an item is dropped:
## raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## trust_1 0.88 0.88 0.84 0.71 7.4 0.019 0.0052 0.70
## trust_2 0.87 0.88 0.83 0.71 7.3 0.020 0.0034 0.70
## trust_3 0.92 0.92 0.89 0.80 11.9 0.013 0.0012 0.79
## trust_4 0.87 0.88 0.85 0.71 7.5 0.021 0.0118 0.65
##
## Item statistics
## n raw.r std.r r.cor r.drop mean sd
## trust_1 123 0.90 0.91 0.88 0.83 5.7 1.1
## trust_2 123 0.91 0.92 0.89 0.84 5.7 1.2
## trust_3 123 0.85 0.84 0.74 0.72 5.3 1.4
## trust_4 123 0.91 0.91 0.87 0.84 6.0 1.3
##
## Non missing response frequency for each item

```



```
##      1  2  3  4  5  6  7 miss
## trust_1 0.01 0.02 0.03 0.06 0.20 0.47 0.21 0
## trust_2 0.02 0.02 0.02 0.04 0.30 0.37 0.24 0
## trust_3 0.02 0.05 0.03 0.15 0.22 0.31 0.22 0
## trust_4 0.03 0.00 0.01 0.07 0.15 0.31 0.43 0
```

## 10. Dataset for further Analysis

```
data_reg <-
  mutate(data_thesis,

    #Strategies
    defender = (defender_2 + defender_3)/2,

    prospector = (prospector_1 + prospector_2 + prospector_3 + prospector_4)/4,

    adaptation = (adaptation_1 + adaptation_2 + adaptation_3 + adaptation_4)/4,

    #Control Variables
    environmental_uncertainty = (env_uncert_1 + env_uncert_2 + env_uncert_5)/3,

    behavioral_uncertainty = (behavior_uncert_1 + behavior_uncert_2 +
                             behavior_uncert_3)/3,

    trust = (trust_1 + trust_2 + trust_3 + trust_4)/4) %>%

  select(tying, territory, rpm, defender, prospector, adaptation,
         environmental_uncertainty, age, behavioral_uncertainty, trust) %>%
  rename("environmental_uncertainty" = environmental_uncertainty)
```

## 11. Correlations

### 11.1. Tetrachoric correlation: contractual restraints

```
tetrachoric_cor <- tetrachoric(data_restraints)
tetrachoric_cor
## Call: tetrachoric(x = data_restraints)
## tetrachoric correlation
##      tying rpm trrtr
## tying    1.00
## rpm      0.36 1.00
## territory 0.19 -0.07 1.00
##
## with tau of
## tying    rpm territory
## -0.15   -0.24  -0.64
```

### 11.2. Pearson correlation matrix

```
cor_data <- select(data_reg, adaptation, defender, prospector, age, behavioral_uncertainty,
                  environmental_uncertainty, trust)

cor_matrix <- as.data.frame(round(cor(cor_data, method = "pearson"), 2))
cor_matrix
```

##	adaptation	defender	prospector	age	
## adaptation	1.00	0.10	0.22	-0.14	-0.04
## defender	0.10	1.00	0.40	-0.03	-0.06
## prospector	0.22	0.40	1.00	0.21	-0.14
## age	-0.04	-0.06	-0.14	1.00	
## behavioral_uncertainty	0.20	-0.03	-0.03	0.01	-0.10
## environmental_uncertainty	0.02	-0.07	0.21	0.08	
## trust	0.17	0.39	0.30	0.01	
##					
##	behavioral_uncertainty		environmental_uncertainty		

```
## adaptation          0.20          0.02
## defender            -0.03         -0.07
## prospector          -0.03         0.21
## age                 -0.10         0.08
## behavioral_uncertainty 1.00         0.05
## environmental_uncertainty 0.05        1.00
## trust               -0.22        -0.16
##
##
## adaptation          0.17
## defender            0.39
## prospector          0.30
## age                 0.01
## behavioral_uncertainty -0.22
## environmental_uncertainty -0.16
## trust               1.00
```

## 12. Probit regression

### 12.1. Probit regression: adaptation strategy

```
#Tying
reg_tying_1 <-
  glm(tying ~ adaptation + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_tying_1)

##
## Call:
## glm(formula = tying ~ adaptation + age + behavioral_uncertainty +
##   environmental_uncertainty + trust, family = binomial(link = "probit"),
##   data = data_reg)
##
## Deviance Residuals:
##   Min       1Q   Median       3Q      Max
## -1.9853 -1.1708  0.6496  1.0732  1.7037
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)   -0.103110    0.915040  -0.113   0.9103
## adaptation    -0.223929    0.087155  -2.569   0.0102 *
## age           -0.009615    0.009620  -0.999   0.3176
## behavioral_uncertainty  0.040084    0.100251   0.400   0.6893
## environmental_uncertainty  0.209395    0.096679   2.166   0.0303 *
## trust          0.068424    0.113648   0.602   0.5471
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 168.68  on 122  degrees of freedom
## Residual deviance: 157.31  on 117  degrees of freedom
## AIC: 169.31
##
## Number of Fisher Scoring iterations: 4

#RPM
reg_rpm_1 <-
  glm(rpm ~ adaptation + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_rpm_1)

##
## Call:
## glm(formula = rpm ~ adaptation + age + behavioral_uncertainty +
##   environmental_uncertainty + trust, family = binomial(link = "probit"),
##   data = data_reg)
```

```
##
## Deviance Residuals:
##   Min     1Q   Median     3Q      Max
## -1.698 -1.262  0.855  1.013  1.388
##
## Coefficients:
##              Estimate      Std. Error    z value    Pr(>|z|)
## (Intercept)    0.166365    0.896889     0.185     0.853
## adaptation    -0.016918    0.083733    -0.202     0.840
## age           -0.015775    0.009709    -1.625     0.104
## behavioral_uncertainty -0.084827    0.099226    -0.855     0.393
## environmental_uncertainty 0.155583    0.095046     1.637     0.102
## trust         0.022429    0.109791     0.204     0.838
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 166.19  on 122  degrees of freedom
## Residual deviance: 160.82  on 117  degrees of freedom
## AIC: 172.82
##
## Number of Fisher Scoring iterations: 4

#Territory
reg_territory_1 <-
  glm(territory ~ adaptation + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_territory_1)

##
## Call:
## glm(formula = territory ~ adaptation + age + behavioral_uncertainty +
##   environmental_uncertainty + trust, family = binomial(link = "probit"),
##   data = data_reg)
##
## Deviance Residuals:
##   Min     1Q   Median     3Q      Max
## -2.5052 -1.0572  0.6621  0.8137  1.1635
##
## Coefficients:
##              Estimate      Std. Error    z value    Pr(>|z|)
## (Intercept)    2.932159    1.069793     2.741    0.00613 **
## adaptation    -0.049969    0.092027    -0.543    0.58714
## age           -0.015761    0.009631    -1.636    0.10174
## behavioral_uncertainty -0.034728    0.105590    -0.329    0.74223
## environmental_uncertainty -0.110275    0.102027    -1.081    0.27977
## trust        -0.221746    0.137377    -1.614    0.10650
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 141.01  on 122  degrees of freedom
## Residual deviance: 133.18  on 117  degrees of freedom
## AIC: 145.18
##
## Number of Fisher Scoring iterations: 5

#Variance Inflation Factor
vif(reg_lying_1)

##          adaptation          age behavioral_uncertainty
##          1.124857          1.031979          1.135421
## environmental_uncertainty          trust
##          1.057073          1.135447

vif(reg_rpm_1)
```

```
##      adaptation      age behavioral_uncertainty
##      1.104740      1.037462      1.141880
## environmental_uncertainty      trust
##      1.050592      1.141700

vif(reg_territory_1)

##      adaptation      age behavioral_uncertainty
##      1.110969      1.018744      1.115786
## environmental_uncertainty      trust
##      1.032945      1.143849

#Regression Output
stargazer(reg_tying_1,
  reg_rpm_1,
  reg_territory_1,
  type = "text", dep.var.labels = c("Tying", "RPM", "Territory"),
  out = "regression_adaptation.htm", digits = 2)

##
## =====
##              Dependent variable:
##              -----
##              Tying    RPM    Territory
##              (1)      (2)      (3)
## -----
## adaptation      -0.22** -0.02  -0.05
##                  (0.09) (0.08) (0.09)
##
## age             -0.01  -0.02  -0.02
##                  (0.01) (0.01) (0.01)
##
## behavioral_      0.04  -0.08  -0.03
## uncertainty      (0.10) (0.10) (0.11)
##
## environmental_   0.21**  0.16  -0.11
## uncertainty      (0.10) (0.10) (0.10)
##
## trust            0.07   0.02  -0.22
##                  (0.11) (0.11) (0.14)
##
## Constant         -0.10   0.17  2.93***
##                  (0.92) (0.90) (1.07)
##
## -----
## Observations      123     123     123
## Log Likelihood    -78.66 -80.41 -66.59
## Akaike Inf. Crit. 169.31 172.82 145.18
## =====
## Note:              *p<0.1; **p<0.05; ***p<0.01
```

## 12.2. Probit regression: defender strategy

```
#Tying
reg_tying_2 <-
  glm(tying ~ defender + age + behavioral_uncertainty + environmental_uncertainty + trust,
    data = data_reg, family = binomial(link = "probit"))

summary(reg_tying_2)

##
## Call:
## glm(formula = tying ~ defender + age + behavioral_uncertainty +
##      environmental_uncertainty + trust, family = binomial(link = "probit"),
##      data = data_reg)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6998 -1.2047  0.8459  1.0777  1.3852
```

```
##
## Coefficients:
##               Estimate   Std. Error   z value   Pr(>|z|)
## (Intercept)    -0.102003    0.999542   -0.102    0.9187
## defender       -0.056434    0.118005   -0.478    0.6325
## age            -0.008424    0.009311   -0.905    0.3656
## behavioral_uncertainty -0.022500    0.095251   -0.236    0.8133
## environmental_uncertainty 0.185552    0.094099    1.972    0.0486 *
## trust          0.022307    0.115154    0.194    0.8464
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 168.68  on 122  degrees of freedom
## Residual deviance: 163.86  on 117  degrees of freedom
## AIC: 175.86
##
## Number of Fisher Scoring iterations: 4

#RPM
reg_rpm_2 <-
  glm(rpm ~ defender + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_rpm_2)

##
## Call:
## glm(formula = rpm ~ defender + age + behavioral_uncertainty +
##   environmental_uncertainty + trust, family = binomial(link = "probit"),
##   data = data_reg)
##
## Deviance Residuals:
##   Min       1Q   Median       3Q      Max
## -1.7776 -1.2371  0.7957  1.0054  1.4466
##
## Coefficients:
##               Estimate   Std. Error   z value   Pr(>|z|)
## (Intercept)    0.474588    1.008361    0.471    0.6379
## defender       -0.083412    0.119597   -0.697    0.4855
## age            -0.015871    0.009617   -1.650    0.0989 .
## behavioral_uncertainty -0.085529    0.096319   -0.888    0.3746
## environmental_uncertainty 0.154074    0.094912    1.623    0.1045
## trust          0.048180    0.116019    0.415    0.6779
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 166.19  on 122  degrees of freedom
## Residual deviance: 160.34  on 117  degrees of freedom
## AIC: 172.34
##
## Number of Fisher Scoring iterations: 4

#Territory
reg_territory_2 <-
  glm(territory ~ defender + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_territory_2)

##
## Call:
## glm(formula = territory ~ defender + age + behavioral_uncertainty +
##   environmental_uncertainty + trust, family = binomial(link = "probit"),
##   data = data_reg)
##
```

```
## Deviance Residuals:
##   Min     1Q   Median     3Q      Max
## -2.4988 -1.1147  0.6514  0.8098  1.2312
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    2.74346    1.17851   2.328  0.0199 *
## defender        0.04637    0.12536   0.370  0.7114
## age            -0.01555    0.00966  -1.610  0.1075
## behavioral_uncertainty -0.05110    0.10273  -0.497  0.6189
## environmental_uncertainty -0.11565    0.10150  -1.139  0.2545
## trust          -0.25989    0.14180  -1.833  0.0668 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 141.01  on 122  degrees of freedom
## Residual deviance: 133.33  on 117  degrees of freedom
## AIC: 145.33
##
## Number of Fisher Scoring iterations: 5

#Variance Inflation Factor
vif(reg_tying_2)

##           defender           age behavioral_uncertainty
##           1.181304           1.025195           1.071163
## environmental_uncertainty           trust
##           1.037092           1.266788

vif(reg_rpm_2)

##           defender           age behavioral_uncertainty
##           1.178749           1.034336           1.077162
## environmental_uncertainty           trust
##           1.043265           1.264918

vif(reg_territory_2)

##           defender           age behavioral_uncertainty
##           1.138342           1.023287           1.054033
## environmental_uncertainty           trust
##           1.031161           1.205548

#Regression Output
stargazer(reg_tying_2,
  reg_rpm_2,
  reg_territory_2,
  type = "text", dep.var.labels = c("Tying", "RPM", "Territory"),
  out = "regression_defender.htm", digits = 2)

##
## =====
##               Dependent variable:
##               -----
##               Tying   RPM   Territory
##               (1)   (2)   (3)
## -----
## defender      -0.06  -0.08   0.05
##                (0.12) (0.12) (0.13)
##
## age           -0.01  -0.02*  -0.02
##                (0.01) (0.01) (0.01)
##
## behavioral_    -0.02  -0.09  -0.05
## uncertainty    (0.10) (0.10) (0.10)
##
## environmental_ 0.19**   0.15  -0.12
```

```
## uncertainty      (0.09) (0.09) (0.10)
##
## trust            0.02  0.05 -0.26*
##                  (0.12) (0.12) (0.14)
##
## Constant        -0.10  0.47  2.74**
##                  (1.00) (1.01) (1.18)
##
## -----
## Observations    123    123    123
## Log Likelihood  -81.93 -80.17 -66.67
## Akaike Inf. Crit. 175.86 172.34 145.33
## =====
## Note:           *p<0.1; **p<0.05; ***p<0.01
```

### 12.3. Probit regression: prospector strategy

```
#Tying
reg_tying_3 <-
  glm(tying ~ prospector + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_tying_3)

##
## Call:
## glm(formula = tying ~ prospector + age + behavioral_uncertainty +
##      environmental_uncertainty + trust, family = binomial(link = "probit"),
##      data = data_reg)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6951 -1.1949  0.8371  1.0628  1.3906
##
## Coefficients:
##              Estimate      Std. Error    z value    Pr(>|z|)
## (Intercept)   -0.176233     0.902252    -0.195     0.8451
## prospector    -0.088318     0.095625    -0.924     0.3557
## age           -0.009771     0.009531    -1.025     0.3053
## behavioral_uncertainty -0.023213     0.095202    -0.244     0.8074
## environmental_uncertainty 0.211401     0.098665     2.143     0.0321 *
## trust         0.035570     0.112997     0.315     0.7529
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 168.68 on 122 degrees of freedom
## Residual deviance: 163.22 on 117 degrees of freedom
## AIC: 175.22
##
## Number of Fisher Scoring iterations: 4

#RPM
reg_rpm_3 <-
  glm(rpm ~ prospector + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_rpm_3)

##
## Call:
## glm(formula = rpm ~ prospector + age + behavioral_uncertainty +
##      environmental_uncertainty + trust, family = binomial(link = "probit"),
##      data = data_reg)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.7311 -1.2573  0.8396  1.0123  1.3619
```

```
##
## Coefficients:
##               Estimate      Std. Error    z value    Pr(>|z|)
## (Intercept)      0.212260      0.905634      0.234      0.8147
## prospector      -0.036051      0.095682     -0.377      0.7063
## age             -0.016356      0.009881     -1.655      0.0979 .
## behavioral_uncertainty -0.089758      0.096276     -0.932      0.3512
## environmental_uncertainty 0.165038      0.099107      1.665      0.0959 .
## trust           0.031158      0.113438      0.275      0.7836
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 166.19  on 122  degrees of freedom
## Residual deviance: 160.71  on 117  degrees of freedom
## AIC: 172.71
##
## Number of Fisher Scoring iterations: 4

#Territory
reg_territory_3 <-
  glm(territory ~ prospector + age + behavioral_uncertainty + environmental_uncertainty + trust,
      data = data_reg, family = binomial(link = "probit"))

summary(reg_territory_3)

##
## Call:
## glm(formula = territory ~ prospector + age + behavioral_uncertainty +
##   environmental_uncertainty + trust, family = binomial(link = "probit"),
##   data = data_reg)
##
## Deviance Residuals:
##   Min       1Q   Median       3Q      Max
## -2.4848 -0.9794  0.6117  0.8088  1.3494
##
## Coefficients:
##               Estimate      Std. Error    z value    Pr(>|z|)
## (Intercept)      3.335163      1.121630      2.973      0.00294 **
## prospector      -0.190813      0.109959     -1.735      0.08268 .
## age             -0.019395      0.009965     -1.946      0.05162 .
## behavioral_uncertainty -0.039343      0.103676     -0.379      0.70433
## environmental_uncertainty -0.062380      0.106352     -0.587      0.55751
## trust           -0.183045      0.141912     -1.290      0.19710
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##   Null deviance: 141.01  on 122  degrees of freedom
## Residual deviance: 130.37  on 117  degrees of freedom
## AIC: 142.37
##
## Number of Fisher Scoring iterations: 5

#Variance Inflation Factor
vif(reg_lying_3)

##      prospector      age behavioral_uncertainty
##      1.222999      1.057423      1.068511
## environmental_uncertainty      trust
##      1.139245      1.219665

vif(reg_rpm_3)

##      prospector      age behavioral_uncertainty
##      1.216333      1.071694      1.075506
```



```
## environmental_uncertainty      trust
##          1.142089          1.220567

vif(reg_territory_3)

##          prospector          age behavioral_uncertainty
##          1.171092          1.076343          1.052209
## environmental_uncertainty      trust
##          1.093913          1.120887

#Regression Output
stargazer(reg_tying_3,
  reg_rpm_3,
  reg_territory_3,
  type = "text", dep.var.labels = c("Tying", "RPM", "Territory"),
  out = "regression_prospector.htm", digits = 2)

##
## =====
##          Dependent variable:
##          -----
##          Tying   RPM   Territory
##          (1)   (2)   (3)
## -----
## prospector    -0.09  -0.04  -0.19*
##                (0.10) (0.10) (0.11)
##
## age           -0.01  -0.02* -0.02*
##                (0.01) (0.01) (0.01)
##
## behavioral_    -0.02  -0.09  -0.04
## uncertainty    (0.10) (0.10) (0.10)
##
## environmental_ 0.21**  0.17*  -0.06
## uncertainty    (0.10) (0.10) (0.11)
##
## trust          0.04   0.03  -0.18
##                (0.11) (0.11) (0.14)
##
## Constant      -0.18  0.21  3.34***
##                (0.90) (0.91) (1.12)
##
## -----
## Observations   123    123    123
## Log Likelihood -81.61 -80.36 -65.19
## Akaike Inf. Crit. 175.22 172.71 142.37
## =====
## Note:          *p<0.1; **p<0.05; ***p<0.01
```

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