

Article

The Influence of Marketing Innovations on Firm Performance under Different Market Environments: Evidence from China

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Abstract: The adoption of marketing innovations can contribute to the sustainability of a firm. However, research on the types of marketing innovations and their effects is limited. The purpose of this study is to analyze the dimensions of marketing innovations, their effects on firm performance, and how market environmental factors moderate those effects. Based on an analysis of the literature, this study discovered two types of marketing innovations and established a model to explain the dynamics of marketing innovation and firm performance under different market environments. Empirical data were collected and used to validate the model. Results show that both market-driven and market-driving innovations significantly contribute to a firm's performance. Moreover, their effects are significantly moderated by competition intensity and technological turbulence but not demand uncertainty. This study contributes to the literature because it elaborates the conceptualization of marketing innovation and presents the dynamics of marketing innovation, market environment, and firm performance. It also provides practical implications on how firms can utilize marketing innovations to achieve business sustainability.

Keywords: innovation; marketing innovation; market-driven; market-driving; firm performance; market environment



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1. Introduction

Marketing innovation is a powerful tool for the sustainability of small- to medium-sized firms because it can quickly increase a firm's market share based on its existing products and technologies. Its pragmatic value is well demonstrated by several new retail companies in the competitive Chinese market. By adopting marketing innovations, Pinduoduo secured the budget market, Daily Fresh harvested from fresh food, and MI developed the "fanatic" smartphone market. Marketing innovations have helped companies successfully overcome fierce competition, supporting scholars' arguments that they are no less important than technological ones [1]. They are especially valuable to small- and medium-sized enterprises because while the threshold for adopting such innovations is relatively low, they can help firms to utilize market opportunities, correctly position themselves, and establish differentiated competition strategies. Especially in situations of technological bottleneck, the use of marketing innovations to enhance a firm's performance is of critical importance.

Although innovation as a whole has received considerable academic attention, most studies have focused on technological innovations [1,2]. Subsequently, the effects of marketing innovations on firm performance are unclear in the existing literature [3]. Moreover, past studies have simply conceptualized marketing innovation as a unidimensional concept, ignoring its nuanced nature and potential to influence firm performance [1,4].

This study will attempt to broaden the understanding of marketing innovation by exploring the dimensionality of it and by testing its effects on firm performance. Firstly, we will explore the dimensions of marketing innovations based on an analysis of the literature. We will then test the main effects of the dimensions of marketing innovations on firm performance. Finally, we will examine how three environmental factors (market uncertainty, competition intensity, and technological turbulence) moderate the effect of marketing innovations on firm performance.

2. Theoretical Basis and Hypothesis Development

2.1. Marketing Innovation and Business Sustainability

Marketing innovations have been drawing research interest in recent years [5]. The Oslo Manual, drafted by the Organization for Economic Cooperation and Development, expanded its definition of innovation by including marketing innovation as a form of innovation that is parallel to technological innovation [6]. Marketing innovations entail changes in the marketing mix (e.g., product design, packaging, promotion, and pricing), and do not require substantial technological breakthroughs [4–6]. While technological innovation has attracted much research interest, marketing innovation is scarcely studied as a driver of firm performance [5,7,8]. However, marketing innovation plays a critical role in a firm's total performance as marketing is key to value generation [2]. Scholars have found that non-technological innovation can enhance a firm's competition ability and plays a key role in transforming new products into profits [2,9,10]. Marketing innovation has been found effective for the improvement of firm performance in the manufacturing industry [2,7]. Scholars have also stressed the positive effect of innovative marketing strategies on firms' sustained advantages, especially for small- and medium-sized enterprises [4].

Although some scholars have recognized that marketing innovation could play a key role in propelling product upgrades and sales rise, the mechanism through which market innovations exert such effects is largely unknown, and many arguments about it are yet to be empirically verified [5,8]. Studies pointed out that different types of marketing innovations may affect a firm's performance differently [11]. Bodlaj et al. (2012) also expressed the need to distinguish different types of marketing orientations and explore their antecedents and consequences [12]. Oke (2007) called for studies on the typology of marketing innovations and the refinement of the measurement of marketing innovations, as they found different types of innovations could differently explain firms' innovative performances in the UK [13]. Similarly, Gunday et al. (2011) reported that the type of innovation influences firm performance in Turkey [7]. However, existing studies are mostly descriptive analyses, and more in-depth research is needed to investigate the dimensionality of marketing innovation and its effect [7,8].

Based on previous studies, this study utilized the fuzzy clustering technique and discovered two distinct types of marketing innovations: market-driven marketing innovation and market-driving marketing innovation [9,14–27]. These two types of marketing innovations differ in three aspects: product concept, consumer needs, and market segmentation, as shown in Table 1.

Table 1. Market-driven and market-driving marketing innovation approaches.

	Market-Driven	Market-Driving
Product concept	Existing	New
Consumer needs	Expressed	Potential
Market segmentation	Existing	New

Market-driven marketing innovations are mainly concerned with existing products, satisfying existing consumer needs, and coping with the current markets [17]. It is a relatively passive form of marketing innovation [28,29]. Adopting this approach, firms focus on the current market elements and aim at improving existing products to suit current customer needs. On the other hand, the market-driving approach of innovation

is more proactive [28,29]. Adopting such innovations, companies tend to consistently learn new knowledge about customers and products [17]. Such firms actively invest in developing new product concepts, exploring potential needs, and expanding new market segments [17]. A market-driving marketing orientation propels a firm to proactively expand product value, lead consumer needs, and create consumer trends to pre-occupy the future marketplace [28,29].

2.2. Effect of Marketing Innovation on Firm Performance

Monitoring the market is found to be a determinant of success in the marketplace [12]. A large number of studies have provided positive appraisals that higher innovativeness in marketing results in increased corporate performance [9,30–36]. Walker (2005) found that marketing innovation exerts a considerable impact on corporate performance by creating an improved market position that is advantageous in competition [35]. Similarly, Naidoo (2010) found that marketing innovations promote product differentiation and cost efficiency and thus aid sustainable competitive advantages [9]. John and Davies (2000) found that in medium-sized insurance companies, marketing innovations facilitate new ways of understanding the different markets, push up sales by increasing product consumption, and yield additional profit for firms [34]. Among high-tech firms in Taiwan, Wang (2015) found that an emphasis on marketing helps firms to achieve better innovation performances, thus, contributing to the success of firms [37].

Market-driven innovations exert effects by modifying existing products and services for existing consumer needs. It allows the firm to fully utilize its familiarity with the current market and reduce the high expenses of promotion, channel maintenance, and customer retention [38]. It also helps to improve the efficiency of its channels and avoid the high risk and cost introduced by new segment exploitation [38]. Though companies may face decreasing marginal profit, market-driven innovations can help the firm to fully exploit the existing market structure and avert the high risks involved in researching new products. In the short term, it can enable the firm to generate a stable return and help with the firm's steady growth [39].

Market-driving innovation implies an ambition to explore new markets and potential needs. Studies have found that first-movers can gain a unique advantage [35]. Through continued exploring and searching, firms can find novel business modes, dominate emerging markets, and increase customer value. It enables the firm to avoid fierce competition in mature markets and offers the opportunity to find new avenues of profit generation [29]. Market-driving innovations help the firm to timely enter a new market and thus gain the advantage to educate customers and shape consumption trends [17]. Though more adventurous, market-driving marketing innovations offer a paramount potential to improve profitability. Once effectively implemented, the firm can gain a high return [8,40].

Scholars agree that successful firms must constantly maintain an updated understanding of the market and continuously implement innovative marketing programs [4,41–43]. Both types of marketing innovations put the market at the center and aim at new opportunities to remain competitive. Therefore, we propose that both types of marketing innovations contribute to firm performance.

Hypotheses 1 (H1). *Market-driven marketing innovation positively affects firm performance.*

Hypotheses 2 (H2). *Market-driving marketing innovation positively affects firm performance.*

2.3. Moderating Effect of the Market Environment

Past studies show that the effect of innovation is contingent on the market environment [19,44–46]. Through reviewing the literature, we found that demand uncertainty, competition intensity, and technological turbulence are three major characteristics of the market environment. The three environmental forces represent customers, competitors, and technology in the marketplace.

2.3.1. Market Uncertainty, Marketing Innovation, and Firm Performance

Demand uncertainty reflects how unstable customers' preferences and expectations are [46]. Varied arguments about its moderating effect can be found in past research. Tang and Zhang (2016) suggested that demand uncertainty positively moderates the effects of marketing innovations on firm performance [5]. Their findings imply that a more volatile demand requires stronger market efforts to achieve a similar level of firm performance than in markets where demand uncertainty is low [45]. To minimize the threat of business failure, firms need to actively introduce exploratory innovations and upgrade existing products and services. Firms also need to actively work on predicting customer needs and speed up research and development (R&D) whilst keeping abreast of major trends in the marketplace [21]. All these require a strong marketing orientation [21,47]. Ndubisi et al. (2020) pointed out that in a highly uncertain market environment, firms must actively seek innovations to survive [47]. Consistently, Bodlaj et al. (2012) posited that a more proactive marketing emphasis facilitates the implementation of proactive marketing innovations and thus contributes to a firm's success [12]. Jansen et al. (2006) also found that the level of market dynamism positively moderates the effectiveness of explorative innovation [46]. Based on the discussion above, we propose the following hypotheses.

Hypotheses 3 (H3a). *Demand uncertainty positively moderates the effect of market-driven marketing innovation on firm performance.*

Hypotheses 3 (H3b). *Demand uncertainty positively moderates the effect of market-driving marketing innovation on firm performance.*

2.3.2. Competition Intensity, Marketing Innovation, and Firm Performance

Competition intensity reflects how intensive the competition is within the industry, in view of the number of competitors and the intensity of competition [17,48]. Innovation is closely related to competition because competition has a profound influence on a firm's activities and is regarded as the fundamental nature of a liberal market [46,49]. Gupta et al. (2016) contended that innovativeness is the result of a firm's perception of competition in the marketplace and is a driver for a firm to aim high [41]. Other scholars also found that increased competition leads to increased investment in companies' R&D, thus pushing up firm performance.

Intense competition often challenges the survival of a firm that only focuses on existing customers who are already competed for by many competitors [17,50]. Intense competition can diffuse the benefits of innovations due to a large number of competitors in the marketplace [17]. Consequently, companies often face pressure to achieve higher efficiency and to reduce organizational slack. Passive companies face a greater threat to survival as fierce competition makes it easier to lose customers [43]. Jansen et al. (2006) found that market competitiveness negatively moderates the relationship between exploratory innovation and financial performance [43]. Zhang and Qiu (2013) also found that competition intensity negatively moderates the effect of exploitive marketing innovation on firm performance [17].

While intense competition threatens a passively market-driven firm, a pre-cautious firm with proactive marketing orientations is prepared to compete [17]. Proactive firms actively go outside their comfort zone and extend to new fields. They can obtain an early advantage by establishing their brand names in new markets, heighten the entry barriers, and reach a high profit level [17,39]. Thus, proactive firms can learn and strengthen their abilities in a competitive environment. Proactive marketing innovations also help firms to avoid malicious competition in pricing and thus contribute to revenue generation [17,39]. Perceiving that the competition is intensified, proactive firms also seek to maximize the use of corporate resources and reduce waste, thus contributing to the firm's overall performance [17,39]. Jansen et al. (2006) also found that in highly competitive environments, pursuing active market-driving innovation is beneficial to the financial performance of a firm [46]. Based on the above analysis, the following hypotheses are proposed.

Hypotheses 4 (H4a). *Competition intensity negatively moderates the effect of market-driven marketing innovation on firm performance.*

Hypotheses 4 (H4b). *Competition intensity positively moderates the effect of market-driving marketing innovation on firm performance.*

2.3.3. Technological Turbulence, Marketing Innovation, and Firm Performance

Technological turbulence reflects how often technology is updated in the industry [19]. In an environment where technologies advance rapidly, firms must promote innovations to keep up with the industry's development. Fast advancements in technologies generate ample chances for innovative companies. They can shorten the life cycle of products, erode the technological advantage of big firms, and propel other firms to the forefront [51,52]. Scholars have found that technological turbulence affects market-based innovations in different ways [19].

Wang et al. (2013) found that firms' anticipation of technological turbulence can raise managers' recognition of the importance of responding to market intelligence [53]. These practices then push companies to prepare for challenges and enhance the effects of marketing efforts compared with unprepared competitors. In other words, the perception of high technological turbulence can enhance the effect of market-driven marketing innovation on firm performance.

Technological turbulence also appears to enhance the effect of market-driving innovation, as scholars found under the condition of a higher level of perceived technological turbulence, the effects of proactive market orientation on innovation success and firm success are stronger [12]. Bodlaj et al. (2012) further suggested that companies should improve their innovation success through proactive marketing actions such as actively exploring latent customer needs and problems in turbulent times [12]. Based on the above discussion, the following hypotheses are proposed.

Hypotheses 5 (H5a). *Technological turbulence positively moderates the relationship between market-driven marketing innovation and firm performance.*

Hypotheses 5 (H5b). *Technological turbulence positively moderates the relationship between market-driving marketing innovation and firm performance.*

3. Materials and Methods

Fuzzy clustering analysis was used to differentiate two types of marketing innovations based on previous studies [9,14–27]. The authors collected primary data from 352 enterprise managers in China from September 2018 to October 2019. Hierarchical regression analysis was conducted to examine the main effects of marketing innovation and the moderating effect of market environmental factors. The conceptual model of this study is presented in Figure 1.

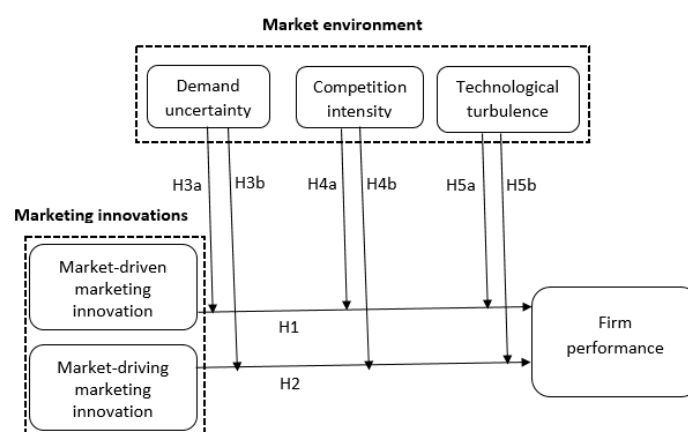


Figure 1. Conceptual model of this study.

3.1. Measures

The measures of all research variables were multi-item scales on five-point Likert scales (1 = strongly disagree, 5 = strongly agree). They were adapted from previous studies with slight modification [9,19,28,42]. Firm performance was assessed on a five-item scale concerning sales, competition, customer, profit, and financial return [42]. Demand uncertainty concerns the perception of market change frequency and customer loyalty [28]. Competition intensity concerns industry competition, frequency of promotion, the similarity of products, and price competition [26]. Technological turbulence concerns technological upgrade speed, chances from technological upgrades, predictability of technological changes, and new product proliferation [28]. Referring to previous studies of marketing research in the Chinese context, four control variables, the firm's starting time, firm size, market status, and entry barrier to the industry, were included in the analysis to exclude the influence of firm heterogeneity [17]. Table 2 shows the research variables and the sources.

Table 2. Research variables.

	Variables	Source
Dependent variable	Firm performance	[42]
Independent variables	Market-driven marketing innovation	[9]
	Market-driving marketing innovation	[19]
Moderators	Demand uncertainty	[28]
	Competition intensity	
	Technological turbulence	
Control variables	Starting time, firm size, market status, and entry barrier	[17]

3.2. Data Collection

To acquire the perception of managers, MBA classes were approached in the prestigious Sun Yat-sen University in Guangzhou, China. Although the participants were not randomly selected, the sample size (352 managers) was large. In addition, the sampled companies covered a wide variety of conditions in terms of starting time, number of employees, and the industries they belonged to. Thus, the usefulness of the sample for this study was ensured. Participants were all middle or top-level managers working in different industries in China, covering both the manufacturing sector (51.16%) and the service sector (46.84%). Their companies also cover a wide spectrum of conditions from new (less than 3 years) to well established (over 10 years), and from small (less than 100 employees) to big (over 1000 employees). Questionnaires were distributed face to face. The profile of participant firms is shown in Table 3. After preliminary examination, 301 out of the 352 returned questionnaires were usable, yielding an 85.51% usable rate.

Table 3. Descriptive statistics of the enterprises surveyed in this study.

		Frequency	%
Starting time	Less than 3 years	40	13.29
	3~6 years	48	15.94
	6~10 years	50	16.61
	Over 10 years	159	52.82
	No response	4	1.33
Number of employees	Less than 100 employees	43	14.29
	100~500 employees	52	17.28
	500~1000 employees	35	11.63
	Over 1000 employees	171	56.81
Industry type	Manufacturing (fast consumption, home appliances, automobile, mechanical manufacturer, electronic components, etc.)	154	51.16
	Service sector (telecommunication, finances, IT, consultancy, media, etc.)	141	46.84
	No response	6	1.99

3.3. Common Method Bias and Construct Reliability and Validity

Potential common method bias was controlled using the suggested procedural and statistical methods [53]. Before the survey, a pretest was conducted [54]. Subsequently, minor changes concerning the wording and arrangement of scales were made. The length of completion was stated at the beginning of the questionnaire to let respondents get ready. Anonymity, confidentiality, and emphasis of no right or wrong answers were assured to respondents. Importantly, different formats were used in the questionnaire to minimize common method bias [54]. After the survey, Harman's single-factor test was applied to identify possible common method variance [54]. Results show that no single factor accounted for over 50% of the variance in the variables, therefore, there was no common method bias concern in this study [55].

Factor analysis also showed that all items loaded to six respective factors as expected, with loadings ranging from 0.602 to 0.952 with no problems of cross-loading, implying good convergent validity [56]. Confirmatory factor analysis was conducted in Amos 22.0 to further examine the measurement quality. The measurement model showed a good model fit, with chi-square/d.f. = 1.009 < 3, GFI = 0.894 > 0.8, NFI = 0.909 > 0.9, IFI = 0.989 > 0.9, TLI = 0.987 > 0.9, CFI = 0.989 > 0.9, and RMSEA = 0.025 < 0.05. As shown in Table 4, Cronbach's α values of all constructs ranged from 0.757 to 0.936, indicating high internal consistency [56]. As shown in Table 5, the AVE values were all above 0.5, ranging from 0.520 to 0.690, again, indicating good convergent reliability [57]. The square foot of each AVE was greater than the correlation coefficient of each pair of constructs, indicating good discriminant validity [56]. Based on the above results, the good quality of measurement scales was assured.

Table 4. Correlation matrix.

	MN	MG	DU	CI	TT	FP
MN	0.721					
MG	0.430 **	0.815				
DU	0.294 **	0.206 **	0.831			
CI	0.014	0.292 **	0.254 **	0.722		
TT	0.294 **	0.315 **	0.384 **	0.322 **	0.786	
FP	0.362 **	0.248 **	0.247 **	0.166 **	0.212 **	0.799
Mean	3.765	3.325	3.065	3.261	3.222	3.513
SD	0.792	0.918	1.060	0.732	0.877	0.736
Cronbach's α	0.936	0.882	0.907	0.858	0.757	0.818
AVE	0.520	0.664	0.690	0.521	0.618	0.638

Notes: Two-tailed correlation test. ** indicates $p < 0.01$. FP = firm performance, MN = market-driven marketing innovation, MG = market-driving marketing innovation, DU = demand uncertainty, CI = competition intensity, TT = technological turbulence.

Table 5. Main effects of market-driven and market-driving marketing innovations on firm performance.

	Model 1	Model 2
	β	β
Starting Time	−0.310	−0.244
Market Status	0.245 **	0.208 **
Firm Size	−0.180	−0.174
Entry Barrier	−0.012	−0.013
MN		0.198 **
MG		0.113 *
R ²	0.163	0.251
F	9.96 **	11.28 **
ΔR^2		0.088
ΔF		11.810 **

Notes: Dependent variable = firm performance. * Indicates $p < 0.05$; ** indicates $p < 0.01$. MN = market-driven marketing innovation, MG = market-driving marketing innovation.

4. Results

4.1. Main Effects of Marketing Innovations

Hierarchical regression analyses were conducted to examine the main effects of MN and MG on firm performance. As shown in Table 5, Model 1 only contained control variables (starting time, market status, firm size, and entry barrier). Based on Model 1, market-driven innovation and market-driving innovation were added to form Model 2. Results show both market-driven and market-driving innovations significantly contributed to firm performance ($\beta = 0.198, p < 0.05$; $\beta = 0.113, p < 0.01$). That is to say, both types of marketing innovations could increase a firm's performance. Compared to Model 1, the R-squared value of Model 2 increased significantly by 0.088 ($R^2 = 0.251, \Delta F = 11.810, p < 0.05$). Thus, H1 and H2 were supported.

4.2. Moderating Effect of Demand Uncertainty on Firm Performance

As seen in Table 6, Model 3 included control variables (starting time, market status, firm size, and entry barrier), market-driven innovation, and demand uncertainty. Based on Model 3, the interaction of market-driven innovation and demand uncertainty ($MN \times DU$) was added and formed Model 4. As shown in model 4, the β value of $MN \times DU$ was insignificant ($\beta = 0.041, p > 0.05$), and the addition of $MN \times DU$ could only slightly increase the variance of firm performance ($\Delta R^2 = 0.002, \Delta F = 0.66, p > 0.05$). This indicates that demand uncertainty does not significantly interact with market-driven innovations in predicting firm performance. Thus, H3a was not supported.

Table 6. Moderating effects of demand uncertainty.

	Model 3	Model 4	Model 5	Model 6
	β	β	β	β
Starting Time	−0.219	−0.214	−0.242	−0.228
Market Status	0.201 **	0.191 **	0.229 *	0.227 **
Firm Size	−2.11	−0.208	−0.149	−0.155
Entry Barrier	−0.003	−0.002	−0.024	−0.026
MN	0.220 **	0.117		
MG			0.161 **	0.092
DU	0.102 *	−0.059	0.118 **	0.040
$MN \times DU$		0.041		
$MG \times DU$				0.023
R^2	0.256	0.257	0.245	0.246
ΔR^2		0.002		0.001
F	11.53 **	9.96 **	10.92 **	9.39 **
ΔF		0.66		0.36

Notes: Dependent variable = firm performance. * Indicates $p < 0.05$; ** indicates $p < 0.01$. MN = market-driven marketing innovation, MG = market-driving marketing innovation, DU = demand uncertainty.

Model 5 included control variables (starting time, market status, firm size, and entry barrier), market-driving innovation, and demand uncertainty. Based on Model 5, the interaction of market-driving innovation and demand uncertainty ($MG \times DU$) was added and formed Model 6. As Model 6 shows, the regression coefficient of $MG \times DU$ was insignificant ($\beta = 0.023, p > 0.05$), indicating that demand uncertainty does not moderate the effect of market-driving innovations on firm performance. The addition of $MG \times DU$ only slightly increased the variance explained ($\Delta R^2 = 0.001$), and this increase was insignificant ($\Delta F = 0.36, p > 0.05$). Thus, H3b was not supported.

4.3. Moderating Effect of Competition Intensity

Table 7 shows the examination of the moderating effect of competition intensity. Model 7 included control variables (starting time, market status, firm size, and entry barrier) and market-driven innovations. Based on Model 7, the interaction term between market-driven innovation and competition intensity ($MN \times CI$) was added and formed Model 8. As

shown in Model 8, the regression coefficient of the interaction term $MN \times CI$ was significant ($\beta = -0.146, p < 0.05$). That is to say, competition intensity could significantly moderate the effect of market-driven innovations on firm performance. After adding the interaction, the R-squared value of the model increased by 0.015 ($p < 0.05$). Figure 2 is a visual presentation of the moderating effect. As shown in Figure 2, the high-level competition intensity and low-level competition intensity interacted. Thus, H4a was supported.

Table 7. Moderating effect of competition intensity.

	Model 7	Model 8	Model 9	Model 10
	β	β	β	β
Starting Time	−0.224	−0.226	−0.278	−0.0230
Market Status	0.090 **	0.209 **	0.236 **	0.231 **
Firm Size	−0.200	−0.208	−0.134	−0.160
Entry Barrier	−0.004	−0.018	−0.025	−0.037
MN	0.264 **	0.739 **		
MG			0.184 **	−0.206
CI	0.102	0.638 *	0.019	−0.371
$MN \times CI$		−0.146 *		
$MG \times CI$				0.123 *
R ²	0.245	0.260	0.218	0.234
ΔR^2		0.015		0.016
F	10.94 **	10.10 **	9.38 **	8.76 **
ΔF		4.71 *		4.423 *

Notes: Dependent variable = FP. * Indicates $p < 0.05$; ** indicates $p < 0.01$. MN = market-driven marketing innovation, MG = market-driving marketing innovation, CI = competition intensity.

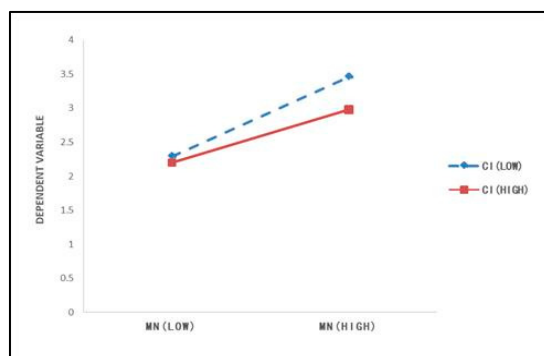


Figure 2. Competition intensity moderates the effect of market-driven innovation on firm performance.

Model 9 contained the control variables (starting time, market status, firm size, and entry barrier), market-driving innovations, and competition intensity. Based on Model 9, the interaction term between market-driving innovations and competition intensity ($MG \times CI$) was added in the regression analysis to test its moderating effect. As shown in Model 10, the β value of $MG \times CI$ was significant ($\beta = 0.123, p < 0.05$). That is to say, the effect of market-driven innovations on firm performance was dependent on the level of competition intensity. Meanwhile, the R² value increased by 0.016 ($\Delta F = 4.423, p < 0.05$) after adding $MG \times CI$. Figure 3 is the slope graph to show the moderating effect of $MG \times CI$. Thus, H4b was supported.

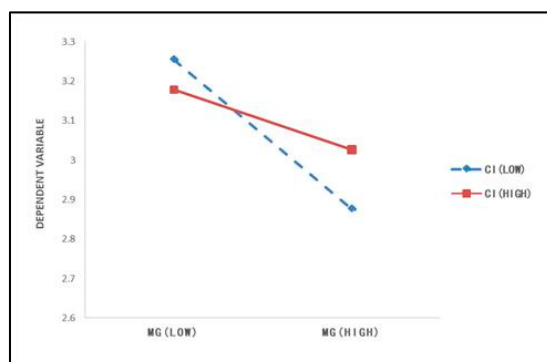


Figure 3. Competition intensity moderates the effect of market-driving innovation on firm performance.

4.4. Moderating Effect of Technological Turbulence

Table 8 shows the analysis of the moderating effect of technological turbulence. As shown in Table 8, Model 11 included control variables (starting time, market status, firm size, and entry barrier), market-driven innovation, and technological turbulence. Based on Model 11, the interaction term of market-driven innovation and technological turbulence ($MN \times TT$) was added and formed Model 12. As shown in Model 12, the β value of $MN \times TT$ was significant ($\beta = 0.116$, $p < 0.05$), indicating a significant moderating effect of technological turbulence. Figure 4 is the slope graph to show the interaction of market-driven innovation and technological turbulence. Compared with Model 11, the R-squared value of Model 12 increased significantly by 0.016 ($\Delta R^2 = 0.016$, $\Delta F = 13.68$, $p < 0.01$). Thus, H5a was supported by the empirical data.

Table 8. Moderating effect of technological turbulence.

	Model 11	Model 12	Model 13	Model 14
	β	β	β	β
Starting Time	−0.278	−0.209	−0.311	−0.331
Market Status	0.202 **	0.184 **	0.232 **	0.228 **
Firm Size	−0.204	−0.238	−0.141	−0.132
Entry Barrier	−0.008	−0.019	−0.030	−0.049
MN	0.228 **	−0.106		
MG			0.158 **	−0.329 *
TT	0.097	−0.341	0.102	−0.436 **
$MN \times TT$		0.116 *		
$MG \times TT$				0.162 **
R^2	0.248	0.264	0.208	0.255
ΔR^2		0.016		0.049
F	11.08 *	10.29 **	10.10 **	11.15 **
ΔF		4.43 *		13.68 **

Notes: Dependent variable = firm performance. * Indicates $p < 0.05$; ** indicates $p < 0.01$. MN = market-driven marketing innovation, MG = market-driving marketing innovation, TT = technological turbulence.

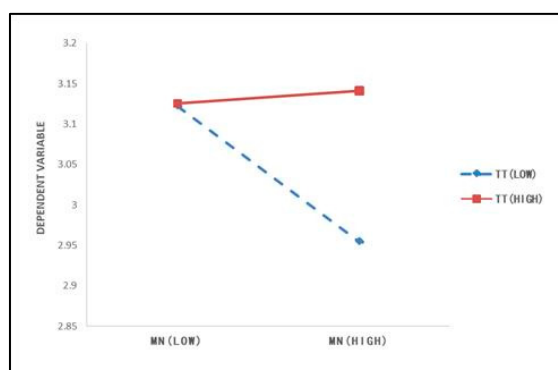


Figure 4. Technological turbulence moderates the effect of market-driven innovation on firm performance.

Model 13 contained control variables (starting time, market status, firm size, and entry barrier), market-driving innovation, and technological turbulence. On the basis of Model 13, the interaction term between market-driving innovation and technological turbulence ($MG \times TT$) was added to test its moderating effect. As shown in Model 14, the β value of $MG \times TT$ was significant ($\beta = 0.162, p < 0.01$), meaning the moderating effect was significant. Figure 5 is the slope graph to show the moderating effect. Meanwhile, the addition of $MG \times TT$ increased the variance explained in firm performance by 0.049 ($\Delta R^2 = 0.049, \Delta F = 11.15, p < 0.01$). Thus, H5b was supported.

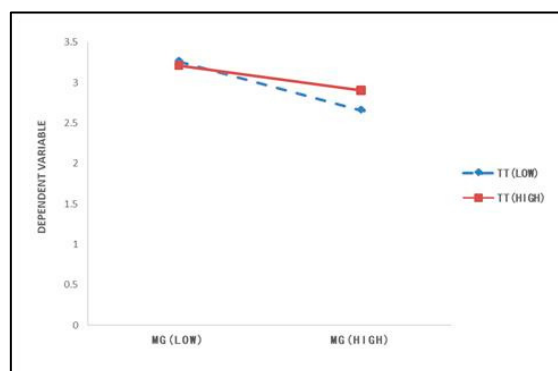


Figure 5. Technological turbulence moderates the effect of market-driving innovation on firm performance.

5. Discussion

Based on the analysis of existing literature, this study decomposes marketing innovations into two distinct constituents: market-driven marketing innovations and market-driving marketing innovations. Typically, market-driven innovations propel marketing success by satisfying the current customer needs and responding to the current market environment. On the other hand, market-driving innovations enhance a firm's performance by probing into potential needs and taking advantage of opportunities in new markets. Our empirical data showed that both approaches have a direct impact on a firm's performance. Table 9 provides a summary of the hypothesis testing.

Table 9. Summary of hypothesis testing.

	Hypothesis	Decision
H1	Market-driven marketing innovation positively affects firm performance.	Supported
H2	Market-driving marketing innovation positively affects firm performance.	Supported
H3a	Demand uncertainty positively moderates the effect of market-driven marketing innovation on firm performance.	Not supported
H3b	Demand uncertainty positively moderates the effect of driving-market marketing innovation on firm performance.	Not supported
H4a	Competition intensity negatively moderates the effect of market-driven marketing innovation on firm performance.	Supported
H4b	Competition intensity positively moderates the effect of market-driving marketing innovation on firm performance.	Supported
H5a	Technological turbulence positively moderates the relationship between market-driven marketing innovation and firm performance.	Supported
H5b	Technological turbulence positively moderates the relationship between driving-market marketing innovation and firm performance.	Supported

In terms of the moderating effects of market environmental factors, the results are interesting. In line with previous studies, our empirical data supported that competition intensity negatively moderates the effect of market-driven innovation on firm performance but positively moderates the effect of market-driving innovation [12,17,46]. In a tightly competitive market context, overemphasis on existing products and services is not likely to bring about superior economic returns and firm performance [12]. Rather, a conservative marketing orientation leaves firms to face decreasing marginal profit [12]. In contrast, in a highly competitive market context, exploring new products and new markets can be an effective approach to improve a firm's performance because proactive marketing efforts can help a firm to develop new avenues for growth, break the standstill and, avoid malicious competition [12]. Thus, in the context of high competition intensity, it is suggested that firms should take proactive marketing innovations.

Technological turbulence also moderates the effect of marketing innovations on a firm's performance. Tang and Zhang (2016) proposed that technological turbulence negatively moderates the effect of market-driven marketing innovation on firm performance, but in this study, the moderating effect was found to be positive [5]. In a highly technologically turbulent environment, both types of marketing innovations help a firm to anticipate new technologies and to know its customers better [53], thus facilitating the transformation of technological advancement into market value.

However, the moderating effect of demand uncertainty was insignificant for both types of marketing innovations. That is to say, the variances of demand uncertainty did not significantly strengthen or weaken the influence of marketing innovations on a firm's performance. This finding was different from Tang et al.'s observations in the USA [5,8]. Since this is the first study to apply the two types of marketing innovations in China, more in-depth research is needed to explain this difference.

6. Contribution, Limitation, and Future Research

6.1. Theoretical Contribution

This study makes contributions to the understanding of marketing innovations and their impact on a firm's sustainable development in three ways. Firstly, past studies have focused on technology innovations, treating marketing innovation as an oversimplified unidimensional construct, and most marketing innovation studies have been descriptive. This study identified two distinct types of marketing innovations that differ in product, market, and customer. Thus, this study improves the conceptualization of marketing innovation. Secondly, this study has developed a theoretical framework and validated the interplay among marketing innovation types, market environment variables, and firm performance. Six of the eight hypotheses were supported by the empirical data. The model shows how the effects of marketing innovations are influenced by different environmental forces (including demand uncertainty, competitive intensity, and technological turbulence). Thus, this study provides an understanding of the dynamics of marketing innovations. Thirdly, past research on marketing innovations was limited to the developed economies, where the market maturity and average income per capita were high. To the knowledge of the authors, this study represents the first effort to explore the interaction of marketing innovation and market environment in a developing economy. Thus, this study contributes to the expansion of marketing innovation research.

6.2. Practical Contribution

In terms of practical implication, this study stresses the importance of marketing innovation for small and medium enterprises in developing economies. Previous studies suggested that marketing innovation only generates trivial benefits or serves as a complementary tool to support technological innovations [3,58]. However, in this study, the empirical data from a variety of industries in China evidenced that marketing innovation exerts significantly positive effects on firm performance. Therefore, it is suggested that firms should allocate more attention to innovations in the marketing avenue apart from

solely relying on technological innovations. This strategy is especially practical in developing economies where highly technological breakthrough is distal. Second, as shown in our study, market-driven innovations exert a higher and more significant effect on firm performance than market-driving marketing innovations (0.198 vs. 0.113; $p < 0.01$ vs. $p < 0.05$). This implies that a more responsive and market-driven marketing orientation can be the priority strategy in developing countries. Because two market environmental factors (competition intensity and technological turbulence) play significant moderating roles, this study also suggests to firms that the selection of marketing innovation approaches should be accompanied by a careful appraisal of the competition intensity in their market and the technological turbulence in their industry. In a highly competitive environment, it is recommended that firms should consider more proactive market-driving innovations. In a technologically turbulent environment, both market-driven and market-driving marketing innovations are supportive of a firm's successful performance.

6.3. Limitation and Future Research

This study is not without limitations despite its unique contributions. First, the analysis utilized cross-sectional data and so cannot verify the findings at different time points. Future research can use panel data to present a longitudinal picture of the dynamics. Second, this study measured research variables with managers' perceptions. Future studies can utilize objective data. Third, although the data of this study were collected from a wide spectrum of industries in China, the generalizability of the findings can be further validated in other economies. Future research can also use quota sampling to enhance the representativeness of the sample. Fourth, comparing the effects of marketing innovations across different industries would also be interesting for future studies.

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References

1. Medrano, N.; Cornejo-Cañamares, M.; Olarte-Pascual, C. The Impact of Marketing Innovation on Companies' Environmental Orientation. *J. Bus. Ind. Mark.* **2020**, *35*, 1–12. [\[CrossRef\]](#)
2. Bartoloni, E.; Baussola, M. Does Technological Innovation Undertaken Alone Have a Real Pivotal Role? Product and Marketing Innovation in Manufacturing Firms. *Econ. Innov. New Technol.* **2016**, *91*–113. [\[CrossRef\]](#)
3. Grimpe, C.; Sofka, W.; Bhargava, M.; Chatterjee, R. R&D, Marketing Innovation, and New Product Performance: A Mixed Methods Study. *J. Prod. Innov. Manag.* **2017**, *34*, 360–383. [\[CrossRef\]](#)
4. Quaye, D.; Mensah, I. Marketing Innovation and Sustainable Competitive Advantage of Manufacturing SMEs in Ghana. *Manag. Decis.* **2019**, *57*, 1535–1553. [\[CrossRef\]](#)
5. Tang, T.; Zhang, S. The Effects of Marketing Innovation on Firm Performance: Market-Driven or Market-Driving? In *2016 Winter Marketing Academic Conference: What Happens in Marketing, Stays Digital-Rethinking Marketing in the Era of Unlimited Data*; Hennig-Thurau, T., Hofacker, C.F., Eds.; American Marketing Association.: Chicago, IL, USA, 2016; pp. G31–G32.
6. OECD. *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*, 3rd ed.; Publications de l'OCDE: Paris, France, 2005.
7. Gunday, G.; Ulusoy, G.; Kilic, K.; Alpkan, L. Effects of Innovation Types on Firm Performance. *Int. J. Prod. Econ.* **2011**, *133*, 662–676. [\[CrossRef\]](#)

8. Tang, T.; Zhang, S.; Peng, J. The Value of Marketing Innovation: Market-Driven versus Market-Driving. *J. Bus. Res.* **2021**, *126*, 88–98. [\[CrossRef\]](#)
9. Naidoo, V. Firm Survival through a Crisis: The Influence of Market Orientation, Marketing Innovation and Business Strategy. *Ind. Mark. Manag.* **2010**, *39*, 1311–1320. [\[CrossRef\]](#)
10. Soltani, S.; Azadi, H.; Hosseini, S.J.F.; Witlox, F. Marketing Innovation in Rural Small Food Industries in Iran Marketing Innovation in Rural Small Food Industries in Iran. *J. Food Prod. Mark.* **2015**, *21*, 533–551. [\[CrossRef\]](#)
11. Manu, F.A.; Sriram, V. Innovation, Marketing Strategy, Environment, and Performance. *J. Bus. Res.* **1996**, *35*, 79–91. [\[CrossRef\]](#)
12. Bodlaj, M.; Coenders, G.; Zabkar, V. Responsive and Proactive Market Orientation and Innovation Success under Market and Technological Turbulence. *J. Bus. Econ. Manag.* **2012**, *13*, 666–687. [\[CrossRef\]](#)
13. Oke, A. Innovation Types and Innovation Management Practices in Service Companies. *Int. J. Oper. Prod. Manag.* **2007**, *27*, 564–587. [\[CrossRef\]](#)
14. Day, G.S. The Capabilities of Market-Driven Organizations. *J. Mark.* **1994**, *58*, 37–52. [\[CrossRef\]](#)
15. Halpern, N. Marketing Innovation: Sources, Capabilities and Consequences at Airports in Europe's Peripheral Areas. *J. Air Transp. Manag.* **2010**, *16*, 52–58. [\[CrossRef\]](#)
16. Hills, S.B.; Sarin, S. From Market Driven to Market Driving: An Alternate Paradigm for Marketing in High Technology Industries. *J. Mark. Theory Pract.* **2003**, *11*, 13–24. [\[CrossRef\]](#)
17. Hurley, R.F.; Hult, G.T.M. Innovation, Market Orientation, and Organizational Learning: An Integration and Empirical Examination. *J. Mark.* **1998**, *62*, 42–54. [\[CrossRef\]](#)
18. John, A. Successful Market Innovation. *Eur. J. Innov. Manag.* **1999**, *2*, 6–11. [\[CrossRef\]](#)
19. Kumar, N. *Marketing as Strategy: Understanding the CEO's Agenda for Driving Growth and Innovation*; Harvard Business Review Press: Boston, MA, USA, 2004.
20. Moorman, C.; Day, G.S. Organizing for Marketing Excellence. *J. Mark.* **2016**, *80*, 6–35. [\[CrossRef\]](#)
21. Schubert, T. Marketing and Organisational Innovations in Entrepreneurial Innovation Processes and Their Relation to Market Structure and Firm Characteristics. *Rev. Ind. Organ.* **2010**, *36*, 189–212. [\[CrossRef\]](#)
22. Sidhu, J.S.; Commandeur, H.R.; Volberda, H.W. The Multifaceted Nature of Exploration and Exploitation: Value of Supply, Demand, and Spatial Search for Innovation. *Organ. Sci.* **2007**, *18*, 20–38. [\[CrossRef\]](#)
23. Song, M.; Droge, C.; Hanvanich, S.; Calantone, R. Marketing and Technology Resource Complementarity: An Analysis of Their Interaction Effect in Two Environmental Contexts. *Strateg. Manag. J.* **2005**, *26*, 259–276. [\[CrossRef\]](#)
24. Wen, L.; Li, L.; Liu, L. The Relationship between SME Marketing Innovation and Performance. *Syst. Eng.* **2012**, *30*, 76–82.
25. Zhang, F.; Qiu, W. Mechanism and Balance of Exploratory and Exploitative Market-Based Innovation Zhang. *J. Manag. Sci.* **2013**, *26*, 1–13.
26. Zhang, Z.; Zhang, X. Research on Technology Innovation Elements of Enterprise and Its Relationship. *Sci. Technol. Prog. Policy* **2014**, *31*, 79–83.
27. Zhou, K.Z.; Yim, C.K.; Tse, D.K. The Effects of Strategic Orientations on Technology- and Market-Based Breakthrough Innovations. *J. Mark.* **2005**, *69*, 42–60. [\[CrossRef\]](#)
28. Jaworski, B.J.; Kohli, A.K. Market Orientation: Antecedents and Consequences. *Dev. Mark. Orientat.* **2020**, *57*, 53–70. [\[CrossRef\]](#)
29. Narver, J.C.; Slater, S.F. The Effect of Market Orientation on Business Profitability. *Dev. Mark. Orientat.* **1990**, *54*, 20–35. [\[CrossRef\]](#)
30. Damanpour, F.; Evan, W.M. Organizational Innovation and Performance: The Problem of “Organizational Lag. *Adm. Sci. Q.* **1984**, *29*, 392–409. [\[CrossRef\]](#)
31. Deshpande, R.; Farley, J.U.; Webster Jr., F. Corporate Culture, Customer Orientation, and Innovativeness in Japanese Firms: A Quadrant Analysis. *J. Mark.* **1993**, *57*, 23–37. [\[CrossRef\]](#)
32. Garg, V.K.; Walters, B.A.; Priem, R.L. Chief Executive Scanning Emphases, Environmental Dynamism, and Manufacturing Firm Performance. *Strateg. Manag. J.* **2003**, *24*, 725–744. [\[CrossRef\]](#)
33. Hult, G.T.M.; Ketchen, D.J. Does Market Orientation Matter? A Test of the Relationship between Positional Advantage and Performance. *Strateg. Manag. J.* **2001**, *22*, 899–906. [\[CrossRef\]](#)
34. John, A.; Davies, R. Innovation in Medium-Sized Insurance Companies: How Marketing Adds Value. *Int. J. Bank Mark.* **2000**, *18*, 6–14. [\[CrossRef\]](#)
35. Walker, R.M. Innovation and Organizational Performance: A Critical Review of the Evidence and a Research Agenda. In *Academy of Management Proceedings*; Academy of Management: Briarcliff Manor, NY, USA, 2005; pp. B1–B6. [\[CrossRef\]](#)
36. Wu, F.; Mahajan, V.; Balasubramanian, S. An Analysis of E-Business Adoption and Its Impact on Business Performance. *J. Acad. Mark. Sci.* **2003**, *31*, 425–447. [\[CrossRef\]](#)
37. Wang, C.-H. The Impact of Market Orientation on Innovation Performance: Does Service Innovation Matter? *J. Bus. Stud. Q.* **2015**, *6*, 77.
38. Li, T.; Calantone, R.J. The Impact of Market Knowledge Competence on New Product Advantage: Conceptualization and Empirical Examination. *J. Mark.* **1998**, *62*, 13–29. [\[CrossRef\]](#)
39. He, Z.L.; Wong, P.K. Exploration vs. Exploitation: An Empirical Test of the Ambidexterity Hypothesis. *Organ. Sci.* **2004**, *15*, 481–495. [\[CrossRef\]](#)
40. Hang, C.C.; Chen, J.; Yu, D. An Assessment Framework for Disruptive Innovation. *Foresight* **2011**, *13*, 4–13. [\[CrossRef\]](#)

41. Gupta, S.; Malhotra, N.K.; Czinkota, M.; Foroudi, P. Marketing Innovation: A Consequence of Competitiveness. *J. Bus. Res.* **2016**, *69*, 5671–5681. [[CrossRef](#)]
42. Slater, S.F.; Narver, J.C. The Positive Effect of a Market Orientation on Business Profitability: A Balanced Replication. *J. Bus. Res.* **2000**, *48*, 69–73. [[CrossRef](#)]
43. Ungerman, O.; Dedkova, J.; Gurinova, K. The Impact of Marketing Innovation on the Competitiveness of Enterprises in the Context of Industry 4.0. *J. Compet.* **2018**, *10*, 132–148. [[CrossRef](#)]
44. Ali, A. Pioneering versus Incremental Innovation: Review and Research Propositions. *J. Prod. Innov. Manag.* **1994**, *11*, 46–61. [[CrossRef](#)]
45. Gatignon, H.; Xuereb, J. Strategic Orientation of the Firm and New Product Performance. *J. Mark. Res.* **1997**, *34*, 77–90. [[CrossRef](#)]
46. Jansen, J.J.P.; Van Den Bosch, F.A.J.; Volberda, H.W. Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators. *Manage. Sci.* **2006**, *52*, 1661–1674. [[CrossRef](#)]
47. Ndubisi, N.O.; Dayan, M.; Yeniaras, V.; Al-hawari, M. The Effects of Complementarity of Knowledge and Capabilities on Joint Innovation Capabilities and Service Innovation: The Role of Competitive Intensity and Demand Uncertainty. *Ind. Mark. Manag.* **2020**, 196–208. [[CrossRef](#)]
48. Matusik, S.F. The Utilization of Contingent Work, Knowledge Creation, and Competitive Advantage. *Acad. Manag. Rev.* **1998**, *23*, 680–697. [[CrossRef](#)]
49. Rust, R.T.; Ambler, T.; Carpenter, G.S.; Kumar, V.; Srivastava, R.K. Measuring Marketing Productivity: Current Knowledge and Future Directions. *J. Mark.* **2004**, *68*, 76–89. [[CrossRef](#)]
50. Zahra, S.A. Technology Strategy and Financial Performance: Examining the Moderating Role of the Firm's Competitive Environment. *J. Bus. Ventur.* **1996**, *11*, 189–219. [[CrossRef](#)]
51. Porter, M.E. *Competitive Advantage*; The Free Press: New York, NY, USA, 1985.
52. Tushman, M.L.; Anderson, P. Technological Discontinuities and Organizational Environments. *Adm. Sci. Q.* **1986**, *31*, 439–465. [[CrossRef](#)]
53. Wang, Y.; Zeng, D.; Di Benedetto, C.A.; Song, M. Environmental Determinants of Responsive and Proactive Market Orientations. *J. Bus. Ind. Mark.* **2013**, *28*, 565–576. [[CrossRef](#)]
54. Podsakoff, P.M.; Organ, D.W. Self-Reports in Organizational Research: Problems and Prospects. *J. Manag.* **1986**, 531–544. [[CrossRef](#)]
55. Podsakoff, P.M.; MacKenzie, S.B.; Lee, J.Y.; Podsakoff, N.P. Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *J. Appl. Psychol.* **2003**, *88*, 879–903. [[CrossRef](#)]
56. Hair, J.; Black, W.; Babin, B.; Anderson, R. *Multivariate Data Analysis: A Global Perspective*. In *Multivariate Data Analysis: A Global Perspective*; Pearson: London, UK, 2010; Volume 7.
57. Fornell, C.; Larcker, D.F. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *J. Mark. Res.* **1981**, *18*, 39. [[CrossRef](#)]
58. Chen, Y. Marketing Innovation. *J. Econ. Manag. Strateg.* **2006**, *15*, 101–123. [[CrossRef](#)]