Business Model Innovation in Austrian & German Direct Retail Banking: A comparative case study approach

Lorenz Knauseder

LBS Working Paper No. 8
February 2019

About the Author

Lorenz Knauseder completed the Banking, Finance and Compliance Master Program at Lauder Business School. He graduated in 2018. This working paper corresponds to the excellent master thesis by Lorenz Knauseder. The supervisor was Dr. Johannes Asel.

The LBS Working Paper Series

The LBS Working Paper Series "LBS Working Papers" aims at presenting applied research completed by LBS faculty, outstanding graduates and partners. Topics include subjects taught and researched at LBS's degree programs (1) International Business Administration, (2) International Management and (3) Leadership and Banking, Finance and Compliance. Successful master graduates will be invited to publish condensed versions of their theses.

Editor: Christian Reiner, Christian.reiner@lbs.ac.at
Lauder Business School
Hofzeile 18-20, 1190, Vienna, Austria
www.lbs.ac.at

Degree program

Banking, Finance and Compliance
Code of the degree program: 0734

Master Thesis

To obtain the academic degree:
Master of Arts in Business (MA)

Title of the Master Thesis:

BUSINESS MODEL INNOVATION IN AUSTRIAN & GERMAN DIRECT RETAIL BANKING: A comparative case study approach

Submitted by:	Lorenz Knauseder
Matriculation Number:	1610734008
Cohort:	BFC2016
Supervisor:	Dr. Johannes Asel LL.B. (WU), MIM (CEMS)
Awarding body:	Lauder Business School Hofzeile 18-20 1190 Wien Austria

Vienna, 23.07.2018

Statutory Declaration

I declare in lieu of an oath that I have written this master thesis by myself, and that I did not use other sources or resources than stated for its preparation. I declare that I have clearly indicated all direct and indirect quotations, and that this thesis has not been submitted elsewhere for examination purposes.

23.07.2018

Date

Signature

Table of Contents

List of Figures

List of Tables

List of Abbreviations

ANOVA	Analysis of variance
B2B	Business to Business
BMI	Business Model Innovation
CIR	Cost/Income Ratio
DACH	Joint region of Germany, Austria & Switzerland
EEA	European Economic Area
FinTechs	Startups and companies in the industry of financial technology & innovation
FMCG	Fast moving consumer goods
GDP	Gross Domestic Product
ICT	Information and communication technologies
IT	Information technologies
InsurTech	Insurance technology
IPO	Initial Public Offering
KPI	Key performance indicator
M&A	Mergers and Acquisitions
NII	Net interest income
P2P	peer-to-peer
RoA	Return on Assets
RoE	Return on Equity

Abstract

This master thesis contributes to the scholarly community a comprehensive addition aimed at closing considerable gaps within the areas of business models and business model innovation, building on the central research question of: Which types of business model innovation are the most successful in the direct retail banking industry in Austria & Germany between 2013 and 2017? The term business model including its antecedents and design themes is explored and defined, utilizing the business model canvas as a means of display. Subsequently, the various research streams regarding business model innovation are sorted out, enabling clear-cut definitions of BMI, its antecedents and connected performance outcomes, resulting in the four types of: evolutionary, adaptive, focused and complex BMI. The previously unexplored connection of business model innovation to the banking industry is then established, providing insights on banking business models and respective recent innovations transforming the industry and its participants. The theoretical implications of the thesis are put to the test in the empirical part by a time series cross-sectional comparative case study on six direct retail banks in Austria and Germany, within which an ANOVA regression model is proposed to formally conceptualize the previously gained insights. The model is intended to build a foundation for future researchers with access to more statistically significant and extensive data sources. The case analysis reveals the usage of BMI by five out of six sample banks between 2013 and 2017, out of which four registered positive performance outcomes. Adaptive BMI was found to be the most successful type, followed by evolutionary and focused. Complex BMI recorded considerable losses.

1 Introduction

According to a recent study by Ernst & Young (2016), the financial services industry, especially traditional banking, is facing considerable challenges regarding customer trust. This fact is not only attributable to the aftermath of the global financial crisis of 2007/08, but also to the massive technological and digital disruption of the sector. As examples from other industries, such as media and entertainment or transport show, established companies in every sector face serious problems when facing disruptive new services and technology. Airbnb, Uber and Amazon are only the tip of the iceberg in the wake of further digitalization and automation of the global economy, through technologies such as artificial intelligence or Blockchain. These developments require companies and especially financial institutions to rethink their corporate strategies and adapt their business models accordingly. One relevant example for the DACH region is the digital bank N26. While at first the startup was only allowed to offer an interface with integration of other banking services, they are nowadays a full-fledged financial intermediary with a banking license and the ability to issue credit lines to their customers (Dillet, 2017). Without a doubt, the most disruptive development in recent years is the emergence of cryptocurrencies, such as Bitcoin. However, numerous scholars and active participants of the financial industry claim that it is the underlying technology of Blockchain, which will be considerably more influential for the future of our society as a whole (Swan, 2015). Data from the Austrian National Bank supports the claim that technological advances will reshape the banking industry as we know it, with steady declines of banking jobs since 2011 (Österreichische Nationalbank [OENB], 2018a).

1.1 Statement of the problem

The conclusion drawn from the upcoming challenges brought forward is that traditional financial intermediaries have to implement innovative technology and services into their business models in order to remain competitive and sustainably profitable. Especially retail banks, which put their focus on customer relationships and providing services for larger numbers of people are under pressure to rethink and redesign their value creation and value capture processes. Therefore, it is necessary to explore currently used banking business models, their key components and identify the antecedents and drivers behind successful business models in general. Subsequently, once identified, such drivers may require a firm or even a whole industry to utilize business model innovation (BMI) to remain competitive for

the future. Although scholars have published an increasing number of scientific literature on business models in general, the banking industry appears to be left out to a large extent, resulting in the first research gap identified in this thesis. Literature on BMI, on the other hand, is still seen as an emerging area, with only **limited attention and construct clarity**. Different research streams have yet to achieve common grounds in terms of defining and interpreting BMI, as well as separating the field from strategy once and for all. As business model innovation is an abstract scientific term which, in practice, focuses strongly on individual cases of real companies, there is an apparent lack of universal frameworks to determine the success or failure of such BMI, including the most relevant and important factors to consider when innovating a firm´s business model.

To sum up, the research gaps this thesis aims to close start with the lack of clear definitions and literature sources regarding business models in the banking industry. The emerging area of business model innovation is still separated into distinctive research streams, lacking construct clarity and proper definitions as well as success factors and performance outcome frameworks. Furthermore, all of these implications are unexplored on a central European level.

1.2 Objective & relevance of the thesis

The research gaps brought forward in the previous section of the thesis combined with the considerable challenges arising in the banking industry represent the need for this thesis. Thus, the objective is to analyze the most relevant literature sources on business models, determining the major banking business models used in practice. In addition, BMI must be clearly defined and its success factors explored to determine performance indicators to find out which forms of business model innovation perform better than others with focus on the central European banking industry. Furthermore, this claim is congruent with future research recommendations brought forward by Spieth, Schneckenberg & Matzler (2016).

The contents and results of this master thesis will be relevant for all participants in the banking industry, especially in central Europe. Practitioners will be able to use the findings to analyze the most crucial components of their business models and know how to innovate them while scholars are offered a comprehensive overview of the current academic literature and research streams. Furthermore, regulating authorities, finding it increasingly difficult to keep up with financial innovation and digitalization in banking are another relevant target audience of this thesis, as they must properly understand how banking business models

function in order to rightfully assess risk levels and capital requirements to fulfill their mandates.

1.3 Research questions

Based upon the previous research problems and gaps, this chapter will outline the main research question, including theoretical and empirical sub-questions this thesis aims to answer in the respective sections, displayed in *table 1*. The central theoretical focus of this master thesis will cover the topics of business models and business model innovation. The main research question which was developed is: *Which types of business model innovation are the most successful in the direct retail banking industry in Austria and Germany?* Before this main research question can be answered, it is necessary to determine prevalent business models and respective particularities used in banking. Furthermore, the most relevant forms of business model innovation, according to current literature, must be explored. Additionally, business model innovation antecedents, drivers and subsequent outcomes are focused on within the theoretical research questions. Once these are answered, the subject can be analyzed empirically in order to assess the two empirical sub-questions. First, the various types of BMI used by Austrian and German direct retail banks will be explored between 2013 and 2017. Consequently, the respective performance outcomes of the selected innovations are analyzed to indicate the success or failure of each type of BMI. Afterwards, the main research question can be answered based on sufficient theoretical and empirical foundations, concluding this master thesis.

Table 1 Research questions

Main research question	
Which types of business model innovation are the most successful in the direct retail banking industry in Austria & Germany between 2013 and 2017?	Ch. 6
Theoretical research questions	
1: What are business models and its main components according to recent literature?	Ch. 2
2: What is BMI and how can its outcomes and results be measured and evaluated?	Ch. 3.1
3: What are antecedents and drivers leading to business model innovation?	Ch. 3.2
4: What are the most relevant forms of business model innovation in current literature?	Ch. 3.3
5: What are particularities of business models and BMI within the context of banking?	Ch. 4
Empirical research questions	
1: Which types of BMI have been used by selected Austrian and German direct retail	Ch. 5.3

banks between 2013-2017?	
2: What are the performance outcomes of BMI performed by Austrian and German direct banks between 2013-2017?	Ch. 5.3

Note Main research question and theoretical & empirical sub-questions, including chapters with the respective answers

1.4 Conceptual model & methodology

In reference to the research problems and previously defined objectives of the thesis, a conceptual model must be drafted to give an overview of the logic of this paper. The following model, as displayed in *figure 1*, is based on the literature overview, depicting the antecedents or drivers leading to business model innovation and influencing the outcomes altogether. Furthermore, the different types of BMI depend on the business model design in place, for example, focused and complex BMI are expected to yield higher performance outcomes when executed within novelty-centered models. The outcomes of BMI are the final component of the logical chain and are expected to help banks achieve competitive advantage through performance increases.

Figure 1 Conceptual model of BMI

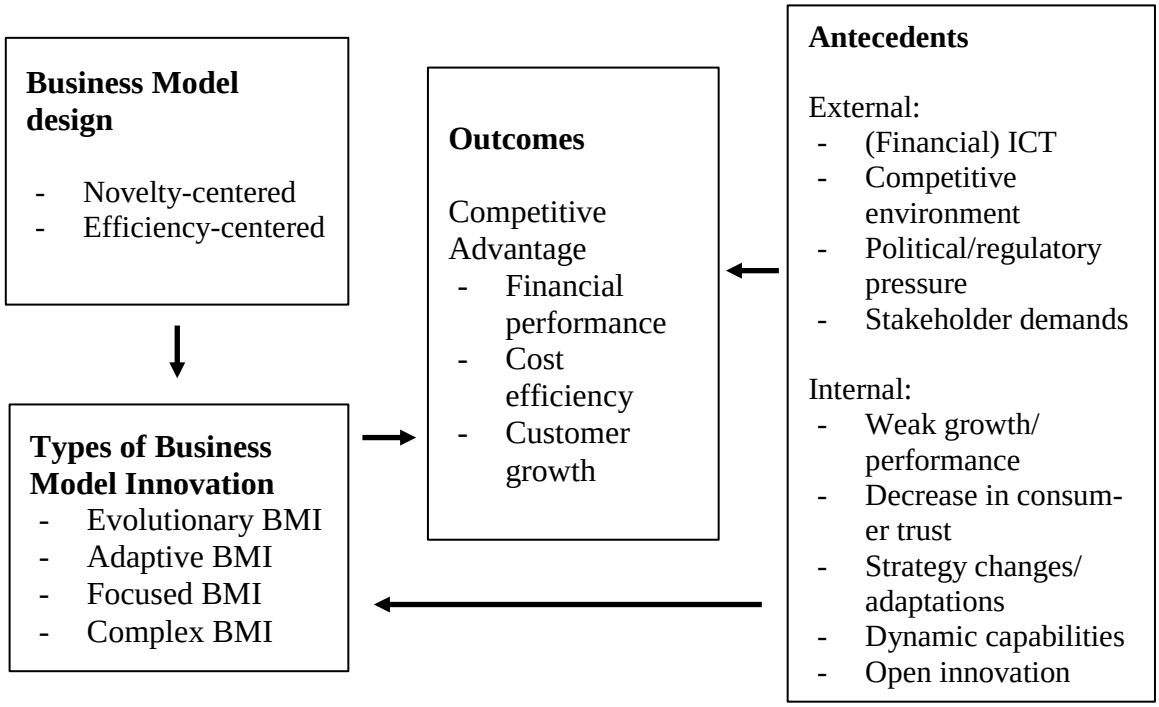


Figure 1. Conceptual description of BMI, leading from antecedents to business model design and types of BMI, resulting in specific outcomes

The empirical method applied in this thesis will be a comparative case study. The main advantage of this method is the acceptance of both quantitative and qualitative data

usage to arrive at conclusions. This will enable a level of individuality and dynamism appropriate for the research questions stated previously. The main data source will be secondary data in the form of financial and performance indicators of publicly listed banks in Austria and Germany.

1.5 Structure of the thesis

This thesis will be divided into two main parts, the theoretical literature review and the empirical part. In the theory chapters, which will consist of business model and business model innovation literature, an overview of the status quo in the respective field will be given, followed by the most important research streams and relevant definitions. After the generic terms are described sufficiently, they will be applied to the banking industry in the central European region, as the research questions and main focus of the thesis demand. Examples from the real economy will be utilized to explain the phenomenon of business models and BMI, as these processes function highly individually and case-specific. During the respective theoretical chapters, the theory-driven research questions will be answered.

Afterwards, the empirical chapter will begin by describing the methodology of the research applied in this master thesis. This part will include the outline of the research design, specific information about the comparative case study employed, the process of data collection and analysis as well as the operationalization of the variables within the remaining research questions. After the sampling process is rigorously carried out, each sample bank is examined individually before the comparative analysis provides a more comprehensive overview. Subsequently, the conclusion will summarize the most important findings of both theoretical and empirical nature, answering all research questions in the process. Afterwards, this master thesis, especially the empirical method, will be reviewed in a critical manner before concluding with a future outlook and research recommendations. Additional information is provided in the reference section and the appendix.

2 Business Models

As this master thesis will examine theoretical approaches and findings from two main areas of studies (**business models and business model innovation**), each subject must first be analyzed for the most relevant, sophisticated as well as recent stances. The main focus of the theoretical chapter will be on business models and business model innovation in connection to the banking industry. However, in order to examine specific business models of banks, a general definition and status quo on business model research is required. In chapter 2.1 the most relevant and recent scientific findings about this research area will be reviewed, summarized and concluded to prevent any misunderstandings regarding terminologies or definitions around business models henceforth.

2.1 Status quo on business model research

Scholars and experts in the field of business models have, knowingly and sometimes unknowingly, provided research results on business models for decades. It was merely the lack of universal definitions and conceptual frameworks, which makes the business model research stream appear rather recent. According to Wirtz, Pistoia, Ullrich & Göttel (2016), the business model research history can be divided into three phases (p. 39). Starting in 1975, the early phase was examining the topic specifically from a **technology perspective**. In the formation phase, from 1997 to 2002, the organization and **strategy-oriented concepts** emerged. This can be attributed to the rise of technology corporations leading up to the dot-com-bubble, where more and more scholarly attention shifted from classic strategic management to the business model field (Massa, Tucci, & Afuah, 2017, p. 74). In the **differentiation phase**, which is still going on to this day, the main focus lies on technology and strategy-orientation, which register the majority of articles in this area.

Despite repeated harsh criticism on the business model concept itself from renowned scholars, describing it as “murky, at best” or “serving as an invitation for faulty thinking and self delusion” (Porter, 2001, p. 73), business models have definitely increased in popularity among the scholarly community, especially in the recent decade. The total number of articles published has substantially increased both in academic and regular literature, further indicating the growing attention this field receives (Massa et al., 2017, p. 75).

Without a doubt, the emergence and development of the IT sector, especially through Silicon Valley has blurred the lines of how traditional and established companies do their day-

to-day business by disrupting various sectors in the economy. With innovative business models, companies like Uber, Airbnb or Facebook shape the future of their respective industries. Uber is currently the world´s largest taxi company without owning a single car, Airbnb the largest provider of accommodation without owning hotel rooms and Facebook the largest media company without creating content (McRae, 2015). Perhaps even leading scholars such as Michael Porter were unable to grasp this massive shift of business operations, which put more emphasis on business models rather than classic strategic management practices.

As mentioned before, the increasing number of academic papers on the topic of business models implicates growing interest and traction for the concept itself in the scholarly community. However, as various reviews on the topic have shown, several research streams have developed with distinct frameworks, definitions and classifications (Massa et al., 2017; Zott, Amit & Massa, 2011). Most classifications have predominately been in relation to the concept of (corporate) strategy, the concept of **value creation and proposition** and concepts describing business models as phenomena. The recurrent theme of business models relating to strategy appears in the sense that strategic management dictates the choice of business model in companies, hence the business models' **interconnectedness** with strategic choices (Klang, Wallnöfer, & Hacklin, 2014, p. 467).

Regarding the notion of **value creation**, various scholars have highlighted the importance of connecting the value chain framework to the business model, including **value appropriation** (Teece, 2010). The third recurrent theme of classifying business models focuses on business models more as a heuristic logic concept or narrative device. Further disagreements between various scholars can be observed in the constitution and configuration of business models. Concerning the constituent elements of business models, the recurrent themes of internal artefacts, relational mechanisms between the firm and its external stakeholders and external stakeholders existing outside the firm are put in focus (Klang et al., 2014, p. 472). Over time, the notion of business models merely describing operations on the level of product units has shifted to more planning-based approaches on the company, or in some cases, even the industry level (Wirtz et al., 2016, p. 40).

In the following subchapters, three main interpretations of what business models represent will be described, starting with business models as attributes of real firms. Subsequently, the business model as cognitive or linguistic scheme as well as the business model as a formal conceptual representation will be explained, before providing the reader

with the crucial concept of **business model design** and its **antecedents**. Each category of business model interpretations will include various definitions of what a business model is and is not. At the end of chapter 2.1.3, the most adequate definition for the scope of this thesis will be determined and shall be used and assumed for all further examinations and assertions.

2.1.1 Business models as attributes of real firms

This first approach to interpreting business models classifies them as attributes of real firms or empirical phenomena. As this approach uses empirical data of real firms, the examined attributes are systematically organized according to their similarity. This unique procedure, as opposed to employing conceptual rather than empirical classification techniques, allows the determination of business model **archetypes** (Massa et al., 2017, p. 78).

Such archetypes include business models from various different industries and sectors, such as cross-subsidization, freemium, barter and arguably the most popular model: advertising, where users do not have to pay for the service or good they receive, but are exposed to advertising messages from other companies (McGrath, 2010, p. 251). In recent years, various archetypes of e-businesses have been identified, including (advanced) buyer-seller models, network-based business models, co-creation and collaboration models and multisided business models (Nielsen & Lund, 2013, p. 21) A noteworthy project by the University of St. Gallen, Switzerland, the Business Model Navigator™, which has been used in practice frequently, distinguishes 55 different archetypes of business models, containing classics such as no-frills or franchising and rather new business models, such as open source, digitalization and crowdfunding (Gassmann, Frankenberger, & Csik, 2014). All archetypes have in common two major parts: a range of activities the company performs and the respective outcome of these activities. The outcome or **value created** is directly influenced by how, when and who exactly performs the set of activities, as well as the resources used (Massa et al., 2017, p. 79).

The interpretation of business models as attributes of real firms offers a broad range of possible definitions of business models, from more abstract ways of describing them to specified and focused explanations. Bocken, Rana & Short (2015), for example, define the business model as a way of sustainable thinking, requiring the mapping of purpose, opportunities for value creation and the value capture within a company (p.67). Hienerth, Keinz & Lettl (2011) provided a rather simplified explanation by illustrating the business

model as the logic of how companies convert the value delivered into profits (p. 346). The purpose of this thesis, however, requires more sophisticated and detailed definitions of business models, which other authors provide. The interpretation by Nielsen & Lund (2013) that business models act as a platform **connecting resources, processes and service supply** seems more fitting (p. 9). They go even further in emphasizing the need to understand the correlations and interconnections within a company in order to fully understand its value creation and profitability. Additionally, the **business model canvas** is introduced, which is a graphical representation of the most decisive parameters of business models. This canvas, as displayed in *figure 2,* includes the key partners, activities and key resources of a company as well as its customer segments, customer relationships, distribution channels and ultimately the value proposition. These parameters are interconnected and correlate with the cost structure and revenue structure of the whole operation (Nielsen & Lund, 2013, p. 17).

Figure 2. Business Model Canvas

Figure 2. Main components of a business model, Nielsen & Lund, 2013, p. 17

Smith, Binns & Tushman (2010), in their definition of business models, focus on the **strategic choices** companies (have to) make in regards to markets, value proposition and its customers to capture value by using a specific organizational framework of people, processes, competencies, culture and measurement (p. 450). As both definitions, by Nielsen & Lund (2013) and Smith et al. (2010) have merit, it appears conducive to determine a middle ground between them. Therefore, within the interpretational stream of business models as attributes

of real firms, the business model can be defined as: the platform connecting resources, people, processes, competencies, service supply, culture and measurement tools, enabling the company to make strategic choices regarding markets, value proposition and customer segments to ultimately create and capture value, resulting in sustainable profitability.

Based on this interpretational research stream and its definition of business models, numerous quantitative and qualitative examinations have been conducted in recent years. It is noteworthy that, empirically proven, companies which embed innovative or **novelty-oriented** sets of activities into their business models, have outperformed others (Zott & Amit, 2007). Similarly, Weill, Malone and Apel (2011) discovered, over a 12-year time span, that organizations employing innovative or intellectual property-based business models performed significantly better than regular companies, based on shareholder value and stock prices.

However, not only quantitative studies have proven the merit of a company intensively engaging with and innovating (parts of) its business models. A qualitative case study was conducted by Aversa, Furnari & Haefliger (2015), discovering that a configuration of two business models within a company is associated with higher performance due to capability-enhancing **complementarities**, organizational learning and focused capabilities. Innovative and **novel business models** might even be cause to changing industry dynamics and have a permanent impact on how people live, consume and interact, as demonstrated by industry giants like Apple, Facebook, Amazon or Google (Demil, Lecoq, Ricart, & Zott, 2015, p. 2).

Another interesting aspect of this interpretation of business models as attributes of real firm is the way business models affect a company´s competitive advantage. According to a study by Brea-Solis, Casadesus-Masanell & Grifell-Tatje (2014), exploring the link between the choice of business models and the subsequent competitive (dis)advantages, it was discovered that while the business model choice is important for explaining the **competitive advantage**, it was the particular implementation of the model that properly explained firm performance. As mentioned previously, incumbent firms are repeatedly challenged by disruptive industry entrants, to revise their strategic choices, including their business models. Many incumbents react to such challenges by not completely changing their business model, but rather by adding a new one. Companies across various sectors have followed this approach, from the aviation industry to FMCGs (Markides, 2013). However, in employing two or more business models simultaneously, there are considerable risks involved. Their underlying value chains could conflict with one another, alienating or **cannibalizing** existing

distribution channels (e.g. online vs. stationary retail), thus jeopardizing the whole company´s operations (Velu & Stiles, 2013).

To sum up the interpretation of business models as attributes of real firms, scholars agree on the fact that business models perform **value-adding activities** to capture/create value. There are still questions about the importance of different activities and who, how, when and where they are performed. Furthermore, many scholars see no concrete evidence of business models being different from a firm´s strategy, although various others describe both fields as interconnected or business models originating from strategy but being an **autonomous management tool**.

2.1.2 Business models as cognitive or linguistic schemas

The second interpretational stream for business models define them as cognitive or linguistic schemas, as brought forward by Massa et al. (2017). This quite abstract interpretation can be explained in the way that managers, in the real economy, do not have real systems of value capture activities on their minds when making decisions. Managers rather create an **image** of business models for themselves and act accordingly (Massa et al., 2017, p. 82). Subsequently, scholars examining the field of business models with this point of view focus on how a company´s business model is perceived and described by its own organizational members, how they interact with each other and the cognitive antecedents of business models design and/or innovation (Amit & Zott, 2015).

Various definitions of business models as cognitive or linguistic schemas have been drafted in the recent years. One of the most sophisticated definition was created by Martins, Rindova & Greenbaum (2015), as they conceptualize business models as **cognitive structures** organizing managerial understanding about the activities that reflect interdependencies and value creation in their firms (p. 105). Similarly, the definition by Aspara, Lamberg, Laukia & Tikkanen (2013) describes the business models on a business unit level as the managers' **perceived logic** of how the unit functions and creates value in connection with the market and other business units (p. 460). Both definitions focus on the image managers draw of their own company´s business model and the logic of how the firm creates and captures value. In some cases, especially with the emergence of a potential industry disruptor, this poses a great threat. When incumbents are forced to adapt/add onto their existing business model, they are often too fixated on the image in their mind, as opposed to newer and more relevant business models, as displayed by the example of

Polaroid being unable to rebalance their attention and resources from the chemical to digital photography business. (Benner & Tripsas, 2012).

Business models as cognitive or linguistic schemas, according to its numerous proponents, act as an implicit mental schema, which facilitate strategic choices of **boundedly rational** decision makers in conditions of insufficient information or highly complex situations. One core function of these schemas is the **simplification** of such circumstances, which can be an oxymoron of opportunity. On the one hand, the filtering and disentanglement of information and stimuli can improve and ease decision making processes, while on the other hand, it creates the threat of making strategic choices without proper analysis and insight of the issue at hand (Loock & Hacklin, 2015). Over time, the **self-reinforcement** of trusting the same data sources without allowing new approaches leads to comfort for the managers, a state that no decision maker should ever find him or herself in (Massa et al., 2017, p. 83). However, according to Martins et al. (2015) schemas can also be used make sense of industry novelty and design images of future business models, through the mechanisms of analogical reasoning and conceptual combination.

Thus, in contrast to the interpretation of business models as attributes of real firms, managers' images of their business models are not concrete facts, but rather imaginary processes of logic. This notion represents a crucial hurdle for all scholars and researchers in this field, as it can be misleading in many ways. Multiple decision makers within a company might not have the same mental image of the business model, hence the cognitive dimension only is not feasible for examination. It is the **linguistic component**, which is decisive for how these schemas are communicated internally and externally (Massa et al., 2017, p. 83). The linguistic component entails a company narrative, which benefits coordination within the firm and facilitates social action, hierarchy, organizational structure and rules (Massa et al., 2017; George & Bock, 2011). Ultimately, cognitive and linguistic schemas involve many risks of self-reinforcement and comfort which may lead to disadvantages, especially during times of industry innovation or disruption. However, if managers in charge are aware of how to properly make use of mental images and narratives, opportunities of shaping future business models will arise and lead to competitive advantages for the firm.

2.1.3 Business models as formal conceptual representations

After explaining two interpretational streams of business models, the third one displays the business model as formal conceptual representations. This point of view can be

seen as the middle ground between the other two options and while it still focuses on the simplification of complex organizational systems, the various steps of schemas are documented explicitly. One main advantage of this interpretation is the ability of conceptual representations to identify and highlight the most important elements of a business model (Massa et al., 2017, p. 84). In contrast to business models as cognitive or linguistic schemas, formal concepts are more suitable to escape **logic traps** and negative self-reinforcement through challenging one´s own standpoints (Chesbrough, 2010). The main objective of formal conceptual representations, in addition to simplifying complex organizational systems, is to identify **core components** without disregarding minor aspects to improve the overall understanding of the issue at hand and enable measurement, prediction and communication of the matter (Massa et al., 2017, p. 84). This simplification process, however, cannot be universally appropriated, as representations differ in many aspects. Massa et al. (2017) use the adequate analogy of a geographical map as an explanation for this issue, as they are as well simplified versions of real geographical regions, which can be different in scale, reported information or simply colors (p. 87). Similarly, business models as formal conceptual representations can be of various abstraction levels, content and semantics. The distinct levels of abstraction entail different explanations of business models, e.g. on a firm level it can be seen as a system of interdependent choices (Casadesus-Masanell & Ricart, 2010). On higher abstraction levels, the previously mentioned meta-model of the business model canvas facilitates the assessment of business models not only on an individual firm level, but across **competitive clusters** and industries. Gassmann et al. (2014) proposed four dimensions within a business model: the **who**, describing the customer segments, the **what**, depicting value proposition, the **how**, which explains capabilities and activities to create value and the **value** itself, referring to how profit is ultimately generated. In terms of contents, scholars across this field of study specify different components of business models as important. For example, while researchers leaning towards ecological sustainability may include environmental values and local communities as stakeholders, these components are mostly disregarded as trivial or not critical by other scholars (Massa et al., 2017, p. 88). Wirtz et al. (2016), in their extensive literature review on the business model, have identified the heterogeneity of business model components of different researchers. Common ground seems to be mostly present in the areas of market offerings and resources, while there is little to no consensus about strategy, revenue and procurement (Wirtz et al., 2016, p. 42). The third category, semantics, deals with different linguistic and symbolic modeling techniques, which can be used to display and model how

value is created and exchanged within a network. However, the area of semantics is the least regarded compared to abstraction levels and contents (Massa et al., 2017, 88).

As in the other two interpretational streams, the business model as formal conceptual representation also has a variety of definitions. Boons and Lüdeke-Freund (2013), for example, state that a business model is defined by four components, which are the value proposition, the supply chain, the customer interface and the company´s financial model (p. 10). Similarly, Wells (2016) displays the business model with three constituting elements: its value network and product offerings, the value proposition and the **context of regulation**, incentives, prices and government policies (p. 37).

As previously explained and reflected again in these two definitions, the notion of this interpretation of business models as formal conceptual representations focuses strongly on the components of a business model and attempts to identify the core parts on the one hand and, on the other hand, disregard or draw attention from minor details. As all three interpretations of business models have now been explained and examined, it has become apparent that research in the business model area still lacks **construct validity.** The fact that a growing number of scholars publish journals and analyses on business models but fail to specify from which point of view they interpret the business model is a major source of confusion.

For the scope of this thesis, the interpretation of business models as attributes of real firms is used. The main concepts of this interpretational stream, especially the business model canvas, will be utilized throughout the chapters to come. Furthermore, this notion will later allow more **individuality** and latitude in empirically examining and assessing actual business models of retail banks. Subsequently, the business model, in the context of this thesis is defined as: the platform or framework connecting resources, people, processes, competencies, service supply, culture and measurement tools, enabling the company to make strategic choices regarding markets, value proposition and customer segments to ultimately create and capture value, resulting in sustainable profitability.

Now that the interpretation of the business model´s role within a company is determined and a clear definition is given, chapter 2.2 will explore how and in which various ways a business model can be designed. Later on, in chapter 2.2.3, the question of why business models need to be clearly designed and sometimes changed, adapted or augmented will be answered.

2.2 Business model design

When an entrepreneur makes the decision of starting a company, there is a myriad of questions to be answered. Once the industry has been chosen or determined, one of the most crucial steps to success and sustainable existence of the company is how its business model is designed. Managers of incumbent firms face similar challenges, although it is typically much harder to (re)design a business model of an already existing firm. Thus, it is important to understand a firm´s **activity system**, which describes the engagement of all human, physical or capital resources from in or outside the company to the business model towards fulfilling the objective of value creation (Zott & Amit, 2010, p. 217). Hence, by properly analyzing and constructing the activity system, the business model of a firm can be effectively designed. In general, the process of business model design can be divided into two perspectives, the novelty-centered and efficiency-centered design.

Novelty-centered business model designs, according to the confirmed hypothesis by Zott & Amit (2007), directly contribute to higher firm performance. These designs focus on new ways of conducting business, by either creating new markets, new transaction possibilities in existing markets or other wealth creation opportunities (Zott & Amit, 2007, p. 184). **Efficiency-centered** designs, in contrast, are focused on **imitation** of other established organizations in terms of their business models. These imitators attempt to increase their transaction efficiency through their business model by reducing information asymmetry, speeding up transactions, decrease inventory, providing scalability options or simply cut the cost of transactions (Zott & Amit, 2007, p. 185). Zott and Amit (2007) discovered in their hypothesis testing, that efficiency-centered business model designs lead to better firm performance only during test periods of resource scarcity, in years of resource munificence this statement could not be verified. Furthermore, the combination of both business model design perspectives was observed to lead to negative firm performance.

Regardless of whether it is novelty-centered or efficiency-centered, there are components which have to be determined in order to arrive at a proper business model design. Based within the, then unknown, interpretational stream of business models as attributes of real firms, Zott & Amit (2010) have identified two sets of business model design parameters, the design **elements** and design **themes**.

2.2.1 Business model design elements

The first parameter of business model design addresses a firm´s activity system´s elements of content, structure and governance going beyond interdependencies and network structure. The activity system **contents** describe the selection of activities a firm chooses to perform (Zott & Amit, 2010, p. 220). This includes every business unit a company contains, e.g. in retail banks there would be deposits, mortgages, consumer loans and credit cards as typical activities. Additionally, such a bank may perform **auxiliary services**, such as investment advisory, online banking or proprietary trading. The activity system **structure** explains the way the previously mentioned activities are connected and sequenced with each other. This structure also includes the distinction between core, supporting and peripheral activities (Zott & Amit, 2010, p. 220). Referring to the example of a retail bank from before, core activities may be deposits and mortgages, supporting activities online banking and investment services and peripheral activities proprietary trading. Incumbents across all industries, especially in the banking industry, have recently been forced to shift their activity system structure focus from previous core activities to other forms of income, e.g. because of the prohibition of proprietary trading in US banks under the Volcker Rule (Noonan, 2017). The third design element is the activity system **governance**, which is utilized to determine who performs the activities. One example of how to set up this element is franchising. The franchisor has to provide clear guidelines and rules about the competences and responsibilities between him or herself and the franchisee.

These three business model design elements can, in many cases, be considered to act independently and orthogonally, as the base decision of a company is which services/products are offered, followed by the emphasis put on each activity and ultimately governed by responsibilities and competences of its stakeholders. However, in some cases, these decisions can be interdependent, if managers are forced to make decisions affecting more than one parameter of the business model design. Hence, the activity system design of a company captures the essential core of a firm´s business model, which allows for the (technical) equalization of activity systems and business model design, in this context (Zott & Amit, 2010, p. 221).

2.2.2 Business model design themes

The activity system within a business model can further be characterized by its design themes, which describe the most central **value creation drivers**. These themes are based on

the three design elements previously discussed and are used to configuring and coordinating them. The three main themes, as examined and discovered by Zott & Amit (2010) are included in the **NICE** framework: novelty, lock-in, complementarities and efficiency. Novelty-centered and efficiency-centered activity system designs can be suitably compared to the previously discussed pendants of business model designs by Zott & Amit (2007). However, the **lock-in** and **complementarities** themes represent another aspect on this topic. Lock-in themes in activity systems are designed with the purpose of keeping business model stakeholders attracted long-term. This can be achieved through high switching costs or network externalities derived from the content, structure and governance elements. Complementarities can be characterized as achieving added value when activities previously managed separately are combined or bundled within a system. Commercial banks, for example, have adopted this technique when offering company clients depository services simultaneously to their lending services, which increased the banks' liquidity and provided higher fee income (Zott & Amit, 2010, p. 221).

To sum up, both the design elements and design themes of activity systems within a business model are used to shape a firm´s business model, often in different ways than initially intended. The activity system perspective on business models can be appropriately used to create a **toolbox** for scholars and practitioners as it includes the same conceptual components as the business model itself, according to recent literature. Furthermore, insights concerning the notion of the business model as a **key managerial task** and the system-level design are provided. This ultimately leads to a comprehensive activity system design framework, as shown in *table 2* below. It is noteworthy that, in recent literature as well as practice, the themes of novelty and efficiency are largely predominant, with little to no sources on the other two types. Therefore, novelty-centered and efficiency-centered business model designs will be prioritized within the scope of this thesis.

Table 2. Activity system design framework

Design elements		**Examples (banking)**
Content	Which activities should be performed?	Deposits, loans, investment, etc.
Structure	How should the activities be connected and sequenced?	Interbank funding supporting loan creation
Governance	Who should perform the activities?	Groups divided into subsidiaries for retail & investment banking

Design themes		
Novelty-centered	Innovative actions in content, structure and governance	All-digital banking (e.g. N26)
Lock-in	Introducing elements to retain business model stakeholders	Loan terms, lock-up periods
Complementarities	Bundling of separate activities to achieve added value	Private banking bundles
Efficiency-centered	Reduce transaction costs	Direct & online banks

Note Overview of design elements and themes (Zott & Amit, 2010, p. 222), including examples from banking

2.2.3 Antecedents to business model design

As the main design themes and elements have been examined in the previous chapter, it is now important to identify the relevant **antecedents** and **change drivers** of business model design. Amit & Zott (2015) have identified four groups of antecedents influencing and leading to the four business model design themes of novelty, lock-in, complementarities and efficiency, as displayed below in *figure 3*.

Figure 3. Antecedents to business model design themes

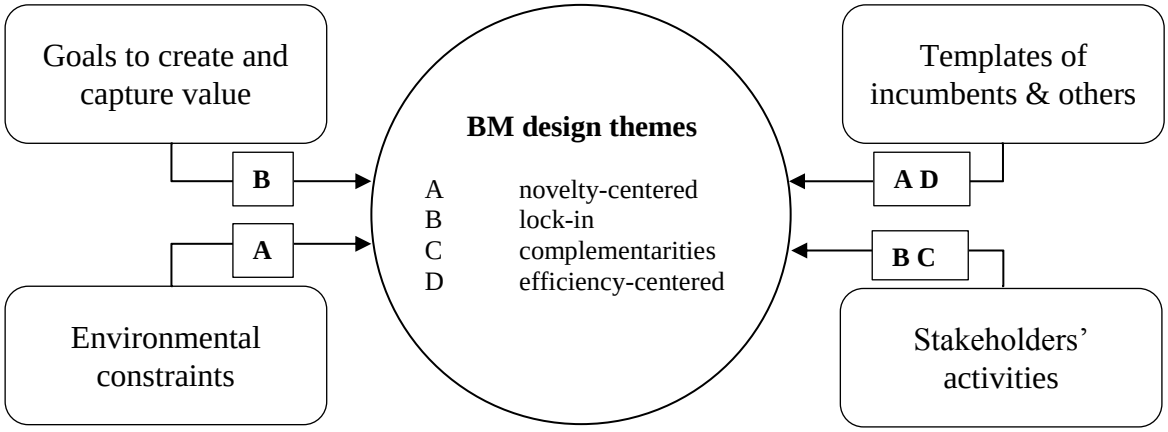


Figure 3. Groups of antecedents to business model design including their specific influence (Amit & Zott, 2015, p. 334)

The first antecedent, goals to create and capture value, is in most cases the beginning of a business model design, as the business model is supposed to address customer needs in order to be sustainable (Amit & Zott, 2012). In addition to the customers' needs the company should go further to create value for all business model **stakeholders** and focus on the concept **of total value** rather than focal firm value (Priem, Butler, & Li, 2013). The increase

of business model stakeholder total value, subsequently, will lead to higher opportunity switching cost of its business partners, enabling the lock-in design theme. As different business model stakeholders may have conflicting objectives themselves, the lock-in design needs to be properly balanced to guarantee the commitment of all parties involved. Although this antecedent may be related to all four design themes, it is especially connected and applicable to the lock-in theme (Amit & Zott, 2012, p. 338).

The second antecedent, templates of incumbents and others, refers to the way a business model designer is inspired by observing other existing firms and copying its most prominent features. By copying other incumbents' business model elements, the focal firm´s business model design trades off novelty for efficiency. The term **mindfulness** plays an important role in the choice of templates for business model designers. It is highly important that designers know the advantages and caveats of each template and recognize precisely what it is that they are borrowing or copying from other firms. Mindfulness in the decision making process can lead to more alternatives and the rightful rejection of templates which are not feasible for the own focal firm. Mindfulness in picking templates of incumbents can ultimately lead to increases in efficiency and/or novelty-centered designs, while **mindlessness** in such decisions entails a reduction or limitation of novelty (Dane, 2011).

In terms of stakeholder activities, the third category of antecedents, the focus lies on **collaboration**. Through cooperation with partners (customers, suppliers, financiers, etc.), both in the design process and subsequently in day-to-day business, the focal firm is able to effectively shape its business model design. One of two main aspects of consideration is the set of activities which will be carried out by the company itself or outsourced, pointing to the design theme of complementarities. The second aspect concerns activity governance once the decision of in or outsourcing has been made. If outsourcing is chosen, there must be reliable processes in place to determine the ideal participant within a business model stakeholder group to take over the respective activities (Amit & Zott, 2015, p. 341).

The last antecedent, environmental constraints, describes undesirable, problematic situations a company may find itself in, but also presents an opportunity in the form of challenges. In general, constraints can be divided into **internal** and **external** types. The external constraints refer to conditions which are imposed onto the firm and its business model, including economic, legal, sociopolitical, regulatory and cultural aspects. The second

type, internal constraints, outline the focal firm´s availability of activity-enabling resources and its capability to properly utilize them (Amit & Zott, 2015, p. 343). If the firm is unable to provide these resources and capabilities, collaboration and partnering options need to be considered, as presented in the previous antecedent, the stakeholder activities. Hence, this antecedent focuses on the external types of constraints. The previously mentioned choice of imitation or copying other incumbents' business model elements, in this case, cannot be seen as feasible, as the efficiency-centered aspects of regulation, economical situations or societal issues are, generally speaking, present for all market participants. It is the design theme of novelty, a firm may utilize to its advantage, as can be seen by various industry disruptors in the recent years (Amit & Zott, 2015, p. 344). Airbnb and Uber, for example, have circumvented regulatory intervention for long periods of time simply by offering a platform for their users to interact with each other and not directly with the focal firm. Similarly, **peer-to-peer (P2P) lending platforms** have established themselves in the EU during flood of new legislation for traditional banks, with considerably less regulatory attention and challenges. Conversely, the EU is actively seeking to improve the market situation for FinTechs, including P2P lending providers (Berschens, 2018). This current EU initiative for FinTechs, paired with more and stricter regulation towards the traditional banking sector leads to challenges, which subsequently require the examination of business models in traditional banking.

2.2.4 Intermediate summary

The main objective of chapter 2 was to provide the reader with an understanding of the concept of business models, its most relevant interpretations, definitions and frameworks. First, a brief review of recent literature was provided, followed by the three research streams of business models as attributes of real firms, business models as cognitive or linguistic schemas and business models as formal conceptual representation, including the essential approach of the **business model canvas**. It was determined that, within the scope of this thesis, the business model is seen as **attributes of real firms**, being defined as: the platform or framework connecting resources, people, processes, competencies, service supply, culture and measurement tools, enabling the company to make strategic choices regarding markets, value proposition and customer segments to ultimately create and capture value, resulting in sustainable profitability. After discovering the distinct themes of novelty, lock-in, complementarities and efficiency within the business model design framework, the most

important antecedents to the conscious creation or adaptation of business models were presented. Goals to create and capture value, templates of incumbents, stakeholder activities and environmental constraints are the drivers leading to the four business model design themes. Henceforth, the design themes of novelty-centered and efficiency-centered will be focused on, especially in the latter empirical part of the thesis.

3 Business Model Innovation

In chapter 2 business models were examined deeply, providing an interpretation and definition valid for this thesis. Afterwards, the antecedents as well as the business model design were explored and exhaustively described. This following chapter will first give an overview of the current status quo on BMI research before defining the BMI term clearly and explaining performance outcomes relevant for the thesis. Subsequently, various BMI tools, barriers, enablers and processes are presented. After exploring the internal and external antecedents leading to and influencing BMI, the four distinct BMI types are assessed.

3.1 Status quo on BMI research

It has been discussed that research papers published on the topic of BM have increased exponentially in the last years. Literature on BMI, however, has only increased marginally. According to Foss & Saebi (2017a), this can be explained by the fact that BMI literature emerged rather recently out of business model research and appears noncumulative (p. 204). The semblance of an emerging research field stems, to a large extent, from **the lack of construct clarity** (Suddaby, 2010). This, combined with missing causal antecedents, moderating and mediating variables leads to "slippery constructs to study" (Casadesus-Masanell & Zhu, 2013, p. 480). The heterogeneity of this subject is further proven by the various foci of literature reviews on BMI. Schneider & Spieth (2013), for example, outline three research streams of BMI: the prerequisites of conducting BMI, the elements and processes of BMI and the effects that are achieved through BMI.

Within the first research stream, prerequisites of BMI, various drivers, antecedents and innovation barriers are put into focus. There is a broad range of such prerequisites, including the roles of management, inter-organizational cognition, increase in information, idea generation, confusion and obstruction as well as sense making (Schneider & Spieth, 2013, pp. 7-8). In order to capture and identify these enabling factors, firms will need to identify relevant trends and opportunities arising, with consideration of their **own capabilities and resources**. Additionally, once ideas of innovation are seized, it is essential to communicate these within the firm and develop sufficient support of stakeholders to implement successful BMI (Schneider & Spieth, 2013, p. 22).

The second stream of research outlines elements and processes of business model innovation. The focus lies on the continuous reactions to changes in the business environment (Demil & Lecoq, 2010) and evolutionary and learning processes (Dunford, Palmer, & Benveniste, 2010; Sosna, Trevinyo-Rodríguez, & Velamuri, 2010). In addition to that, double-loop learning and discovery driven trial-and-error approaches are used rather than analytical procedures (Moingeon & Lehmann-Ortega, 2010; Smith et al., 2010). These processes can be supported by more recently emerged approaches, such as considering the similarities between product and business model innovation (Bucherer, Eisert, & Gassmann, 2012) or the notion of scenario techniques (Gnatzy & Moser, 2012). In this research stream, firms will have to **understand their specific context** determining processes and elements of their BMI and identify suitable forms of innovation. Furthermore, they need to find the appropriate tools and methods to foster BMI and its distinct types (Schneider & Spieth, 2013, p. 23). Without a doubt, these various approaches and processes show the ambivalence of the business model research area, which has been particularly focused on specific markets, industries or firms. Furthermore, all these studies are defined as explorative, trying to gain understanding of real world phenomena, resulting in hypotheses or theoretical frameworks, which are yet to be supported by empirical evidence (Schneider & Spieth, 2013, p. 9).

Within the third research stream, as analyzed by Schneider & Spieth (2013), the focus lies on effects achieved through BMI, including the impact on market and industry structure, individual firm results and the firm´s capabilities (p. 14). Disruptiveness potentials of new technologies and BMI can sustainably change existing industries and structures and force incumbents to adapt accordingly (Dewald & Bowen, 2010; Habtay, 2012). This research stream is mainly characterized by quantitative studies to show the effects of BMI, with outcomes ranging from profitability and other **financial KPIs** to strategic flexibility and organizational efficiency (Schneider & Spieth, 2013, pp. 16-18). Firms will have to properly assess which relevant financial performance indicators are affected by the type of BMI utilized and in which way the internal capabilities are influenced. Specifically, the firm´s **strategic flexibility** to further disruptions and changes in the industry are to be considered carefully (Schneider & Spieth, 2013, pp. 24-25).

Given that these research streams merely consider papers and journals up until 2013, more recent material has to be examined. Accordingly, the systematic review of Foss & Saebi (2017a) presents a comprehensive source of information on this field, dividing previous literature into **four research streams**, which will subsequently be discussed. The first stream

focuses on the literal concept of BMI, thus attempting to provide a definition and innovation dimensions for the topic. However, as already stated, these definitions are heterogeneous. Amit & Zott (2012), for example, focus on their previous findings regarding business model design and state that BMI can consist of the **addition and linkage of new activities** in novel ways or changing which actor within or outside the firm performs them. As mentioned before, novelty, lock-in, complementarities and efficiency are the major drivers under this theory (Amit & Zott, 2012, p. 41). The second research stream, BMI as an organizational change process, focuses on capabilities, leadership and learning mechanisms during business model innovation. Frankenberger, Weiblen, Csik & Gassmann (2013) define the "4I framework", dividing the BMI process into **initiation, ideation, integration and implementation**. In the initiation phase, the business environment is closely monitored in terms of demands of customers and other stakeholders. During the ideation phase, the focus lies on generating ideas of how to innovate the business model according to previously identified opportunities. Afterwards, in the integration phase, the business model is developed, answering questions about different business model components, such as revenue or cost structure, distribution, supply chain, value chain etc. Ultimately, the implementation phase outlines the investments a firm is required to make in order to realize the new business model, where various challenges may arise, causing trial-and-error runs and issues in convincing the stakeholders to support the BMI (Frankenberger et al., 2013, pp. 260-263). During the stages, the firm´s organizational capabilities come into play to support the changes. Achtenhagen, Melin & Naldi (2013) define three crucial capabilities: the identification and experimentation of and with business opportunities, the usage of resources in a balanced way and achieving coherence between leadership, organizational culture and employee commitment (pp. 12-16). Management tools for practitioners are brought forward by Evans & Johnson (2013), which include the innovation readiness level, consisting of various business model parameters and their respective evaluation for innovation (p. 54). In the third research stream, BMI as an outcome, scholars have put their focus on the results of **the emergence of new business models** in various industries, including electric mobility, aviation or services by closely examining firm specific BMIs (Foss & Saebi, 2017a, p. 208). The fourth and final stream, according to Foss & Saebi (2017a) represents the consequences of BMI. Researchers in this field try to identify the linkage between the process of BMI and its performance implications. Cucculelli & Bettinelli (2015) discovered that firms innovating and modifying their business models over certain periods of time register **positive performance outcomes**. Similarly, Wei,

Yang, Sun & Gu (2014), based on the notion of business model design by Zott & Amit (2010) analyzed the effect of exploitative and exploratory BMI on growth in Chinese firms.

In similar, although considerably more detailed manner, Andreini & Bettinelli (2017) offer their systematic review on business models and BMI, identifying various thematic aspects of business model innovation, as explained in the subchapters to follow.

3.1.1 Defining BMI

The term business model innovation can be defined in various ways, according to each respective research direction. The early literature on BMI started by connecting technical innovations with business models to create value and explored the transformational nature and developments of the phenomenon (Chesbrough & Rosenbloom, 2002; Morris, Schindehutte & Allen, 2005). Later works started focusing on this transformation perspective brought forward, analyzing various components of business models (Bohnsack, Pinkse & Kolk, 2014). In general, researchers from the distinct and more established fields of marketing, organizational studies, strategic management and entrepreneurship have dissimilar views on BMI. While from a **marketing point of view**, BMI entails changes in customer segments, value propositions, distribution models and new products or services, scholars from organizational studies focus more on how management can achieve change by trial-and-error processes as well as learning experimentations. The **strategic management perspective** conceptualizes BMI as implementing innovative ways to create and capture stakeholder value, while entrepreneurial research determines BMI as disruptive innovations aimed at seizing business opportunities (Andreini & Bettinelli, 2017, p. 59). In various definitions, BMI is clearly distinguished from product innovation, as it aims to create new ways of creating and capturing value by innovating multiple components of a firm´s business model (Frankenberger et al., 2013, p. 253). Gassmann et al. (2014), within their Business Model Navigator™ framework determine BMI takes place if at least two of their four defined business model components (customer group, value proposition, value chain, value capture) are altered (p. 7).

As explained throughout this thesis, the research area of business model innovation is still an emerging field, proven once again by the highly divergent attempts at defining the term. For the scope of this examination, the definition by Khanagha, Volberda & Oshri (2014) can be utilized in a suitable way, as they describe BMI as the activities ranging from incremental changes in business model components to extending current business models,

introducing new, simultaneously functioning business models or disrupting the extant model up to the point of completely replacing it (p. 324). Henceforth, this definition can be assumed by the reader whenever the term BMI is used in the thesis.

3.1.2 BMI outcomes

After defining what the term business model innovation entails and what it does not, this chapter will explore the outcomes after BMI is implemented, primarily focusing on economic performance, industry level results, value and strategic actions (Andreini & Bettinelli, 2017, p. 66). One of the first research papers based on BMI outcomes of real economic performance examined the effects of BMI on compound annual growth rate of operating profit margins and stock prices of listed companies, arriving at the conclusion that overperformers utilize BMI more frequently than underperformers (Giesen, Berman, Bell, & Blitz, 2007). Similarly, Cucculelli & Bettinelli (2015) as well as Kim & Min (2015) have proven BMI positively influencing firm performance. **Profit measures** and market share metrics are generally the most used indicators to prove BMI outcomes in existing literature, as well as the equity value of firms (Andreini & Bettinelli, p. 66). In contrast, other researcher have focused on perceived economic performance, putting emphasis on indicators such as firm performance, efficiency and novelty as seen by representatives of small and medium-sized enterprises (Brettel, Strese, & Flatten, 2012). On the industry level results, BMI outcomes are considered to affect the industry structures and the creation of disruptive innovations, while from a value perspective, the terms **value creation** (Sorescu, Frambach, Singh, Rangaswamy & Bridges, 2011) and **appropriation** (Desyllas & Sako, 2013) are at the core of the research. Additionally, competitiveness is frequently used in connection to value outcomes in recent BMI literature. Studies have indicated BMI to be positively related to firm competitiveness especially on a global level (Liu & Wei, 2013). The last outcome category explored in recent BMI literature emphasizes strategizing, including organizational changes through outsourcing and insourcing (Spector, 2013) as well as internationalization (Bouncken, Schüßler & Kraus, 2015). **Cost reduction,** strategic flexibility and activity diversification are other characteristics of BMI research on outcomes (Pohle & Chapman, 2006). An overview of the outcomes from different research perspectives is given in *table 3* below.

Table 3. BMI outcomes

Type of outcome	**Research paper**
Compound annual growth rate of profit & stock price	Giesen et al. (2007)
Profits, market share & firm equity value	Cucculelli & Bettinelli (2015) Kim & Min (2015)
Perceived economic performance (novelty, efficiency)	Brettel et al. (2012)
Firm competitiveness level	Liu & Wei (2013)
Value creation and appropriation	Sorescu et al. (2011) Desyllas & Sako (2013)
Internationalization, insourcing/outsourcing	Bouncken et al. (2015) Spector (2013)
Cost reduction, strategic flexibility	Pohle & Chapman (2006)

Note Outcomes of business model innovation, according to different perspectives

For the scope of this master thesis, the **economic performance indicators** as outcomes of BMI will be considered as the most suitable and measurable within the realistic boundaries of the examination. These indicators must be defined prior to the empirical examination as they are highly industry-specific and hardly generalizable.

3.1.3 BMI tools

Previous research papers on tools used to achieve business model innovation have primarily focused on three different themes: methods, artifacts and sector-specific elaborations. The theme of methods functions as practical frameworks managers can use to understand and manage BMI. Various different evaluation methods for BMI have been proposed, with some focused on scenario planning, others pattern-based and system-based. In addition, more abstract concepts of game-like innovation or roadmapping are proposed to foster the idea creation process for business model innovation (Andreini & Bettinelli, 2017, p. 68). This theme also includes the previously mentioned framework by Evans & Johnson (2013), describing the readiness level of firms to implement BMI. The **innovation readiness** is divided into 9 levels, beginning at the stage where capabilities regarding the execution of

the business model are assessed and concluding with the capabilities fully operational and in routine (Evans & Johnson, 2013, p. 54). Amit and Zott (2012) came up with six questions managers in charge of BMI should ask themselves, which include the needs of the customers, which **novel activities** should satisfy them, how these activities can be linked innovatively, who should perform them, how value for each stakeholder will be created and through which revenue model this can lead to superior performance for the firm (p. 45). In terms of artifacts functioning as BMI tools, Eppler & Hoffmann (2012) have explored collaborative business model generation. Within their research, they found that the usage of such artifacts, including sketches, objects and templates can positively affect business model innovation in terms of conflict resolution, collaboration in teams and problem solving (Eppler & Hoffmann, 2012, p. 396). The last BMI tools theme concerns sector-specific components and areas of interest. As various industries, ranging from fashion to telecommunications, have been examined, two overarching characteristics were observed. First, BMI, independently of the sector or industry, revolves around considerable changes in the firm´s micro and macro business environment. Second, the tools proposed to utilize these opportunities of change are highly **sector-specific** (Andreini & Bettinelli, 2017, p. 70). All of these BMI tools, although stemming from different research directions, have proven to enhance the process of innovating a firm´s business model, either during the process or afterwards in evaluation. Hence, these tools are relevant for this thesis and the purpose of answering the research question at hand.

3.1.4 BMI barriers

Business model innovation, as it has been discussed in this thesis so far, has change in its core. No matter the industry or company size, change is always prone to constraints and barriers of those opposing the innovatory processes. In recent BMI literature, these barriers are divided into external and internal hurdles. Research on **internal constraints** has explored the issues of limited time resources, excessive specialization, bureaucracy, cognition and leadership quality. Conclusively, these barriers are part of the organizational system of a firm and rely highly on case-specific existing business models of the innovating firm, thus can hardly be generalized (Andreini & Bettinelli, 2017, p. 71). While most of these firm-specific internal barriers can be overcome by utilizing certain management practices, **external constraints** prove to be more difficult to handle. Lange & Velamuri (2014) identified that national institutions can be crucial when innovating (parts of) the business model. Furthermore, social and cultural contexts are especially difficult for innovating firms to

influence. Such contexts may include customer rigidity or the perspective of business models in an ecosystem, as brought forward by Westerlund, Leminen and Rajahonka (2014). This specific research paper emphasizes the interconnectedness of various actors in emerging industry such as the field of Internet of Things, which possesses similar characteristics as the FinTech sector.

3.1.5 BMI enablers

In contrast to its barriers, BMI enablers are elements and processes to help, assist, support and facilitate the process of business model innovation. It is important to highlight the difference between enablers and, as described in later chapters, antecedents and drivers of BMI. While the drivers constitute various conditions, disruptions and other prerequisites for business model innovation, the enablers describe **supporting factors**. These enablers, according to recent literature, can be divided into three categories: organizational, technological and contextual (Andreini & Bettinelli, 2017, p. 72). Organizational enablers, according to recent studies on this emerging aspect of BMI, include factors such as market sensing and marketing channel selection as well as organizational design and governance competences (Simmons, Palmer & Truong, 2013; Carayannis, Sindakis & Walter, 2015). Technological enablers describe cloud computing, social networking and smart devices to be beneficial when innovating a firm´s business model (Shin, 2014). Contextual enablers, as the name suggests, are dependent on the respective cases or industries they arise in. Supportive multiagency contexts and emerging markets typically bear specific circumstances in which enablers may arise (Andreini & Bettinelli, 2017, p. 73).

3.1.6 BMI process

Within the theme of BMI process, there are three streams of research currently focused on by scholars: phases of BMI, conditions and characteristics and types of BMI processes. In terms of phases, from an organizational point of view, trial and error learning and strategy-making processes are at the center of attention (Khanaga et al., 2014) as well as commercialization and product innovation (Euchner & Ganguly, 2014). The stream of conditions and characteristics of BMI outlines the important factors of timing, market evolution, technology as well as the front-end and back-end of BMI (Andreini & Bettinelli, 2017, p. 74). In general, there are two different types of BMI processes mentioned in recent literature: **imitation and moderating**. When discussing imitation, researchers focus on the

final stages of BMI processes, specifically on the decisions of whether to conceal or reveal the innovation (Casadesus-Masanell & Zhu, 2013). From another point of view, BMI is seen as a moderator between current corporate culture, structure and strategic flexibility as well as between technology innovation and firm growth (Wei et al., 2014).

3.2 Antecedents of BMI

As mentioned in the previous chapter, business models and BMI are in most cases driven by considerable changes in society, economy, industry or within the firms itself. Due to the lack of construct clarity and common definitions and interpretations of BMI, there are only limited literature sources concerning these drivers of business model innovation. However, similarly to business model design antecedents, the BMI drivers can be divided into **external and internal antecedents.** The various antecedents, on a case-to-case basis, can be attributed to the distinct forms of business model innovation, which will be presented in chapter 3.3.

3.2.1 External factors

The external antecedents leading to business model innovation can be of various types. Changing demands of stakeholders, for example, play a considerable role in how firms are challenged when designing and updating their business models (Ferreira, Proença, Spencer, & Cova, 2013). Such stakeholders, in the context of banking within this thesis, are mostly retail customers, employees, shareholders and the government, as they are the most essential partners of the firm characterized according to stakeholder typology (Mitchell, Agle & Wood, 1997). Changes in the current competitive environment form another considerable external antecedent to business model innovation. A case study analysis by de Reuver, Bouwman & MacInnes (2009) suggest that such market drivers are especially relevant in the phase of research and development and less important during rollout and commercialization. Arguably currently the most challenging external drivers of BMI are **new information and communication technologies (ICT)** as observable in the emerging FinTech area. Firms are therefore forced to motivate the whole staff, not just top management, to become involved with environmental scanning for innovative technologies which could potentially benefit the company. Additionally, the firm´s customers can serve as a viable resource for technological changes as their demands can be directly analyzed and implemented (Wirtz, Schilke & Ullrich, 2010, p. 287). Since the 2007/08 global financial crisis regulatory responses to the

banking and financial industry have increased drastically and are currently on the verge of being scaled back once again. These changes in regulatory environments represent another considerable antecedent to business model innovation. Although regulation typically presents a level playing field for the market participants, there are opportunities arising for firms exhausting their room to maneuver within the law (de Reuver et al., 2009).

3.2.2 Internal factors

Only few studies examined external antecedents to BMI, albeit internal drivers receiving even less scholarly attention in recent years. This may be attributable to the fact that such in-house processes are highly individual and case-specific for the respective firm. Two important terms mentioned in academic journals emerged after the literature review in this thesis, which are **dynamic capabilities** and **open innovation**. Dynamic capabilities, according to researchers in this area are considered as the foundation of enterprise-level competitive advantage. The three key components of dynamic capabilities, as defined by Teece (2007), are the ability to sense opportunities and threats stemming from the competitive environment as well as internal risk factors, seizing those opportunities and subsequently reconfiguring the firm´s business model accordingly. Open innovation, as opposed to closed innovation, can be defined as the inflow and outflow of knowledge from a firm´s perspective. The **inbound dimension** of open innovation describes the internal usage of external information or innovation, while the **outbound dimension** specifies the activities of utilizing technological capabilities outside boundaries of the firm. Furthermore, open innovation requires a certain permeability of organizational and innovation processes to guarantee successful innovation (Saebi & Foss, 2015, p. 204). In addition, open innovation can only be successfully applied if the respective corresponding business model is chosen. For the four types of open innovation, which are market-based, crowd-based, collaboration-based and network-based strategies, the previously mentioned **business model design elements** of content, structure and governance must be closely monitored and adapted accordingly, which underlines the **interconnectedness** of open innovation and business model design as well as BMI (Saebi & Foss, 2015, pp. 206-207).

3.3 Forms of BMI

As mentioned numerous times before, the lack of congruence in research on BMI directly affects the ability to form definitions, typologies and overall construct clarity in this

area. Various scholars have attempted to introduce their own overview of ways to implement BMI from the perspective of different dimensions. While some focus on the difference between adaptive and more radical forms of innovation, two dimensions of analysis have recently succeeded and are used frequently in research papers: **scope and novelty** (Stieglitz & Foss, 2015, p. 112). The scope of BMI primarily describes to what extent and how many of the business models` existing components are innovated. In general, as agreed upon by various scholars, this can entail either a **modular or architectural change** of the business model. A modular change occurs when firms innovate only a minority of their business model components, for example banks offering fee & commission-generating services, changing their revenue structure. Architectural business model changes and innovations affect the majority business model components, although once again no clear boundaries or minimum numbers of components changed are defined in the BMI literature. It is important to consider the effect of complementarities when discussing the dimension of scope within the BMI context. In the case of low levels of complementarities between the different components of a business model, modular change is achieved more easily. When a firm´s business model complementarities are higher, architectural change is the prevalent form (Foss & Saebi, 2017b, p. 16).

The second dimension, novelty, has been discussed from several different angles. Stieglitz & Foss (2015) define this dimension as the depth of change, dividing between **incremental and radical** innovations. Incremental changes to the business model occur frequently when industry dynamics or technologies are changing (due to overall innovation or disruption from emerging firms and startups), requiring the firm to adapt one or more of its modules accordingly. Radical innovations, in practice, represent the introduction of novel modular or architectural changes, often disrupting whole industries. Combined, these two dimensions of depth and scope lead to four distinct types of business model innovation, according to Stieglitz & Foss (2015), as displayed in *table 4.*

Table 4. Types of BMI

Depth of change Scope of change	Incremental	Radical
Modular	**Continuous BMI**	**Ambidextrous BMI**
Architectural	**Evolutionary BMI**	**Revolutionary BMI**

Note BMI depth and scope of change, resulting in four types of BMI (Stieglitz & Foss, 2015, p. 113)

Similarly, Foss & Saebi (2017a), define the dimensions of novelty and scope, although dividing the novelty parameter into the factors **"new to firm" and "new to industry"** (p. 218). In *table 5* below, the subsequent four distinct BMI types are presented.

Table 5. Types of BMI

Novelty of change Scope of change	New to firm	New to industry
Modular	**Evolutionary BMI**	**Focused BMI**
Architectural	**Adaptive BMI**	**Complex BMI**

Note BMI novelty and scope, resulting in four types of BMI (Foss & Saebi, 2017a, p. 218)

As the novelty dimension in *table 5* provides a clearer, more distinct differentiation between its two sub-factors, the BMI type classification by Foss & Saebi (2017a) will be utilized within this thesis. The following chapters will explore each type of BMI in more detail including industry-specific examples from banking.

3.3.1 Evolutionary BMI

The first type of BMI as defined for this thesis is evolutionary business model innovation. This form occurs when a company changes the business model on a component/modular level which is new to the firm. These evolutionary changes are the most common of the types as they are expected to **occur naturally** over the lifetime of a firm, frequently in response to changing external influences, such as disruptive competition or new regulatory requirements (Foss & Saebi, 2017b, p. 14). Evolutionary BMI is besides referred to as the process of fine-tuning (Demil & Lecoq, 2010, p. 239). One fitting example for this type regarding the banking industry is the adoption of online banking services by traditional banks. This innovation usually primarily involved the business model component of distribution channels and was a novel way of administering their services, thus functioning on the modular and new to the firm dimensions.

3.3.2 Adaptive BMI

Similar to evolutionary BMI regarding the novelty dimension, adaptive BMI entails changes of the whole business model architecture, involving multiple, but rarely all

components of a firm´s business model. Once again, this form of BMI is mostly utilized in response to **changing industry structures** but entails a more radical approach to change. An example from the banking industry of adaptive BMI can be the integration of corporate banking in addition to retail banking. Such a decision ultimately influences, first and foremost, the targeted customer segments and subsequently, the revenue and cost structure, distribution channels and value proposition of the whole business model. Corporate banking for a retail-only bank is a novel way of doing business, thus new to the firm, involving multiple components of the existing business model, making it an architectural change, thus resulting in adaptive BMI.

3.3.3 Focused BMI

The next two forms of business model innovation presented in this thesis will describe changes that are novel to the whole industry the firm is participating in. When the firm implements innovations, which are new to the whole industry on a modular basis, the change can be defined as focused BMI. As the first two types of BMI are mainly driven by dynamic industry developments and disruptions of others, focused BMI is characterized by active management engagement to **become the industry disruptor** in the respective sector. Focused BMI may include various decisions a firm can make, such as targeting new customer segments previously ignored by the competition or introducing new distribution channels (Foss & Saebi, 2017b, p. 14). In banking practice, this type of business model innovation can entail various strategic choices, such as the introduction of cryptocurrency trading desks in established banks. This activity would not affect the core business of a bank but would bring in additional revenue sources the competitors had not yet considered.

3.3.4 Complex BMI

Arguably, the rarest form of business model innovation used in practice is complex BMI. For this type to be present, the business model must be changed on an architectural level with innovations new to the whole industry the firm participates in. The focus on **disrupting the whole industry** is even stronger than with focused BMI as the innovating firms usually take considerable risks when dramatically changing the whole or large parts of the business model. This form of BMI is extremely rare in the banking industry and can hardly be found as an example. However, the case of the German bank Norisbank, a subsidiary of Deutsche Bank, which in 2012 shut down all of its branches to transform into a direct retail bank,

presents an instance of complex business model innovation in banking practice (Handelsblatt, 2012).

3.4 Intermediate summary

This chapter outlined the most recent research on business model innovation and its most important definitions and components. First, three general research directions on BMI were presented, including their respective foci and definitions of the BMI term. Subsequently, the **definition of BMI** as the activities ranging from incremental changes in business model components to extending current business models, introducing new, simultaneously functioning business models or disrupting the extant model up to the point of completely replacing it, was determined for the context of this thesis. Afterwards, **outcomes of business model innovation** as well as respective implementation tools were discussed before presenting relevant enablers, barriers and processes. In terms of outcomes, various industry-specific financial performance indicators are utilized to measure BMI in current literature and research. The next part of this chapter focused on the **antecedents and drivers** leading to business model innovation. Two important terms emerged when exploring internal antecedents: dynamic capabilities and open innovation. The external drivers were divided into several categories, including changing stakeholder demands, competitive environment, information and communication technology and regulatory requirements. The final part of the chapter outlined the various forms of business model innovation as defined in current literature. The two dimensions of scope and novelty of change are utilized to classify four types: **evolutionary, adaptive, focused and complex BMI.** All types were briefly explained including exemplary use cases from the banking industry.

4 Business models and BMI in banking

The previous chapters exhaustively examined the business model and BMI in general, with its many interpretational streams, the lack of common terminology and definitions as well as how a business model can be designed. As there have already been examples of FinTechs and banks during the previous chapters, this upcoming chapter will focus on the various business models and BMI banks employ in practice. At first, the general three large groups of banks will be presented and discussed: **retail**, **wholesale** and **investment** including their distinctive characteristics regarding their business models. Later, **direct retail banking** and other special forms of banking business models will be presented, including current FinTech industry leaders disrupting the markets. Subsequently, the focus will be put on business model innovation in banks and how the previously defined four types of BMI are used in the industry.

4.1 Banking Business Models

Although, as mentioned in the chapters before, there is a considerable increase in literature in the generic area of business models, specific research on banking business models appears scarce. After exhaustive searches on the various online platforms for scientific journals and other literature, only a small amount of usable papers could be found. This marks a significant **research gap** and is to be filled, in parts, by this thesis.

There are various ways in which business model groups banks are categorized by different scholars and practitioners, ranging from their ownership structure, size or funding structure to whether they are **publicly listed** on a stock exchange or not (Köhler, 2015). Roengpitya, Tarashev & Tsatsaronis (2014), in their analysis of over 200 international banks on banking business models, identify three different forms: retail-funded commercial, wholesale-funded commercial and capital markets-oriented banks (p. 55). The authors used eight input variables to categorize the banks into the three clusters, which are total loans, net securities, size of trading book, interbank lending, customer deposits, wholesale debt, stable funding and interbank borrowing (Roengpitya et al., 2014, p. 57). Retail-funded banks, in this instance, are characterized by the high share of loans in their balance sheet and reliance on deposits as funding source. Wholesale-funded banks are found to be quite similar to retail-funded banks in terms of asset structure, however have a higher share of interbank liabilities and wholesale debt, relying less on customer deposits. Capital markets-oriented banks have

on average half their assets invested in tradeable securities and are wholesale-funded (Roengpitya et al., 2014, p. 59).

Other researchers follow similar methodologies when categorizing banks into distinct banking business models. Ayadi, de Groen, Sassi, Mathlouthi, Rey & Aubry (2016) identify **five business models** in their examination of European banks: focused retail, diversified retail (type 1), diversified retail (type 2), wholesale and investment. By analyzing European (EEA & Switzerland) banks covering over 95% of the total assets from 2005 to 2014, the researchers used a variety of indicators: bank activities (including loans, deposits, trading etc.), ownership structure (shareholder value, nationalized, cooperative, savings, public, etc.), financial performance (RoA, RoE, NII, trading income), risk profile and regulatory KPIs. Out of these indicators, five key instruments of determination were developed and examined: loans to banks, customer loans, trading assets, debt liabilities and derivative exposure (Ayadi et al., 2016, pp. 14-17).

The previously mentioned five banking business models were the result of a cluster analysis. Focused retail banks are characterized by the highest percentage of customer loans to total assets (78.5%), customer deposits account for almost 70% of funding, trading assets and bank loans are relatively low. The remaining two types of retail banks have greater **variability in activities and funding**, as diversified retail (type 1) has 31% trading assets and 10% bank loans with high reliance on customer deposits in terms of funding. Diversified retail (type 2) consists of 22.6% trading assets, however, is funded mostly by debt liabilities (over 40%). Wholesale banks focus **on intermediation between banks**, including interbank lending (52%) and funding (22%). The final business model identified is investment banks, which are characterized by their **trading activities** accounting for 60% of assets and derivative exposure of 5%. These banks are, on average, the largest in terms of assets (€ 123 billion) (Ayadi et al., 2016, pp. 20-21). The disadvantage of both these analyses of banking business models is that, within their frameworks, the business model in general is not scientifically determined and defined, merely focusing on banking activities and funding. As previously described, the notion of business models as attributes of real firms requires more parameters to be examined. These two frameworks by Ayadi et al. (2016) and Roengpitya et al. (2014) to determine banking business models are suitable to analyze a wide range of banks without allowing a deeper exploration of individual entities. Therefore, the business model canvas will be used in the following subchapters to extend the **analysis framework** and enable more precise distinctions between banking segments and their business models. As

both classifications used similar categories to determine a bank´s business model, three categories of business models will be used henceforth and built upon by adding more parameters: retail, wholesale and investment banks. The last decades of consolidation in the banking industry have led to the custom of banking groups, split either into subsidiaries or departments employing their own specific business models. Therefore, banks in the real economy need to be examined either from a combined business model group point of view or from a separate business model point of view.

4.1.1 Retail banking

As mentioned before, the business models of banks, in recent literature, have been primarily distinct by the parameters of activities and funding structure. In regards to funding, retail banks have traditionally been financed primarily through **debt capital**. After the crisis of 2007/08, stricter regulations in terms of capital structure were formed, with the latest instance being the **Basel III reform**, raising regulatory capital ratios and equity requirements yet again (Crespi & Mascia, 2018, p. 11). During and after mentioned crisis, banks across all types of business models registered severe losses and decreasing RoE. Retail banks, however, were the first type of banks to recover and stabilize relatively fast, while wholesale and investment banks were troubled for longer periods. Especially the risk-adjusted RoE of retail banks is significantly higher than average across all business models (Roengpitya et al., 2014, pp. 60-63). In *figure 4,* the traditional retail bank will be examined from the perspective of a banking business model canvas, including more parameters than merely activities and funding structure. The main customer segments include regular **retail clients** for deposits, loans and advisory services as well as corporate clients with their respective demands. Retail banks use various distribution channels, including own **branches**, ATMs, online and mobile banking services and call centers for 24/7 support, in most cases. Their relationships are enacted through personal customer service, advice and assistance and automation, a process increasing in importance. Key partners of retail banks include, on the one hand, insurances, **technology & IT firms**, legal counsel and real estate partners. On the other hand, regulators, rating agencies and central banks can be categorized as partners. Key resources are IT structures, proper expertise and talent in their staff and HR, the capital structure and reputation of the bank. These resources enable retail banks to offer their main activities of deposits, mortgages and consumer loans and other services. This ultimately leads to the central **value proposition** of offering attractive interest on deposits combined with

personalized advice, physical proximity and a variety of (digital) access channels for their consumers. On the lending side, attractive loan interest rates are important in connection with proper lending terms and (corporate) advisory. Interest income and fees & commissions represent a retail bank´s revenue streams, while costs arise from interest paid, staff and regulatory expenses. Ultimately, the previously mentioned funding sources are comprised of deposits, equity capital, debt instruments as well as bank liabilities.

Figure 4. Retail banking business model canvas

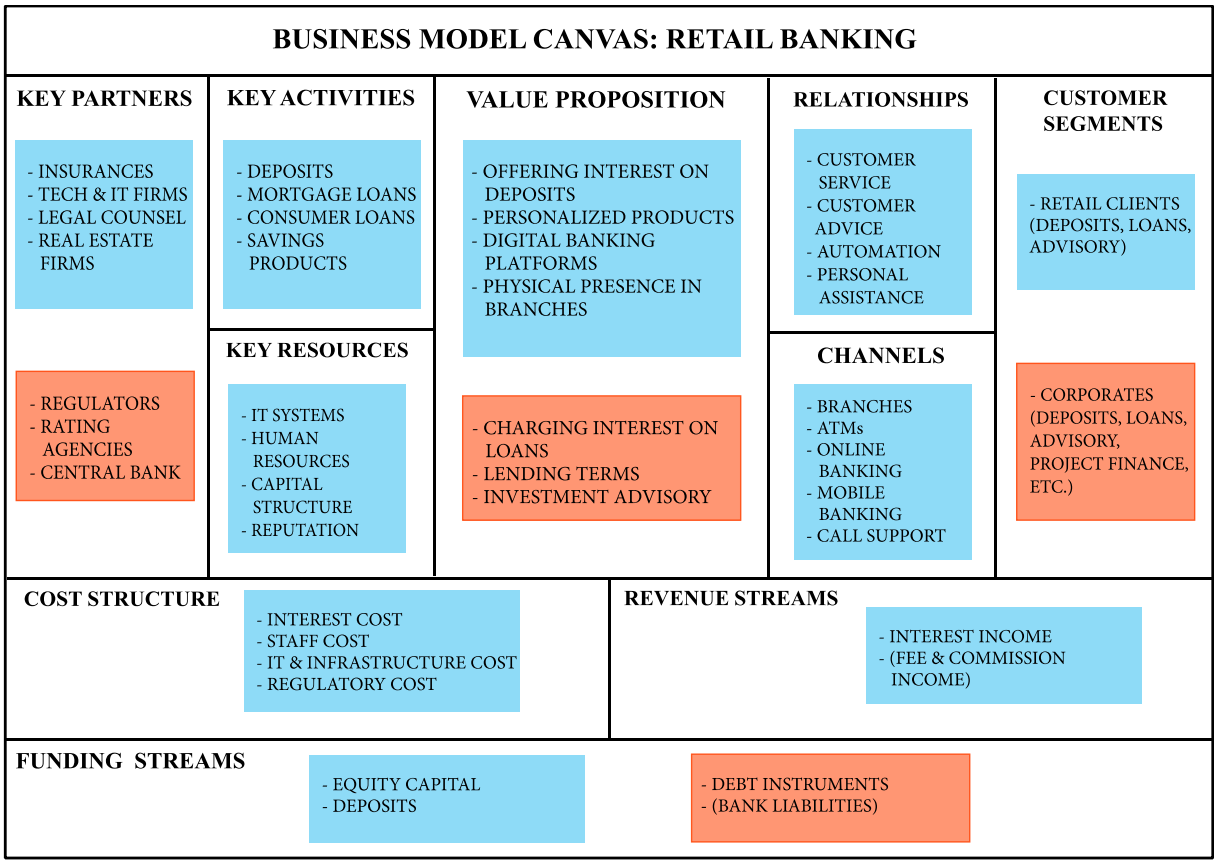


Figure 4. Business model canvas, adapted for retail banks, own illustration, in reference to Nielsen & Lund, 2013, p. 17

4.1.2 Wholesale banking

Wholesale banks offer a similar set of activities as retail banks in general, but focus on different areas and are mainly characterized by their distinct sources of funding. Wholesale banks, in Europe, represent the smallest form of business models and are mostly active in domestic markets (Ayadi et al., 2015, p. 91).

After large losses in trading income during the financial crisis in 2007/08, wholesale banks refocused and reduced their trading activities within their business models. In terms of main activities, wholesale banks have by far the highest ratio of **loans to other banks**, with

an average of over 50% of total assets. Customer loans represent around 20%, while trading assets account for 17%. The funding sources of wholesale banks also differ from the other types of business models as they rely, more than average, on interbank funding (22.4%) and, less than retail banks, on customer deposits (51.8%). It is noteworthy that their **equity ratio** is, on average, the highest across all banks at over 14%, compared to about 7.5% in retail banks and 9.8% in investment banks (Ayadi et al., 2015, p 22). As discussed previously, the business model canvas will be used to highlight wholesale business model specifics, displayed in *figure 5.* In comparison to retail banking, wholesale adds bank clients to their customer segments, as they are heavily involved in **interbank lending**. In terms of channels, more emphasis is put upon branches and face-to-face contact with partners rather than expanding online services as their relationships are based on **direct contact** with representatives of the bank. Key partners include insurances, legal counsel and investment partners as well as, of course, **other banks,** rating agencies, regulators and the central bank. The key resources are represented by their human resources, reputation and, very importantly, capital structure, which lead to their core activities of offering deposits, giving loans to banks and funding themselves through bank loans. The subsequent value proposition is offering physical presence and expertise and providing attractive funding for other banks as well as corporates, while simultaneously raising funds from banks to finance these loans. Their cost and revenue structure is similar to retail banks, although more emphasis is put on net interest income, while funding focuses clearly on bank liabilities and customer deposits.

Figure 5. Wholesale banking business model canvas

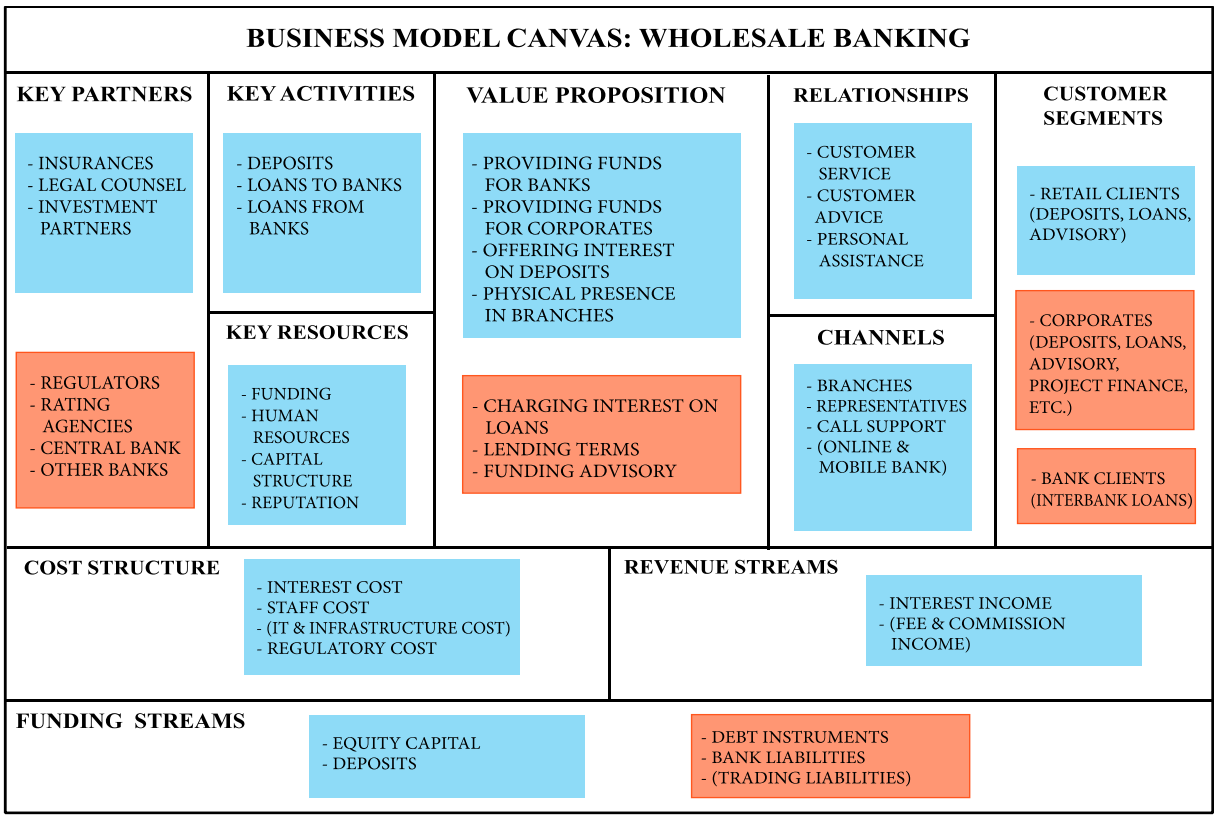


Figure 5. Business model canvas, adapted for wholesale banks, own illustration, in reference to Nielsen & Lund, 2013, p. 17

4.1.3 Investment banking

The most unique banking business model of the main three is that of investment banking. This business model registers distinct features in comparison to retail and wholesale banking, e.g. being by far the **largest group** of banks in Europe in terms of total assets. According to Ayadi et al. (2016), investment banks are most active in trading, which accounts for over 60% of total assets. Loans to banks are on par with the average at slightly over 11%, whereas customer loans only amount to less than a quarter of the bank´s assets. While, in terms of funding, customer deposits are below average at under 50%, debt liabilities and derivative exposure are more distinct features compared to the other banks, with around 20% and 5%, respectively. Once again, the business model canvas will be used to display all parameters of the investment banking business model, as shown in *figure 6.*

Investment banking is characterized by its distinct key activities, which are, among others, proprietary trading, asset management, M&A and underwriting. They typically have corporate, institutional and bank clients, which they have specified teams assigned to, working on and off site, depending on the case and service offered. Investment banks do not require branches as retail and wholesale banks do and find their key resources in human

resources and talent management, efficient (trading) **fee & commission** management and reputation. They utilize partnerships with brokerage firms, insurances, regulators, stock exchanges and central banks. The majority of their income is based on trading (fees & commissions as well as proprietary) and interest income, their cost structure is similar to other bank types, except for a higher percentage of trading cost. Funding is achieved mostly through **debt instruments**, bank and trading liabilities, only a smaller fraction through deposits. The main value proposition of investment banks is their expertise and talent they attract, enabling them to offer superior analysis, market knowledge and forecasting. This subsequently results in positive outcomes for both their customers and their own trading balance.

Figure 6. Investment banking business model canvas

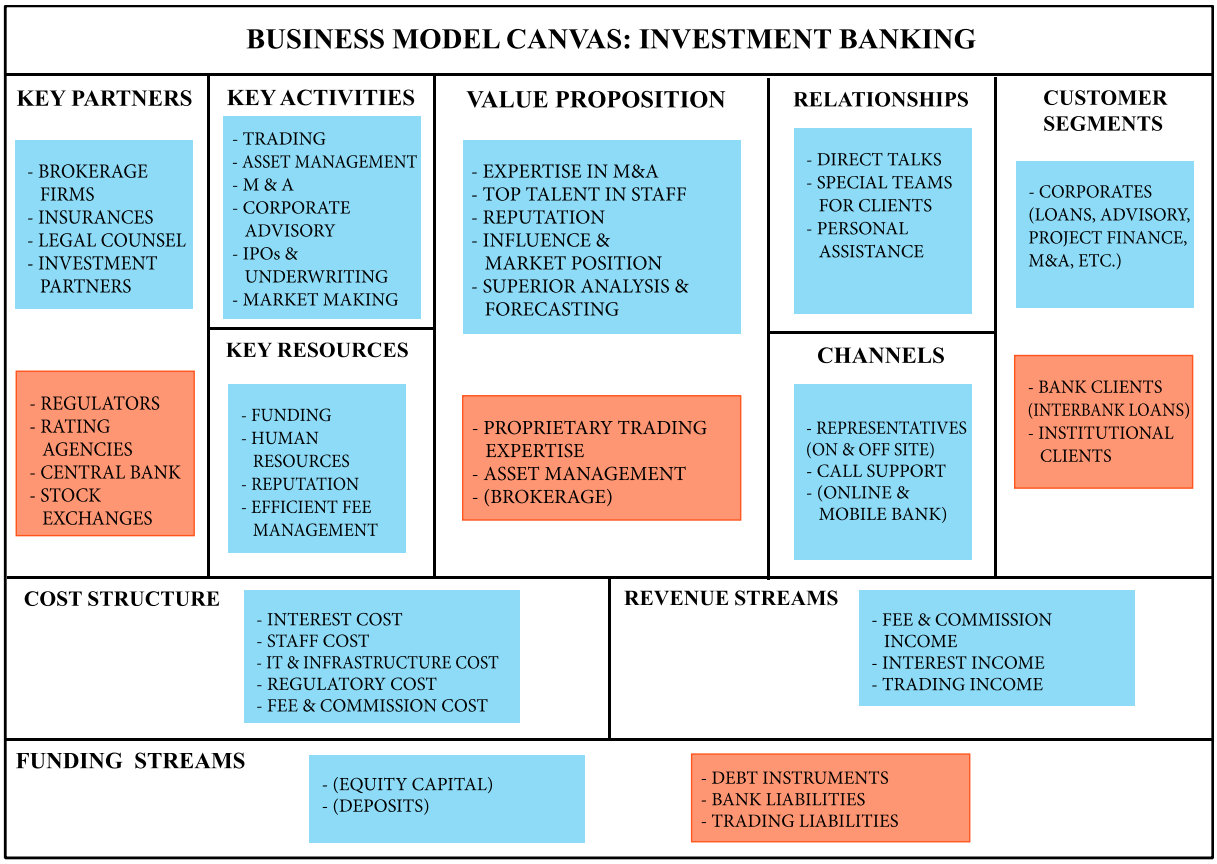


Figure 6. Business model canvas, adapted for investment banks, own illustration, in reference to Nielsen & Lund, 2013, p. 17

4.1.4 Direct retail banking

One specific banking business model emerged in the 1990s, with the rise of the internet and digitalization of the time: **direct banking**. This term had previously been used to

refer to banks **without a branch network**, solely operating on communication via telephone. With the disruptive technology of the internet, direct banks started operating through online channels. These banks can have various foci, including wholesale, investment and retail offerings. Within this thesis, however, the main attention will lie on direct **online** retail banks, as they can be seen as the "first line of defense" against growing competition and the danger of disruption by the FinTech industry. In general, the key partners, funding, cost and revenue components of the business model of direct retail banks are similar to traditional retail banks. Considerable differences arise in the area of distribution channels, value proposition, key activities and resources, customer segments and relationships.

4.1.5 Other forms of banking

As the most prevalent banking business models have been described in the previous parts, this chapter will examine other banking business models, which are more specialized in their service and product offerings. These new business models are mainly characterized by their high focus on **digitalization and new technologies**, including Blockchain, artificial intelligence, gamification and large-scale automation. Nearly every traditional banking activity is affected by the current digital disruption: payments, deposits, lending, investment advisory & brokerage as well as capital raising (Kobler, Bucherer, & Schlotmann, 2016). These new business models cannot be displayed within the business model canvas as they are extremely **heterogeneous** in nature and still emerging into clusters.

4.2 Banking BMI in practice

Thus far, this chapter has put focus on the most prevalent business models used in the current banking industry. Based on the business model canvas, the various business model components were identified and categorized. As there is a considerable lack of theoretical literature on banking BMI, this chapter will, accumulated by practical examples, explore the currently most relevant innovations banks are facing. These innovatory challenges will be attributed to the respective components of the business model canvas.

4.2.1 Key partners

As previously mentioned, traditional banking business models typically have similar key partners, such as legal counsel, brokerage firms, regulators and rating agencies. Fidor Bank recently innovated this component of their business model as they introduced

"FinanceBay", which serves as an open banking platform similar to an app store, where customers are able to compare and select banking products from various providers. These products include insurances, investment, trading and financing, focusing on FinTech companies offering their services (Fidor Bank, 2018). This example shows the new dynamics and opportunities in partnerships innovative and disruptive FinTech companies can provide for incumbent banks. Therefore, it is not always necessary to compete with disruptors, but rather cooperate and create beneficial scenarios for the companies involved as well as the consumer.

4.2.2 Key activities

Although the key activities, such as deposits, loans and mortgages, at the core of banks are likely to remain unchanged in the near future, new industry participants are seeking to compete for single activities of traditional banks' business models. Lending facilities, for example, no longer have to be organized with or through a bank, but can be crowdsourced. As the example of Lendico, a German peer-to-peer provider shows, people are ready to invest their money directly into loans other people are willing to take (Lendico, 2018). Banks are and will be forced to update their key activities by either focusing on certain types or offering more added value for their customers as a "one-stop-shop".

4.2.3 Key resources

Previously, key resources within a traditional bank´s business model were, first and foremost, reputation and sound capital structure combined with competent staff and human resources. Although the factor of staff being required remain unchanged, the number of people used in the various departments shifted radically. Nowadays, as numerous examples from direct banks show, information technology and automation increase in importance instead of the traditional branch employees serving customers on a face-to-face basis. The Austrian Easybank, a subsidiary of BAWAG P.S.K. AG, for example offers a comprehensive product portfolio available online, ranging from easy-to-use deposit accounts to leasing products (Easybank, 2018b). Furthermore, reputation and trust in traditional banks has decreased in recent history, partly due to the global financial crisis of 2007/08. Direct banks and even other companies not defined as banks are trusted more by their consumers than traditional banks, according to a recent study (Ernst & Young, 2016, p. 5).

4.2.4 Value Proposition

In terms of value proposition, banks need to identify customers' changing demands in a world of increasing digitalization, mobility and convenience. The generic offering of deposit and loan products through physical branch offices will not ensure the sustainable survival of traditional financial institutions, especially considering the emergence of more and more FinTech companies specializing in these trends (Alt & Puschmann, 2016, p. 217). A suitable example of this development is N26, another German bank, which focuses purely on mobile banking, determining it as their core value proposition. Consumers seem to accept this proposition, as N26 currently reports € 1 billion in monthly transactions and one million customers (N26, 2018).

4.2.5 Relationships & distribution channels

Face-to-face meetings and personal assistance have always been core relationship tools banks used to acquire and retain customers. With increasing levels of digitalization, these tools decrease in importance and relevance. Similarly, the traditional distribution channel of physical bank branches is not as crucial as it used to be. This is proven by a study by Postbank (2017), stating that the internet is increasing in importance especially for customer acquisition (p. 3). An example of these developments was made by Norisbank, a subsidiary of Deutsche Bank, as briefly mentioned in a previous chapter. In 2012 all physical branches were shut down to transform the company into a fully direct bank, offering their services online (Handelsblatt, 2012). Since then, Norisbank was able to attract over 560.000 customers with its full retail product range (Norisbank, 2018).

4.2.6 Customer segments

Customer segments is one component of the business model of banks which is unlikely to change due to the danger of financial innovation. However, it is worth mentioning that direct banks have a considerable advantage compared to traditional banks, as they are able to offer their services across borders, if permitted. Especially in Europe, this has been a major development under the "single passport" for financial services. If a financial institution obtains this license in one European Economic Area country (EEA), it is eligible to offer its services across the whole EEA (European Parliament, 2017). Furthermore, especially in the age groups of millennials, non-traditional banking is considered more attractive than its

traditional predecessor, indicating opportunities and risks for financial institutions in the wake of innovative FinTech participants (Fair Isaac Corporation [FICO], 2014).

4.2.7 Cost & revenue structure

Traditional retail banks are usually comprised of two large sources of revenue: interest income and fees & commissions. The cost structure is made of the respective counterparts of interest cost and fees & commissions paid by the bank. General cost positions, occurring in most industries, are staff, infrastructure and IT costs, although those depend heavily on the business model employed by the bank. Direct banks, for example, reduce their infrastructure cost by foregoing physical branches, while traditional retail banks may save cost in IT. The industry trend is clearly pointing towards decreasing branch presence and strengthening online services. Both Norisbank and N26 can be used again as examples, as they eliminated all branch cost in their business models, focusing heavily on digital presence and product development.

4.2.8 Funding

The funding structure of financial institutions has become the center of attention for regulators, the media and even the general public in recent history, especially after 2007/08. With the introduction of Basel III and its capital requirements, banks were no longer able to freely decide on their funding structure (Bank for International Settlements [BIS], 2011). As all banks are required, based on their risk-weighted assets, to have certain levels of equity capital, the only notable differences arise in banks financing themselves through mostly deposits (e.g. retail banks) or through debt liabilities (e.g. investment banks). It is however important to mention that new competitors to core activities of banks, such as lending, sometimes do not need to adhere to these requirements. The previously mentioned company Lendico, for example, merely offers the platform to connect lenders and borrowers, not requiring a banking license (Kurier, 2014).

In summary, traditional banks are facing considerable challenges and disruptions in every component of their business models. FinTech startups are already acquiring customers from incumbents with their dynamic, consumer-centric and highly digitalized strategies and products, urging banks to revisit, update or innovate their existing business models. However, the apparent lack of theoretical and empirical research on banking business model innovation

is another token of evidence for the relevance of this thesis, especially when considering the geographical regions of Austria and Germany as well as the industry of direct retail banks.

4.3 Intermediate summary

The first part of chapter 4 shifted the focus on the banking industry and its core business models. After two in-depth analyses of international and European banking industries and its underlying participants were given, these were divided into different banking business models. While Roengpitya et al. (2014) defined three models: retail, wholesale and investment, Ayadi et al. (2016) extended this to five classifications. For simplicity reasons, **retail**, **wholesale** and **investment** banking were determined as the main business models for this thesis. Subsequently, each business model was examined thoroughly in terms of activities and funding structure before being displayed with the help of the business model canvas. The canvas includes each business models' key activities, resources, partners, relationships, customer segments, channels, value propositions, revenue and cost structure as well as funding. Investment banks were found to be the most unique in terms of their business model, while retail and wholesale had similar characteristics with different weights and focuses. An important part of this segment of the master thesis was chapter 4.1.4, describing the business model of direct banking. Similar to traditional retail banking, although radically different in terms of distribution, value proposition and other components, direct retail banks will be placed at the core of the empirical part of this thesis. Chapter 4.1.5 briefly touched upon other topics around banking business models, such as **Blockchain** and **artificial intelligence**, which cannot yet be categorized with a universal framework as the business model canvas. These technological and digital developments, however, are poised to further disrupt the financial services industry in the upcoming years and are therefore crucial to be kept in mind and observed. The second large part of chapter 4 focused on banking business model innovation. This was presented by utilizing the business model canvas and analyzing each component from the perspective of the banking industry. It became apparent that **every single component** is already or will be challenged by innovative competitors, highlighting the urgent need for business model innovation in banks.

4.4 Conceptual model of BMI

As the theoretical part of this master thesis is now concluded with this chapter, the various concepts and components of business model innovation are summarized and

displayed as a conceptual model, serving as the foundation for the empirical part to follow. The presented antecedents, in most cases, serve as the first impulse within an existing company to revisit and examine the current business model. These antecedents, or drivers, can be of internal or external nature. Internal drivers can include poor (financial) performance, changes in shareholder demands or management transition, but are always dependent on dynamic capabilities and open innovation within the organization. External drivers are developments not amenable to the firm and include changing stakeholder demands, shifts in the competitive environment, new (financial) information and communication technologies and political or regulatory changes. These antecedents, first and foremost, serve as the basis and reasoning behind innovating the existing business model, in the form of either evolutionary, adaptive, focused or complex BMI. It is important to note that, depending on the business model design, different forms of BMI are expected to achieve superior outcomes than others. Consequently, efficiency-centered designs provide a better organizational fit for evolutionary and adaptive BMI. In order to identify, in practice, the business model design of a company, the previously mentioned elements of content, structure and governance need to be analyzed and assessed correspondingly. The subsequent outcomes of BMI can be summarized with the term competitive advantage, which is comprised of several, typically industry-specific KPIs. For the banking industry these KPIs can be defined as: cost efficiency (in the form of cost/income ratio [CIR]), net profits, return on equity (RoE) and the amount of

customers. It is important to note that the antecedents influencing the choice of BMI, also represent a source of influence on the performance outcomes, thus the later categorization as control variables. *Figure 7* below displays this whole conceptual logical chain of BMI.

Figure 7. Conceptual model of BMI

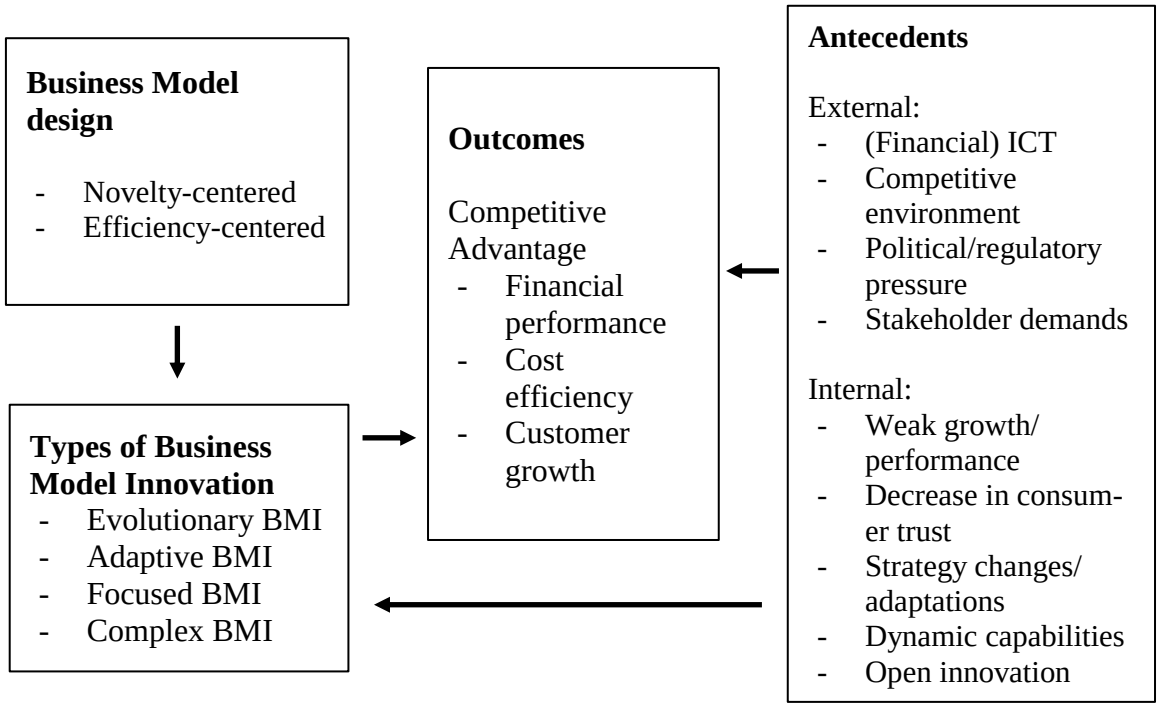


Figure 7. Conceptual description of BMI, leading from antecedents to business model design and types of BMI, resulting in specific outcomes

5 Empirical part: Comparative case study on BMI in direct retail banks in Austria & Germany

The research questions presented in the beginning of this master thesis have to be sufficiently answered in order to contribute to the research gap and current problems the banking industry is facing. Therefore, it is necessary to choose the right empirical method of examination. As the theoretical research questions were already answered within the respective previous theory chapters, the remaining empirical research questions are the focus of this chapter. For this purpose, after assessing various methodologies of examination, the comparative case study was determined as the most suitable option as it allows for both qualitative and quantitative analysis of the subjects at hand. Subsequently, this chapter will first explore the merits of the comparative case study design, the population and sampling process and operationalization of the research questions before presenting the outcomes of the actual analysis.

5.1 Comparative case study design

As mentioned in the beginning of this chapter, the comparative case study was found to be the most suitable method to arrive at answers to the research questions brought forward. The specific comparative case study utilized will be a within-case study (Mills, Eurepos & Wiebe, 2010, p. 174). Subject of the case study will be **direct retail banks**, as described in the previous theory chapter, as they represent a type of banks in constant demand of innovation, relying on their online distribution channels and presence. As FinTechs and other dynamic startups also use these approaches as their key value propositions, direct retail banks are endangered by industry disruptions stemming from new technological innovations and business models. Focus will be put on Austria and Germany, as no current research on business model innovation in banks within this region can be found at the time this thesis is drafted, presenting a research gap and the urgent need to fill it. Furthermore, the research will be of a **time-series cross-sectional design**, as several cases are studied during matching time intervals, also referred to as cohort-sequential designs (Mills et al., 2010, p. 267). The first step in the examination, after the sampling and operationalization process is concluded, will be the creation of a business model canvas for the beginning of the research period for each sample bank, before the exploration of noteworthy innovations is carried out. Each innovation is assigned to the business model component(s) changed by it, ultimately creating a new business model canvas for the end of the period. Both canvases will then be compared to

identify considerable changes, enabling the determination of the scope of BMI. By further determining the novelty of the innovations, the final BMI type of either evolutionary, adaptive, focused or complex is concluded. This BMI type can then be contrasted against the four industry-specific performance KPIs obtained in advance.

In chapter 5.1.1, the sampling process and population of direct retail banks will be presented to provide the reader with an understanding of how and why the case study banks were chosen. Chapter 5.1.2 will describe the operationalization of the research questions as well as the sources and the processes of data analysis within the comparative case study at hand.

5.1.1 Sampling process

The regional focus within this methodology lies on Austria and Germany. The current lack of practical examinations of business model innovation in this area justifies the choice of these countries. In addition, especially the banking industry leaves no research on business models or business model innovation to be found in Central Europe, further urging the author to fill this apparent gap in knowledge. As doubts may arise from the comparability of banks from two different countries, Austria and Germany were analyzed in terms of macroeconomic preconditions, the state of the banking industry and other, more general factors to prove the similarity. In terms of GDPs, both are comprised of similar sector weights, as displayed in the following *table 6*.

Table 6. GDP composition Austria & Germany

	Austria (AT)	Germany (GER)
GDP (in billion €)	349.49	3,263.40
Primary sector	1.1%	0.7%
Secondary sector	28%	30.5%
Tertiary sector	70.9%	68.7%

Note GDP & sector view AT & GER (Wirtschaftskammer Österreich [WKO], 2017; Statistisches Bundesamt, 2018)

The banking industry of both countries contributes highly similar amounts to the overall GDP, with 3.8% of the total economic performance attributable to financial institutions and insurances (WKO, 2017, p. 1; Statistisches Bundesamt, 2018, p. 11). In addition to the macroeconomic indicators and regulatory requirements by the EU, Austria and

Germany share a homogeneous culture, common traditions and historical proximity, resulting in highly comparable societies and economies, including the banking industry. These factors, among others, lead to the strong trade relationship between the two countries, with Austria importing 36.8% from and 30.1% to Germany (WKO, 2018, pp. 1-2). Furthermore, the absence of language barriers contributes to the choice of these two countries for the context of this master thesis. After the country selection was carried out, suitable and comparable direct retail banks were required to be chosen. As direct banks of all sorts are available for EU citizens, regardless of the country they reside in, the respective sample banks had to be based and operated in Austria or Germany. *Table 7* below provides an overview and breakdown of the number of banks active in both countries.

Table 7. Number of banks in Austria and Germany

	Austria	Germany
Total banking licenses	570	1,624
Universal banks	491	1,575
Direct retail banks	11	34

Note Total number of banks, number of retail and direct retail banks (European Central Bank [ECB], 2018; OENB, 2018b; 2018c, Deutsche Bundesbank, 2018a; 2018b)

The total number of banking licenses was obtained from the database of the ECB (2018), indicating 570 banks active in Austria and 1,624 in Germany. The breakdown of universal banks was then executed based on data from the respective national banks, the OENB (2018c) and the Deutsche Bundesbank (2018a). In Austria, 491 universal banks are in business, while in Germany the number is 1,575, which make up the vast majority of total banking licenses in both countries. The criteria for singling out the direct retail banks out of the vast number of universal banks were threefold: offering of retail products such as deposits, loans and credit cards, having no branch network for distribution and offering their services online and not merely via telephone orders. In terms of identifying direct retail banks, the OENB (2018b) provided a report on their performance between 2013 and 2016, referring to 9 banks. Upon own research of new direct retail banks which obtained licenses after 2016, two more banks were added, totaling 11, which are displayed in *table 8* below.

Table 8. Austrian direct retail banks

Easybank AG	Steyler Bank GmbH
Generali Bank AG	Porsche Bank AG
ING-Diba Austria	TeamBank AT
Hellobank BNP Paribas Austria AG	DADAT
Autobank AG	Bankdirekt.at
Bankhaus Denzel	

Note List of Austrian direct retail banks, own selection based on OENB (2018b)

The banks mentioned in *table 8* were further analyzed in regards to their ownership and sources of information which can be used in this case study. One of the oldest direct banks in Austria, Easybank AG, was founded in 1997 and is a 100% subsidiary of BAWAG P.S.K AG, currently leading the market in the direct banking segment in Austria with over 1.3 million customer accounts (Easybank, 2018a). Generali Bank AG, owned by the Italian Assicurazioni Generali S.p.A., offers the whole retail customer product range except loan origination and currently manages 51,000 accounts (Generali Bank, 2018). ING-Diba Austria is a non-branch establishment of ING-Diba Germany, offering all retail products required within this classification, currently managing over 500,000 client accounts, making ING-Diba the second largest direct retail bank in the market (ING-Diba, 2018). Hellobank is the direct bank subsidiary of the BNP Paribas Group and specializes in investment depot services while additionally offering traditional deposits for its customers. Funded in 1995 and acquired in 2014 by BNP Paribas, the bank manages around 85,000 client accounts (Hellobank, 2018). Bankdirekt.at is the subsidiary of Raiffeisenlandesbank Oberösterreich and a smaller player in the market offering its 19,000 clients, as of 2015, the full retail product range of deposits, loans, investment depots and savings products (bankdirekt.at, 2015). The last direct retail bank identified according to the requirements is DADAT Bank, the youngest in the list. Founded in 2017 and owned by the GRAWE Group, all retail products are offered to its customers, which are approaching 10,000 accounts (Fonds Professionell, 2018). The customer rankings are summarized and can be observed in the following graph below. The rest of the listed banks were not examined more closely, due to the nature of their businesses (Steyler Bank focusing on ecological and ethical investments; Autobank, Bankhaus Denzel and

Porsche Bank being too closely linked to automotive sector) or the lack of unconsolidated or inaccessible company information (TeamBank AT). In *figure 8* below, the banks are ranked according to their customer volumes.

Figure 8. Largest direct retail banks Austria

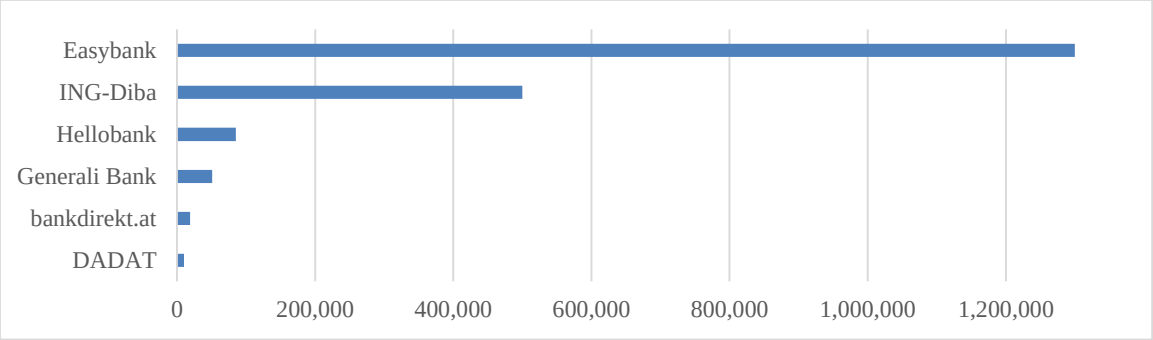


Figure 8. Ranking of direct retail banks in Austria of customer accounts

After determining the suitability of these banks, the next step was collecting relevant data in the form of annual reports and other reliable information about performance indicators, innovations and business proceedings. It was discovered that only two of these six Austrian direct retail banks provide standalone annual reports, with most other participants` data consolidated within the owners' reports. Subsequently, Easybank AG and Generali Bank AG were chosen to be the Austrian banks analyzed within the comparative case study. ING-Diba will be covered within the German group of direct retail banks. This results in a sample of 18.2% of the Austrian direct retail bank population.

No reliable sources were available to indicate the number of direct retail banks in Germany, which is why own research was necessary. Direct banks are categorized under "regional banks and other credit institutions" by the German national bank (Mugler, 2014, p. 83), which are 153 in total (Deutsche Bundesbank, 2018b). After examining each of the 153 banks, 31 direct retail banks could be identified, as displayed in *table 9* below.

Table 9. German direct retail banks

1822direkt	Moneyou
Advanzia Bank	Net-m Privatbank 1981
Augsburger Aktienbank (AAB)	NIBC Bank
Bank11	Norisbank
Bank of Scotland Germany	N26
BMW Bank	OYAK ANKER Bank

Comdirect	Pbb direct
Consorsbank	PSA Direktbank
Credit Europe Bank	Rabo Direct
Deutsche Skatbank	Renault Bank
DKB	Steyler Bank
Ethik Bank	SWK Bank
Fidor Bank	Umweltbank
GarantiBank	Volkswagen Bank
ING-Diba	VTB Bank
Mercedes Benz Bank	

Note List of German direct retail banks, own selection based on Deutsche Bundesbank (2018b)

After identifying these 31 direct retail banks, it was again necessary to apply the previous selection criteria of availability of unconsolidated information regarding (financial) performance, innovations and annual reports. Following these restrictions, only 9 banks were left to analyze: Augsburger Aktienbank, Comdirect, DKB, Fidor Bank, ING-Diba and Umweltbank.

ING-Diba is currently the largest German direct retail bank with over 8.5 million customers, offering various retail services including deposits, loans, investment services and savings products (ING-Diba, 2018). The second largest participant is the Deutsche Kreditbank (DKB) with over 3.7 million clients. They offer the same product range as ING-Diba and are a 100% subsidiary of the Bayerische Landesbank (Deutsche Kreditbank [DKB], 2018). Behind DKB on the third place is Comdirect bank, with almost 2.3 million retail customers. Comdirect is a 82% subsidiary of Commerzbank AG, the rest of its shares are flee float (Comdirect, 2018). The once only regionally active Augsburger Aktienbank is a smaller market participant with around 330,000 clients, out of which a considerable part was added when Netbank, another German direct retail bank, was acquired in 2015 (Augsburger Aktienbank [AAB], 2018). The ecologically dedicated bank Umweltbank currently manages around 113,000 clients with its range of sustainable savings and loan products (Umweltbank, 2018). The final direct bank of this list is Fidor Bank AG. In addition to the traditional retail product range, Fidor offers various innovative products, such as crowdfinance and social

lending to its 170.000 clients and was acquired by BPCE in 2017 (Fidor Bank, 2017). The final ranking in terms of clients can be seen summarized in the following graph in *figure 9*.

Figure 9. Largest direct retail banks Germany

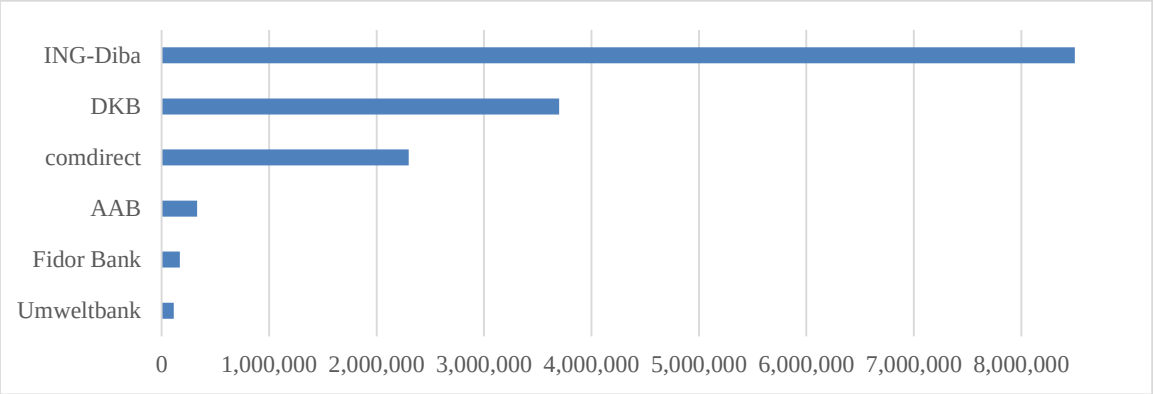


Figure 9. Ranking of direct retail banks in Germany of customer accounts

Out of this list of banks, not all can be analyzed to satisfy the needs of this comparative case study. Upon examining information sources on the direct banks, ING-Diba, DKB, Comdirect and Fidor Bank were chosen as fitting case studies. One noteworthy limitation is the fact that Fidor Bank only provides data until the end of 2016. AAB and Umweltbank are left out of the case study selection, resulting in a sample of 12.9% of the population.

As all case-relevant banks have now been selected for each country, one last step of classification is necessary. As mentioned in the conceptual model, the organizational environment ("fit") must be determined in the form of the firm´s business model design, which will either be novelty-centered or efficiency-centered. The relevant criteria to form such a categorization are the content, structure and governance of the business model. Initially, the previously presented concept of the business model canvas was drafted for the traditional or "vanilla" direct retail banks, to provide an orientation for the case banks. Then, as it can be seen in the appendix, the canvas was created for each bank to identify differences in the various components, which ultimately helped determine the overall theme of novelty or efficiency. In figure 10 below, the reference business model canvas of regular direct retail banks, is displayed.

Figure 10. Business model canvas direct retail banks

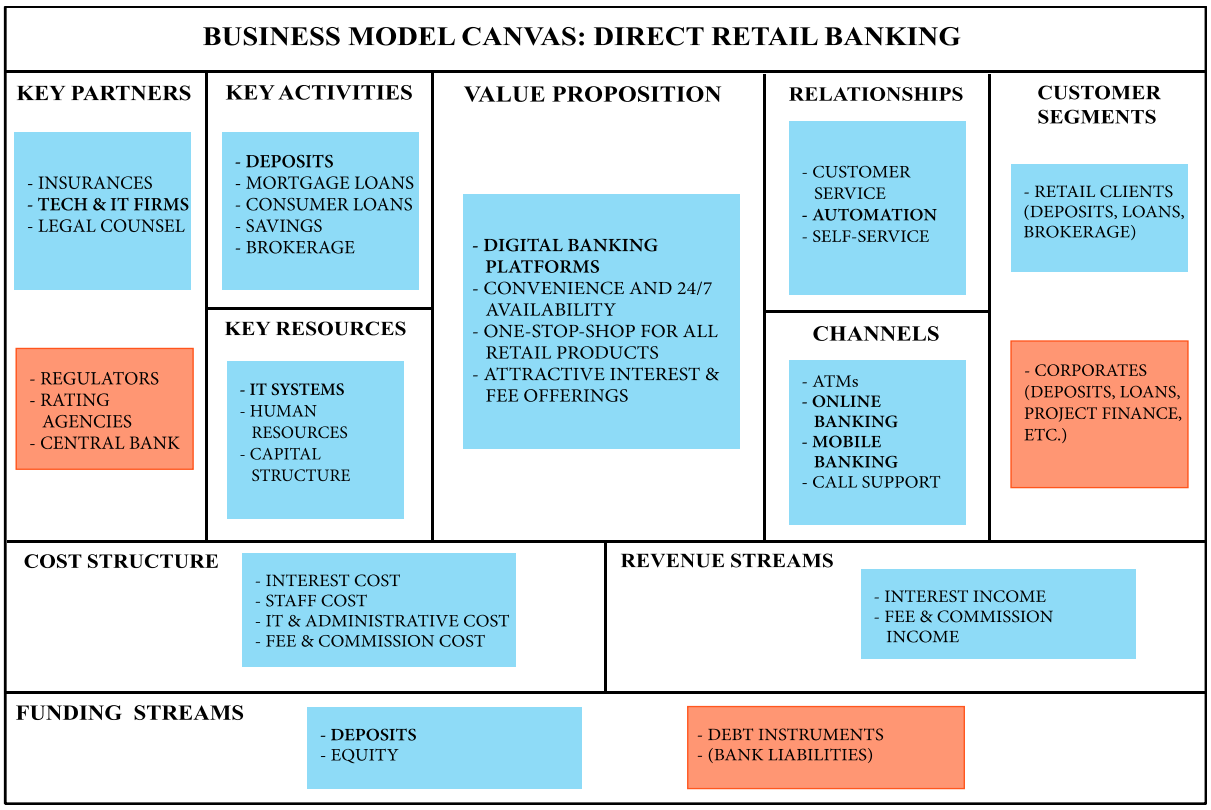


Figure 10. Business model canvas, adapted for direct retail banking

The six sample bank canvases were examined in a structured process, which is based upon the novelty or efficiency determination, as employed by Zott & Amit (2007) and Wei et al. (2014), requiring numerous items each to assess which design theme is prevalent. The list of items, which has been adapted for the scope of this thesis and the direct retail banking industry, can be found in the thesis appendix, together with the bank-specific assessment. The result of this classification process is presented in *table 10*, amounting to four efficiency-centered banks and two novelty-centered banks.

Table 10. Assessment of bank business model design

Direct retail bank	Theme	Direct retail bank	Theme
Easybank AG	EFFICIENCY	DKB	EFFICIENCY
Generali Bank AG	EFFICIENCY	Comdirect	NOVELTY
ING-Diba	EFFICIENCY	Fidor Bank	NOVELTY

Note Categorization of sampled banks to determine business model design theme (novelty vs. efficiency)

5.1.2 Operationalization

The comparative case study at hand, considering the resulting companies to examine based on the sampling process, will be of a descriptive and exploratory instead of statistical nature. The small sample drawn simply does not allow for statistical analysis, which is why no representative statements can be made. Based upon the conceptual model presented previously, the logical chain behind this chapter will follow the predictive validity framework, as introduced by Libby, Bloomfield & Nelson (2002) in their experimental research in financial accounting. *Figure 11* below outlines the components of this framework.

Figure 11. Predictive validity framework

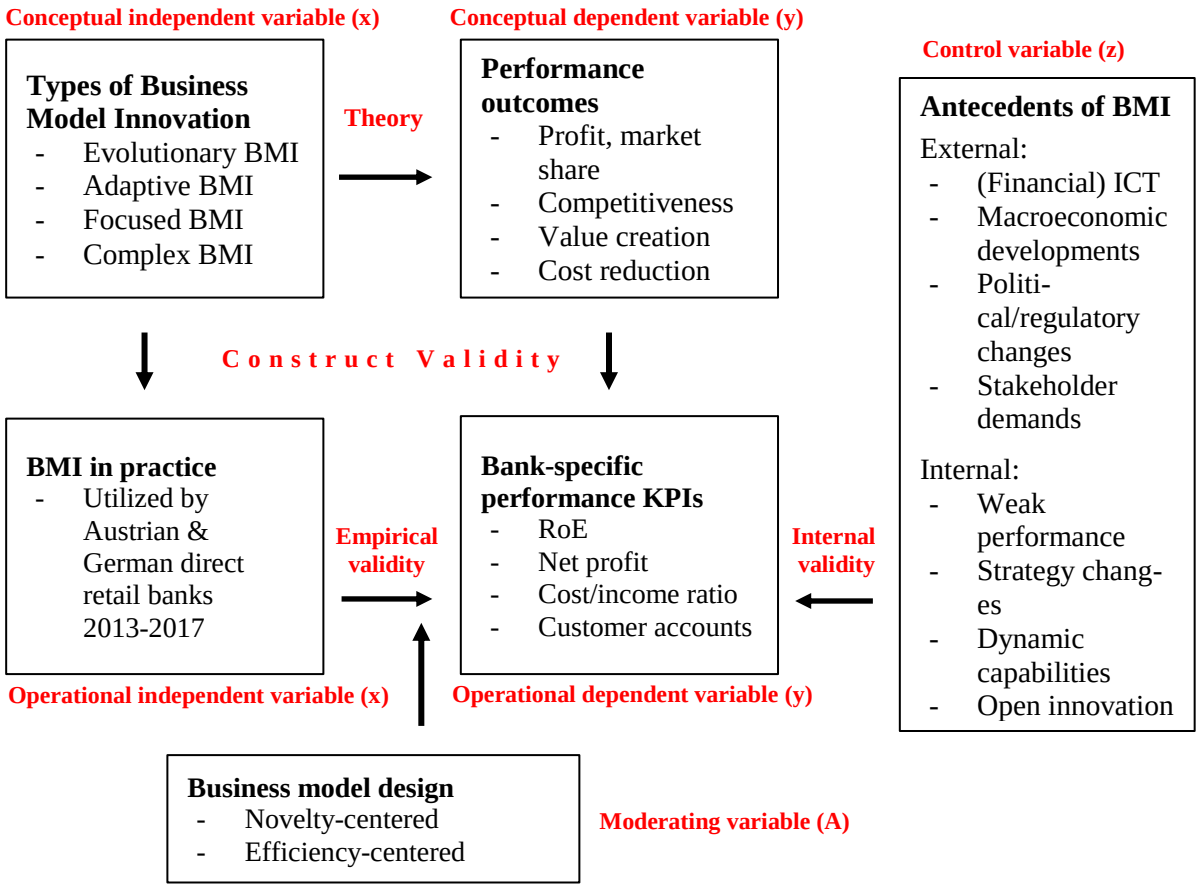


Figure 11. Operationalization through predictive validity framework, based on Libby et al. (2002)

The first components of the framework describe what has been presented in the theoretical part of this thesis, which is the relationship between implementing the various types of BMI causing the respective performance outcomes. The BMI types can thus be defined as the conceptual independent variable (X), the outcomes as the conceptual dependent variable (Y). By operationalizing them, providing construct validity, these conceptual variables are transformed into operational variables. The previously sampled direct retail

banks will be examined for their utilization of BMI between 2013 and 2017 (X) and be compared to four bank-specific KPIs, which are return on equity, net profit, cost/income ratio and customer accounts (Y). This process will provide empirical validity. Furthermore, the control variable (Z) is introduced and defined as the antecedents of BMI. These internal and external factors are used to provide internal validity to the construct, in the case that the independent variables do not explain the dependent variable in a sufficient manner. The moderating variable (A), which specifies the business model design, according to the conceptual model, influences the outcome of certain types of BMI, given its novelty or efficiency form. Out of this predictive validity framework, the following operationalized variables are drafted, as displayed in *table 11* below.

Table 11. Operationalized variables

Constant (fit) variables (A)	
A1	Novelty-centered business model design at beginning of period (2013)
A2	Efficiency-centered business model design at beginning of period (2013)
Independent variable (X)	
X1	Evolutionary BMI type (from 2013-2017)
X2	Adaptive BMI type (from 2013-2017)
X3	Focused BMI type (from 2013-2017)
X4	Complex BMI type (from 2013-2017)
Dependent variable (Y)	
Ydiff1	Delta of RoE (2017 minus 2013)
Ydiff2	Delta of Cost/Income Ratio (2017 minus 2013)
Ydiff3	Delta of Net profit (2017 minus 2013)
Ydiff4	Delta of Customer accounts (2017 minus 2013)

Note Overview of the operationalized dependent, independent and constant variables

These variables, based on the previous explanations regarding the operationalization can be put into the representation of a regression: $\mathbf{Y = A1 + A2 + \beta1 * X1 + \beta2 * X2 + \beta3 * X3 + \beta4 * X4.}$

Due to the fact that the A and X variables will function as dummy variables (with dichotomous degrees of 1 and 0 dependent on the firm-specific conditions), the most fitting

analysis model is the **"analysis of variance (ANOVA)"**, as it specifies the dependent variable to be of quantitative and the independent variables of qualitative nature. This model, however, serves only as a formal representation of theory-driven conceptualizations and will therefore not be statistically analyzed within the context of this thesis due to limited data and, hence, the lack of significance and representativeness. The model is also intended to serve as a foundation for future examinations of the topic, providing a more objective analysis than comparable studies, which rely on self-assessments from sampled company representatives, e.g. Wei et al. (2014).

The determination of the constant variable (A0) will, as explained already, be executed by certain criteria explored by Amit & Zott (2007) and Wei et al. (2014). The independent variables (X), which represent the essence of this thesis, are determined through rigorous analysis of **company specific innovations** between 2013 and 2017. Each noteworthy innovation is assigned to its respective component of the business model canvas (multiple assignments are possible). Once the time horizon is exhaustively researched and all innovations categorized, the new business model canvas for the end period is drafted, visibly displaying the changes in the sample banks' business models. Subsequently, the next step of examination is determining the two BMI type **dimensions of novelty and scope** of innovation (new to industry vs. new to firm; modular vs. architectural. If the new business model has transformed considerably in the majority of components, the dimension can be defined as architectural. In the case of changes in only one or a minority of components, modular BMI is at hand. Based on the scope of the BMI, the novelty of the respective innovation is determined, in reference to the sample population of direct retail banks in the respective country. Once this characterization is finished, the BMI type (evolutionary, adaptive, focused or complex) for each bank can be assigned. The dependent variables (Y) will be represented in the form of a performance delta of the **four most relevant bank-specific KPIs** regarding performance figures from 2017 to 2013. The return on equity, cost/income ratio, net profits and customer accounts will be introduced as separate independent variables (Ydiff1 to Ydiff4). In addition to these core variables for the ANOVA model, there are several control variables, which have to be considered as explanatory factors beyond BMI type and business model design. These control variables, as previously presented in the predictive validity framework, are comprised of external and internal antecedents of BMI. Especially due to the exploratory nature of this thesis, it is necessary to include these variables in the regression analysis.

The following chapter will put this outline of the operationalization to the practice test, examining each sample bank and determining the measurable variables before drawing the conclusions regarding the relationships of the different variables. As mentioned before, the nature of this comparative case study is descriptive and not statistical, thus no statistical analysis will be carried out. The proposed ANOVA model serves as the foundation for further research.

5.2 Case studies

Based on the sampling process exhaustively explained in the previous chapter, six sample banks were drawn from the Austrian and German sample population. The Austrian direct retail banks explored in the chapter at hand are Easybank, the current market leader, and Generali Bank, a smaller participant in the industry, allowing for a welcome level of heterogeneity within the homogenous sample. The German banks, which will subsequently be presented are ING-Diba, DKB, Comdirect and Fidor Bank. The first three banks are the leading market participants in terms of customers, while Fidor Bank has positioned itself as an innovative, dynamic direct retail bank of a considerably smaller size. Each sample bank will be examined year-by-year regarding its most noteworthy and business model-affecting innovations. To conclude each subchapter, the business model canvases from the beginning and the end of the period (as displayed in the appendix) will be contrasted with one another to determine the type of BMI.

5.2.1 Easybank

Easybank has been briefly touched upon in the sampling process, noting that it is one of the first online direct retail banks introduced in Austria. After starting as a supplemental online service to existing clients of the mother company, BAWAG PSK, in 1997, Easybank developed into a standalone, fully functioning direct retail bank offering the full retail product range and is currently the market leader in Austria with over 1.3 million customers (Easybank, 2018a). As defined during the sampling chapter, Easybank, in 2013 according to its business model canvas and the classification scheme, is characterized by an efficiency-centered business model design, indicating the increased suitability of focused and complex BMI. Over the examination period of 2013 to 2017, various considerable innovations have taken place within Easybank´s business model, which will be explained in this chapter.

In 2013, Easybank started its innovation process by extending the distribution channels to offline sources. The strategic partnership with Shell allowed them to place more than 100 checkout terminals in their locations, which at the same time function as ATMs. In addition, Easybank customers receive incentives for refueling their vehicles. Another 2013 innovation took place when Easybank rightly identified the trend toward mobile banking and introduced, in addition to the smartphone-optimized app, a specific tablet application (BAWAG PSK, 2014, pp. 43-44). Subsequently, these 2013 innovations affected the business model components of distribution (offline channels, new supported devices for mobile banking), partnerships (with Shell) and customers segments (new offerings). During the 2014, the innovation with arguably the biggest impact on Easybank´s business model took place when the direct bank introduced loans to its product portfolio. Three different types of loans were launched, one consumer loan product, a smaller sized "home-loan" without requiring property as collateral and one regular mortgage product (BAWAG PSK, 2015, p. 34). This considerable change affected various business model components, as the key activities, value proposition, customer segments, revenue and cost sources as well as funding requirements reformed. The year 2015 saw another product group added to Easybank´s portfolio. With the demerger of the parent company´s leasing operations and subsequent integration into Easybank, as well as the acquisition of VB Leasing Finanzierungsgesellschaft, private as well as corporate vehicle leasing services were added to the product range. Furthermore, the company easy green energy, owned by Easybank with 49%, offering gas and power on the Austrian market, was founded together with a cooperation partner. These innovations primarily reshaped the components of partnerships, customer segments and revenue streams (Easybank, 2016, p. 29). In the year 2016, no noteworthy or impactful innovations apart from promotional offers on existing products could be identified. In 2017, however, another considerable company was acquired. PayLife, an Austrian payment provider, sold its credit card business, together with around 600,000 customers to Easybank, boosting the company´s success and potential leads for cross-selling of banking products. Additionally, Easybank invested heavily in internal units focusing on data analytics. These (partly new) departments were tasked with unlocking more potential in understanding current client´s needs and demands and enabled the company to run superior marketing campaigns, subsequently increasing new customer applications (Easybank, 2018a, p. 7). These 2017 innovations primarily influenced the components of resources (through advanced data analytics), customer segments and revenue streams (with the acquisition of large credit card business). As

displayed in the two Easybank business model canvases for 2013 and 2017 in the appendix of the thesis, the following business model components changed considerably over the research horizon: key partners, key activities, customer segments, distribution channels and revenue streams. Only slight changes occurred in value proposition, cost structure and funding requirements. These changed components allow for the conclusion of an architectural business model innovation between 2013 and 2017, as the majority of the business model modules was innovated. The architectural change can further be classified as new to the firm instead of new to the industry, as other firms have offered the same or similar products and services. Thus, Easybank has innovated its business model in an adaptive way between 2013 and 2017.

As the business model design as well as the type of BMI are now determined for Easybank, the next step will explore the previously defined performance KPIs of RoE, CIR, net profit and customers. The following *table 12* is used to summarize these figures.

Table 12. Easybank KPIs

	2013	2017	DELTA
Cost/income ratio	51.8%	35.1%	**-47.6%**
Net profit	€ 13,100,000	€ 96,776,528	**86.5%**
Customers	460,000	1,300,000	**64.6%**
RoE	37.5%	55.5%	**32.4%**

Note Cost/income ratio, net profit, customers and RoE 2013 and 2017 (Easybank, 2014; 2018a)

The 2013 figures indicate Easybank to be a profitable and healthy direct bank with positive performance indicators. In comparison to 2017, Easybank managed to achieve exceptional results, as the delta (percentage change with the 2017 figures as base) over the time horizon indicates. In terms of CIR, they achieved more efficiency, lowering the figure by 47.6%. Net profits increased considerably, by a relative percentage of 86.5% as well as the number of customers, by 64.6%. The last indicator, return on equity, also increased by 32.4%. The theory-driven assumptions, as displayed in the conceptual model and predictive validity framework of business model innovation leading to superior performance outcomes, in this specific case within the study, can be confirmed.

5.2.2 Generali Bank

The second Austrian direct retail bank in the sample is Generali Bank, which is a subsidiary of the Italian Generali Group. Generali Bank currently serves around 51,000

customers with their retail product range. It is noteworthy that, during the research period, Generali Bank refrained from originating further loans and focused on winding up existing credit lines with consumers, which was mandated in 2011 (Generali Bank, 2018). According to the business model design classification scheme, Generali can be categorized, in 2013, as efficiency-centered indicating increased suitability of evolutionary and adaptive BMI.

Upon exhaustive research of innovations between 2013 and 2017, however, the results were scarce. In 2013, Generali Bank introduced a new comprehensive ICT-platform ("Allgemeines Rechenzentrum") increasing its internal capabilities, project management, operational risk and decreasing costs (Generali Bank, 2014). From 2014 until the end of the examination period, 2017, no considerable innovations could be identified. In contrast, Generali Bank even scaled back their operations amid increasingly difficult industry dynamics and high pressure from competition. In March 2017 it was announced that Generali Bank would stop new customer acquisition in all product segments, merely focusing on servicing those already under management (Generali Bank, 2018). As displayed in the appendix of the thesis, the two business model canvases of this bank do not register noteworthy changes between 2013 and 2017, thus providing the conclusion that no true business model innovation took place.

In terms of bank-specific performance indicators, the following *table 13* provides an overview over the four KPIs relevant for the results of this thesis.

Table 13. Generali Bank KPIs

	2013	**2017**	**DELTA**
Cost/income ratio	144.7%	374.7%	**61.4%**
Net profit	-€ 2,531,336	-€ 7,720,524	**67.2%**
Customers	57,500	51,000	**-12.7%**
RoE	-3.5%	-16.4%	**78.7%**

Note Cost/income ratio, net profit, customers and RoE 2013 and 2017 (Generali Bank, 2014; 2018)

The performance indicators for Generali Bank look distinctly negative across all categories, when 2013 is compared to 2017. The resulting delta values confirm this first impression, with the CIR increased by 61.4%. Although the delta for net profits is positive, the figure has to be handled with care, as both base values are negative. Therefore, Generali Bank actually increased their losses by a 67.2% margin. In terms of customers, the bank lost around 6,500 accounts, resulting in a delta of -12.7%. The return on equity can, again, deceive as a figure with both base values being negative. This KPI, similar to net profits, decreased to the detriment of the firm by 78.7%. In summary, the facts that Generali Bank has refrained

from utilizing BMI in the research period and has posted negative performance outcomes allows for the previously explained logical chain of this thesis to be confirmed to a certain extent.

5.2.3 ING-Diba

ING-Diba, which is currently the market leader of direct banks in Germany, is the next sample bank to be presented and examined. They offer the full spectrum of retail products, ranging from traditional deposits to loans and investment depots. Apart from their focus on retail client segments, the bank also employs corporate and wholesale banking activities. ING-Diba manages over 9 million clients, out of which around 8.5 million are German and 500,000 Austrian. As displayed in the business model design classification in the appendix, this bank is categorized as efficiency-centered in 2013.

ING-Diba started the examination period as the clear market leader in Germany, which may not indicate the need to innovate the business model greatly. In 2013, no notable innovations were implemented by the bank. In 2014, however, video legitimization was launched, enabling their clients to register personally for their new accounts without having to leave their homes. Additionally, the SmartSecure application was created, which functions as a replacement of TAN security codes. When using the mobile banking app, clients no longer had to enter a TAN, but redirected them to the new app requiring the entry of a password (ING-Diba, 2015, p. 29). These innovations changed the distribution channels and relationship within the business model canvas. During the year 2015 only one noteworthy innovation took place, which was the introduction of the mobile credit check. This service enabled customers to find out, wherever they are, if they are eligible for a loan from ING-Diba and check the progress of their application (ING-Diba, 2016). This innovation only influenced the component of distribution, as it focused on the key area of mobile banking and the general trend towards mobile accessibility. In 2016, ING-Diba introduced the mobile account switching service, which provided customers the possibility to transfer all information, money and standing orders from other banks to ING-Diba on their mobile devices in only a few minutes (Futurezone, 2017). Furthermore, the bank started supporting the FinTech hub in Frankfurt, enabling them to foster technological advancements and quickly establish cooperations with FinTech companies (ING-Diba, 2016b). These innovations primarily influenced the components of partners and distribution channels, furthering the mobile availability agenda as well as dealing with emerging competitive threats

from FinTech disruptors. The last year of the examination period registered the highest number of notable innovations within ING-Diba. First, the comprehensive "Banking to go" app was introduced, bundling all retail services into one channel, focusing on the mobile trend. Second, a strategic partnership was agreed upon with Scalable Capital, a digital wealth management provider, offering their services within the ING-Diba product portfolio. After this cooperation was implemented, over 1,000 Scalable Capital depots were opened with the bank. Furthermore, ING-Diba launched the full-digital deposit account application, requiring no physical documents from its applicants and enabling real-time processing of the data. The customers are notified almost immediately about their confirmation and are provided their account information (ING-Diba, 2018, pp. 19-20). These innovations influenced the key partners, distribution, relationship and revenue components of the business model. Consequently, the majority of business model components within ING-Diba remained largely unchanged and can thus be defined as modular. In addition, these innovations are novel only to the firm and not the industry, resulting in an evolutionary type of BMI.

As in the previous case study companies, *table 14* below will give an overview of the performance outcome KPIs.

Table 14. ING-Diba KPIs

	2013	2017	DELTA
Cost/income ratio	46.0%	44.0%	**-4.5%**
Net profit	€ 474,000,000	€ 877,000,000	**46.0%**
Customers	8,063,495	9,065,465	**11.1%**
RoE	17%	17%	**0.0%**

Note Cost/income ratio, net profit, customers and RoE 2013 and 2017 (ING-Diba, 2014; 2018)

Similar to the Easybank case, ING-Diba managed to increase all its key performance indicators from 2013 to 2017. The cost/income ratio could be reduced by 4.5%, the net profits considerably increased to € 877 million, a delta result of 46%. In terms of customers, an increase of 11.1% was registered. The only figure unchanged in this list of KPIs is the return on equity, which is at the same level as in 2013. These results fall in line with the previous cases, indicating a connection between the usage of BMI and positive performance outcomes.

5.2.4 DKB

Deutsche Kreditbank, the second largest direct bank in Germany, is the next case study company. With more than 3.7 million retail customers and numerous corporate and municipal clients, the bank serves a comprehensive product portfolio consisting of depositary,

savings, investment and loan services. DKB´s business model canvas was created for 2013 and analyzed in terms of business model design, resulting in the determination of an efficiency-centered type.

Between 2013 and 2017, DKB introduced a variety of notable innovations, which will be explored and described in the following paragraph. In the first year of research, the product "Bürgerbeteiligung", which serves as a platform for citizens to invest in regional undertakings and projects. Additionally, a new customer segment was specifically targeted with the introduction of the DKB-Student-Card, which already registered 11,000 new clients in the first year. The third major innovation of 2013 was the complete relaunch and redesign of the bank´s online presence and digital banking interface (Deutsche Kreditbank, 2014, p. 11-12). These changes primarily affected the components of key activities, customer segments and distribution channels. In the following year, three more noteworthy additions were made to DKB´s business model. First, the company introduced video legitimization technology to improve convenience for new customers when applying for accounts. Second, DKB was one of the first banks to implement their customers' Paypal accounts into their online banking interface, pushing their own product towards a financial hub for clients. Third, a cooperation agreement was made with the FinTech Cringle, which enabled DKB customers to transfer money from one smartphone to another without entering debit or credit card details (Deutsche Kreditbank, 2015, p. 40). The 2014 innovations reshaped the business model components of key partners and activities. During 2015, DKB started by cooperating with the carmaker BMW to introduce the BMW card, a product which combines credit card features as well as access keycards for the car sharing service DriveNow. Another cooperation with Deutsche Leasing enabled DKB to offer new leasing services up to an investment sum of € 150,000, promising confirmation or rejection within one working day. In addition, the fully functional and responsive mobile website was launched, following the trend of mobile banking. The last innovation of 2015 was the cooperation with the FinTech company FinReach, in result offering potential new clients more seamless account transitions from other banks to DKB (Deutsche Kreditbank, 2016, p. 52). These changes primarily affected the business model components of key partners, activities and distribution channels. In 2016, three more innovations were carried out, starting with the cooperation with retail stores across Germany, where clients can withdraw amounts between 50 and 300 euro via their DKB banking app. DKB also furthered their cooperation with FinReach, now enabling its customers to easily transition their investment depots from other banks into DKB accounts. The third cooperation

of the year was implemented together with FinTech Gini, offering DKB clients the option to take pictures of invoices and having them automatically settled (Deutsche Kreditbank, 2017, p. 42). These innovations had lasting effects on the components of key partners, activities, value proposition and distribution channels. In the last year of the examination, DKB introduced the app "TAN2go", supplying its customers with their verification codes directly on their mobile phones. Furthermore, DKB started a cooperation with the InsurTech startup Clark, to offer a range of personal insurance management products as well as pension management services (Deutsche Kreditbank, 2018, p. 50). The last innovation explored in the examination period is the launch of the "Digital Transformation Lab" within the company. This department focuses on driving the company further towards digitalization in all processes and creating the optimal digital experience for consumers (Deutsche Kreditbank, 2018, p. 23). Summed up, all innovations presented in this case study concerning DKB have changed the following business model components: key partners, activities, value proposition, customer segments and distribution channels. This fact proves that the business model was changed in a modular manner with the majority being industry-novel innovations, resulting in a focused type of BMI.

As previously, *table 15* below will explore DKB´s performance indicators and how they changed from the beginning of the research period to the end in 2017.

Table 15. DKB KPIs

	2013	2017	DELTA
Cost/income ratio	52.7%	50.8%	**-3.7%**
Net profit	€ 152,900,000	€ 263,200,000	**41.9%**
Customers	2,849,933	3,761,498	**24.2%**
RoE	6.4%	9.6%	**33.3%**

Note Cost/income ratio, net profit, customers and RoE 2013 and 2017 (Deutsche Kreditbank, 2014; 2018)

Once again, the delta column shows positive developments of KPIs across the board, with the CIR decreasing slightly by -3.7%. Net profits increased considerably to € 263,200,000, marking a delta value of 41.9%. The number of customers also expanded remarkably by 24.2%. The last indicator, return on equity, registered another substantial gain of 33.3%, amounting to 9.6% in 2017. Corresponding to the previous cases, business model innovation once again proved to lead to greater performance outcomes.

5.2.5 Comdirect

Comdirect is a subsidiary of the German Commerzbank and currently on the third place in terms of customer accounts in German direct banking with almost 2.3 million client accounts. They offer the same product range as the sample banks examined previously, but focus on the brokerage and investment depot services. This can be observed in the business model canvas for 2013, which allows for the conclusion that its design is novelty-centered. Numerous innovations were implemented in the research time horizon and will be presented in this part.

In the first year of examination, Comdirect introduced the photoTAN method, which enables customers to scan specific graphics with their smartphones and immediately receive their TAN codes to carry out transfers or orders. Additionally, the "Persönlicher Finanzmanager", a tool to automatically categorize spending behavior and enables clients to draft individual budget plans, was launched. The third innovation of the year was the CFD app, an interface on smartphones which utilized all the functions of the regular online CFD services (Comdirect, 2014, p. 20). Subsequently, the components of value proposition, distribution, relationships and cost were influenced to a certain extent. The following year included three notable innovations, starting with the introduction of the "AnlageAssistent", an automated investment advisory tool enabling customers to pick from various investment strategies according to their needs. Furthermore, Comdirect started producing webinars with the goal of educating and assisting (potential) customers in regards to trading, investing and banking topics. The last innovation of 2014 is the launch of "ProTrader", a trading tool which offers real-time trading, charts and analyses of various financial instruments needs (Comdirect, 2015, p. 11). These 2014 innovations sustainably influenced the business model components of key activities (real-time trading and individual investment advisory), value proposition (as the leading trading and investment platform), customer segments (professional traders), distribution and cost structure (automated advisory). In 2015, Comdirect introduced three more innovations. The fully digital account application and transition service available 24/7 was launched enabling and focusing on the trends of digital and mobile banking. The B2B client segment saw the introduction of the platform Fintego, which serves as a digital wealth management service marketed through an innovative distribution concept (Comdirect, 2016, pp. 26-28). Furthermore, the "Start-up-Garage" was implemented as a platform for Comdirect to find and support promising FinTech startups by providing financial resources and infrastructure (Comdirect, 2016, p. 13). These changes primarily affected the components

of key partners, distribution channels and revenue sources (through Fintego). In 2016, Comdirect started the innovation process by introducing, as the first German bank, the "Digitale Finanzzentrale", a multibanking service enabling customers to integrate external bank accounts into their Comdirect accounts. Furthermore, youth customer segments were targeted with the app "MoBox", which provides financial management service for younger target groups Comdirect, 2017, pp. 2-3). Additionally, the smartPay application was launched, which served as a central interface for digitally storing invoices and money transfers (Comdirect, 2017, p. 22). The 2016 innovations influenced Comdirect´s key activities, customer segments and distribution channels. The final examination year was arguably the most innovative one to date. Comdirect started with launching its robo-advisory product Cominvest, offering clients the option to receive tailor-made investment advice based on their needs and demands. The second innovation was the acquisition of Onvista, an online brokerage and financial data and news company, adding around 100,000 new clients under Comdirect´s management. Another notable and innovative development was the integration of Comdirect services into the intelligent, voice-controlled assistants Amazon Echo and Google Home, providing users with financial information in real-time (Comdirect, 2018, pp. 3-4). The last innovation carried out was the cooperation with the FinTech Niiio finance group, improving customer service and digital development processes (Comdirect, 2018, p. 20). Consequently, the key partners, value proposition, distribution channels and relationships were influenced. Conclusively, this results in a modular type of business model innovation consisting of predominantly industry-novel developments, indicating focused BMI.

Table 16 below will give an overview of the most relevant KPIs of Comdirect during the research period.

Table 16. Comdirect KPIs

	2013	**2017**	**DELTA**
Cost/income ratio	76.1%	75.3%	**-1.1%**
Net profit	€ 60,500,000	€ 70,500,000	**14.2%**
Customers	1,823,579	2,286,182	**20.2%**
RoE	15.1%	11.9%	**-26.9%**

Note Cost/income ratio, net profit, customers and RoE 2013 and 2017 (Comdirect, 2014; 2018)

It is clearly observable that all key metrics changed in a positive manner, except the return on equity. The cost/income ratio decreased marginally by -1.1%, while net profits increased by a delta value of 14.2%. Customers, in terms of delta, registered the highest gain of 20.2%, totaling almost 2.3 million registered accounts at the end of the examination period.

The only decreased indicator is the RoE, which declined by -26.9%. Similar to previous results of the cases, these KPIs are, to a majority, in line with the assumption of the positive connection of BMI utilization and performance outcomes.

5.2.6 Fidor Bank

The arguably most innovative direct bank within this sample is Fidor Bank. Founded in 2009 with the objective of transferring the Web 2.0 into the world of banking and finance. Fidor is currently owned by the French banking group BPCE and has around 140,000 customers, offering them access to a variety of innovative products in addition to traditional retail products. This innovative business model, compared to other banks in the industry, can be classified as novelty-centered, as shown in the 2013 Fidor Bank business model canvas in the appendix. In the following paragraph, the most important innovations of the bank will be presented from 2013 to 2016. The examination time horizon is different for Fidor Bank, as performance data is only accessible until 2016.

Fidor Bank introduced a number of innovations during 2013. Starting with the launch of a business account for small and medium enterprises to target different customer segments, the bank also implemented its "Social Trading" product group. Within this group, its services around capital markets and exchanges are bundled, including "Brokertainment", an investment game focusing on small investable amounts between Fidor Bank customers. In addition, the "Geldnotruf", a € 100 immediate loan, as well as other loan products were launched. However, the most notable innovation during 2013 was the introduction of "fOS", the Fidor Operating System. This system is a modular software package, programmed in an open-source manner to be utilized by companies in various industries including telecommunications, banking and e-commerce (Fidor Bank, 2014a, pp. 7-10). These innovations had lasting effects on the business model components of key activities, value proposition, customer segments, distribution and revenue sources. During 2014, a cooperation agreement with the payment network provider and cryptocurrency creator Ripple was reached, integrating Ripple technology into Fidor Bank´s network to enable real-time settlement and transfers (Bullington, 2014). Furthermore, another cooperation was made, with the cryptocurrency exchange Kraken, setting the objective of creating the world´s first banking platform for virtual currencies" (Fidor Bank, 2014b). The last noteworthy innovation of 2014 was the launch of the "Like-Zinssatz", a measure to increase the bank´s online presence and reach. For each 2,000 new followers on Facebook, the interest rate on consumer

credits was reduced by 0.1%, ultimately lowering it from 6.9% to 6.3% (Fidor Bank, 2014c). These innovations had strong influence on the components of key partners, key activities, resources, distribution channels, relationships and cost structure. In 2015, the innovative year started with the introduction of "No-Stack banking", the ability of Fidor Bank offering banking services to customers on behalf of cooperation partners (Fidor Bank, 2016a, p. 31). Furthermore, the "SmartCard" was launched, combining the likes of a credit and debit card, including contactless payment, which can be used in combination with Fidor Bank´s overdraft loans (Fidor Bank, 2016a, p. 50). Two more relevant changes carried out during 2015 were the expansion to the UK and the US (Fidor Bank, 2015b) as well as the decision to delist the company´s stock from the public exchanges following disappointing funding results (Fidor Bank, 2015c). The 2015 developments had impact on key partners, activities, resources, value proposition, customers, distribution and funding sources. The last year of the examination period was arguably the most innovative. Starting with three cooperations, including SumUp, O2 and Smava, the business model was changed yet again. The agreement with SumUp enabled Fidor Bank to offer its small and medium enterprise partners mobile point-of-sale payment terminals in addition to the online facilities already in place (Fidor Bank, 2016b). Together with the telecommunications company O2, Fidor Bank launched O2 banking, one example of the previously explained "No-Stack banking" service (Fidor Bank, 2016c). Partnering with Smava, the bank started offering the first fully digitalized instalment loan in Germany, Kredit2Go. In addition to the three cooperations, Fidor Bank also launched its video legitimization service to replace offline application processes. The last innovation of note was the introduction of "FinanceBay", which serves as a centralized hub for FinTech companies to offer their products and services in exchange of commissions to Fidor Bank (McIntyre, 2017). These innovations affected the components of key partners, activities, value proposition, customer segments, distribution channels, relationships and revenue sources. Conclusively, Fidor Bank innovated its business model in a clear architectural manner with industry novel elements, resulting in a complex type of BMI.

In *table 17* below, the four relevant KPIs for this master thesis are listed.

Table 17. Fidor Bank KPIs

	2013	**2016**	**DELTA**
Cost/income ratio	75.7%	213.2%	**64.5%**
Net profit	-€ 5,024,800	-€ 23,756,181	**78.8%**
Customers	51,700	139,243	**62.9%**
RoE	-22.7%	-38.0%	**40.3%**

Note Cost/income ratio, net profit, customers and RoE 2013 and 2017 (Fidor Bank, 2014a; 2017)

It is clearly displayed that all KPIs except the number of customers has developed in a negative way. The cost/income ratio increased sharply by a delta value of 64.5%. Similarly, the net losses made went up by 78.8% to staggering € 23.8 million. The customer number increased considerably by a delta of 62.9%, although the RoE remained negative and even decreased to -38%, resulting in a delta of 40.3%. These results fall out of line with the previous analyses that business model innovation leads to superior firm performance outcomes, as Fidor Bank is the first sample bank utilizing BMI to post considerable decreases.

5.3 Comparative analysis

As the individual sample banks have now been examined and categorized according to the operationalization requirements, this subchapter will compare them to provide a comprehensive overview. *Table 18* below summarizes the previously shown individual cases.

Table 18. Case study results

Sample bank	Business model design	BMI type	Performance outcome
Easybank	efficiency	adaptive	positive
Generali Bank	efficiency	-	negative
ING-Diba	efficiency	evolutionary	positive
DKB	efficiency	focused	positive
Comdirect	novelty	focused	moderately positive
Fidor Bank	novelty	complex	negative

Note Results of the comparative case study summarized

Over the research horizon, five instances of business model innovation could be identified, out of which one was evolutionary, one adaptive, two focused and one complex type of BMI. One sample bank, Generali Bank, did not register evidence of changing its business model to the extent that BMI could be classified, resulting in subsequent negative performance. Four out of six sampled banks posted positive performance outcomes, all of

which used a form of BMI, while only Fidor Bank utilized BMI and reported mostly negative KPIs.

As stated previously, the business model design of companies is expected to influence the different ways of implementing BMI. Efficiency-centered designs were described to foster innovation types new to the firm (evolutionary and adaptive BMI), whereas novelty-centered designs are preferred with industry-novel types (focused and complex BMI). The following *table 19* provides an overview of the respective findings in this case study.

Table 19. Business model design & outcomes

Business model design	Number in sample	Evolutionary & adaptive BMI	Focused & complex BMI	Outcome
efficiency-centered	4	2	1	+
novelty-centered	2	0	2	+ -

Note Influence of business model design on BMI type and subsequent outcomes

It is observable that, out of the four efficiency-centered sample banks, two utilized the corresponding BMI types of evolutionary and adaptive, only one used focused and one bank did not innovate. The performance-wise most successful out of these companies was Easybank, which employed adaptive BMI, which falls in line with the theoretical assumptions. In terms of novelty-centered sample banks, both utilized industry-novel BMI types, where one company (Comdirect) registered mostly positive performance outcomes and the other sample bank (Fidor Bank) posted considerable losses in most KPIs, allowing for no concrete conclusions to be drawn in terms of suitability of BMI types in different design themes. The next observation, displayed in *table 20* below gives an overview of the performance implications regarding different BMI types. As previously presented, evolutionary, adaptive and complex BMI had one instance each, focused BMI had two.

Table 20. BMI type performance

	Evolutionary	Adaptive	Focused	Complex
CIR	- 4.5%	- 47.6%	- 2.4%	+ 64.5%
Net profit	+ 45.5%	+ 86.4%	+ 28%	+ 78.8%*
Customers	+ 11.1%	+ 64.6%	+ 22.2%	+ 62.9%

RoE	+/- 0%	+ 32.4%	+ 3.2%	+ 40.3%*
* calculation grounded on negative base values				

Note Performance outcomes of the different forms of BMI

It is clearly conveyed by *table 20* that adaptive BMI, together with the evolutionary and focused types have registered positive performance outcomes across every KPI (except evolutionary in terms of RoE). There are, however, discrepancies concerning the performance extent. The figures regarding complex BMI must be observed with caution, as the base values of net profits and RoE were negative, thus the positive delta actually lead to worse performance. CIR increased considerably, whereas the number of customer accounts managed was the only positive performance indicator. In addition to these findings, it is also noteworthy to examine which business model components have been innovated and changed the most over the research period. *Table 21* below provides an overview.

Table 21. Changes in business model components

	Easybank	Generali	ING-Diba	DKB	Comdirect	Fidor Bank	**Total**
Key partners	2	-	2	4	2	3	**13**
Key activities	1	-	-	5	2	4	**12**
Resources	1	1	-	-	-	2	**4**
Value prop.	1	-	-	1	3	3	**8**
Customers	4	-	-	1	2	3	**10**
Distribution	1	-	4	4	5	4	**18**
Relationships	-	-	2	-	2	2	**6**
Revenue	3	-	1	-	1	2	**7**
Cost	1	1	-	-	2	1	**5**
Funding	1	-	-	-	-	1	**2**
Total	**15**	**2**	**9**	**15**	**19**	**25**	**85**

Note Number of business model component changes, per sample bank and in total

The highest number of changes occurred in the component of distribution, which is consistent with the digitalization of the industry, requiring the banks to offer access on all platforms and devices, especially mobile. Furthermore, the sample banks introduced offline distribution channels as means to diversify their offer and attract new customers. Key partners was the second most affected component, which was primarily characterized by the sample banks cooperating with FinTechs and other disruptive startups to provide their customers

access to a wider product range without having to spend large amounts on product development. Core resources, cost structure and funding sources were the least changed components. The main resources and unique selling propositions of direct retail banks are their IT facilities and expert staff, which is unlikely to change in the future, albeit the focus shifting more towards automation. Funding remains largely unchanged due to the regulatory requirements banks have to face when offering their product range. Notable exceptions occurred when Easybank introduced loan origination, changing their regulatory capital demands or Fidor Bank delisting from the stock exchange. The sample bank with the highest number of component changes (25) was, as expected, Fidor Bank, the only instance of complex BMI. Fidor Bank transformed every component to a certain degree, with the largest changes in distribution and key activities. Although Comdirect as well registered changes in most business model components, the innovations were of a smaller extent than Fidor Bank´s, hence the focused BMI type.

6 Conclusion

As both the theoretical and empirical part of this master thesis have been concluded, this chapter will encapsulate the most important findings and subsequently answer the previously presented research questions. Afterwards, certain limitations of this thesis will be outlined and the utilized scientific method critically assessed before an outlook for this specific field of research and respective recommendations are given.

One of the foundations of this thesis is the concept of the business model, its definitions and components as examined by current literature, which was the core of the first theoretical research question. Chapter 2 explored the various research streams of business models and, after thorough analysis, settled on the interpretation characterizing business models as attributes of real firms. This stream included the central concept of the business model canvas, introduced by Nielsen & Lund (2013) as a means to analyze companies' business models in a detailed manner by dividing it into nine components. These components include key partners, activities and resources, value proposition, customer relationships, distribution channels, customer segments, cost structure and revenue sources. Furthermore, business model definition in the scope of this thesis is determined as: the platform or framework connecting resources, people, processes, competencies, service supply, culture and measurement tools, enabling the company to make strategic choices regarding markets, value proposition and customer segments to ultimately create and capture value, resulting in sustainable profitability. In addition, business model design themes (efficiency-centered vs. novelty-centered) were introduced to provide a tool of classification between different companies and their ability to foster and perform innovation.

The next central question in this master thesis regarded the concept of business model innovation including its definition, specific implications and outcomes. Chapter 3, similarly to the previous chapter on business models, examined four main research streams scholars had focused on in the past, ultimately arriving at the definition, according to Khanaga et al. (2014), of BMI as: the activities ranging from incremental changes in business model components to extending current business models, introducing new, simultaneously functioning business models or disrupting the extant model up to the point of completely replacing it. Subsequently, the various types of BMI outcomes were explored, including financial performance indicators, perceived performance, competitiveness levels, value

creation and appropriation, internationalization cost reduction and strategic flexibility. Within the scope of this thesis, the

financial performance indicators, which have to be assessed in an industry-specific manner, have been determined to measure the effect of business model innovation, effectively answering the second theoretical research question.

Furthermore, in reference to the third theoretical research question, antecedents and drivers of business model innovation were explored and analyzed in chapter 3.2. After exhaustive literature review, the antecedents were divided into external and internal types. External drivers include changing stakeholder demands as well as changes in the current competitive environment, new information and communication technologies and political or regulatory changes. Internal antecedents, as current research suggests, are highly case-specific and individual, as internal processes of companies are hard to generalize. These individual drivers can include weak performance and strategic changes. However, two main factors of internal antecedents play a considerable role, as brought forward by Teece (2007): dynamic capabilities and open innovation. Open innovation describes the internal usage of external information as well as the utilization of technological capabilities outside firm boundaries. Dynamic capabilities outline the enterprise-level competitive advantage, including the three key components of the ability to sense opportunities and threats stemming from the competitive environment, seizing the opportunities and subsequently reconfiguring the business model accordingly.

Arguably the most central theoretical chapter in regards to the main research question was the analysis of which forms of BMI currently exist in the literature, which was answered in chapter 3.3. There are two main research streams, which are characterized by high similarities in their concepts. Both have in common the classification dimension of scope. This dimension determines whether a business model innovation is of modular or architectural manner. Modular BMI typically affects only a minority of business model components, whereas architectural innovations transform the majority, although no clear minimum number is provided by recent literature. The second classification dimension varies in the two main concepts, according to Stieglitz & Foss (2015), the depth of change is considered, resulting in either incremental or radical innovations. However, Foss & Saebi (2017a) determine novelty of change as the second dimension, resulting in innovations new to the firm or new to the industry. The latter concept was deemed more suitable for the context of this thesis as it is more measurable and assessable than its counterpart. Considering both

dimension, the novelty and the scope of change, four BMI types are derived: evolutionary, adaptive, focused and complex business model innovation.

The last theoretical research question was answered in chapter 4, describing the particularities of business models and BMI in the context of the banking industry. According to the research by Roengpitya et al. (2014) and Ayadi et al. (2016), three main banking business models were determined: retail, wholesale and investment. These business models show considerable differences in terms of funding, key activities and revenue generation. In addition, the, in the scope of this thesis, central business model adaption of direct retail banking was observed as well as other non-assignable business models connected to the FinTech industry. It was, however, concluded that modern banking groups typically encompass multiple business models within their structures, resulting in difficulties when assessing individual models in an isolated manner. In terms of BMI, the business model canvas was utilized to show how banks are able to innovate each business model component successfully, providing real-world examples. These examples reinforced the statement that traditional banks are and will be forced to make use of BMI in the wake of FinTechs threatening virtually every segment of their industry. As the theoretical part including the research questions have now been concluded, the two empirical research questions will be answered.

By examining six direct retail banks from Austria and Germany, the previously presented theoretical concepts were tested. After drafting the business model canvas at the beginning of the research period (2013) for each sample bank and determining its business model design theme, every noteworthy innovation was systematically gathered. Subsequently, these innovations were allocated to the business model components they affected. At the end of the period (2017), another business model canvas was built, allowing for a direct comparison of which components changed and how extensively. Based on the identified alterations, the scope of change could be identified as either modular or architectural. In addition, the innovations were determined as either industry-novel or firm-novel resulting in the four BMI types. The result of the comparative case study, in reference to the first empirical research question, was that each of the four types was utilized over the research period, with one instance of evolutionary, adaptive and complex BMI and two instances of focused BMI. Merely one sample bank did not utilize any form of business model innovation.

The second empirical research question is aimed at the performance implications of the previously presented BMI utilized by the sample banks. Over the research period,

Easybank and DKB have registered positive performance in all KPIs, while ING-Diba increased in three out of four, with RoE unchanged. Similarly, Comdirect recorded positive outcomes in terms of CIR, net profits and customers, with only RoE slightly declining. Fidor Bank was the only bank which utilized BMI and had negative performance. CIR, net profits and RoE considerably decreased, while only the number of customers increased sharply. Generali Bank, which performed negatively across all KPIs cannot be included in answering this research question, as the bank did not make use of BMI over the research period.

In the light of all theoretical and empirical research questions being concluded at this point of the thesis, the main research question can now sufficiently be answered. There is a clear result as to which type of BMI has performed the most successful in the direct retail banking industry in Austria and Germany between 2013 and 2017, which is adaptive BMI. Easybank, which was the sample bank utilizing adaptive BMI registered an increase in all KPIs, with CIR decreased by 47.6%, net profits increased by 86.5%, the number of customers enhanced by 64.6% and the return on equity raised by 32.4%. Evolutionary BMI, when assessing all metrics, achieves second place, with focused BMI only slightly behind. Complex BMI was the least successful.

6.1 Limitations and method discussion

Due to the fact that this master thesis focuses on an area of research still in an emerging stage, lacking construct clarity, generalized definitions and concepts, there are certain limitations which need to be discussed. Furthermore, the empirical method chosen to examine the theoretical findings is characterized by its exploratory nature, involving possible risks.

In the theoretical part, the author of the thesis was required to decide upon interpretations and definitions regarding the business model itself and the concept of BMI, as various different research streams still exist in this area. The author chose, to the best of his knowledge, the most fitting perspective in the context of this thesis, albeit the possibility exists that other points of view are established in the future. In terms of the sampling process, the German speaking regions in Europe were focused on, excluding Switzerland which, because of its consumer culture and regulatory stipulations simply does not have a direct banking industry. Furthermore, there is the distinct possibility of survivorship bias affecting the sampling of the banks, as industry participants may have actually utilized BMI in the past but simply failed or went out of business. This effect may contort the findings from this

thesis. Within the sample banks, three possible limitations for the comparative case study could be identified. First, there may well have been innovations not communicated in any identifiable way which influenced the performance outcomes during the research period. There may have even been unknown factors influencing the outcomes, which are captured by neither the independent nor the control variables. In addition, it was communicated by Generali Bank in 2017 that the bank would not take on any new customer business, which, depending on when this decision was originally made, may have affected the firm´s innovation capabilities (Generali Bank, 2018). The research period must also be critically assessed, as Fidor Bank was the only sample bank which did not publically communicate its results for 2017, due to the integration into the French BPCE group. Therefore, a shorter period was used for Fidor Bank, ranging from 2013 to 2016 instead of 2017. In regards to the utilized method itself, there are potential issues to be discussed. The majority of current literature and scientific journals uses qualitative methods to determine business model innovation and its outcomes by questioning representatives from the sample companies. In order to avoid effects such as social desirability, this thesis relies on reasonable categorization schemes, which require a certain level of objectivity by the author. This leads to the fact that there is justifiable room for critique on possible subjective or skewed evaluations. Furthermore, the ANOVA regression model created within this thesis merely serves as the foundation for further research in the future and could not be exercised in this instance due to the apparent lack of data. Subsequently, the exploratory nature of this comparative case study is emphasized once again, not allowing for representativeness of the results.

6.2 Outlook and recommendations

The objective of this thesis was to provide a systematic literature overview, organizing the various research streams, interpretations and concepts of an emerging field of research. The growing number of literature published concerning business models and business model innovation will presumably continue to increase in the future, spreading to more diverse industries, such as banking and finance, as well as other geographical regions, such as Central Europe. These developments will be necessary and useful not only for scholars but for practitioners facing dynamic digital transformations of their industries through innovative startups and FinTech companies. By gaining deeper understanding of how the focal firm´s business model functions and how it can be innovated, sustainable competitive advantage can be achieved. Furthermore, this thesis provides the foundation and framework for further

research on the topic of BMI. The proposed ANOVA regression model can be utilized to analyze larger samples of data to provide more statistical significance and representativeness to the findings explored in both the theoretical and empirical part. Although all industry participants in Austria and Germany with accessible data have been sampled in this examination, the possibility of adding further regions to a subsequent study is feasible if country differences are analyzed and adjusted for. It was mentioned briefly that other authors relied on qualitative interviews with sample company representatives to assess their innovativeness, which harbors the risk of social desirability. A combination of both this past approach and the one proposed in this thesis would serve as the ideal empirical examination of the research area, given sufficient resources and expertise.

7 References

Achtenhagen, L., Melin, L. & Naldi, L. (2013). Dynamics of business models - strategizing, critical capabilities and activities for sustained value creation. *Long Range Planning, 46(6),* 427-442. https://doi.org/10.1016/j.lrp.2013.04.002

Alt, R. & Puschmann, T. (2016). Digitalisierung der Finanzindustrie: Grundlagen der Fintech-Evolution. Berlin Heidelberg, GER: Springer Gabler Verlag.

Amit, R. & Zott, C. (2012). Creating Value Through Business Model Innovation. *MIT Sloan Management Review, 53,* 41-49. https://doi.org/10.2139/ssrn.1701660

Amit, R. & Zott, C. (2015). Crafting business architecture: The antecedents of business model design. *Strategic Entrepreneurship Journal, 9,* 331-350. https://doi.org/10.1002/sej.1200

Andreini, D. & Bettinelli, C. (2017). Business Model Innovation: From Systematic Literature Review to Future Research Directions. Cham, CH: Springer International Publishing.

Aspara, J., Lamberg, J., Laukia, A. & Tikkanen, H. (2013). Corporate business model transformation and inter-organizational cognition: The case of Nokia. *Long Range Planning, 46(6),* 459-474. https://doi.org/10.1016/j.lrp.2011.06.001

Augsburger Aktienbank (2018). Geschäftsbericht 2017.

Aversa, P., Furnari, S. & Haefliger, S. (2015). Business model configurations and performance: A qualitative comparative analysis in Formula One racing, 2005-2013. *Industrial and Corporate Change, 24(3),* 655-676. https://doi.org/10.1093/icc/dtv012

Ayadi, R., de Groen, W.P., Sassi, I., Mathlouthi, W., Rey, H. & Aubry O. (2016). Banking Business Models Monitor 2015: Europe. Alphonse and Dorimene Desjardins International Institute for Cooperatives and International Observatory on Financial Services Cooperatives.

Bank for International Settlements (2011). Basel III: Ein globaler Regulierungsrahmen für widerstandsfähigere Banken und Bankensysteme.

Bankdirekt.at (2015). Raiffeisenlandesbank OÖ stellt ihre PRIVAT BANK-Gruppe neu auf.

BAWAG PSK (2014). Konzern-Geschäftsbericht 2013.

BAWAG PSK (2015). Konzern-Geschäftsbericht 2014.

Benner, M.J. & Tripsas, M. (2012). The influence of prior industry affiliation on framing in nascent industries: The evolution of digital cameras. *Strategic Management Journal, 33,* 277-302. https://doi.org/10.1002/smj.950

Berschens, R. (2018, January 8). Anstrengender Endspurt für die EU-Kommission. Retrieved from https://www.handelsblatt.com/finanzen/banken-versicherungen/finanzmarktregulierung-anstrengender-endspurt-fuer-die-eu-kommission/20823512.html (Date of retrieval: June 2, 2018)

Bocken, N.M.P., Rana, P. & Short, S.W. (2015). Value mapping for sustainable business thinking. *Journal of Industrial and Production Engineering, 32(1),* 67-81. https://doi.org/10.180/21681015.2014.1000399

Bohnsack, R., Pinkse, J. & Kolk, A. (2014). Business models for sustainable technologies: Exploring business model evolution in the case of electric vehicles. *Research Policy, 43(2),* 284-300. http://dx.doi.org/10.1016/j.respol.2013.10.014

Boons, F. & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *Journal of Cleaner Production, 45,* 9-19. https://doi.org/10.1016/j.jclepro.2012.07.007

Bouncken, R., Muench, M. & Kraus, S. (2015). Born Globals: Investigating The Influence Of Their Business Models On Rapid Internationalization. *International Business & Economics Research Journal (IBER), 14(2),* 247-255. https://doi.org/10.19030/iber.v14i2.9109

Brea-Solis, H., Casadesus-Masanell, R. & Grifell-Tatje, E. (2014). Business model evaluaton: Quantifying Walmart´ sources of advantage. *Strategic Entrepreneurship Journal, 9(1),* 12-33. https://doi.org/10.1002/sej.1190

Brettel, M., Strese, S. & Flatten, T. (2012). Improving the performance of business models with relationship marketing efforts - An entrepreneurial perspective. *European Management Journal, 30(2),* 85-98. http://dx.doi.org/10.1016/j.emj.2011.11.003

Bucherer, E., Eisert, U. & Gassmann, O. (2012). Towards Systematic Business Model Innovation: Lessons from Product Innovation Management. *Creativity and Innovation Management, 21(2),* 183-198. https://doi.org/10.1111/j.1467-8691.2012.00637.x

Bullington, A. (2014, May 5). Ripple Labs Announces Fidor Bank AG as First Bank to Use the Ripple Protocol. Retrieved from https://ripple.com/ripple_press/ripple-labs-announces-fidor-bank-ag-as-first-bank-to-use-the-ripple-protocol/ (Date of retrieval: June 29, 2018)

Carayannis, E., Sindakis, S. & Walter, C. (2015). Business Model Innovation as Lever of Organizational Sustainability. *Journal of Technology Transfer, 40(1*), 85-104. https://doi.org/10.1007/s10961-013-9330-y

Casadesus-Masanell, R. & Ricart, J. (2010). From strategy to business models and onto tactics. *Long Range Planning, 43(2-3),* 195-215. https://doi.org/10.1016/j.lrp.2010.01.004

Casadesus-Masanell, R. & Zhu, F. (2013). Business model innovation and competitive imitation: the case of sponsor-based business models. *Strategic Management Journal, 34,* 464-482. https://doi.org/10.1002/smj.2022

Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. *Long Range Planning, 43(2-3),* 354-363. https://doi.org/10.1016/j.lrp.2009.07.010

Chesbrough, H. & Rosenbloom, R.S. (2002). The role of the business model in capturing value from innovation : evidence from Xerox Corporation ' s technology spin-off companies. *Industrial and Corporate Change, 11(3),* 529-555. https://doi.org/10.1093/icc/11.3.529

Comdirect (2014). Finanzbericht 2013.

Comdirect (2015). Finanzbericht 2014.

Comdirect (2016). Finanzbericht 2015.

Comdirect (2017). Geschäftsbericht 2016.

Comdirect (2018). Geschäftsbericht 2017.

Crespi, F. & Mascia, D.V. (2018). Bank Funding Strategies: The Use of Bonds and the Bail-in Effect. Cham, CH: Palgrave Macmillan

Cucculelli, M. & Bettinelli, C. (2015). Business models, intangibles and firm performance: evidence on corporate entrepreneurship from Italian manufacturing SMEs. *Small Business Economics, 45(2),* 329-350. https://doi.org/10.1007/s11187-015-9631-7

Dane, E. (2011). Paying attention to mindfulness and its effects on task performance in the workplace. *Journal of Management, 37(4),* 997-1018. https://doi.org/10.1177/0149206310367948

de Reuver, M., Bouwman, H. & MacInnes, I. (2009). Business models dynamics for start-ups and innovating e-businesses. *International Journal of Electronic Business, 7(3),* 269-286. https://doi.org/10.1504/IJEB.2009.026530

Demil, B. & Lecoq, X. (2010). Business model evolution: In search of dynamic consistency. *Long Range Planning, 43(2-3),* 227-246. https://doi.org/10.1016/j.lrp.2010.02.004

Demil, B., Lecoq, X., Ricart, J.E. & Zott, C. (2015). Introduction to the SEJ special issue on business models: Business models within the domain of strategic entrepreneurship. *Strategic Entrepreneurship Journal, 9(1),* 1-11. https://doi.org/10.1002/sej.1194

Desyllas, P. & Sako, M. (2013). Profiting from business model innovation: Evidence from Pay-As-You-Drive auto insurance. *Research Policy, 42(1),* 101-116. http://dx.doi.org/10.1016/j.respol.2012.05.008

Deutsche Bundesbank (2018a). Bankenstatistik Mai 2018.

Deutsche Bundesbank (2018b). Verzeichnis der Kreditinstitute und ihrer Verbände sowie der Treuhänder für Kreditinstitute in der Bundesrepublik Deutschland.

Deutsche Kreditbank (2014). Jahresbericht 2013.

Deutsche Kreditbank (2015). Jahresbericht 2014.

Deutsche Kreditbank (2016). Jahresbericht 2015.

Deutsche Kreditbank (2017). Jahresbericht 2016.

Deutsche Kreditbank (2018). Jahresbericht 2017.

Dewald, J. & Bowen, F. (2010). Storm clouds and silver linings: Responding to disruptive innovations through cognitive resilience. *Entrepreneurship: Theory and Practice, 34(1),* 197-218. https://doi.org/10.1111/j.1540-6520.2009.00312.x

Dillet, R. (2017, February 6). N26 users can now get a credit line in five minutes. Retrieved from

https://techcrunch.com/2017/02/06/n26-users-can-now-get-a-credit-line-in-five-minutes/ (Date of retrieval: June 2, 2018)

Dunford, R., Palmer, I. & Benveniste, J. (2010). Business model replication for early and rapid internationalisation: The ING direct experience. *Long Range Planning, 43(5-6),* 655-674. https://doi.org/10.1016/j.lrp.2010.06.004

Easybank (2016). Geschäftsbericht 2015.

Easybank (2018a). Annual Report 2017.

Easybank (2018b). Produktübersicht. Retrieved from the Easybank website: http://www.easybank.at (Date of retrieval: July 1, 2018)

Eppler, M. & Hoffmann, F. (2012). Does method matter? An experiment on collaborative business model idea generation in teams. *Innovation: Management, Policy and Practice, 14(3),* 388-403. https://doi.org/10.5172/impp.2012.14.3.388

Ernst & Young (2016). The relevance challenge: what retail banks must do to remain in the game.

Euchner, J. & Ganguly, A. (2014). Business Model Innovation In Practice. *Research-Technology Management, 57(6),* 33-39. http://dx.doi.org/10.5437/08956308X5706013

European Central Bank (2018). Number of monetary financial institutions (MFIs) in the euro area: May 2018. Retrieved from the European Central Bank website: https://www.ecb.europa.eu/stats/ecb_statistics/escb/html/table.en.html?id=JDF_MFI_MFI_LIST (Date of retrieval: June 20, 2018)

European Parliament (2017, February 9). Understanding equivalence and the single passport in financial services: Third country access to the single market. Retrieved from the European Parliament website: http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2017)599267 (Date of retrieval: June 10, 2018)

Evans, J.D. & Johnson, R.O. (2013). Tools for managing early-stage business model innovation. *Research-Technology Management, 56(5),* 52-56. http://dx.doi.org/10.5437/08956308X5605007

Fair Isaac Corporation (2014). Millennial Banking Insights and Opportunities.

Ferreira, F., Proenca, J., Spencer, R. & Cova, B. (2013). The transition from products to solutions: External business model fit and dynamics. *Industrial Marketing Management, 42(7),* 1093-1101. http://dx.doi.org/10.1016/j.indmarman.2013.07.010

Fidor Bank (2014a). Jahresabschluss 2013.

Fidor Bank (2014b). Fidor Bank AG und Payward/Kraken starten eine offene Initiative zur weltweit ersten Bankplattform mit Fokus auf virtuellen Währungen.

Fidor Bank (2014c). Endlich bezahlbare Dispozinsen: Fidor Bank führt Dispozins von 6,9 Prozent ein – Mit Facebook-Likes weitere Senkung möglich.

Fidor Bank (2015a). Fidor: first retail bank to launch in Britian in five years.

Fidor Bank (2015b). Fidor Bank AG richtet Kapitalmarktstrategie neu aus.

Fidor Bank (2016a). Jahresabschluss 2015.

Fidor Bank (2016b). Günstige Kartenzahlungen mit mobilem Terminal: Fidor Bank erweitert Angebot für Geschäftskunden in Kooperation mit SumUp.

Fidor Bank (2016c). Revolution des Mobile Banking: Fidor Bank und Telefonica Deutschland starten mit O2 Banking das erste komplett mobile Bankkonto.

Fidor Bank (2017). Jahresabschluss 2016.

Fidor Bank (2018). FinanceBay. Retrieved from the Fidor Bank website: https://www.fidor.de/fidor-financebay-beta (Date of retrieval: July 1, 2018)

Fond Professionell (2018, March 30). Dadat steuert auf 10.000 User zu. Retrieved from the Fond Professionell website: http://www.fondsprofessionell.at/news/unternehmen/headline/dadat-steuert-auf-10000-user-zu-142425/ (Date of retrieval: June 29, 2018)

Foss, N. & Saebi, T. (2017a). Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go?. *Journal of Management, 43(1),* 200-227. https://doi.org/10.1177/0149206316675927

Foss, N. & Saebi, T. (2017b). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning, 51(1), 9-21.* https://doi.org/10.1016/j.lrp.2017.07.006

Frankenberger, K., Weiblen, T., Csik, M. & Gassmann, O. (2013). The 4I-framework of business model innovation : an analysis of the process phases and challenges. *International Journal of Product Development,* 18(3-4), 1-18. http://dx.doi.org/10.1504/IJPD.2013.055012

Futurezone (2017, December 5). Banking muss nebenher laufen. Retrieved from the Futurezone website: https://futurezone.at/apps/banking-muss-nebenher-laufen/300.690.008 (Date of retrieval: June 29, 2018)

Gassmann, O., Frankenberger, K. & Csik, M. (2014). Geschäftsmodelle entwickeln: 55 innovative Konzepte mit dem St. Galler Business Model Navigator. München: Carl Hanser Verlag.

Generali Bank (2014). Geschäftsbericht 2013.

Generali Bank (2018). Geschäftsbericht 2017.

George, G. & Bock, A. (2011). The Business Model in Practice and its Implications for Entrepreneurship Research. *Entrepreneurship: Theory and Practice, 35(1),* 83-111. https://doi.org/10.1111/j.1540-6520.2010.00424.x

Giesen, E., Berman, S.J., Bell, R. & Blitz, A. (2007). Three ways to successfully innovate your business model. *Strategy & Leadership, 35(6),* 27-33. https://doi.org/10.1108/10878570710833732

Gnatzy, T. & Moser, R. (2012). Scenario development for an evolving health insurance industry in rural India: INPUT for business model innovation. *Technological Forecasting and Social Change, 79(4),* 688-699. https://doi.org/10.1016/j.techfore.2011.08.001

Habtay, S.R. (2012). A Firm-Level Analysis on the Relative Difference between Technology-Driven and Market-Driven Disruptive Business Model Innovations. *Creativity and Innovation Management, 21(3),* 290-303. https://doi.org/10.1111/j.1467-8691.2012.00628.x

Handelsblatt (2012, August 1). Norisbank schließt alle 90 Filialen. Retrieved from the Handelsblatt website: https://www.handelsblatt.com/finanzen/banken-versicherungen/neue-strategie-norisbank-schliesst-alle-90-filialen/6951322.html
(Date of retrieval: June 1, 2018)

Hellobank (2018). Hello bei der Nummer 1. Retrieved from the Hellobank website: https://www.hellobank.at/c/die-bank/uber-uns.aspx (Date of retrieva: June 21, 2018)

Hienerth, C., Keinz, P. & Lettl, C. (2011). Exploring the Nature and Implementation Process of User-Centric Business Models. *Long Range Planning, 44(5-6),* 344-374. https://doi.org/10.1016/j.lrp.2011.09.009

ING-Diba (2015). Geschäftsbericht 2014.

ING-Diba (2016a). Konzernlagebericht und Konzernabschluss 2015.

ING-Diba (2016b, August 19). ING-Diba supports fintech hub in Frankfurt. Retrieved from the ING-Diba website: https://www.ing.com/Newsroom/All-news/ING-DiBa-supports-fintech-hub-in-Frankfurt.htm (Date of retrieval: June 29, 2018)

ING-Diba (2018). Konzernlagebericht und Konzernabschluss.

Khanaga, S., Volberda, H. & Oshri, I. (2014). Business model renewal and ambidexterity : Structural alteration and strategy formation process during transition to a Cloud business model. *R&D Management, 44(3),* 322-340. https://doi.org/10.1111/radm.12070

Kim, S. & Min, S. (2015). Business model innovation performance: When does adding a new business model benefit an incumbent?. *Strategic Entrepreneurship Journal, 9,* 34-57. https://doi.org/10.1002/sej.1193

Klang, D., Wallnöfer, M. & Hacklin, F. (2014). The Business Model Paradox: A Systematic Review and Exploration of Antecedents. *International Journal of Management Review, 16(4),* 454-478. http://dx.doi.org/10.1111/ijmr.12030

Kobler, D., Bucherer, S. & Schlotmann, J. (2016). Banking business models of the future. Deloitte Switzerland.

Köhler, M. (2015). Which banks are more risky? The impact of business models on bank stability. *Journal of Financial Stability, 16,* 195-212. http://dx.doi.org/10.1016/j.jfs.2014.02.005

Lange, V. & Velamuri, V. (2014). Business model innovation in the retail industry: growth by serving the silver generation. *International Journal of Entrepreneurship and Innovation Management, 18(4),* 310-329. https://doi.org/10.1504/IJEIM.2014.064210

Lendico (2018). Homepage. Retrieved from the Lendico website: https://www.lendico.at/ (Date of retrieval: July 1, 2018)

Libby, R., Bloomfield, R. & Nelson, M.W. (2002). Experimental research in financial accounting. *Accounting, Organizations and Society, 27*, 775-810.

Liu, Y. & Wei, J. (2013). Business modeling for entrepreneurial firms: Four cases in China. *Chinese Management Studies, 7(3),* 344-359. https://doi.org/10.1108/CMS-Mar-2012-0052

Loock, M. & Hacklin, F. (2015). Business Modeling as Configuring Heuristics. *Business Models and Modeling, 33,* 187-205. https://doi.org/10.1108/S0742-332220150000033005

Markides, C.C. (2013). Business model innovation: What can the ambidexterity literature teach us?. *The Academy of Management Perspectives, 27(4),* 313-323. https://doi.org/10.5465/amp.2012.0172

Martins, L.L., Rindova, V.P. & Greenbaum, B.E. (2015). Unlocking the hidden value of concepts: A cognitive approach to business model innovation. *Strategic Entrepreneurship Journal, 9(1),* 99-117. https://doi.org/10.1002/sej.1191

Massa, L., Tucci, C.I. & Afuah, A. (2017). A critical assessment of business model research. *Academy of Management Annals, 11(1),* 73-104. https://doi.org/10.5465/annals.2014.0072

McGrath, R.G. (2010). Business Models: A Discovery Driven Approach. *Long Range Planning, 43(2-3),* 247-261. https://doi.org/10.1016/j.lrp.2009.07.005

McIntyre (2017). How Open Banking Can Upgrade The Banking Experience. Retrieved from https://www.forbes.com/sites/alanmcintyre/2017/11/13/how-open-banking-can-upgrade-the-banking-experience/#5712448e1c46 (Date of retrieval: June 30, 2018)

McRae, H. (2015, May 5). Facebook, Airbnb, Uber and the unstoppable rise of the content non-generators. Retrieved from: https://www.independent.co.uk/news/business/comment/hamish-mcrae/facebook-airbnb-uber-and-the-unstoppable-rise-of-the-content-non-generators-10227207.html (Date of retrieval: July 13, 2018)

Mills, A.J., Eurepos, G. & Wiebe E. (2010). Encyclopedia of case study research. Thousand Oaks, CA: SAGE Publications.

Mitchell, R.K., Agle, B. & Wood, D.J. (1997). Toward a Theory of Stakeholder Identification and Salience : Defining the Principle of Who and What Really Counts. *The Academy of Management Review, 22(4),* 853-886.

Moingeon, B. & Lehmann-Ortega, L. (2010). Creation and Implementation of a New Business Model: a Disarming Case Study. *M@n@gement, 13(4),* 266-297.

Morris, M., Schindehutte, M. & Allen, J. (2005). The entrepreneur's business model: Toward a unified perspective. *Journal of Business Research, 58(6),* 726-735. https://doi.org/10.1016/j.jbusres.2003.11.001

Mugler, A. (2014). Das deutsche Bankensystem im internationalen Vergleich: Vergleich der Bankensysteme Deutschlands, der USA, Japans und Großbritanniens. Hamburg: disserta Verlag.

N26 (2018). N26 erreicht über 1 Mrd. Euro Transaktionsvolumen pro Monat und 1 Mio. Kunden. Berlin: N26 GmbH.

Nielsen, C. & Lund, M. (2013). An introduction to business models. In Nielsen, C. & Lund, M. (Eds.), The Basics of Business Models (pp. 8-20). Copenhagen: Ventus Publishing.

Noonan, L. (2017, October 8). UK-based banks still active in proprietary trading. Retrieved from https://www.ft.com/content/c1704966-9f81-11e7-8cd4-932067fbf946 (Date of retrieval: June 1, 2018)

Norisbank (2018, June 7). Wenn der Traumurlaub am Geld zu scheitern droht. Retrieved from the Norisbank website: https://www.norisbank.de/ueberuns/presse-informationen-wenn-der-traumurlaub-am-geld-zu-scheitern-droht.html (Date of retrieval: June 29, 2018)

Österreichische Nationalbank (2018a). Entwicklung der Beschäftigten im österreichischen Bankwesen. Retrieved from https://www.oenb.at/isaweb/report.do?report=3.26 (Date of retrieval: May 30, 2018)

Österreichische Nationalbank (2018b). Direktbanken in Österreich – Entwicklung der Ertrags- und Vermögenslage von 2013 bis 2016.

Österreichische Nationalbank (2018c). Number of banks by sectors. Retrieved from the Österreichische Nationalbank website: https://www.oenb.at/isaweb/report.do?lang=EN&report=3.1.1 (Date of retrieval: June 21, 2018)

Pohle, G. & Champan, M. (2006). IBM´s global CEO report 2006: Business model innovation matters. *Strategy & Leadership, 34(5),* 34-40. https://doi.org/10.1108/10878570610701531

Porter, M. (2001). Strategy and the internet. *Harvard Business Review, 79(3),* 62-78. http://dx.doi.org/10.1108/eb025570

Postbank (2017). Customer Journey Banking: ROPO-Studie für Bankprodukte in Deutschland.

Priem, R.L., Butler, J.E. & Li, S. (2013). Toward reimagining strategy research: retrospection and prospection on the 2011 AMR decade award article. *Academy of Management Review, 38(4),* 471-489. https://doi.org/10.5465/amr.2013.0097

Roengpitya, R., Tarashev, N. & Tsatsaronis, K. (2014). Bank business models. *BIS Quarterly Review December 2014,* 55-65. https://doi.org/10.1787/fmt-2013-5jzb2rhk9b6j

Saebi, T. & Foss, N. (2015). Business Model Innovation: The Organizational Dimension. *European Management Journal, 33,* 201-213. https://doi.org/10.1093/acprof:oso/9780198701873.001.0001

Schneider, S. & Spieth, P. (2013). Business Model Innovation: Towards an Integrated Future Research Agenda. *International Journal of Innovation Management, 17(01),* 1-34. https://doi.org/10.1142/S136391961340001X

Shin, J. (2014). New business model creation through the triple helix of young entrepreneurs, SNSs, and smart devices. *International Journal of Technology Management, 66(4),* 302-318. https://doi.org/10.1504/IJTM.2014.064969

Sileitsch-Parzer, H. (2014, October 18). Kredite: Ohne Bank geht's – doch nicht. Retrieved from https://kurier.at/wirtschaft/kredite-ohne-bank-geht-s-doch-nicht/91.790.249

Simmons, G., Palmer, M. & Truong, Y. (2013). Inscribing value on business model innovations: Insights from industrial projects commercializing disruptive digital innovations. *Industrial Mar-*

keting Management, 42(5), 744-754. https://doi.org/10.1016/j.indmarman.2013.05.010

Smith, W.K., Binns, A. & Tushman, M.L. (2010). Complex Business Models: Managing Strategic Paradoxes Simultaneously. *Long Range Planning, 43(2-3),* 448-461. https://doi.org/10.1016/j.lrp.2009.12.003

Sorescu, A., Frambach, R.T., Singh, J., Rangaswamy, A. & Bridges, C. (2011). Innovations in retail business models. *Journal of Retailing, 87(1),* 3-16. http://dx.doi.org/10.1016/j.jretai.2011.04.005

Sosna, M., Trevinyo-Rodriguez, R. & Velamuri, S. (2010). Business model innovation through trial-and-error learning: The naturhouse case. *Long Range Planning, 43(2-3),* 383-407. https://doi.org/10.1016/j.lrp.2010.02.003

Spector, B. (2013). The social embeddedness of business model enactment: Implications for theory and practice. *Journal of Strategy and Management, 6(1),* 27-39. https://doi.org/10.1108/17554251311296549

Spieth, P., Schneckenberg, D. & Matzler, K. (2016). Exploring the linkage between business model (&) innovation and the strategy of the firm. *R&D Management, 46(3),* 403-413. http://dx.doi.org/10.1111/radm.12218

Statistisches Bundesamt (2018). Bruttoinlandsprodukt 2017 für Deutschland.

Stieglitz, N. & Foss, N. (2015). Business Model Innovation: The role of leadership. In N. Foss & T. Saebi (Eds.), Business Model Innovation: The organizational dimension (pp. 104-122). Oxford, UK: Oxford University Press.

Suddaby, R. (2010). Challenges for institutional theory. *Journal of Management Inquiry, 19(1),* 14-20. https://doi.org/10.1177/1056492609347564

Swan, M. (2015). Blockchain: Blueprint for a new economy. Sebastopol, CA: O´Reilly Media.

Teece, D.J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal, 28(13),* 1319-1350. https://doi.org/10.1002/smj.640

Teece, D.J. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning, 43(2-3),* 172-194. https://doi.org/10.1016/j.lrp.2009.07.003

Umweltbank (2018). Nachhaltigkeits- und Geschäftsbericht 2017.

Velu, C. & Stiles, P. (2013). Managing Decision-Making and Cannibalization for Parallel Business Models. *Long Range Planning, 46(6),* 443-458. https://doi.org/10.1016/j.lrp.2013.08.003

Wei, Z., Yang, D., Sun, B. & Gu, M. (2014). The fit between technological innovation and business model design for firm growth: evidence from China. *R&D Management, 44(3),* 288-305. https://doi.org/10.1111/radm.12069

Weill, P., Malone, T.W. & Apel, T.G. (2011). The Business Models Investors Prefer. *MIT Sloan Management Review, 52(4),* 17-19

Wells, P. (2016). Economies of Scale Versus Small Is Beautiful: A Business Model Approach Based on Architecture, Principles and Components in the Beer Industry. *Organization and Environment, 29(1),* 36-52. https://doi.org/10.1177/1086026615590882

Westerlund, M., Leminen, S. & Rajahonka, M. (2014). Designing Business Models for the Internet of Things. *Technology Innovation Management Review, 4(7),* 5-14. https://doi.org/10.1007/978-3-642-19157-2

Wirtschaftskammer Österreich (2017). Volkswirtschaftliche Gesamtrechnung.

Wirtschaftskammer Österreich (2018). Österreichs Außenhandelsergebnisse.

Wirtz, B.W., Pistoia, A., Ullrich, S. & Göttel, V. (2016). Business Models: Origin, Development and Future Research Perspectives. *Long Range Planning, 49(1),* 36-54. http://dx.doi.org/10.1016/j.lrp.2015.04.001

Wirtz, B.W., Schilke, O. & Ullrich, S. (2010). Strategic development of business models: Implications of the web 2.0 for creating value on the internet. *Long Range Planning, 43(2-3),* 272-290. https://doi.org/10.1016/j.lrp.2010.01.005

Zott, C. & Amit, R. (2007). Business Model Design and the Performance of Entrepreneurial Firms. *Organization Science, 18(2),* 181-199. https://doi.org/10.1287/orsc.1060.0232

Zott, C. & Amit, R. (2010). Business model design: An activity system perspective. *Long Range Planning. 43(2-3),* 216-226. https://doi.org/10.1016/j.lrp.2009.07.004

Zott, C., Amit, R. & Massa, L. (2011). The Business Model: Recent Developments and Future Research. *Journal of Management, 37(4),* 1019-1042. http://dx.doi.org/10.1177/0149206311406265

8 Appendix

8.1 Business model design classification

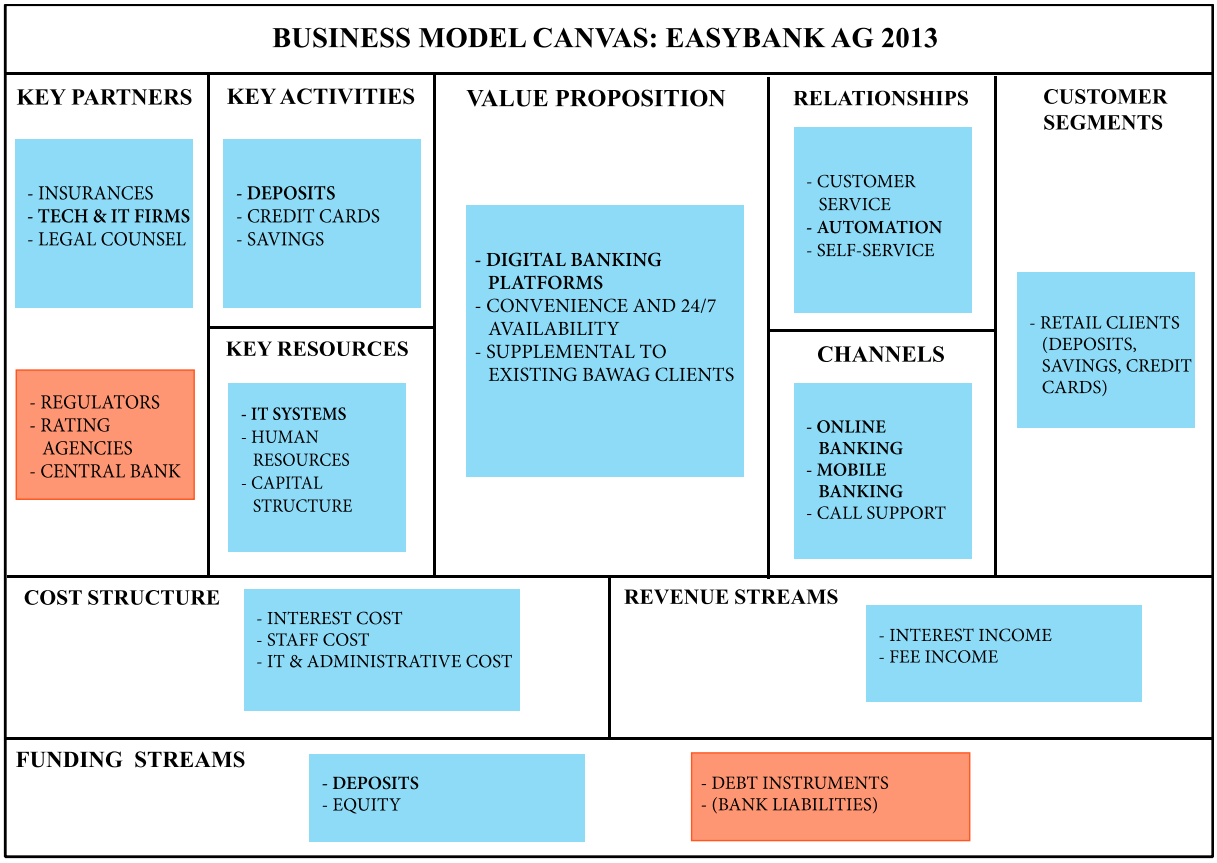
Table 22. Business model design classification scheme

Determining efficiency-centered business models	Scale
Transactions are simple from the user´s point of view (E1)	Y/N
The business model enables a low number of error in the transaction execution (E2)	Y/N
The business model is scalable (E3)	Y/N
Transactions are transparent; participants are informed sufficiently (E4)	Y/N
Access to a large range of products/services is provided (E5)	Y/N
The business model enables demand aggregation (E6)	Y/N
The business model enables fast transactions (E7)	Y/N
The business model, overall, offers high transaction efficiency (E8)	Y/N
Determining novelty-centered business models	
The business model offers new combinations of products & services (N1)	Y/N
The business model brings together new participants (N2)	Y/N
The business model gives access to a variety of participants and products (N3)	Y/N
The focal firm claims to be a pioneer with its business model (N4)	Y/N
The focal firm has continuously introduced innovations (N5)	Y/N
The revenue generation of the business model is novel (N6)	Y/N
The way transactions are conducted is novel (N7)	Y/N
The business model adopts new ideas and methods to conduct business (N8)	Y/N
The business model, overall, is novel (N9)	Y/N

Table 23. Business model design classification of sample banks

Item	Easybank	Generali	ING-Diba	DKB	Comdirect	Fidor Bank
E1	✓	✓	✓	✓	X	X
E2	✓	✓	✓	✓	✓	X
E3	✓	✓	✓	✓	✓	✓
E4	✓	✓	✓	✓	✓	X
E5	X	✓	✓	✓	✓	✓
E6	X	✓	✓	✓	✓	✓
E7	✓	✓	✓	✓	✓	X
E8	✓	✓	✓	✓	✓	X
N1	X	✓	X	X	✓	✓
N2	X	X	X	✓	X	✓
N3	✓	✓	✓	✓	✓	✓
N4	✓	X	✓	X	✓	✓
N5	✓	X	X	X	✓	✓
N6	X	X	X	X	✓	✓
N7	X	X	X	X	X	✓
N8	✓	X	X	X	✓	✓
N9	X	X	X	X	✓	✓

8.2 Easybank


BUSINESS MODEL CANVAS: EASYBANK AG 2013
KEY PARTNERS
- INSURANCES
- TECH & IT FIRMS
- LEGAL COUNSEL
- REGULATORS
- RATING AGENCIES
- CENTRAL BANK
KEY ACTIVITIES
- DEPOSITS
- CREDIT CARDS
- SAVINGS
KEY RESOURCES
- IT SYSTEMS
- HUMAN RESOURCES
- CAPITAL STRUCTURE
VALUE PROPOSITION
- DIGITAL BANKING PLATFORMS
- CONVENIENCE AND 24/7 AVAILABILITY
- SUPPLEMENTAL TO EXISTING BAWAG CLIENTS
RELATIONSHIPS
- CUSTOMER SERVICE
- AUTOMATION
- SELF-SERVICE
CHANNELS
- ONLINE BANKING
- MOBILE BANKING
- CALL SUPPORT
CUSTOMER SEGMENTS
- RETAIL CLIENTS (DEPOSITS, SAVINGS, CREDIT CARDS)
COST STRUCTURE
- INTEREST COST
- STAFF COST
- IT & ADMINISTRATIVE COST
REVENUE STREAMS
- INTEREST INCOME
- FEE INCOME
FUNDING STREAMS
- DEPOSITS
- EQUITY
- DEBT INSTRUMENTS
- (BANK LIABILITIES)

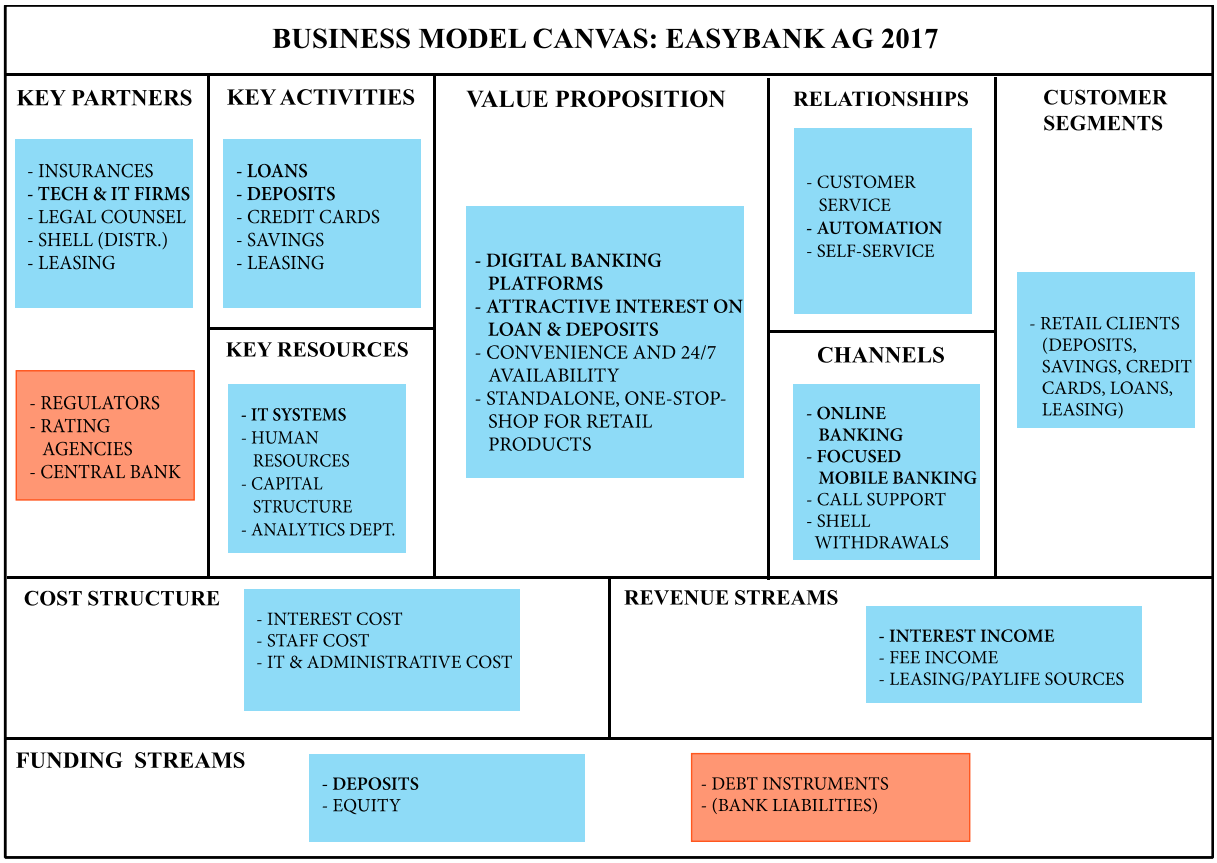


Table 24. Easybank financials 2013-2017

	2013	2014	2015	2016	2017	DELTA
CIR	51.8%	35.3%	36.5%	26.4%	35.1%	**-47.6%**
Net profit	€ 13,100,000	€ 18,027,000	€ 29,166,573	€ 50,969,000	€ 96,776,528	**86.5%**
Customers	460,000	507,000	550,000	710,000	1,300,000	**64.6%**
RoE	37.5%	34.7%	37.7%	44.2%	55.5%	**32.4%**

Table 25. Easybank innovations 2013-2017

	2013	2014	2015	2016	2017
Innovations	- Withdrawal at Shell gas stations - Tablet app support	- Loan offering	- Auto Leasing - Introduction of Easy Green Energy	- No innovations	- Paylife acquisition - Refocusing on customer data analytics
Partners	x		x		
Activities		x			
Resources					x
Value Prop.		x			
Customers	x	x	x		x
Distribution	x				
Relationships					

Revenue		x	x		x
Costs		x			
Funding		x			

8.3 Generali Bank

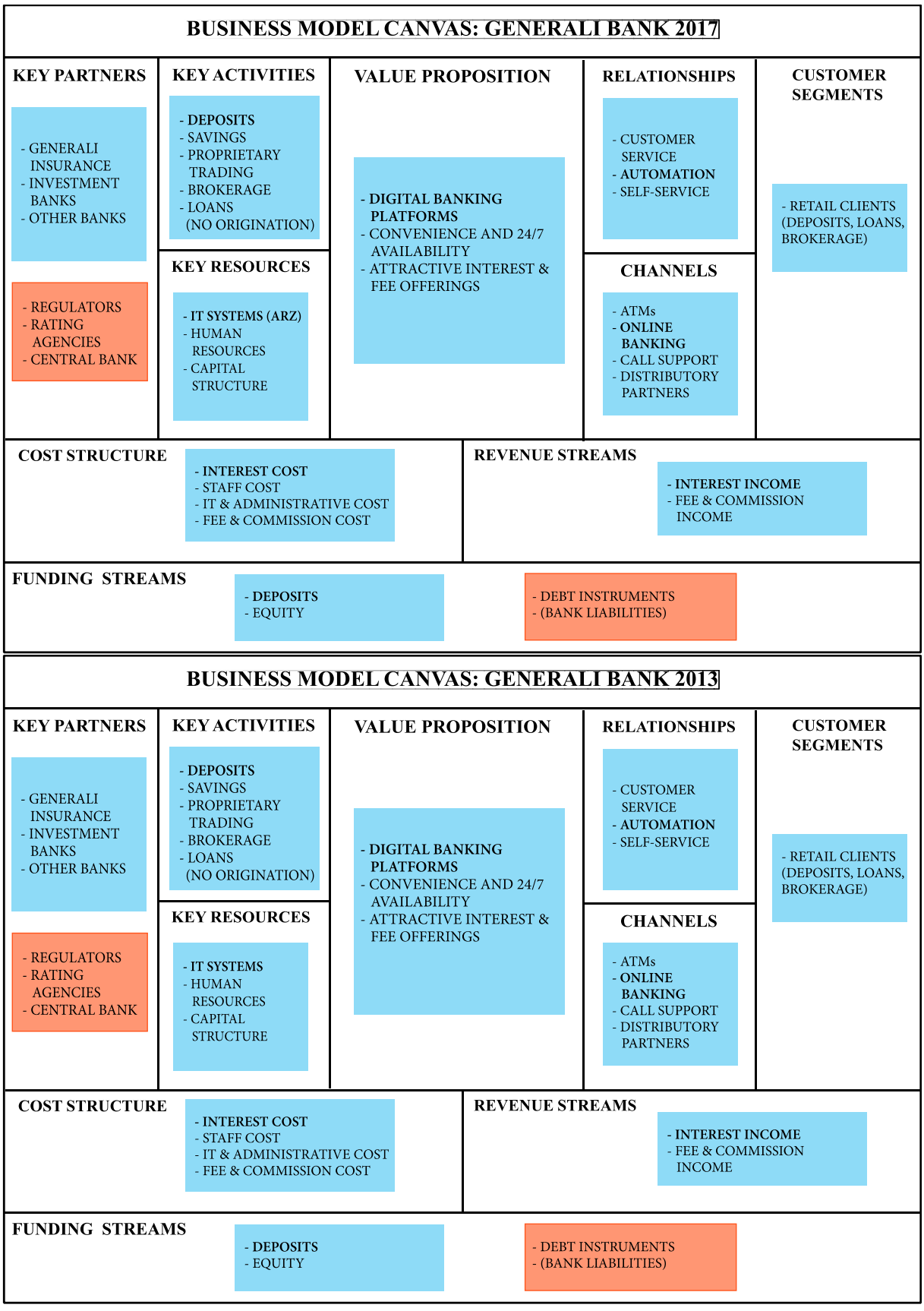


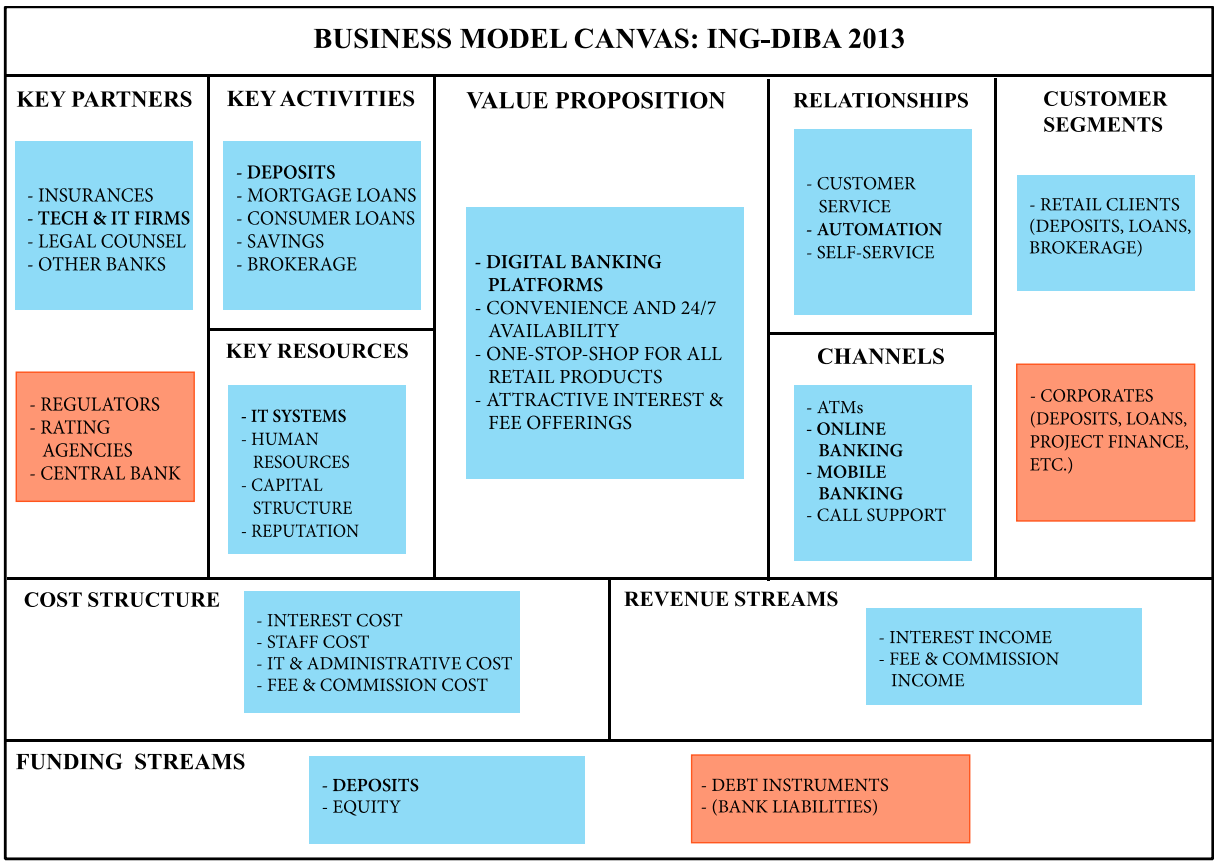
Table 26. Generali Bank financials 2013-2017

	2013	2014	2015	2016	2017	DELTA
CIR	144.7%	117.0%	126.0%	188.7%	374.7%	**61.4%**
Net profit	-€ 2,531,336	€ 732,560	€ 155,302	-€ 4,023,490	-€ 7,720,524	**67.2%**
Customers	57,500	55,500	55,000	54,000	51,000	**-12.7%**
RoE	-3.5%	1.0%	0,2%	-8.7%	-16.4%	**78.7%**

Table 27. Generali Bank innovations 2013-2017

	2013	2014	2015	2016	2017
Innovations	- New IT platform (ARZ)	- No innovations	- No innovations	- No innovations	- No innovations
Partners					
Activities					
Resources	x				
Value Prop.					
Customers					
Distribution					
Relationships					
Revenue					
Costs	x				
Funding					

8.4 ING-Diba


BUSINESS MODEL CANVAS: ING-DIBA 2013
KEY PARTNERS
- INSURANCES
- TECH & IT FIRMS
- LEGAL COUNSEL
- OTHER BANKS
- REGULATORS
- RATING AGENCIES
- CENTRAL BANK
KEY ACTIVITIES
- DEPOSITS
- MORTGAGE LOANS
- CONSUMER LOANS
- SAVINGS
- BROKERAGE
KEY RESOURCES
- IT SYSTEMS
- HUMAN RESOURCES
- CAPITAL STRUCTURE
- REPUTATION
VALUE PROPOSITION
- DIGITAL BANKING PLATFORMS
- CONVENIENCE AND 24/7 AVAILABILITY
- ONE-STOP-SHOP FOR ALL RETAIL PRODUCTS
- ATTRACTIVE INTEREST & FEE OFFERINGS
RELATIONSHIPS
- CUSTOMER SERVICE
- AUTOMATION
- SELF-SERVICE
CHANNELS
- ATMs
- ONLINE BANKING
- MOBILE BANKING
- CALL SUPPORT
CUSTOMER SEGMENTS
- RETAIL CLIENTS (DEPOSITS, LOANS, BROKERAGE)
- CORPORATES (DEPOSITS, LOANS, PROJECT FINANCE, ETC.)
COST STRUCTURE
- INTEREST COST
- STAFF COST
- IT & ADMINISTRATIVE COST
- FEE & COMMISSION COST
REVENUE STREAMS
- INTEREST INCOME
- FEE & COMMISSION INCOME
FUNDING STREAMS
- DEPOSITS
- EQUITY
- DEBT INSTRUMENTS
- (BANK LIABILITIES)

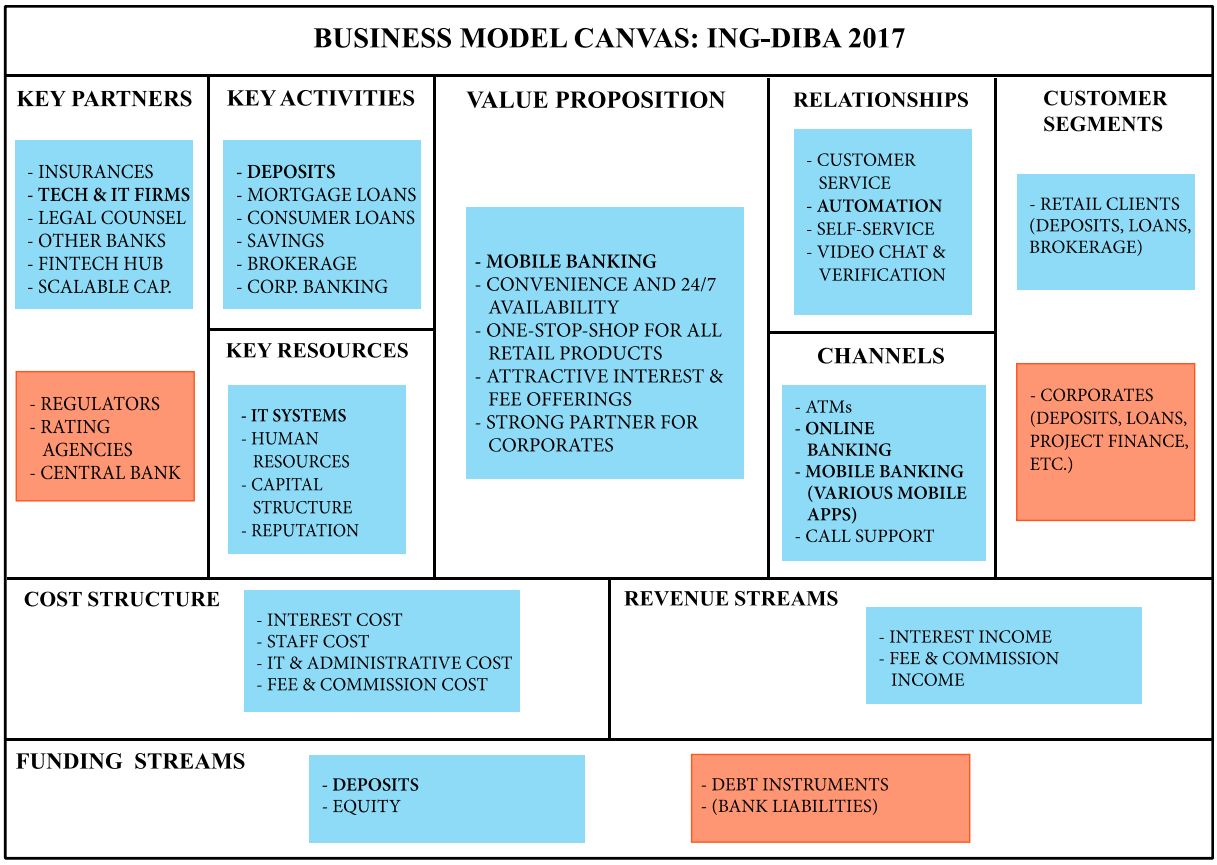

BUSINESS MODEL CANVAS: ING-DIBA 2017
KEY PARTNERS
- INSURANCES
- TECH & IT FIRMS
- LEGAL COUNSEL
- OTHER BANKS
- FINTECH HUB
- SCALABLE CAP.
- REGULATORS
- RATING AGENCIES
- CENTRAL BANK
KEY ACTIVITIES
- DEPOSITS
- MORTGAGE LOANS
- CONSUMER LOANS
- SAVINGS
- BROKERAGE
- CORP. BANKING
KEY RESOURCES
- IT SYSTEMS
- HUMAN RESOURCES
- CAPITAL STRUCTURE
- REPUTATION
VALUE PROPOSITION
- MOBILE BANKING
- CONVENIENCE AND 24/7 AVAILABILITY
- ONE-STOP-SHOP FOR ALL RETAIL PRODUCTS
- ATTRACTIVE INTEREST & FEE OFFERINGS
- STRONG PARTNER FOR CORPORATES
RELATIONSHIPS
- CUSTOMER SERVICE
- AUTOMATION
- SELF-SERVICE
- VIDEO CHAT & VERIFICATION
CHANNELS
- ATMs
- ONLINE BANKING
- MOBILE BANKING (VARIOUS MOBILE APPS)
- CALL SUPPORT
CUSTOMER SEGMENTS
- RETAIL CLIENTS (DEPOSITS, LOANS, BROKERAGE)
- CORPORATES (DEPOSITS, LOANS, PROJECT FINANCE, ETC.)
COST STRUCTURE
- INTEREST COST
- STAFF COST
- IT & ADMINISTRATIVE COST
- FEE & COMMISSION COST
REVENUE STREAMS
- INTEREST INCOME
- FEE & COMMISSION INCOME
FUNDING STREAMS
- DEPOSITS
- EQUITY
- DEBT INSTRUMENTS
- (BANK LIABILITIES)

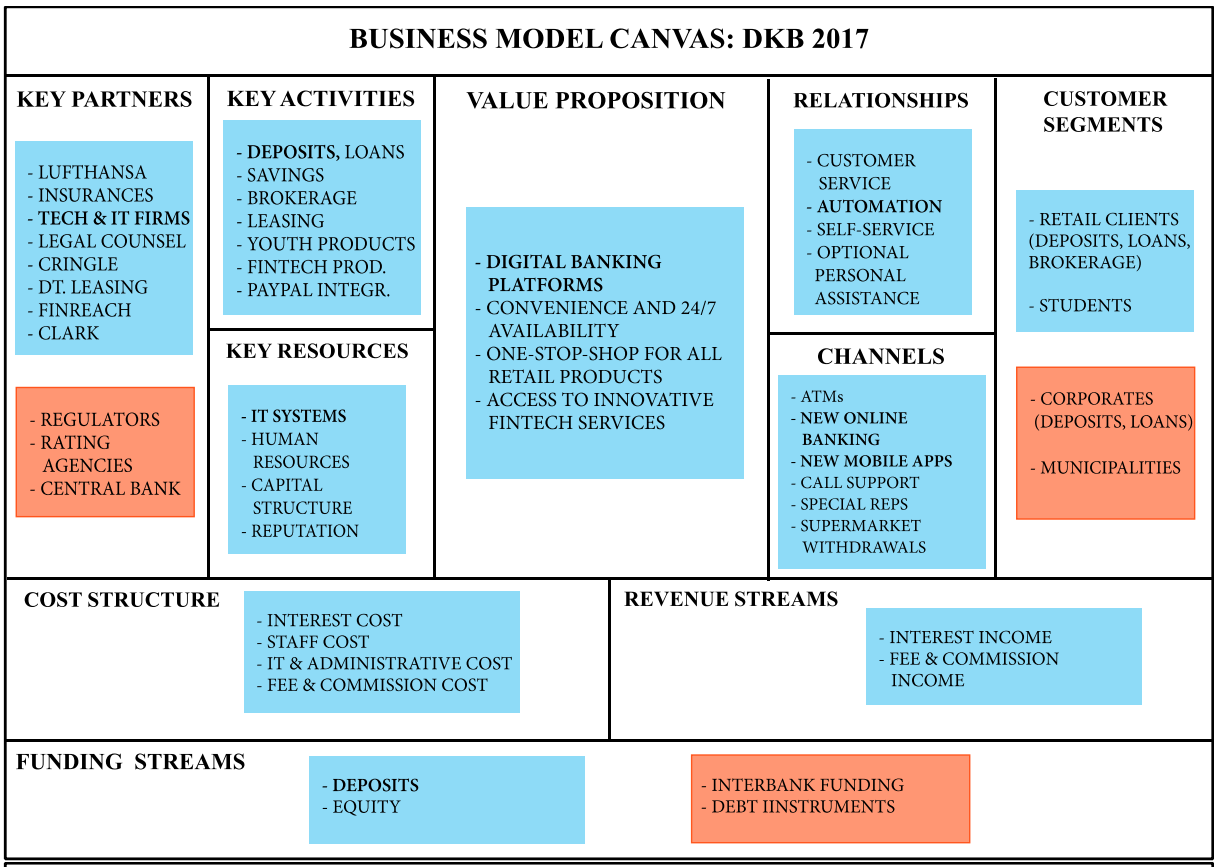
Table 28. ING-Diba financials 2013-2017

	2013	2014	2015	2016	2017	DELTA
CIR	46.0%	44.0%	40.0%	40.0%	44.0%	**-4.5%**
Net profit	€ 474,000,000	€ 599,000,000	€ 755,000,000	€ 859,000,000	€ 877,000,000	**46.0%**
Customers	8,063,495	8,279,202	8,526,209	8,781,078	9,065,465	**11.1%**
RoE	17%	21%	20%	21%	17%	**0.0%**

Table. 29. ING-Diba innovations 2013-2017

	2013	2014	2015	2016	2017
Innovations	- No innovations	- Video verification - Smart Secure application	- Mobile credit check	- Mobile account switch service - FinTech Hub Sponsoring	- Banking to go application - Cooperation Scalable Capital - Fully digital deposit account application - Paydirekt implementation
Partners				x	x
Activities					
Resources					
Value Prop.					
Customers					
Distribution		x	x	x	x
Relationships		x			x
Revenue					x
Costs					
Funding					

8.5 DKB



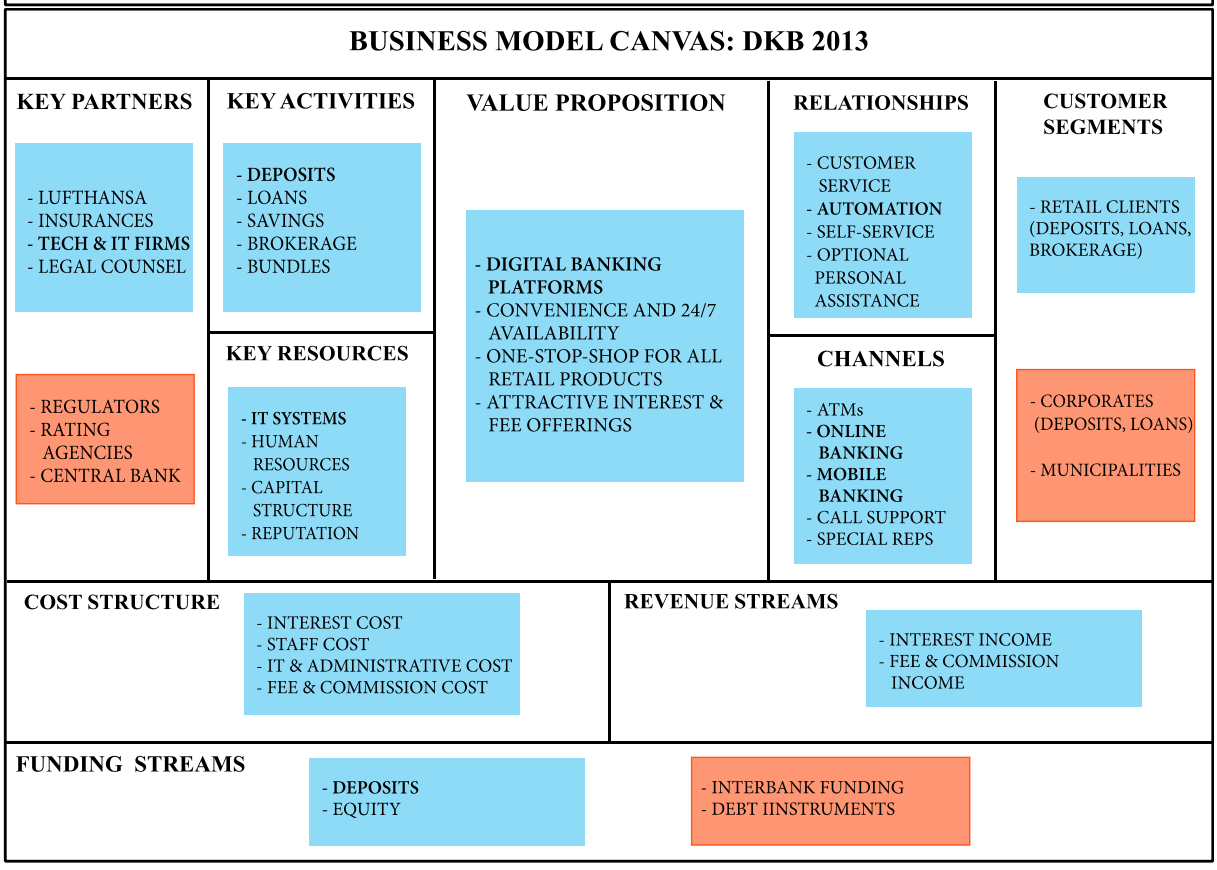


Table 30. DKB financials 2013-2017

	2013	2014	2015	2016	2017	DELTA
CIR	52.7%	56.1%	48.0%	45.8%	50.8%	**-3.7%**
Net profit	€ 152,900,000	€ 165,100,000	€ 225,000,000	€ 327,000,000	€ 263,200,000	**41.9%**
Customers	2,849,933	3,071,434	3,250,968	3,518,055	3,761,498	**24.2%**
RoE	6.4%	6.1%	9.6%	12.4%	9.6%	**33.3%**

Table 31. DKB innovations 2013-2017

	2013	2014	2015	2016	2017
Innovations	- PPP projects - "Bürgerbeteili-gung" - DKB student launch - Relaunched online presence	- Video verification - Paypal account integration - Cooperation with Cringle	- Cooperation BMW card - Cooperation Deutsche Leasing - Launch mobile Site - FinReach dep. account switch	- Withdrawals at supermarkets - FinReach depot switch - Photo transactions	- Launch DKB TAN2go - Cooperation InsurTech Clark - Launch Digital Trans-formation Lab
Partners		x	x	x	x
Activities	x	x	x	x	x
Resources					
Value Prop.				x	
Customers	x				
Distribution	x		x	x	x
Relationships					
Revenue					
Costs					
Funding					

8.6 Comdirect

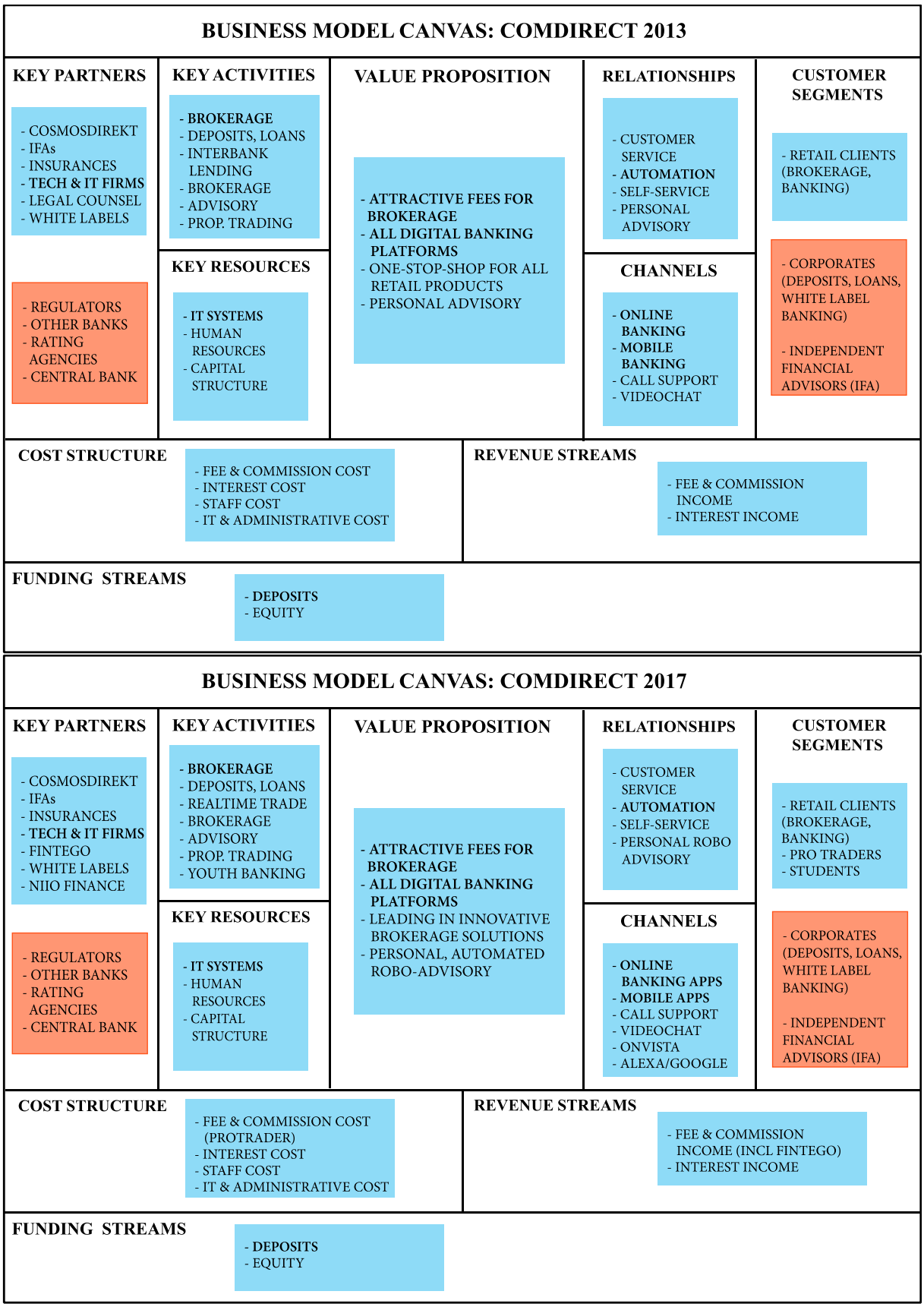


Table 32. Comdirect financials 2013-2017

	2013	2014	2015	2016	2017	DELTA
CIR	76.1%	76.6%	75.0%	68.6%	75.3%	**-1.1%**
Net profit	€ 60,500,000	€ 66,300,000	€ 64,000,000	€ 91,500,000	€ 70,500,000	**14.2%**
Customers	1,823,579	1,909,105	2,001,256	2,080,949	2,286,182	**20.2%**
RoE	15.1%	15.5%	12.0%	16.4%	11.9%	**-26.9%**

Table 33. Comdirect innovations 2013-2017

	2013	2014	2015	2016	2017
Innovations	- Launch photoTAN - Launch Personal Finance Manager - Launch CFD application	- Launch AnlageAssistent - Introduction of Webinars - Launch ProTrader realtime trading	- Fully digital account switch - Launch StartUp Garage - Launch fintego	- Launch "Digitale Finanzzentrale" - Launch MoBox - Launch smartPay app	- Introduction of cominvest Robo-Advisory - Acquisiton of onvista - Alexa/Google Home skills - Cooperation with niiio finance group
Partners			x		x
Activities		x		x	
Resources					
Value Prop.	x	x			x
Customers		x		x	
Distribution	x	x	x	x	x
Relationships	x				x
Revenue			x		
Costs	x	x			
Funding					

8.7 Fidor Bank

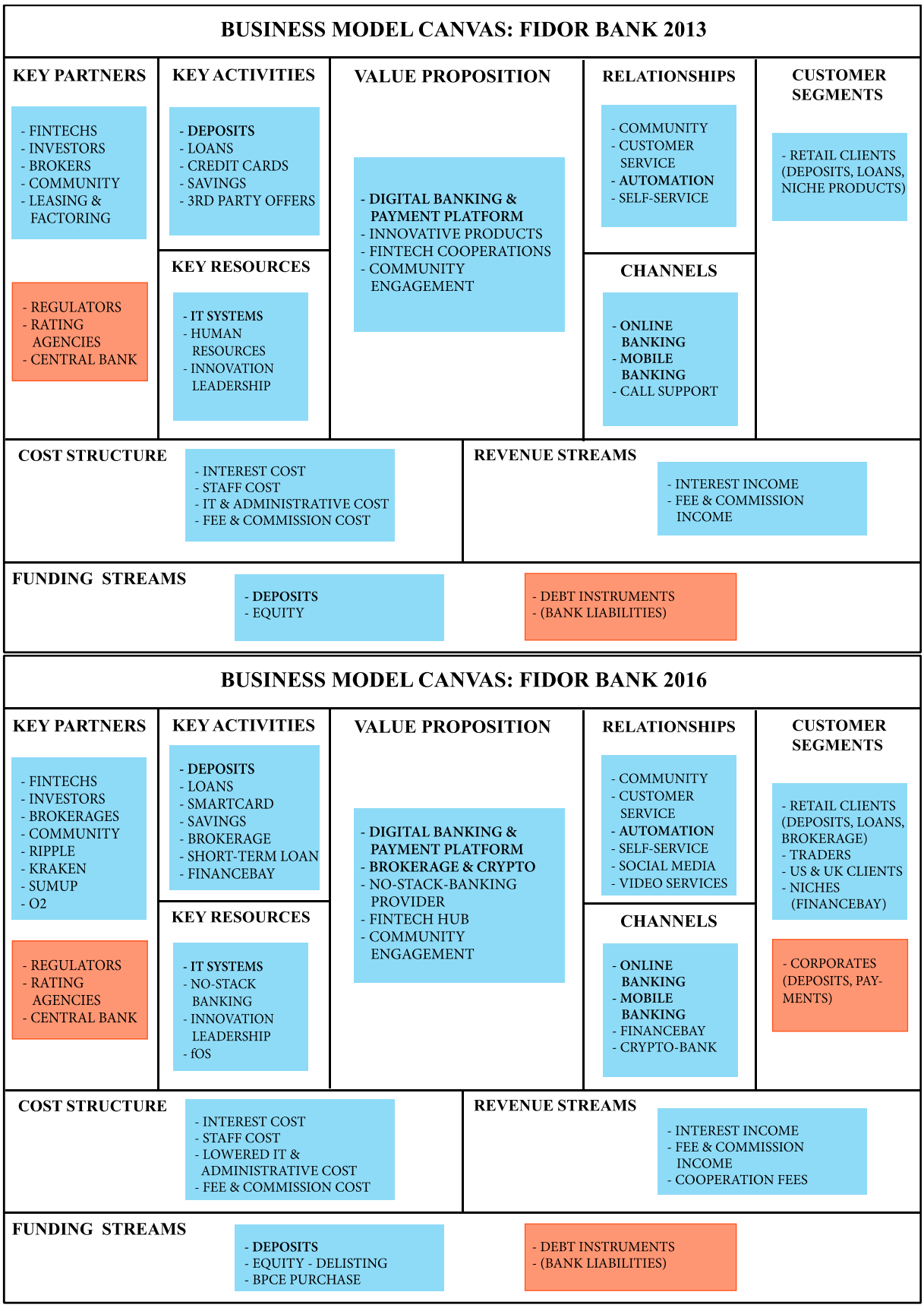


Table 34. Fidor Bank financials 2013-2016

	2013	2014	2015	2016	DELTA
CIR	75.7%	64.2%	76.8%	213.2%	**64.5%**
Net profit	-€ 5,024,800	-€ 2,643,965	-€ 94,000	-€ 23,756,181	**78.8%**
Customers	51,700	76,000	102,000	139,243	**62.9%**
RoE	-22.7%	-9.0%	-0.2%	-38.0%	**40.3%**

Table 35. Fidor Bank innovations 2013-2016

	2013	2014	2015	2016
Innovations	- Corporate accounts - Launch of Social Trading - Launch of Brokertainment - Launch "Geldnotruf" - Launch of fOS	- Integration of Ripple technology - Cooperation with Kraken (to launch CryptoBank) - Introduction of "Like-Zinssatz"	- Launch of No-Stack-Banking - Launch of Smartcard - Expansion to US & UK - Delisting from stock exchange	- Cooperation SumUp - Cooperation O2 banking - Cooperation Kred-it2Go - Video verification - Launch of FinanceBay
Partners		x	x	x
Activities	x	x	x	x
Resources		x	x	
Value Prop.	x		x	x
Customers	x		x	x
Distribution	x	x	x	x
Relationships		x		x
Revenue	x			x
Costs		x		
Funding			x	