Do Business Models Matter? Performance Differences of Online Sales Activity Systems in the European Online Retail Industry

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We investigate business model types and their performance implications in the European online retail industry. Taking an activity system perspective and analyzing more than 400 online retailers using cluster analysis, we find four business models, which we refer to as the "independent active focused", "medium active broad", "synergistic active focused", and "passive focused" online retail business model. They differ with respect to the content, structure, and governance of the firms' online sales activity systems. Furthermore, three of the four business model types vary in performance. Our results contribute to the discussion whether the business model construct represents a relevant construct.

INTRODUCTION

The business model construct enjoys strong popularity both in business practice and the academic community, especially among innovation researchers (Spieth, Schneckenberg, & Ricart, 2014). The construct's popularity is mainly driven by its ability to describe empirical phenomena (Zott, Amit, & Massa, 2011). However, some researchers claim, that the business model construct is a mere restatement of existing knowledge. They thus question the construct's value and its usefulness for analytic purposes.

To be of theoretical relevance to the strategy literature, the business model construct has to help explaining performance differences between firms. Thus far, only few studies have statistically tested the business model construct with mixed results for its performance implications (for reviews see for example Foss & Saebi 2017; Spieth et al., 2014; Zott et al., 2011). Therefore, doubts remain about the construct's value for advancing the field. In this paper, we empirically test whether business model types differ with respect to firm performance. We thus intend to shed light on business models' usefulness as a strategically relevant concept.

A prominent way to conceptualize business models is the activity system perspective (Amit & Zott, 2001; Zott & Amit, 2010). A business model is understood as an activity system that organizations operate to connect factor and product markets. Business model types refer as to how firms have chosen to configure these activities, meaning how firms decided on the content, structure, and governance of their

activity system (Zott & Amit, 2007). Following this perspective, business model types specified by a firm's activity system's content, structure, and governance, should differ in performance.

In this paper, we use the activity system perspective to identify business model types and test for performance differences among these types in the specific context of the online retail industry. More specifically, we analyze the online sales activity systems of 494 firms that operate in the European online retail industry. Using cluster analysis, we identify four business model types that differ with respect to how firms configured the content, structure, and governance of their online sales activity system. We named these four types of online retail business models as follows: "independent active focused", "medium active broad", "synergistic active focused", and "passive focused" online retail business model. Three of the four business model types differ significantly in their performance. Hence, our results support the notion of the business model as a concept of theoretical and empirical strategic relevance.

The remainder of this paper is structured as follows. We first review the business model literature in four steps. We start by reviewing the fundamental literature on business models before we focus on work taking an activity system perspective. We then review conceptual and empirical studies on business models in our empirical research context i.e., online business models in general and online retail business models in particular. In the method section, we elaborate on our research setting, sample, data, and measures. We then present our results and discuss their implications and potential contributions. We close by presenting limitations and future research opportunities.

LITERATURE REVIEW

Business Model Construct

As a theoretical concept, business models became popular in research and practice with the rise of firms using the Internet for conducting business activities during the so-called "dot-com boom" (Frankenberger, Weiblen, & Gassmann, 2014, p. 174; Magretta, 2002). Since then, the business model concept has established itself as a widely discussed idea in the innovation, strategy, and management literature.

Recent reviews of the literature revealed a wide range of business model construct definitions (George & Bock, 2011; Zott et al., 2011). According to Chesbrough and Rosenbloom (2002, p. 529), a business model refers to the "heuristic logic that connects technical potential with the realization of economic value". Their view on business models emphasizes the commercialization of technologies and new ideas via business models (Chesbrough, 2010). Amit and Zott (2001) and Zott and Amit (2010) more generally conceptualize a firm's business model as a "system of interdependent activities that transcends the focal firm and spans its boundaries" (Zott & Amit, 2010, p. 216) and which depicts "the content, structure, and governance of transactions designed so as to create value" (Amit & Zott, 2001, p. 511; Zott & Amit, 2010, p. 219). According to Teece (2010, p. 179), a business model "articulates the logic, the data, and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value". It represents "the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit" (Teece, 2010, p. 172). These definitions illustrate that scholars have not yet come to a joint understanding of the construct (DaSilva & Trkman, 2014) and reflect the multidimensional nature of business models in the literature (Dmitriev, Simmons, Truong, Palmer, & Schneckenberg, 2014).

Despite the fragmented nature of business model definitions, a few common themes can be identified in the literature. Business models are abstract summaries of the architecture and logic of a business (Baden-Fuller & Morgan, 2010). They represent a wider conceptual model of how a firm conducts business (Teece, 2010). Business models stress a system-level, holistic approach over individual activities (Zott & Amit, 2007). They represent a separate unit of analysis, different from classic units such as product, firm, industry, and network (Magretta, 2002; Teece, 2010; Zott et al., 2011). Furthermore, business models are often defined via their components. Business models contain components and linkages between components and dynamics (Afuah & Tucci, 2001) and include cause-and-effect relations among elements and activities (Baden-Fuller & Haefliger, 2013; Baden-Fuller & Morgan, 2010).

Hence, business models recognize the interlinked nature of activities and exchange relationships (Zott & Amit, 2010). They highlight that certain configurations result in superior performance due to complementarities (Amit & Zott, 2001). Such interdependencies are created by entrepreneurs or managers who purposefully design activities and transactions that connect activities into a system (Zott & Amit, 2010).

While a componential view is core to most business model definitions, authors differ with respect to the number and type of components they consider to be definitional of a business model. For example, Johnson, Christensen, and Kagermann (2008) outline four key components of a business model: value proposition, profit formula, key resources, and key processes; they argue that these are "interlocking elements that, taken together, create and deliver value" (Johnson et al., 2008, p. 60). Similarly, Morris, Schindehutte, and Allen (2005) identify six fundamental components of business models i.e., value proposition, customer, internal processes/competencies, external positioning, economic model, and personal/investor factors. In their view, a business model is a "concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets" (Morris et al., 2005, p. 727). George and Bock (2011) identify resource structure, transactive structure, and value structure as the three underlying dimensions of a business model. Casadesus-Masanell and Ricart (2010) mention choices made by managers on policies, assets, and governance structures and the consequence to these choices as two types of elements of a business model. Osterwalder and Pigneur (2010) suggest that a business model can be described through nine building blocks, namely customer segments, value proposition, channels, customer relationship, revenue streams, key resources, key activities, key partnerships, and cost structure.

Business models can refer to the specific configuration of an individual firm as well as to the generic logics of creating and capturing value in an industry. They represent models in the sense of a simplified description of a specific company and in the sense of something serving as an example to be copied (Baden-Fuller & Morgan, 2010). Every firm has its own specific business model (Casadesus-Masanell & Ricart, 2010), but business models also represent general configurations of business activity (Baden-Fuller & Mangematin, 2013; Chatterjee, 2013). Researchers also refer to them as "recipes" or "modes" of performing economic activity (Baden-Fuller & Mangematin, 2013, p. 419) or as "templates" (Zott & Amit, 2010, p. 216). Business models represent configurations of components which firms can choose to create and capture value (McNamara, Peck, & Sasson, 2013; Morris et al., 2005). In line with configurations theory, researchers define generic business models as design themes which reflect the common idea that orchestrates the firm's activities and those of its external partners (Zott & Amit, 2008).

Activity System-Based View of Business Models

A prominent stream in the business model literature emphasizes the configuration of the activities and transactions performed to create and capture value. A business model is understood as an activity system that connects factor and product markets (Zott & Amit, 2010). An activity is any form of engagement of human, physical, or capital resources of any party involved with the business model to serve a specific purpose which contributes to achieving the overall objective (Albert, Kreutzer, & Lechner, 2015; Zott & Amit, 2010). Some researchers frame business models as an evolving bundle of activities reflecting a "complex set of independent routines that is discovered, adjusted, and fine-tuned by doing" (Winter & Szulanski, 2001, p. 731). Despite being firm-centric, business models address boundary spanning organizational designs (Zott & Amit, 2007, 2010). Activities include those performed by the focal firm as well as its external partners. Business models link the inside of the firm with the outside (Baden-Fuller & Mangematin, 2013). They depict "the content, structure, and governance of transaction designed so as to create value" (Amit & Zott, 2001, p. 511). Constellations of these three so-called design elements that are commonly chosen to leverage complementariness among them are referred to as business models in the activity system-based view; these configurations are connected by a design theme (Zott & Amit, 2007).

The activity system perspective of business models was initially developed in the context of e-business and a number of authors have used this theoretical perspective for empirical studies in this setting. For example, Le (2005) uses Amit and Zott's (2001) business model components for a systematic

classification of business-to-business electronic marketplaces. He finds that, in a value creation context, electronic marketplaces represent a wide range of business models that can be classified by their transaction content, structure, and governance. Ordanini, Micelli, and Di Maria (2004) investigate business models of active e-marketplaces to understand which features make the difference between successful and unsuccessful initiatives. They describe business models along Amit and Zott's (2001) three dimensions: content, structure, and governance. Ordanini et al. (2004) ran a survey on a sample of European exchanges located in Italy, in order to determine existing profiles in the market and their corresponding features. By comparing performances of the alternative business models, the authors identify key features of successful business models for B-to-B e-marketplaces due to specific choices of content, structure, and governance.

Researchers have also used the activity system view of business models outside the context of e-business. For example, Breunig, Kvålshaugen, and Hydle (2014), by observing the nature of different value creation processes, present three distinct business models that coexist in international professional service firms that pursue a transnational strategy. The authors offer a framework for analyzing how to balance global integration with local responsiveness. They show that the identified business models have varying opportunities for global integration. More specifically, by identifying content, structure, and governance transactions of the three business models, they determine when to pursue headquarters-initiated global integration and when to choose strategies that ensure local responsiveness and subsidiary competitiveness in local markets. Sosna, Trevinyo-Rodríguez, and Velamuri (2010) study the antecedents and drivers of business model innovation in a Spanish dietary products business which is threatened by economic recession and heightened competition. Making use of a single case study design they describe a firm's business model metamorphosis along the transaction content, structure, and governance dimensions noted by Amit and Zott (2001). Based on a longitudinal case study of a German premium automobile manufacturer's internationalization to India, they develop a phase model of the business model adaptation process. Andersson and Getz (2009) examine how content, structure, and governance of music festivals are affected by the type of ownership. Based on Amit and Zott (2001), they identify three business models which they describe and compare in terms of content, structure, and governance using empirical data from the 14 largest live-music festivals in Sweden. Andersson and Getz (2009) find differences between the business models related, for example, to decision styles, volunteer involvement, and service quality. Miller, McAdam, and McAdam (2014) use the activity-based view of the business model (Zott & Amit, 2010) to examine the changing university business model within a region of the United Kingdom. Additionally using a stakeholder perspective they theoretically develop and refine both the business model and stakeholder fields. Combining interviews with stakeholder theory, the authors show how the changing university business model–stakeholder relationship has progressed through different stakeholder stages with resultant changes in content, structure, and governance. More precisely, they find that the current university business model encompasses more activities (content), stakeholders (governance actors), and mechanisms (structure) than the traditional university business model. Saebi and Foss (2015) propose a contingency model of open business models by systematically linking open innovation strategies to the business model dimensions content, structure, and governance. They illustrate a continuum of open innovativeness, differentiating between four types of open business models and specify the conditions under which business models are conducive to the success of open innovation strategies.

Online Business Models

The business model concept is of particular interest to researchers who are interested in business activities that are conducted over the Internet (Hedman & Kalling, 2003). This body of research includes the previously mentioned work on activity systems, but reaches beyond the context of developing this specific theoretical perspective on business models.

At the core of the work on online business models is the attempt to develop taxonomies and ontologies of online business models. Bambury (2006), for example, fundamentally differentiates between 'transplanted real-world business models' and 'native Internet business models'. The most

common business model that exists in the real world and has been transplanted into the Internet environment is the 'mail-order model' where a web shop sells physical goods which are then posted or delivered. Other transplanted business models identified are the 'advertising based model', 'subscription model', 'free trial model', 'direct marketing model', 'real estate model', 'incentive scheme model', 'Business to Business', and combinations of the models. The native Internet business models Bambury (2006) identifies are the 'library model', 'freeware model', 'information barter model', 'digital products and the digital delivery model', 'access provision model', and 'web site hosting and other Internet services'.

Srikanth and Dhanapal (2011) develop a more global taxonomy to differentiate between four main types of e-commerce models, namely, 'Business to Consumer', 'Business to Business', 'Consumer to Consumer', and 'Mobile Commerce'. Similarly, Laudon and Traver (2009) differentiate between B2C, B2B, and emerging e-business models. The major business models for business-to-costumer e-commerce they identify are: 'portal', 'e-tailer', 'content provider', 'transaction broker', 'market creator', 'service provider', and 'community provider'. For business-to-business commerce they find the following business models: 'e-distributor', 'e-procurement', 'exchanges', and 'industry consortia'. 'Consumer-to-consumer', 'peer-to-peer', and 'M-commerce' business models are labeled as business models in emerging e-commerce areas.

Timmers (1998) finds eleven generic e-business models in use or in experimentation: 'e-shops', 'e-procurement', 'e-auction', 'e-mall', 'third party marketplace', 'virtual communities', 'value chain service provider', 'value chain integrators', 'collaboration platforms', 'information brokers', and 'trust and other services'. He classifies the identified e-business models along the two dimensions, 'degree of innovation' and 'functional integration'. Rappa (2010) classifies nine categories of e-business models according to the nature of their value propositions and their modes of generating revenues: 'brokerage model', 'advertising model', 'infomediary model', 'merchant model', 'manufacturer model', 'affiliate model', 'community model', 'subscription model', and 'utility model'. Dubosson-Torbay, Osterwalder, and Pigneur (2002) identify various principal dimensions to classify e-business models: user role, interaction pattern, nature of the offerings, pricing system, level of customization, economic control, required security, value integration, value/cost offering, scale of traffic, degree of innovation, and power to buyer/seller. Tapscott, Ticoll, and Lowy (2000) propose a network- and value-centered taxonomy with five types of value networks called "b-webs" (business webs), which differ in their degree of economic control and value integration. Weill and Vitale (2001) distinguish between eight e-business models they see as "atomic". They state that e-business can be represented by pure atomic business models or by combining them. Finally, Applegate (2001) presents six e-business models: 'focused distributors', 'portals', 'producers', 'infrastructure distributors', 'infrastructure portals', and 'infrastructure producers'.

In sum, a number of studies have used the business model construct to identify business model types, in particular in online business settings. However, research is scare with respect to the question whether the choice of a business model affects the performance of the respective firm.

Online Retail Business Models

Online business models are of particular interest to the retailing industry. All previously mentioned online business model ontologies address in some form or the other retail that is conducted online.

The retail sector has changed dramatically in the last two decades. Due to the advent of online channels and new additional digital channels such as mobile channels and social media, retail business models have changed (Verhoef, Kannan, & Inman, 2015). The retail industry had traditionally been divided into store and non-store retailers. Online business initially emerged as a new format and quickly became the most important non-store format, complementing other channels such as mail-order retailing. In recent times, the 'brick-and-click' approach is gaining increasing prominence, since the integration of retail processes across multiple channels allows retailers to benefit from the strengths of each channel (Oh, Teo, & Sambamurthy, 2012). Ashworth, Schmidt, Pioch, and Hallsworth (2006) distinguish between two predominating strategic approaches in retail. First, 'Clicks-and-Mortar' which are retailers operating e-retail and offline stores, utilizing separate or integrated strategies (i.e., multi-channel retailing). Second,

'Pure-Play' retailers do only have an online presence mostly represented by new market entrants. Today, most retailers have morphed into multi-channel firms, serving the same costumers via different channels for different purposes (Sorescu, Frambach, Singh, Rangaswamy, & Bridges, 2011). Verhoef et al. (2015) go even further observing a move to omni-channel retailing, which is taking a broader perspective on channels and how customers are influenced and move through channels in their search and buying process.

According to Sorescu et al. (2011) there are two fundamental characteristics of retailing business models, both in traditional and new retail channels. First, retailers primarily sell products manufactured by others, so comparable products may be readily available elsewhere and the retailers are rarely able to gain a competitive advantage through their product assortment. Consequently, a successful retail business model focuses not just on *what* a retailer offers, but even more importantly on *how* the retailer sells. Second, retailers engage in direct interactions with the end costumer which stresses the importance of this interface. Hence, retail business models need to focus on how the retailer can optimize its direct customer interactions and strengthen the relationship with the end customers. Additionally, Sorescu et al. (2011) propose that a retail business model consists of three interconnected core elements: the retailing format (i.e., the way in which the key retailing activities are sequenced and executed), the activities (that need to be executed to design, manage, and motivate the customer experience), and the governance (of the actors performing the activities). Together with their interdependencies these elements define a retailer's organizing logic for value creation and value appropriation. Sorescu et al. (2011) also stress that cohesiveness among the retailing format(s), activities, and governance is of high importance as "understanding how they connect to form an integrated system ensures that a change to any of them is done in a manner that attends to the synergies that they collectively create" (Sorescu et al., 2011, p. 6). This perception is in line with Zott and Amit (2010) who also acknowledge the importance of conceptualizing business models as integrated systems.

However, Cao (2014) criticizes Sorescu et al.'s (2011) proposition of business model components as incomplete, since it reflects only value creation and delivery, but a business model in addition to value creation and delivery should at least also contain value proposition and value appropriation. Value proposition covers the identified target customers and a statement of why they should buy a product or service; value creation and delivery concern the design of the retail value chain; value appropriation is about the retail profit formula (Cao, 2014). Consequently, according to Cao (2014) a retail business model includes four dimensions: target clients, value proposition, retail value chain, and profit formula.

Burt and Sparks (2003) fundamentally examine on the implications of e-commerce for the retail process. They consider the process as comprising the sourcing of products; stockholding, inventory, and store merchandising; the marketing effort including branding; customer selection, picking, and payment; and the distribution of goods by or to the consumer. More specifically, they elaborate on the corresponding activities, ownership, costs, and efficiency in each stage. The authors illustrate a changing balance of activities that retailers have to perform. On the one hand retailers can make potential gains form the enhancements in the supply chain; on the other hand these could be off-set by cost implications arising at the consumer end of the channel (Burt & Sparks, 2003). As a result of their examinations Burt and Sparks (2003) find that retailers need two components of process change to make e-commerce work for them. First, retailers need to be able to leverage their scale to gain cost and/or time efficiencies in supply. Second, they have to convince consumers of their viability and effectiveness, for example by strong brand names.

Empirical work on online retail business models is interested in comparing online business models to traditional models. Enders and Jelassi (2000), for example, identify a number of advantages of online retailing over the traditional physical retailers: wide reach, exhaustive product selections, little infrastructure requirements, unlimited opening hours, and a high degree of scalability. However, they also name difficulties associated with pure online retailing since there is no direct face-to-face contact with customers: difficulty to build a brand name, difficulty to establish a rapport of trust, and difficulty of handling physical flow (e.g., fitting, trying out products, merchandise delivery, and product returns) (Enders & Jelassi, 2000).

Grewal, Iyer, and Levy (2004) in an analysis of the top 20 Internet retailers divide the Internet retailing landscape up according to large/small companies and if they are pure play (Internet only) or traditional and clicks (a combination of either traditional stores, catalogs, or direct sales and Internet). The authors claim that it is difficult to maintain a sustainable competitive advantage on the Internet based on retail format, such as merchandise and price, but Internet success appears due to the business model adopted (Grewal et al., 2004). Grewal et al. (2004) also identify enablers and limiters of the success of Internet retailing. Factors they find supporting the growth and success are product category, access to information, access to price information, novelty, accessibility, and convenience. However, compelling forces limit the success of Internet retailing: lack of trial, lack of interpersonal trust, lack of instant gratification, shipping and handling costs, lower customer service, loss of privacy and security, high economies of scale, lack of stable customer base, poor logistics, lack of experience, and lack of in-store shopping experience. Additionally, Grewal et al. (2004) identify different business models that Internet retailers have adopted in order to adapt to the enablers and limiters. *Virtual malls or portals* typically operate as brokers representing Internet sites that host several merchants. *Aggregators* collect potential trading partners at one site, based on the requirements of individual buyers and sellers. *Auction brokers* bring together buyers and sellers for specific products and enable a bidding process whereas the broker charges the seller a fee. In r*everse auctions* buyers specify their own prices for specified goods and services, and the broker seeks fulfilment from interested vendors. *Search agents* search out the best price for a specific product for the buyer. *Virtual merchants* are usually "pure play" in the sense that they are merchants just being present on the virtual market space. *Catalog merchants* are catalog companies that made an effective transition to the web, primarily because of their expertise in cataloguing products as well as the lower marginal costs of publishing their catalogs on the Internet. Finally, there is the *bricks and clicks* business model represented by traditional physical store retailers who may include Internet retailing into a well-integrated organization or operate Internet retailing divisions separately (Grewal et al., 2004; Gulati & Garino, 2000). Similar to the general literature on business models, studies on online retail business models focus on the identification and description of business models, while insights on performance implications are scarce.

METHODOLOGY

Research Setting

We focused our empirical analysis on exploring the strategic relevance of the business model construct in a specific empirical context: online retailing. We are examining specific business models in the context of the generic online retail business model. It represents a "transplanted real-world business model", namely the digital version of the "mail-order" model (Bambury, 2006). It is also referred to as e-shops (Timmers, 1998) and concerned with retailing using electronic channels in a business-to-customer context (Laudon & Traver, 2009; Srikanth & Dhanapal, 2011).

We chose the online retail context for two reasons. First, as shown above online retailing is one of the most popular generic online business models used for commercial purposes (Timmers, 1998). Second, a large number of comparable, yet sufficiently distinct business models exist in this industry. The retail sector was one of the first to embrace digital technology and design business models around it. Due to the importance of the online channel in the retail industry, many firms have designed a business model to sell goods and services online over the last two decades. Firms have experimented a lot with different business models and developed a generic business model for the online retail industry that serves as a basis for firm-specific business models. Today, online retailing represents a rather mature industry with a large number of firms operating specific business models, which are variations of the industry's generic online business model. Therefore, business models in the online retail industry differ, yet they share common characteristics that allow meaningful comparisons among firms. Furthermore, retail agencies have collected significant data on the activities and performance of these firms. Therefore, the online retail industry allows us to collect a sample of sufficient quality and quantity to conduct meaningful statistical analyses of performance differences among business models.

Research Approach

To answer the question whether the business model construct is of strategic relevance in the online retail industry, we took a two-stage approach. In a first explorative step, we determined how firms configured their online retail business models. We analyzed whether certain firms made similar decisions on the design of their business model which are distinct from others and thus whether we can differentiate between different online retail business model types. In a second step, we evaluated whether these different types of business models co-existing in the online retailing industry differed with respect to firm performance. By that we answer the central question of our study, namely, whether the business model construct is of strategic relevance.

To identify business model types, we used cluster analysis. Cluster analysis is a widely accepted method for such endeavors (Moehrle, 2005). It is a multivariable technique to group objects in a way that, first, objects belonging to the same cluster are very similar to each other and, second, objects belonging to different clusters behave dissimilarly with respect to these variables (D'Alvano & Hidalgo, 2012; Moehrle, 2005). In our study we applied "TwoStep Cluster Analysis" using IBM SPSS Statistics 22. TwoStep Cluster Analysis is an exploratory tool designed to reveal natural clusters within a data set (Ordanini et al., 2004) and discover formally unknown structures (Moehrle, 2005). It is suggested to be an appropriate technique in clustering large data sets with mixed attributes (Okazaki, 2006). The algorithm employed offers an automatic selection of the number of clusters, which differentiates it from traditional clustering techniques (Ordanini et al., 2004). This is useful, since it avoids the problem of choosing the optimal number of clusters before running the analysis (Ordanini et al., 2004). Our cluster analysis is based on log-likelihood distance measure and Schwarz's Bayesian Criterion. The optimum number of clusters is determined automatically, however, for interpretability reasons we allowed for a maximum of five possible clusters. After conducting the cluster analysis to determine business model types, we compared firm performance between clusters using simple ANOVA.

Data and Sample

We derived our data from the EUROPE 500 database (see: *www.top500guide.com*). This database contains information on the 500 largest European online retailers. It provides a wide range of information on each firm, including, for example, product offering, web technologies used, marketing activities, and firm sales. Data needed to measure business models was retrieved from the database in 2014, representing 2012 business model configurations. Data for firm performance was retrieved with a time lag of one year in 2015, representing 2013 firm performance. Due to missing data on some key variables and changes in the composition of the top 500 database over time, our final sample comprises 494 and 432 out of the 500 companies listed in the database in 2014 for the first and second step of our analysis, respectively.

Measures

In order to determine business model types, we had to measure which decisions firms made on key dimensions of their business model. In this paper, we base our measurement of a firm's online business model on the conceptualization of Amit and Zott (2001), which we presented in detail in our literature review. More specifically, we measure the content, structure, and governance of the activity system that a firm designed to conduct online retail. This measurement approach seems appropriate for two reasons. First, Amit and Zott (2001) developed their business model approach specifically in the context of e-business. Second, it enables us to develop theory-driven measures and thus to systematically evaluate an activity system's configuration. We thus avoid an arbitrary selection of input dimensions for our cluster analysis.

As the generic business model of online retail is essentially shared by all firms, we focus our empirical analysis on one key aspect of the firms' activity systems where firms particularly show variation. This is the specific configuration of the activities performed online to sell goods and services. As presented earlier in our literature review of online business models, the *online sales activity system* is the core of an online business model and firms differ considerably with respect to their specific

configurations of the generic online sales activity system. Hence, we measure firms' specific decisions on content, structure, and governance of their online sales activity system in order to identify online business model types in the cluster analysis. To be able to measure the business model of a large sample of firms, we identified one key proxy for each of the three dimensions of a business model.

Content

According to Amit and Zott (2001), *content* "refers to the goods or information that are being exchanged" (Amit & Zott, 2001, p. 511). In online retailing, content refers to what is sold online. Online retailers differ with respect to the scope of products and services sourced from suppliers and offered to customers. They can range from a broad variety of products and services to a focus on one specific category. Whereas some firms, such as world-famous *Amazon*, offer a wide variety of products and services, ranging from books over other goods to web services and media streaming services, other firms offer only a limited set of products. *Dell*, for example, focuses only on computer technology. To measure this key decision on the online activity system's content, i.e., what to sell online, we use a binary variable: *product scope*. This takes the value of 1 for a focused product scope and 0 for non-focused product scope.

Structure

Structure "refers to the parties that participate in the exchange [of goods or information] and the ways in which these parties are linked" (Amit & Zott, 2001, p. 511). In online retailing, a key aspect of structure refers to the question if and how the content of the online activity system, i.e., the online sale of a focused or broad range of goods and services, is linked to any non-online activity of selling products and services. The discussion of integration of online sales and non-online sales is an important topic in the retail industry (Verhoef et al., 2015). While some online retailers such as *Retail World* have set up completely independent online activities and refrain from showing any link to established retail business to customers, other online retailers such as *Otto*, *Karstadt*, or *Adidas* link their online sales to established catalogue retailers, brick-and-mortars, or directly to their goods and services, usually to capitalize on the established retail or product brands, which are of high importance in an industry such as (consumer) retail. To measure this key aspect of the structure of an online sales activity system, we use a binary variable: *online-offline link*. It takes the value of 1 if no link exists between the online sale of goods and services and non-online business and the value of 0, if online sale is linked to offline retail.

Governance

Governance "refers to the ways in which flows of information, resources, and goods are controlled by the relevant parties" (Amit & Zott, 2001, p. 511). Or in other words, it concerns who conducts and therefore controls the activities (Amit & Zott, 2001). In the context of a retail firm's online sales activity system –which it uses to sell a small or large range of products either associated or not associated with non-online retail– governance, therefore, refers to the question of who conducts and controls key activities of selling online. Does the firm conduct and control online sales activities itself or does it outsource these to other providers? Information technology firms today offer a wide range of products and services for online sales activities. In order to measure this, we constructed an outsourcing index, reflecting the intensity to which the firm outsourced key activities of running an online sales platform. These key activities include the design of the website used for selling online, the employed e-commerce platform, conducting of e-mail marketing, and search engine optimization. The outsourcing index measures whether firms chose to conduct all activities in-house, to outsource all of them, or to pursue a mixed approach with just outsourcing one, two, or three of the four activities. The categorical variable *outsourcing intensity* takes the minimum value of 0 if all activities are performed in-house and the maximum value of 4 if all activities are outsourced.

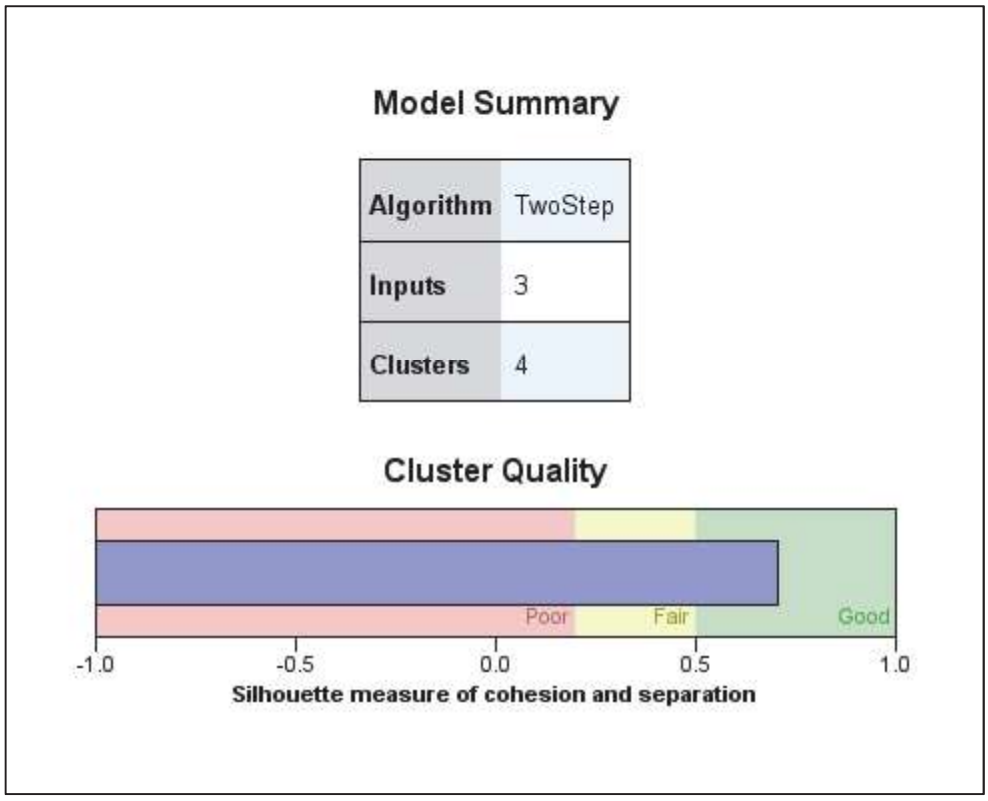
Performance

To measure performance of online retail business models for the second step of our analysis, we used the sales that the respective firm was able to generate online. Sales are an established measure for performance in studies conducted in the retail industry, in particular in an online setting (e.g., Ordanini et al., 2004). We used a time lag of one year between the measurement of our independent (values from 2012) and our dependent variables (values from 2013).

RESULTS

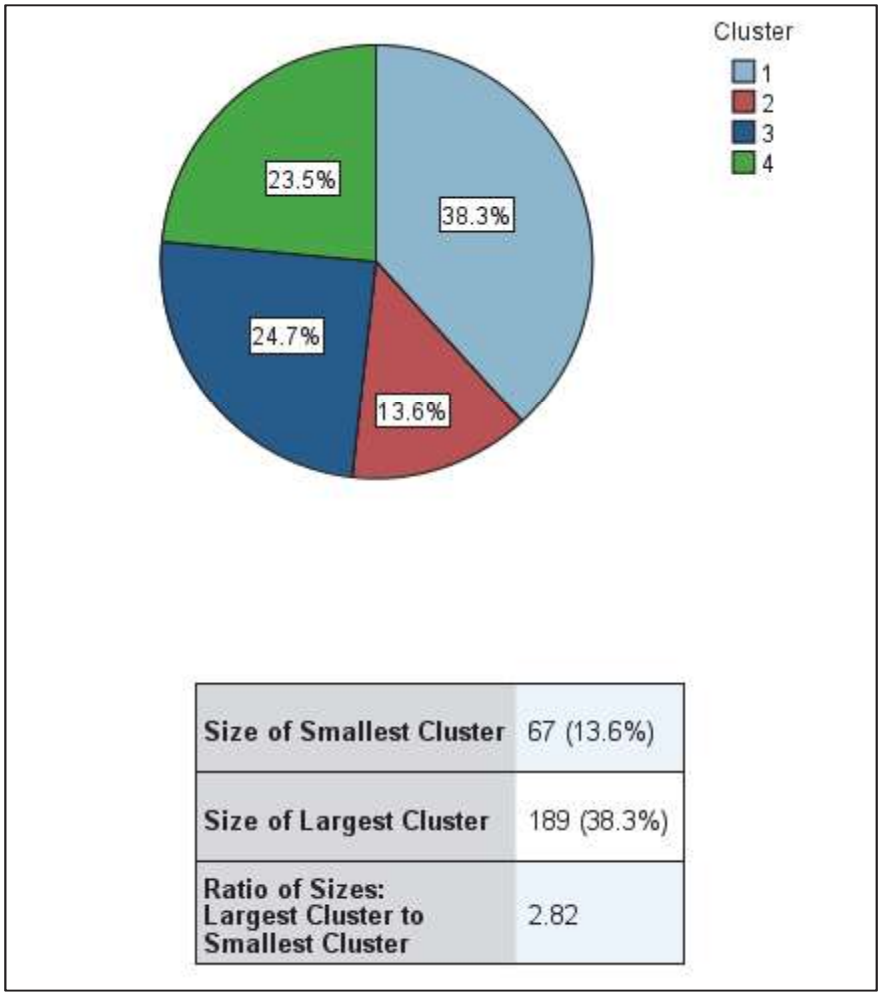
Imposing a maximum threshold of five possible clusters, the results of our cluster analysis conducted in the first step of our empirical investigation revealed the existence of four clusters of firms that differ with respect to content, structure, and governance of their online sales activity system. This indicates the presence of four business models in the online retailing industry. The silhouette measure of cohesion and separation indicates a good quality of this four cluster solution (see Figure 1).

FIGURE 1
MODEL SUMMARY AND CLUSTER QUALITY OF TWO-STEP CLUSTER ANALYSIS



The four clusters differ significantly in size. There are one large cluster, two medium-sized clusters, and one small cluster. Figure 2 shows that the smallest cluster contains 67 (13.6%) and the largest cluster 189 (38.3%) firms. However, the ratio of the largest to the smallest cluster is still at an acceptable level with a value of 2.82.

FIGURE 2
SIZES OF RESULTING CLUSTERS OF TWO-STEP CLUSTER ANALYSIS

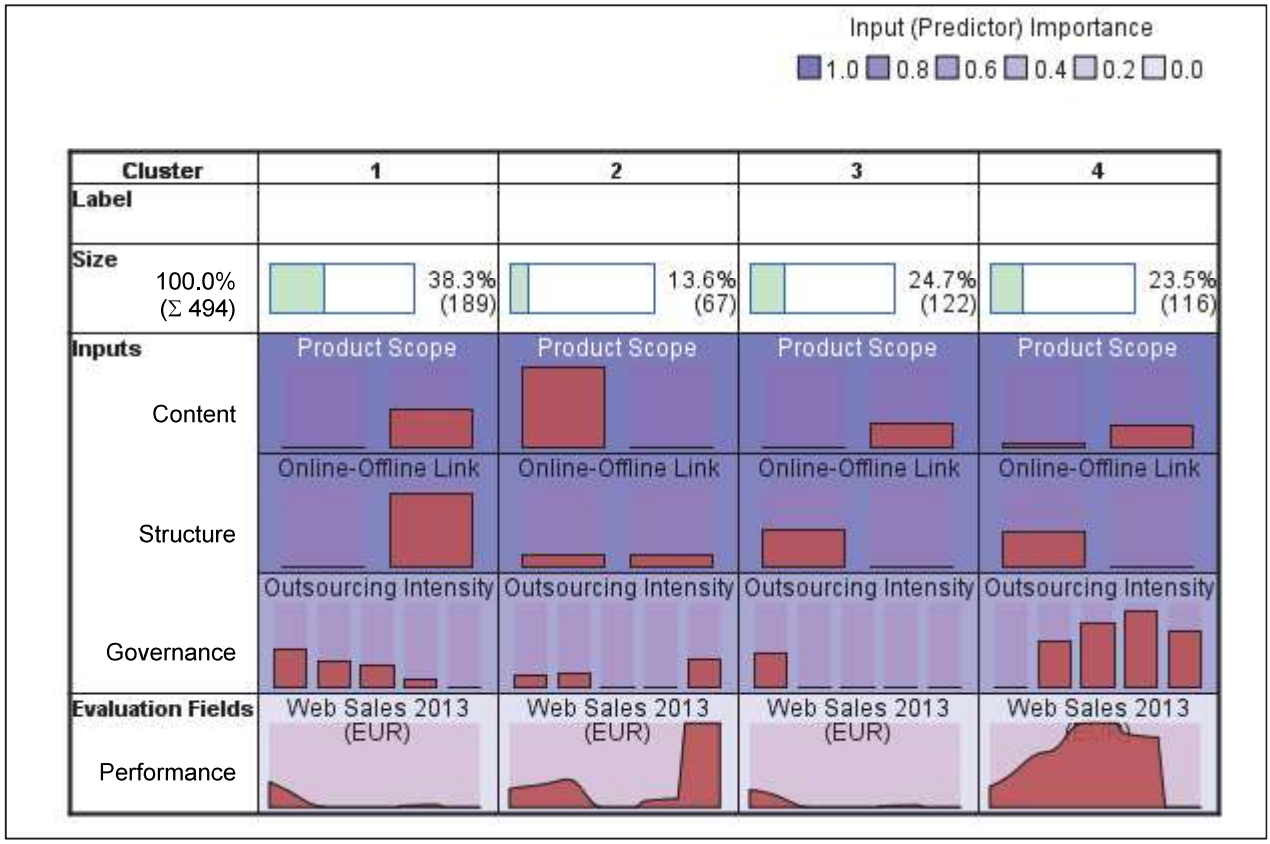


Size of Smallest Cluster	67 (13.6%)
Size of Largest Cluster	189 (38.3%)
Ratio of Sizes: Largest Cluster to Smallest Cluster	2.82

Figure 3 provides a detailed overview of size and composition of the four identified clusters. The content of the online sales activity system of firms in *cluster 1* is concerned with the sale of a limited range of products (e.g., clothes, drugstore products, jewelry, or toys). The structure of their activity system is characterized by no links to non-online retailing. Firms in this cluster have a low to medium outsourcing intensity. *Digitec*, *Spreadshirt*, *Exlibris*, and *Vistaprint* are examples of companies in cluster 1. We refer to this as the *"independent active focused"* online retail business model.

Firms in *cluster 2* have made a very different decision on the content of their online activity system. They sell a wide range of products online. With respect to the structure of their online sales activity system, firms in this cluster take mixed approaches. While some of these firms are extensions of former non-online retailers, others refrain from any linkages to non-online retailing. Cluster 2 contains companies such as *Amazon*, *Sainsbury's*, and *El Corte Inglés*. With respect to the governance of their online sales activity system, one part of firms in cluster 2 does not outsource at all or just one out of the four key activities. Another part of firms in cluster 2 builds heavily on outsourcing online activities. In sum, firms in cluster 2 take a medium active approach to running an online activity system and intend to sell a wide range of products. We refer to this business model as the *"medium active broad"* online retail business model.

FIGURE 3
CLUSTER COMPOSITION REGARDING CONTENT, STRUCTURE, AND GOVERNANCE

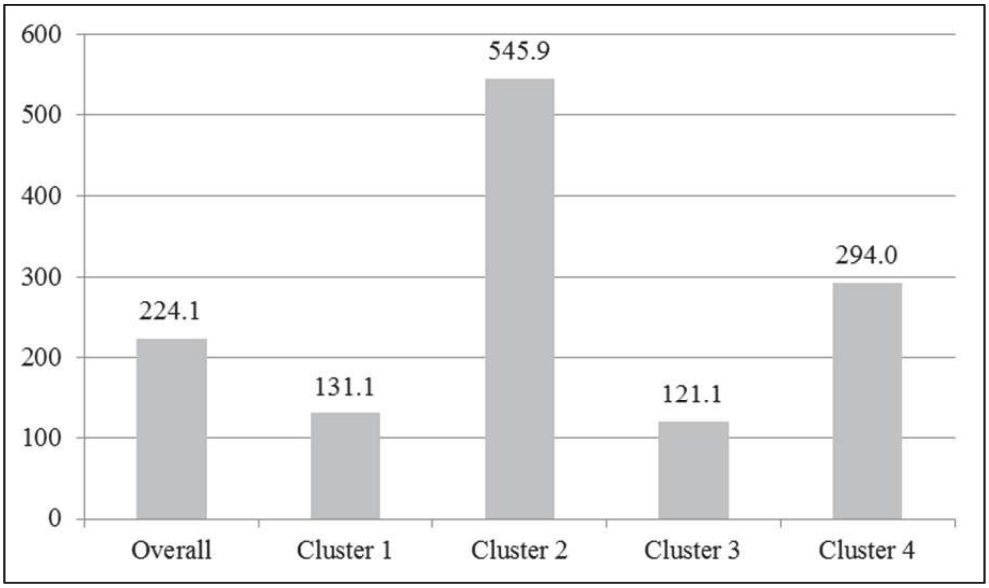


As firms in cluster 1, firms in *cluster 3* focus their activity system's content on the sale of a limited range of products. They design the structure of the activity system in a manner that they link the online activity system to non-online sales. The firms in cluster 3 are mostly established brick-and-mortar retailers or firms founded by consumer goods manufacturers for selling their products directly via the internet. They perform their online sales activities themselves (very low outsourcing intensity). In sum, this business model is driven and characterized by an active approach to enter online retailing of established focused retailers (e.g., *Marc O'Polo, Rossmann, Deichmann,* or *Euronics*). We refer to this business model type as the *"synergistic active focused"* online retail business model.

Cluster 4 firms mostly focus their online sales activity system's content on the sale of certain products as do firms in cluster 1 and 3. As firms in cluster 3, firms of cluster 4 link their online sales activity system to non-online retailing. Different from all other clusters is the organization of governance of the online sales activity system of cluster 4 firms. They make intensive use of outsourcing and farm out several key activities of selling online to external partners. Exemplary companies of cluster 4 are *Adidas*, *Dell*, and *Nike*. In sum, firms in cluster 4 sell a limited range of products and take a rather passive approach to operating and controlling their key online activities. We refer to this as the *"passive focused"* online retail business model.

After having identified four different business model types, we evaluated performance differences among the business models. Figure 4 shows the comparison of 2013 mean web sales in mEUR of each cluster and the overall sample. Cluster 2 and cluster 4 outperform the overall sample average whereas cluster 1 and cluster 3 perform more poorly. The weakly performing clusters (1 and 3) do only slightly differ in their web sales performance. Cluster 2, however, shows an online turnover which is around four to five times higher.

FIGURE 4
COMPARISON OF MEAN WEB SALES 2013 AMONG CLUSTERS AND OVERALL SAMPLE IN MEUR



To identify significant performance differences among the clusters, we conducted a one-way ANOVA. Table 1 shows the descriptive statistics. Due to missing sales data of 62 companies the ANOVA comprises only 432 firms in total. Table 1 again shows 2013 mean web sales of each cluster and the overall sample as well as standard deviations, 95% confidence intervals, minimum, and maximum values. Table 2 depicts the output of the ANOVA. Our results suggest a statistically significant difference in the mean web sales among the different clusters. To understand which clusters differ in their performance implications, we conducted multiple comparisons. Table 3 shows the results of Scheffe post hoc test. We find that there are significant performance differences between clusters 1 and 2 as well as between clusters 2 and 3. Cluster 4's performance does not significantly differ to any of the other three clusters.

TABLE 1
DESCRIPTIVE STATISTICS OF ONE-WAY ANOVA

Web Sales 2013 (EUR)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	163	131082171.9	212393533.0	16635945.43	98230907.86	163933436.0	5023200	1600000000
2	59	545907804.1	1833978238	238763629.5	67970472.29	1023845136	2627271	13633729354
3	107	121081993.5	229758384.9	22211581.43	77045372.95	165118614.0	3100000	1474400000
4	103	293992555.1	756127217.8	74503428.57	146215357.7	441769752.4	4619700	6000000000
Total	432	224101761.4	799449659.8	38463539.69	148502315.7	299701207.1	2627271	13633729354

TABLE 2
OUTPUT OF THE ONE-WAY ANALYSIS OF VARIANCE

Web Sales 2013 (EUR)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.159E+18	3	3.053E+18	4.907	.002
Within Groups	2.663E+20	428	6.222E+17		
Total	2.755E+20	431			

TABLE 3
SCHEFFE POST HOC TEST: MULTIPLE COMPARISONS

Dependent Variable: Web Sales 2013 (EUR)

Scheffe

(I) TwoStep Cluster Number	(J) TwoStep Cluster Number	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-414825632*	119845468.7	.008	-751189059	-78462205.84
	3	10000178.43	98143406.96	1.000	-265453312	285453668.7
	4	-162910383	99287218.17	.442	-441574143	115753376.6
2	1	414825632*	119845468.7	.008	78462205.84	751189058.6
	3	424825811*	127908995.5	.012	65830944.50	783820676.8
	4	251915249.1	128788720.4	.282	-109548691	613379188.7
3	1	-10000178.4	98143406.96	1.000	-285453669	265453311.8
	2	-424825811*	127908995.5	.012	-783820677	-65830944.50
	4	-172910562	108884004.6	.472	-478509073	132687950.1
4	1	162910383.2	99287218.17	.442	-115753377	441574142.9
	2	-251915249	128788720.4	.282	-613379189	109548690.5
	3	172910561.6	108884004.6	.472	-132687950	478509073.2

*. The mean difference is significant at the 0.05 level.

DISCUSSION AND CONCLUSION

Our analysis of the largest firms operating in the European online retail industry revealed the existence of four firm clusters. Each cluster represents a group of firms using the same fundamental type of business model for their online sales activity systems. We named these clusters the *"independent active focused", "medium active broad"*, *"synergistic active focused"*, and *"passive focused"* business model. Firms associated with the same cluster make similar decisions on the content, structure, and governance of their online sales activity system and differ in this respect from firms using one of the other three business models. Firms in *cluster 1* following the *"independent active focused"* online retail business model are offering a limited range of products and services, do not link the activity system to non-online sales, and have a low to medium outsourcing intensity. *Cluster 2* firms with an *"medium active broad"* online retail business model sell a wide range of products, follow mixed approaches concerning the structure of their online sales activity system, and have an either low or very high outsourcing intensity. Firms in *cluster 3* with a *"synergistic active focused"* online retail business model limit the range of products they sell with all firms linking their online sales activity system to non-online retailing. Cluster 3 firms govern all their key activities in-house. *"Passive focused"* online retailers, representing *cluster 4*,

mostly focus the content of their online sales activity system and link online to offline retailing. Special for cluster 4 firms is that they make intensive use of outsourcing.

Our results contribute to the business model literature in the following three ways. First, and primarily, they contribute to the discussion of the fundamental question whether the business model is a useful theoretical construct. Whereas some researchers have embraced the construct openly to capture innovation phenomena, other scholars are more skeptical about the helpfulness of the business model as a unit of analysis and its relevance as a theoretical construct. In order to be a relevant concept, a construct needs to help explain performance differences of firms. However, only few studies exist in the literature thus far that conduct statistic tests of the link between business models and firm performance (for a review see for example Spieth et al., 2014). Instead, the business model literature is characterized by a dominance of conceptual, qualitative, and small sample studies, providing only an indication but no large-scale test of a significant performance impact of business model types. To our knowledge, no study thus far was able to collect comprehensive data as the represented one. Our results rest on the analysis of more than 400 firms that operate comparable business models. Since we do find performance differences between three out of the four distinct business models, our results support the advocates of the business model representing a relevant concept for the strategy literature.

Second, our results support in particular the usefulness of the activity system-based view of business models (Amit & Zott, 2001; Zott & Amit, 2010). We show that this approach to business models has explanatory power. Third, we propose theory-driven proxies for measuring an activity system configuration, i.e., measures for content, structure, and governance of a business model, which lend them to quantitative testing. We developed these in the context of online business and suggest that the nature of an online sales activity system can be captured by measuring what is being sold online, whether and how these sales activities are linked to non-online sales, and to which extent online sales activities are conducted and controlled by firms. In sum, our measures enable us to capture the nature of an activity system and efficiently compare many firms empirically.

Our results are not only of interest to the business model literature, but also to scholars interested in the retail industry. Our study complements existing work that is interested in understanding the business activities in this important industry (e.g., Grewal et al., 2004; Sorescu et al., 2011).

Limitations

As any study, our paper is subject to a number of conceptual and methodological limitations that need to be pointed out. First, in our empirical setting, we analyze firm-specific variations of the generic online retail business models. This allows us a meaningful comparison of a large number of business models, but should be kept in mind when referring to our results.

Second, our empirical results address business models in the online retail industry. We are confident that our results can be generalized to other industries that are concerned with selling goods and services online. However, transferring our insights to a non-online context should be done with caution.

Third, our empirical analysis is based on the activity system-based view of business and we can only infer strategic relevance for this theoretical perspective. There are, however, alternative approaches to the business model construct, for example, the componential definitions by Morris et al. (2005) and Johnson et al. (2008). We cannot draw any conclusion on the strategic relevance of such business model conceptualizations.

Fourth, our empirical analysis of business models focuses on one aspect of the online retail activity system. We are measuring the configuration of the online sales activity system. The online sales are the core of an online retail business model, yet they only represent a part of the entire business model. When interpreting our results, one has to be aware that the business model contains additional aspects such as delivering the ordered goods to customers.

Fifth, we have opted for a simple measure of an online activity system's content, structure, and governance. This allows us to evaluate a large number of online retail firms and conduct statistical analyses to identify significant performance differences among business models. We have captured the

key aspects of content, structure, and governance of an online sales activity system, but have to keep in mind that we neglect additional aspects.

Future Research

Our results provide an indication that the business model construct does help to understand firm performance and is indeed a relevant theoretical construct. Future research should be concerned to put this conclusion on a stronger basis. We see in particular four avenues how this could be done. First, future research should apply alternative or multi-dimensional measures for the content, structure, and governance of the firms' online sales activity systems.

Second, future research would have to test additional aspects of an online retail activity system. For example analyzing configurations of the delivery activity system would help to support our conclusions.

Third, future research to determine the strategic relevance of the business model construct should exceed the analysis of online retail activity systems. We suggest doing two things. The first is identifying and testing performance implications of business models using the activity system-based view in additional contexts. For example, the emerging FinTech sector and the brick-and-mortar retail industry are promising industries for such studies in online and non-online settings, respectively. Furthermore, future research needs to test additional conceptualizations of business models, in particular componential approaches.

Due to the limited availability of secondary data on firm internal activities in the online retail industry, such quantitative studies will have to rely on smaller sample sizes. In addition to these quantitative studies, we suggest a qualitative study for exploring the sources of performance differences among online retail business models. According to configuration theory, certain combinations of decisions on content, structure, and governance of a firm's activity system should generate more complementarities than others. Future research should explore how exactly these complementarities are created. We suggest conducting a number of in-depth case studies of representative firms to understand how these complementarities are created. This would help to further enhance the value of the business model as a strategic construct.

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