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## „Hidden Champions in China: Empirical differences between Chinese Hidden Champions and Chinese Non-Hidden Champions "


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## List of Abbreviations

| | |
|---|---|
| BSC | Balanced Scorecard |
| CAGR | Compound annual growth rate |
| CEE | Central and Eastern Europe |
| CEO | Chief Executive Officer |
| CMD | Chinese Managing Directors (data set) |
| CVF | Competing Values Framework |
| EQR | Equity ratio |
| FCE | Financials of Chinese enterprises (data set) |
| GDP | Gross domestic product |
| GML | Global Market Leader (data set) |
| HC | Hidden Champion |
| ICC | Industrial City Cluster (data set) |
| KPI | Key performance indicator |
| NHC | Non-Hidden Champion |
| NPC | National People`s Congress |
| NPCD | National People`s Congress Delegates (data set) |
| PIMS | Profit Impact of Market Strategies |
| RCA | Relative competitive advantage |
| R&D | Research and Development |
| ROE | Return on equity |
| SEZ | Special economic zones |
| SME | Small and medium-sized enterprises |
| VCM | Value Chain Model |

# 1. Introduction

> “In any jungle, the big beasts get the attention. But in business, just as in the natural world, it’s the thousands of smaller beings that make for a thriving ecosystem.” (Sultan, 2019, para. 1)

The quote taken from an article published by the Financial Times illustrates the impact that small and medium-sized enterprises (SME) have on the world economy. Despite their relatively small size, these companies represent the economic engine of many economies and account for "95 percent of all businesses" (Sultan, 2019, para. 2) (see also BMWI, 2019).

Moreover, SMEs play an essential role in fostering economic growth, resulting in a higher gross domestic product (GDP), by creating new jobs (BMWI, 2019; Tewari et al. 2013; de Wit & de Kok, 2014). Regarding emerging economies, studies show that SMEs can help to offset income inequalities (Ayanda & Laraba, 2011) and “yet management research, teaching, and literature persist in focusing on large, well-known companies” (Simon, 2009, p. XV) rather than on SMEs.

According to the China Association for Small & Medium Commercial Enterprises (CASME), the number of SMEs in China amounts to almost 27 million at the end of 2017. As such, SMEs are not only the largest group of companies in terms of share but also account for more than 60 percent of China's gross domestic product, 80 percent of the total workforce, and 50 percent of national tax revenues (CASME, 2018). The impact of SMEs on the national economy in China is thus at a similar level as in Germany and Austria, where SMEs traditionally form the backbone of the economy (BMDW, 2018; BMWI, 2019).

In this consensus, the relevance of SMEs as the economic engine of a country is assumed to be independent of the national context. Nonetheless, their competitiveness represents a prerequisite. The research area that deals with the development of Chinese SMEs and drivers of their competitiveness is already broadly covered. In connection with the drivers of competitiveness of SMEs, the model of so-called Hidden Champions (HC) by the German marketing expert Hermann Simon can be found in management literature. The model aims to explain the success factors of outperforming businesses, using general theories on competitive advantages of firms (Simon, 1996, 2007, 2009).

Within this context, Simon narrows down the term "SME" and coins the remaining group of extraordinarily successful but often unknown companies as "Hidden Champions" (Simon, 2009, p. XIV). To name just a few examples: Mcllhenny, the market leader for Tabasco sauce, Technogym, the market leader for gym equipment and Gerriets, the market leader for stage equipment (Simon, 2009).

Although this model is widely accepted in Germany and Austria, it is not yet clear, as other researchers point out, whether the model "can be successfully transferred to other countries" (Schlepphorst et al., 2016, p. 2). Despite high international interest in this question, the relevant research is still scarce, and research covering HCs tends to focus more on the Western business world. In addition, most studies focus on qualitative approaches rather than providing quantitative evidence on the determinants of HCs (Schlepphorst et al., 2016).

According to estimations, more than 1,300 HCs exist in Germany, the corresponding number for China amounts to more than 68 HCs in 2016 (Simon, 2016). Taken into account the steady annual growth rate of the Chinese economy over the past years, this estimation is likely to have been increased by 2020 substantially. The challenge in dealing with HCs in China is to take fundamental market structural differences as well as differences related to cultural and social norms into account that do not easily allow a simple transfer of Simon's German model (Lei & Wu, 2020).

For this reason, this study aims to investigate whether the model of HCs can be transferred to the Chinese economic area, how it differs from the German model, and to investigate by which factors Chinese Hidden Champions differ from Chinese Non-Hidden Champions (NHC). For this purpose, an empirical study is conducted in Chapter 5, which provides information on the factors that influence the probability of being an HC in China, using a logistic regression model. Understanding the drivers of HC's outperformance in China will allow large multinationals and small enterprises, covered by the term NHC, to learn from HCs. The lessons taught by them can help other companies to improve their performance by adapting their corporate strategy accordingly (Simon, 2009).

Moreover, an adequate understanding of the determinants of HCs in China is equally important for the Chinese policymaker. As Schlepphorst et al. state:

> "Policy makers in all countries that intend to foster growth and internationalisation of their domestic companies are advised to establish a well-structured and coordinated infrastructure which provides (growth-oriented) companies with targeted assistance." (2016, p.16)

Only if the key drivers of success are ascertained, is it possible to develop and implement appropriate infrastructure-related measures in order to promote such companies. From this, implications and recommendations for political and economic activity can be derived that go beyond previous projects, such as the setting-up of new and the development of existing industrial clusters. Reforms, as a result, might contribute to the future growth of the Chinese economy as a whole (Schlepphorst et al., 2016).

In this context, the following research question is derived:

**"How do Chinese Hidden Champions differ from Chinese Non-Hidden Champions?"**

After introducing the research topic and underlining its relevance in Chapter 1, prior research will be summarized in Chapter 2. Chapter 2.1 will preliminarily focus on theories of Chinese SMEs, clarifying which factors determine the development of those companies in China and which factors are key drivers of competitive advantages. After that, Chapter 2.2 will deal with the theoretical framework of HCs developed by Simon, clarifying which factors determine the development of HCs in European countries. The theoretical part of the paper is concluded with the most relevant frameworks of business strategies and key performance indicators (KPI) to assess organizational performance in Chapter 2.3.

Based on this theoretical groundwork, a conceptual model followed by research hypotheses will be generated to answer the research question. Following the hypothesis generation in Chapter 3, the methodological approach and the sample will be outlined in Chapter 4. Thereon, findings are presented in Chapter 5 and discussed in detail in Chapter 6. The paper concludes with limitations and an outlook for further research in Chapter 7.

# 2. Theoretical frameworks

## 2.1. Theories on Chinese SMEs

After a brief introduction to the topic and its relevance, the following Chapter 2.1 contains theories on the development and competitiveness of Chinese SMEs. These theories form the first part of the theoretical groundwork on which the hypotheses of the present study will be based.

### 2.1.1. Evolution of Chinese SMEs

According to Li and Chen, the historical development of SMEs in China can be divided into three distinct phases. The first phase covers the time from 1978 to 1992 and is characterized by an initial expansion of SMEs as a result of government encouragement and the systematic promotion of townships, collective and self-employed enterprises empowered by the former president Deng Xiaoping (Coase and Wang, 2013; Li & Chen, 2006; Liu, 2008).

Political reforms characterize the second phase from 1992 to 2002. These reforms pursued the goal of establishing a socialist market economy by gradually reducing the impact of the state towards SME governance. As part of this step, state-owned SMEs were restructured, merged, and partially or fully privatized while the non-public sector was further expanded as well (Li & Chen, 2006). For Coase and Wang, the reduction of state interference was likewise a key factor for "the success of Chinese market transformation" (2013, p. 144).

The third phase, which is still in effect today, started in 2002. The SME promotion law, which was passed in 2002, had a positive impact on the speed of development of township enterprises (SMEs). Additionally, in the wake of new legislative reforms like the SME growth project in 2006, a change in the mindset of the population and their attitude towards the importance of non-state-owned businesses occurred (Li & Chen, 2006; Liu, 2008).

In order to describe this evolution of SMEs in China in the 20th century, the model of bottom-up capitalism developed by Nee and Opper, as illustrated in Figure 1: Bottom-up approach to the development of Chinese capitalism1 can be applied.

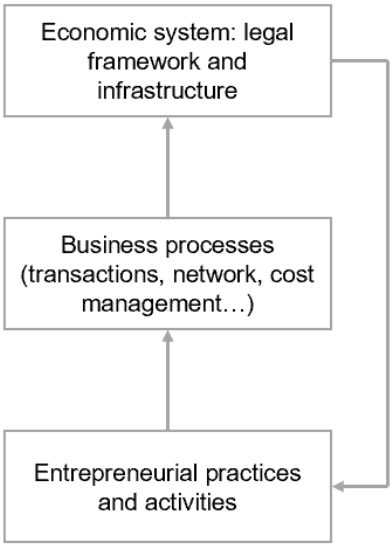


Figure 1: Bottom-up approach to the development of Chinese capitalism. Own illustration based on Nee and Opper, 2012.

Nee and Opper (2012) describe in their model that the developments of the Chinese economy, implying the development of SMEs, initially based on entrepreneurial practices and activities. Figure 1 illustrates this relationship. Based on entrepreneurial initiatives, a new status quo of business processes was established, which was eventually transferred by the policymaker into infrastructure and a legal framework (see also Coase & Wang, 2013). The so-formed institutional framework subsequently serves as an additional boost for further entrepreneurial action. The following quote from by Nee and Opper underlines this causal relationship:

> "While we agree that politicians played an important role in initiating the shift to market allocation, we argue that the rise of capitalist economic institutions rests on bottom-up entrepreneurial action. Informal economic arrangements enabling, motivating, and guiding start-up firms provided the institutional foundations of China's emergent capitalist economic order." (2012, p. 8)

While the first three phases were characterized by continuous growth, the growth rate of the Chinese economy is currently flattening out. Numbers published by the World Bank (2020) show a decline in GDP growth rate from 10.64 percent in 2010 to 6.57 percent in 2018. As a result, maintaining the competitiveness of Chinese companies becomes a challenge. According to Gan Lin, deputy chief of

the State Administration for Market Regulation, China is in a critical phase (Xinhua News Agency, 2019). In the light of these developments, scholars argue that appropriate measures are required to ensure that Chinese SMEs, in their role of economic engines, remain competitive on a global scale in the future (Yan, 2015).

### 2.1.2. Key drivers of competitive advantages of Chinese SMEs

Having outlined the development process of Chinese SMEs in the previous chapter, the following section will focus on specific business factors that drive competitive advantages of Chinese SMEs. A differentiation between external and internal business drivers will be made.

#### 2.1.2.1. External drivers

External drivers focus primarily on major government policies. As briefly outlined in Chapter 2.1.1, these policies include reforms that aim to limit the state's influence on SMEs but also target the taxation system and the establishment as well as the further development of industrial and free trade zones. The legal framework for such policies in China is usually formulated and enacted at the central level. The financial configuration of these policies is, however, carried out at the local level (Heinrich, 2016).

Two major regulatory policy programs following China's accession to the global market in 2001 included the enactment of the SME Promotion Law in 2002 and the release of various SME-related documents by the General Office of State Council in 2005. Both contributed significantly to an improvement in the regulatory environment for SMEs and accelerated the legislative process (Li & Chen, 2006; Liu, 2008; SCNPC, 2002).

Regarding fiscal policies, the foundation of various development funds by the Chinese Ministry of Finance from 1999 onwards likewise made a significant contribution to the development of SMEs in China. These funds include the Innovation Fund for Technology-Based SMEs, the Commercialization Fund for Agricultural Research Findings, and further funds promoting international market exploitation and business specialization (Li & Chen, 2006; Liu, 2008).

Governmental programs intended to guarantee the financing of SMEs served as another external driver. Resulting from government's insistence, financial institutions were obliged to improve the financing environment for SMEs by easing the "terms of enhanced credit and direct financing channels" (Liu, 2008, p. 44). Moreover, the access for small businesses to venture capital was simplified (Li & Chen, 2006; Liu, 2008).

Central levers within the scope of taxation policies were a number of tax relief measures for SMEs. These include a reduction of income tax for small enterprises from 33 percent to 18 percent (resp. 27 percent) depending on their annual profit (Li & Chen, 2006). Furthermore, tax reliefs were used as incentives to encourage companies to employ more local workers. Lastly, there were various sector-related tax relief schemes (Li & Chen, 2006; Liu, 2008; Yan, 2015).

As a last relevant external driver in terms of SME competitiveness in China, the establishment and further development of industrial parks and special economic zones (SEZ) have to be considered. Starting with the first SEZs in Shenzhen, Zhuhai, Shantou, and Xiamen in 1979, these cities quickly became examples of a successful transition to Chinese market economy by attracting new foreign investors (Coase & Wang, 2013).

In addition, the geographical proximity of industry-related companies enabled enhanced exploitation of the value chain, improved cooperation between members of the respective zones, and improved information exchange (Liu, 2008). As mentioned by Nee and Opper (2012), industrial clusters highly contribute to productivity related advantages by decreasing costs of transportation. According to reports published by the World Bank, the number of industrial parks in China in 2019 amounts to 2,543 and the number of SEZs to 6 in 2015 (China Development Bank, 2015; Piatkowski et al., 2019).

#### 2.1.2.2. Internal drivers

In addition to external drivers, the competitiveness of Chinese SMEs is also determined by internal drivers. Similar to external drivers, the factors below are China-specific, and differ to some extent from the business status quo in the West. The following drivers can be divided into four subgroups, namely: network, social

norms, cost management, and firm governance. Nonetheless, these factors are not exclusive.

Particular importance is attached to the subgroup “network”. In China, unlike in the Western Economic Area, network and social capital are of considerably higher relevance when it comes to the competitiveness of a company. In Chinese language use, the factor “network” is also called “guanxi” (关系). The term is formally defined as the “existence of direct particularistic ties between one or more individuals“ (Berrell et al., 2009, p. 61) and „implies social obligation and the solicitation of special favours” (Chang, 2011, p. 315) (see also Guthrie et al., 2002).

Guanxi also includes relationship management. According to scholars, the difference between China and the West is that Western economies more likely focus on formal and information-based procedures whereas Guanxi refers to more informal mechanisms (Berrell et al., 2009; Li & Gibb, 2006). Reasons for the fact that Guanxi plays a more significant role in China than in the West are mainly rooted in a higher level of information uncertainty. Furthermore, a stable network and strong business friendships help to simplify the successful use of downstream distribution networks (Nee & Opper, 2012).

The second internal driver covers social norms. Social norms can encompass the reputation of a company or an entrepreneur. The perception of one's own business by others provides a base for future business development. Moreover, social norms can replace legal litigations in a state like China, where the rule of law is only partially effective (Berrell et al., 2009; Nee & Opper, 2012).

Additionally, a study conducted by Truex (2014) shows that a seat of a Chief Executive Officer (CEO) in the National People’s Congress (NPC) positively influences the reputation of the respective firm, which in turn contributes to increased financial business performance. It should be mentioned that social norms cannot be clearly distinguished from network as they are interconnected.

A third internal driver refers to cost management within Chinese SMEs. It is characterized by minimized production and transaction costs resulting in price advantages (Berrell et al., 2009; Coase & Wang, 2013). These price advantages are evident, for instance, in the textile and footwear manufacturing

sector. To illustrate this example, the indicator of "revealed competitive advantage" (RCA) by the World Bank can be used. The RCA serves as a measure to describe the trade position of an economy over time. The higher the RCA above unity, the more competitive is the sector (Welfens, 2011).

The respective RCAs of the textile and footwear sectors amount to 2.10 and 2.63 in 2020 and imply a relatively high competitiveness of both sectors. Reasons for the relatively higher level of sector competitiveness lies in efficient cost management and better economies of scale (United Nations Statistics Division, 2018; Welfens, 2011).

A similar picture of cost-efficiency can be found in the manufacturing sector, a sector which is also of great importance for this thesis. Statistics published by the Beijing Axis Institute show that companies in the categories of Mechanical-, Electrical-, and Material Handling Equipment as well as Ore Dressing Machinery, and Steel Vessels and Structures consistently operate at a competitive price level while maintaining high quality (Van der Warth, 2013).

Finally, the organizational governance of Chinese SMEs also contributes to their business success. This fact is characterized by an “effective mechanism for self-governance” as Berrell et al. state (2009, p. 61) and enables SMEs in China to react flexibly and rapidly to shifts and uncertainties in the market (see also Nee & Opper, 2012).

In this context, Nee and Opper (2012) mention the term “organizational innovators” (p. 130). Challenged by stigmatization as "capitalist sprout" (Nee & Opper, 2012, p. 130) during the reform period, entrepreneurs learned to adapt themselves best to external legal conditions. Through copying existing and legitimized organizational business forms as best practice, entrepreneurs were able to benefit from improved market accessibility from an external point of view. On the other hand, "internal decoupling [allowed] for flexible firm operations, where work procedures and routines respond to substantive needs, rather than legal requirements" (Nee & Opper, 2012, p. 131). This adoption of best practice organizational governance still applies today.

## 2.2. Theories on Hidden Champions

Having introduced theories on Chinese SMEs above, the following chapter provides the framework on Simons HC-model. The literature review towards HCs will be expanded by prior studies that provide evidence on the model from different European countries.

### 2.2.1. Evolution of "Hidden Champions"

In the context of globalization, a steady increase in global export rates has emerged since the 1980s. At the same time, some countries have experienced higher export performance than others. This finding raises the question of which factors contribute to a national competitive advantage in exports between countries. The two researchers, Hermann Simon and Theodore Levitt, found evidence that the above-average export performance of German-speaking countries is related to SME practices and activities (Levitt, 1983; Simon, 1996, 2007, 2009).

In the course of further research, it became apparent that among these SMEs, even numerous companies are found, which furthermore are market leaders within their industry. Being a market leader strongly influences their export volume as a result of serving the global market. Moreover, Simon shows that hidden market leaders exist all over the world, occurring more or less frequently, depending on the market environment (Simon, 2009, 2015).

The existence of these unknown niche-market leaders, defined by the term "Hidden Champion" since the end of the 1980s, is mainly driven by two factors. First: The more substantial the innovation capacity of a country, the more HCs occur. Second: The more substantial the manufacturing base of a country, the more likely is the development of HCs. The latter can be measured by the manufacturing sector's share of GDP. Both conditions are found in Germany, Austria, and also in China (Rammer & Spielkamp, 2015; Simon, 2015).

### 2.2.2. Definition of the term "Hidden Champion"

To ensure a comprehensive understanding of the term "Hidden Champion", it needs to be defined. Three characteristics qualify a company as an HC:

- number one, two or three in the global market, or number one on its continent
- revenue below $4 billion[1]
- low level of public awareness (Simon, 2009, p.15)

In the following, the characteristics of an HC, such as market position, turnover limit, and public awareness, are examined in detail. The market position of a company, as the first criterion, can be quantified in terms of absolute and relative market share. At a qualitative level, Simon adds that “Hidden Champions define market leadership not only in terms of market share, but see it as an extended claim to overall leadership in their markets" (2009, p. 29).

The limitation of revenue as a second criterion distinguishes the HC from larger corporations like SAP, Würth, or Fresenius Medical Care. Companies with revenues above the limit indicated will also be referred to as “Big Champions” or “Pioneers” (Greeven et al., 2019a; Simon, 2009).

In contrast to market power and revenues, public awareness of a company as such is hard to measure. It, therefore, tends to be a more qualitative rather than quantitative criterion (Simon, 2009). Furthermore, the markets in which HCs typically operate in likewise enjoy limited public awareness. Typical markets comprise industrials and engineering. According to Simon (2009), the majority of HCs operate in the B2B sector without direct contact with the end consumers. Neither is it a goal of HCs to strengthen public awareness.

[1] This number was already adjusted from DM 1.5 billion (Simon, 1996) and from € 3 billion (Simon, 2007)

The Chinese company Pearl River Piano Group serves as an example. Despite its status as the world's largest manufacturer of pianos, the company has remained mostly unknown to the public (Simon, 2009; Yu & Chen, 2009).

### 2.2.3. Explanation of HC characteristics

After an initial explanation of the concept of HCs, the individual features of HCs are elaborated in detail. Simon outlines these characteristics in his concept of "Three circles and eight lessons". The eight segments that cover the concept are shown in Figure 2. In the following, Simon's theory of HCs is extended by further qualitative and quantitative studies on HC from different European countries to provide a comprehensive literature review and to reflect the current state of research.


Figure 2: The eight lessons of HCs
(Illustration based on Simon, 2009,p. 356)

#### 2.2.3.1. Leadership and goals

Ambitious goal-setting serves as one of the key characteristics of HCs that distinguish HCs from other businesses. Such goals comprise the desire to become or remain the market leader in the respective market as well as determined revenue and growth goals (Simon, 2009, 2015). In this context the company Trumpf, HC for industrial lasers, serves as an example. Recent annual reports show that

the company sets itself high objective revenue goals in promising strategic fields of action. In the newly developed strategic field of Additive Manufacturing, Trumpf is pursuing “the ambitious but realistic goal of generating sales of some half a billion euros by 2030” (Trumpf, 2018, p. 52).

Furthermore, the company demonstrates its claim towards market leadership with the following statement: “(…) we are leaders on a world scale, in terms of both technology and organization. We strive to achieve continuous growth that is far above average (…)” (Trumpf, 2019, para. 1). These ambitious growth-related goals are again addressed in the annual report, as an essential part of their corporate strategy (Trumpf, 2018). In this context, Simon (2009) argues that these ambitious goals not only serve as the aim to define the benchmark for the entire market today but also in the future.

Achieving these ambitious goals, will generate high market shares, and high profitability as a side effect (Simon, 2009). Studies on HCs in Greece and Spain consistently confirm high growth rates and high profitability for their HCs, respectively (Munoz et al., 2017; Voudouris et al., 2000). The same pattern is found for the Chinese HC Goldwind, the global market leader for wind power equipment. It took the company only seventeen years to gain world market leadership with interim compound annual growth rates (CAGR) of up to 44 percent (Greeven et al., 2019b).

According to Simon, ambitious goals likewise require strong leadership by individuals who can motivate and align the entire organization towards a common goal. Moreover, two-third of all HCs in Germany are family-owned businesses, which lead to long-term oriented corporate strategies and long-term goals (Simon, 2009).

Voudouris et al. (2000) come to a similar conclusion when considering the importance of family-ownership structure for Greek HCs. The authors state that:

> “The ‘family’ model of management being adopted by the hidden champions appears as an important advantage rather than a roadblock in the success of hidden champions.” (2000, p. 669)

For the Central and Eastern European (CEE) region, however, Walravens and Filipovic (2013) remark that there is a multitude of other ownership structures such as cooperative ownership, private equity companies and joint-stock companies that also have to be taken into account. A similar picture emerges in China (Greeven et al., 2019b). Therefore, Walravens and Filipovic (2013) conclude that the family-owned ownership structure does not provide a direct competitive advantage for HCs in the CEE region compared to the earlier findings suggested by Simon (2009) and Voudouris (2000).

#### 2.2.3.2. Focus and depth

Many companies try to do several things, but often limiting their focus on their core competencies is the more effective approach. "We will do only one thing, but we do it better than anyone else" (Simon, 2015, p. 32). This statement describes the strategy the company Flexi has adopted to successfully position itself as the global market leader for retractable leashes for dogs. This statement emphasizes Simon's hypothesis that "only focus leads to outstanding innovation and (...) world class" (Simon, 2015, p. 33). Further research on German, Greek, and Spanish companies suggest that HCs prefer focus rather than diversification at product level which gives them a competitive advantage (Audretsch et al., 2018; Munoz et al., 2017; Voudouris et al., 2000).

A value chain that is comparatively deeper than that of other companies and that shows a relatively higher vertical integration also helps HCs to create unique products and services (Simon, 2009). Moreover, Audretsch et al. (2018) show that HCs tend to favor vertical integration over other market forms and strategies. Higher vertical integration through direct ownership offers the advantage that it "restricts the scope of a transaction for a partner's moral hazard" (Audretsch et al., 2018, p. 7) and hence ensures control along the value chain. In this consensus, HCs also remain skeptical when it comes to outsourcing (Simon, 2009).

#### 2.2.3.3. High-performance employees

High performance in business requires high performing employees. Factors that contribute to high performing employees are high employee satisfaction due to fair working conditions and adequate internal development practices to keep educating employees. Furthermore, the majority of the HCs identified by Simon

(2009) show a low employee turnover rate, reflecting a relatively high employee loyalty. His findings were further confirmed by studies on Spanish and Greek HCs (Munoz et al., 2017; Voudouris et al. 2000). Simon (2015) found that the employee turnover rate of HCs is at a low level of 2.7 percent per year compared to other companies with an average annual turnover rate of 7.3 percent.

To keep high-performance employees and maintain turnover rates low, HCs invest "50 percent more in vocational training than the average German company" (Simon, 2015, p. 34). Compared to other companies, HCs also have a higher proportion of university graduates and a comparatively loyal employee base. However, these graduates are not necessarily from the top universities as Greeven et al. (2019b) found out for Chinese businesses. The researchers found that HCs in China are more likely to hire individuals who are willing to improve the product value for the customer on a rather small scale, but in an ambitious and focused way.

Furthermore, a study on Swedish HCs suggest that employee engagement serves as a success criterion of HCs. The researchers support Simons' findings and add that internal and external training programs have a positive impact on the company's overall innovation capacity "as they motivate employees to take an interest in the product/service" (Din et al., 2013, p. 604). To strengthen the high performance of employees in terms of enhancing their innovativeness, a study on Swiss HCs suggests to take measures that ensure some level of creative freedom for their employees (Kaudela-Baum et al., 2014).

#### 2.2.3.4. Decentralization

HCs also show a stronger degree of decentralization than other companies. One reason for a higher degree of decentralization is rooted in the nature of HCs as they are confronted with limited growth in their initial market. This limited market size requires them to diversify. A controlled diversification can be observed in the form of a decentralized organization of "legally independent business units" (Simon, 2009, p. 353). Moreover, decentralization can foster the entrepreneurial mindset due to "more freedom for execution and implementation" (Simon, 2009, p.353) and thereby enable HCs to enlarge their competitive advantages.

The legal autonomy of the individual business units furthermore positively affects the business relationships with existing customers and can be advantageous in the acquisition of new customers. By bearing the title of Managing Director, the heads of the respective divisions thus signal competence and decision-making authority vis-à-vis their customers and business partners (Simon, 2009).

The success achieved through this type of decentralized organization is demonstrated by the company Westfalia Separator. The HC specialized in centrifugal and separation technologies structures its market segments by divisions. The divisional organization enables Westfalia Separator to react flexibly and more customer-oriented to changes in the market environment. Moreover, it leads to improved innovation capability in terms of market and technology integration (Simon, 2009).

#### 2.2.3.5. Innovation

Another success criterion that differentiates HCs from other firms, is their high level of innovation. HCs succeed in integrating market and technology factors into their innovation process. Prior research conducted by Voudouris et al. (2000) shows that Greek HCs use "information and communication technologies in innovative ways" (p. 668) to strengthen their competitive position. Similar findings were obtained by Turkish and Spanish researcher teams highlighting innovation as one of the keys to the success of their HCs, respectively (McKiernan & Purg, 2013; Munoz et al. 2017).

Moreover, the innovation process within the organization of HCs tends to focus more on customer-oriented product improvements rather than the establishment of new disruptive technologies (Simon 2009, 2015). Recent research also reveals that German HCs invest “double the share of revenues” (Simon, 2009, p. 164) on research and development (R&D) than average companies in Germany do.

A study on Polish HCs comes to a similar conclusion, showing that innovation is driven by a complex set of tangible and intangible factors. The set of factors can be differentiated according to physical, reputational, organizational, financial, human and intellectual, and technological resources. The results reveal, however,

that financial resources such as the R&D budget have a lower impact on the innovation potential of HCs in Poland compared to human and intellectual resources such as employed education (Zastempowski, 2011).

Furthermore, a study conducted by the German Hidden Champions Institute reveals that in terms of innovation and digitalization strategy HCs are more forward oriented than NHCs. The study shows that 17.3 percent of HCs see themselves as first movers when it comes to digitalization, 54.4 percent as fast followers, whereas only 11.5 percent of all SMEs see themselves as first movers and only 42.0 percent as fast followers (Freimark et al., 2018).

The example of the prior Chinese HC Hikvision, the market leader for video surveillance equipment, ties in with recent research conducted by Simon. According to Greeven et al. “Hikvision invests (…) 8 percent of its revenues in R&D, and about 47 percent of its employees work in this area of the business” (2019b, p. 76). It should be mentioned, however, that from today’s perspective, Hikvision can hardly be counted as HC anymore as the firm exceeds the revenue limitation of $4 billion recently (Bureau van Dijk, 2020).

As a reference, the Top-European companies, on average, only invest 3.4 percent of their revenues in R&D activities (EY, 2018). By stating that "market leadership cannot be achieved without competitive products and services or without an efficient production process" (Schlepphorst et al., 2016, p. 16), the authors point out that business success and competitiveness are inseparably linked.

#### 2.2.3.6. Globalization

Globalization acts as the primary driver leading to the above-average export performance of HCs. Following the classical theories of internationalization of the firm as proposed by the Upsala model (Johanson & Vahlne, 1977), the HC undergoes globalization through high investments in the establishment of new foreign wholly-owned subsidiaries. HCs pursue the strategy of linking product specialization with global sales. According to Simon (2009, 2015), the step of globalizing the market is not only an option for HCs rather than a mandatory condition to create the necessary scale of the market for their niches.

Additionally, it appears to Voudouris et al. (2000) that Greek HCs “view globalization more as an opportunity rather than as a threat” (p. 669) to their business. Opportunities emerge from lower costs in transportation, telecommunication, and information technology, as well as from outsourcing (Venohr & Meyer, 2007). In this context, outsourcing refers to business activities that are not tied to HCs core competencies, as it was described in Chapter 2.2.3.2.

Furthermore, the time at which HCs decide to internationalize plays a role. In general, HCs tend to expand into international markets at an early stage and, preferably, without engaging in strategic alliances to ensure a high level of control along the value chain (Simon, 2009; Venohr & Meyer, 2007; Witt & Carr, 2013).

#### 2.2.3.7. Closeness to customers

According to Simon (2009), closeness to the customer is another competitive advantage that of HCs. Due to the relatively small organizational size of these firms, on average "38 percent of employees (...) have regular customer contacts, compared to (...) 8 percent in large corporations" states Simon (2015, p. 34). The close contact between the customer and the firm additionally functions as a performance driver within the organization of HCs.

Through the establishment of value-oriented rather than price-oriented long-term partnerships, HCs succeed in expanding competitive advantages by establishing higher barriers for market entry. Higher switching costs between the firm and its competitors sever as one example (Munoz et al., 2017; Simon, 2009; Voudouris et al., 2000). Apart from that, Simon (2009) as well as Voudouris et al. (2000) add that close customer relationships can increase the dependency on certain key accounts. The Greek company Scope, for instance, "maintains a very small number of customers (three multinationals operating in Greece)" (Voudouris et al., 2000, p. 667).

Nevertheless, it appears that Greek HCs do not see this dependency on certain customers as a drawback, but "as an opportunity" (Voudouris et al., 2000, p. 667). The customer-centric model turns the customer into a co-creator of the new product or service and is likely to have a positive impact on the HC's innovation capability (WKO, 2015). Studies on Turkish HCs show that "this closeness is (…) kept

alive through [investments in] distributorships and newly established after-sales service structures" (Yosun & Çetindamar, 2013, p. 403).

## 2.3. Theories on organizational strategy and performance measurement

The following chapter provides an overview of standard management approaches to define strategies and to assess organizational performance. Chapter 2.3.1 will focus on HCs underlying corporate strategy concepts, namely Porter's generic strategies, the Value Chain Model (VCM) , and the Profit Impact of Market Strategies (PIMS) paradigm (Gale & Buzzell, 1989; Porter, 1998). Afterwards, Chapter 2.3.2 focuses on models that transform previously set goals into quantitative KPI, namely the Balanced Scorecard (BSC) (Kaplan & Norton, 1992), which is one of the most commonly used tools as stated by management literature (van Looy & Shafagatova, 2016), and the Competing Values Framework (CVF) (Quinn & Rohrbaugh, 1983).

Whereas the BSC has its origin and scope of application, mainly in western economies, the CVF was already successfully applied in a Chinese context (Yu & Wu, 2009). Assessing organizational performance furthermore can be tied to different time horizons. The first option compares the outcome of the same organization over time as done using the BSC (Kaplan & Norton, 1992). The second approach refers to comparing different organizations with each other. The paper will focus on the latter, namely, performance benchmarking.

After introducing the theoretical background of goal formulation and goal quantification, challenges of HCs KPI in a Chinese context are briefly discussed in Chapter 2.3.3. A particular focus in this paper lies on measurement parameters that were used in prior studies related to HCs and Chinese SMEs. In this context, the classical approach to performance measurement lists six main performance indicators: Effectiveness, efficiency, quality, productivity, innovation, and profitability (Rolstadas, 1998; see also Sink & Tuttle, 1989). Based on the output of the KPI review, a conceptual model followed by the research hypothesis will be derived in order to map the performance of Chinese HCs in the most effective way.

### 2.3.1. Goal formulation: Theoretical models on organizational strategies

#### 2.3.1.1. Porter's Generic Strategies

Porter's generic strategies is an approach to formulate corporate strategies that set a framework for competitive advantages. Porter's approach is structured around four competitive strategies, which are shown as quadrants in Figure 3. The model is based on two critical dimensions. First, the scope of the competitive advantages, second, the source of competitive advantages. Those two dimensions, in turn, are divided into four potential competitive strategy approaches (Porter, 1998).

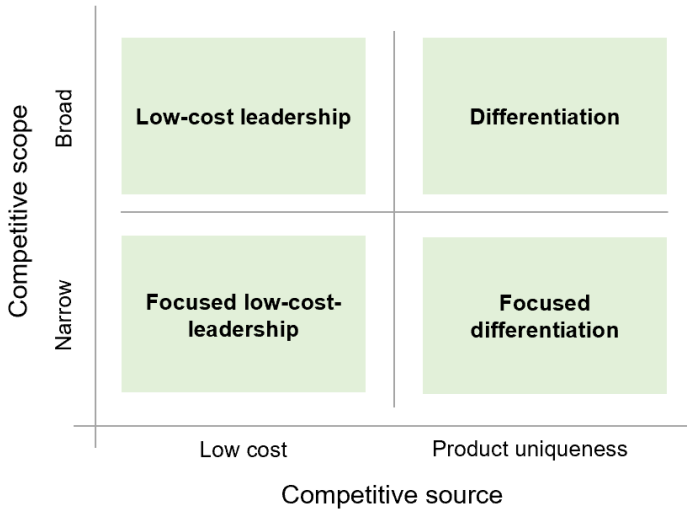


Figure 3: Porter's generic competitive strategies (Porter, 1998)

The competitive scope describes the extent of the market to be addressed. It can be broad in the form of mass-market or narrow in the form of niche markets. The competitive source, on the other hand, describes the origin of the competitive advantage, either through low-cost leadership, in which one stands out from the competition through lower prices, or through differentiation, in which companies distinguish themselves from the competition through their product and service performance (Porter, 1998).

HCs usually belong to the quadrant of focus differentiators by focusing on a specific niche market and by delivering superior product performance. HCs pursue

traditionally premium price strategies, as Simon shows, however, there are exceptions (Porter, 1998).

#### 2.3.1.2. Value Chain Model

Besides Porter's generic strategies, which generally describe the market positioning strategy, the VCM can be used to determine internal competitive advantages. The VCM model describes that competitive advantages arise from individual value-creating activities, which comprise two core dimensions: primary activities and support activities. Primary activities include activities such as inbound and outbound logistics, manufacturing operations, as well as marketing, sales, and after-sales services. The supporting activities include firm infrastructure, human resource management, technology development, and procurement. Both dimensions are interdependent (Porter, 1998). Figure 4 illustrates the VCM.

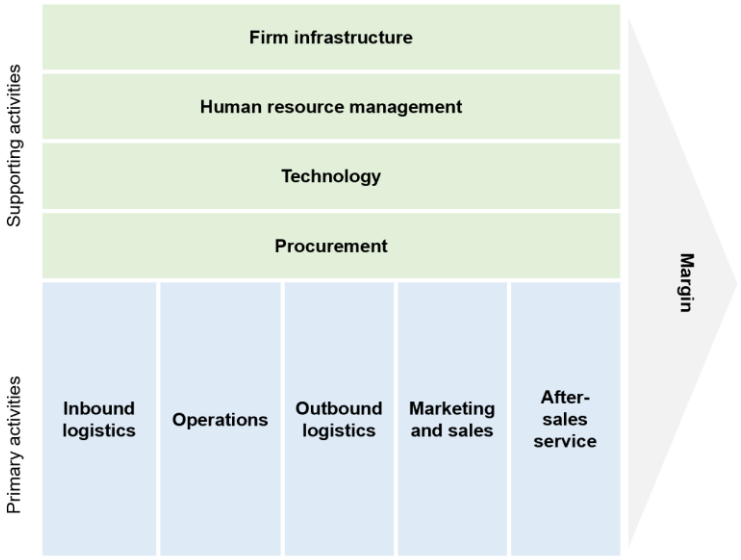


Figure 4: The Value Chain Model (Porter, 1998)

In this model, HCs differ from other companies through an optimized interaction between the different activities. According to Simon, for instance, HCs exhibit a significant competitive advantage concerning human resource management. The development and training of employees to become high performers increases the company's long-term performance and hence foster its competitive advantage (Simon, 2009).

#### 2.3.1.3. PIMS Paradigm

The last model used to describe competitive advantage strategies of HCs is the PIMS paradigm. This holistic framework integrates parts of Porter's generic strategies model, as well as parts of the VCM, and combines them with quantitative objectives. The model by Gale and Buzzell (1989) links the external and internal aspects of strategy development and places them into a broader context.

Gale and Buzzell (1989) define a correlation between external market influences, company-specific competitive positioning, internal activities in terms of strategy and tactics, and the subsequent quantified company performance. Figure 5 shows the described PIMS paradigm.

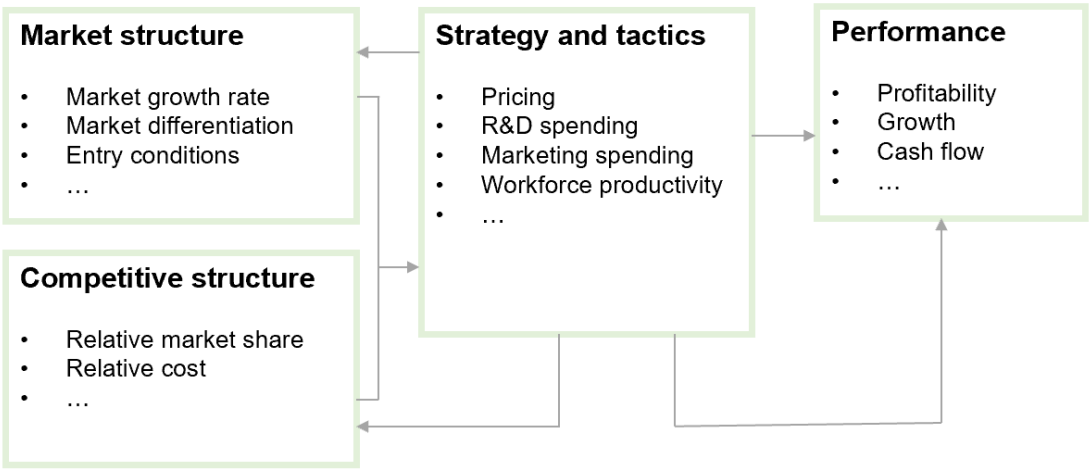


Figure 5: PIMS Paradigm (Gale & Buzzell, 1989)

The element of market structure comprises external forces like the growth rate of a given market, the degree of differentiation within the market, or the existence or non-existence of market entry barriers, just to name a few. Furthermore, the competitive structure consists of the overall competitive structure of a given market or industry a business is operating in and is, for example, characterized by market shares. Strategy and tactics are directly linked and adapted to the external conditions of the market and competitive structure. Lastly, performance is directly linked to the applied strategy and tactics and is quantified by KPIs that assess the profitability, growth, or cash flow of an organization (Gale & Buzzell, 1989).

### 2.3.2. Goal quantification: Theoretical models on assessing organizational performance

Building on the theoretical approaches of strategy formation, the next section addresses in more detail the models of organizational performance measurement mentioned briefly in the PIMS paradigm above.

#### 2.3.2.1. Balanced Scorecard

Compared to previous approaches that focused exclusively on financial performance indicators, the BSC serves as a multidimensional model developed by Norton and Kaplan. It assumes a higher complexity and interaction between organizational structures. Therefore, in addition to the solely financial perspective, as it is the case in the Dupont model, it also includes the customer perspective, the internal process perspective, and the innovation and learning perspective of the entire organization (Kaplan & Norton, 1992).

KPIs addressing the financial perspective are also labeled as output-oriented lag indicators, whereas customer, internal process, and innovation and learning perspectives are labeled as input-oriented lead indicators. Figure 6 illustrates the dimensions mentioned above and shows the key questions that the respective dimensions address. Norton and Kaplan argue that operational indicators drive future financial performance and hence are equally important in measuring organizational performance (Kaplan & Norton, 1992).

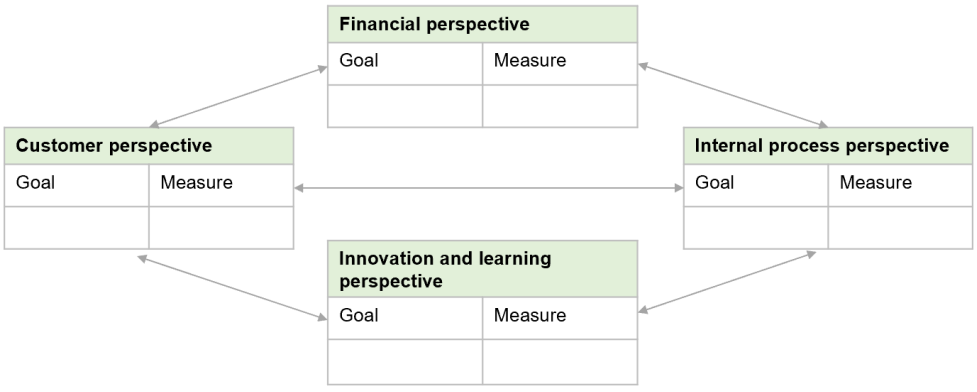


Figure 6: Balanced Scorecard (Kaplan & Norton, 1992)

The BCS is based on the underlying premise that the strategy and vision are the central concern of an organization. Therefore, the goals defined to meet these concerns are always company and industry-specific, as are the measures to be applied (Kaplan & Norton, 1992). According to Kaplan and Norton (1992), measures have to be designed in a way that they “pull people toward the overall vision” (p. 79) with leaving enough freedom of action to adjust to organizational changes.

From the financial perspective, an exemplary goal covers "business prosperity" (Kaplan & Norton, 1992, p. 72). This overall financial goal hence can be measured using indicators such as return on equity (ROE) or market share. From the customer perspective, an objective might cover the creation of new products, measured by performance indicators such as "percent of sales from new products" (Kaplan & Norton, 1992, p. 72). In general, any performance indicator can be used as long as it helps to achieve a pre-defined dimensional goal. However, the premise of the BCS, focusing on the most relevant indicators and consistency must not be neglected (Kaplan & Norton, 1992).

#### 2.3.2.2. Competing Values Framework

Since, like the BSC, many models originate from the West, while the present study refers to Chinese businesses, suitable models for assessing organizational performance are required, which were already successfully applied to the Chinese economic area. In this context, the Competing Values Framework (CVF) developed by Quinn and Rohrbaugh (1983) can be found in the management literature. The validity of the model as a benchmarking tool of Chinese organizations was already confirmed by several studies (Yu & Wu, 2009; see also Liu et al., 2006).

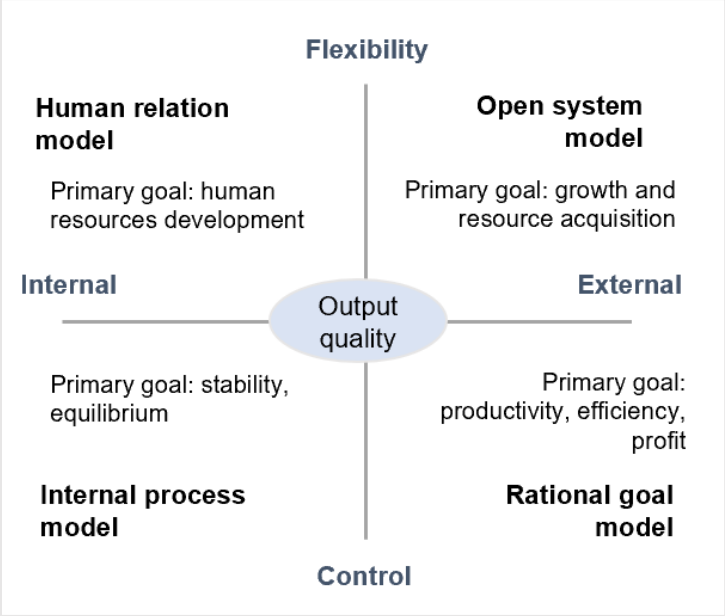


Figure 7: Competing Values Framework (Quinn & Rohrbaugh, 1983)

The basic idea on which the CVF model is based relies on two essential dimensions, which are shown in Figure 7. Organizational focus is the first dimension and ranges between the extremes of internal and external focus. Internal focus affects the well-being and personal development of people within the organization. External focus, on the other hand, refers to the well-being and development of the organization itself (Quinn & Rohrbaugh, 1983).

The second dimension relates to organizational structure and ranges between the two extremes of stability and flexibility. Stability includes, for instance, the management concern in terms of efficiency and hierarchical control. Flexibility, in contrast, comprises the management's intention to focus on learning and transformation (Quinn & Rohrbaugh, 1983).

The extremes of the respective dimensions are contradictory. In this point, a difference to the BSC presented in Chapter 2.3.2.1 can be found. Whereas the objectives in the BSC are relatively consistent (Kaplan & Norton, 1992), the CVF allows conflicting objectives. Quinn and Rohrbaugh (1983) describe this contradiction as " basic dilemma of organizational life" (p. 371). Optimal effectiveness within the CVF model requires an optimal balance between the two dimensions

and four approaches: (1) human relation model, (2) open systems model, (3) rational goal model, (4) internal process model, which are also shown in Figure 7. In the following, the four approaches are briefly explained (Quinn & Rohrbaugh, 1983).

The human relations model combines the two dimensions of flexibility and internal focus. The focus is on optimizing the motivation efficiency, which deals with minimizing the difference between organizational goals and employee goals. Measures that can be undertaken to achieve this goal include, for instance, workshops and training in terms of employee development (Quinn & Rohrbaugh, 1983).

The open systems model combines the dimensions of flexibility and external focus. This approach aims to expand and acquire additional resources. Measures that contribute to achieving this goal are designed to increase the degree of flexibility, such as the introduction of agile work processes and the reduction of hierarchical levels within the organization (Quinn & Rohrbaugh, 1983).

The rational goal model combines the two dimensions of stability and external focus. The focus is on the overall goal of creating an organization that is as stable and efficient as possible in accordance with the principles of Taylorism. Taylorism describes the approach where labor productivity is increased as much as possible through the division of working tasks (Nissen, 2018). Measures that contribute to the goal above are, for example, the deployment of new technologies and automation to increase productivity (Quinn & Rohrbaugh, 1983).

Finally, the internal process model combines the dimensions of stability and internal focus. The central goal of this approach is the integration of all organizational actors into an efficiently functioning organizational system. The use of project management software as an example to simplify and accelerate the flow of information can be seen as a suitable measure to achieve this goal (Quinn & Rohrbaugh, 1983).

Organizations, whether in the Western or Asian economic region, generally exhibit characteristics of all four approaches in different degrees. The former Chinese HC Hikvision, for instance, pursues a growth-oriented corporate strategy by merging with the firm Haikang Ximu in 2017 (open systems model), while at the

same time focusing on aligning the existing organization towards a standardized and consistent compliance system (internal process model) (Hikvision, 2018).

### 2.3.3. Challenges of transferring Western models to China

In the previous chapters, general theories on strategy formulation and organizational performance measurement were explained. With regard to the Chinese business environment, the transfer of predominantly Western concepts has to be critically examined. Thus, it is questionable whether the theories on HCs from Chapter 2.2 can be transferred to Chinese HCs since the majority of earlier studies were conducted in Germany, Austria, Greece, Spain, and other Western European countries. In accordance with other authors, the universal applicability of Simons HCs approach to other cultural areas may be called into question (Lei & Wu 2020; Schlepphorst et al., 2016).

Therefore, the following section takes a more critical look at the models described and identifies the challenges of transferability. These challenges mainly comprise the area of cultural barriers, which is only marginally addressed in the model described above. Differences in market and governance structures, however, are already integrated by the PIMS paradigm and may be adapted individually to the regional context. Particular focus should be placed on the vast Chinese domestic market, as well as on significant differences concerning customer preferences of Chinese consumers, whose willingness to pay remains at a relatively low level (Tiwari & Buse, 2014).

Child et al. (2017) also show that business models of international SMEs, including Chinese SMEs, are influenced by industry, level of home economy development, and the decision-maker's international experience. Cultural barriers at the micro level are, however, still not sufficiently addressed. Cultural barriers are, for instance, differences in management style and hierarchical organizational structure due to a different underlying value system (Fan et al., 2019) or the higher relevance of business networks to reduce uncertainties in a dynamic and volatile business environment (Nee & Opper, 2012) as outlined in Chapter 2.1.2.2.

Taking the BSC as an example again. The model is considered to be one of the most recognized tools for measuring organizational performance and moreover,

successfully applied in various regions throughout the world (van Looy & Shafagatova, 2016). Nevertheless, there are limitations and shortcomings, as Zeng and Luo (2013) emphasize. In terms of shortcomings associated with the implementation of the BSC in China, the authors see cultural barriers with reference to Hofstede's model of the Six Cultural Dimensions as one leading obstacle (Zeng & Luo, 2013).

Zeng and Luo (2013) argue that Chinese values such as Confucianism, high power distance, and low individualism are not or only partially taken into account by the BSC. This view of insufficient consideration of Chinese characteristics in business models applied to China in management literature is also supported by Fan et al. (2019), who explicitly address these cultural differences in their Glacier Model. The authors identify „harmoniums management, the order-diversity pattern and Tai Chi management" (Fan et al., 2019, p. 742) as more soft and informal key characteristics that need to be considered in Chinese business model approaches.

Since the above has shown that culture-specific conditions in China influence the business activities of companies in that country, it is necessary to extend Simon's HC-model (2009) by including relevant Chinese-specific measures. A similar approach was found in a study conducted by Tang et al. (2007) for Chinese SMEs in the construction industry. The authors adapted Western strategies and KPI approaches and combined them with Chinese characteristics.

In this respect, the China-related characteristics should not be understood as a contradiction with the existing theory, but instead as a meaningful addition to Simon's HC-model in order to be able to adopt validity for the Chinese region as well. In the following, the focus of consideration will be placed on business relationships when extending the model.

# 3. Conceptual model and research hypothesis

Based on the previous theoretical frameworks that were introduced in Chapter 2.1 to Chapter 2.3 and with reference to the underlying differences between Chinese and European drivers of competitive advantages, a conceptual model is derived. The conceptual model hence aims to match standard performance measures of European HCs with those of Chinese firms. Figure 8 shows the extended performance measurement model, combining the specific properties of the Chinese market with those of the original HC-model by Simon.

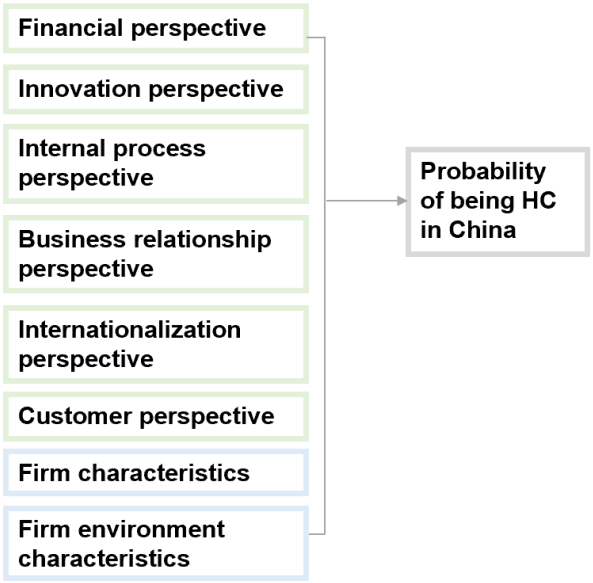


Figure 8: Conceptual model showing the determinants of HCs in China

## 3.1. Financial perspective

In the following, commonly applied profitability figures are used to assess performance from the financial perspective. Studies on HCs in the German-speaking countries and various company reports of Chinese enterprises encourage the use of these KPIs, which are further elaborated below (Kaplan & Norton, 1992; Rolstadas, 1998).

### 3.1.1. Profitability

Various metrics are used in management literature to express profitability. These metrics include absolute figures such as earnings before interests and taxes (EBIT), earnings before interests, taxes, depreciation and amortization (EBITDA), and cash flow. EBIT and EBITDA can also be expressed in percentage as profit margin by dividing the respective figure by revenue. When benchmarking two companies, the relative figures like EBIT margin, EBITDA margin, and ROE are more suitable (Thomson Reuters, 2016; Richard et al., 2009; van Looy & Shafagatova, 2016).

Studies show that HCs tend to have a higher profitability rate compared to other companies within the same peer group (Rammer & Spielkamp, 2019; Simon, 2009; Voudouris et al., 2000). To understand the underlying cause of profitability, however, it is necessary to look at the specific components in detail. The following simplified relationship is drawn between profitability, revenue, and costs:

Eq. 1

$$Profitability = Profit \div Revenue,$$

where profit is defined as:

Eq. 2

$$Profit = (Price * Volume) - Costs,$$

and revenue as:

Eq. 3

$$Revenue = Price * Volume$$

As the equations show, profitability is influenced by three drivers, namely sales volume, price, and costs. Whereby the components differ in terms of their leverage effect towards profitability (Simon & Fassnacht, 2016). Comparatively higher profitability would, therefore, be achieved if either the price of a product is higher, the sales volume is higher, or the cost structure is lower than that of the benchmarked company. Taking into account the fact that HCs are market leaders, it appears that higher profitability results from a higher sales volume within their niche markets due to high market shares. However, this assumption is subject to criticism (Simon, 2009; Simon & Fassnacht, 2016).

Although market shares can be used as a performance parameter measuring profitability, Simon (2009) argues that there is no direct linkage between those two parameters. In fact, when using market shares as a measure, it is essential to look at its quality. A "good" market share is achieved by using a value-driven strategy rather than a price-driven strategy. "Good" market shares are also long-term, whereas "bad" market shares are about quick wins that can be realized promptly but which are not sustainable. Most of the HCs reviewed in German-speaking countries pursue value-driven strategies. A fact which is also reflected by their pricing strategy (Simon, 2009).

Value-driven strategies, however, only apply to a limited extent to HCs in China, as prior studies and business reports reveal. In this context, a qualitative study conducted on the HC Pearl River Piano Group found that the company successfully pursues a low-price strategy (Yu & Chen, 2009). Similar results were obtained by Ge and Ding (2007) for the Chinese HC Galanz, the market leader for microwave ovens. Sanhua, HC for heating, ventilation, and air conditioning controls likewise pursues a strategy of the „most competitive price“ (Sanhua, 2020, para. 1). Although Simon (2009) found a small number of HCs which also pursue low-price strategies, such as Böllhoff, the leading manufacturer of screws, he sticks to his former arguments against low-price approaches:

> „Hidden champions offering or advertising low prices remain the exception. Profits can only be earned with low prices if a company can manufacture at lower costs than the competition over a sustained period of time.” (p. 155)

Accordingly, the long-term, low-cost advantages of Chinese HCs are critical for achieving high profitability. The fact that cost advantages due to low wages are a key driver of competitive advantages of Chinese SMEs was theoretically substantiated in Chapter 2.1.2.2. The argumentation above implies that the profitability assumption for HCs can also be applied in China as a result of cost-driven competitive advantages. Consequently, EBIT margin as a KPI is used to measure the profitability. It allows the following hypothesis to be derived:

> H1a: High EBIT margin values increase the likelihood of a company belonging to the group of Chinese HCs.

Another measure used to assess profitability in the context of German HCs is the equity ratio (EQR). Scholars suggest an above-average EQR of HCs compared to other companies (Simon, 2009; WKO, 2015). The EQR describes the ratio of equity to total capital and provides information on the level of indebtedness and financial stability of an organization. If a company shows a high EQR, it is perceived as a stable investment (Breuer, 2018).

Simon (2009) furthermore points out that the financing of German HCs is primarily done by self-financing. Nevertheless, he also shows that the proportion of companies that raise money on the capital market has more than doubled during the period from 1990 to 2009, suggesting an increasing importance of the capital market as a source of financing for HCs.

Greeven et al. (2019b) agree on the importance of the capital market as a relevant source of financing for HCs. The authors state that Chinese HCs are mostly listed and that they use the capital market as the most important source of financing. The low share of debt financing, for instance, through bank loans, can be attributed to high bureaucratic hurdles (Wang, 2016). Hussain, Millman, and Matlay (2006) come to a similar conclusion, showing that 55.3 percent of all Chinese SMEs within their study do not use banks at all. Furthermore, 33.6 percent of Chinese SMEs who use banks, describe the quality of their relationship with financial institutions as poor.

The author is aware of further-reaching issues in connection with corporate financing in China, e.g. by shadow banks, but will not consider them further in this thesis. Since financing via the capital market is reflected in the balance sheet as equity, a higher EQR can likewise be assumed for Chinese HCs as for their German counterparts. Accordingly, the following hypothesis can be derived:

H1b: High EQR values increase the likelihood of a company belonging to the group of Chinese HCs.

### 3.1.2. Growth

Growth is another parameter that is commonly used to measure the performance of organizations (Kaplan & Norton, 1992; Quinn & Rohrbaugh, 1983). Growth figures are used to assess how promisingly a company will perform compared to another company in a peer group. Conventional measures of growth performance are the CAGR or the annual growth rate of a company's market capitalization, also known as the market cap (Cho & Pucik; 2005). The latter describes the "total market value of all outstanding shares" (Chen, 2019, para. 1) of a company.

The verification of growth rates and growth-related goals as determinants of HCs was already validated in a number of studies on European HCs (Purg & Rant, 2011; Simon, 2009; Voudouris et al., 2000). Relevant differences to be considered when transferring the growth indicator to Chinese HCs are the ownership structure and the age of a company (Greeven et al. 2019b).

Concerning the company origin and business ownership structure, the majority of German HCs originate from former family-owned businesses (Simon, 2009). HCs in China, however, can be traced back to different roots. Greeven et al. (2019b) distinguish between two types of HCs in China: Grassroot Enterprises and Hybrid Organizations. HCs based on Grassroot Enterprises were found as small, private, and local enterprises. The second type of HCs, by contrast, emerged from already existing former state-owned companies. In the case of the hybrid HCs, state-owned companies still represent the largest shareholders, as is the case for the former HC Hikvision (Greeven et al., 2019b).

In terms of age, Chinese HCs also differ from their German counterparts: „German hidden champions are on average a hundred years old“ (Greeven et al., 2019b, p. 63), whereas „Chinese hidden champions have taken much less time (little over a decade) to grow into domestic and global market leaders” (ibid.). The higher CAGR of Chinese HCs also reflects these circumstances as Greeven et al. (2019b) show in their study on HCs in China.

Since the use of the CAGR was validated in prior studies on HCs in China, the following empirical study concentrates on this parameter as well. Subsequently, the following growth-related hypothesis can be derived:

H2: High CAGR values increase the likelihood of a company belonging to the group of Chinese HCs.

Furthermore, since it was demonstrated that the age structure affects growth rates, the age of a company (labeled as company characteristic in Figure 8) as a controlling variable is included in the empirical analysis. Similarly, the type of company ownership is perceived as another desired control variable, although it cannot be included due to insufficient data.

## 3.2. Innovation perspective

Compared to the indicators described above for assessing the financial performance of organizations, this section, as well as the subsequent sub-sections, discuss operational measures. It should be noted that the quality of the operational measures, in turn have an impact on the outcome of the financial KPIs.

Innovation, also referred to as innovation capability, is one of these operational measures. In management literature, the common assumption is found that the ability to innovate determines the competitive advantages of a company (Antony & Bhattacharyya, 2010). Innovation capability is defined here as “an organizational property that underpins an ample flow of multiple, value-creating and novel initiatives” (Francis, 2005, p. 224).

Internationally applied KPIs for measuring the innovativeness of a company include R&D expenditure as an absolute value, R&D expenditure per employee, and R&D intensity as a relative value. The latter describes the ratio of R&D expenditure to sales (Richard et al., 2009; Roos & Roos, 1997). Moreover, R&D can be measured by output in terms of the number of patents issued and the number of patents per employee issued (Rammer & Spielkamp, 2019; Simon, 2009).

Another way to access the innovativeness is benchmarking companies by comparing the number of employees engaged in R&D activities or the number of R&D centers (Greeven et al., 2019b). Moreover, Kaplan and Norton (1992) also use innovation metrics such as the time it takes to develop the next product generation or the share of new products within the product portfolio in their BSC.

With regard to the innovation capacity of HCs, various studies show that HCs have significantly higher values compared to NHCs. Simon (2009) uses the indicator patents per employee and shows that HCs have "five times more patents per employee" (Simon, 2009, p. 355) than Big Champions like Siemens or Daimler. Similar results are reported by Rammer and Spielkamp (2019).

Contrary results were obtained in a study investigating the innovation behavior of Korean HCs. The results of the study are particularly of interest for the present paper since a similar cultural context is examined (Yoon, 2013). Within this context, the question of the validity of the indicator arises as different authors reveal that in general, despite increasing government expenditures on R&D, the innovation performance of many Chinese companies remains weak (Gu et al., 2009).

A more critical view must be adopted when looking at patents as a potential innovation indicator since there are significant differences when it comes to the patent structure in China. It is important to differentiate between invention, process, and design patents, whereby the latter contribute less to the innovativeness of a firm. As statistics show, design and process patent applications predominate in China. Only 23 percent of all patent applications in China account for invention patents. This number implies that, even if a company holds a large number of patents per employee, no reliable conclusions can be drawn about its innovation capability (China Power Team, 2016; CNIPA, 2017).

Another critical aspect to be considered when using patents as an indicator of innovation, is the problem of weak intellectual property protection in emerging countries (Baloh, 2013). Hence, it is questionable how many Chinese SMEs apply for patents. The fact that even in the German-speaking countries many HCs are restrained when it comes to patent applications is supported by a statement by the HC Grohmann, the market leader for highly automated production systems: "We do not apply for patents because we do not have the people to do it and we hate the bureaucracy" (Simon, 2009, p. 166).

In this context, patents used to measure the innovation performance (in terms of innovation output) of Chinese HCs cannot adequately reflect the real situation. Better indicators are required. Nevertheless, the role of R&D is highly relevant when it comes to determining success factors of HCs and hence needs to be

taken into account. For this reason, the indicator of R&D intensity is included in the empirical study. Yoon (2013) validated the application of this indicator in his study on Korean HCs. As a result, the following research hypotheses in terms of innovativeness can be derived:

H3: High R&D intensity values increase the likelihood of a company belonging to the group of Chinese HCs.

## 3.3. Internal process perspective

Just like the chapter on innovation perspective, this section also discusses operational measures. In particular, productivity, organizational structure, and level of business integration will be considered as part of the internal process perspective in order to assess the business performance of HCs.

### 3.3.1. Productivity

Models used to measure organizational performance in terms of internal process efficiency often refer to productivity as a parameter (Kaplan & Norton, 1992; Richard et al. 2009). Productivity thereby describes how efficiently resources are used and allocated in the production of output. It "is measured traditionally as the ratio of output and input" (Antony & Bhattacharyya, 2010, p. 4).

Productivity is directly influenced by the amount of labor each employee contributes and can, therefore, be calculated in terms of net sales or operating profits per employee. It should be noted, however, that companies differ in their views on productivity depending on their industry background, which makes benchmarking between industries difficult (Bernard & Jones, 1996). For this reason, the current thesis only focuses on one specific industry.

According to Simon, a characteristic of HCs is having high performing employees, as stated in Chapter 2.2.3.3. Therefore, high productivity rates can be assumed. Prior research shows that HCs in Germany have a 29 percent higher labor productivity than other companies, using net value-added over full-time employees (Rammer & Spielkamp, 2019). The fact that sales or revenue (used as a synonym in the following) per employee can be used to measure productivity is further demonstrated by a prior study on Russian HCs (Purg et al., 2016).

A paper published by the World Bank uses similar performance measures, but with contradictory results. “The productivity (as measured by revenue per employee) of large companies (…) is 1.5 times of the SMEs" (Tewari et al., 2013, p.19). The authors of the report ascribe this finding to economies of scale, which enable large firms to achieve higher productivity ratios, whereas smaller firms are unable to do so (Tewari et al., 2013).

These results are of interest since HCs are generally perceived as part of SMEs (Simon 2009). Therefore, as noted by the World Bank, HCs as part of SMEs ought to have lower productivity rates than large corporations. This outcome, however, is in contrast to the findings of Simon (2009) and Rammer and Spielkamp (2019) as outlined above.

Nevertheless, as can be seen from the study on Chinese HCs conducted by Greeven et al. (2019b), all of the companies the authors identified exceeded the classification criteria of typical SMEs. It is the case for the European definition of SMEs[2] (European Union, 2015), as is for the Chinese definition[3] (Liu, 2008). A similar pattern can be found regarding the identified Chinese HCs in the present research sample. An overview of the identified companies with staff headcount and turnover can be found in the Appendix. In this context, it becomes apparent that the majority of Chinese HCs are companies that tend to be larger in terms of headcount and revenue compared to their German counterparts.

Besides having high-performing employees, Chinese HCs are also expected to have productivity advantages resulting from economies of scale due to a larger organizational size. Consequently, it is possible to use the productivity parameter to assess the corporate performance of Chinese HCs. In this context, the following hypothesis can be derived:

H4: High productivity per employee values increase the likelihood of a company belonging to the group of Chinese HCs.

Since the size of an enterprise significantly influences productivity through improved economies of scale, the size of the firm has to be included as a control variable, as illustrated in Figure 8 under firm characteristics.

[2] European SME definition: staff headcount < 250, turnover ⩽ € 50 m

[3] Chinese SME definition: staff headcount 300-2000, turnover ¥ 30million-300million

### 3.3.2. Decentralization

As found in management literature, the right organizational structure creates strategic advantages and has a significant impact on business performance (Simon, 2009). An organization is regarded as decentralized if it is structured, for instance, into regional, product, or customer-oriented units (Horngren et al., 2009). Govindarajan (1986) suggests another more formal def46emester in terms of decision-making power distribution. He states that decentralization also can be "viewed as the locus of decision-making authority that is delegated to the general manager of the strategic business unit (SBU) by his/her corporate superiors" (p. 844).

Since the arrangement of the organizational structure and the distribution of decision-making of a company can help to streamline internal information processing as well as improving the quality of customer interaction processes, decentralization can be understood as part of the internal process perspective (Quinn & Rohrbaugh, 1983; Simon, 2009).

From an organizational theory perspective, decentralization can be measured by the number of small, legally independent business units and the number of spin-offs. Moreover, the organizational structure and the time at which decentralization takes place within the business organization can serve as a benchmark (Simon, 2009). Miller (1983) introduces another quantitative approach to access the level of decentralization. He suggests to assess the level of decentralization using the degree of delegation of authority to lower-level experts (see also Zahra et al., 2004). Apart from that, Christie et al. (2003) instrumentalize the "relative use of profit and cost centers" (p. 6) to determine the level of decentralization.

When looking at HCs, Simon highlights that the typical HC is a single-product, single-market company. As a result, the organizational complexity is low, and usually, a functional structure is adequate. However, there are also some cases where HCs diversify into neighboring markets. Such diversification increases the complexity, requires a different organizational structure, and demands HCs to structure themselves into decentralized units by target customers or applications (Simon, 2009).

This type of decentralization can also be observed in the case of the former Chinese HC Hikvision. Its annual report illustrates their decentralization strategy:

> "To better adapt to customers' demands and improve internal operational efficiency, the Company initiated the transformation and restructuring of its business architecture in 2018. Through reorganizing and integrating the resources, the Company divided its domestic business into three business groups (…) to more specifically target different types of markets and customers and more effectively coordinate internal resources." (Hikvision, 2018, p. 28)

However, in the current case regarding Chinese firms, data on the number of business units or spin-offs is hardly accessible. Therefore, the aspect of decentralization and its quantitative examination remains a subject for future research.

### 3.3.3. Focus and depth

Besides organizational structure, the depth of a company's value chain, as well as the focus on core competencies, are further drivers of corporate performance. Both aspects significantly contribute to the realization of an optimized customer benefit by affecting the internal process design. Kaplan and Norton (1992) accordingly locate the two points under the internal process perspective within the BSC and suggest to define appropriate measures to quantify core competencies.

In order to ensure the understanding of both depth and focus, depth is defined in the following as the level of vertical integration of a company, which is the "percentage of total manufacturing done in-house" (Simon, 2009, p. 238). Focus is defined as the degree of specialization that a company has with regard to a specific market or product (Porter, 1989).

Starting with assessing the level of vertical integration, scientific literature suggests the use of metrics such as the value-added to sales index, the value-added ratio, or the vertical industry connection index. Although the latter is the most sophisticated approach to measure vertical integration, value-added to sales index and value-added ratio are more common when conducting empirical research due to their ease of use (Beimborn, 2008; Maddigan, 1981). Moreover, Simon applies a more simplified ratio using the sum of purchased materials and services divided by sales to calculate the level of vertical integration in his HC-model (Simon, 2009).

Applying these metrics, Simon (2009) shows that HCs in Germany, on average, undertake 42 percent of their manufacturing activities in-house. These figures are much higher compared to NHCs, whose average is 29.8 percent. This number implies that HCs tend to be more vertically integrated than NHCs and moreover, are less inclined to outsource certain value-adding processes or activities (Simon, 2009). International studies that tend to validate these performance indicators towards the success of HCs, however, are rarely found in management literature so far.

This finding, in general, gives rise to the question of whether vertical integration as a key lesson of HCs, according to Simons theory, is transferable to the Chinese economy. In Chapter 2.1.2.1, it was shown that the Chinese government highly subsidizes and promotes the development of industry clusters, industrial parks, and high-tech industrial development zones. In that manner, the government encourages the formation of strategic alliances, helps businesses to decrease transaction costs, and fosters overall economic growth through the spatial accumulation of related enterprises (Liu, 2008).

These government-lead initiatives towards the spatial accumulation of related enterprises, as seen in industry clusters, however, mainly decrease the level of vertical integration. As a reason serves that a “higher vertically related variety reduces the need for firms to integrate activities, since they have more opportunities to acquire intermediate goods and services within the local system” (Cainelli & Iacobucci, 2012, p. 255).

Concerning the above, a paradox is found between Simon’s assumption of higher vertical integration of HCs and the country-specific competitive advantages whereby many Chinese SMEs are located within industrial clusters, leading to a lower degree of vertical integration. In fact, Simon assumes that industrial clusters do not pose a “particular strategic significance for the hidden champions” (Simon, 2009, p. 251).

As such, the qualitative analysis does not provide sufficient evidence to assume that Chinese HCs are more vertically integrated than NHCs in China. More importantly, it appears that Chinese-specific factors dominate, such as being localized within an industrial cluster. In addition, the analysis conducted by Greeven

et al. (2019b) about the locations of Chinese HCs indicate once more that most of them are located in provinces that are characterized by a high concentration of industrial clusters.

Regarding the second aspect of specialization, Lei and Wu (2020) found that, contrary to Simon's assumption of "the specialist frequently beats the generalist" (Simon, 2009, p. 87), Chinese HCs pursue both strategic approaches in terms of growth: specialization and generalization. As a reason, the authors claim that the external market environment that companies in emerging markets are facing sets "more stringent requirements for organizational adaptation" (Lei & Wu, 2020, p. 16). To measure the two strategic approaches, Lei and Wu (2020) apply network-based indicators to investigate the complexity and centrality of HCs. Complexity in this context refers to a broad focus on a large number of company constructs, while centrality only focuses on a relatively small range of constructs.

It is evident that with regard to focus and depth, a more country-specific view is required, and that prior findings on German HCs cannot be easily transferred to the Chinese context (Lei & Wu, 2020). Additionally, company-specific information towards focus and depth is hardly accessible, which makes an empirical study in this thesis unfeasible. Nevertheless, it became apparent that the location of a company can affect the level of vertical integration as well as specialization. Hence, company location is included as a control variable in this empirical study.

## 3.4. Business relationship perspective

The business relationship perspective is another dimension covering operational measures for determining the business performance of organizations. The following section focuses on political linkages and firm performance.

Research that discusses the influence of political linkages on business performance is not entirely new and already covers a wide range of economic areas. Thus, Faccio (2006) shows that the execution of a political office by a business leader positively affects the return of the given business. Fergusson and Voth (2008) came to a similar conclusion by providing evidence of a connection between "business leaders with ties to the NSDAP served on supervisory and management boards" (p. 131) and the stock returns of those respective firms.

Regarding prior studies and management literature dealing with theories on HCs, network as a determinant of success is hardly explored. Although the relevance of networks regarding innovation is discussed, it is not considered in connection with the execution of political offices. However, this may be attributable to differences in the political systems, as Faccio writes:

> "(…) political relationships are not equally common across countries. Connections are particularly common in countries with higher levels of corruption, countries imposing restrictions on foreign investments by their residents (…). Connections are less common in countries with regulations that set more rigorous limits on political conflicts of interest." (2006, p. 384)

Appropriately, fewer political contacts and less relevance towards this topic might be perceived for the German-speaking area, where the theory of HCs originates. Nonetheless, also studies conducted in Germany reveal that companies commanding political connections surpass companies lacking such connections in terms of accounting-based performance indicators (Niessen & Ruenzi, 2010).

Referring back to China, the network factor is relevant and must be included as a success criterion towards business performance, as a study by Truex (2014) suggests. The researcher shows that if a company's CEO is also represented with a seat in the NPC, this can account for "additional 1.5 percentage points in returns and a 3 to 4 percentage point boost in operating profit margin in a given year" (Truex, 2014, p. 235). Furthermore, Tse (2015) supports the relevance of holding a position within an official body to ensure business success. The author states that "the increasing visibility of entrepreneurs in official bodies may suggest (…) that they believe the best way to secure the changes they do want is to work within the system" (p. 18).

In line with the studies mentioned above, the number of managers holding a seat in the NPC will be used as a measure in the following analysis. Thus, the following research hypothesis in terms of organizational structure can be derived:

> H5: A high number of leading managers holding a seat in the NPC increases the likelihood of a company belonging to the group of Chinese HCs.

## 3.5. Internationalization perspective

Since the 1970s, various studies have shown that internationalization has a significant influence on the financial performance of a company (Sullivan, 1994). By summarizing the results of prior studies, Sullivan (1994) shows that internationalization is mainly driven by five performance, structural, and attitudinal factors that comprises the following:

- foreign sales as a percentage of total sales
- foreign assets as a percentage of total assets
- oversea subsidiaries as a percentage of total subsidiaries
- top managers international experience
- physical distance of international operations

Current studies on HCs are mostly based on the parameters identified by Sullivan (1994). Schlepphorst et al. (2016), for example, refer to the number of foreign wholly-owned subsidiaries and changes in the respective export volumes as parameters to quantify the internationalization degree of HCs (see also Voudouris et al., 2000). Simon (2009) also applies Sullivans' structural parameters by showing that "today's hidden champions have on average 24 subsidiaries in other countries" (p. 92).

Another approach to determine the level of internationalization of HCs is by measuring the degree to which "hidden champions collaborate with global partners" (Yoon, 2013, p. 6260), namely global collaboration (%) and global information collection. Yoon (2013) found significant evidence for both performance measures for Korean HCs.

Besides measuring the level of internationalization, there is also research towards the question of which strategies HCs apply to internationalize. Regarding international market entry strategies of HCs Witt & Carr (2013) found out, that HCs from Germany "prefer full controlled entry modes, such as wholly owned subsidiaries (81 per cent) and export (65 per cent) over less controlled entry modes, such as joint ventures (15 per cent)" (p. 103).

Cumulated, the majority of prior studies on HCs see internationalization as one of the driving forces behind the success of HCs. Nevertheless, the strategy towards internationalization, as described by Simon (2009), is instead a necessity in order to continue generating growth within their respective market niches since the domestic markets are already saturated (see also Yu & Chen, 2009).

Consequently, the question arises as to whether HCs still pursue a strong internationalization strategy, even if cultural and region-specific elements differ (Witt & Carr, 2013). As is the case in China for instance, where the domestic market is substantially larger and grows more vigorously. In accordance, Yu and Chen (2009) point out in their scientific paper, that “besides, the overseas markets make great contributions to the sales volumes of Chinese Hidden Champions (…) the firms do not strongly rely on them.” (p. 34).

In contrast, when having a look at the Chinese HC Goertek, the market leader in the field of acoustic components, a different picture emerges. According to the annual report for 2018, almost 80 percent of sales are generated by exports to overseas markets (Goertek, 2018). On average, German HCs achieve an export quota of 61.5 percent (Simon, 2009).

Considering those divergent perspectives on the internationalization of HCs in China and using the structural parameters suggested by Sullivan, the following research hypothesis in terms of internationalization is derived:

H6: A high number of foreign subsidiaries increase the likelihood of a company belonging to the group of Chinese HCs.

## 3.6. Customer relationship perspective

Lastly, the customer relationship perspective, as noted in the BSC has to be taken into account to ensure a holistic approach when assessing organizational performance. Customer focus and customer relationship are critical drivers of corporate success (Kaplan & Norton, 1992). As described in Chapter 2.2.3.7, customer focus is considered as a key determinant of HCs’ superior business performance as customer relationships go along with an improved ability to innovate (Din et al., 2013; Simon, 2009).

Management literature lists several measures to assess the level of customer relationship. As such Chenhall and Langfield-Smith (2007) suggest using metrics like customer satisfaction, customer lifetime value, and brand equity. Customer satisfaction is, in turn, directly affected by the effectiveness of the internal business processes of a firm (Kaplan & Norton, 1992). Moreover, Reichheld (1999) found out that customer loyalty has a more significant effect on performance than market share.

In addition to customer satisfaction and customer loyalty as customer relationship performance indicators, Simon (2009) suggests the number of employees with regular customer contact per total number of employees in the company to quantify the customer focus of HCs. The number of direct sales can also be used as a benchmark indicator regarding customer focus (Simon, 2009; Yosun & Çetindamar, 2013).

Their application is validated by studies on European HCs as well as findings on Chinese HCs (Simon, 2009; Voudouris et al., 2000; Yu & Chen, 2009). Thus, Yu and Chen (2009) show that “customer orientation, implemented through good quality product or service, communication and high reputation” (p. 33) have a significant influence on the performance of HCs in China. Reputation, in this case, is of particular interest as it is also part of the concept of Guanxi that was introduced in Chapter 2.1.2.2 as a key driver of competitive advantages of Chinese SMEs.

The annual reports of selected HCs likewise identify a high degree of customer orientation. Fangda Group, the leading manufacturer for metro screen doors, serves as the first example. Fangda, just like several German counterparts, makes more than 18 percent of its annual revenue only with its top five customers (Fangda Group, 2018). Although this high ratio can bear risks in terms of customer dependency, it also bears opportunities in terms of precise adoption to their customer demands (Simon, 2009).

As the second example serves Hongfa, the leading automotive relay manufacturer. According to analyst reports by Deutsche Bank AG (2018), the HC “manufactures high-powered relays with superior customization capability and offers

instant R&D support to clients” (p. 3). This determined focus on customer requirements helps the HC to hold its dominant market share.

As the third example concerning customer orientation, serves the former HC Hikvision who’s strategy is to foster investments in „customer services to enhance customer satisfaction“ (Hikvision, 2018, p. 2). Although the customer relationship perspective is of critical importance when assessing the performance of HCs in China, the lack of data transparency among Chinese companies does not permit a detailed analysis regarding this performance indicator. Therefore, the quantitative validation of this characteristic remains a subject for future research.

# 4. Data and Methodology

Once the research hypotheses have been derived as set out in Chapter 3, the next step is to test these hypotheses using a quantitative approach. For all research hypotheses, a relatively better performance of HCs compared to NHCs is expected. The present work aims to verify previous qualitative studies and to examine which factors lead enterprises in China to become an HC. In this context, a logistic regression is applied. The model simulation is done using R.

## 4.1. Research Sample

The following analysis is built upon five data sets that are based on secondary data. These sets include the Global Market Leader data set (GML), the data set on Financials of Chinese Enterprises (FCE), the data set of Chinese Managing Directors (CMD), the data set of Industrial City Clusters (ICC) and the NPC Delegates data set (NPCD). The latter are retrieved via the Li & Fung Research Center (2010), and the NPC Observer (2018) website, whereas the first three data sets are retrieved via the Orbis database run by Bureau van Dijk, a Moody's Analytics Company. Orbis is a recognized database that accumulates industrial, financial, and structural information on over 365 million listed public and private companies worldwide (Bureau van Dijk, 2020).

As framework conditions of the three Orbis data sets, search filters are applied. Thus, only active companies with overview information, featuring the last available reporting years 2018, 2019, and with available information on revenues, number of employees, EBIT, EQR, and R&D expenses in 2018, are selected. The datasets are further specified by limiting it to a specific industry, namely 33 Manufacturing. Key businesses of 33 Manufacturing are metal, machinery, and wood manufacturing. The industrial recoding used in this paper refers to the North American Industry Classification System, abbreviated as NACIS (EOP, 2017). A similar approach is adopted by Lei and Wu (2020) in their study on specialist and generalist strategies of Chinese HCs.

The industry limitation helps to ensure the reliability of the results by avoiding biases, as a comparison across several sectors and industries can lead to distor-

tions. The risk of distortions applies in particular to metrics that refer to productivity indicators (Antony & Bhattacharyya, 2010; Bernard & Jones, 1996). Furthermore, the sector 33 Manufacturing is selected in accordance with previous studies that identified the highest accumulation of HCs in this sector (Simon, 2009).

The FCE serves as the core data set of the analysis and provides information on relevant KPIs such as sales or profit/loss ratios of all Chinese companies to which the search strategy described above applies. The FCE is further expanded by the CMD that contains names of all managing directors of the companies listed in the FCE. Subsequently, in accordance with the respective manager names, the NPCD is merged.

The purpose of the NPCD is to identify those managers of Chinese companies, which are also delegates of the Chinese NPC. Besides names, the NPCD contains further information about party affiliation, gender, age, and the date of birth on all 2,980 Chinese delegates to the 13$^{th}$ (NPC Observer, 2018). Lastly, the ICC, containing data on the Top 100 industrial clusters in China, is merged with the FCE (Li & Fung Research Center, 2010). As joint criteria, the city name is used.

Having consolidated the four data sets, the GML is used for the identification of companies meeting the criteria that define an HC according to Simon: Top three global market leader in the respective market, revenue limit of $4 billion, and low public profile (Simon, 2009). Due to its rather qualitative nature, the latter criterion, as conducted in other recent studies is not considered in this thesis (Schlepphorst et al., 2016; Venohr & Kamp, 2019). A detailed description covering the identification process can be found in Chapter 4.2.1 under the description of the dependent variable.

In addition to the already applied search strategy, the following analysis excludes companies with any one of the following characteristics: incomplete or incomparable financial data between 2015-2018; companies of which the global or national parent corporation is located outside mainland China; and extreme outliers that differ by more than five standard deviations from the sample mean (applied to certain financial KPI). A sample of N = 2,759 Chinese companies remains of which $n_1$ = 62 were identified as HC and $n_0$ = 2,697 as NHC.

## 4.2. Measures

All variables are based on business activities between 2015 and 2018 unless otherwise specified. The variables are based on the Bureau van Dijk data sets complemented by the data set by the Li & Fung Research Centre and the NPC Observer.

### 4.2.1. Dependent variable

The dependent variable describes the likelihood that a company belongs to the group of HCs. The allocation of affiliation to different groups of companies (HC and NHC) requires a differentiation which, in accordance with previous studies, is based on the two main quantitative criteria according to Simon (2009): Market leadership and revenue limit. The third criterion, public awareness may be measured, as studies suggest by the number of Google searches (Greeven et al., 2019b). This criterion, however, is neglected in the present study due to its rather qualitative nature and measurement difficulties in prior studies (Venohr & Kamp, 2019).

The differentiation between companies by status groups HC and NHC, which in the following are coded HC = 1 and NHC = 0, is carried out in two stages. In order to identify those companies from the sample that match with the HC criteria, the GML data set is used. Within this data set, industry-specific peer groups based on the respective NACIS coding are utilized to determine market leadership. Thus, the industry 33 Manufacturing is further structured into sub-groups/-markets according to NACIS, such as 333 111 “Farm Machinery and Equipment Manufacturing” or 333 312 “Optical Instrument and Lens Manufacturing” (EOP, 2017, p. 42).

Thereupon, those companies are identified as the top three global market leaders that show the first, second, and third highest turnover in 2018 within the respective sub-industry. The definition of market leadership used for identification is consistent with studies conducted by Simon (2009). If the respective market leader satisfies the sales criterion of less than $4 billion as well, the company in question is coded as HC=1. The selected companies from data set GML are then transferred to the FCE data set. Accordingly, all companies that do not meet the criteria are coded as NHC=0.

### 4.2.2. Independent variables

In order to facilitate clarity, the independent variables are categorized in a manner similar to Schlepphorst et al. (2016). For this purpose, the structure of the hypothesis generation from Chapter 3 is used. As a result, the independent variables are grouped according to financial-perspective, innovation-perspective, internal-process-perspective, business-relationship-perspective, and internationalization-perspective measures.

Financial-perspective measures include common financial KPIs. The considered key figures are the EBIT margin, the EQR, and the CAGR. All measures are metrically scaled. The EBIT margin is used to represent the profit situation of each Chinese company and calculated by using the EBIT value in 2018, divided by the revenues in 2018. The EQR assesses the financial health of a company and is calculated using the total equity divided by total capital. Furthermore, the 3-year CAGR (%) is used as a financial measure. It shows the yearly average growth rate in sales for each Chinese company within the data set and is calculated by using the revenues from 2015 to 2018. The following formulas are applied:

Eq. 4

$$EBIT\ Margin\ =\ \frac{EBIT\ 2018}{Revenue\ 2018}$$

Eq. 5

$$EQR\ =\ \frac{Total\ equity\ 2018}{Total\ capital\ 2018}$$

Eq. 6

$$CAGR\ =\ \left(\frac{Revenue\ 2018}{Revenue\ 2015}\right)^{\frac{1}{3}}$$

The innovation-perspective measure covers R&D intensity (%) in 2018. The indicator is metrically scaled and calculated using the total R&D expenditures in 2018, divided by the revenues in 2018.

The following formula is applied: Eq. 7

$$R\&D\ Intensity = \frac{R\&D\ expenditures\ 2018}{Revenue\ 2018}$$

Internal-process-perspective measures cover the variable productivity per employee (tsd. USD). For the calculation, the revenues for 2018 are divided by the number of employees in 2018. As with the financial and innovation-perspective variables, the productivity ratio is also metrically scaled. The following formula is applied: Eq. 8

$$Productivity\ per\ employee = \frac{Revenue\ 2018}{Number\ of\ employees\ 2018}$$

Furthermore, the business-relationship-perspective measure includes the metric variable of NPC deputyship. The NPC deputyship variable describes whether a managing director of a company also serves as a deputy of the 13th NPC. Finally, the internationalization-perspective measure is reflected by the number of foreign subsidiaries a company reported in 2018. As with the previous independent variables, this indicator is also metrically scaled.

### 4.2.3. Control variables and interfering variables

Control variables also need to be included in the present model in order to take socio-demographic factors into account that can influence company performance (Rammer & Spielkamp, 2019; Schlepphorst et al., 2016). Among these variables are the company age (years), the size of a company measured by the number of employees (no.), and the geographical location (0/1).

Whereas the variables age and size are metrically scaled, location is categorial. Significant effects of the variables as mentioned earlier were previously confirmed by Lei and Wu (2020), as well as by Schlepphorst et al. (2016), suggesting that their influence must be controlled in the present study as well.

Possible interfering variables that were considered include global economic growth or within-industry growth. By limiting the analysis and the respective model to one sector, namely, 33 Manufacturing and to one fiscal year, namely

2018[4], it is possible to keep these variables relatively constant. Thus, biases and distortions can be minimized.

## 4.3. Methodology

Due to the dichotomous nature of the dependent variable, a logistic regression model is applied. This model is best suited to investigate the causal relationships between the dependent and independent variables described in Chapter 4.2. By using a logistic regression model, it is possible to predict the probability with which a company from the data set will be classified as HC (Baltes-Götz, 2012). The following mathematical equation expresses this relationship:

Eq. 9

$$Logit\left(P(Y = 1)\right) = \beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k$$

Compared to linear regression, logistic regression is less presuppositional. As a general rule, each category of the dependent variable should have at least 50 cases. This requirement is fulfilled in the present case as $n_0$=2.697 and $n_1$=62 (Baltes-Götz, 2012). Furthermore, there must be no multicollinearity between the metric variables of the model. The results of a conducted bivariate correlation analysis show that all metric variables have a correlation below the limit of 0.80. Thus, the second condition can be considered as fulfilled as well. The corresponding results are shown in the Table 1 below.

Table 1: Correlation matrix

| | EBIT Margin | Equity Ratio | CAGR | Productivity | R&D Intensity | NPC Members | Foreign Subsidiaries | Size | Age | Cluster |
|---|---|---|---|---|---|---|---|---|---|---|
| EBIT Margin | 1.00 | | | | | | | | | |
| Equity Ratio | 0.23 | 1.00 | | | | | | | | |
| CAGR | 0.31 | -0.00 | 1.00 | | | | | | | |
| Productivity | -0.34 | 0.15 | -0.13 | 1.00 | | | | | | |
| R&D Intensity | 0.09 | -0.13 | 0.19 | -0.26 | 1.00 | | | | | |
| NPC Members | -0.00 | -0.03 | -0.04 | -0.05 | 0.13 | 1.00 | | | | |
| Foreign Subsidiaries | -0.03 | -0.11 | 0.03 | -0.10 | 0.18 | 0.19 | 1.00 | | | |
| Size | 0.04 | -0.16 | 0.08 | -0.17 | 0.16 | 0.20 | 0.44 | 1.00 | | |
| Age | 0.01 | -0.03 | -0.08 | -0.17 | 0.14 | 0.19 | 0.20 | 0.29 | 1.00 | |
| Cluster | -0.04 | 0.04 | -0.01 | 0.07 | 0.11 | 0.09 | 0.15 | 0.08 | 0.10 | 1.00 |

[4] Except for the CAGR variable

Due to the unbalanced sample, methods designed to reduce possible biases are applied. Such methods prevent that the respective models are either underpowered and provide finite and reliable results even for samples containing rare events, as is the case with HCs. The theoretical framework is based on Firth's theory on bias-reduced logistic regressions (Firth, 1993).

Correspondingly, the sample data is imported into R and analyzed using the package "brglm". The "brglm" package can be used simultaneously to package "logistf" and yields identical results. To confirm the validity of the model, the standard test of McFadden $R^2$ and the Hosmer and Lemeshow statistic is employed. For assessing the model quality by comparing selected models, the Akaike information criterion (AIC) is used (Baltes-Götz, 2012).

# 5. Empirical Analysis

The following chapter contains the empirical results of the logistic regression. Firstly, the descriptive values of our sample are briefly described in order to provide an overview of the examined status groups. After that, based on the theoretical groundwork derived from Chapter 2 and Chapter 3, the regression model will be presented, exploring the factors that increase the likelihood of a company belonging to the group of Chinese HCs.

## 5.1. Descriptive Statistics on HCs and NHCs

Table 2: Descriptive statistics

| | | Status Group | | | | | |
|---|---|---|---|---|---|---|---|
| | | NHC | | | HC | | |
| Variables | | Count | Mean | Standard Deviation | Count | Mean | Standard Deviation |
| EBIT Margin (%) | | 2697 | 2.82 | 34.58 | 62 | 10.76 | 10.68 |
| Equity Ratio (%) | | 2697 | 57.11 | 20.19 | 62 | 54.91 | 18.02 |
| CAGR (%) | | 2697 | 14.45 | 23.48 | 62 | 24.04 | 26.37 |
| R&D Intensity (%) | | 2697 | 6.79 | 7.27 | 62 | 2.95 | 1.74 |
| Productivity (tsd. USD) | | 2697 | 133.78 | 125.52 | 62 | 207.61 | 222.33 |
| NPC Members (no.) | | 2697 | 1.08 | 1.21 | 62 | 1.42 | 1.40 |
| Foreign Subsidiaries (no.) | | 2697 | 0.63 | 2.04 | 62 | 2.11 | 3.57 |
| Company Age (years) | | 2697 | 15.47 | 5.74 | 62 | 19.73 | 4.96 |
| Employees (no.) | | 2.697 | 1,818 | 4,019 | 62 | 6,454 | 5,200 |
| Cluster (0/1) | 0 (no) | 1663 | (62%) | | 37 | (60%) | |
| | 1 (yes) | 1034 | (38%) | | 25 | (40%) | |

Table 2 provides a comparison of the descriptive statistics of NHCs and HCs in terms of count, mean, and standard deviation. As described in detail in Chapter 4, a total of N= 2,759 Chinese companies were sampled, of which 62 were identified as HCs and the remaining 2,697 as NHCs.

As shown in Table 2, the status groups are very unequally distributed. 97.8 percent of the companies belong to the group of NHCs, whereas only 2.2 percent account for HCs. This uneven distribution can, however, be explained by the fact that HCs are considered a rare event, and therefore their proportion among the total number of enterprises in a country is extremely low. In this context, Simon

assumed only 0.1 HCs per one million inhabitants in China in 2016 (Simon, 2016). Taken the steady growth rate of the Chinese economy into account, this proportion suggests that the present sample can be considered representative. The author is aware of the unequal distribution of the status groups and takes this into account when compiling the regression models.

Considering the means as depicted in Table 2, there are significant differences in EBIT margin, CAGR, productivity, R&D intensity, and the number of foreign subsidiaries. Looking at the EBIT margin, HCs show a considerably higher mean with μ= 10.76 percent than NHCs with μ= 2.82 percent. A similar picture emerges for the CAGR. HCs show, on average, a CAGR of μ= 24.04 percent, whereas NHCs show a mean of μ= 14.45 percent.

In terms of productivity, there are also distinct differences in the means. The productivity per employee of HCs on average accounts for μ= 207.61 (tsd. USD), the productivity per employee of NHCs only for μ= 133.78 (tsd. USD). Substantial differences also arise with regard to innovation. In this respect, however, NHCs outperform HCs by showing an average R&D intensity of μ = 6.79 percent compared to HCs, showing an average R&D intensity of only μ = 2.95 percent. In terms of internationalization, HCs operate on average μ= 2.11 foreign subsidiaries, whereas NHCs operate on average only μ= 0.63.

Rather slight differences in the means are found for network and EQR. Thus, HCs have on average μ= 1.42 and NHC μ= 1.08 members of the management board and simultaneously holding a seat in the NPC. Regarding the EQR it can be found that on average, HCs have an EQR of μ= 54.91 percent, whereas NHCs have a mean of μ= 57.11 percent.

With regard to control variables, there are also considerable differences between the means. HCs employ on average μ= 6,454 employees and are hence much larger than NHCs with μ= 1,818 employees. Furthermore, HCs showing an average age of μ= 19.73 years tend to be older than NHCs μ= 15.47 years. Considering the geographical distribution, 40 percent of the HCs are located in a city with a major industrial cluster, likewise, 38 percent of the NHCs show this distribution.

## 5.2. Regression Results

In the following chapter, the validity of the hypotheses derived from Chapter 3 will be tested using Firth's biased reduced logistic regression in R. In the following, the consolidated logistic regression model, including control variables is computed and reported. The inclusion of the control variables and thereby the verification of the alternative hypotheses serves as a tool to reduce confounding, further selected models can be found in the Appendix. The evaluation of the logistic regression is conducted by the use of models assessing the goodness of fit, such as McFaddens $R^2$ and the Hosmer and Lemeshow statistic, as well as the AIC to assess the model quality. Table 3 summarizes the regression results.

Table 3: Regression results

| | Model 6 |
|---|---|
| Intercept | 0.01 (0.000***) |
| EBIT Margin (%) | 14.14 (0.027*) |
| Equity Ratio (%) | 2.66 (0.218) |
| CAGR (%) | 3.08 (0.019*) |
| Productivity (tsd USD) | 1.00 (0.937) |
| R&D Intensity (%) | 0.00 (0.000***) |
| NPC Members (no.) | 1.00 (0.983) |
| Foreign Subsidiaries (no.) | 1.07 (0.079.) |
| Controlled variables | |
| Employees (no.) | 1.00 (0.001***) |
| Company Age (ys.) | 1.08 (0.000***) |
| Cluster (y/n) | 1.04 (0.880) |
| AIC | 513 |
| McFadden $R^2$ | 0.17 |
| Hosmer and Lemeshow | 0.32 |

***p<0.001 **p<0.01 *p<0.05 .p<0.1; Odds ratios are displayed. Odds ratios > 1 increase, while odds ratios < 1 decrease the chance of a company belonging to the status group HC.

As illustrated in Table 3, HCs differ significantly from NHCs in three main characteristics: EBIT margin, CAGR, and R&D intensity. EBIT margin (OR 14.14, $p<0.05$) and CAGR (OR 3.08, $p<0.05$) show a positive effect and thus increase the chance of a company belonging to the status group of HCs.

Setting the values for EBIT margin into context leads to the following interpretation: For an additional increase in EBIT margin by one unit, the probability of belonging to the status group of HCs changes compared to the probability of belonging to the status group of NHCs by a factor of 14.14. This interpretation can simultaneously be transferred to the CAGR with a factor of 3.08. Due to the rather uninformative scope of interpretation for the odds ratios, however, only the effect direction will be considered in the following (see also Best &Wolf, 2012).

Thus, Hypothesis 1a: “High EBIT margin values increase the likelihood of a company belonging to the group of Chinese HCs*”*, as well as Hypothesis 2: “High CAGR values increase the likelihood of a company belonging to the group of Chinese HCs*”,* can be confirmed. These findings coincide with the findings of previous HCs studies.

A different picture emerges for the direction of the effect in terms of R&D intensity (OR 0.00, $p<0.001$). According to the result, a change in the R&D intensity has a significantly negative effect on the likelihood of a company belonging to the status group of HCs. Consequently, Hypothesis 3: “High R&D intensity values increase the likelihood of a company belonging to the group of Chinese HCs” must be rejected.

Moreover, slightly significant differences between HCs and NHCs are observed with respect to the number of foreign subsidiaries (OR 1.07, $p<0.1$). The establishment of an additional wholly-owned foreign subsidiary increases the likelihood of belonging to the status group HCs compared to the likelihood of belonging to the status group of NHCs. If we consider even weakly significant results as tolerable, Hypothesis 6: “A high number of foreign subsidiaries increase the likelihood of a company belonging to the group of Chinese HCs” can be confirmed.

In contradistinction to the initial hypotheses, no significant differences between HCs and NHCs in China were found for the factors EQR (OR 2.66, $p>0.1$), productivity per employee (OR 1.00, $p>0.1$) and the number of managers holding

a seat in the NPC (OR 1.00, p>0.1). Therefore the Hypothesis 1b: “High EQR values increase the likelihood of a company belonging to the group of Chinese HCs”, the Hypothesis 4: “High productivity per employee values increase the likelihood of a company belonging to the group of Chinese HCs” and the Hypothesis 5: “A high number of leading managers holding a seat in the NPC increases the likelihood of a company belonging to the group of Chinese HCs” must be rejected.

The results reported in Table 3 furthermore confirm that two of the three control variables significantly influence the likelihood of a company belonging to the status group of HC. Chinese HCs thus differ from NHCs in terms of company size measured by the number of employees (OR 1.00, p<0.01) and in terms of company age (OR 1.08, p<0.001). Geographical location describing the affiliation to an industrial cluster as the third control variable shows no statistical significance (OR 1.04, p>0.1).

Regarding the results of the model fit, McFadden $R^2$ shows a value of 0.17. This value is relatively modest and is slightly below the benchmark value for good models, which ranges between 0.2 and 0.4. This finding indicates that the fit between the model and the given data is not yet optimal. A similar implication can be derived for the Hosmer and Lemeshow goodness of fit test with a value of 0.32. For evaluating the AIC, showing a value of 513, the model has to be compared to the other models listed in the Appendix. Compared to the Null model, the model presented in Table 3 is significantly better; however, the model quality is not optimal either.

# 6. Discussion

Referring back to the research question “How do Chinese Hidden Champions differ from Chinese Non-hidden Champions?” the empirical analysis shows that Chinese HCs significantly differ from Chinese NHCs in terms of EBIT margin, CAGR, R&D intensity and also slightly in terms of foreign subsidiaries. Although expected, there were no differences found, in terms of equity ratio, productivity per employee, and NPC deputyship. In the following, the different findings are discussed and linked to implications for theory.

From the financial perspective, the empirical findings confirm Hypothesis 1a as well as Hypothesis 2. Both variables, EBIT margin, and CAGR, increase the probability of a company belonging to the group of HCs in China. No statistically significant result was observed for H1b. In reference to the underlying research question, Chinese HCs differ from their counterparts by a higher EBIT margin and a stronger CAGR, but not by a higher EQR. Our results pertaining to EBIT margin and CAGR confirm previous studies on European HCs and confirm these determinants of HCs also with respect to China.

As highlighted in Chapter 3.1, a vast number of Chinese HCs pursue low-cost strategies (Sanhua, 2020; Yu & Chen, 2009). The combination of low-price-high-volume as the dominant business strategy serves as one reason explaining the difference in EBIT margin between HCs and NHCs in China. Additionally, HCs are more capable than NHCs to enforce successful and profitable cost leadership strategies in the long run due to their significantly larger organizational size, resulting in better economies of scale, and business experience in terms of company age, as shown by the control variables.

The results regarding the CAGR also provide confirmation for prior qualitative studies on Chinese HCs conducted by Greeven et al. (2019b). Strong growth rates, as shown by the empirical results in Table 2, are a significant determinant of Chinese HCs. The strong growth in revenues of Chinese HCs is attributable to the accelerated development of the Chinese domestic market, a market that offers high growth potential as a yet undersaturated market (Yu & Chen, 2009). Moreover, the strong growth in sales may be attributable to the expansion of HCs into foreign markets. Growth through international expansion is conditioned by

fundamental problems associated with niche markets, as mentioned by Simon (2009).

Regarding the last financial-related variable EQR, the regression results show no significant difference between HCs and NHCs in China either. The financial stability measured by the EQR, therefore, cannot be considered a determinant of Chinese HCs. This result may be explained by the high administrative hurdles associated with debt financing in China. Furthermore, a low level of perceived reliability on financial institutions, as shown in Chapter 3.1.1 serves as a second reason for the regression result. Neither HCs nor NHCs consider debt financing as a critical source of capital, leaving a consistently high EQR.

Regarding innovation, the empirical results do not support Hypothesis 3. Based on the present findings, a higher R&D intensity does not increase the probability of belonging to the status group of HCs, but on the contrary, it even has a negative effect on the likelihood of being HC. These findings are in contrast to most of the previous research on HCs and their innovation behavior (Simon, 2009). Similarly, they are unable to confirm the results obtained for Chinese HC by Greeven et al. (2019b). Rammer and Spielkamp (2015), however, showed previously that the R&D expenditure for German HCs is not exclusively higher than for NHCs in Germany (see also Mäkeläinen, 2014). Likewise, Yoon (2013) found no significant differences in the R&D intensity of HCs and NHCs in Korean HC either.

According to Rammer and Spielkamp (2019), outputs of innovation should, therefore, be considered instead of their inputs, for instance, utilizing patents. For China, however, as it was outlined in Chapter 3.2, the indicator must be regarded as inappropriate due to different levels of patent quality in comparison to the West. Baloh (2013) supports this view by pointing out that in economies with low intellectual property protection and ineffective rule of law, such as the CEE region or China, trust in patents, in general, remains low.

Even though other studies validated the use of R&D intensity as a measure, the empirical results may be ascribed to weaknesses in the indicator. For example, innovative approaches and creative solutions that are not intended to introduce technological innovations rather than to enhance services are not necessarily considered to be R&D expenditures. At this point, specific research is required to

examine the sources of innovation of Chinese HCs in a more explicit way to address factors such as the operation of R&D research facilities, cooperation with universities, or new product launches.

Given the internal process perspective, the empirical results obtained do not confirm the assumed Hypothesis 4 either, although Chinese HCs show a larger organizational size in terms of employees. Thus, a higher productivity rate per employee does not increase the probability of a company in China belonging to the group of HCs. This result is contradictory to the findings of German HCs, as evidenced by Rammer and Spielkamp (2017).

These results, however, may be explained by the fact that labor costs in China, in general, remain at a very low level. Lower costs for labor do not force companies to streamline their existing processes and business structures, for example, through automation, or similar measures. These circumstances apply to HCs as much as to NHCs in China. Nevertheless, in the course of Made 2025 and further political reforms leading to an increase in working conditions in China, a change is anticipated in the forthcoming years (Wübbeke et al., 2016).

In addition, a second reason for the non-significant effect of the productivity hypothesis may be attributed to the non-significant effect of the control variable cluster location. The distribution of enterprises located within a city possessing a relevant industry cluster corresponds to about 60 percent in both status groups. Thus, both groups, HCs and NHCs benefit equally from productivity advantages due to proximity to suppliers as well as knowledge and information spill-overs.

Furthermore, the empirical results do not confirm Hypothesis 5. Accordingly, the existence of a management board member who simultaneously serves as a deputy in the NPC does not determine the likelihood of a company belonging to the group of HCs in China. The postulated connection between HCs and the relevance of political connections tested by using the NPC deputyship so far was rarely mentioned in prior management literature on HCs. As such, a comparison with prior studies is difficult.

Nonetheless, the findings of the present study are still of interest, since on average, 60 percent of the Chinese companies in the sample have at least one man-

ager with deputyship in the NPC. Moreover, the size and age of a company correlates with the number of NPC members. A possible explanation for this situation can be found in the theoretical background in Chapter 2.1.2.2. Political connections in the sense of Guanxi help to reduce risk in an unstable and dynamic environment as is the case in China. Country specific differences as such, have not been sufficiently taken into account in the latest model of HCs by Simon. Further cultural and country-specific research is needed to be able to depict the determinants of HCs accurately.

With regard to the internationalization perspective, the empirical findings confirm Hypothesis 6 (although only slightly). Accordingly, the number of foreign subsidiaries increases the probability of a company belonging to the group of HCs in China. With regard to the research question, HCs differ from their NHC counterparts in terms of a higher number of foreign subsidiaries. These results are consistent with Simon's core theory but also with further studies on German and Korean HCs (Simon 2009; Yoon 2013; Witt 2013).

Reasons for international expansion are constraints imposed by niche markets. In order to maintain growth, HCs are obliged to expand beyond national borders and into other geographical regions to avoid the problem of saturated markets. This reasoning also serves as an explanation in the empirical study. A glance at the correlation between the control variables of company size and age and the number of foreign subsidiaries, however, indicates that a certain size and experience is required to go global.

Moreover, an essential environmental factor in the Chinese context should not be neglected when interpreting the results, namely the sheer size of the domestic market. Herein lies a probable reason for the weak effect of the internationalization variable in the model. Chinese HCs are currently not yet or only partially forced to expand their business on an international scale, as the Chinese market is not yet saturated and furthermore, is experiencing strong growth, as Yu and Chen (2009) also show.

Concerning market entry strategies of Chinese HCs, only wholly-owned foreign subsidiaries were investigated. Leaving the question open for further research,

how joint ventures or other strategic alliances determine Chinese HCs in terms of their internationalization.

After discussing the regression results and having linked them with prior findings, it has to be noted that this thesis is not without limitations. Especially the spongy definition of quantified characteristics that define an HC impedes a thorough empirical verification of the HC theory. Improved quantification of the feature of low public awareness would be advantageous.

Furthermore, due to limited data availability, only a partial quantitative review of a sub-selection of all relevant HC characteristics was conducted. An empirical examination, especially of the determinant customer focus and customer relationship should, therefore, be a subject of further research.

Additionally, the assessment of further context-related factors of HCs in China remains an important subject of further research. For this purpose, explorative studies would be appropriate to uncover possible determinants that have not yet been taken into account, e.g. the impact of leadership behaviour within Chinese HCs or the impact of different ownerships structures.

# 7. Conclusion

In this thesis, the determinants of Hidden Champions in China were analyzed, guided by the research question: “How do Chinese Hidden Champions differ from Chinese Non-Hidden Champions?”

To answer the research question above, a conceptual model of determinants of Chinese Hidden Champions was constructed and tested in order to adapt Simon’s Hidden Champion Model to contextual factors of the Chinese market. The literary basis was provided by theories on competitive advantages of Chinese SMEs, the leading theory of Hidden Champions by Simon, as well as conventional models focusing on corporate strategy formulation and corporate performance measurement. Based on the literature review, six main determinants of HCs in China were derived: profitability, growth, innovation, productivity, internationalization, and business relationship.

By utilizing a logistic regression model, the probability of a company in China belonging to the group of HCs was examined. The results of the thesis reveal that Chinese HCs differ from NHCs in terms of profitability, growth, innovation, and internationalization. The results were consistent with the findings of prior research on HCs but differ in terms of innovation performance. No significant effect was found for the qualitatively derived Chinese contextual features such as business relationship towards the likelihood of being an HC. The validity of this thesis was ensured by an appropriate sample size and the containment of interfering variables. Nevertheless, the weak model fit must not be neglected.

Furthermore, the findings suggest that HCs in China possess a significantly larger organizational size and greater experience compared to NHCs, providing them with the necessary capabilities for accelerated growth. Moreover, the results of the thesis provide managerial implications for NHCs in China. Therefore, the management board of NHCs is advised to adapt the success strategies of HCs, for instance, in operational areas such as internationalization in order to leverage profit and to ensure sustainable business development.

From a broader perspective, the present thesis serves as an extension of the existing research on HCs. In this context, the results suggest that an adaptation

of the existing HC-model is likewise valid for Chinese HCs in terms of profitability, growth, and internationalization. It is not the case, however, for other factors like innovation, productivity, or the equity ratio. Therefore, it is doubtful whether Simon's model of HCs is universally applicable to all cultural areas without considering country-specific determinants.

# References


Antony, J. P., & Bhattacharyya, S. (2010). Measuring Organizational Performance and Organizational Excellence of SMEs – Part 1. A Conceptual Framework. *Measuring Business Excellence*, 14 (2), 3–11.

Audretsch, D. B., Lehmann, E., & Schenkenhofer J. (2018). Internationalization Strategies of Hidden Champions. Lessons from Germany. *Multinational Business Review*, 26 (1), 2–24.

Baloh, P. (2013). Innovation Behaviour of Hidden Champions. In *Hidden Champions in CEE and Turkey*, McKiernan, P. & Purg, D., eds. Berlin, Heidelberg: Springer Berlin Heidelberg, 53–67.

Baltes-Götz, B. (2012). *Logistische Regressionsanalyse mit SPSS.* Universität Trier. Zentrum für Informations-, Medien und Kommunikationstechnologie (ZIMK). Available at https://www.uni-trier.de/fileadmin/urt/doku/logist/logist.pdf.

Beimborn, D. (2008). Cooperative Sourcing. Simulation Studies and Empirical Data on Outsourcing Coalitions in the Banking Industry: DUV Deutscher Universitäts-Verlag.

Bernard, A., & Jones, C. (1996). Comparing Apples to Oranges. Productivity Convergence and Measurement Across Industries and Countries. *The American Economic Review*, 86.

Berrell, M., Singh, R. K., Garg, S. K., & Deshmukh, S. G. (2009). The Competitiveness of SMEs in a Globalized Economy. *Management Research Review*, 33 (1), 54–65.

Best, H. & Wolf, C. (2012). Modellvergleich und Ergebnisinterpretation in Logit- und Probit-Regressionen. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 64(2), 377–395. https://doi.org/10.1007/s11577-012-0167-4

Breuer, C. (2018). Eigenkapitalquote. Gabler Wirtschaftslexikon. Available at https://wirtschaftslexikon.gabler.de/definition/eigenkapitalquote-34451

Bundesministerium für Wissenschaft, Forschung und Wirtschaft (BMDW) (2018). *Mittelstandsbericht 2018. Bericht über die Situation der kleinen und mittleren Unternehmen der österreichischen Wirtschaft*. Available at https://www.bmdw.gv.at/Themen/Wirtschaftsstandort-Oesterreich/KMU/Mittelstandsbericht.html.

Bundesministerium für Wirtschaft und Energie (BMWI) (2019). Wirtschaftsmotor Mittelstand – Zahlen und Fakten zu den deutschen KMU. Available at https://www.bmwi.de/Redaktion/DE/Publikationen/Mittelstand/wirtschaftsmotor-mittelstand-zahlen-und-fakten-zu-den-deutschen-kmu.html

Bureau van Dijk (2020). Orbis. *The World's Most Powerful Comparable Data Resource on Private Companies*. Available at https://www.bvdinfo.com/de-de/

Cainelli, G., & Iacobucci, D. (2012). Agglomeration, Related Variety, and Vertical Integration. *Economic Geography*, 88 (3), 255–277.

China Association of Small and Medium Enterprises (CASME) (2018). 2018 World SME Conference. 第十二届全国政协副主席马培华在 2018 世界中小企业大会开幕式上的致辞, available at http://www.zxsx.org/2018world/newn.asp?id=12610

Chang, K. (2011). A Path to Understanding Guanxi in China's Transitional Economy. Variations on Network Behavior. *Sociological Theory*, 29 (4), 315–339.

Chen, J. (2019). Market Capitalization Definition. Available at https://www.investopedia.com/terms/m/marketcapitalization.asp.

Chenhall, R. H., & Langfield-Smith, K. (2007). Multiple Perspectives of Performance Measures. *European Management Journal*, 25 (4), 266–282.

China Development Bank (2015). Experience Gained in the Development of China's Special Economic Zones. Available at https://www.worldbank.org/content/dam/Worldbank/Event/Africa/Investing%20in%20Africa%20Forum/2015/investing-in-africa-forum-chinas-special-economic-zone.pdf

China Power Team (2016). Are Patents Indicative of Chinese Innovation?. (accessed May 28, 2020), available at https://chinapower.csis.org/patents/.

Cho, H.-J., & Pucik, V. (2005) Relationship Between Innovativeness, Quality, Growth, Profitability, and Market Value. *Strategic Management Journal*, 26 (6), 555–575.

Christie, A. A., Joye, M.P., & Watts, R. L. (2003). Decentralization of the Firm. Theory and Evidence. *Journal of Corporate Finance*, 9 (1), 3–36.

China National Intellectual Property Administration (CNIPA) (2017). *2017 Sipo Annual Report.* Beijing. Available at http://english.sipo.gov.cn/docs/2018-06/20180629151939027942.pdf.

Coase, R., & Wang, N. (2012). *How China Became Capitalist*. London, United Kingdom: Palgrave Macmillan.

Deutsche Bank. (2018). *Deutsche Bank Research: Hongfa Technology*. Hong Kong. Available at http://pdf.dfcfw.com/pdf/H3_AP201807311172268549_1.pdf

De Wit, G., & De Kok, J. (2014). Do Small Businesses Create More Jobs? New Evidence for Europe. *Small Business Economics*, 42 (2), 283–295.

Din, F., Dolles, H., & Middel, R. (2013). Strategies for Small and Medium-Sized Enterprises to Compete Successfully on the World Market. Cases of Swedish Hidden Champions. *Asian Business & Management*, 12 (5), 591–612.

Executive Office of the President of the United States (EOP) (2017). *North American Industry Classification System.* United States. Available at https://www.census.gov/eos/www/naics/2017NAICS/2017_NAICS_Manual.pdf.

European Union (2015). *User Guide to the SME Definition*. Luxembourg. Available at https://ec.europa.eu/regional_policy/sources/conferences/state-aid/sme/smedefinitionguide_en.pdf.

Ernst & Young (EY) (2018). *Top 500 F&E: Wer Investiert Am Meisten in Innovationen. Die 500 Unternehmen Weltweit Mit Den Höchsten Forschungs-Und*

*Entwicklungsausgaben*. Available at https://www.ey.com/Publication/vwLUAssets/ey-at-analyse-top-500-f-e-unternehmen-weltweit

Faccio, M. (2006). Politically Connected Firms. *The American Economic Review*, 96 (1), 369–386.

Fan, Z., Tong, X., Fan, P., & Fan, Q. (2019). A glacier model of Chinese management: perspectives from new institutionalism. *Chinese Management Studies*, 13(4), 742–759.

Fangda Group (2018). *2017 Annual Report*. Available at http://file.finance.sina.com.cn/211.154.219.97:9494/MRGG/CNSESZ_STOCK/2018/2018-4/2018-04-24/4303655.PDF

Ferguson, T., & Voth, H.-J. (2008). Betting on Hitler. The Value of Political Connections in Nazi Germany. *The Quarterly Journal of Economics*, 123 (1), 101–137.

Firth, D. (1993). Bias reduction of maximum likelihood estimates. *Biometrika*, 80(1), 27–38.

Francis, D. (2005). A Reference Model of Innovation Capability and Implications for Organisational Development. In Proceedings of the 6th International CINet Conference. 4-6 September, 2005, Brighton, United Kingdom, 224–235.

Freimark, A. J., Habel, J., Hülsbömer, S., Schmitz, B., & Teichmann, M. (2018). *Study on Digitalization among "Hidden Champions"* | *ESMT Knowledge.* Available at https://esmt.berlin/knowledge/study-digitalization-among-hidden-champions

Gale, B. T., & Buzzell, R. D. (1989). *Das PIMS-Programm.* Wiesbaden, Germany: Gabler Verlag.

Ge, G. L., & Ding, D. Z. (2007). A strategic analysis of surging Chinese manufacturers: The case of Galanz. *Asia Pacific Journal of Management*, 25(4), 667–683.

Goertek (2018). *Abstract of Annual Report 2018*. Available at https://www.goertek.com/en/Upload

Govindarajan, V. (1986). Decentralization, Strategy, and Effectiveness of Strategic Business Units in Multibusiness Organizations. *The Academy of Management Review*, 11 (4), 844.

Greeven, M., Yip, G. S., & Wei, W. (2019a). *Pioneers, Hidden Champions, Changemakers, and Underdogs. Lessons from China's Innovators*. Cambridge, Mass.: The MIT Press.

Greeven, M., Yip, G. S., & Wei, W. (2019b). Understanding China's Next Wave of Innovation. *MITSloan Management Review* (Vol. 60, No. 3), 74–80.

Gu, S., Lundvall, B.-A., Liu, J., Malerba, F., & Schwaag Serger, S. (2009). China's System and Vision of Innovation. An Analysis in Relation to the Strategic Adjustment and the Medium- to Long-Term S&T Development Plan (2006–20). *Industry & Innovation*, 16 (4-5), 369–388.

Guthrie, D., Wank, D. L., & Gold, T. (2002). *Social Connections in China. Institutions, Culture, and the Changing Nature of Guanxi.* Structural analysis in the social sciences, Vol. 21. Cambridge: Cambridge University Press.

Heinrich, A. (2017). *Die Förderung kleiner und mittlerer Unternehmen in China*. New York, United States: Springer Publishing.

Hikvision (2018). *2018 Annual Report.* Hangzhou. Available at https://www.hikvision.com/Corporate/Investor-Relations/Financial-Report

Horngren, C.T., Harrison, W. T., & Oliver, M. S. (2009) Accounting. *Pearson international edition.* Upper Saddle River, NJ: Pearson Education International.

Hussain, J., Millman, C., & Matlay, H. (2006). SME financing in the UK and in China: a comparative perspective. *Journal of Small Business and Enterprise Development*, 13(4), 584–599.

Johanson, J., & Vahlne, J.-E. (1977). The Internationalization Process of the Firm—A Model of Knowledge Development and Increasing Foreign Market Commitments. *Journal of International Business Studies*, 8(1), 23–32.

Kaplan, R. S., & Norton, D. P. (1992). *The Balanced Scorecard – Measures That Drive Performance*. Available at https://hbr.org/1992/01/the-balanced-scorecard-measures-that-drive-performance-2.

Kaudela-Baum, S., Kocher, P.-Y., & Scherrer, S. (2014). Innovationen fördern. Die Gestaltung von Freiräumen als Führungsaufgabe von Hidden Champions," *Führung + Organisation: ZfO*, 83 (2, (3/4)), 74–79.

Lei, L., & Wu, X. (2020). Thinking Like a Specialist or a Generalist? Evidence from Hidden Champions in China. *Asian Business & Management*, 45 (5), 971.

Levitt, T. (1983). *The globalization of markets*. Harvard Business Review, 61, 92. Available at https://uaccess.univie.ac.at/login?url=https://search-proquest-com.uaccess.univie.ac.at/docview/227747980?accountid=14682

Li, J., & Chen, J. (2006). Development of Chinese Small and Medium‐sized Enterprises. *Journal of Small Business and Enterprise Development*, 13 (2), 140–147.

Li & Fung Research Center (2010). *Overview of the Industrial Clusters in China*. Available at https://www.lfinvestment.com/eng/knowledge/research/LFIndustrial1.pdf

Li, J., & Gibb, A. (2006). Making Markets in Business Development Services for SMEs. *Journal of Small Business and Enterprise Development*, 13 (2), 263–283.

Liu, A. M. M., Shuibo, Z., & Meiyung, L. (2006). A framework for assessing organizational culture of Chinese construction enterprises. *Engineering, Construction and Architectural Management*, 13(4), 327–342.

Liu, X. (2008). SME Development in China: A Policy Perspective on SME Industrial Clustering. In *SMEs in Asia and Globalization*, Hank Lim, ed.: ERIA (Economic Research Institute for ASEAN and East Asia), 37–68.

Maddigan, R. J. (1981). The Measurement of Vertical Integration. *The Review of Economics and Statistics*, 63 (3), 328–335.

Mäkeläinen, R. (2014). *Finnish hidden champions: analysis on strategy and performance of market leader SMEs* (Master's Thesis). Aalto University. https://aaltodoc.aalto.fi/handle/123456789/13676

McKiernan, P., & Purg, D. (2013). *Hidden Champions in CEE and Turkey.* (1st ed.) Berlin, Heidelberg: Springer Berlin Heidelberg.

Miller, D. (1983). The Correlates of Entrepreneurship in Three Types of Firms. *Management Science*, 29 (7), 770–791.

Mukaila Ayanda, A., & Sidikat Laraba, A. (2011). Small and Medium Scale Enterprises as A Survival Strategy for Employment Generation in Nigeria. *Journal of Sustainable Development*, 4(1), 200–206.

Munoz, E. P., Ripoll-i-Alcon, J., & Silvente, V. B. (2017). Hidden Champions in Spain The Path to Successful Business Decisions. *Revista de Métodos Cuantitativos para la Economia y la Empresa*, 24, 190–208.

Nee, V., & Opper, S. (2012). *Capitalism from Below. Markets and Institutional Change in China.* Berlin, Cambridge, Mass.: De Gruyter; Harvard University Press.

Niessen, A., & Ruenzi, S. (2010). Political Connectedness and Firm Performance. Evidence from Germany. *German Economic Review*, 11 (4), 441–464.

Nissen, R. (2018). *Taylorismus.* Available at https://wirtschaftslexikon.gabler.de/definition/taylorismus-48480

NPC Observer (2018). *Exclusive: Demographics of the 13th NPC*. Available at https://npcobserver.com/2018/03/10/exclusive-demographics-of-the-13th-npc/

Piatkowski, M., Coste, A., Shi, L., Du, Y., & Cai, Z. (2019*). Enhancing China's Regulatory Framework for Eco-Industrial Parks.* Comparative Analysis of Chinese and International Green Standards.

Porter, M. E. (1998). *Competitive Advantage of Nations*. Amsterdam, Netherlands: Amsterdam University Press.

Purg, D., & Rant, M. (2011). *Hidden Champions in CEE and Dynamically Changing Environments.* Research Report, Bled, Slovenia.

Purg, D., Saginova, O., Skorobogatykh, I., & Musatova, Z. (2016). Family Owned Hidden Champions in Russia. Innovations, Human Capital and Internationalization. *Indian Journal of Science and Technology*, 9 (12).

Quinn, R. E., & Rohrbaugh, J. (1983). A Spatial Model of Effectiveness Criteria. Towards a Competing Values Approach to Organizational Analysis. *Management science: journal of the Institute for Operations Research and the Management Sciences*, 29 (3), 363–377.

Rammer, C., & Spielkamp, A. (2015). *Hidden Champions – Driven by Innovation. Empirische Befunde auf Basis des Mannheimer Innovationspanels*. ZEW-Dokumentation 15-03, Mannheim.

——— (2019). *The Distinct Features of Hidden Champions in Germany: A Dynamic Capabilities View*. Discussion Paper NO.19-01, ZEW – Leibniz-Centre for European Economic Research, Mannheim.

Reichheld, F. F. (1999). *The Loyalty Effect*. The Hidden Force Behind Growth, Profits and Lasting Value. Boston, Mass.: Harvard Business School Press.

Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring Organizational Performance. Towards Methodological Best Practice. *Journal of Management*, 35 (3), 718–804.

Rolstadås, A. (1998). Enterprise Performance Measurement. I*nternational Journal of Operations & Production Management*, 18 (9/10), 989–999.

Roos, G., & Roos, J. (1997). Measuring Your Company's Intellectual Performance. *Long Range Planning*, 30 (3), 413–426.

Sanhua. (2020). *Sanhua | Refrigeration & HVAC Components Manufacturer*. Available at https://www.sanhuaeurope.com/en/the-company

Schlepphorst, S., Schlömer-Laufen, N., & Holz, M. (2016). *Determinants of Hidden Champions – Evidence from Germany*. Working Paper, 03/15.

Standing Committee of the National People's Congress (SCNPC) (2002). Law of the People's Republic of China on Promotion of Small and Medium-Sized Enterprises (Order of the President No.69). Beijing.

Simon, H. (1996). *Die heimlichen Gewinner (Hidden Champions). Die Erfolgsstrategien unbekannter Weltmarktführer*. Frankfurt am Main: Campus Verlag GmbH.

——— (2007). *Hidden Champions des 21. Jahrhunderts*. Die Erfolgsstrategien unbekannter Weltmarktführer. *Business Backlist.* Frankfurt am Main: Campus Verlag GmbH.

——— (2009). *Hidden Champions of the Twenty-First Century*. The Success Strategies of Unknown World Market Leaders. Wiesbaden: Springer-Verlag.

——— (2015). EU and the World: Out-Innovating the Competition. *CESifo Forum* (3 (September)), 29–37.

——— (2016). Hidden Champions – *Ein Kernelement des deutschen Mittelstandes. Deutsche Nationalstiftung*. Available at https://www.simon-kucher.com/de/resources/perspectives/hidden-champions-ein-kernelement-des-deutschen-mittelstandes

Simon, H., & Fassnacht, M. (2016). *Preismanagement.* Springer Publishing.

Sink, D. S., & Tuttle, T. C. (1989). *Planning and Measurement in Your Organization of the Future:* Norcross, Ga.: Industrial Engineering and Management Press.

Sullivan, D. (1994). Measuring the Degree of Internationalization of a Firm. *Journal of International Business Studies*, 25 (2), 325–342.

Sultan, T. (2019). Unlocking the Potential of SMEs in Emerging Markets. *The Financial Times*. Available at https://www.ft.com/content/857e4a80-5492-11e9-91f9-b6515a54c5b1.

Tang, Y., Wang, P., & Zhang, Y. (2007). Marketing and business performance of construction SMEs in China. *Journal of Business & Industrial Marketing*, 22(2), 118–125.

Tewari, P.S., Skilling, D., Kumar, P., & Wu, Z. (2013). *Competitive Small and Medium Enterprises*. A Diagnostic to Help Design Smart SME Policy. No. 16636. Available at https://openknowledge.worldbank.org

Thomson Reuters (2016). *A Guide to the I/B/E/S Analyst-by-Analyst Historical Earnings Estimate Database*. Available at http://www.datastream.jp/wp/wp-content/uploads/2017/10/guide_IBESDetailHistory_December2016.pdf.

Tiwari, R., & Buse, S. (2014). German Mittelstand discovers BRIC: A Survey of Product Strategies of German 'Hidden Champions' in China and India. *Indo-German Economy*, 5, (5-11). Available at https://tore.tuhh.de/handle/11420/1292.

Truex, R. (2014). The Returns to Office in a "Rubber Stamp" Parliament. *American Political Science Review*, 108 (2), 235–251.

Trumpf (2018). *Annual Report 2017/18*. Ditzingen. Available at https://www.trumpf.com/de_AT/unternehmen/trumpf-gruppe/geschaeftsbericht/.

——— (2019). *Company Principles*. Available at https://www.trumpf.com/en_US/company/trumpf-group/companyprinciples/.

Tse, E. (2016). *China's Disruptors*. Amsterdam, Netherlands: Adfo Books.

United Nations Statistics Division (2018). [Dataset on RCAs in China Per Product Group]. World Integrated Trade Solution (WITS). New York, NY, USA.

Van der Warth, K. (2013). China's Transformation and the Future Merits of China Procurement. Published by The Beijing Axis Institute. Available at https://thebeijingaxis.com/en/news-a-media/tba-presentations?limit=5&limitstart=5

Van Looy, A., & Shafagatova, A. (2016). Business Process Performance Measurement. A Structured Literature Review of Indicators, Measures and Metrics. In *SpringerPlus*, 5 (1), 1–24.

Venohr, B., & Kamp, B. (2019). Global Niche Market Leaders in Emerging Asia and the Necessity to Become Market Insiders. *Ekonomiaz Revista Vasca de Economía*, N.º 95 (1.º 83emester).

Venohr, B., & Meyer, K. (2007). *The German Miracle Keeps Running. How Germany's Hidden Champions Stay Ahead in the Global Economy*. Working Papers No. 30, Berlin School of Economics and Law, Institute of Management Berlin (IMB).

Voudouris, I., Lioukas, S., Makridakis, S., & Spanos, Y. (2000). Greek Hidden Champions. *European Management Journal*, 18 (6), 663–674.

Walravens, A., & Filipovic, N. (2013). Three Bivalent Performance Factors of Hidden Champions: Ownership, Organizational Culture and Organizational Governance. In *Hidden Champions in CEE and Turkey*, Peter McKiernan and Danica Purg, eds. Berlin, Heidelberg: Springer Berlin Heidelberg, 37–52.

Wang, Y. (2016). What are the biggest obstacles to growth of SMEs in developing countries? – An empirical evidence from an enterprise survey. *Borsa Istanbul Review*, 16(3), 167–176.

Welfens, P.J.J. (2011). *Innovations in Macroeconomics.* Berlin, Heidelberg: Springer-Verlag Berlin Heidelberg.

Witt, A., & Carr, C. (2013). A Critical Review of Hidden Champions and Emerging Research. In *the Changing Geography of International Business*. *Academy of International Business series*. Basingstoke: Palgrave Macmillan, 96–113.

WKO (2015). *Fresh View: Austria's Hidden Champions.* Vienna: Austrian Federal Economic Chamber (WKO). Available at https://www.wko.at/service/aussenwirtschaft/fresh-view-2015-special-edition-austrias-hidden-champions.pdf

World Bank Group (2020). *GDP Growth (Annual %) – China*. Washington DC, USA. Available at https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG

Xinhua News Agency (2019). *China Strives to Nurture More Hidden Champion Enterprises to Quicken SMEs Development.* Available at https://en.imsilkroad.com/p/309273.html.

Yan, S. (2015). A Theoretical Framework of Competitive Advantages for SMEs in China Under New Normal Economy. *European Scientific Journal*, 11 (34).

Yoon, B. (2013). How Do Hidden Champions Differ from Normal Small and Medium Enterprises (SMEs) in Innovation Activities. *Journal of Applied Sciences Research*, 9, 6257–6263.

Yosun, T., & Çetindamar, D. (2013). Hidden Champions of Turkey. In *Hidden Champions in CEE and Turkey*, Peter McKiernan and Danica Purg, eds. Berlin, Heidelberg: Springer Berlin Heidelberg, 383–405.

Yu, H., & Chen, Y. (2009). *Factors Underlying Hidden Champions in China: Case Study.* Master's Dissertation in International Marketing, School of Business and Engineering, University of Halmstad, Halmstad.

Yu, T., & Wu, N. (2009). A Review of Study on the Competing Values Framework. *International Journal of Business and Management*, 4 (7), 37–42.

Zahra, S. A., Hayton, J. C., & Salvato, C. (2004). Entrepreneurship in Family Vs. Non-Family Firms. A Resource-Based Analysis of the Effect of Organizational Culture. *Entrepreneurship Theory and Practice*, 28 (4), 363–381.

Zastempowski, M. (2011). The Innovative Potential of the Hidden Champions of the Polish Economy. *International Journal of Contemporary Management*. 10, 52-58.

Zeng, K., & Luo, X. (2013). The Balanced Scorecard in China. Does It Work?. *Business Horizons*, 56 (5), 611–620.

## Abstract

This thesis addresses the question by which factors Hidden Champions (HC) in China differ from Non-Hidden Champions (NHC). Theories on competitive advantages of Chinese SMEs, the HC-model, as well as conventional models for the formulation and measurement of corporate strategies, serve as a literary background. Assuming that the established HC-model by Simon is not universally transferable, it is necessary to extend the model by Chinese context- and country-related factors.

Therefore, a conceptual model of determinants of Chinese HCs, is derived following the literature review. This conceptual model was subsequently tested using a logistic regression. The regression results reveal that HCs in China differ in terms of profitability, growth, innovation, and internationalization. Hence, the present thesis serves as an extension of the existing literature on HCs. The paper indicates, with regard to the investigated determinants of HCs in China, that an adaptation of the existing model by Simon is valid for other cultural areas as well.

## Abstract

Die vorliegende Arbeit befasst sich mit der Frage, anhand welcher Faktoren sich Hidden Champions (HC) in China von Non-Hidden Champions (NHC) unterscheiden. Als literarische Grundlage dienen Theorien zu Wettbewerbsvorteilen chinesischer KMU, das HC-Modell nach Simon, sowie allgemeine Modelle zur Entwicklung und Quantifizierung von Unternehmensstrategien. Unter der Annahme, dass das etablierte HC-Modell nach Simon nicht als universell auf andere Kulturräume übertragbar erscheint, ist es erforderlich, das Modell um chinesische Kontextfaktoren zu erweitern.

Dementsprechend wird im Anschluss an den Literaturüberblick ein konzeptionelles Modell von Determinanten chinesischer HCs abgeleitet. Dieses Modell wird im Anschluss mithilfe einer logistischen Regression überprüft. Die Ergebnisse der Regression zeigen, dass sich chinesische HCs in Bezug auf Profitabilität, Wachstum, Innovation und Internationalisierung signifikant von NHCs unterscheiden, jedoch nicht für die Faktoren Eigenkapitalquote, Produktivität und politische Verbindungen. Die vorliegende Arbeit dient als eine Erweiterung der bestehenden HC-Forschung und zeigt, dass eine Adaption des bestehenden Modells nach Simon nur bedingt Gültigkeit in Bezug auf unterschiedliche Kulturräume aufweist.

# Appendix

## Appendix 1: Distribution of HCs and NHCs by size

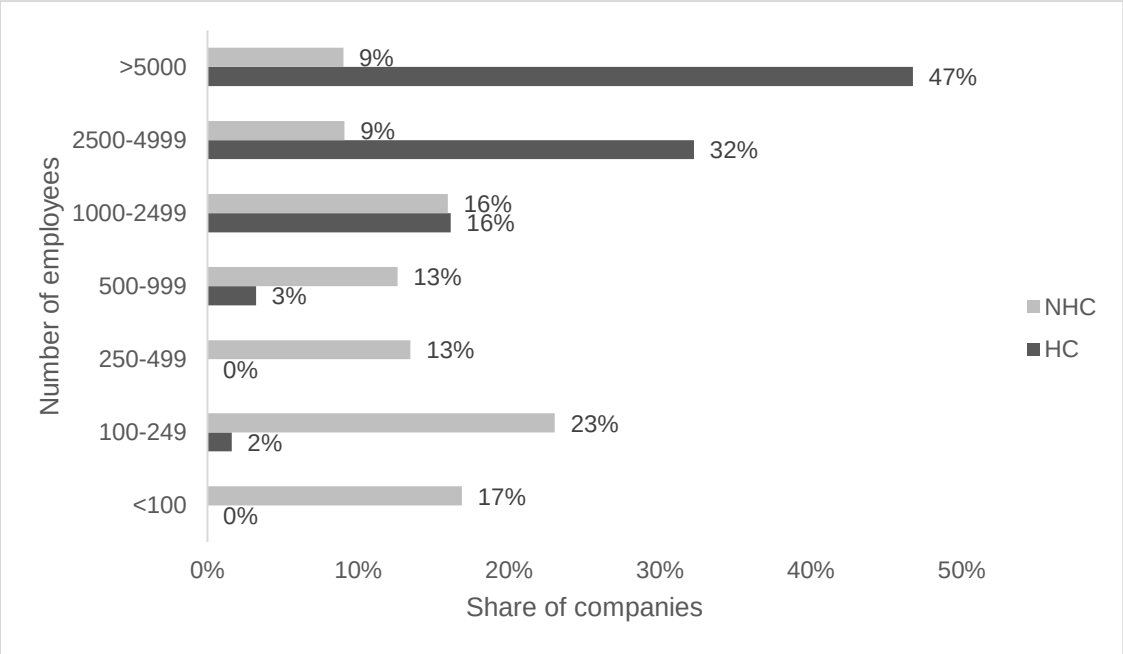


Figure 9: Distribution of HCs and NHCs by size within the sample

## Appendix 2: Overview of identified HCs

Table 4: Identified Hidden Champions in China within the sample

| Company Name: Hidden Champions | Staff Headcount | | Turnover in 2018 (Mio. USD) |
|---|---|---|---|
| **YUNNAN ALUMINIUM CO., LTD.** | 12477 | $ | 3.151,93 |
| **DONGSHAN PRECISION MANUFACTURING CO., LTD.** | 20475 | $ | 2.919,87 |
| **SHANGHAI MECHANICAL & ELECTRICAL INDUSTRY CO., LTD.** | 2508 | $ | 3.091,13 |
| **MLS CO., LTD.** | 27560 | $ | 2.720,41 |
| **JANGHO GROUP CO., LTD.** | 7734 | $ | 2.337,81 |
| **DESAY BATTERY TECHNOLOGY CO., LTD.** | 10565 | $ | 2.514,38 |
| **JINGNENG POWER CO., LTD.** | 4499 | $ | 2.095,79 |
| **YANGMEI CHEMICAL CO., LTD.** | 15406 | $ | 3.163,65 |
| **TRUCHUM ADVANCED MATERIALS AND TECHNOLOGY CO., LTD.** | 5279 | $ | 1.933,72 |
| **FANGDA SPECIAL STEEL TECHNOLOGY CO., LTD.** | 7362 | $ | 2.514,13 |
| **HEC TECHNOLOGY HOLDING CO., LTD.** | 11123 | $ | 1.697,43 |

| Company Name: Hidden Champions | Staff Headcount | Turnover in 2018 (Mio. USD) |
|---|---|---|
| **MINGTAI AL. INDUSTRIAL CO., LTD.** | 4124 | $ 1.946,54 |
| **SHANXI MEIJIN ENERGY CO., LTD.** | 6906 | $ 2.169,57 |
| **INFORE ENVIRONMENT TECHNOLOGY GROUP CO., LTD.** | 6217 | $ 1.899,40 |
| **HIGHLY GROUP CO., LTD.** | 5337 | $ 1.711,52 |
| **DONLY CO., LTD.** | 1428 | $ 1.718,23 |
| **JINGDA SPECIAL MAGNET WIRE CO., LTD.** | 3114 | $ 1.732,00 |
| **SANHUA INTELLIGENT CONTROLS CO., LTD.** | 9960 | $ 1.577,66 |
| **JASON FURNITURE CO., LTD.** | 13021 | $ 1.328,13 |
| **WANMA CO. LTD.** | 4943 | $ 1.284,46 |
| **FUXING SCIENCE AND TECHNIQUE CO., LTD.** | 3681 | $ 1.428,15 |
| **OPPLE LIGHTING COMPANY LIMITED** | 5837 | $ 1.176,89 |
| **TONGFU MICROELECTRONICS CO., LTD.** | 11566 | $ 1.062,80 |
| **ROBAM APPLIANCES CO., LTD.** | 4455 | $ 1.087,65 |
| **SUOFEIYA HOME COLLECTION CO., LTD.** | 11943 | $ 1.060,60 |
| **SHANGPIN HOME COLLECTION CO., LTD.** | 16237 | $ 968,72 |
| **HONGFA TECHNOLOGY CO., LTD.** | 13497 | $ 1.006,91 |
| **FANGDA CARBON NEW MATERIAL CO., LTD.** | 4735 | $ 1.674,01 |
| **HONGTU TECHNOLOGY CO., LTD.** | 9005 | $ 882,70 |
| **MARKOR INTERNATIONAL HOME FURNISHINGS CO., LTD.** | 8262 | $ 765,89 |
| **ZHONGFU INDUSTRY CO., LTD.** | 8491 | $ 1.703,27 |
| **CITIC HEAVY INDUSTRIES CO., LTD.** | 7873 | $ 769,38 |
| **YIHUA LIFESTYLE TECHNOLOGY CO., LTD.** | 10096 | $ 1.074,31 |
| **YOTRIO GROUP CO., LTD.** | 11224 | $ 635,61 |
| **JIULI HI-TECH METALS CO., LTD.** | 2856 | $ 594,53 |
| **HIMILE MECHANICAL SCIENCE & TECHNOLOGY CO., LTD.** | 11545 | $ 536,82 |
| **XILINMEN FURNITURE CO., LTD.** | 7470 | $ 616,50 |
| **HENGLI HYDRAULIC CO., LTD.** | 4103 | $ 613,65 |
| **BAOJI TITANIUM INDUSTRY CO., LTD.** | 3518 | $ 498,24 |
| **JINLONGYU GROUP CO., LTD.** | 1063 | $ 482,63 |
| **SILVER BASIS TECHNOLOGY CO., LTD.** | 8378 | $ 439,76 |
| **QUMEI HOME FURNISHINGS GROUP CO., LTD.** | 3589 | $ 420,45 |
| **GEM-YEAR INDUSTRIAL CO., LTD.** | 3475 | $ 503,96 |
| **HENGLIN CHAIR INDUSTRY CO., LTD.** | 4612 | $ 339,42 |
| **WEIXING INDUSTRIAL DEVELOPMENT CO., LTD.** | 7728 | $ 392,35 |
| **SHENZHEN FRD SCIENCE & TECHNOLOGY CO., LTD.** | 3250 | $ 194,66 |
| **GUANGZHOU SEAGULL KITCHEN & BATH PRODUCTS CO., LTD.** | 3562 | $ 323,91 |
| **UE FURNITURE CO., LTD.** | 3557 | $ 353,29 |
| **RIYUE HEAVY INDUSTRY CO., LTD.** | 2652 | $ 343,01 |
| **YAGUANG TECHNOLOGY GROUP CO., LTD.** | 1883 | $ 205,35 |
| **HARBIN ELECTRIC CORPORATION CO., LTD.** | 1805 | $ 283,12 |

| Company Name: Hidden Champions | Staff Headcount | Turnover in 2018 (Mio. USD) | |
|---|---|---|---|
| **WEIDA MACHINERY CO., LTD.** | 3077 | $ | 240,49 |
| **GREATWALL MILITARY INDUSTRY CO., LTD.** | 4026 | $ | 210,45 |
| **SAILHERO ENVIRONMENTAL PROTECTION HIGH-TECH CO., LTD.** | 1767 | $ | 205,56 |
| **CHENFENG SCIENCE AND TECHNOLOGY CO., LTD.** | 1291 | $ | 127,67 |
| **MOTIC ELECTRIC GROUP CO., LTD.** | 2106 | $ | 142,92 |
| **HUAWU BRAKE CO., LTD.** | 1463 | $ | 136,63 |
| **ENPACK PACKAGING CO., LTD.** | 1063 | $ | 119,81 |
| **PERFECT GROUP CO., LTD.** | 1861 | $ | 109,62 |
| **INFORM STORAGE EQUIPMENT CO., LTD.** | 771 | $ | 101,27 |
| **BGRIMM TECHNOLOGY CO., LTD.** | 599 | $ | 70,31 |
| **FENGFAN ELECTROCHEMICAL TECHNOL-OGY CO., LTD.** | 109 | $ | 14,48 |

# Appendix 3: R Markdown of the logistic regression model

## Empirical Analysis

### Nullmodel: Model 0

```
nullmod <- brglm(data =rawdata, rawdata$STATUS~1)
```

## Model deviation

```
# Financial perspective

mod1 <- brglm(data = rawdata, rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
                  rawdata$CAGR)

# Financial + innovation perspective

mod2 <- brglm(data = rawdata, rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
                rawdata$CAGR + rawdata$RDI)


# Financial + innovation + internal process perspective

mod3 <- brglm(data = rawdata, rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
                 rawdata$CAGR + rawdata$RDI + rawdata$PPE)

# Financial + innovation + internal process + business relationship perspective

mod4 <- brglm(data = rawdata, rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
                rawdata$CAGR + rawdata$RDI + rawdata$PPE + rawdata$NPC)
```

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Status Group | | | | |
| | Model 0 | Model 1 | Model 2 | Model 3 | Model 4 |
| | (1) | (2) | (3) | (4) | (5) |
| EBITM | | 2.136** | 2.288** | 2.289** | 2.286** |
| | | p = 0.034 | p = 0.043 | p = 0.043 | p = 0.042 |
| EQR | | −1.064 | 0.301 | 0.326 | 0.347 |
| | | p = 0.128 | p = 0.682 | p = 0.658 | p = 0.635 |
| CAGR | | 1.078** | 0.970** | 0.943** | 0.940** |
| | | p = 0.024 | p = 0.035 | p = 0.043 | p = 0.043 |
| RDI | | | −39.172*** | −38.462*** | −37.487*** |
| | | | p = 0.000 | p = 0.00000 | p = 0.00000 |
| PPE | | | | 0.0003 | 0.0002 |
| | | | | p = 0.724 | p = 0.774 |
| NPC | | | | | 0.097 |
| | | | | | p = 0.286 |
| Constant | −3.765*** | −3.521*** | −2.659*** | −2.735*** | −2.887*** |
| | p = 0.000 | p = 0.000 | p = 0.000 | p = 0.00000 | p = 0.00000 |
| Observations | 2,759 | 2,759 | 2,759 | 2,759 | 2,759 |
| Log Likelihood | −296.620 | −289.028 | −262.521 | −262.519 | −262.086 |
| Akaike Inf. Crit. | 595.241 | 586.056 | 535.042 | 537.038 | 538.172 |
| *Note:* | | | | | *p<0.1; **p<0.05; ***p<0.01 |

### Consolidated Model without Control Variables: Model 1

```
mod5 <- brglm(data = rawdata, rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
                rawdata$CAGR + rawdata$RDI + rawdata$PPE + rawdata$NPC
              + rawdata$FS)
summary(mod5)
```

```
##
## Call:
## brglm(formula = rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
##     rawdata$CAGR + rawdata$RDI + rawdata$PPE + rawdata$NPC +
##     rawdata$FS, data = rawdata)
##
##
## Coefficients:
##                  Estimate Std. Error z value Pr(>|z|)
## (Intercept)   -3.093e+00  5.377e-01  -5.752 8.83e-09 ***
## rawdata$EBITM  2.359e+00  1.137e+00   2.075 0.037942 *
## rawdata$EQR    5.331e-01  7.494e-01   0.711 0.476893
## rawdata$CAGR   1.013e+00  4.701e-01   2.154 0.031223 *
## rawdata$RDI   -3.663e+01  6.869e+00  -5.332 9.71e-08 ***
## rawdata$PPE   -4.384e-05  7.662e-04  -0.057 0.954374
## rawdata$NPC    6.204e-02  9.242e-02   0.671 0.502029
## rawdata$FS     1.125e-01  3.326e-02   3.384 0.000714 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 571.65  on 2758  degrees of freedom
## Residual deviance: 515.56  on 2751  degrees of freedom
## Penalized deviance: 487.1015
## AIC:  531.56
```

```
exp(coef(mod5))
```

```
##   (Intercept) rawdata$EBITM   rawdata$EQR  rawdata$CAGR   rawdata$RDI
##  4.536631e-02  1.058542e+01  1.704144e+00  2.752972e+00  1.241369e-16
##   rawdata$PPE   rawdata$NPC    rawdata$FS
##  9.999562e-01  1.064010e+00  1.119121e+00
```

```
hoslem.test(mod5$y, fitted(mod5))
```

```
##
##  Hosmer and Lemeshow goodness of fit (GOF) test
##
## data:  mod5$y, fitted(mod5)
## X-squared = 4.7209, df = 8, p-value = 0.7869
```

```
1-logLik(mod5)/logLik(nullmod)
```

```
## 'log Lik.' 0.1309383 (df=8)
```

### Consolidated Model with Control Variables: Model 2

```
mod6 <- brglm(data = rawdata, rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
                rawdata$CAGR + rawdata$PPE + rawdata$RDI + rawdata$NPC +
                rawdata$FS + rawdata$SIZE + rawdata$AGE + rawdata$CLUSTER)

summary(mod6)
```

```
##
## Call:
## brglm(formula = rawdata$STATUS ~ rawdata$EBITM + rawdata$EQR +
##     rawdata$CAGR + rawdata$PPE + rawdata$RDI + rawdata$NPC +
##     rawdata$FS + rawdata$SIZE + rawdata$AGE + rawdata$CLUSTER,
##     data = rawdata)
##
##
## Coefficients:
##                   Estimate Std. Error z value Pr(>|z|)
## (Intercept)     -5.168e+00  7.415e-01  -6.970 3.17e-12 ***
## rawdata$EBITM    2.649e+00  1.205e+00   2.197 0.027999 *
## rawdata$EQR      9.780e-01  7.949e-01   1.230 0.218553
## rawdata$CAGR     1.124e+00  4.789e-01   2.347 0.018926 *
## rawdata$PPE      6.603e-05  7.873e-04   0.084 0.933158
## rawdata$RDI     -3.089e+01  6.827e+00  -4.525 6.04e-06 ***
## rawdata$NPC     -3.550e-05  9.483e-02   0.000 0.999701
## rawdata$FS       6.648e-02  3.780e-02   1.759 0.078603 .
## rawdata$SIZE     5.890e-05  1.741e-05   3.384 0.000715 ***
## rawdata$AGE      8.130e-02  2.270e-02   3.581 0.000342 ***
## rawdata$CLUSTER  4.112e-02  2.680e-01   0.153 0.878033
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 567.08  on 2758  degrees of freedom
## Residual deviance: 490.65  on 2748  degrees of freedom
## Penalized deviance: 430.4163
## AIC:  512.65
```

```
hoslem.test(mod6$y, fitted(mod6))
```

```
##
##  Hosmer and Lemeshow goodness of fit (GOF) test
##
## data:  mod6$y, fitted(mod6)
## X-squared = 9.2852, df = 8, p-value = 0.3188
```

```
1-logLik(mod6)/logLik(nullmod)
```

```
## 'log Lik.' 0.1729346 (df=11)
```

```
exp(coef(mod6))
```

```
##     (Intercept)   rawdata$EBITM     rawdata$EQR    rawdata$CAGR     rawdata$PPE
##    5.696948e-03    1.413573e+01    2.659151e+00    3.077081e+00    1.000066e+00
##     rawdata$RDI     rawdata$NPC      rawdata$FS    rawdata$SIZE     rawdata$AGE
##    3.829251e-14    9.999645e-01    1.068744e+00    1.000059e+00    1.084695e+00
## rawdata$CLUSTER
##    1.041980e+00
```

### Best Fit Model after Variable Elimination

```
mod7 <- brglm(data = rawdata, rawdata$STATUS ~ rawdata$EBITM +
                rawdata$CAGR + rawdata$RDI + rawdata$FS + rawdata$SIZE
              + rawdata$AGE)
summary(mod7)
```

```
##
## Call:
## brglm(formula = rawdata$STATUS ~ rawdata$EBITM + rawdata$CAGR +
##     rawdata$RDI + rawdata$FS + rawdata$SIZE + rawdata$AGE, data = rawdata)
##
##
## Coefficients:
##                  Estimate Std. Error z value Pr(>|z|)
## (Intercept)   -4.710e+00  5.655e-01  -8.329  < 2e-16 ***
## rawdata$EBITM  3.147e+00  1.172e+00   2.685 0.007244 **
## rawdata$CAGR   1.077e+00  4.730e-01   2.276 0.022859 *
## rawdata$RDI   -2.926e+01  6.306e+00  -4.640 3.48e-06 ***
## rawdata$FS     6.361e-02  3.734e-02   1.704 0.088456 .
## rawdata$SIZE   5.484e-05  1.703e-05   3.220 0.001283 **
## rawdata$AGE    8.189e-02  2.276e-02   3.598 0.000321 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 574.44  on 2758  degrees of freedom
## Residual deviance: 491.93  on 2752  degrees of freedom
## Penalized deviance: 453.9678
## AIC:  505.93
```

```
hoslem.test(mod7$y, fitted(mod7))
```

```
##
##  Hosmer and Lemeshow goodness of fit (GOF) test
##
## data:  mod7$y, fitted(mod7)
## X-squared = 8.4396, df = 8, p-value = 0.3917
```

```
1-logLik(mod7)/logLik(nullmod)
```

```
## 'log Lik.' 0.1707707 (df=7)
```

| | *Dependent variable:* | | |
|---|---|---|---|
| | Status Group | | |
| | Model 5 | Model 6 | Model 7 |
| | (1) | (2) | (3) |
| EBITM | 2.359** | 2.649** | 3.147*** |
| | p = 0.038 | p = 0.028 | p = 0.008 |
| EQR | 0.533 | 0.978 | |
| | p = 0.477 | p = 0.219 | |
| CAGR | 1.013** | 1.124** | 1.077** |
| | p = 0.032 | p = 0.019 | p = 0.023 |
| RDI | −36.625*** | −30.894*** | −29.261*** |
| | p = 0.00000 | p = 0.00001 | p = 0.00001 |
| PPE | −0.00004 | 0.0001 | |
| | p = 0.955 | p = 0.934 | |
| NPC | 0.062 | −0.00004 | |
| | p = 0.503 | p = 1.000 | |
| FS | 0.113*** | 0.066* | 0.064* |
| | p = 0.001 | p = 0.079 | p = 0.089 |
| SIZE | | 0.0001*** | 0.0001*** |
| | | p = 0.001 | p = 0.002 |
| AGE | | 0.081*** | 0.082*** |
| | | p = 0.0004 | p = 0.0004 |
| CLUSTER | | 0.041 | |
| | | p = 0.879 | |
| Constant | −3.093*** | −5.168*** | −4.710*** |
| | p = 0.000 | p = 0.000 | p = 0.000 |
| Observations | 2,759 | 2,759 | 2,759 |
| Log Likelihood | −257.781 | −245.324 | −245.966 |
| Akaike Inf. Crit. | 531.563 | 512.649 | 505.932 |
| *Note:* | | *p<0.1; **p<0.05; ***p<0.01 | |