

Make or Break: Business Model Determinants of FinTech Venture Success

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Abstract. In recent years, the phenomenon of rapidly proliferating FinTech companies along diverse segments of the financial services value chain has attracted considerable interest in academic research and practice. So far, various factors of FinTech venture success have been explored, but there is little empirical insight through the lens of business model theory. To close this gap, we build on a FinTech business model taxonomy and examine 221 FinTech companies in order to statistically infer crucial business model determinants responsible for FinTech venture success. Our findings show that the business model component “Product/Service Offering” is the most important determinant for the success of a FinTech venture.

Keywords: FinTech, Business Model, Venture Success, Taxonomy

1 Introduction

The global digital revolution has led to fundamental changes in the financial services sector. The development of new information technologies (IT) enables increasingly technology-savvy customers to access classic services and products offered by incumbent banks in a faster, customer-friendly, and more efficient manner. The emergence of financial technology companies, commonly known as FinTech companies, is the trigger for this new era of fast-growing digital financial products and alternative financial services markets. These FinTech companies, as defined by [1], are “companies that operate at the intersection of (i) financial products and services and (ii) IT, they are usually (iii) relatively new companies (often startups) with (iv) their own innovative product or service offerings.”

Although the term FinTech has turned into a mainstream benchmark for innovation in the financial sector, the digitalization of the financial services as we know it today is fundamentally the result of an ongoing process of digital transformation that has taken place throughout the last century. As identified by [2], the overarching conception of financial technology began to emerge in the 1990s through a phased transition from

analog to digital financial services. This was made possible by the introduction of diverse technological developments such as the onset of the use of the Internet for online banking in the mid-1990s and the development of smartphone technology together with complex application programming interfaces. These innovations provided the basis for the globalization of financial services and further integration of information and communication technologies (ICT) into the financial sector [2], [3].

Yet, despite that the assimilation of cutting-edge technologies into the financial industry has been a constant catalyzer for the evolution and development of financial services and products, the term FinTech mainly began to earn notoriety in recent years when the regulatory reaction to the financial crisis of 2008 held back the technology integration capability of the financial sector [4]. So far, the size, scope, influence and high barriers to market entry ensured the prevalence of the traditional business models of incumbent banks and insurance companies. But, the rapid rise of FinTech companies along diverse segments of the financial services value chain has made evident that these market entrants possess the disruptive potential to overcome these barriers.

However, whereas the innovation in ICT is one of the fundamental pillars for the emergence of the FinTech phenomenon [2], it is also true that the revolutionary digital technologies brought into play by FinTech companies are only profitable to the extent that they can be made marketable through a suitable business model [5]. Consequently, the venture success and initial survival of FinTechs is largely build upon the ability of FinTech entrepreneurs to describe their business logic, value network, and position of the company in the financial industry value system to investors [6]. They also need to prove how the introduction of a new technology not only creates and captures new value but also generates economic return [7]. Only then, investors can differentiate FinTech companies in accordance with their business model and identify inherent key value drivers of FinTech business models like profitability and growth prospects [8], [9]. Considering the outlined aspects and the fact that three out of ten FinTech ventures fail [10], this paper addresses the following research question: *Which components of a FinTech company's business model have the highest impact on venture success?*

2 Theoretical Background

2.1 Business Model Theory

In the last two decades, the interest on the business model concept has been growing at pace with the increasing role of entrepreneurship and innovation as drivers of economic growth [5]. However, despite of the popularity of the term and the growing scientific research on business models, there is still no common definition of what a business model is and how it is composed. Notwithstanding this lack of consensus, over the past 15 years, diverse research papers, such as [9–12], have aimed to provide a common interpretation and conceptualization of the business model term. This is attempted either through the development of ontologies or by combining different descriptions and constituent elements in order to generate a collective business model framework consistent with the state of the art of the scientific literature. Following this approach,

a comprehensive study performed by [11] analyzed 1,253 articles published in management journals between the years 1975 and 2009. The study synthesized the business model concept as “a new unit of analysis, offering a systemic perspective on how to ‘do business,’ encompassing boundary-spanning activities (performed by a focal firm or other), and focusing on value creation as well as on value capture.” This definition has been used in the academic literature mainly with the purpose to analyze 1) the application of e-business and IT in organizations, 2) strategic management mechanisms to achieve value creation and competitive advantages, and 3) innovation and technology management issues, such as the process of converting innovations in ICT into economic value. Given the scope and timeframe of the analysis, the former business model definition provides a representative characterization of the business model concept during the onset of the digitalization of traditional financial services, denominated as FinTech 2.0 [2]. Still, as documented by [6], due to the lack of a proper definition of the business model concept, there is also no universal consensus about the components that a business model encompasses. In order to close this research gap, [9] developed a hierarchical taxonomy of the business model concept aiming to identify the main business model dimensions and their respective elements. They managed to delineate the ontological structure of the business model concept taking into consideration its interconnection with information systems (IS), business processes, and strategy research. In this way, [9] identified “Value Proposition,” “Value Architecture,” “Value Network,” and “Value Finance” as the four fundamental components of the business model concept. The former conceptualization of the business model definition and the identification of its fundamental components provide an aggregated research perspective on business models from multiple fields.

According to [13], three main research streams can be identified throughout the evolution of the research on business models performed in the fields of strategic and innovation management, entrepreneurship, marketing, and IS. As identified by [14–16], the first stream of business model literature emerged in the 1990s and was triggered by the revolution in ICT caused by the arrival of the Internet and the reduction in transaction processing costs. The main focus of this research stream lies on the exploration of the impact of new technologies, i.e. the Internet and the World Wide Web at that time, on the traditional business models, and the emerging electronic business models [17]. The second stream of literature takes a conceptual step forward by evaluating the intrinsic capability of the business model framework. This allows for a consolidation of new digital technologies within the entire value creation process and value networks with customers, suppliers, and other business partners of an organization to create value through digital business models [14]. Thus, as stated by [18], value can be generated from innovation in the form of 1) new products that increase customer value through better problem-solving, performance, customization, accessibility, ease of use, etc., 2) new methods of production that contribute to reduce costs or risks, 3) new distribution channels and customer interfaces to deliver the company’s value proposition, 4) new markets and customer segments, 5) new revenue mechanisms, or 6) new disruptive business models. The latter embodies the focus of the third stream of literature on business model research, which examines “the role of ICT as the driver of a new wave of industrialization” [19], where ICT-enabled business

models fundamentally transform the value creation process and disrupt the value system of an industry [13]. According to [20], the business model components that will be restructured by digital business model innovations are mainly those related to the customer value proposition, the methods of production, and the revenue mechanisms.

2.2 FinTech Business Model Taxonomy

In the context of FinTechs, disruptive business models are developed around a novel technology and a customer-centric perspective. This allows FinTechs to unlock new markets and customer interactions, to introduce different mechanisms for revenue generation, and to implement novel approaches for producing customer-centric products and services. The latter enables FinTechs to engage in co-creation of value with their customers, in such a way that both the supply and the demand-side can contribute to the development of resources and activity-based competitive advantages [11]. However, the scientific literature has not yet agreed on a universal definition of the term FinTech due to the varying business strategy alignments, product and service portfolios, and digitally-induced business models framing the concept.

To structure and better relate existent business models in the FinTech domain, [1] develop a taxonomy of FinTech business models by following the methodology for taxonomy development by [21]. This taxonomy builds on a) theoretical foundations of the business model concept and b) data from Crunchbase, a database aggregating information regarding innovative companies, e.g. investors, funding, and incubators [22]. [1] suggest six dimensions of FinTech business models in line with the identified components of [6], [11], and [18]. Using the Crunchbase attribute tag “FinTech” to extract relevant companies, mutually exclusive and collectively exhaustive characteristics related to these dimensions were identified (Table 1).

Table 1. Taxonomy dimensions and their respective characteristics [1]

<i>Dimension</i>	<i>Characteristics</i>
Dominant Technology Component	Blockchain, Digital Platform, Decision Support System, Database, Marketplace, Transaction Processing System
Value Proposition	Automation, Collaboration, Customization, Insight, Matching/ Intermediation, Monetary, Financial Risk, Transparency, Unification/Consolidation, Security, Convenience/Usability
Delivery Channel Customers	API, App, Physical, WWW, WWW + App, Instant Message B2B, B2C, B2B + B2C
Revenue Stream	Kickback, Pay Per Use, Revenue Share, Sales, Subscription, Unknown, Free, Hybrid
Product/Service Offering	Information Aggregation, Brokerage, Currency Exchange, Current Account, Device, Financial Education, Financing, Investments, Payment Service, Personal Assistant, Lending/Credit, Fraud Prevention, User Identification

Furthermore, in order to validate the robustness of the conducted taxonomy of FinTech companies, [1] examined representative firm archetypes in the FinTech sector. By using the firm tags of the database Crunchbase (e.g. business sector and technology) and a multiscale bootstrap resampling approach, they constructed a cluster dendrogram and were able to identify ten clusters of FinTech business model archetypes. Namely, (1) “Cryptocurrency”; (2) “Payment Service”; (3) “Financial Markets Intermediary”; (4) “Information Aggregator”; (5) “Information Extractor”; (6) “Insourcer of Sub-Processes”; (7) “Lending Community”; (8) “Alternative Trading Venue” (9) “Robo Advisor” and (10) “Co-Creator of Financial Analysis.” In order to distinguish determinant factors for potential success or failure of FinTech companies, we build upon this taxonomy and connect the related archetypes to our findings.

2.3 FinTech and Venture Success

According to [12], the survival and success of for-profit organizations is directly associated to their capacity to both create and capture value. Therefore, in line with this logic, each component of a business model provides a fundamental insight of the constituent elements required for the company innovation, short-term survival, and long-term success. As stated by [23] a successful venture must guarantee market performance results such as sales volume and growth, a competitive market share, as well as a strong market position. Otherwise, in agreement with the definition of business failure of [24], in the event of the inability of the company to fulfill its responsibilities towards its stakeholders, the business venture can be regarded as failed.

Hence, the business model concept constitutes a major instrument to generate crucial knowledge for the identification of the factors (i.e. business model dimensions, characteristics or components) that are relevant for the success and development of the FinTech ventures. Nevertheless, as identified in the meta-analysis of the literature on FinTechs performed by [25], the limited existing academic literature on critical success factors for FinTechs is mainly focused on the determinants of success for the adoption and performance of the dominant IT artifact driving the business models [26], among which studies on the determinants of success for peer-to-peer digital platforms take an important position [27–29]. Furthermore, studies like [30] have identified different aspects such as entrepreneur quality, policy regulations, product demand, and capital as the key determining factors for the development of the FinTech industry in diverse European countries.

In addition, given the still incipient academic literature on FinTech success [25], a further insight into the elements required for the potential success and survival of FinTech ventures can also be gained through the consideration of academic literature in the field of entrepreneurship. Studies like [31] have identified that high-tech ventures are likely to be more successful if they implement product customization strategies to target existing markets, rather than addressing new markets. Furthermore, [31] identified that the initial success of high-tech ventures is mostly determined by factors like the entrepreneurial quality (i.e. technological expertise, leadership, business skills, capacity to assess and respond to risk, and market knowledge) as well as resource and product-based factors like the product market fit and the market acceptance. Likewise,

factors like the access to capital have been conjectured to play a role in the prospect of success of business ventures considering that: 1) new technology-based firms are generally capital-intensive and in danger of being undercapitalized [32]; 2) new ventures often have to survive an initial growth phase without profits and depend on their financial resources to continue their operations [33]; 3) as in the case of ICT companies, FinTech ventures also rely on innovation in order to gain a competitive advantage over incumbent financial services firms. Therefore, it can be inferred that the financial resources obtained through funding will increase the chances of the FinTech ventures to expand their capabilities and further invest in research and development in order to enhance their value proposition [34].

Following a one-dimensional resource-based view, we utilize total funding as an indicator for potential FinTech venture success in line with a voluntarist approach to entrepreneurial failure of [35]. Consequently, this choice corresponds to the causal assumption that the successful development of a FinTech venture is determined, to a large extent, by its resource base [36] and the existence of established funding relationships [37]. Building on the aforementioned theoretical background where we identify a lack of research on venture success for FinTech companies that specifically addresses the business model concept, we conduct an empirical analysis using a FinTech-specific dataset.

3 Empirical Study on FinTech Venture Success

3.1 Description of the Used Datasets

The primary data used in this research is based on the dataset utilized in the taxonomy development of [1]. The core aspects of this dataset are 1) the manual review process through which companies incorrectly identified as FinTech were removed and 2) the assignment of characteristics depending on the judgement of the researchers. Every company is assigned to the most fitting characteristic for each of the six dimensions of the FinTech business model taxonomy. Additionally, using the Crunchbase API [22], we gather a dataset of complementary information on FinTech companies where the contained information does not exceed the timeframe (as of June 2016) of the original taxonomy dataset. It provides a variety of details including funding rounds, investors, acquisitions, and IPOs. For the following analysis, data about the country of operation, number of employees, current mode of operation (operating, closed, acquired, and IPO), funding rounds, time since first funding, and total funding denominated in USD is the most relevant. Restricted by the amount of companies for which funding data is available, a dataset of 400 companies is generated. To allow for an automated analysis of the taxonomy dataset through regression analysis, it is necessary to further clean and standardize the available data. Since the information required for our analytical purposes is not available for every company, a subset of companies is chosen for which the described data is available. This results in a final data set of 221 companies, of which more than 50 % are based in the US.

3.2 Analysis

In order to ensure the validity of the following analysis that addresses the underlying research question, we determine to which degree the dimensions of the business model taxonomy are dependent. This does not only have the potential to provide a first intuition for the underlying data itself, but can also reveal potential pitfalls in the analytical approach (e.g. highly correlated dimensions). Since the taxonomy consists of six nominal variables, each with multiple levels, a sensible approach is the utilization of Cramér's V [38]. This measure describes the degree of dependence between two discrete variables (that have two or more levels) on a standardized scale from zero to one. Albeit some dimension tuples possess a correlation of up to 0.52, for example "Dominant Technology Component" and "Product/Service Offering," the results indicate at most moderate correlations as displayed in Figure 1. In case of highly dependent variables (Cramér's V close to one), it would be necessary to question the carried out coding or even the taxonomy itself.

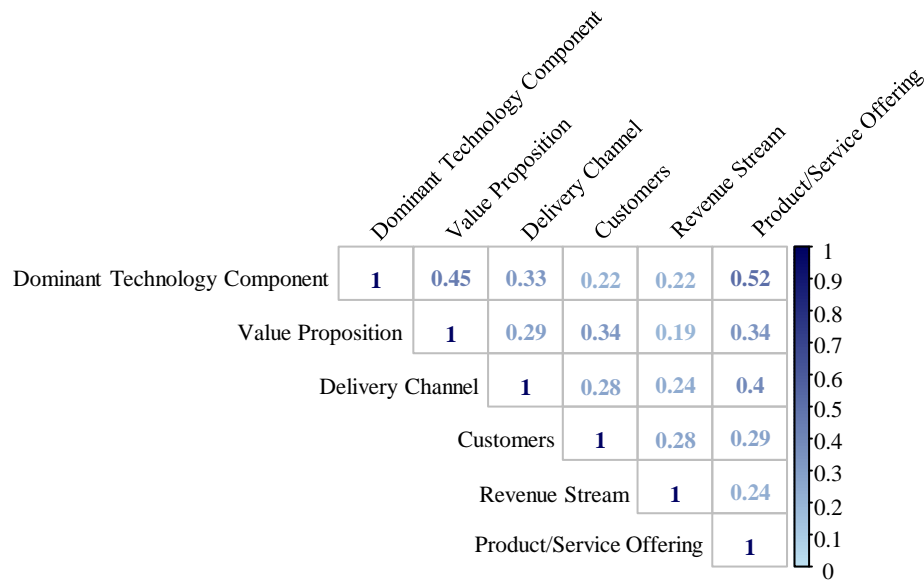


Figure 1. Strength of association between constituent dimensions of the FinTech business model taxonomy indicated by Cramér's V

Equipped with a deeper understanding of the relations between the dimensions, in the next step we use multiple linear regression to uncover which characteristics are significant predictors for FinTech venture success. We operationalize this in the form of the aggregated received funding denominated in USD for every funding round contained in the dataset. For our analysis, we include the six dimensions of the taxonomy, expressed in the form of 45 characteristics, as explanatory variables by using dummy coding [39]. Furthermore, we control for the employee count, the country of operation, the number of funding rounds, and the time since first funding. The total

funding each company received is included as the dependent variable. According to the foregoing, Table 2 gives a brief overview of how many p-values <0.1 were identified per dimension. Naturally, statistical significance alone cannot be used to assess the overall meaning of each dimension, but we include this overview to explain the subset of the analysis presented in more detail in Table 3.

Table 2. Number of significant predictor variables (dummy coded) per taxonomy dimension resulting from the multiple regression analysis

<i>Name</i>	<i>Significant Variables</i>	<i>Total Variables</i>
Dominant Technology Component	0	5
Value Proposition	0	10
Delivery Channel	0	4
Customers	0	2
Revenue Stream	0	7
Product/Service Offering	3	11

The multiple regression analysis shows significant relationships between characteristics located in the “Product/Service Offering” dimension and the aggregated funding per company. An in-depth view of the regression summary for this specific dimension is provided in Table 3.

Table 3. Excerpt from the multiple regression analysis showing the taxonomy dimension “Product/Service Offering”

<i>Name</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>t-value</i>	<i>Pr(> t)</i>
Intercept	-22.944	70.575	-0.325	0.746
<u>Product/Service Offering</u>				
Credit Lending	92.686***	27.265	3.399	<0.001
Currency Exchange	18.347	37.167	0.494	0.622
Device	-46.818	103.951	-0.450	0.653
Financial Education	37.666	39.778	0.947	0.345
Financing	60.204*	33.809	1.781	0.077
Fraud Prevention	42.388	46.656	0.909	0.365
Information Aggregation	51.982*	27.393	1.898	0.060
Investments	39.830	28.159	2.377	0.019
Payment Services	19.432	28.713	0.677	0.500
Personal Assistant	25.962	29.423	0.882	0.379
User Identification	29.543	51.560	0.573	0.568
Observations				221
R ²				0.702
Adjusted R ²				0.544
Residual Std. Error				48.449
F-Statistics				4.457***
Note:	*: p<0.1; **: p<0.05; ***: p<0.01			

The dimension “Product/Service Offering” contains three significant characteristics. Of particular interest is the characteristic “Credit Lending”: A p-value of <0.001 is accompanied by a relatively large coefficient estimate of 92.686. “Financing” and “Information Aggregation” are also statistically significant but exhibit a slightly lower effect size. This finding indicates that specific types of “Product/Service Offerings” receive significantly more funding than others. As a final step, we take a closer look at the mentioned characteristics. To create an intuition for what kind of company belongs to these characteristics, we construct contingency tables and filter for the specific instance of “Product/Service Offering.” The characteristics with the highest absolute frequency are displayed in Table 4.

Table 4. Most common taxonomy instances for each of the relevant characteristics (underlined)

<i>Dominant Technology Component</i>	<i>Value Proposition</i>	<i>Delivery Channel</i>	<i>Customers</i>	<i>Revenue Stream</i>	<i>Product/Service Offering</i>
Marketplace	Matching/ Intermediation	www	B2C	Unknown	<u>Credit Lending</u>
Marketplace	Matching/ Intermediation	www	B2B	Unknown	<u>Financing</u>
Decision Support System	Insight	App	B2B	Unknown	<u>Information Aggregation</u>

4 Results and Implications

Our empirical results show that the FinTech business model component “Product/Service Offering” plays a significant role in the potential success of a FinTech venture, as addressed in the research question. These findings are in line with the theoretical foundations on success factors for new high-tech ventures and contribute to close the research gap identified in section 2. Studies like [31] have identified that product-specific factors represent crucial determinants of venture success that rely on innovation to generate competitive advantages, as it is also the case for FinTech companies. Relating to Table 4, a connection to the FinTech business model archetypes, given in section 2.2, can be drawn. Naturally, when filtering for single characteristics, patterns similar to the archetypes emerge. However, a distinct assignment to specific archetypes cannot be made. This poses the question whether further insights can be gained by directly relating FinTech venture success to FinTech archetypes. As observed in Table 3, the FinTech companies that are more likely to succeed are those that target existing markets with growth potential like credit markets. The findings provide investors with determinants of the potential success of a FinTech venture that can be used throughout the venture lifecycle. These contribute not only to optimize the early stage FinTech valuation process, but also help to mitigate significant risks inherent to new ventures such as product risk, market risk, implementation risk, and competitive risk [40]. In addition, the correlation analysis, as indicated by Cramèr’s V, shows at most moderate correlations between the taxonomy dimensions, which can be seen as a

first evaluation step of the FinTech business model taxonomy by [1]. To the best of our knowledge, this paper is one of the first studies to empirically analyze the business model determinants responsible for FinTech venture success and contributes to increase the existing body of knowledge in FinTech research.

5 Limitations and Future Research

As in any secondary data analysis, this study is restricted by limitations. Since Crunchbase is updated by selected contributors, the data quality varies in terms of completeness and accuracy. In addition, data about the revenue stream is not available in several cases. Therefore, the implications that can be drawn for this specific dimension are limited. For the analyzed dataset, this issue is especially prevalent in the B2B domain (62% “Unknown”) compared to the B2C domain (38% “Unknown”). One could hypothesize that contract details are discussed in a bilateral manner between a FinTech company and its client. Thus, companies do not have an incentive to make this data publicly available. However, this presents an interesting research opportunity. A researcher may be able to generate additional insights in this area by interviewing FinTech companies. A course of action to improve the practical usability of the taxonomy is the further refinement and in-depth discussion of the characteristics assignment process to reduce ambiguities and improve consistency. Since FinTechs in different subsectors and funding stages might have different funding requirements, a further subdivision of the dataset might be useful, insofar as there are enough data points. In addition, a time dependent analysis of the funding across the taxonomy characteristics could possibly lead to more detailed insights. As [1] previously pointed out, the dataset used for this analysis presents a strong regional focus, as it is concentrated particularly on FinTech ventures in developed countries. To overcome the aforementioned limitation, future research could reproduce this study using a different dataset containing FinTech ventures belonging to the FinTech 3.5 period as defined by [2]. This approach will contribute to obtain a better understanding of FinTech ventures in emerging markets. As [2] indicate, the private sector is highly interested in new investment opportunities in financial services in emerging markets. A better knowledge about these investment objectives could provide useful decision criteria for new regulations in order to accelerate and support the successful funding and development of FinTech ventures in these countries.

6 Conclusion

Given the growing importance and disruptive force of FinTech ventures, this paper empirically explores the business model determinants of venture success. For that purpose, we relate business model characteristics and FinTech venture success by utilizing a FinTech business model taxonomy that allows for a company classification along six business model dimensions. By analyzing a dataset containing 221 FinTech companies and extracting complementary company details from Crunchbase, we identify the business model component “Product/Service Offering” to be the most

influential determinant of venture success. Through these findings, we contribute to the existent body of research on FinTech ventures by identifying business model components determining the success of a company. On the other hand, potential investors may benefit from our findings when attempting to derive predictors for the future success of companies of interest. Possible avenues for future research are the collection and analysis of additional FinTech specific data and the time-variant analysis of funding across the taxonomy characteristics.

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