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Substantial efforts have contributed to overcome the scarcity of hidden champions research. Nevertheless, literature has missed to compile a comprehensive review. Drawing on the insights of 94 publications, four strands of literature could be distinguished to unravel the essence of hidden champions. Research on hidden champions studies their 1) internationalization strategies, 2) R&D and innovation strategies, the 3) worldwide and regional geographic distribution of hidden champions and finally 4) other research that could not be assigned to one of the first three strands. A hand-collected sample of 1372 German hidden champions exemplifies the key insights from the reviewed research articles. Discussing the findings of the different literature strands aims at drawing a conclusion on their main results and analytical pitfalls to eventually unfold and motivate future research avenues.

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Hidden Champions: A Review of the Literature & Future Research Avenues

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Abstract

Substantial efforts have contributed to overcome the scarcity of hidden champions research. Nevertheless, literature has missed to compile a comprehensive review. Drawing on the insights of 94 publications, four strands of literature could be distinguished to unravel the essence of hidden champions. Research on hidden champions studies their 1) internationalization strategies, 2) R&D and innovation strategies, the 3) worldwide and regional geographic distribution of hidden champions and finally 4) other research that could not be assigned to one of the first three strands. A hand-collected sample of 1372 German hidden champions exemplifies the key insights from the reviewed research articles. Discussing the findings of the different literature strands aims at drawing a conclusion on their main results and analytical pitfalls to eventually unfold and motivate future research avenues.

Keywords: Literature Review, Hidden Champions, Niche Strategy

JEL classification: D4, L1, L22, O32

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1. Introduction

Up until a few years ago, research on hidden champions was still considered as scarce (Witt, 2015; Rammer and Spielkamp, 2016, Schlepphorst et al., 2016). Considering the number of publications on hidden champions within the last decade, this view needs to be adjusted. In recent years, a large number of publications has contributed to a detailed investigation of the phenomenon of hidden champions. So far, however, no literature review has summarized and classified the findings, drawn up interim results and given directions for future research. This literature review elaborates four central strands of literature in the field of hidden champions and places the research field of hidden champions in the context of related strands of literature. While a first field explores their internationalization strategies, a second field investigates their R&D and innovation behaviour. A third field studies the determinants of their worldwide and regional geographic distribution. Finally, a fourth field is presented to summarize studies that could not be categorized within the first three fields of research. Reviewing the insights of 94 publications on hidden champions and a hand-collected firm sample of 1372 German hidden champions aims at unraveling the essence of hidden champions.

The terms Mittelstand, family firms and hidden champions have often been used as synonyms (Pahnke and Welter, 2019b). Figure 1 illustrates that all of these terms describe various types of companies that can coincide in any constellation, but also can appear separately without overlap. Thus, this review also provides a relational assessment of the various manifestations to highlight the nature of hidden champions. In the majority of cases, hidden champions are a subgroup of family businesses and belong to the Mittelstand (IFM, 2020a). The data reveal that 62.3% are family owned, as table 1 illustrates. What archetypically distinguishes them from other Mittelstand and family businesses is their niche strategy. This insight illustrates why they have to be studied against the background of the niche characteristic to best determine their nature. This study is based on the taxonomy of Cooper and other methodical literature on structuring literature reviews (Pautasso, 2013; Torraco, 2005). One lesson from this literature points out that the field of interest needs to be embedded within adjacent research. Therefore, the distinction to both other fields of research is relevant, since much of the knowledge of the research fields can be inherited by the subgroup of hidden champions and thus already explains much about their nature. Most hidden champions articles follow this approach and align their research to the Mittelstand literature (Venohr and Meyer, 2007; Schlepphorst, 2016) or the family business literature (Witt, 2015; Lehmann et al., 2018; Audretsch et al., 2019). Finally,

this review also contributes to Mittelstand research. Insights from previous research on the Mittelstand are collected to develop a new typology of Mittelstand characteristics (figure 2).

The remainder is structured as follows: Section 2 introduces the research design this literature review is subject to. Section 3 then examines the field of research on hidden champions. First, Simon's model is illustrated, before one component of Porter's model of strategic competitive advantages is analysed in detail: the niche strategy. Section 3.3 then depicts the four main streams of research within the literature on hidden champions summarizing key findings. Section 4 and 5 later align the field of research on hidden champions to related fields of research (research on Mittelstand firms and family business research). Section 6 concludes through discussing limitations, deriving policy implications and avenues for future research.

2. Research Method

The aim of this study is to compile a comprehensive literature review on the research field of hidden champions. First of all, it is investigated which purpose the research design of literature reviews serve and which types of reviews exist. Afterwards, the taxonomy of Cooper (1988) will be applied to introduce the structure of this literature review. Literature reviews, as a research design, are different from literature summaries in research articles, which can be found as subsections in the published literature or as contributions in the introduction of such articles. The difference manifests itself in the purpose of the literature review to provide a comprehensive overview of a broad spectrum of the research field. Literature reviews aim at pointing to topics that have been in the foreground of the analysis, aim at elaborating research outcomes that already have been achieved and aim at finding open questions and outlooks for further research. It is essential to draw a distinction to adjacent fields of research in order to identify similarities and differences. Thus, broader conclusions can be drawn from a comparison of different studies, which can help researchers to be sensitized for analytical and methodological pitfalls. Following Cooper's taxonomy, literature reviews can be classified by focus, goal, perspective, coverage, organization and audience. The research design thus structures itself through these characteristics, which in turn is determined by the nature of the previous research within the field.

Literature reviews pursue the purpose of identifying the research family of a research strand and of determining the relationship among different strands within the family. The wider context of the field under consideration thus determines which findings either 1) can be taken over from other fields and thus be inherited in an integrative way or 2) reveal a difference that

separates the fields from each other (Hart, 1988; Webster and Watson, 2002; Gabbott, 2004; Torraco, 2005; Pautasso, 2013). The *focus*, according to Cooper (1988), can either be placed on research outcomes, the research method, theories, practices or applications. Most reviews primarily examine research outcomes (Randolph, 2009) in order to gain insights on the characteristics of a phenomenon, which e.g. can be useful to infer policy implications. The dimension *goal* describes, whether findings in the field can be generalized or whether the focus is on describing debates about different and possibly contradictory points of view. This dimension attempts to identify the main topics within the field and, if necessary, to express criticism regarding approaches, interpretations and methods. Reviews can thus either aim at unfolding shortcomings or instead focus on topics where a certain consensus could be attained. On the one hand, the perspective of the author of a review can be deliberately neutral, or on the other hand, an author may also belong to a certain line of thought and thus bear a certain researcher bias, which can distort the review and the interpretation of results.

Another decisive factor for the review is the *coverage* of the review. In exhaustive reviews, every piece of research within a field is presented within the analysis, published or even unpublished. In case that the size of a field is too large to consider each article, the researcher is ought to define criteria for which the amount of considered research becomes manageable (*exhaustive review with selective citation*). Another approach to coverage is to include a representative sample. Here, a representative sample is built based on the population, without to distort the conclusions of the whole sample. The fourth approach of the coverage describes the purposive sample. In this latter case, the literature review is limited to the central articles of a research field. This approach implies that the selection of articles must be well justified in order to make reliable statements about the entire research field. Besides its coverage, the *organization* of the review needs to be considered. Organizing the articles in a historical format means that the articles are simply arranged chronologically. If there are different theories and either contradictory or complementary causal mechanisms, it may be advisable to organise the research conceptually. However, if the literature is characterized primarily by methodological differences, the review should choose an arrangement in the methodological format. Finally, Cooper lists the criterion of *audience* in his taxonomy. Here, Cooper (1988) distinguishes whether the literature review is directed at scientists from the same subject, other subjects, practitioners, policy makers, or the public. Depending on the audience, the reviewer should presuppose knowledge or rather explain it fundamentally, thus adjusting the linguistic level and complexity of the review.

The search for articles of this review includes a systematic, a backward and forward literature search. The systematic search is a comprehensive search of literature from a bird's eye view, starting from relevant journals and working through to older years. The backward search, in turn, begins by determining one or more central sources and comparing the cited literature from these sources, thus working its way backwards through the years. The advantage here is that even in large literature strands, such as the literature on family firms, essential and highly relevant literature is quickly identified. The forward literature search, in turn, also starts with key articles, but searches for the literature that cited a key article. In this way, the current, more recent literature is taken into account.

Based on Cooper's model, this review focuses on research outcomes and theories of the respective strands of literature to explain the concepts and theoretical foundations of hidden champions. The second aim of this literature review is to identify those factors of hidden champions that distinguish them from other Mittelstand family firms. The review is based on a rather neutral perspective, with no schools of thought are meant to deliberately colour the nature of this study. At best, the research on hidden champions is generally biased by the fact that they are, in majority, a German phenomenon. Thus, the topics and foci of analysis can be influenced by a German lens. With regard to the coverage of this literature review, I compiled an exhaustive review for research revolving around hidden champions. The number of 94 studies is a still manageable size, which allowed to comprehensively consider every publication within the field. This literature review is organized in a conceptual and theory-based format, in order to derive factors that explain the characteristics and behaviour of hidden champions. The same applies to the section on the fields of Mittelstand research and research on family businesses. Finally, the article addresses scholars from the same and related fields of research and thus requires prior knowledge of the concepts and theories under consideration.

3. Research on Hidden Champions

While some years ago, authors still referred to the research field of hidden champions as scarce (Witt, 2015; Rammer and Spielkamp, 2016; Schlepphorst et al., 2016), this is no longer true today. This review summarizes the previous research on hidden champions and divides the field into four subcategories. Figure 3 summarizes 94 publications on hidden champions. Besides academic research articles, this review also includes the works of Hermann Simon, Bernd Venohr, McKinsey and Ernst & Young, which adopt a rather practical orientation. Some of these studies cite the work of Boga (2012), Nguyen (2013), Mäkeläinen (2014), which were

deliberately not included in this review, as they are master theses of students and did not undergo peer review or any other quality assessments.

Hermann Simon laid the foundation for hidden champions research in the 1990s with a series of essays (1990, 1992, 1996) and his 1996b book "Die heimlichen Gewinner (Hidden Champions) Erfolgsstrategien unbekannter Weltmarktführer", which translates as *hidden champions – success strategies of unkown world-market leaders*. Simon endeavoured to explain the export success of Germany apart from large corporations, and concentrated his analysis on small and medium sized world-market leaders, which he termed hidden champions. In his basic model (*three circles and nine lessons*), he explains essential characteristics of the strategy of hidden champions basing his analyses on a data sample of 500 German hidden champions. He continuously expanded this sample in further publications and adjusted the revenue limits of the definition to the growth of the companies (Simon 2009, 2012). Table 1 compares different data collections of niche world-market leaders. Part of Simon's work are a number of imperatives, which he addresses to practitioners in order to become hidden champions (Simon, 1996b). This approach is somewhat questionable insofar, as the niche markets of hidden champions are difficult to establish endogenously and besides emulate enormously high entry barriers (given knowledge-intensive, high-tech and patent-protected products). The niche markets of hidden champions have grown rather generically with their industry and the inherent technological progress. The data sample of 1372 hidden champions reveals that 84% are suppliers in B2B industries (table l). Major technical innovations and inventions therefore are commonly pioneered first within mass-markets (e.g. the automotive industry around 1900) that later attract new niches (e.g. car lighting systems) – and therewith establish B2B relationships. Most of the hidden champions emerged during the industrial revolution in Germany and the technological innovations in the mechanical engineering, chemical and electrical industries of the time. Therefore, the imperatives of Simon and the concept of hidden champions as such should be interpreted with caution. Consequently, world-market leadership (being a *champion* in Simon's terminology) rather is a pure definition criterion and not a particular achievement. In the niche markets of hidden champions, there often are no more than two or three companies competing, which is why world-market leadership (being among the top three companies in the niche market following Simon's definition) is often attained as a consequence of the niche market.

Some authors sparked a debate for whether the term hidden champions itself is an imaginative term and one of the reasons why the research field had a rather hard time getting off the ground

(Venohr and Meyer, 2007; Kamp 2018; Venohr and Kamp, 2019). Suggested other terms for hidden champions are International Niche Market Leader (Kamp, 2018) or Global Niche Market Leader (Kamp and Venohr, 2019). On the contrary, this view needs to be balanced in so far, as most newly studied phenomena benefit from catchy terms that need definition and explanation (e.g. Born Globals, start-ups, unicorns etc.). Drawing a conclusion, research on hidden champions is best analysed through understanding hidden champions as small and medium-sized and mostly family-owned companies that pursue niche strategies. Thus, the characteristic of the niche strategy is the decisive criterion for research on hidden champions that allows to identify characteristics that distinguish hidden champions from other owner-managed SMEs.

3.1 Simon's Model

Simon's model of hidden champions (1996b) describes that hidden champions are characterized by nine core characteristics, which he formulates as imperatives: 1) Set clear and ambitious goals, 2) define a market narrowly, 3) combine a narrow market focus with a global orientation 4) be close to customers in both performance and interaction, 5) strive for continuous innovation in both product and process, 6) create clear-cut competitive advantages in both product and service, 7) rely on your own strengths, 8) try always to have more work than heads and finally, 9) practice leadership that is both authoritarian in the fundamentals and participative in the details. This literature review compares Simon’s lessons on hidden champions with empirical findings from literature to examine the nature of hidden champions and where they differ from other small and medium sized family businesses. Some of Simon's lessons are rather soft facts that are difficult to substantiate. Setting ambitious goals, working with a clear focus under strong leadership, and relying on one's own strengths are strategies that apply to almost every company. As already mentioned above, it is often difficult for companies to pro-actively establish a niche market themselves. Where Simon assumes a conscious strategic decision to enter or establish a niche market, it might, in fact, rather reflect the adaptation of a firm to exogenously grown market structures of a certain product. The technological advantage of highly knowledge-intensive products makes it very difficult to enter the market. Moreover, since world-market leaders export as Born Globals beginning with the foundation of the company (Witt, 2015), it is rather the product type exogenously than the corporate strategy endogenously that determines the niche strategy.

In order, to further unfold the archetypical characteristics of hidden champions, which distinguish them from other SMEs and other family firms, a number of definitions provide a

first understanding of the phenomenon. Simon describes hidden champions as firms that rank among the top three in the respective world-market, have revenues below €5 billion, and a low brand awareness for their products and services (Simon, 2012). Simon's definition has become firmly established in the research field, as the overview from figure 3 indicates. 88 of the 94 publications follow Simon's definition of hidden champions. Deviations usually appear whenever authors adapt Simon's definition to their country-specific sample. The sample of Voudouris et al (2000, p. 664) describes Greek hidden champions as companies that (a) are Greek owned, (b) employ more than 20 and less than 250 employees, (c) are *"internationally oriented by either obtaining some of their revenues from outside Greece or by being part of joint ventures or other types of cooperation with companies from outside Greece and finally, (d) they should have achieved excellent performance, for the last five years (i.e. 1993-7) in several financial measures with the main one being the return on own capital".* Rammer and Spielkamp (2015, 2019a) specify for their sample that hidden champions must emulate an export share of over 50% and must also supply customers outside their continent. They are among the top three suppliers in their market, have a market growth (firm sales) of over 10% within the last five years and less than 10,000 employees.

The definition of Voudouris et al. (2000) is applied in a study, which examines a sample of hidden champions in Greece. Their definition modifies Simon's definition to achieve a sufficiently large sample of hidden champions. Contrary to this, the definitions of Rammer and Spielkamp (2015, 2019a) are far broader compared to Simon and emerge through their top-down sampling approach, which will be discussed more in detail in section 3.3.2. With the restriction to less than 10,000 employees (and not working with a revenue limit), the sample contains significantly more companies than when applying Simon's revenue limit of €5 billion. This explains why Simon's sample includes 1307 companies (2012) and the sample of Rammer and Spielkamp (2019) 1800 hidden champions. The current paper follows the bulk of the literature and uses Simon's definition to derive the sample of hidden champions, although the 3rd criterion of Simon's definition is derived as an important assignment for future research in section 6 (*low brand awareness*). Future research is mandated to investigate, how the low brand awareness of hidden champions can be measured empirically to allow more informed decisions on including or excluding firms from samples of hidden champions.

3.2 The Niche Strategy from Porter's Perspective

What distinguishes hidden champions from other family businesses and other Mittelstand firms is their niche market strategy. Porter (1980) developed a typology of generic competitive strategies, distinguishing between the dimensions of market segmentation and the nature of strategic advantage. Market segmentation can either be industry-wide or it can focus on a market niche. The strategic advantage can result either from differentiation or a cost leadership strategy. A cost leadership strategy aims to undercut the prices of other suppliers on the market and to align the entire company strategy on cost reduction. In this context, a policy of high volumes aims at achieving economies of scale and standardising production as far as possible. Likewise, comparative cost advantages from cheaper production countries are used and thus much is outsourced over the market with a tendency of lowering the depth of value added. Hidden champions, on the other hand, pursue a differentiation strategy in niche markets. In general, as soon as companies pursue a differentiation strategy, they aim to achieve a competitive advantage through the quality of their products or services. This involves the attempt to secure a monopoly position (in niche markets), since the technological advantage grants them a qualitative superiority, in turn establishing high barriers to market entry. Likewise, premium segmenting reduces the costumers' price elasticity and increases the willingness of customers to pay, since, at least in mass-markets, they buy more than the mere purpose of the product (e.g. a pair of jeans from Dolce & Gabbana for €700). The difference, between the differentiation strategy of hidden champions and companies that differentiate themselves in mass-markets (e.g. premium brands like Rolex, Ferrari, Dolce & Gabbana etc.), is that these companies have to differentiate themselves in the mass market through design and a strong brand in addition to the quality of the actual product. Therefore, the niche market strategy emulates a number of consequences that archetypically shape the nature of hidden champions.

A niche strategy implies a strict focus on a narrowly defined buyer segment with highly specialized needs. Due to the narrowness of niche markets with few suppliers and, especially in business-to-business relations, few demanders, the number of units sold and the achieved bottom-line revenues are intrinsically limited. As economies of scale are difficult to achieve in a niche, niche markets are usually not profitable for large corporations for not providing break-even volumes. The niches of hidden champions are premium segments, in which they manufacture products of high quality. Their technological advantage is based on high R&D expenditures and incremental and thus continuous innovation. In their markets, they are

monopolists (or one of the few competitors) on a regional or even worldwide base. A strong focus on internationalization is required as growth would be difficult to achieve in their narrow markets without attempting to conquer every market of their niche worldwide. Their narrow markets imply that they often are the sole seller of a certain good or product, which explains why they achieve to maintain close-customer relations. This characteristic differs from other Mittelstand companies, as their close-customer relationship is rather local and thus driven by the geographic proximity. Hidden champions instead find customers worldwide. Their closeness to customers rather stems from a high mutual interdependence and interaction rate (Audretsch et al., 2018).

3.3 Hidden Champions: Fields of Research

The following presents the four major streams within hidden champions literature. Each stream is presented in an overview, while a couple of exemplary studies are illustrated more in detail.

3.3.1 Internationalization Strategies of Hidden Champions

The first field of research that this review introduces, revolves around the internationalization strategies of hidden champions. Research on family firms points out that risk-aversion and a focus on their local communities lowers the propensity of family firms to internationalize their sales (Zahra, 2003). On the contrary, a strong focus on internationalization is archetypical for hidden champions. World-market leadership of highly specialized niche markets requires to meet large parts of the global demand (Landau, Karna & Täube, 2016). The data sample that underlies this review averages the revenues that hidden champions generate through export at 70%. The less substitutes exist for the niche product, the greater the dependence of demanders on the niche company. Niche markets are narrow, as the monopolists in niches have only few customers (in comparison to mass markets), which is due to a highly specialized demand. That illustrates why hidden champions are able to serve the world-market as Born-Globals shortly after their foundation (Witt, 2015). It is the demand for the highly specialized technology of hidden champions that drives the conquest of foreign markets. To illustrate this with an example, when the Mountain Resort of Lesnaya Skazka, Kazakhstan, was opened in 2018, the choice for a supplier of chairlifts, which is a niche market, was strongly limited. Doppelmayr (Austria) is the world-market leader for chairlifts and has been opening up the foreign market of Kazakhstan, because a highly specific demand for its product had emerged within the respective foreign market. This example of internationalization is typical for hidden champions. On a first look, it seems somewhat amazing that a company residing in a rural town of only

8,600 inhabitants (Wolfurt, Austria) is able to serve world-markets and establish its market dominance in a country as far, remote and culturally different as Kazakhstan. Yet, this becomes less of a peculiarity, once having analysed the industry for chairlifts and the internationalization strategies of hidden champions. After the demise of the Soviet Union, Kazakhstan experienced an incredible economic boom averaging its annual GDP growth of 6.63% between 2000 and 2018. In light of the growing tourist sector, the country began to designate new mountain resorts. Attracting winter sports indeed seems as a complementary strategy to the countries climatic conditions and geographic landscape. The annual temperature averages minus 20°C during Kazakh winters, its highest mountain peaks at 7,010 m (Khan Tengri). In order to build the mountain resort, an aerial lift system is essential, for which the region's council was likely to announce a public tender. The market for aerial lifts is a typical niche market and is characterized by a complex and demanding technology and for obvious reason needs to keep high quality and safety standards. Moreover, the market for aerial lifts exhibits strong monopolization, which is typical for niche markets. While Leitner (Italy) and Pomagalski (France) control 30% together, the world-market leader Doppelmayr Garaventa (Austria) controls 60% of the market and won the public tender for Leznaya Skazka (Doppelmayr, 2019).

While Simon (2009) argues that foremost the global mindset of hidden champions would enable them to internationalize thoroughly and build their market-coverage, Audretsch et al. (2018) point to the character of the niche market that drives the hidden champions' internationalization strategy. The authors elaborate that in a market of only a few suppliers, the technology dependence is the main reason to match demand and supply. A global mindset instead is a characteristic that rather seems to be important in mass-markets, where suppliers need to adapt to local tastes and other cultural traits (Nummela et al., 2004; Ramsey et al., 2016). Competition for hidden champions exist mainly within the oligopoly and potentially through entrants in the niche market. Yet, the latter is unlikely due to high barriers of entry (technological edge, specific human capital base of the workforce, strong use of patents, long-term, and close-customer relations etc.). The market concentration of niche markets exerts pressure on the incumbents not to lose market share to the few competitors, as this could drive the incumbent out of the market (*crowding out in oligopolies*, see McEachern, 2011). A niche strategy therefore naturally involves intense internationalization for each market that exhibits a need for the product. Consequently, the psychological, cultural and physical distance to the foreign market plays a subordinate role in niche markets, because the dependence on the often sole producer matches the market and thus drives the patterns of internationalization. In this respect, hidden champions differ significantly from other family businesses and thus represent an

anomaly to the literature on family businesses, which describes that family firms typically internationalise less extensively, as described above. In support of these considerations, several studies have analysed the internationalization strategies of hidden champions (Fryges, 2006; Witt, 2015; Audretsch et al., 2018).

Audretsch et al. (2018) investigate the internationalization strategies of hidden champions through the lens of the property rights theory. The authors point out that a strong vertical integration is necessary for hidden champions to protect themselves from knowledge drain and to keep quality standards. Vertical integration is essential to reduce the number of contracts concluded over the market to a minimum (Grossman and Hart, 1986; Demsetz, 1988; Holmstrom and Tirole, 1989; Hart and Moore, 1990; Brynjolfsson, 1994; Hart and Moore, 2005; Roberts, 2007). Market transactions are pareto-inferior to transactions within the boundaries of the firm, whenever firm assets and their investments are highly specific. Considering the incompleteness of contracts, potential contingencies with market-based contractual parties then could only be averted at great expenses. For this reason, the internationalisation of hidden champions foremost takes place by means of direct export and a large number of wholly owned subsidiaries (Haussmann, 2003; Witt, 2010), since the specificity and thus the technological intensity of the assets make it necessary to secure unequivocal property rights (Acemoglu et al., 2010; Antràs and Chor, 2013). Fryges (2006) adds to that and investigates the anomaly that hidden champions export very strongly despite the fact that they are SMEs. In his study, he finds that neither a low firm age nor a small firm size are an obstacle to emulate a high export intensity. What distinguishes hidden champions from other SMEs are firm-specific assets that they use to overcome obstacles of foreign market entry. In order to develop these firm-specific assets, it is necessary to invest more than non-hidden champions in R&D, to buy technologies from other companies or to hire managers, who have a high experience in the internationalisation of companies. Finally, Witt (2015) analyses the internationalisation strategies of British and German hidden champions and the form of market entry into foreign markets. According to Witt, no hidden champion within her sample, follows the Uppsala model, while 43% can be characterised as Born Globals and are already active worldwide shortly after their foundation. All of the Born-Global hidden champions prefer direct export as mode of market entry (Witt and Carr, 2013). Relying on their own assets grants them to retain high degree of control, which is essential to protect their technological advantage and the high quality of their products. Her study shows that 20% of her sample of British and German hidden champions can be categorized as Born Again Globals (BAG). This implies that firms initially serve domestic markets until a critical exogenous shock spurs *"belated*

accelerated internationalisation" (p. 285). 37% prove to be hybrid arrangements between the latter modes of entry.

Drawing a conclusion, the literature on the internationalization strategies of hidden champion agrees on the high importance of vertical integration, when entering foreign markets. Hidden champions rely on the boundary of the firm to safeguard the incentive for specific investments. In doing so, hidden champions are better able to internalize the quasi-rent within their own hierarchy and thus largely avoid contracting over markets. Subsidiaries and direct export grant independence from less third party involvement, which allows to enforce the corporate strategy and protect knowledge and quality standards. The high value-added strategy allows to circumvent the incompleteness of contracts and its threat of hold-up and renegotiation (Coase, 1937).

3.3.2 R&D and Innovation Strategies of Hidden Champions

Apart from the internationalization strategies of hidden champions, most studies on hidden champions analyse their R&D and innovation strategies (Venohr and Meyer, 2007; Yoon, 2013; Rammer and Spielkamp, 2015, 2019a). The reason why research mostly examines the latter fields is obvious. The niche strategy of hidden champions places innovation and internationalization at the front, as both fields are key to their competitiveness and determine market-leadership (Zastempowski, 2011). Hidden champions tailor technologically demanding and knowledge-intensive products, mostly in B2B markets. Technology leadership is key to keep their position as a market-leader. Their strategy of innovation thus can be described as rather incremental than radical (Henderson and Clark, 1990). To this effect, the framework of Henderson and Clark allows to classify various types of innovation according to the novelty of innovation. The authors distinguish between architectural, radical, modular and incremental innovation. Radical innovations are characterized through a strong overall novelty of the product. The novelty of the latter manifests itself in a new design, relies on new components, and needs to be implemented through a newly built system architecture. Of course, moving into uncharted waters requires a higher risk to be borne. Hidden champions instead have no need to disrupt their own markets and rather pursue incremental innovation. The incremental innovation refers to the development of individual components of a core concept that remains unaltered otherwise. Technological improvements are primarily made to satisfy customer needs, to increase customer loyalty, and to safeguard technology leadership (Voudouris et al., 2000; Riisalu and Leppiman, 2013).

Although a hidden champions' product invention, obviously, was a radical innovation, hidden champions focus on incremental innovation afterwards. Their innovation strategy is driven by the close-customer relationship and the strong interdependence inherent in the market relationships to their customers. The high interaction rate and technological specialization allow customers to intensively contribute to the innovation process with their own knowledge about the hidden champions' product (Baloh, 2013; Rant, 2013b). Lending from the property rights perspective further above, the hidden champions' strategy of differentiation both explains the important role of R&D and innovation and why hidden champions are vertically integrated to a great extent (Rant and Cerne, 2017b).

The technological complexity of the hidden champions' niche offer requires to tailor products to the specific use of customers. These knowledge intense industries (mechanical engineering, electrical engineering, chemicals, medical engineering etc.) imply that hidden champions need to protect their intellectual property both through vertical integration and strong patenting efforts. Both is essential to defend their leading market position. Differentiation strategies aim at technological leadership and offering quality products to highly specialized customers. This explains why hidden champions continually foster incremental innovation. The vertical integration therefore is necessary for quality control, as hidden champions largely avoid to depend on market transactions and third party influence (Voudouris et al., 2000; Baloh, 2013; Riisalu and Leppiman, 2013).

Especially within this stream of research, some studies not only collect samples of hidden champions, but additionally form a control group to compare the innovativeness of hidden champions to other firms. The groups are compared in statistical tests to derive implications regarding the peculiarities of hidden champions compared to other family firms and SMEs. Examples include the studies by Rammer and Spielkamp (2015, 2019a) and Schlepphorst et al. (2016). Rammer and Spielkamp (2015) examine the innovation strategy of German hidden champions. In contrast to most other empirical studies on hidden champions (bottom-up sampling), Rammer and Spielkamp (2015) use a top-down approach to form their own sample of hidden champions. As described above, they use their own (and broader) definition of hidden champions and find 1583 hidden champions in Germany within their 2015 sample. With propensity score matching, a control group is built to test their assumptions. The findings show that hidden champions innovate more than the control group. In their second study on hidden champions (2019a), again, they use a top-down approach to obtain their sample of hidden champions, where the total number of hidden champions in Germany is extrapolated in a

stratified random sample. Within this estimation approach, they find 1800 hidden champions, building their base to work out distinct success factors regarding the hidden champions' business strategy and innovation management. The authors conclude that hidden champions pursue an innovation-based business strategy and that the hidden champions' global market leadership is based on technological superiority and high customization. Contrary to Simon's analysis, hidden champions do not spend more on R&D than the control group, but still emulate a higher level of innovation. Rammer and Spielkamp conclude that hidden champions achieve a particularly efficient use of resources and that this strength is based on four factors: a high focus on the development of their technology, open innovation and strategic networking of their knowledge base, a complementary management of their intellectual property, and finally high investments in the human capital base of their employees.

In another study, Schlepphorst et al. (2016) investigate determinants that distinguish hidden champions from other firms. They form their own sample of German hidden champions by selecting from a large database of companies in which they separate hidden champions from non-hidden champions by criteria similar to Rammer and Spielkamp. Among other factors, they base their selection on the companies' own statements as to whether they are market leaders in Europe or among the top three global market leaders in their segment. Finally, they apply logistic regressions to test factors that distinguish whether a company is part of the hidden champions sample and not part of the control group. On the basis of 60 hidden champions and 346 non-hidden champions, they find that research and development, international business activities, and a great ambition to maximise market shares are characteristics that significantly distinguish hidden champions from other companies.

Venohr and Meyer (2007) examine the long-term evidence of the hidden champions' leadership, development and strategies over a period of ten years and base their analysis on Simon's set of German hidden champions. They find empirical evidence that hidden champions are especially characterized by family ownership and a family cooperative culture that often is combined with outside professional management, a global market dominance pursuing a niche market approach, and thus the exploitation and enhancement of resources and capabilities on a global scale. Finally, they find that hidden champions are intensively busy to increase their operational effectiveness of major processes and functions. These factors altogether explain the organizational fit of hidden champions for their innovative product output and the technological leadership. Yet, another example is Yoon (2013), who examines the R&D and innovation strategies of hidden champions in Korea and finds that hidden champions have more market

initiative, technology competence and internationalize stronger than non-hidden champions. Among his sample of hidden champions, he divides between born and acquired hidden champions and finds that born hidden champions show higher innovation, internationalization and patent rates compared to acquired hidden champions. Yoon bases his findings on his own sample of Korean hidden champions and performes t-tests to test his hypotheses against the control group of medium-sized non-hidden champions. Adding to Venohr and Meyer (2007) and Yoon (2013), Kaudela-Baum et al. (2014) examine the determinants of the hidden champions' high innovativeness. They attribute the strong innovativeness of hidden champions primarily to their corporate culture, which motivates employees to develop ideas and pro-actively pass them on to the management. The decentralization of decision-making creates incentives for employees to pro-actively initiate product development. Thus, employees in hidden champions are more involved in the innovation process than in other companies, creating an organizational climate that particularly encourages innovation.

To sum up the literature on the R&D & innovation behaviour of hidden champions, the niche market approach entails that hidden champions produce highly specialised products with a high focus and relatively low product diversification. This specialization requires the development of a deep knowledge base, which is generated through R&D and the collaboration with long-term customers. On average, hidden champions patent significantly more than the companies listed on the German DAX30 index, with 31 patents for every 1000 employees, DAX30 companies on average have only 6 patents per 1000 employees (Simon, 2009). Are hidden champions therefore really more innovative than large corporations and other family-owned businesses?

The answer to this question is not unequivocal. Just because companies patent more, does not prove that they actually are more innovative. There are good reasons why companies do not patent despite of being highly innovative. Patents formalize knowledge and thereby make knowledge public for other companies and potential market-entrants. Market incumbents thus may even risk their market leadership. Therefore, comparing innovativeness with mere patent figures is not entirely reliable, because the measurement of innovation through patents can suffer from shortcomings (Shepherd, 1979; Acs & Audretsch, 1989). Nevertheless, hidden champions face only little competition within their market niche. Thus, they indeed could patent more than other companies, as the threat of product imitation in niche markets is limited. However, Venohr and Meyer (2007) argue that their markets are contestable in the long run. As long as substitutes are available, new competitors can enter the niche market, as soon as it

becomes profitable for them. Still, this holds only partly, especially since the narrow market provides too little volumes for large corporations and thus market entry would be rather likely for young and small companies. What distinguishes hidden champions archetypically from other Mittelstand and family-owned companies is that they are technology leaders in their product niche. The continuous development of their technology is often carried out in close cooperation with the needs and suggestions of the customers. In narrow niche markets, suppliers and customers are exposed to a high degree of interdependence and thus often work together on a long-term basis and in close ties. As a result, customers have a large share in the ongoing development of the product through their expertise of highly technological products. Hidden champions spend an average of 5% of their sales on R&D, which is even higher compared to the manufacturing companies in the Global Innovation 1000 (4.5%), an index that tracks the most innovative and R&D companies worldwide (Venohr and Meyer, 2007; Simon, 2009). Technology leadership in niche markets is a key factor that explains why hidden champions offer products of high quality and prices and thus differentiate themselves from many other Mittelstand companies. Although patent statistics do not necessarily prove innovativeness, the niche approach, the technology leadership and high R&D spending suggest that innovativeness is an archetypal characteristic of hidden champions.

3.3.3 Geographic Distribution of Hidden Champions

A third and still rather small field of research explores the geographic distribution of hidden champions. So far, the analysis has centred on the historical origins of Germany's Mittelstand (Audretsch et al., 2018), the system of vocational education (Lehmann et al., 2019; Audretsch et al., 2020), the inheritance tax regime, the system of corporate boards, and geographic economics (Audretsch et al., 2020) to study the worldwide distribution of hidden champions. Finally, another study investigated the dual system of higher education and the regional distribution of hidden champions in Germany (Schenkenhofer and Wilhelm, 2020).

Audretsch et al. (2018) show that hidden champions predominantly belong to those industrial sectors that served as the leading sectors during the German industrialization in the second half of the 19th century. The technological development and innovations of this time established technology and thus world-market leadership, which has been maintained in the respective industries ever since (in particular mechanical, chemical, electrical engineering and medical engineering). Lehmann et al. (2019) focus on the centralization of vocational systems and point out why the specific human capital of vocational apprentices proves to be complementary for

hidden champions. The authors show that in centralized VET systems, human capital investment is provided publicly and thus employees are incentivized to invest in their stock of specific human capital. In decentralized VET systems, public spending in vocational education and training is limited, which is one reason for a rather low number of hidden champions. The authors thus attribute the distribution of hidden champions to the availability of an economy's stock of complementary (firm-specific) human capital. Centralized VETs reduce the underinvestment of employees in their specific human capital. By investing in firm-specific human capital, employees lock-in themselves with the employer and thus reduce their outside opportunities for other firms in the labour market. Therefore, employees commonly are reluctant to invest in their specific-human capital base. Contrary to that, if training is organised by the state and the investment publicly funded, employees are more willing to invest in their specific human capital base. Moreover, a centrally organized certification system also leads to a reduction of lock-in effects and a higher transferability of labour, which likewise increases investments in an economy's stock of specific-human capital. A further study within this field of research is by Audretsch et al. (2020). In their context-choice model, Audretsch et al. (2020) explain the emergence of niche entrepreneurship within national economies around the world. In their model, the authors describe various context variables, such as soft inheritance taxation, dualistic corporate board systems, civil law regimes and therefore underdeveloped traditional and venture capital markets, the low cluster intensity of a country's economic geography and the centralization of the VET system as complementary to the organizational choice variables of niche entrepreneurs. They substantiate their assumptions through negative binomial regressions for 217 countries. Finally, Schenkenhofer and Wilhelm (2020) examine the geographical distribution of hidden champions in Germany and find that Baden-Württemberg concentrates most hidden champion in Germany. In this context, the authors examine the system of dual higher education in Baden-Wuerttemberg and its capability to stimulate the stock of specific human capital in Baden-Wuerttemberg.

3.3.4 Other

A good number of other publications cannot be categorized easily within the typology of this literature review and rather present marginal topics, as figure 3 shows. Plenty of articles within this fourth field of hidden champions research explore the concepts of Simon and test empirically how certain countries' hidden champions compare to Simon's German sample. The authors usually build a sample of local hidden champions and use surveys to analyse their country's case. The conclusions are derived from mostly descriptive analyses and are

interpreted in comparison to Simon's findings. The work of Voudouris et al. (2000) is a typical example of early empirical works within the research field of hidden champions, as it sets up a new sample of world-market leaders for a certain region (Greece in this case) and empirically investigates the success factors that are key to their business strategy. They find that Greek hidden champions are constituted mainly by their high degree of specialisation in narrow market segments, a high commitment to customer service, a culture that fosters innovation and the adaption of new technologies and finally a strong leadership and a healthy organizational climate. Similar to the study of Voudouris et al. (2000), a number of studies from the Southeast European region, Russia and Kazakhstan investigate hidden champions descending from emerging markets (McKiernan and Purg, 2013a). They use Simon's questionnaire to examine the core characteristics of the identified hidden champions in their countries and compare them with Simon's findings. In total, researchers from 18 countries participated in the survey and found 165 hidden champions, with a much younger average firm age of only 19 years. The export rates of the samples are almost identical to those of Simon's sample (table 1). Examples of these studies are Brkic and Berberovic (2013) or Lebedev (2013). Brkic and Berberovic (2013) study the marketing strategies of hidden champions of the CEE region and find that hidden champions are able to secure a quality brand position without the usual trade-off between rapidity and quality. Hidden champions achieve to transfer the brand value from their customers to their own brands within B2B markets. Lebedev (2013) studies the financial strategy of hidden champions of the CEE region. In contrast to Simon's sample of German hidden champions, hidden champions in the CEE region need more external finance for growth, which still rests in an early-stage phase. The underdeveloped financial markets prove as the major economic obstacle for hidden champions within the CEE region.

Other exemplary studies that focus on more marginal aspects of hidden champions research are Kirner and Zenker (2011) or Garaus et al. (2016). Kirner and Zenker (2011) investigate the role of knowledge angels for the corporate success of hidden champions. Knowledge angels contribute special expertise to the company and thus combine internal and external knowledge, which is particularly beneficial for the technological advantage of hidden champions. Garaus et al. (2016) analyse ambidextrous Human Resource Management systems using case studies of hidden champions. They find that integrative employment practices support the integration of knowledge within the organization.

4. Hidden Champion and Research on the German Mittelstand

After section 3 has examined research on hidden champions, another objective of literature reviews is to elaborate which other research strands are linked to or subordinate the given field of research (Hart, 1988; Webster and Watson, 2002; Gabbott, 2004; Torraco, 2005; Pautasso, 2013). The nature, behaviour and performance of hidden champions can also be accessed through Mittelstand research, especially since the vast majority of hidden champions are Mittelstand companies and thus the research field of hidden champions can be integrated into the research on the Mittelstand. Much of what has already been found for Mittelstand companies applies to hidden champions. On the other hand, there are certain particularities which distinguish hidden champions from other Mittelstand companies archetypically. The delineation from Mittelstand research thus helps to elaborate the full essence of hidden champions. While Anglo-American research often tends to simply consider Mittelstand companies as SMEs, the term Mittelstand describes more than a quantitative classification and is characterized by distinctive qualitative characteristics. Figure 1 describes the overlap of the different concepts. SMEs are constituted first and foremost through the definition of size, defined by the IFM as companies with fewer than 500 employees and an annual revenue of less than €50 million (IFM, 2020b). On the contrary, the IFM defines Mittelstand firms "*by the unity of ownership and management. (...) In a medium-sized company, up to two natural persons or their family members (directly or indirectly) hold at least 50% of the shares of a company*", whereby they are members of the management. Furthermore, the *"intersection of medium-sized enterprises/family enterprises and independent small and medium-sized enterprises (SMEs) is very large"*. It is also significant here that according to the IFM, *"companies with 500 or more employees or annual sales of more than €50 million also count as Mittelstand/family businesses"*, if they meet the criteria of the definition (IFM, 2019). E.g., hidden champions such as the *Aerzener Maschinenfabrik GmbH*, is a Mittelstand company, as it is owner-managed, in spite of its 2,243 employees and revenues of €382 million. And companies like *GEA Group AG* (18,642 employees, €4.8 billion revenues) or *ElringKlinger AG* (10,033 employees, €1.7 billion revenues) are hidden champions (following Simon's definition) even though they do not belong to the Mittelstand regarding both definitions, as they are not owner-managed and surpass the employee and revenue limit.

Qualitative Dimensions of the Mittelstand

In recent years, entrepreneurship research has endeavoured to describe and compare the heterogeneity of different types of entrepreneurship (Welter, 2011; Welter and Gartner, 2016;

Welter et al., 2016; Welter et al., 2017; Audretsch, 2019). Thus, the Mittelstand is a type of entrepreneurship model, which has gained a lot of attention from leaders in policy and business throughout the world, because of its economic resilience, among other reasons. Often, the Mittelstand is described as the backbone of the German economy and stands out as an engine for Germany's innovativeness and export success (Audretsch and Lehmann, 2016). German's industrialization and the rise to global economic power is, above all, also a story of the emergence and rise of the German Mittelstand. This section illustrates its qualitative characteristics, which later are compared to the hidden champions. A number of authors have described the qualitative factors that characterize the German Mittelstand (Berghoff, 2006; Welter et al., 2014a; Welter et al., 2014b; Welter et al., 2015; Audretsch and Lehmann, 2016; Pahnke & Welter, 2019a). Here, it is important that the criteria overlap as little as possible. The model clusters the criteria into three main categories: *1) Governance, 2) Culture and Values and 3) Economic Key Strategies*. Some facets of Mittelstand companies have also been analysed within the family firm literature, because they accrue to family firms just alike.

Governance

Identity of ownership and management. One characteristic of the Mittelstand is the identity of ownership and management (Jensen and Meckling, 1976; Welter et al., 2014a), which is one of main focal points within family firm research. In this context, it is important to distinguish analytically between large family businesses, which Mittelstand world-market leaders usually are, and smaller businesses. The Mittelstand comprises 99.6% of all companies in Germany. At this point, it is to emphasize that one-man businesses and other self-employments, such as electricians, master painters or other main street businesses are included within this figure (Glauser, 2016). For these businesses, agency problems, such as the extraction of private benefits of control and the hiring of professional managers, occur to a smaller extent (Ross, 1973; Eisenhardt, 1989; Schulze et al., 2001). Yet, for all family firms alike, management succession is considered a pivotal challenge, which is increasingly considered as a problem, particularly in the wake of the demographic change in Western industrialized nations. The preservation of family control is a central characteristic of family businesses (Cabrera-Suárez et al., 2001; Bennedsen et al., 2007).

Patriarchal leadership. In larger companies of the Mittelstand, or at least in those that employ a certain number of staff at all, the leadership style is often patriarchal and authoritarian (Simon, 2009; Audretsch and Lehmann, 2016). The strategic alignment is determined by the top management, who often delegate decision-making authority on the operational level to the

lower management. The decentralization of decision-making authorities has a motivating effect on employees and strengthens the family climate in the company.

*Long-term planning hori*zons. Mittelstand companies are particularly characterized by long-term planning and investment horizons, which is often reflected in the deep knowledge base of the company (Berghoff, 2006; Audretsch and Lehmann, 2016; Pahnke and Welter, 2019a). On the contrary, contracts of professional managers in large companies often have a short duration of only 4 or 5 years. Tying remuneration to the share price may encourage managers to plan investment returns in a way that the associated performance effect occurs within their contract period. This fosters investment-decisions to be made below optimum. Instead, the management continuity in Mittelstand companies implies that consistent strategies can be pursued in the long-term and therewith sensitive and tacit assets can be built up, e.g. like a family business culture. In this context, the fact that employees of Mittelstand companies are also characterised by high employee loyalty and low and therefore cost-saving turnover rates, has a complementary effect. This, in turn, makes it possible to build strong social ties between employees and pronounced social networks within the company (Audretsch et al., 2018). The mutual planning security and long-term nature of the ties promote the confidence for relation-specific investments in the human and social capital of employees, since quasi-rents are safeguarded in an interdependent relationship (Williamson, 1975; Hart, 1988).

Culture and values

Tradition and family dynasty. The continuation of family traditions and the preservation of the dynasty are essential characteristics of the cultural self-image of Mittelstand companies (Welter et al., 2014b; Welter, 2018). Growing up in a family firm, is an integral part of the construction of the family members identity and construction of self. This is nurtured by shared experiences, stories and traditions that grow over generations and have a decisive influence on the family's foundation of values (Deephouse and Jaskiewicz, 2013). Organizational identification thus refers to the oneness of an agent with its organization regarding the congruence of shared values and beliefs that induce an alignment of goals (Mael and Ashforth, 1992) and leads to a higher level of attachment of family members to the firm than for non-family members.

Emotional attachment. Strongly linked to the latter characteristic, the emotional attachment to the family business describes the willingness of a member of the family to be a recognized member of the managing family. The attachment to the family is characterized by a strong affection for the family and the desire to subordinate one's own interests to the welfare of the family (Welter et al., 2015). The willingness to belong to a group is essentially based on

fulfilling and defending the values and standards of the group (Bowlby, 1979; Paxton and Moody, 2003; Thomson, MacInnis and Whan Park, 2005; Zellweger and Astrachan, 2008).

Family climate. Mittelstand firms are often distinguished by a family climate in their corporate culture (Welter et al., 2014b; Welter, 2018). In addition to the dense social networks and low fluctuation as mentioned above, this is also due to the proximity of the leader and employees. Due to the small or medium size of the company, the frequency of contact with the leader is significantly higher, which makes employees feel perceived better. Moreover, flat hierarchies also help to communicate bottom-up to the management level and the individual employee thus can be heard more easily. Similarly, flat hierarchies help employees to feel that they have a greater direct involvement in the success of the company, which is a symbol of how close the company and its leaders are to employees (Björnberg and Nicholson, 2007; Cabrera-Suárez et al., 2014).

Economic key strategies

Economic independence. Mittelstand companies often maintain a high equity ratio and are usually not listed on the capital market, which grants them a certain independence from economic cycles and increases their autonomy in terms of capital supply (Berghoff, 2006; Welter et al., 2015; Audretsch and Lehmann, 2016). In Germany, the house bank principle has proven its worth for Mittelstand companies, which describes the close cooperation of a Mittelstand company with a local bank (communal saving banks and credit cooperatives) in a long-term partnership (Vitols, 2001; Reinemann, 2019). The cooperation is characterised by mutual trust, whereby the banks usually interfere with the strategic alignment of the company to a limited extent. Rather, the bank serves as a quick and convenient cooperation partner for financing models and source of liquidity. Mittelstand companies also secure their economic independence through vertical integration. In this regard, the significance of the depth of value added grows alongside to the knowledge intensity, technological complexity and innovativeness of the product. As described further above, market contracting is inferior to integrating value creation within the hierarchy of an organization, in case of highly specific investments and a thus high sensitivity of information on the product. The boundaries of the firm thus are vertically integrated, if market transactions cannot be sufficiently protected by (incomplete) contracts due to the high specificity of the investments (Williamson, 1975). Retaining property rights over assets is critical, because they lend bargaining power to their owner - especially in case of transaction contingencies and assumed opportunism and the

potential hold-up of contractual partners – as discussed further above (Grossman and Hart 1986; Demsetz, 1988; Holmstrom and Tirole, 1989).

Nimbleness. Mittelstand firms often are very dynamic firms that find it easy to adapt to environmental changes (Berghoff, 2006; Audretsch and Lehmann, 2016; Welter, 2018). They achieve nimbleness through a lean organization and flat hierarchies. A quick and non-bureaucratic administration allows a fast reaction and adaptation to the needs of customers and market changes. Ideas from the lower levels of the hierarchy, which are often closer to the operational business, can thus be passed on to management with relative few loss of information compared to organizations with steeper and more complex hierarchies. The broader base has more intensive and more frequent contact with more customers than in very steep hierarchies, where sometimes only top managements tend to exchange information among themselves. This offers the possibility to be open for external knowledge at many access points. In addition, more employees at lower hierarchical levels are equipped with higher levels of competence than in large corporations, for example. This in turn inspires employees to pass on their ideas for product and process development (Welter et al., 2014b).

Close-customer relations (local). Mittelstand companies often build long-term relationships with customers, which allows them to build mutual trust (Audretsch and Lehmann, 2016; Glauser, 2016). The often local proximity between companies and customers strengthens customer loyalty and enables frequent and close-customer contact. The frequency of interaction between customers and companies allows to build mutual knowledge of the product range, which helps to address customer needs specifically. Moreover, in rural areas, the lack of alternatives in smaller markets leads to a natural dependency between companies and customers, which further strengthens the bond between them through the lack of outside opportunities. The narrow geographical space between companies and customers also implies a high visibility of the company's quality and reliability for other customers, since in narrow social networks, customers can strengthen or weaken the company's reputation decisively through word of mouth recommendation.

Strong regional ties. Due to close-customer contact and often limited economic resources in rural areas, Mittelstand companies are dependent on investing in their local communities and working closely with local politicians (Welter et al., 2014a). In this context, the concept of corporate citizenship describes the commitment to social activities in the company's local environment that exceed the actual business activity (Carroll, 1998; Matten and Crane, 2005). Mittelstand companies aspire to be recognized by society as corporate citizens and to be seen

as partners of society. This implies that they do not cut back on social resources, but rather regard them as their own resource base, which they must constantly nurture. In this way, companies contribute pro-actively to solve social problems and give something back to society from their profits. Some corporate citizenship instruments include, for example, donations, sponsoring, corporate charitable foundations, corporate volunteering or organizing local social events to build the local community, among others.

Moreover, some sources credit a reputation for a special work ethos as part of a specific mindset to the German Mittelstand (Pahnke and Welter, 2019b). This, in turn, would contribute to a very positive connotation of the Mittelstand: *"Due to a number of positive connotations with the term 'Mittelstand' in Germany, even large companies – in which the identity feature of the ownership and management is not present – still perceive themselves as Mittelstand. Therefore, emotions, passion and feelings of belonging, play an important role for understanding the Mittelstand."* (Pahnke and Welter, 2019b.) This is a very soft characteristic, which is difficult to substantiate or to measure empirically, which is why it was not included in figure 2. What could have inspired the theory on such a specific mindset and its positive connotation? At best, a particular mindset of the Mittelstand that reflects in a particular meticulousness could be elaborated through a socio-historical analysis of the German society in the 19th century. There, the roots for the reputation of the Mittelstand may have been laid around a particular mindset, value foundation and work ethos.

Today's Mittelstand is a social class that emerged in the 19th century as a result of the industrialization (Sommariva and Tullio, 1987). With the rising prosperity and new industry sectors, a new social class emerged: the *bürgertum*. The semantics of the term Mittelstand thus denotes, on the one hand, a collective term of SMEs that is beyond characterized by a number of qualitative factors and in addition, it is a sociological term that describes a social class. In this latter meaning, *bourgeoisie* or *bürgertum* can be understood as synonyms (Sperber, 1997). Although the origins of the German Mittelstand date back to the Middle Ages, the term acquired its current meaning primarily during the Industrial Revolution in Germany. The socio-cultural factors that often describe the mentality of the German Mittelstand in literature could thus be derived from this social change. The historical review of social dynamics, thus allows to make the soft, socio-cultural characteristics of the Mittelstand more tangible and allows to set it on a firmer foundation. Furthermore, such an analysis illustrates how the term Mittelstand gained its positive connotation.

The German industrialization and its transformation from an agrarian to an industrial state formed a new corporate landscape and therewith new jobs in employment relationships (Sommariva and Tullio, 1987). This change was driven through, above all, owner-managed SMEs in addition to the few large corporations in the leading sectors of the industrialization, such as the industry of mechanical engineering and automotive (e.g. *Benz & Cie. Rheinische Gasmotorenfabrik*, founded in 1883, now known as *Daimler AG*), the iron and steel industry (e.g. *Krupp-Gussstahlfabrik*, 1811, now known as *ThyssenKrupp AG*), chemistry & pharmaceuticals (e.g. *Badische Anilin- & Soda-Fabrik*, 1865, now known as *BASF SE*), and electrical engineering (e.g. *Deutsche Edison-Gesellschaft für angewandte Elektricität*, 1883, now known as *AEG AG*). Moreover, since the middle of the 19th century, SMEs settled in niches around the great pioneers in the same industries and profited greatly from the progress of the pioneering large corporations, new scientific findings and technological possibilities: in the industry of mechanical engineering and automotive (e.g. *HELLA GmbH & Co. KGaA*, 1899), iron and steel (e.g. *Otto Fuchs KG*, founded in 1910), chemistry & pharmaceuticals (*e.g. Jowat SE*, 1919) or electrical engineering (e.g. *Kostal GmbH & Co. Kg*, 1912). Most of the hidden champions arose from this peak phase of the industrialization during the Wilhelmine era. To this effect, it's not surprising that most hidden champions operate in the same industries, as mentioned above, that actually were the key industries of the industrialization: mechanical engineering (33.15%), electrical engineering (10.94%), automotive (9.17%), chemistry & pharmaceuticals (5.86%) and metal ware (4.53%). Moreover, the sample of 1372 hidden champions averages the founding year at 1917, which explains how Germany achieved to become the strongest exporting nation behind the USA before the outbreak of World War I. In only 80 years since the beginning of industrialization, the former agrarian state had become a world economic power, which can be attributed not only to the large corporations but also to the many newly founded and family-run niche market leaders from Germany's Mittelstand.

Until the middle of the 19th century, the society in the German Confederation and later the German Empire still resembled a feudal society of classes, which was characterized by the division into clergy (1st class), nobility (2nd class) and peasants along to simple citizens (3rd class) (Veblen, 1990). Feudalism provided that feudal lords (nobility and large landowners) granted peasants the right to use their land as vassals in rigid dependence. With the end of the feudal system, industrial revolution, urbanization and the formation of the class society, a new class emerged between the nobility and the lower class (which now was enlarged through the addition of industrial workers): the *bürgertum*. The political leadership resembled an authoritarian state with a weak parliament, which severely restricted political participation and

did not provide liberties for all members of society equally (Weisbrod, 1996). While political paternalism had been a tradition for centuries, the industrial revolution and the accompanying educational reforms implied that at least parts of the *bürgertum* now had the chance to significantly improve their social and economic position through their own efforts. Family businesses were able to accumulate large fortunes, also due to the rapid growth in world trade. The *bürgertum*, as a social class between the upper class (high clergy and nobility) and the lower class (workers and farmers), was united in its demarcation from the lower class and - especially the possessive bourgeoisie - often adopted aristocratic attitudes and lifestyles of the nobility (building castle-like mansions, use of maids and servants, striving for titles and decoration etc.). The decisive factors for the rise of the new society were based on the pillars of private ownership and education in order to sustainably escape the poverty of the lower classes. The liberalization of the industrial regulations and the development of the school and university system (e.g. on the basis of the reforms by von Hardenberg and von Stein) anchored the liberal principle of performance and achievement, and associated values such as diligence, efficiency and discipline deep in the mindset of the newly emerging *bürgertum*. Overcoming the system of guilds, a new kind of entrepreneurship emerged, who could exchange their efforts and knowledge for prosperity and social status. The liberal upper, possessive and educated *bürgertum* was united in its desire for German unification and when it took place in 1871, they were valued as loyal subjects of the Wilhelmine Empire, which established the institutional context for a new kind of prosperity (Weisbrod, 1996; Torp, 2010).

Driven by an aspiration for social advancement and prosperity, the Mittelstand (or *bürgertum*) diligently drove the economic progress of the Reich and epitomized the new principles of order and efficiency in a new economy of time and profit. In itself, the bourgeois society was divided into the *haute bourgeoisie* (*großbürgertum*) and the *propertied bürgertum* (similar to Marx's concept of bourgeoisie; mainly industrialists and big landowners), the *educated bürgertum* (professors, senior civil servants) and the *petty bürgertum* (small merchants, teachers, self-employed craftsmen). Families of the *bürgertum* placed the highest value on the school education of their children, as it was a guarantee to preserve the privileges of economic progress (Sommariva and Tullio, 1987). German industrialization is therefore often linked in literature to the intellectual heritage of a Protestant work ethic, which particularly respected the values of diligence, a sense of order, a sense of duty, punctuality, thrift, determination and discipline. These values were included in the catalogue of Prussian virtues, which became a foundation of socio-cultural origin of the mindset of the Mittelstand (Weber, 1930). 40.6% of today's German hidden champions were founded before 1918 and emerged from the old family-run craftsmen's

firms that settled around the corporations of the booming leading sectors. Over the next few decades, these SMEs grew into medium to large companies forming the largest sub-group of hidden champions. The reputation associated with this social rise may reverberate until the present day. Thus, belonging to the Mittelstand often is perceived as an awarding recognition and *"[f]or obvious reasons, the Mittelstand is often seen as an exclusively German phenomenon: it has deep roots in the German history; it stands for a specific German variety of capitalism; and it is strongly influenced by previous and current institutional arrangements in Germany"* (Pahnke and Welter, 2019b). In contrast, the Mittelstand is not limited to Germany and often resembles various forms of *everyday entrepreneurship* in its many facets (Welter et al., 2017). Yet, the positive connotation of belonging to the Mittelstand is specific to the German Mittelstand and could be due to the historical origin of the Mittelstand in Germany, as explained above. Moreover, the history of the Mittelstand and its *bürgertum* in Germany is unique, since the foundation of a territorial German state and a coherent economic area took the longest of all Western industrialized countries, as is the late industrialization of the *belated nation*. It seems likely that the speed and scope of the social rise of the *bürgertum* has thus particularly shaped the reputation and its positive connotation of the Mittelstand within the German society until the present day.

Furthermore, some sources describe the Mittelstand as innovative (De Massis et al., 2018; Pahnke and Welter, 2019b). The characteristic of innovativeness was also not included in the model, as it is questionable whether it applies to the Mittelstand in general. Following the OECD definition, innovation *"is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations*". Other definitions state that innovation is *"...the transformation of knowledge into new products, processes, and services..."* (Porter and Stern, 1999, p. 12) or that innovation *"is a process of turning opportunity into new ideas and of putting these into widely used practice"* (Tidd and Bessant, 2009, p. 16). Yet, another definition describes that *"[i]nnovation = theoretical conception + technical invention + commercial exploitation"* (Trott, 2012, p. 15). McKinley, Latham and Braun (2014, p. 91) refer innovation to *"...any novel product, service, or production process that departs significantly from prior product, service, or production process architectures"*, while Dosi (1988, p. 222) defines innovation as the *"search for, and the discovery, experimentation, development, imitation, and adoption of new products, new production processes and new organizational set-ups."* Based on these definitions of innovation, innovation always describes something completely new or substantially developed that changes the widely used practice of

a product or process. The spectrum of company types and thus types of innovation in the Mittelstand is enormous and ranges from electricians, painters, or other main street businesses to hidden champions. Is the Mittelstand innovative per se?

The absolute level of innovation varies considerably within this range. To give an example, pizzerias are Mittelstand companies just like Claas (following the IFM Definition), which produce combine harvesters and are the market leader in Europe. Of course, this example covers extremes, but it helps to illustrate the heterogeneity within the Mittelstand. Pizza is a mass product and is supposed to replicate the desire of an ideal type, i.e. to fulfil certain expectations of customers (e.g. the taste of a Pizza Margherita; no matter if in Dublin or Berlin), which do not differ fundamentally among consumers and hardly change over time. At best, a pizza chef creates his own pizza *della casa* and uses common (or even uncommon) ingredients in a new combination. While this may be somewhat innovative, it is different from the invention and decades of R&D for products like combine harvesters. The combine harvester, typical for niche products of the hidden champions, is technically sophisticated, knowledge-intensive and has been fundamentally developed through millions of R&D investments over the last 150 years. The Pizza Margherita, on the other hand, has developed less and has not changed significantly as a product per se. The latter is not a significantly improved product in the sense of the definition of innovation. Although an electrician's individual solution or a painter's special paint can be somewhat innovative, the innovation is less wide-ranging and significant than that of most hidden champions. Additionally, it will rarely change the widely used practice. Therefore, it is questionable, if it is appropriate to speak of innovation in the cases of pizza, the service of an electrician or a painter. If the significance of change, of novelty, is set as the condition for innovation, one must separate innovation from common value creation. The invention of the pizza was an innovation. Yet, not every pizza chef is innovative, unless there is a significant development in the sense of the definition of innovation.

Of the 3.462 million companies that belong to the German Mittelstand (IFM, 2020), only 1372 are hidden champions. Although there are many other very innovative companies in the Mittelstand (in addition to hidden champions), by no means all Mittelstand companies are innovative, which implies that the characteristic rather describes some sub-groups in the Mittelstand as innovative (e.g. start-ups, hidden champions), but not the Mittelstand per se. Key to elaborate whether the Mittelstand can be described as innovative, lies in the choice of which definition is applied for innovation and which for Mittelstand. It is questionable to consider the Mittelstand as innovative per se. When analyzing the Mittelstand, what often actually is referred

to, is the subgroup of hidden champions: De Massis et al. (2018) analyze innovation in the Mittelstand and elaborate a number of traits that help Mittelstand companies to innovate successfully despite of limited resources: niche focus and customer collaboration, globalization strategy, preference for self-financing, long-run mindset, superior employee relations, and finally community embeddedness. Using the niche characteristic to describe the Mittelstand and also the following citations that *"researchers estimate that there are roughly 1000 to 1500 Mittelstand firms in Germany"* (p. 126), as well as *"this article uses the term Mittelstand to identify a German company that is generally small-to-medium in size, is controlled and owned by one family, is a global market player, and identifies itself as a Mittelstand firm"* (p. 127), shows that the term Mittelstand here actually refers to the subgroup of hidden champions. Similarly, Pahnke and Welter (2019a, 2019b) argue that the Mittelstand is *"by no means less innovative"* than Silicon Valley firms. According to them, Mittelstand companies only pursue a different kind of innovation, and explain that *"[w]hile Silicon Valley innovations are very consumer-oriented and visible to all of us, Germany's digital and disruptive technologies are first and foremost 'deep tech' hidden in products and processes of other companies"* (Pahnke and Welter, 2019b). Here, the Mittelstand is explicitly limited to the B2B sector and deep tech. Drawing a conclusion, characterizing the Mittelstand as innovative needs a precise understanding of what Mittelstand actually stand for. It is desirable that future research develops a typology for Mittelstand companies, which could include the groups of main street businesses (or *everyday entrepreneurship*, Welter et al. 2017), world-market leaders and other exporting companies without world-market leadership. Such a typology could, e.g., align along the dimensions of market form, degree of internationalization and innovation activity.

Considering the characteristics of Mittelstand companies, it is apparent that most of the characteristics seem to apply to hidden champions, but are not sufficiently investigated empirically. The characteristic of identity of ownership and management is taken from the literature on family businesses, and applies to the majority of hidden champions. This suggests some implications for the nature and performance of firms, which will be discussed more in detail in section 5. Regarding the other governance factors, Simon describes that hidden champions use patriarchal leadership and long-term planning horizons. So far, however, only a few hidden champion studies have investigated and confirmed this (Venohr and Meyer, 2007).

What concerns the dimension c*ulture and values*, these factors have also been examined only by a few studies. Exceptions are Venohr and Meyer (2007), who identify family culture as a key determinant of the innovative capacity of hidden champions and describe the climate in

hidden champions as family-oriented. Moreover, Simon (2009) points out that the leaders of hidden champions are emotionally attached to their companies. This is a characteristic that is also taken from family literature and is archetypal for family businesses.

With regard to economic key strategies, Simon (2009) credits all of these factors to apply to hidden champions. Besides, a number of other studies have examined these factors conceptually as in relation to hidden champions: economic independence through e.g. Kim (2016) or Lehmann et al. (2018) or their nimbleness through e.g. Kaudela-Baum et al. (2014) or Lee and Chung (2018). Overall, it can be concluded that the characteristics of Mittelstand research on the nature of Mittelstand firms have been well investigated conceptually by the literature on hidden champions, but only a few empirical, multivariate analyses have been performed. At this point, the research field would benefit most from more empirical research. Furthermore, the characteristic of close-customer relations stands out, since literature (Welter et al., 2015; Glauser, 2016; Audretsch and Lehmann, 2016) describes the characteristic more as a phenomenon describing direct local and frequent interaction between firms and customers. Hidden champions are also often characterized by a close-customer relationship, although of a different nature. Hidden champions and their customers are highly interdependent due to the narrow market and few substitutes, and thus co-operate closely, even though customers are distributed worldwide. This suggests that customer loyalty here is based less on emotional and local proximity than on technology dependency.

Building on these insights, future research should investigate whether hidden champions differ significantly from other Mittelstand companies with regard to these attributes. Simon (2009) is keen to describe the prestige of belonging to a hidden champion, and the loyalty and commitment that he attributes to their employees, given that the company is the leader of world-market. This has not yet been empirically investigated and should be part of future research on hidden champions.

5. Hidden Champions and Research on Family Firms

While the previous section has classified hidden champions as Mittelstand companies, the majority of hidden champions also are a subgroup of family firms. The literature on hidden champions therefore often positions hidden champions in the family firm research (Witt, 2015; Lehmann et al., 2018; Audretsch et al., 2019). As an adjacent field of research, the delimitation to the field of hidden champions is relevant to identify similarities and differences in the analysis of both fields. For future research, this review would like to draw attention to the fact that much of what has been investigated for hidden champions is already appearing in a similar

way within the family firm literature. Examples are the corporate culture of the hidden champions or their leadership strategy (Venohr and Meyer, 2007; Walravens and Filipović, 2013; Kaudela-Baum et al., 2014). On the other hand, in some areas, hidden champions present anomalies to family firm research. From this differentiation, essential insights can be derived that contribute to describe the nature of hidden champions. Finally, examining hidden champions through the lens of family firm research raises the question to which extent the concept of *familiness* influences the performance of hidden champions. The *familiness* resembles the degree of family involvement and therefore could contribute to explain the nature of hidden champions and contribute to affect their performance (Habbershon et al., 2003). Chrisman et al. (2005, p. 237-238) emphasize in this context, *"[t]hat family firms are unique as a result of the involvement of the family through ownership, governance, management, and vision is a basic premise of family business researchers; that these firms behave and, consequently, perform differently is the reason for research; explaining how and why they behave and perform differently is the objective."* In order to elaborate on the similarities and differences to hidden champions, the field of family firms is presented to derive its significance for the subgroup of hidden champions. This approach describes a standard principle of family firm research, or as Zellweger et al. (2010, p. 54) put it: *"Generally, [family] research has focused on two distinct aspects. First, research has tried to explain differences between family firms and non-family firms (e.g., Chrisman, Steier, & Chua, 2008); and second, research has focused on variations in behaviors among family firms (e.g., Chrisman et al., 2008). However, all these endeavors are guided by one overarching question: 'How does the family contribute to firm success?'"* Hidden champions research builds on the latter stream and investigates variations among family firms. Integrating both fields of research is important, because although most hidden champions are family firms, the niche and family character exert contrary effects with regard to innovation and internationalization strategies. Research here needs to study, if the *familiness* impacts hidden champions differently (when interacting with the niche characteristic) or if acts similarly to mass-market family firm, but its effect is overshadowed by the niche character. This interaction between the *familiness* and niche effects are aspects for future research. To integrate both fields, we need to understand which factors determine the performance of mass-market family firms. This insight will help to conduct performance studies of hidden champions, which are likely to be subject of largely the same performance variables, but may exhibit different manifestations.

Accordingly, the literature on family firms often reflects an agency cost and benefits approach (Chrisman et al., 2004; Chrisman et al., 2005) on factors that impact a family firm's

performance (ibid.). While the literature on socio-emotional wealth (and therewith associated concepts of nepotism and altruism), risk aversion, social conflicts within the family and minority shareholder expropriation imply negative performance effects, a number of other factors have shown a positive impact on the performance of family firms, such as the emotional attachment to family firms and the associated family awareness and organizational identification, as well as literature on family name implications, family dynasty and tradition.

In addition to purely economic motives, the control of the company's assets provides the incentive to pursue non-economic goals that increase an owner-manager's socioemotional wealth (Gómez-Mejía et al., 2007, Gómez-Mejía et al., 2011; Berrone and Gómez-Mejía, 2012). This is carried out despite the fact that the owner has to pay for consumption with his assets, and is thus different from the private benefits of control of a non-owning manager (Barclay and Holderness, 1989; Dyck and Zingales, 2004; Doidge et al., 2009), who runs the business of someone else. For example, the possibilities of an owner-manager to increase his socio-emotional wealth include: the (1) ability to transfer their firm and family wealth to their offspring (Berrone et al., 2010), the (2) ability to exercise authority over non-family members within the firm (Schulze et al., 2003), the (3) reputation and status within the local community (Deephouse and Jaskiewicz, 2013), the (4) continuity and perpetuation of family values and traditions and (5) the status involved, which is granted by the family when the values and expectations of the family are fulfilled (Gómez-Mejía et al., 2007; Berrone et al., 2010), the (6) opportunity to increase one's self-esteem through strong organizational identification with the family business, which also positively influences the self-concept of an owner-manager and his status-attainment (Ashforth and Mael, 1989, 1996), the (7) emotional attachment of family members to the firm (Zellweger and Astrachan, 2008), (8) nepotism, i.e. to base hiring and succession decisions on family ties and not solely on competence (Burkart, Panunzi and Shleifer, 2003; Jaskiewicz et al, 2013), (9) altruism towards the family (Schulze et al., 2002, 2003). Other topics that have been widely studied in the family business literature include risk aversion and implications of the Buddenbrook effect (Schulze et al., 2001), minority shareholder expropriation (Demsetz and Lehn, 1985; Grossman and Hart, 1988; Shleifer and Vishny, 1997; Burkart, Gromb and Panunzi, 1998; Claessens et al., 1999; La Porta et al., 2000), emotional attachement of owner-managers and employees, which can be divided in awareness, organisational identification and organisational prestige (Deephouse and Jaskiewicz, 2013; Bergami and Bagozzi, 2000; Ashforth and Mael, 1989; Brewer, 1979; Dutton, Dukerich and Harquail, 1994; Smidts, Pruyn and Van Riel, 2001; Carmeli, 2005) and a literature on family firm names and the preservation of the family dynasty and tradition (Deephouse and Jaskiewicz,

2013; Dyer and Whetten, 2006; Kets de Vries, 1993; Van Knippenberg, 2000; Zellweger et al., 2011).

The question, which most of these studies investigate, aims at the overall performance effect of family influence. And unfortunately, there are no clear results. Empirical evidence is *"mixed and conflicting"* (Gómez-Mejía et al., 2001, p. 693). Numerous studies find a positive performance effect of family firms (Anderson and Reeb, 2003), and there are also numerous studies, which show that non-family firms outperform family firms (Morck et al., 1998; Claessens et al., 2002; Cronqvist and Nilsson, 2003; Villalonga and Amit, 2006). The different results can be attributed mainly to different definitions, which the authors use to align their sample and their classification of family firms. Furthermore, authors use a whole range of different performance measures (Tobin's Q, Sales Growth, ROA, ROI etc.) which also contribute to the heterogeneity of the results. Above all, the literature review from this section shows how many different effects are present simultaneously and even the same constructs can exhibit either positive or negative effects. Thus, it is clear that family firms are a multidimensional and heterogeneous phenomenon and underlie various performance effects.

The findings of meta-analyses on this topic are ambiguous as well. In a sample of 380 studies, Wagner et al. (2015) find a weak but positive effect of family influence on performance, which is mainly moderated by public and large firms. This means that the effect is significantly stronger for public family firms and large firms. The meta-analysis by Carney et al. (2015) also finds a weak and positive effect of family control on firm performance. In contrast, the meta-analysis by O'Boyle et al. (2012) finds no significant effect that family firms outperform non-family firms. Interestingly, the effects are mainly driven by low R&D spending and poor international strategies - both of which have a negative impact on firm performance. They conclude that there must be positive agency benefits for family firms on the other side, which compensate for the negative performance effects. And exactly this is another linkage between the both fields of research: the internationalization strategy and the innovation and R&D behaviour of hidden champions and the question of whether both aspects represent an anomaly in the research of family firms. Many research articles on family firms classify family firms as risk-averse (Morck et al., 1998; Schulze et al., 2001; Naldi et al., 2007), thus presenting family firms as less innovative than other firms (Sharma et al., 1997; Zahra, 2005) and less internationalized (Zahra, 2003; Fernández and Nieto, 2005; Graves and Thomas, 2008). Since families are very likely to contribute most of their private assets to their own companies, these family assets tend to be diversified inefficiently. This stream of literature concludes that family

firms are therefore more risk-averse than other firms. Moreover, family businesses are characterized by a particular emotional attachment to their business which results from a strong organizational identification and the two overlapping reference systems of the family and the business. A failure of the family business, thus has more immediate and less separable consequences for a family entrepreneur. When the company fails, this is likely to damage the name of the family, destroy a whole dynasty that often has spanned generations and could cause an economic and personal crisis for other family members such as partners, children and other relatives. This stream of literature thus concludes that family businesses are risk-averse, which ultimately hampers their innovativeness and tendency to internationalize.

Another stream of literature describes family firms as more innovative than non-family firms. This view describes that family firms can build up a rich knowledge base their long-term orientation and emulate a higher entrepreneurial spirit that non-family firms (Hall, Melin and Nordqvist, 2001; Gudmundson, Tower and Hartman, 2003; Rogoff and Heck, 2003; Zahra, Hayton and Salvato, 2004; Zahra, 2005; Nordqvist, Habbershon and Melin, 2008; Duran, Kammerlander, Van Essen and Zellweger, 2016). Zahra (2005) describes that the innovativeness of family firms increases with the number of generations that are involved in the family business. Through long-term, and therefore stable, leadership, the corporate culture can be shaped by the family. Through long-term management, the family can thus create an innovation-friendly culture in the company, which motivates employees to contribute their ideas. The Academy of Management study by Duran, Kammerlander, van Essen and Zellweger (2016) performs a meta-analysis summarizing 108 primary studies from 42 countries to analyse the innovation performance of family and non-family firms. It finds that family firms are more efficient than other firms of similar sizes with regard to their innovativeness. The study points out that most family firms may only have limited budget for R&D, but overall are more innovative than other non-family firms measured through the number of new products, revenues of new products and the number of patents. The authors conclude that family firms are more efficient processing innovation. They argue that family ownership, as a large shareholding, succeeds better in monitoring the investments of managers. Family control therefore assures a long-term strategy, which is essential to implement innovation strategies. This insight also echoes in the second important finding of the study that describes older family firm generations to gain more innovation output from less input. Founders tend to invest more in innovation, but achieve significantly lower outputs of innovation. They argue that later generation benefit from long-term customer relationships, gained product and industry knowledge and better achieve to select fruitful ideas to develop their products.

Integrating these insights from the family firm literature with the literature review on hidden champions, allows us to disentangle some of the determinants of the hidden champions' performance. Hidden champions are very innovative companies in terms of their R&D behaviour and patent numbers. Thus, they rather fit into the latter stream of the family firm literature (Kaudela-Baum et al., 2014), although, they differ from this stream with regard to their niche approach. Research on the innovation strategy of hidden champions shows that the niche characteristic and the resulting specialisation and focus are the main drivers to determine the innovativeness of hidden champions. Thus, hidden champions are an exception of innovative and (mostly) family-owned companies and have to be examined primarily by means of a niche market strategy. Similarly, the risk-aversion and emotional attachment to a family business is reported to impede the internationalization efforts of family firms. Again, this review concludes that the niche strategy is key to explain why hidden champions, unlike other family firms, place internationalization at the forefront of their strategy. Overall, it's important to underline that both factors essentially determine the performance of hidden champions and must be included alongside the influence of the *familiness* in order to examine the drivers (and possible interaction effects) of the hidden champions' performance (Habbershon et al., 2003). So far, there is no study that has investigated the hidden champions' performance factors empirically before, and thus will be of interest in future research on hidden champions.

6. Conclusion

This article is a literature review of the research field of hidden champions. Key findings from the hidden champions literature were summarized to distinguish different strands of literature within the field of hidden champions and finally to classify the field of hidden champions into its adjacent and superordinate fields of Mittelstand and family business research. To do so, this review discussed findings from research on the Mittelstand and family businesses regarding their implications for hidden champions. Building on these insights a number implications for public policy on the one hand, and for future research on the other, emerge.

Limitations

First, however, the article needs to be critically evaluated. Some aspects in this literature review are subject to methodological weaknesses. Some biases are present, such as sampling bias, researcher bias and survivorship bias. A sampling bias occurs when a sample of a population is collected in such a way that not all of cases have the same probability of being included in the sample. This could result in distorted samples that are not completely randomised and thus

possibly lead to false conclusions about the population. The analysis of hidden champions is based on various data literature has compiled. Each sample of hidden champions aims at including world-market leaders of a certain country or region. Still, it cannot be ruled out that some cases are missing. Especially local knowledge about resident companies influences the underlying sample of hidden champions. Moreover, previous knowledge regarding different industries can lead to the fact that some world-market leaders were not selected. This holds especially for bottom-up sampling. Closely related to this, is also the problem that world-market leadership per se is a criterion based on the companies' self-assessment. Since there is no worldwide database and market survey on niche markets, this self-assessment of the companies is not a completely reliable criterion. Market shares are at best estimated and niches are sometimes defined too narrowly, as companies sometimes aim at adorning themselves with the title of being a world-market leader without being able to prove this objectively.

A researcher bias is also likely to be present within the given review. This could imply that the cultural imprint and the professional background of the researcher can distort the analysis of the problem at hand. Research on Mittelstand firms primarily is a German phenomenon and thus the analysis often is predicated on factors that underlie a German perspective. After all, samples of hidden champions are subject to a survivorship bias. Companies, which no longer exist might have contributed to shape the phenomenon of hidden champions, but are no longer present within the samples, as they are either insolvent or have been acquired by other companies. Therefore, they are missing in the analysis.

Policy Implications

Based on the findings of the literature on hidden champions, a number of policy implications emerge and will be analysed (and take on a largely German perspective). In the following, the pros and cons of a respective policy issue are portrayed first, whereupon the policy is described. The first topic revolves around a sell-out of German technology leaders through international M&As. Critics of the acquisition of domestic key industry companies are worried that the sale of such companies will threaten the innovative edge and technological leadership of these industries (Handelsblatt, 2019). Germany's locational advantage and economic strength is based to a great extent on the competitive advantage of its hidden champions. A sale of these companies threatens Germany's technological leadership in the long term, due to the possible knowledge drain of the technologies to foreign countries and related industries. Critics argue that in many cases (*KUKA, Grammer, Putzmeister*) the former CEOs had to resign shortly after the M&A, which raises concerns that the acquirers aim at introducing strategic reorientations

asserting their influence to their own advantage. One concern is that the acquires will not pursue long-term strategies, but may even drop their acquisitions or even cannibalize them once the technology gap is closed (Welt, 2018).

On the contrary, the Chinese economy is gradually taking small steps to open up for the German market at the moment. For example, the obligation for foreign car manufacturers to set up partnerships (joint ventures) was lifted in 2018, which so far stipulated that German car manufacturers must set up a sales company in China in cooperation with a Chinese partner enterprise. Such compulsory cooperation will cease for commercial vehicles later this year (2020) and for passenger cars in 2022. Relations with China could deteriorate under more difficult conditions for foreign M&As. Therefore, proponents of such cross-border transactions point to the opportunities offered by the high-investment spending of liquid foreign investors. After the German government had not prevented the sale of KUKA to China (Midea), some voices warned to be more cautious with future foreign M&As. To this end, the government has tightened up the Foreign Trade and Payments Ordinance (AWV), which is capable of prohibiting foreign investments. As a result, e.g. the sale of Leifel Metal Spinning (Ahlen) was repelled, because the investor withdrew of his own accord due to the political obstacles (Handelsblatt, 2018). The amendment provides that the threshold above which the Federal Government can prevent an acquirer from outside of the EU from acquiring a shareholding was lowered from 25% to 10% and extended not only to security-relevant infrastructure sectors (e.g. health, electricity, telecommunications), as previously, but also to other critical technologies.

Another policy implication revolves around the issue that the human capital supply is disrupted by a shortage of skilled workers and the question of how this will affect hidden champions and other firms within the future. Human capital is a critical resource for Mittelstand world-market leaders, as pointed out further above. Especially the niche market strategy requires a high degree of specialization in high-tech industries. In this context, it is important to be adequately supplied with appropriate specific human capital, which hidden champions draw primarily from dual vocational training and universities of applied sciences.

According to the BMWI (2020), 55% of the inquired companies denote that a lack of highly trained employees represents the greatest risk for their future business. According to this survey, skilled workers are defined as persons with a university degree or a qualified vocational training of at least two years. The demographic development has led to many vacancies in some sectors (especially mechanical engineering, welding technology, electrical installation, electrical engineering and health care) remain unfilled and companies simply cannot find suitable and

qualified applicants. Are hidden champions particularly affected by a shortage of skilled workers? On the one hand, rural hidden champions are often the only large employers in their region (70.4% reside in rural areas, see table 1) and are far from being unknown locally. Being rooted regionally and providing the possibility for employees descending from the same region to stay in their home regions are factors that make hidden champions particularly attractive as employers. Hidden champions stand out as employers due to their family climate and frequent benefits in their HR management. Thus, they manage to retain employees for a particularly long time. The specific human capital of the employees and the lack of outside opportunities in rural areas strengthen the mutual lock-in. Employees often also appreciate the attractive property prices and high quality of life, which are often benefits of rural areas, especially for family planning. This could indicate that rural hidden champions have advantages over urban hidden champions and other urban firms to attract skilled workers. On the other hand, their brand value as employers is usually significantly lower than that of large corporations, which could prove especially detrimental in urban areas.

Especially university graduates often strive for careers in well-known companies after their studies (which is almost exclusively possible in cities), allowing them to work in the larger metropolises. According to studies, graduates from rural areas are more mobile than urban graduates and tend to stay in urban areas after having studied there. Graduates who have grown up in urban areas are commonly less attracted by the countryside than vice versa (Krabel and Flöther, 2014; Larsson, Wennberg, Wiklund and Wright, 2017). In contrast, the network of vocational schools is highly decentralized and can make it possible to stay in the home region with little commuting. In general, the infrastructure (broadband, road connections, public transport, expansion of living space) in rural areas must be expanded in order to combat the rural exodus. Thus, it remains an empirical question whether corporations, urban or rural hidden champions suffer particularly from the lack of skilled workers.

The federal government passed the Skilled Employee Immigration Act, which has taken effect on March, 1st, 2020 (BAMF, 2020). It is intended to facilitate the immigration of qualified skilled workers from non-EU countries to Germany in order to cushion the shortage of skilled workers. It aims at simplifying labour market entry for non-EU immigrants by eliminating the so-called priority review by the Federal Employment Agency. Previously, it was necessary to check whether an applicant from Germany or the EU was available for a specific job to give preference to the non-EU applicant. Moreover, the settlement permit for skilled workers from abroad now can be issued after four years already (previously five years). A further point in the

catalogue of the law is that the employment of skilled workers with vocational training is no longer limited to bottleneck occupations, but rather allows access to all occupations that are eligible through one's qualification (Bundesregierung, 2020).

Critics counter this with the argument that the Skilled Workers Immigration Act is not sufficient to fight the shortage of skilled workers and fails to provide what a genuine immigration law could do better through regulating immigration to Germany in a new and holistic way. Instead, critics call for a Canadian-style immigration law where a points system sets out clear criteria for who can and should immigrate to Germany (following professional qualifications, language skills and educational level) in order to be able to compete for talent internationally. According to a study by the Bertelsmann Foundation (2019), Germany already now lacks 260,000 qualified specialists every year, which only could be compensated through immigration.

Future Research

Besides the ideas for future research that have been outlined in section 4 and 5, a number of further future research avenues arise for the scientific community. Future research is mandated to explore the determinants of management succession of hidden champions. Especially, in the light of the demographic developments and the possible negative consequences of the latest inheritance tax reform in Germany, the intergenerational succession of hidden champions will become an ever more difficult challenge within the families. Similarly, a failed succession increases the likelihood of hidden champions to become a target for M&As. Firm survival thus could likely depend on the long-term commitment of investors.

Another starting point for the topic of management succession revolves around the concepts of emotional ownership and organizational prestige. Venohr and Meyer (2007, p. 11) state in this context that the owners of hidden champions are often *"emotionally attached to their firm, which is typically an integral part of their self-fulfillment and the family tradition, rather than 'just' a financial investment. Their raison d'être is thus not only to maximize profits but to secure the company's existence for the next generations. Firms are designed to stay independent and to achieve multigenerational continuity"*. The willingness of the successors to take over the company should be higher than in other family businesses, which might be explained through the organizational prestige hidden champions bestow. Organizational prestige refers to one's own beliefs about how other people outside the organization such as customers or suppliers *"judge or evaluate the status and prestige of the organization"* (Carmeli, 2005, p. 444). The prestige is determined primarily through the global market leadership, the monopoly position, the global market reach and the high standard of hidden champions' specialized and

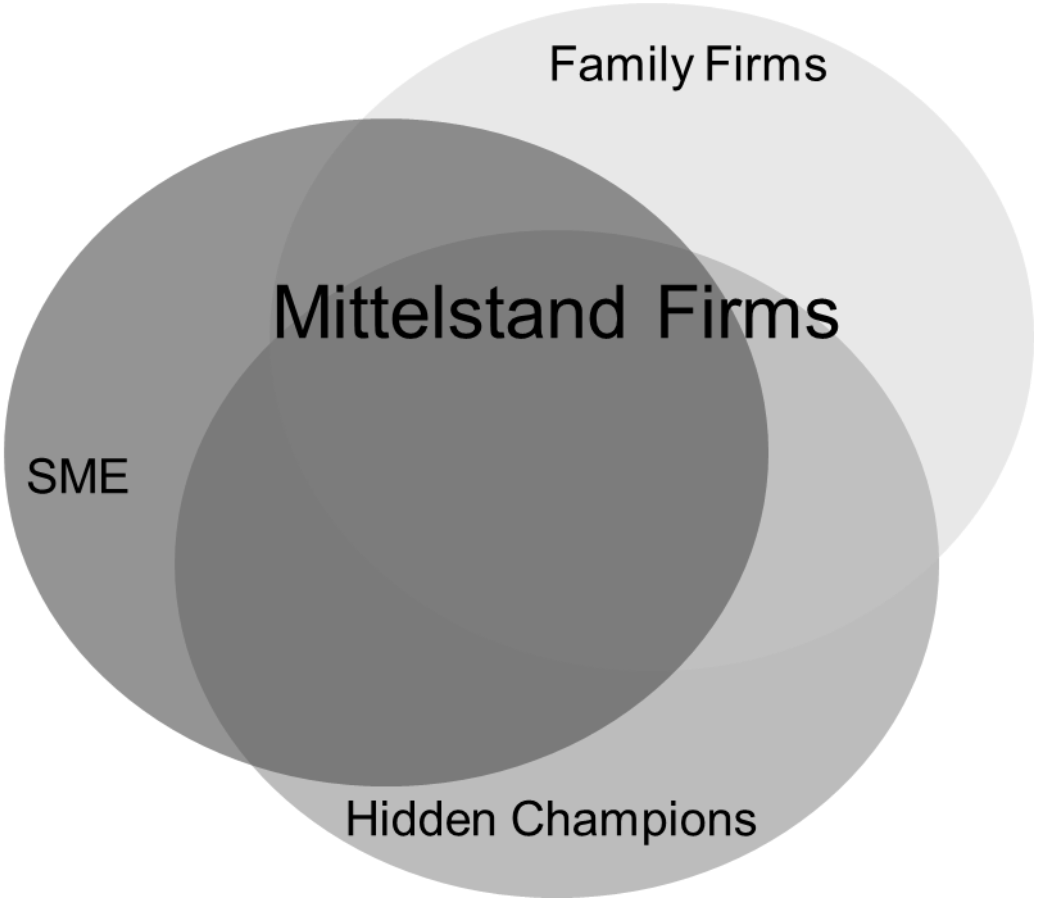
technological products. In addition, both the high employee loyalty and organizational identification of the employees is likely to increase the prestige that it is associated with succeeding a hidden champion. The other explanatory factor to be tested with regard to the probability of the hidden champions' management succession is also based on the concept of organisational identification. Björnberg and Nicholson (2008) describe the concept of emotional ownership as *"a cognitive and affective state of association that describes a (young) family member's attachment to and identification with his or her family"* (Nicholson and Björnberg, 2008, p. 32). This illustrates why potential successors often consider the continuity of the family dynasty as an inner sense of duty. The affection for the tradition and legacy of the family business motivates them to preserve the family dynasty and thus act as *"stewards of the family"* (Graves and Thomas, 2008, p. 163). A further aspect of this stream in future research examines the career choice decisions of university graduates. According to my dataset, 70.4 % of the German hidden champions are located in rural areas. In order to study at universities, the children of the hidden champions' families often leave their homes for cities, where universities commonly are located. Against this backdrop, the social attachment to a graduate's home area, the regional identity, social embeddedness, quality of life, amenities alongside the urban-rural continuum and the spatial distance to the place of study altogether are likely to determine the probability of succession. It is important to note that the relevance of this topic emerges through the rural spread of hidden champions, their prestigious nature and the graduate career decisions of their offspring, which altogether warrants a field of tension that is worth to be investigated.

Moreover, building on my data set of 1372 hidden champions, future research will need to analyse how significant the criterion of hiddenness, as described by Simon, actually is. Simon (2009) describes that the hiddenness serves a success factor for hidden champions and resembles a low brand awareness of their products and services. The more hidden they are, the less they inspire other companies to challenge their monopolistic position in the niche. Here, Simon's characteristic of low public awareness serves as the third major factor in his widely accepted definition of hidden champions. A major shortcoming of research on hidden champions has been that this has not been empirically measured so far, making it vague and imprecise to understand, what a low brand awareness actually means in the case of hidden champions. Future research should start here and create an index to measure their hiddenness. From this, samples could be revised and the definition limit for hidden champions could be refined more precisely. The concept of hidden champion could gain credibility, once firms are excluded from the sample that actually are quite well-known to the public. It might cause confusion about some firms, when being denoted as hidden champions. In addition, such an

index could shed light on the brand awareness gap between hidden champions and firms of stronger brands. Finally, such an index could be applied, to test empirically, to what extent their low brand awareness actually is relevant for the performance of hidden champions. Interestingly, a first attempt to build the index reveals that the best known hidden champions (e.g. *Faber-Castell, Hugo Boss, Puma, Haribo*), not surprisingly, score higher than a couple of DAX companies regarding their public awareness. Still, Simon (2007) denotes all of these examples as hidden champions. The index for measuring the public awareness of the companies could be based on an equally weighted mean index, which measures several items that resemble the public perception of firms and be derived from the literature on brand equity and brand awareness (Coulter et al., 2012).

Figures

Figure 1. The Relationship between Hidden Champions, the Mittelstand, SMEs and Family Firms



source: own depiction following Rosinus (2016) and IFM (2020a)

Figure 2. Mittelstand Characteristics

Dimension	Key Characteristic	Exemplary sources
Governance		
	identity of ownership and management	Jensen and Meckling (1976); Berghoff (2006); Simon (2009); Welter et al. (2014a)
	patriarchal leadership	Simon (2009); De Massis, Audretsch, Uhlaner & Kammerlander (2018)
	long-term planning horizons	Berghoff (2006); Audretsch and Lehmann (2016); Pahnke and Welter (2019a)
Culture and Values		
	tradition and family dynasty	Berghoff (2006); Audretsch and Lehmann (2016); Welter et al. (2014b); Welter (2018)
	emotional attachment	Berghoff (2006); Welter et al. (2015); Audretsch and Lehmann (2016)
	family climate	Simon (2009); Audretsch and Lehmann (2016); Welter et al. (2014b); Welter (2018)
Economic Key Strategies		
	economic independence	Berghoff (2006); Audretsch and Lehmann (2016); Welter et al. (2015)
	nimbleness	Berghoff (2006); Welter et al. (2014b); Audretsch and Lehmann (2016); Welter (2018)
	close-customer relations (local)	Glauser (2016); De Massis, Audretsch, Uhlaner & Kammerlander (2018)
	strong regional ties	Carroll (1998); Matten and Crane (2005); Welter et al. (2014a)

source: own depiction

Figure 3. Structured List of Publications on Hidden Champions

Year	Author	Definition	Key Findings	Type of Source
1st Strand of Literature: Internationalization Strategies				
1990	Simon (1990, 1992, 1996a, 1996b, 2007, 2009, 2012)	Simon (1990, 2009)	- First studies within the research field analysing German hidden champions - Conceptual model and nine imperatives on success factors of hidden champions	management literature, textbooks
2003	Haussmann (2003)	Simon (1990, 2009)	- *Going Alone internationalization strategy* of hidden champions to prevent unwanted knowledge drain - Visionary corporate leaders with ambitious global goals as a key element for the internationalization of hidden champions	article in edited volume
2006	Fryges (2006)	Simon (1990, 2009)	- Despite their small firm size, hidden champions export intensively - Firm-specific assets of hidden champions critical for overcoming barriers to entry of foreign markets (e.g. R&D, technology leadership, and experience of managers)	research article
2010	Witt (2010)	Simon (1990, 2009)	- Analysis of the internationalization strategies of German hidden champions - 68% of hidden champions engage in direct export, 80% use completely owned subsidiaries	research article
2013	Santa & Kekenovski (2013)	Simon (1990, 2009)	- High export rates and consequence of emulating a niche strategy - Strong brands in spite of B2B markets	article in edited volume
2013	Witt & Carr (2013)	Simon (1990, 2009)	- Analysis of internationalization behaviour of hidden champions - Hidden champions are specific case of born global firms through their niche market approach and therewith involved low market competition	research article

2013	Yosun & Çetindamar (2013b)	Simon (1990, 2009)	- Analysis of obstacles hidden champions face when originating in emerging markets - Sample of 10 hidden champions from Turkey	research article
2014	Lahti (2014)	Simon (1990, 2009)	- Hidden champions pursue a niche strategies that grant them monopolistic advantages - Analysis of international trading activities that are determined by their niche market approach	research article
2014	Suh & Kim (2014)	Simon (1990, 2009)	- Analysis of the internationalization of Korean hidden champions to other internationalized mass-market SMEs - Customer relations, technology innovation and market strategy key differences between both samples	research article
2015	Huh (2015)	Simon (1990, 2009)	- Examination of differences between Korean and German hidden champions - Korean hidden champions are less internationalized less specialized in their market approach compared to German hidden champions	research article
2015	Kim & Suh (2015)	Simon (1990, 2009)	- Analysis of export performance of Korean hidden champions - While the organizational productivity determines firm export entry strategy, fixed export costs drive the export intensity	research article
2015	Kim & Park (2015)	Simon (1990, 2009)	- Korea's hidden champions' growth-potential hampered by technological competitiveness - Low R&D investments found as major factor that impedes their global market reach	research article
2015	Venohr & Bruche (2015)	Simon (1990, 2009)	- Analysis of the internationalization strategies for Emerging Asia - Many hidden champions limit their commitment to sales and service capabilities, but are recommended to shift more manufacturing and R&D activities to Asia to attain a true insider status	Management literature article

2015	Witt (2015)	Simon (1990, 2009)	- The study analyses the modes of market entry of 30 British and German hidden champions internationalization strategies and finds that 43% are found to be Born Globals, 20% as Born-Again Globals, while not one of them applied the Uppsala Model	dissertation
2016	Landau, Karna & Täube (2016)	Simon (1990, 2009)	- Despite of limited size and resources hidden champions internationalize intensively - Niche B2B markets explain their high efforts of internationalization	research article
2017	Herstatt, Tiwari & Buse (2017)	Simon (1990, 2009)	- Hidden champions increasingly use BRIC states for sales and production, but lesser so for R&D - Many customers in BRIC markets are unable to pay the prize premiums German hidden champions impose - Frugal product markets avoided by hidden champions, which endangers their market leadership	research article
2017	Rant & Cerne (2017b)	Simon (1990, 2009)	- Analysis of innovation- or marketing-based differentiation strategies of internationalizing SMEs - In case of low foreign market knowledge, innovation-based differentiation has a positive effect on firm performance	research article
2nd Strand of Literature: Innovation and R&D Behaviour				
2000	Voudouris et al. (2000)	own definition	- Hidden champions success factors revolve around niche market specialization, a high commitment to customer service and a high focus on innovation and technology - Own definition for their Greek sample	research article
2001	Blackburn et al. (2001)	Simon (1990, 2009)	- Basing on Canadian case studies, Blackburn et al. develop a conceptual model to analyse the innovation strategy of hidden champions - Relationship marketing as important characteristic of Canadian hidden champions	research article

2007	Venohr & Meyer (2007)	Simon (1990, 2009)	- Examination of the long-term evidence regarding leadership, development and their overall business strategy using Simon's German sample of hidden champions - Family ownership and the linked family culture foster innovation within hidden champions	research article
2009	Venohr & Meyer (2009)	Simon (1990, 2009)	- Longitudinal study of German hidden champions - Intensive R&D investments and worldwide service and sale networks secure world-market leadership	research article
2011	Lee & Yoon (2011)	Simon (1990, 2009)	- Logistic regression to analyse success factors of Korean hidden champions - Government and marketing support to determine technology innovation advantage of hidden champions compared to mass-market SMEs	research article
2011	Zastempowski (2011)	Simon (1990, 2009)	- Strategic advantage of hidden champions rests in their internationalization and innovation strategies - Innovation strategy driven by advantage in product knowledge, intellectual and technological resources	research article
2012	Lee & Yoon (2012)	Simon (1990, 2009)	- Analysis of Data from the Korean Innovation Survey to distinguish hidden champions from non-hidden champions - External knowledge creation and government support determine the nature of hidden champions	research article
2013	Baloh (2013)	Simon (1990, 2009)	- Close-customer relations allow to integrate customers innovation process - Incremental and steady innovation, rather than radical innovation - Leading-edge technology competence due to high focus and specialization	article in edited volume

2013	Brkic & Berberovic (2013b)	Simon (1990, 2009)	- Vast similarities to Simon's findings regarding the high innovativeness of Bosnian hidden champions that produce market-leading technologies - Mostly rural, family-owned and run, export oriented	article in edited volume
2013	Omazić & Vlahov (2013)	Simon (1990, 2009)	- Strongest common characteristic to Simon's sample is the strong and visionary leadership of Croatian hidden champions - Croatian hidden champions in particular characterized by superior customer service, professionally managed finances, high R&D investments	article in edited volume
2013	Rant (2013b)	Simon (1990, 2009)	- Close-customer relations of Slovenian hidden champions that essentially drive the innovation process - Corporate leaders tend to have high product knowledge	article in edited volume
2013	Riisalu & Leppiman (2013)	Simon (1990, 2009)	- Innovation central key characteristic of Estonian hidden champions - Access to resources and technological know-how as key success factors	article in edited volume
2013	Táborecká-Petrovičová, Ďado & Bobáková (2013)	Simon (1990, 2009)	- Following state-ownership model of communist Slovakia, none of the Slovak hidden champions is family-owned - Focus on innovation, high quality products and a B2B service model	article in edited volume
2013	Yoon (2013)	Simon (1990, 2009)	- Analysis of the R&D and innovation strategies of Korean hidden champions - Hidden champions show more market initiative and technology competence than non-hidden champions which explains their higher innovativeness	research article
2013	Yosun & Çetindamar (2013a)	Simon (1990, 2009)	- Strong innovativeness in spite of low patenting numbers in Turkey, since most innovation are based in their processes and difficult to patent	research article

			- Some firms do not want to patent their innovation to stay hidden	
2013	Zhexembayeva (2013)	Simon (1990, 2009)	- Innovation strength of hidden champions allows for fostering resource-saving and thus sustainable processes - Use of eco-efficiency approach as driver for new product development	article in edited volume
2014	Buse & Tiwari (2014)	Simon (1990, 2009)	- Analysis of innovation strategies of German hidden champions in the BRIC nations - Sole focus on premium segments risks market leadership through frugal innovation	research article
2014	Kaudela-Baum, Kocher & Scherrer (2014)	Simon (1990, 2009)	- Hidden champions are more innovative than other companies because of their distinct corporate culture, which promotes a family atmosphere - Moreover, decentralization of decision-making and the involvement of employees in the innovation process determine the innovation success of hidden champions	research article
2015	Lee & Yoon (2015)	Simon (1990, 2009)	- Global innovation capability determines the performance of Korean hidden champions - Technology leadership secured through strong ability to innovate	research article
2015	Rammer & Spielkamp (2015)	own definition	- Top-down sampling to form an own sample of German hidden champions - Hidden champions innovate more than control group of non-hidden champions, which is driven by intensive collaborations with external research institutions	research article
2016	Kim (2016)	own definition	- Hidden champions market leadership is based on their financial, business and growth structure as well their intensive R&D activities (self-financing, low depth ratio, growth without deficit-spending, specialization within a specific business sector)	research article

			- Own definition of hidden champions based on their Korean sample	
2016	Lee (2016b)	Simon (1990, 2009)	- Analysis of Korean Sample of 112 Korean hidden champions - Analysis of their SWOT factors and organizational risk taking, innovativeness and proactiveness	research article
2016	Schlepphorst, Schlömer-Laufen & Holz (2016)	Simon (1990, 2009)	- Examination of the determinants that distinguish hidden champions from a control group of non-hidden champions - Hidden champions are characterized by higher investments in research and development, a higher intensity of international business activities and the great ambition to maximise market shares	research article
2017	Muñoz, Ripoll-I-Alcon & Silvente (2017)	Simon (1990, 2009)	- Analysis of the economic importance of 75 Spanish hidden champions for the resilience of the Spanish economy - Close-customer relations, innovation strategy, internationalization, product specialization are key to their competitive advantage	research article
2017	Petraite & Dlugoborskyte (2017)	Simon (1990, 2009)	- Hidden champions are characterized through high entrepreneurial orientation, a technological advantage and the intense use of partnerships - sample from Lithuania	research article
2017	Rant & Cerne (2017a)	Simon (1990, 2009)	- Product leadership and customer intimacy determine the business attractiveness of hidden champions in Central and Eastern Europe - Product leadership negatively moderates the influence of business attractiveness on firm performance	research article
2018	Lee & Chung (2018)	Simon (1990, 2009)	- The study analyses a sample of 61 Korean hidden champions through a SWOT and AHP model	research article

			- Korean hidden champions are thought to attain industrial growth through their technological strength and reduce their dependency on large corporations	
2019	Kim & Sung (2019)	Simon (1990, 2009)	- Analysis of Korean hidden champions - Innovation capability, transformational leadership and talent management to determine organizational performance of Korean hidden champions	research article
2019	Rammer & Spielkamp (2019a)	own definition	- Top-down sampling to form an own sample of German hidden champions (reworked selection criteria) - Analysis of the hidden champions' success factors, which are their business strategy and innovation management (technological superiority and intensive customization)	research article
2019	Rammer & Spielkamp (2019b)	own definition	- Technology leadership and product customization determine the key success factors of hidden champions - Higher innovation efficiency than non-hidden champions due to superior technological capabilities and a higher investment in specific human capital	research article
3rd Strand of Literature: Geographic Distribution of Hidden Champions				
2018	Audretsch, Lehmann & Schenkenhofer (2018)	Simon (1990, 2009)	- Analysis of the internationalization strategies of hidden champions through the property rights theory - Germany's export strength dates back to the leading sectors of Germany's industrialization, which are the main industries of German hidden champions	research article
2019	Schenkenhofer & Wilhelm (2020)	Simon (1990, 2009)	- Dual higher education system is organized centrally in Baden-Wurttemberg - Future research should test statistical correlation to determine whether large pool of specific human capital in Baden-Württemberg explains its high concentration of hidden champions	research article

2019	Lehmann, Schenkenhofer & Wirsching (2019)	Simon (1990, 2009)	- Analysis of worldwide systems of vocational education - Centralization of VET increases an economy's stock of specific human capital, which proves to be complementary for hidden champions	research article
2020	Audretsch, Lehmann & Schenkenhofer (2020)	Simon (1990, 2009)	- Context-choice model to explain the contextualization of niche entrepreneurship - Analysis of various national institutions as context factors (Inheritance Taxation, System of Corporate Boards, Legal Origin, Financial Capital Markets, Knowledge Spillover Potential, VET)	research article
4th Strand of Literature: Other				
2003	Rasche (2003)	Simon (1990, 2009)	- Analysis of different types of hidden champions - Hidden champions can be divided into Hidden Product Champions, Hidden Professional Champions and Multi-Arena Champions	research article
2006	Deng & Wan (2006)	Simon (1990, 2009)	- Conceptual analysis of key success factors of 80 Chinese hidden champions - Clear goal formulation, market focus and leadership quality to constitute Chinese hidden champions	research article
2007	Adenäuer (2007)	Simon (1990, 2009)	- Analysis of the IFM Bonn on the success factors of Mittelstand companies (BDI Mittelstand Panel) - Use of Simon's theory as a theoretical framework, whereby a high vertical integration determines the success of Mittelstand companies	research article
2007	Meffert and Klein (2007)	Simon (1990, 2009)	- McKinsey survey of Germany hidden champions between 1998 and 2003 - Hidden champions specialize within a niche market and evolve to become competence leaders in their niche	management literature, textbook
2007	Simon & Lippert (2007)	Simon (1990, 2009)	- Analysis of 10 Japanese hidden champions	research article

			- Japanese hidden champions have a greater focus on their home market and depend less on foreign markets than German hidden champions	
2008	Ding (2008)	Simon (1990, 2009)	- Analysis of Japanese hidden champions - The leaders of hidden champions are a special case of entrepreneurs	research article
2008	Li & Li (2008)	Simon (1990, 2009)	- Analysis of Chinese hidden champions success strategies - Market leadership and low brand awareness as key characteristics	research article
2008	Simon & Zatta (2008)	Simon (1990, 2009)	- Analysis of Indian hidden champions of the pharmaceutical industry and their similarity to German hidden champions - Value orientation and focus on market niche as most important characteristics	research article
2009	Lee (2009)	Simon (1990, 2009)	- Hidden champions growth potentials achieved through intensive external working - Government support part of networking strategy of hidden champions	research article
2010	Kim (2010)	Simon (1990, 2009)	- Analysis of Korean hidden champions' case studies to determine key success strategies - High revenues for relative small firm size achieved through niche market leadership	research article
2010	Lee, Lee & Han (2010)	Simon (1990, 2009)	- Case study of Korean semiconductor manufacturer - Transformational leadership to determine job satisfaction of employees	research article
2011	Kirner & Zenker (2011)	Simon (1990, 2009)	- Knowledge angels provide external and special expertise to the company - Technology advantage through combination of internal and external knowledge especially valuable for the success of hidden champions	research article

2011	Pittrof (2011)	Simon (1990, 2009)	- The corporate culture of hidden champions is essential for their competitive advantage - Hidden champions‘ corporate culture to be characterized by high performance orientation, visionary corporate management, committed employees and high innovation ability	textbook
2012	Çetindamar & Kozanoglu (2012)	Simon (1990, 2009)	- Strong leadership and high focus within niche markets - Only less than half of all Turkish hidden champions still family-owned	research article
2013	Din et al. (2013)	own definition	- Hidden champions rest their strategic advantage on a high market focus and soft diversification as well as incremental innovation within close-customer relationships - Own definition adapted to a Swedish sample	research article
2013	Brkic & Berberovic (2013a)	Simon (1990, 2009)	- Analysis of the marketing strategies of hidden champions of the CEE region - Hidden champions are able to secure a quality brand position without the usual trade-off between rapidity and quality - Hidden champions achieve to transfer the brand value from their customers to their own brands (B2B markets)	article in edited volume
2013	Daneyko & Golenchenko (2013)	Simon (1990, 2009)	- Belarusian hidden champions yet rather dissimilar than similar to Simon’s view on hidden champions - Similarities regarding visionary and passionate corporate leaders - Too narrow specialization of products, which inhibits the sale to worldwide markets	article in edited volume
2013	Depalov, Todorović & Marinković (2013)	Simon (1990, 2009)	- High-growth rates and market leadership as important characteristics of Serbian hidden champions - Professional industry knowledge and close-customer relations	article in edited volume

2013	Kume and Kume (2013)	Simon (1990, 2009)	- No hidden champions found in Albania following Simon's definition criteria - Potential hidden champions emulate early-stage niche strategies, but only have begun with international sales	article in edited volume
2013	Lebedev (2013)	Simon (1990, 2009)	- Study of the hidden champions' financial strategy in the CEE region - In contrast to Simon's sample of German hidden champions, hidden champions in the CEE region need more external finance for their growth (early-stage) - Underdeveloped financial markets in the region as the major obstacle for hidden champions	article in edited volume
2013	McKiernan and Purg (2013b)	Simon (1990, 2009)	- First chapter of the edited volume *Hidden champions in CEE and Turkey: Carving Out a Global Niche* and presentation of its structure - Introduction of hidden champions research since its beginnings with Simon	article in edited volume
2013	Palii and Oksenyuk (2013)	Simon (1990, 2009)	- Ambitious long-term goals of Ukrainian hidden champions, high degree of specialization - Non-family owners due to the communist history of Ukraine	article in edited volume
2013	Rant (2013a)	Simon (1990, 2009)	- Use of a revised version Simon's questionnaire for the individual country cases - Fusion of horizons of field researcher through an open conference on hidden champions in Vienna, Austria (November 2011)	article in edited volume
2013	Rusu (2013)	Simon (1990, 2009)	- Romanian hidden champions are run by strongly committed leaders - Strong capability of market learning and adaption	article in edited volume
2013	Sauka (2013)	Simon (1990, 2009)	- Growth-orientation, highly ambition for market leadership - Long-term orientation in strategic decision-making	article in edited volume

			- Strong organizational identification of employees	
2013	Skorobogatykh, Saginova & Musatova (2013)	Simon (1990, 2009)	- Strong leader personalities within Russian hidden champions - State of the art technological knowledge base	article in edited volume
2013	Stocker and Szlávik (2013)	Simon (1990, 2009)	- Leadership with ambitious goals, high-performance employees and depths as key characteristics of Hungarian hidden champions - Hungarian hidden champions are more centralized than German hidden champions (smaller firmer size)	article in edited volume
2013	Sutherland and Purg (2013)	Simon (1990, 2009)	- Leadership characterized by visionary drive, a great passion and expert product knowledge - Analysis of the social nature of community leadership	article in edited volume
2013	Walravens & Filipović (2013)	Simon (1990, 2009)	- Study of ownership, the organizational culture and governance of hidden champions - High degree of organizational identification of employees as key success factor	article in edited volume
2014	Chang & Ko (2014)	Simon (1990, 2009)	- Analysis of Korean IT companies - Market strategy and growth potential predicts that Korean IT SMEs are likely to become hidden champions within the next decades	research article
2014	Saginova, Skorobogatykh & Musatova (2014)	Simon (1990, 2009)	- Analysis of Russian hidden champions - Similarities between German and Russian hidden champions regarding niche market approach, leadership styles and close-customer relations	research article
2014	Tiwari & Buse (2014)	Simon (1990, 2009)	- German hidden champions increasingly turn their focus for growth-potentials the BRIC Nations or sales and production, while keeping their R&D investments out of these economies	research article
2015	Langenscheidt & Venohr (2015)	Simon (1990, 2009)	- Encyclopedia of German world-market leaders with 1000 company presentations of their sample of ca. 1400 German hidden champions	textbook

2015	Venohr, Fear & Witt (2015)	Simon (1990, 2009)	- Company presentations of about 100 hidden champions	textbook
2016	Garaus et al. (2016)	Simon (1990, 2009)	- Analysing ambidextrous Human Resource Management systems of hidden champions case studies - Integrative employment practices support the integration of knowledge within the organization	research article
2016	Lee (2016a)	Simon (1990, 2009)	- Analysis of SWOT factors of Korean and German hidden champions - Korean hidden champions differ significantly from German hidden champions with regard to the technology capability and lack of knowledge of oversea markets	research article
2016	Purg et al. (2016)	Simon (1990, 2009)	- Analysis of success factors of Russian hidden champions - Innovativeness, technology leadership, intensive internationalization and customization determine the competitive advantage of Russian hidden champions	research article
2017	Büchler (2017)	Simon (1990, 2009)	- Textbook analysing 15 case studies of hidden champions - The analysis aims at gaining insights for typical management tasks of hidden champions	textbook
2017	Jungwirth (2017)	Simon (1990, 2009)	- Analysis of Austrian hidden champions and their organizational culture - Hierarchical and yet family-like corporate culture to characterize hidden champions	research article
2018	Kamp (2018)	Simon (1990, 2009)	- The implementation of smart services has a positive effect on a machine tool builder's hold on its installed base and on top increases the scope of its cross-border business	research article
2019	Kamp (2019)	Simon (1990, 2009)	- High relevance of Basque hidden champions for the macro-economy (gross-value added, foreign trade) - Own sample of Basque hidden champions	research article

2019	Saginova, Musatova & Skorobogatykh (2019)	Simon (1990, 2009)	- Analysis of Russian hidden champions using Simon's questionnaire - Russian hidden champions' market leadership is studied against the backdrop of dynamically developing markets	research article
2019	Venohr & Kamp (2019)	Simon (1990, 2009)	- Becoming market insiders key for market entry in Asian markets, compared to exporting and balancing R&D assets between Germany and Asia	research article

please note: For the purpose of improved clarity, the work of Simon was summarized as one publication.

Tables

Table 1. Hidden Champions Data Samples at a Glance.

	Simon (1996)	Simon (2012)	Rammer & Spielkamp (2015)	Müller (2015)	Muñoz et al. (2015)	Saginova et al. (2016)	Rammer & Spielkamp (2019)	Schenkenhofer (2020)
Number of firms	500	1307	1583	465	77	105	1800	1372
Revenue	130 Mil.	326 Mil.	n/a	655 Mil.	n/a	141 Mil.	n/a	772 Mil.
Employees	735	2037	731	3989	251	n/a	503	4306
Age	n/a	n/a	n/a	43.3	44	19	n/a	103
Revenues from export	51%	62%	64%	n/a	73.2%	62.1%	63.7%	70.0%
Family-owned	ca. 60%	ca. 50%	n/a	n/a	66.2%	n/a	n/a	62.3%
Rural	ca. 66%	ca. 66%	n/a	n/a	n/a	n/a	n/a	70.4%
B2B	69%	69%	n/a	n/a	n/a	n/a	n/a	84.2%

source: own depiction; please note: Simon (1996, 2012); Müller (2015); Rammer & Spielkamp (2015, 2019) and Schenkenhofer (2020) research a German sample, Munoz et al. (2015) a Spanish and Saginova et al. (2016) a Russian sample of hidden champions. For Schenkenhofer (2020), revenues and employees are retrieved from data averaging the years 2014-2018. Rural denotes headquarter residence in towns smaller than 50,000 inhabitants.

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