ASIAN BULLETIN OF BIG DATA MANAGMENT
Vol. 4. Issue 2 (2024)
https://doi.org/ 10.62019/abbdm.v4i02.165

Marketing Agility's Influence on Market Performance: A Perspective from FinTech Industry

Aamir Abbas*, Dr Arfan Ali

Chronicle

Article history

Received: May 12, 2024
Received in the **revised format:** May 21, 2024
Accepted: May 23, 2024
Available online: May 25, 2024

Aamir Abbas & Dr Arfan Ali are currently affiliated with the National Business School, The University of Faisalabad, Pakistan.
Email: aamirabbasmkt@gmail.com
Email: asst.prof.nbs.516@tuf.edu.pk

Corresponding Author*

Abstract

In the dynamic market of Pakistan, the FinTech industry faces many challenges in grabbing the market share. FinTech startups must develop the dynamic capabilities to cope with these challenges and enhance their market performance. Marketing agility involves different dynamic capabilities that can improve organizational operations. Therefore, this research aimed to investigate the influence of marketing agility on the market performance of FinTechs. Moreover, it investigated the moderating role of data-driven culture in the relationship between marketing agility and market performance. The data for the research were gathered from 447 managers of FinTech companies via a close-ended questionnaire. The preliminary analysis reported seven outliers, which were removed during screening. Thus, 440 responses were retained for final analysis. The demographic characteristics of managers were determined using SPSS. In addition, Smart PLS-4 was used for data analysis. It analyzed the data in two steps; in the first step, the measurement model was accessed, and the second step investigated the structural model to test the hypotheses. The results highlighted the significant relationship between marketing agility and performance. In addition, the findings confirmed the moderation of data-driven culture in the relationship between marketing agility and market performance. The research results can act as a guide for managers of Fintech startups aiming to enhance their market performance in the volatile market of Pakistan.

Keywords: Marketing Agility, Dynamic Capabilities, FinTech, Data-Driven Culture, Market Performance.

INTRODUCTION

The roots of the FinTech industry in Pakistan are quite old, and credit cards, debit cards, and Automatic Teller Machines (ATMs) were its pioneer services or facilities designed particularly for commercial banks. The application of these services in Pakistan was derived from rapid technological advancement and globalization. However, the country is now witnessing a new class of FinTech that is revolutionizing technology and providing solutions to deliver financial services (Rizvi et al., 2018). The currently operational FinTech startups in Pakistan can be divided into two categories: emergent FinTech (i.e., FinTech working with financial firms or banks) and traditional FinTech (i.e., FinTech providing solutions to conventional pricing models); both FinTech offer different and exclusive services such as mobile wallet providing payment solutions, online mobile top-ups, and web-based applications (Shahid et al., 2017; Rizvi et al., 2018; Butt and Khan, 2019). Pakistan is the 6th most populated country in the world. Its economy is considered cash-based; even 85% of the country's population is financially excluded. Thus, only a small fraction of the population is available to be served, and high banking infrastructure cost acts as a barrier to offering financial

services to this financially included population. Currently, only a few FinTech startups are operational in the country (Shahid et al., 2017). FinTech can improve the current fiscal situation of the country, but currently, its adoption is facing different challenges related to digital learning and governing barriers (Ahmed et al., 2024). Furthermore, customer acceptability (i.e., customer acceptance) towards FinTech startups in Pakistan is very low, which indicates that customers feel reluctant to adopt financial innovation based on technology (Butt and Khan, 2019). Therefore, FinTechs should work on resolving these issues by developing a specific dynamic capability, and this capability can be marketing agility as it will enable the FinTechs to sense the market (i.e., based on customers) and then execute marketing decisions based on the specific market environment for enhancing the market performance.

Agility is the capability of FinTech companies in fragile environments that can help them serve customers who lack banking facilities because of the discontinuation of banking services. Furthermore, it can enable them to provide financial services to customers without personal interaction (Raveendra and Satish, 2021). Prior studies have focused on different types of agilities leading to performance, such as strategic agility (Shin et al., 2015; Clauss et al., 2019; Gerald et al., 2020), supply chain agility (Blome et al., 2013; Cadden et al., 2022; Alfalla-Luque et al., 2023), manufacturing agility (Awan et al., 2022), business process agility (Kurniawan et al., 2021) and market agility (Benzidia and Makaoui, 2020). However, there is limited literature highlighting the specific agility or dynamic capability required by FinTech startups to enhance their market performance. In FinTechs, the focus of agile marketing on efficiency and automation can manage clientele as businesses grow. Moreover, agile marketing tactics are helpful in business growth and scaling, particularly in finding new ways to reach potential customers (Kirby, 2022a).

An agile approach to marketing strategies can enable FinTechs to achieve their desired objectives (Kirby, 2022b); thus, marketing agility is a precursor to market performance (Khan, 2020). Zhou et al. (2019, p. 3) defined marketing agility in the context of dynamic capability as "it allows firms to rapidly sense and seize marketing opportunities, to reconfigure resources quickly and flexibly according to customers' needs and market competition." In addition, Kalaignanam et al. (2021, p. 36) defined it as the "extent to which an entity rapidly iterates between making sense of the market and executing marketing decisions to adapt to the market." However, based on Zhou et al. (2019) and Khan (2020), we conceptualized MA as the ability of FinTech startups to sense and seize marketing opportunities and adapt to the needs of customers or market.

In this era of digitalization, data-driven organizational culture (DDOC) has emerged as one of the key emerging drivers of organizational performance (Chaudhuri et al., 2021b) as it brings business-oriented cultural transformation to an organization (Chatterjee et al., 2021a). Therefore, many startups have developed data-driven cultures since their inception. However, the adoption of DDC by these startups has caused fear of disruption among large established organizations (Davenport & Bean, 2018). FinTechs differ from traditional financial firms in terms of data-driven solutions and innovative culture (Lee and Shin, 2018). However, they must develop a data-driven culture (Ennouri and Mezghani, 2021) to enhance market performance. There is a dearth of literature in the context of FinTech startups in Pakistan that focuses on different agile marketing practices and data-driven approaches leading to performance.

The first objective of this research is to examine the influence of marketing agility on the market performance of FinTech companies in Pakistan. Moi and Cabiddu (2021) argued that many academicians and practitioners acknowledge the role of agility in leading a digital transformation effort. However, it's still essential for marketing managers of technology-oriented companies to answer about strategic actions that need to be taken to deploy agile practices practically in marketing processes and strategies from the perspective of agile marketing capability. Therefore, FinTech companies should also focus on marketing agility to enhance their market performance. The second objective of this research is to determine the role of data-driven culture as a moderator in the relationship between marketing agility and market performance because data analytics is under the scope of FinTech, and it can help them stay on top by catching the early signals of change in the market. Identifying these signals can also help companies respond proactively to FinTech innovation (Pollari and Raisbeck, 2017).

In addition, the data-driven culture encourages firms to value data and use insights from environmental scanning to improve new products (i.e., meaningfulness and newness) to gain competitive advantage (Duan et al., 2020) and escalate market performance. The findings of current research have provided a significant contribution. First, they contributed to the Dynamic Capability View (DCV), supporting the stance of Teece et al. (2016), who argued that organizational agility is based on dynamic capabilities. Therefore, marketing agility was associated with meta-dynamic capabilities, including proactiveness, responsiveness, flexibility, and speed. The results confirmed that the data-driven culture, one of the facets of organizational culture in an analytical context, can strengthen the relationship between marketing agility and market performance.

LITERATURE REVIEW

The dynamic technological advancement has significantly influenced all industrial sectors, but besides them, it has also changed the dynamics of the financial sector. Now, the customer-facing financial services offered by banks are replaced by the application-based digital process. Moreover, this technological shift has streamlined the path for FinTech companies. These technology-oriented companies are providing technology-based financial services and improving the customer experience (Taherdoost, 2023). FinTechs have significantly transformed the process of financial services delivery (Almansour, 2023). However, there is still a dearth of literature on FinTech companies/startups and their data-driven culture. Therefore, this study has extended the literature linking marketing agility, data-driven culture, and market performance.

Marketing Agility and Market Performance

Organizational agility has become important for all companies around the globe, particularly for those who are aiming to be competitive by adding value in today's volatile business environment (Joiner, 2019) because this capability not only enables organizations to provide high-quality products and services (Crocitto & Youssef, 2003) by improving their marketing responsiveness, but also help them in their survival (Osei, Amankwah-Amoah, Khan, Omar, & Gutu, 2019). Žitkienė & Deksnys (2018) conceptualized organizational agility as an organization's ability to highlight changes in the external business environment and respond accordingly. Further, they explained that the ability to recognize change in the environment refers to getting the know-how, knowledge, and experience of the company and its policy/decision

makers. Mrugalska & Ahmed (2021) highlighted agility as an enterprise's dynamic capability that can help in swiftly managing the change or uncertainties prevailing in the business environment. Marketing agility is the firm's ability to rapidly act towards changes happening in the market by keeping an eye on products being offered and their prompt improvement to satisfy the needs and wants of the targeted audience. It provides holistic directions for organizations operating in a volatile environment (Bataineh et al., 2015).

Teece et al. (2016) explained that firms operating in technologically and financially turbulent economies require strong dynamic capabilities to encounter uncertainty; based on this explanation, Zhou et al.., (2019) suggested a dynamic capability framework as the most suitable to frame marketing agility. Moi (2020) mentioned that it's difficult to determine the important factors that can enable the development of agile capabilities in marketing. Therefore, this study has proposed that FinTech in Pakistan requires strong dynamic capabilities for developing marketing agility, and these capabilities include proactiveness, responsiveness, speed, and flexibility. These four dynamic capabilities are considered to conceptualize the marketing agility of FinTech companies because Zhou et al. (2019) suggested modifying these capabilities to study marketing agility in the service industry. Moreover, these capabilities thoroughly follow the conceptualization of dynamic capability theory and can help FinTech companies enhance their market performance. Marketing agility is the most critical element enabling companies to adjust to the environment and make quick marketing decisions to overcome marketing risk to the greatest extent possible (Al-Bajari & Al-Hamdani, 2023). Thus, marketing agility can enhance the market performance of FinTech companies. To determine the influence of marketing agility on market performance, the following hypothesis is developed:

H1. Marketing Agility is significantly related to Market Performance.

DATA-DRIVEN CULTURE AS A MODERATOR

FinTechs differ from traditional financial firms in terms of personalized niche services, data-driven solutions, and innovative culture (Lee and Shin, 2018). However, they must develop a data-driven culture (Ennouri and Mezghani, 2021) to change themselves. Mention (2019) summarized the book written by Kaldero (2018) and stated that "the change to a data-driven culture will not come from the bottom up but must start at the top," and such culture helps organizations to increase their data scanning abilities, but emphasizing merely data scanning and acquiring is insufficient to extract the best potentials; thus, to improve the ecosystem scanning ability, organizations should develop the capability to appropriately react and respond to the turbulent and ever-changing needs of the dynamic market (Chatterjee, Chaudhuri, and Vrontis, 2021) and this dynamic capability can be marketing agility.

Organizational culture is a sum of the attitudes, norms, and beliefs shared or exchanged by the members of an organization (Kaul, 2019), and data-driven culture is its outcome (Kamble and Gunasekaran, 2020). Many studies revealed the influence of this culture on different performance-related outcomes (e.g., Chatterjee et al., 2021a; Chaudhuri et al., 2021b; Agyei-Owusu et al., 2021), but there is still open debate about how data-driven culture can strengthen the relationship between marketing agility market performance of FinTechs. Chatterjee et al. (2021b) emphasized DCV and absorptive capacity theory and highlighted that data-driven organizations enhance their performance through optimal usage of data-based insights. Thus, it moderates the relationship between analytical capabilities, sensing capabilities, and

operational performance (Wong & Ngai, 2023). This study has conceptualized marketing agility as a sensing capability; thus, the data-driven culture can also moderate the relationship between marketing agility and market performance. To determine the moderating role of data-driven culture in the relationship between marketing agility and market performance, the following hypothesis is developed:

H2. Data-driven culture significantly moderates the relationship between Marketing Agility and Market Performance.

Based on the literature discussed above, the framework (See Figure 1) was designed, which presented one moderation (i.e., data-driven culture) between one independent (i.e., marketing agility) and one dependent variable (i.e., market performance).

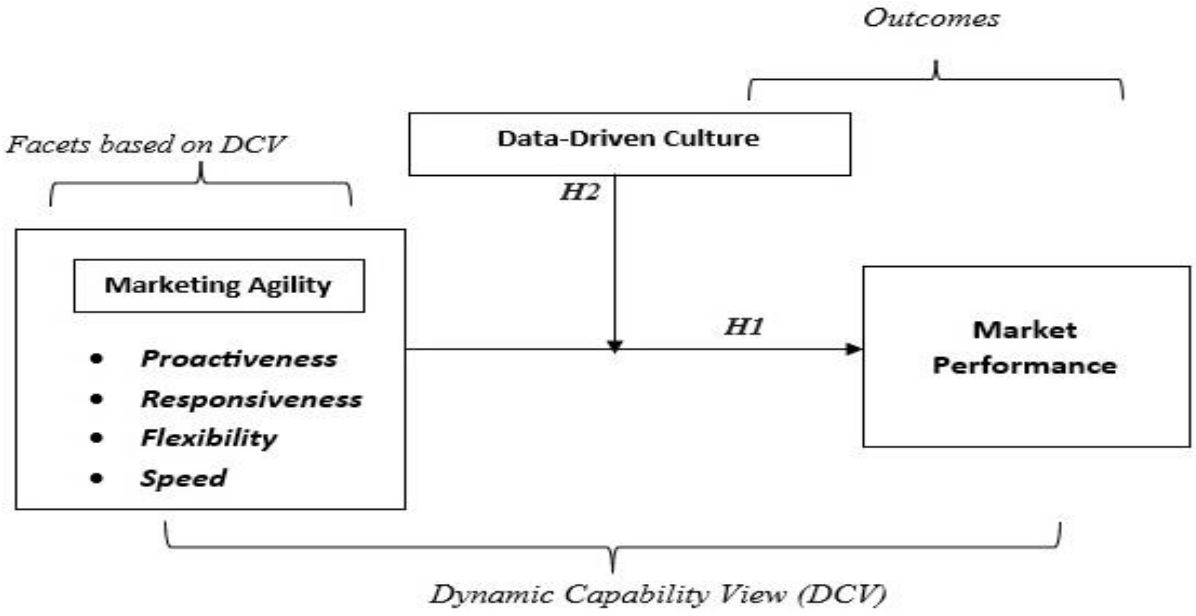

Figure 1.
Conceptual Framework

METHODOLOGY

Population, Sample, Respondents

Currently, there are more than 40 FinTech startups in Pakistan, and they can be classified into seven categories based on products or services offered by them; these categories include payment service providers, "Payment Independent Software Vendors (ISVs)," "Merchant Aggregators," "Digital Credit/Savings," "Wallet Services," "Insurance Tech," "Identity Services" (Termezy and Rizvi, 2021). According to the Security and Exchange Commission of Pakistan (SECP), there are only 22 FinTech companies, and the website of the State Bank of Pakistan demonstrated that 13 FinTechs are registered with it. Therefore, the exact number of FinTechs in Pakistan is unknown. The study has focused only on FinTechs dealing in finance, offering loans, and being associated with banks. The data were gathered from them through the questionnaire. First, the content and face validity of the questionnaire was ensured. Secondly, the errors highlighted by experts or academicians were removed, and their suggestions were included in the preparation of the final questionnaire. The organogram of FinTechs differs from that of traditional organizations, and the exact number of managers working in each FinTech is unknown. Krejcie & Morgan (1970)

suggested that if the population count is unknown, an adequate sample size can be a minimum of 385. Therefore, this research has gathered data from 447 top and middle-level managers of FinTech in Pakistan. A few questionnaires were presented to the managers in printed format, but most data were collected online. The data were collected from the top and middle-level managers working in different departments of Fintechs because they not only possess knowledge about agile marketing practices but can also relate their performance in the market overall rivals. Moreover, they know about the data-driven insights. When the required information can only be obtained from a specific group of people, purposive sampling techniques can be considered for data collection from the sample. Thus, this research has focused on gathering data on marketing agility, data-driven culture, and market performance from marketing managers, operation managers, R&D managers, and customer support managers of FinTech companies.

Instrument Design

The scale of every variable, including marketing agility, data-driven culture, and market performance, was taken from prior valid studies. Detailed information about the sources is given below: Marketing agility was measured with 15 items (i.e., 4-proactiveness, 4- responsiveness, 3- flexibility, and 4 speed) based scale adapted from Zhou et al. (2019). The original scale was on the manufacturing sector, but based on the recommendations of Zhou et al. (2019), it was modified in the context of the services industry (i.e., FinTechs). The concept of data-driven culture was examined with 6-items adopted from the study of Al-Khatib (2022). Lastly, the 5-item scale of market performance was adopted from the study of Khan (2020). Items of all the variables were measured with a 5-point Likert Scale (i.e., 1= "Strongly Disagree," 2= "Agree," 3= "Neither Agree nor Disagree," 4= "Agree," and 5= "Strongly Agree).

Data Analysis Method

The data gathered from the managers of FinTechs was analyzed with SPSS and Smart PLS-4. SPSS was used to determine the demographic characteristics of respondents and conduct the preliminary analysis. The hypotheses testing was done with Smart PLS-4 by employing partial least square-based structural equational Modeling (PLS-SEM).

RESULTS AND DATA ANALYSIS

Preliminary Analysis and Demographics Identification

In the first analysis stage, the preliminary analysis was done by coding and screening the data. The data screening process included the evaluation of missing values, outliers, normality, and multicollinearity. No missing value was detected, but seven outliers were found, and they were removed. Thus, from 447, only 440 were retained for analysis. In the second stage, demographic characteristics were determined, and the results highlighted that most respondents were males (293/440), and most were 30 to 35 years old (250/440). In the third stage, Smart PLS-4 was used for partial least square-based structural equational modeling (PLS-SEM). First, the measurement model is evaluated, and the structural model is examined in the second step.

Measurement Model Assessment (Reliability and Validity (Convergent and Discriminant)

The measurement model assessed the reliability, convergent validity, and discriminant validity. In addition, the structural model tested the hypothetical paths. The evaluation of composite reliability, average extracted variance (AVE), and factor loadings (i.e., loading of each variable item) is done through reflective measurement. Fornell and Larcker's criteria ensure the discriminant validity. The minimum threshold for outer loadings is 0.6 (Hair et al., 2019), but the value of Average Extracted Variance (AVE) for each contract should be at least 0.5 (Darsono et al., 2019: Hair et al., 2021; Sarstedt et al., 2022). In addition, a 0.5 value is also acceptable for outer loadings (Chin, 1998; Hair et al., 2010), and less than this should be dropped. The reliability coefficient value ranging from 0.7 to 0.9 is adequate, and the values below this threshold highlight that internal consistency is average (Nunnally and Bernstein, 1994). Therefore, the reliability is better if composite reliability values are between 0.70 and 1.0 (Lai, 2021). The results of the measurement model highlighted that the loadings of all the underlying variables (i.e., marketing agility, data-driven culture, and market performance) are over the cut-off criteria (i.e., 0.5) except for one item of market performance (i.e., M2, Loading= 0.479). Therefore, this item was dropped for final analysis. Moreover, the AVE of all the contracts and VIF of all the items exceeded the minimum thresholds (See Table 1). The measurement model is presented in the figure 2.

Table 1.
Reliability and Convergent Validity

Constructs and their Items		**Loadings**	**VIF**	**CR**	**AVE**
Marketing Agility (a: 0.953)					
MAGFLX1	"We can market a wide variety of financial services within our portfolio"	0.807	2.858	0.958	0.602
MAGFLX2	"We can offer different financial services through minor modifications to existing ones"	0.771	2.622		
MAGFLX3	"We can adjust what we offer to match market needs"	0.779	2.535		
MAGPro1	"We can detect the first indication of upcoming market threats"	0.698	2.064		
MAGPro2	"We are often the first to seize new market opportunities"	0.787	2.803		
MAGPro3	"We can anticipate new opportunities for market growth"	0.717	2.319		
MAGPro4	"We create new preferences by informing customers about the new benefits of our services"	0.742	2.445		
MAGRES1	"We can respond to fluctuations in the number of users without losing existing users or account holders"	0.805	2.664		
MAGRES2	"We can respond promptly to changes recommended by vendors"	0.834	3.470		
MAGRES3	"When an unexpected threat emerges, we can adjust through resource reconfiguration"	0.822	3.450		
MAGRES4	"We can react to fundamental changes with respect to changing the competitor landscape"	0.792	2.848		
MAGSPD1	"We can meet customer's changing needs faster than our competitors"	0.806	3.080		
MAGSPD2	"We compress time from product/service concept to marketing to respond quickly to the changes in consumer needs"	0.783	2.772		
MAGSPD3	"We can quickly change our service mix in response to changing market opportunities"	0.733	2.379		

MAGSPD4	"We are fast at changing activities that do not lead to the desired effects"	0.749	2.339		
Data-Driven Culture (a: 0.914)					
DDC1	"Our firm management believes that owning, understanding, and using data plays an important role in the firm's activities"	0.849	2.428	0.933	0.698
DDC2	"Our firm seeks to be open to all modern ideas that challenge traditional and data-driven practices"	0.867	2.750		
DDC3	"Our firm mainly relies on data-driven insights to support decisions"	0.849	2.479		
DDC4	"Our company encourages the adoption of data and information as a basis for decision-making, even if this data contradicts the views of the management in the firm"	0.878	2.834		
DDC5	"The management of our firm considers data as one of the important assets within the firm"	0.795	2.345		
DDC6	"Our firm constantly trains employees to make decisions based on data"	0.769	2.082		
Market Performance (a: 0.770)					
MP1	"Our firm's market share has improved over the past few years"	0.522	1.683	0.767	0.515
MP3	"Our firm's market sales volume has improved over the past few years"	0.567	1.991		
MP4	"Our firm's market sales growth has improved over the past few years"	0.636	1.924		
MP5	"Our firm's market positioning has improved over the past few years"	0.927	1.157		

*MP2 was removed from the model.

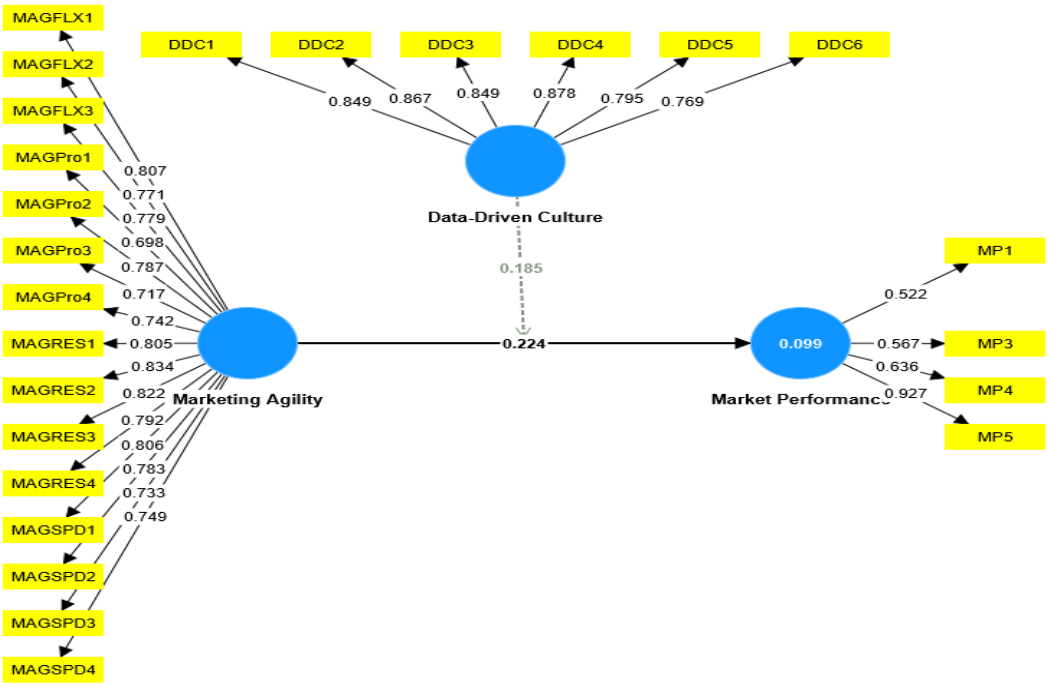

Figure 2.
Measurement Model

Fornell and Larcker's (1981) criterion is best to determine the discriminant validity. Thus, it was focused on ensuring discriminant validity. HTMT criterion is considered a more reliable approach for discriminant validity. Henseler et al. (2015) suggested that 0.90 is the threshold value for HTMT. Values exceeding this indicate the lack of discriminant

validity. The results of Fornell and Larcker's criterion are given in Table 2. Table 3 presents the results of the HTMT criterion.

Table 2.
Fornell and Larcker's Criterion

	Data-Driven Culture	Market Performance	Marketing Agility
Data-Driven Culture	0.835		
Market Performance	0.145	0.682	
Marketing Agility	0.095	0.229	0.776

Table 3.
HTMT criterion

	Data-Driven Culture	Market Performance	Marketing Agility
Data-Driven Culture			
Market Performance	0.120		
Marketing Agility	0.097	0.139	

STRUCTURAL MODEL EVALUATION (HYPOTHESES TESTING)

The second data analysis step evaluated the structural model to determine the hypothetical paths. Bootstrapping with 5000 sub-samples was done for the evaluation of the structural model. The results of the structure model are presented in Table 4 and Figure 3.

Table 4.
Direct and Moderation Path

Direct Path				
Path	***T-Value***	***Beta***	***P Value***	***Results***
Marketing Agility → Market Performance (H1)	3.438	0.224	0.001	Supported
Moderation Path				
Path	***T-Value***	***Beta***	***P Value***	***Results***
Data-Driven Culture x Marketing Agility → Market Performance (H2)	2.523	0.185	0.012	Supported

Hypothesis 1 (i.e., H1) predicted an effect of marketing agility on market performance. Results (Table 3, Figure 2) demonstrated the significant effect of marketing agility on market performance (β = 0.223, t = 3.842, P-Value= 0.000); thus, H1 was supported. Hypothesis 2 (i.e., H2) predicted the moderation of data-driven culture between marketing agility and market performance, and results revealed that data-driven culture significantly moderates the impact of marketing agility and market performance (β = 0.185, t = 2.523, P-Value= 0.012); thus, H2 was accepted. The slope showing the moderation is given in Figure 3. Therefore, the research inferred that marketing agility is significantly and positively related to market performance, and this relationship is strengthened by a data-driven culture.

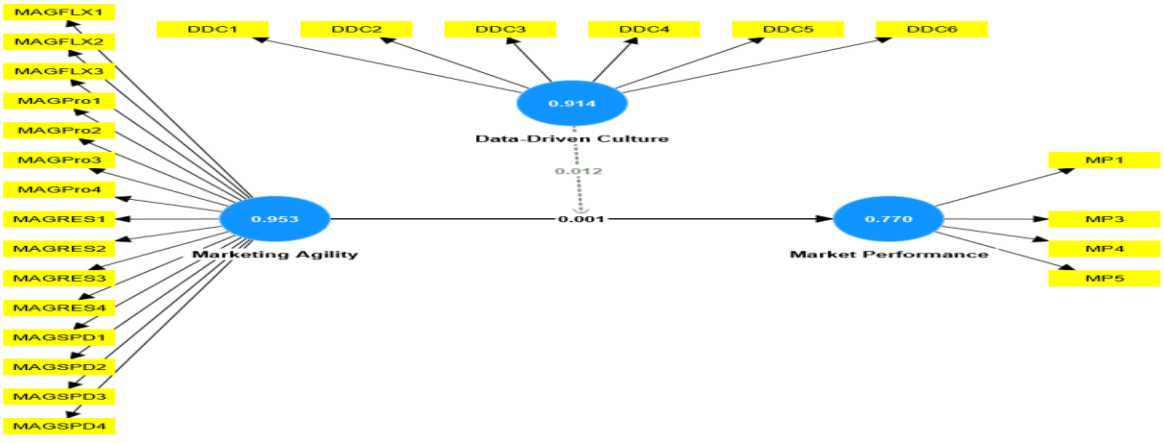

Figure 2.
Structural Model

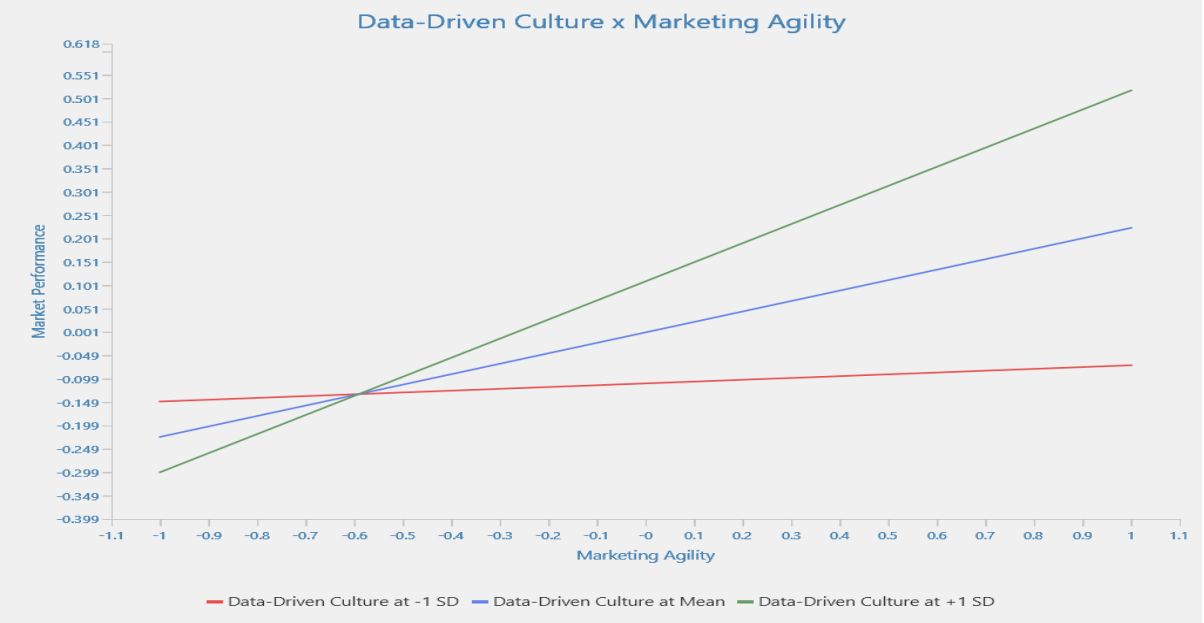

Figure 3.
Moderation: Data-Driven Culture

DISCUSSION

The financial industry has always been influenced by technology, and technological advancements are continuously changing the operations of financial startups (Goldstein, Jiang, Karolyi, Andrew, 2019) and ultimately, the financial industry is becoming able to combat the financial crises that adversely affected the global economy over the past decade. Financial technology startups swooped the financial crises and helped the financial sector and, ultimately, the economy by providing innovative solutions to the problems in insurance, traditional banking, and asset management. The new and fledging industry based on these financial startups has become known as the FinTech industry, which is growing expeditiously. The name "FinTech" combines finance and technology, and it refers to the usage and application of the latest and advanced technologies in solving problems in financial services (Chemmanur, Imerman, Rajaiya, & Yu, 2020). The uncertain economic conditions in Pakistan are creating hindrance to innovation and adoption of financial technologies (Butt and Khan, 2019). Moreover, in Pakistan, there is currently no proper framework for FinTechs because of their lack of acknowledgment anywhere in the regulatory system (E Rehman et al., 2022). Therefore, the market performance of the FinTech sector in the country is unsatisfactory. Thus, this study aimed to highlight the factors that can enhance the market performance of FinTech startups in Pakistan.

The agile marketing activities supported by analytics can lead to organizational success (Vesterinen et al., 2024). Many studies have highlighted the influence of marketing agility on different performance outcomes. However, there is still a dearth of literature highlighting the impact of dynamic capabilities-based marketing agility on market performance. Therefore, the first hypothesis of the research (i.e., H1) aimed to highlight the influence of marketing agility on the market performance of FinTechs. The results highlighted that the market performance of FinTech startups is associated with marketing agility. The Agile marketing practices will enable FinTechs to develop proactiveness, speed, flexibility, and responsiveness, and these capabilities can ultimately enhance their market performance. The results supported the hypothesis and indicated marketing agility as an antecedent of market performance. Many prior

studies have supported these results. Marketing agility comprises dynamic capabilities, including proactiveness, speed, flexibility, and responsiveness, and it can enhance financial performance (Zhou et al., 2019). Moreover, it can enhance the market performance (Khan, 2020) or international market performance (Asseraf et al., 2019). The second hypothesis (i.e., H2) aimed to determine the moderating role of a data-driven culture in the relationship between marketing agility and market performance. The results supported the hypothesis that a data-driven culture strengthens the relationship between marketing agility and market performance. Data-driven culture can enable companies to develop insights from the available data (c & George, 2016), and marketing agility allows them to sense and seize market opportunities in a dynamic environment (Zhou et al., 2019; Khan et al., 2021). Therefore, the ability of FinTech startups to sense the market and seize the opportunities in the dynamic business environment can help them increase their market performance, but the linkage between marketing agility and market performance can become stronger if they also can drive valuable insights from the market data. Similarly, Chatterjee et al. (2021) mentioned that the performance of organizations having a data-driven culture depends upon the optimal utilization of data-based insights. Thus, FinTech startups should develop a data-driven culture to enhance their performance by developing marketing agility.

IMPLICATIONS

The number of FinTech startups in Pakistan is growing rapidly, and many are earning significant profits. However, the market performance of these startups always remained unsatisfactory due to the dynamic business situations in the market. Therefore, this study has developed a framework highlighting that superior market performance requires a comprehensive set of dynamic capabilities. Thus, it has provided different implications in terms of theory and practice. Regarding theoretical implications, the study has expanded the literature on marketing agility, data-dirven culture, and market performance of FinTechs. In line with the dynamic capability view (DCV) by Teece et al. (2016) and Zhou et al. (2019), this research has conceptualized marketing agility as an organizational capability based on dynamic capabilities, including proactiveness, speed, flexibility, and responsiveness. Moreover, the research significantly differs from prior studies as they focused on marketing agility in the context of the manufacturing sector (e.g., Zhou et al., 2019; Asseraf et al., 2019; Khan, 2020), but it has investigated the market performance of FinTechs (i.e., service providers). Furthermore, the results can help researchers and academicians focusing on FinTech startups. In terms of practical implications, the results of the research can act as a guide for managers of FinTechs aiming to enhance the market performance of their startups.

Limitations and Recommendations

Generally, Fintech is considered a financial technology that helps businesses digitalize their financial strategies. Currently, there is a lack of information on FintTech startups in Pakistan. Therefore, this research has not only advanced the limited understanding of FinTech as financial technology and FinTech as startups, but has also provided a solution to enhance the market performance of Fintech startups. However, the research has several limitations that future studies can consider. First, the study has focused only on retail-facing FinTechs, and studies in the future can emphasize either market provisioning or determine the agility and performance of other Fintech verticles, including blockchain, cryptocurrencies and robo-investing. Secondly, the

research has only considered one moderator (i.e., data-driven culture), but further studies can investigate the moderating role of entrepreneurial orientation or environmental dynamism. Moreover, the model can be extended by including antecedents of marketing agility. Furthermore, the mediating mechanism of innovation ambidexterity can be ensured in the relationship between marketing agility and market performance.

DECLARATIONS

Acknowledgement: We appreciate the generous support from all the supervisors and their different affiliations.
Funding: No funding body in the public, private, or nonprofit sectors provided a particular grant for this research.
Availability of data and material: In the approach, the data sources for the variables are stated.
Authors' contributions: Each author participated equally to the creation of this work.
Conflicts of Interests: The authors declare no conflict of interest.
Consent to Participate: Yes
Consent for publication and Ethical approval: Because this study does not include human or animal data, ethical approval is not required for publication. All authors have given their consent.

REFERENCES

Agyei-Owusu, B., Amedofu, M. K., Asamoah, D., & Kumi, C. A. (2021). The effect of data driven culture on customer development and firm performance: the role of supply chain information sharing and supply chain information quality. In *Responsible AI and Analytics for an Ethical and Inclusive Digitized Society: 20th IFIP WG 6.11 Conference on e-Business, e-Services and e-Society, I3E 2021, Galway, Ireland, September 1–3, 2021, Proceedings 20* (pp. 481-492). Springer International Publishing.

Al-Bajari, A. Y., & Al-Hamdani, A. A. S. (2023). The Effect of Marketing Agility in Reducing Marketing Risk. *NTU journal for Administrative and Human Sciences (JAHS)*, *3*(1).

Alfalla-Luque, R., Luján García, D. E., & Marin-Garcia, J. A. (2023). Supply chain agility and performance: evidence from a meta-analysis. *International Journal of Operations & Production Management*.

Al-Khatib, A. W. (2022). Can big data analytics capabilities promote a competitive advantage? Green radical innovation, green incremental innovation and data-driven culture in a moderated mediation model. *Business Process Management Journal*, (ahead-of-print).

Asseraf, Y., Lages, L. F., & Shoham, A. (2019). Assessing the drivers and impact of international marketing agility. *International Marketing Review*, *36*(2), 289-315.

Awan, U., Bhatti, S. H., Shamim, S., Khan, Z., Akhtar, P., & Balta, M. E. (2022). The role of big data analytics in manufacturing agility and performance: moderation–mediation analysis of organizational creativity and of the involvement of customers as data analysts. *British Journal of Management*, *33*(3), 1200-1220.

Bataineh, A., Alhadid, A., Alabdallah, G., Alfalah, T., Falah, J., & Idris, M. (2015). The role of information technology capabilities in capitalizing market agility in Jordanian telecommunications sector. *International Journal of Academic Research in Business and Social Sciences*, *5*(8), 90-101.

Benzidia, S., & Makaoui, N. (2020, July). Improving SMEs performance through supply chain flexibility and market agility: IT orchestration perspective. In *Supply Chain Forum: An International Journal* (Vol. 21, No. 3, pp. 173-184). Taylor & Francis.

Blome, C., Schoenherr, T., & Rexhausen, D. (2013). Antecedents and enablers of supply chain agility and its effect on performance: a dynamic capabilities perspective. *International Journal of Production Research*, *51*(4), 1295-1318.

Butt, S., & Khan, Z. A. (2019). Fintech in Pakistan: a qualitative study of bank's strategic planning for an investment in fin-tech company and its challenges. *Independent Journal of Management & Production*, *10*(6), 2092-2101.

Cadden, T., McIvor, R., Cao, G., Treacy, R., Yang, Y., Gupta, M., & Onofrei, G. (2022). Unlocking supply chain agility and supply chain performance through the development of intangible supply chain analytical capabilities. *International Journal of Operations & Production Management*, (ahead-of-print).

Chatterjee, S., Chaudhuri, R., & Vrontis, D. (2021a). Does data-driven culture impact innovation and performance of a firm? An empirical examination. *Annals of Operations Research*, 1-26.

Chaudhuri, R., Chatterjee, S., Vrontis, D., & Thrassou, A. (2021b). Adoption of robust business analytics for product innovation and organizational performance: the mediating role of organizational data-driven culture. *Annals of Operations Research*, 1-35.

Chemmanur, T. J., Imerman, M. B., Rajaiya, H., & Yu, Q. (2020). Recent developments in the fintech industry. *Journal of Financial Management, Markets and Institutions*, *8*(01), 2040002.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research*, *295*(2), 295-336.

Clauss, T., Abebe, M., Tangpong, C., & Hock, M. (2019). Strategic agility, business model innovation, and firm performance: an empirical investigation. *IEEE transactions on engineering management*, *68*(3), 767-784.

Crocitto, M., & Youssef, M. (2003). The human side of organizational agility. *Industrial Management & Data Systems*, *103*(6), 388-397.

Darsono, N., Yahya, A., Muzammil, A., Musnadi, S., Anwar, C., & Irawati, W. (2019). Consumer actual purchase behavior for organic products in Aceh, Indonesia. *Paper presented at the 1st Aceh Global Conference* (AGC 2018). Banda Aceh, Indonesia.

Davenport, T. H., & Bean, R. (2018). Big companies are embracing analytics, but most still don't have a data-driven culture. *Harvard Business Review*, *6*, 1-4.

Duan, Y., Cao, G., & Edwards, J. S. (2020). Understanding the impact of business analytics on innovation. *European Journal of Operational Research*, *281*(3), 673-686.

E Rehman, Z., Akhtar, R., & Shah, S. A. (2022). The Impact of Fintech on Banks with Historical, Contemporary and Future Perspective with Legal Perception. *Journal of Development and Social Sciences*, *3*(3), 108-116.

Ennouri, M. F., & Mezghani, K. (2021). Big data management in the era of FinTech: insights from a literature review. *Influence of FinTech on Management Transformation*, 102-120.

Ennouri, M. F., & Mezghani, K. (2021). Big data management in the era of FinTech: insights from a literature review. *Influence of FinTech on Management Transformation*, 102-120.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), 39-50.

Gerald, E., Obianuju, A., & Chukwunonso, N. (2020). Strategic agility and performance of small and medium enterprises in the phase of Covid-19 pandemic. *International Journal of Financial, Accounting, and Management*, *2*(1), 41-50.

Goldstein, I., Jiang, W., & Karolyi, G. A. (2019). To FinTech and beyond. *The Review of Financial Studies*, *32*(5), 1647-1661.

Gupta, M., & George, J. F. (2016). Toward the development of a big data analytics capability. *Information & Management*, *53*(8), 1049-1064.

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). Multivariate data analysis: A global perspective (Vol. 7).

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2-24.

Hair, Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook* (p. 197). Springer Nature.

Henseler, J., Ringle, C. M., and Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1):115–135.

Joiner, B. (2019). Leadership Agility for organizational agility. *Journal of Creating Value*, *5*(2), 139-149.

Kaldero, N. (2018). *Data science for executives: Leveraging machine intelligence to drive business ROI*. Lioncrest Publishing.

Kamble, S. S., & Gunasekaran, A. (2020). Big data-driven supply chain performance measurement system: a review and framework for implementation. *International Journal of Production Research*, *58*(1), 65-86.

Kaul, A. (2019). Culture vs strategy: which to precede, which to align?. *Journal of Strategy and Management*, *12*(1), 116-136.

Khan, H. (2020). Is marketing agility important for emerging market firms in advanced markets?. *International Business Review*, *29*(5), 101733.

Kirby, L. (2022a, April 2022). *Agile Marketing In Practice*. Retrieved April 12, 2023, from Agile: Marketing at the speed of FinTech: https://www.brightinnovation.co.uk/agile-marketing-at-the-speed-of-fintech/

Kirby, L. (2022b, April 2022). *Agile Marketing In Practice*. Retrieved April 29, 2023, from Deep dive into agile marketing for FinTech: https://www.brightinnovation.co.uk/deep-dive-into-agile-marketing-for-fintech/

Krejcie, R. V., & Morgan, D. W. (1970). Sample size determination table. *Educational and psychological Measurement*, *30*, 607-610.

Kurniawan, R., Budiastuti, D., Hamsal, M., & Kosasih, W. (2021). Networking capability and firm performance: the mediating role of market orientation and business process agility. *Journal of Business & Industrial Marketing*, *36*(9), 1646-1664.

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business horizons*, *61*(1), 35-46.

Mention, A. L. (2019). The future of fintech. *Research-Technology Management*, *62*(4), 59-63.

Moi, L., & Cabiddu, F. (2021). Leading digital transformation through an Agile Marketing Capability: the case of Spotahome. *Journal of Management and Governance*, *25*(4), 1145-1177.

Mrugalska, B., & Ahmed, J. (2021). Organizational agility in industry 4.0: A systematic literature review. *Sustainability*, *13*(15), 8272.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York, NY: McGraw-Hill

Osei, C., Amankwah-Amoah, J., Khan, Z., Omar, M., & Gutu, M. (2019). Developing and deploying marketing agility in an emerging economy: the case of Blue Skies. *International Marketing Review*, *36*(2), 190-212.

Pollari, I., & Raisbeck, M. (2017). Forging the future-How financial institutions are embracing fintech to evolve and grow.

Raveendra, P. V., & Satish, Y. M. (2021). Agile Fintech Startups: Key Drivers For Success In Fragile Environment. *NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal | NVEO*, 9404-9410.

Rizvi, S. K. A., Naqvi, B., & Tanveer, F. (2018). Is Pakistan ready to embrace Fintech innovation?. *The Lahore Journal of Economics*, *23*(2), 151-182.

Shahid, Q., Razaq, L., Mughal, A., Imtiaz, M., Piracha, M., & Shahid, O. (2017). *SEEDING INNOVATION A framework for rooting FinTechs in Pakistan*. Technical Report. FinSurgents. http://www. karandaaz. com. pk/wp-content/uploads/2017/01/Seeding-Innovation. pdf.

Shin, H., Lee, J. N., Kim, D., & Rhim, H. (2015). Strategic agility of Korean small and medium enterprises and its influence on operational and firm performance. *International Journal of Production Economics*, *168*, 181-196.

Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California management review*, *58*(4), 13-35.

Termezy, M., & Razi, H. (2021). *Fintech Ecosystem of Pakistan Landscape Study*. ARANDAAZ. Retrieved April 10, 2023, from https://karandaaz.com.pk/karandaaz-research/fintech-ecosystem-pakistan/

Vesterinen, M., Mero, J., & Skippari, M. (2024). Big data analytics capability, marketing agility, and firm performance: a conceptual framework. *Journal of Marketing Theory and Practice*, 1-21.

Wong, D. T., & Ngai, E. W. (2023). The effects of analytics capability and sensing capability on operations performance: the moderating role of data-driven culture. *Annals of Operations Research*, 1-36.

Zhou, J., Mavondo, F. T., & Saunders, S. G. (2019). The relationship between marketing agility and financial performance under different levels of market turbulence. *Industrial Marketing Management*, *83*, 31-41.

Žitkienė, R., & Deksnys, M. (2018). Organizational agility conceptual model. *Montenegrin journal of economics*, *14*(2), 115-129.

Ahmed, M., Kumar, A., Talha, M., Akram, Z., & Arif, K. (2024). Impact of fintech on the Pakistani banking sector. *Journal of Economic Info*, *11*(1), 1-14.

Almansour, M. (2023). Artificial intelligence and resource optimization: A study of Fintech startups*Resources Policy*, *80*, 103250.

Taherdoost, H. (2023). Fintech: Emerging trends and the future of finance. *Financial Technologies and DeFi: A Revisit to the Digital Finance Revolution*, 29-39.