



温州肯恩大学
WENZHOU-KEAN UNIVERSITY

Innovation or Imitation? How do SMEs enhance competitiveness?

In Partial Fulfillment of the Requirements
for the Bachelor of Science in Accounting

by

YUAN Zhourong

1025966

May, 2020

Innovation or Imitation? How Do SMEs Enhance Competitiveness?

Yuan Zhourong

Abstract

The purpose of this study is to conduct empirical research to solve the conflicts among the previous researches which investigated the effect of innovation and imitation strategy on product performance for small and medium sized enterprises (SMEs) through theoretical interference. I collected data from senior managers in Chinese market through an online questionnaire and measured the relationship and the regulating effects of environmental factors with statistical software. I find that an innovation strategy is the better choice for SMEs in China. The demand uncertainty enhances the influence. Instead, technological turbulence hurts the innovators. Competitive intensity dose not influence any of the innovators and imitators. The result provides a practical suggestion for Chinese SMEs when faced with strategy choice issue.

Keywords: SMEs; innovation; imitation; environmental factors; product performance; Chinese market.

1. INTRODUCTION

In recent years, rapid advances in information technologies and the flourishing development of emerging markets raise the significance of innovation in new product developments. Extensive studies are indicating that the innovation strategy can enhance the process and operating way, reduce costs, improve the efficiency of the market, obtain a competitive advantage, create and capture value, and have better enterprise performance. (Amit and Zott, 2001; Giesen et al., 2007; Mitchell and Coles, 2003; Pohle and Chapman, 2006). The innovative strategy is represented by developing new ideas earlier than competitors to gain sustainable competitive advantages (Samuelsson and Davidsson, 2008).

However, some traditional theories outlined that innovation requires the investment of specific resources. With the risk of uncertain income, it is often tricky for enterprise managers to obtain accurate data of innovation costs and benefits. Late entrants can avoid the risk and overtake the innovators with the improved product (Golder and Tellis, 1993). Imitation strategy tends to gain competitive advantages by overcoming the inefficiency of original resource allocation (Samuelsson and Davidsson, 2008).

To address this dispute, previous researchers have devoted considerable attention to compare innovation with imitation strategies by evaluating the value and then solving the problem of strategy selection under uncertain conditions with the help of theory (Smit, & Trigeorgis, 2017). Lack of empirical tests and correction from empirical data, the effects of innovation and imitation strategies on new product performance remain unexplored. Another limitation of current researches is that prior studies have investigated the generalizability of the effect for all size industries, which leaves how to choose as the medium and small size industries (SME) an open question.

To fill these research gaps, this paper studies the effects of innovation versus imitation strategies on new product performance for SME. More importantly, the researcher examines whether the roles of innovation versus imitation strategies vary across environments with different levels of demand uncertainty, technological turbulence, and competitive intensity.

In 2016, the Chinese National Bureau of Statistics stated that SMEs accounted for about 99 % of the total number of firms in China and contributed about 60 % of the country's total gross industrial output. Compared with big enterprises, SME has more disadvantages. First, enterprises in China are generally short of funds and have limited financing capacity. The funds available for research and development (R&D) are even less. It takes a long time to rely on independent technological innovation entirely. SMEs, which have less available funds than big enterprise, are more stressful to invest funds in innovation and expect to increase their income (Niu et al., 2014). Second, the essential determinants of innovating strategy are a high proportion of qualified scientists and engineers, who can follow the rapid development of technology and even be the pioneer to change, and educated director or founder, who can provide strong leadership. (Hoffman et al., 1998; Le Blanc et al., 1997). For most SME, due to the limitations of the original system or enterprise capability, the quality of talent and required technology are still a certain distance. Therefore, with these considerations, SMEs may have different and specific concerns while choosing between innovation and imitation strategies.

The questionnaire of the study is adapted a survey from Zhou (2006) to collect the data. The respondents, who are the senior managers, are random chose from the Chinese SMEs. I used the median split to clarify the “innovators” and “imitators” group, comparing the new product performance and regulating effects of the competitive environment. Based on the relevant

literatures, I assumed that innovation strategy leads to better product performance than imitation strategy. Nevertheless, the environmental factors have a negative moderating effect on this superiority. The findings indicate that the innovation strategy is more desirable in China. Furthermore, the benefits of an innovation strategy over an imitation strategy become stronger as technology changes rapidly. Beyond the predictions, the benefits become weaker as demand is increasing uncertain. While the competitive intensity has no moderating effects for both strategies.

Besides, the study mainly contributes to the literature in two ways. On the one hand, the study provides practical investigations for SMEs to deal with strategic issues. Most of the previous study limited on the theoretical reasoning, ignoring the study of practical reasoning. On the other hand, the study contributes to the evaluation of the external factors that may influence the product performance.

The remainder of the paper is organized as follows. In the next section, the relevant review features the brief literatures and proffers the hypothesis. In section 3, I describe the methodology and sample. In section 4, I illustrate and analyze the generated result of the tests. In section 5, I conclude.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Institutional Background of SMEs in China

According to Wang and Yao (2002), Chinese SMEs lack access to the formal financial market, and they have to resort to informal and underground financial institutions to get loans. Their resources are limited. Therefore, they also have to form links with outside entities, for example, acting as suppliers to large firms, co-operating with research institutes or universities, forming joint ventures with foreign firms, and co-operating with other SMEs to obtain technology for product development.

Chinese administrators tend to exhibit high uncertainty, such as safety, stability, and predictability. Those factors are highly valued in contemplating the direction of an organization. It does not suggest that Chinese managers are unskilled strategic thinkers, but rather that they tend to consider predictability and consistency when evaluating strategic opportunities. With emphasis on economy and productivity, this uncertainty avoidance tends to present the cost leadership strategies for many Chinese SMEs (Hofstede, 2003; Lockett, 1988).

2.2 Innovation Strategy of SMEs

Siti (2001) wanted to look at the role that innovation played on strategy and SMEs. Therefore, they took the construction industry as an example to figure out how firms grow and develop as determined by their strategy and how they leverage innovation. Consequently, they found that innovation is a successful transformation of the new plans into profitable products and services. Innovation can be successful in terms of how it is used to gain a competitive advantage through one or more of the three generic strategies. First, SMEs focus on cost leadership, which means that they aim to increase market share through low costs and pricing. Second, no matter SMEs or Large enterprises pursue differentiation to their rivals, such as technology, design, or services. Third, as followers, SMEs cannot modify the preference of customers. To enhance competitiveness, they focus on the size of a specific market and how many customers are being served.

2.4 Imitation Strategy of SMEs

Various scholars have examined the process of imitation from the aspects of organizational learning and organizational evolution. For organizational learning, imitation has been generally

classified into three to five stages. Kim (2000) illustrated that technology absorption, improvement, and innovation had defined the stages for firms in the vehicle, electronics, and semiconductor industries in South Korea. Chen (1994) presented a three-stage model, which includes imitation, technology obtaining, and digest [ion], and improvement. Si et al. (2018) suggested that SME imitation goes through five stages, namely, analysis of innovation demand, selection of the object to be imitated, acquisition of the object to be imitated, technology absorption, and technology integration, and innovation.

2.5 Product Strategy and Product Performance

Not all companies consistently choose one of the innovations and imitation strategies. For example, Taobao at first imitates eBay to start e-commerce in China. Then it first builds a third-party for sellers and buyers to communicate. Innovation and imitation strategies are both viable. There is only one pioneer in any product market. Hence imitation is a more common strategy than innovation (Zhou, 2006). Various researches affirm that the pioneers do obtain a larger market share, enjoy higher brand loyalty, and gain lower production and advertising cost. However, followers then massively improve product performance or marketing efficiency, as well. Imitators can overtake the innovators because they have the chance to observe a superior position and operating process and introduce improved products that satisfy customers better (Shankar et al., 1999). Furthermore, an imitator does not need to spend as many resources on research as innovators. Consequently, imitators usually spend less than innovators to introduce a new product. (Schnaars, 1994).

H1. Compared with an imitation strategy, an innovation strategy has a stronger positive impact on new product performance for SMEs.

2.6 Demand Uncertainty

The pioneer enjoys an initial period of monopoly until competitors enter. Nevertheless, the pioneer faces a higher risk of costly new product failure due to demand uncertainty. If customer demand is highly unsteady and fast-changing, it will be more challenging for companies to identify the preference of customers and meet their needs (Golder & Tellis, 1993). Due to the risk that the forecast of future demand is uncertain, the likelihood that the first to market will be the first to fail increases substantially (Porter, 1985; Wernerfelt & Karnani, 1987). By adopting a "wait and see" strategy, a company can reduce its risk because it can make its entry decision after observing the extent of demand. (Chatterjee & Sugita, 1990). For example, the success rate of imitation is up to 87.5%, while the failure rate of innovation is up to 47.5% (Yuan & Chen, 2002). In terms of economic effect, Shi (1999) analyzed the Chinese computer industry, the sales and profit per capita of imitation innovation firms are higher than those of the first innovation firms.

H2. For SME, the benefit of an innovation strategy over an imitation strategy become weaker as demand becomes increasingly uncertain.

2.7 Technology Turbulent

Careful choice of market and technology fields are in the primary domain of the Imitator's success. Past research pictured the advantages of imitators entering markets: more flexible, faster, and at a lower cost. Replacement technology usually happens while the existing technology is still developing. In this case, rapid changes enable imitators to neutralize the technology leadership advantage enjoyed by innovators (Porter, 1980). With new technology, imitators can catch up with innovators because investments in existing technology do not burden them. Therefore, a high rate

of technological change offers imitators a variety of ways to copy existing products and make improved products to overtake innovators (Kerin et al., 1992).

H3. For SME, the benefit of an innovation strategy over an imitation strategy become weaker when the technology is increasingly turbulent.

2.8 Competitive Intensity

A model, which analyzed the state of competition in one dimension, found that firms engage in step-by-step innovation. The leaders can innovate to widen the technological gap between themselves and their followers. The followers, on the other hand, innovates first to catch up step-by-step with and then to surpass the leader (Acemoglu & Akcigit 2012).

In a highly competitive market, an innovator invests heavily in R&D and must pay attention to the benefits of its new products; an imitator can be a free rider, and observe innovators' efforts on its patent applications, and exhibitions at professional conferences. With a much less costly strategic alternative, imitation enables firms to reduce the high cost of product innovation and thus achieve better performance. Furthermore, in times of heavy competition, competitors are likely to match the innovator's offers quickly. This fast response from the imitators offsets the innovator's efforts to create consciousness and brand loyalty. If the innovator is unable to establish entry barriers, its advantage is unlikely to last. (Porter, 1985).

H4. For SMEs, the benefit of an innovation strategy over an imitation strategy for SMEs' new products performance become weaker as competition intensifies.

3. METHODOLOGY

3.1 Sample and Data Collection

To test the hypotheses and get more data, the researcher looks for respondents in LinkedIn and request for help from an online talent pool. The questionnaire is adopted from a previous and English-language version which was developed for a similar research by Zhou(2006). To ensure conceptual equivalence, it was translated into Chinese and then back-translated twice by independent translators. Any conflicts were discussed by the researcher and translator until agreement was reached.

For each firm, a senior manager (e.g., vice president, product manager, director of new product development, marketing manager) was chosen as the key informant because the field interviews revealed that these managers were highly familiar with new product development and introduction. The respondents were informed of the confidentiality of their responses and the academic purpose of the project.

I collect 131 questionnaires in total. After eliminating the questionnaire from large enterprise and with obvious errors, 114 valid questionnaires are remained.

3.2 Measure

All items, unless specified otherwise, were measured with a five-point Likert Scale (1=strongly disagree, 5=strongly agree). SPSS is used for the regression analysis and tests the hypotheses.

3.2.1 Product Strategy

According to Hunger, Korsching, and Auken (2002) and Samuelsson and Davidsson (2009), one type of enterprise explores new technologies, new knowledge develops innovative opportunities (Innovative Strategy), and another type of enterprise makes margins on existing

products and technologies (Imitation Strategy). Product strategy can be indirectly examined from internal factors, such as company culture, leadership, and the degree of invest (Mc Grath, 2001). Based on this, this paper developed three items to measure the product introduction strategy.

3.2.2 Competitive Environment

The measure of demand uncertainty follows Kevin (2013) whose adapted from Jaworski and Kohli (1993) and Gatignon and Xuereb (1997). The technological turbulence and competitive intensity measures also were adapted from Jaworski and Kohli (1993).

3.2.3 Performance

The measure of new product performance also follows Kevin (2013) whose adapted from Gatignon and Xuereb (1997) and Li and Calantone (1998), assesses the sales growth, return on investment, profit level, and market share of the new product relative to major competitors' products. Relative measures are commonly used in new product strategy research because accurate objective product performance data are rarely available and often not directly comparable across different firms or industries.

3.2.4 Control variables

Enterprises established for a long time will have more experience in acquiring information and integrating resources (Davis and Harveston, 2000). Therefore, this study takes enterprise age as the control variable. The larger the enterprise, the more resources, and capabilities the enterprise has, and the more likely it is to use the abundant resources available to carry out entrepreneurial activities. At the same time, there is also a relationship between enterprise size and entrepreneurial risk-bearing. Due to the influence of resource endowment, enterprises of different sizes have different abilities to resist entrepreneurial risks. Therefore, enterprise size is taken as one of the control variables. A document issued by the Chinese State Statistics Bureau provides for respondents to determine the enterprise size is represented in Appendix A.

4. RESULT

4.1 Confirmatory Factor Analysis

First, Confirmatory Factor Analysis (CFA) was conducted on the sample data to test the fitting degree between the model and the sample data. Based on theoretical analysis, this study used SPSS to fit the measurement model and sample data. The model provides a satisfactory fit to the data (χ^2 goodness of fit test $\chi^2= 148.171$, $\chi^2/df= 1.185$; confirmatory fit index CFI=0.991, incremental fit index IFI=0.94; root mean square error of approximation RMSEA=0.04).

4.2 Reliability and Validity Test

For the reliability test, the research uses the Cronbach's Alpha which is the most widely used measurement of reliability. The reliability coefficients of each variable are shown in the Table 1. In the reliability test, Cronbach's Alpha of the overall model is 0.962, the Product Strategy is 0.926, Demand Uncertainty is 0.941, Technological Turbulence is 0.775, Competitive Intensity is 0.934, and Product Performance is 0.963. All the scales are higher than 0.7(Eisinga, Te Grotenhuis, and Pelzer., 2013), indicating that the research is reliable.

TABLE 1**Reliability Statistics**

Item	Cronbach's Alpha	N of Items
	0.962	18
Product Strategy	0.926	3
Demand Uncertainty	0.941	4
Technological Turbulence	0.775	4
Competitive Intensity	0.934	3
Product Performance	0.963	4

I assessed the validity by KMO and Bartlett's Test. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.955 and significance is 0.000($P < 0.05$). therefore, the research is valid (Gim Chung, Kim, and Abreu., 2004).

4.3 Descriptive statics and Correlation Analysis

After the reliability and valid test, I analyze the data and investigate the correlation relationship between the variables. Except the control variables, the other factors were correlated with each other. The basic descriptive statics and the correlations of these constructs are shown in Table 2.

TABLE 2**Descriptive Statics of the constructs**

Construct	1	2	3	4	5	6	7
1. Product Strategy	1						
2. Demand Uncertainty	.903**	1					
3. Technological Turbulence	.888**	.911**	1				
4. Competitive Intensity	.900**	.943**	.900**	1			
5. Product Performance	.491**	.467**	.444**	.438**	1		
6. Firm Age	-0.002	-0.028	-0.022	-0.018	0.068	1	
7. Firm Size	-0.011	-0.071	-0.026	-0.016	0.015	.212*	1
Mean	3.915	3.893	3.268	3.901	3.208	2.810	2.130
Standard Deviation	1.230	1.134	0.896	1.217	1.422	0.739	0.672

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

4.4 Regression Analysis

My model contains the interactions of product strategy and environmental factors. Following the procedure by Hayes (2017), because of the hypotheses focus on the comparison between innovation and imitation strategies, I dichotomized the product introduction scale using median splits and classified companies with scores lower than the median as “imitators” (n=36) and those

with a higher score as “innovators” (n=78). I then ran separate regression analyses for innovators and imitators, respectively. The regression results are separately reported in Table 3 and Table 4.

From the model 1 of the two tables, both innovation strategy and imitation strategy are significantly and positively correlated with product performance ($F_{\text{innovator}}=1.481$, $P<0.05$; $F_{\text{imitator}}=20.299$, $P<0.01$). An innovation strategy has a stronger impact on new product performance than an imitation strategy ($\beta_{\text{innovator}}=1.34 > \beta_{\text{imitator}}=0.86$). H_1 is accepted.

H_2 addressed the regulating effects of demand uncertainty on product strategy and product performance. In model 2 of table 3, the change of R square is 0.026 ($p<0.05$). In model 2 of table 4, the change of R square is 0.05 ($P<0.05$). Therefore, demand uncertainty had positive regulating effect on both strategies and product performance. The benefit of an innovation strategy ($\beta=1.33$) over an imitation strategy ($\beta=0.377$) became stronger in the face of demand uncertainty. H_2 is rejected.

H_3 dealt with the regulating effect of technological turbulence on product strategy and product performance. In model 3, the interaction of product strategy and technological turbulence positively influenced the imitation strategy and product performance ($\beta=0.424$, $P<0.05$). The effects were larger than those of technology on innovation strategy ($\beta=-0.299$, $P>0.1$), in support of H_3 .

H_4 assessed the moderating role of competitive intensity. In model 4, competitive intensity had no regulating effect on both innovation and imitation strategies. Both the change of R-square is not significant, providing no support to H_4 .

TABLE 3

Regression Result for Innovators (n=78)

	Model 1		Model 2				Model 3				Model 4			
	B	t	B	t	B	t	B	t	B	t	B	t	B	t
Firm Age	0.046	0.208	0.045	0.201	0.053	0.238	0.056	0.254	0.041	0.173	0.029	0.13	0.025	0.111
Firm Size	0.069	0.292	0.052	0.214	0.047	0.195	0.063	0.265	1.331*	2.037	0.038	0.158	0.04	0.168
PS	1.34*	2.086	1.38*	2.108	1.347*	2.044	1.381*	2.133	-0.303	-0.72	1.31	2.039	1.299	1.982
DU			-0.181	-0.38	-0.059	-0.11								
PS*DU					1.33	0.64								
TT							-0.636	-1.072	-0.632	-1.06				
PS*TT									-0.299	-0.11				
CI											-0.285	-0.68	-0.303	-0.72
PS*CI													1.343	0.715
R ²	0.57		0.59		0.64		0.63		0.69		0.71		0.71	
F	1.481*		1.135*		0.982		1.218*		1.07*		1.401*		1.108*	
Change of R ²	0.057		0.02		0.05		0.06*		0.07*		0.15*		0	

* p<0.05

TABLE 4

Regression Result for Imitators(n=36)

	Model 1		Model 2				Model 3				Model 4			
	B	t	B	t	B	t	B	t	B	t	B	t	B	t
Firm Age	0.272	1.468	0.28	1.498	0.246	1.339	0.273	1.466	0.248	1.381	0.26	1.361	0.25	1.277
Firm Size	-0.003	-0.015	0.02	0.091	0.017	0.078	-0.013	-0.059	-0.038	-0.18	-0.002	-0.009	0.002	0.011
PS	0.86**	7.663	0.642*	2.215	0.294	0.819	0.634*	2.401	0.34	1.127	0.974	3.206	1.047	2.789
DU			0.204	0.821	0.386	1.436								
PS*DU					0.377	1.569								
TT							0.269	0.947	0.464	1.58				
PS*TT									0.424	1.83				
CI											-0.097	-0.402	-0.134	-0.5
PS*CI													-0.072	-0.342
R ²	0.656		0.663		0.688		0.665		0.699		0.657		0.659	
F	20.299**		15.238**		13.256**		15.399**		13.923**		14.866**		11.577**	
Change of R ²	0.656		0.007*		0.026*		0.01*		0.034*		0.002		0.001	

* p<0.05 ** p<0.01

5. Discussion

Even though innovation and imitation strategies have been evaluated as great attention in the previous literature, few studies empirically compare the effectiveness of innovation versus imitation strategies under the influence of the external factors. This study seeks to fill this gap by examining their effects in China. The results contribute mixed support to my hypotheses, and I next address the indications of the findings in light of China's unique market and cultural characteristics for SMEs.

Although the Based on the result, both innovation and imitation strategy positively influenced the new product performance. Also, innovation strategy has a stronger effect than imitation strategy. A recent research provided support for the finding. According to Frank, Abulaiti, and Enkawa (2012), Chinese consumers tended to try new and innovative products.

When it comes to the moderating effects of environmental factors, demand uncertainty does not fall the benefit of innovation over imitation strategy. Technological turbulence helps the imitators decrease the discrepancy with innovators. Most studies that analyzed this moderating factor present its regulating effect on the performance relationship orientated by market. Consequently, the higher the technological dynamism, the greater the relevance of the firm's R&D will be. In this case, innovators are more vulnerable compared with imitators (González-Benito, González-Benito, and Muñoz-Gallego 2014). In contrast with the prediction, competitive intensity does not moderate the relationship between product strategies and new product success.

5.1 Unexpected Result and Possible Explanation

Customer orientation represents a critical determinant of market orientation (Narver and Slater 1990), especially when the preferences of customers are unstable, a market orientation enables the firm to monitor those preferences and design appropriate service and operations (Kohli and Jaworski 1990). Beyond expectation, demand uncertainty strength the performance of innovators. In China, because of the limited-expression and insufficient knowledge about innovative products (Zhou, Su, and Bao 2002), consumer behaviors and demands are shaped by companies that offer products that satisfy potential needs. Under the circumstance, it is difficult for the followers to change the customer's preference. Consequently, a product innovation strategy handles uncertain demand better by leading the changes in demand uncertainty.

Previous literatures investigated that the pioneering advantage diminishes with the increasing competition. The innovator is unable to maintain its entry barrier (Day & Wensley, 1988; Kerin et al., 1992; Porter, 1985). However, my finding indicated that competition played a moderated factor. Possibly because the Chinese are known for their propensity to follow the leader, which means that Chinese consumers tend to view the top-ranked company more favorably and believe that their products are of higher quality (Tse, 1996). This research focused on the actions conducted by SMEs. The large companies are always the "leader" in this industry. For example, Huawei was topped rankings in Chinese market. No matter the other smartphone brands innovated new products or imitate the products from Huawei (Anon, 2019). Another possible explanation is based on a research conducted by Wang, Hu, and Liu (2017). In China, in equilibrium market, the companies with high desire to innovate have a higher customer loyalty than the followers. Even though there are many competitors, innovation strategy is still the most important factor that attracts consumers. In this case, the influence of competitive intensity can be ignored with the comparison with product strategy.

5.2 Limitations

My study has some limitation that should be overcome in the future. First, the respondents subjectively evaluated the performance of the enterprise in the industry and judged the influence of the external factors. Considered the brand image and devotion to the company, the respondents may give me the wrong information unconsciously. Second, after splitting the groups of innovators and imitators, the number of the innovator is 78 and the number of the imitator is 36. This study focused on a total of 5 variables and 18 analysis items. The effective sample size of this analysis did not exceed 5 times of the number of analysis items (Truesdell, Bence, Syslo, and Ebener., 2017). Third, the measure of product introduction strategy focuses on a firm's efforts in being the first one to introduce new products to the market. As such, it only indirectly measures imitation strategy. However, the moderating effect

5.3 Reliability and Validity

For reliability, I collected online questionnaires, so the respondents have enough time to answer the questionnaire. From the records of the online questionnaire website, most of the respondents spent more than 5 minutes to answer the survey. Also, I promised at the questionnaire that the data was only used for the research and kept privacy. In the survey, I followed the procedure conducted by Zhou (2006), who negotiate with some professionals avoid the question that resulted the subjective respondents.

For validity, my independent variable is the product performance. Based on the previous researches, the different product strategies (eg. innovation and imitation) will lead the different profits. In my research, I investigated which strategies contribute to a better product success. I used the online questionnaires, so the respondents were random chose from China. In the questionnaire, I used the control variables to make sure that the data reflected the SMEs.

5.4 Theoretical Contribution

A pioneer in a market is risky but can absorb many resources and gain competitive advantages. Thus, many firms likely invest extensively in developing innovative products and introducing them into the market before their competitors. Previous researches examined the factors for followers to determine whether innovate or imitate through theoretical interferences. This paper collects empirical data to investigate the contingency effect, especially for small and medium enterprises. In addition, the study considered the moderating effect of external factors. Compared with big enterprises, SMEs face more challenges with the rapid development of technology. The findings indicate a better choice in the Chinese market and environmental factors to enhance competitiveness. Overall, the findings reflect a board, current standing of the subject in China.

6. Conclusion

This paper compares the effects of innovation and imitation strategy on product performance and explores the moderating effects of external factors for SMEs. I apply the online survey and SPSS statistical software to generate and investigate the result. Due to the risk of innovation, many firms may invest heavily in absorbing the resources and technologies from the pioneers and making imitative products to gain the competitive strategies. especially the SMEs, even they are eager to develop the new and innovative products, they did not enough resources and talents to realize them. However, my findings indicate that the innovative products are the better choice for SMEs in Chinese market. Furthermore, the innovation strategy is more desirable when demand is

dynamical. The rapid changes in technology diminish the benefits of innovators over imitators. While the competitions dose not regulate the effect of product strategies on product performance.

Due to the limited time and networks, the study cannot collect enough respondents to have a more accurate result. The future researchers can spend a longer time to collect enough responses. The questionnaires conducted by Zhou (2006) tried to avoid the subjective questions. However, the respondents may misrepresent the new product performance, the impact of external environmental factors unconsciously. The future researchers may design the questionnaire with some standards for the respondents to evaluate. Besides, the standards to jusity the imitators is whether the first to enter the market. There are much more characteristics of imitator. Being the first cannot be the only principle. Additional research can figure out the features and the main differences of innovators and imitators and use a more straightforward way to classify them.

APPENDIX A

TABLE 1
Statistical classification of large, medium and small enterprises in China

Industry	Target	Large	Medium	Small	Micro
Agriculture Forestry, Farming, Fishery	Revenue(Y)	$Y \geq 20000$	$500 \leq Y < 20000$	$50 \leq Y < 500$	$Y < 50$
	Employees (X)	$X \geq 1000$	$300 \leq X < 1000$	$20 \leq X < 300$	$X < 20$
Industrial	Revenue(Y)	$Y \geq 40000$	$2000 \leq Y < 40000$	$300 \leq Y < 2000$	$Y < 300$
	Employees (X)	$Y \geq 80000$	$6000 \leq Y < 80000$	$300 \leq Y < 6000$	$Y < 300$
Building Industry	Total Assets (Z)	$Z \geq 80000$	$5000 \leq Z < 80000$	$300 \leq Z < 5000$	$Z < 300$
	Employees (X)	$X \geq 200$	$20 \leq X < 200$	$5 \leq X < 20$	$X < 5$
Wholesale	Revenue(Y)	$Y \geq 40000$	$5000 \leq Y < 40000$	$1000 \leq X < 5000$	$Y < 1000$
	Employees (X)	$X \geq 300$	$50 \leq X < 300$	$10 \leq X < 50$	$X < 10$
Retail	Revenue(Y)	$Y \geq 20000$	$500 \leq Y < 20000$	$100 \leq Y < 500$	$Y < 100$
	Employees (X)	$X \geq 1000$	$300 \leq X < 1000$	$20 \leq X < 300$	$X < 20$
Transportation	Revenue(Y)	$Y \geq 30000$	$3000 \leq Y < 30000$	$200 \leq Y < 3000$	$Y < 200$
	Employees (X)	$X \geq 200$	$100 \leq X < 200$	$20 \leq X < 100$	$X < 20$
Storage	Revenue(Y)	$Y \geq 30000$	$1000 \leq Y < 30000$	$100 \leq Y < 1000$	$Y < 100$
	Employees (X)	$X \geq 1000$	$300 \leq X < 1000$	$20 \leq X < 300$	$X < 20$
Postal	Revenue(Y)	$Y \geq 30000$	$2000 \leq Y < 30000$	$100 \leq Y < 2000$	$Y < 100$
	Employees (X)	$X \geq 300$	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$
Hotel	Revenue(Y)	$Y \geq 10000$	$2000 \leq Y < 10000$	$100 \leq Y < 2000$	$Y < 100$
	Employees (X)	$X \geq 300$	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$
Food	Revenue(Y)	$Y \geq 10000$	$2000 \leq Y < 10000$	$100 \leq Y < 2000$	$Y < 100$
	Employees (X)	$X \geq 2000$	$100 \leq X < 2000$	$10 \leq X < 100$	$X < 10$
Information Transportation	Revenue(Y)	$Y \geq 100000$	$1000 \leq Y < 100000$	$100 \leq Y < 1000$	$Y < 100$
	Employees (X)	$X \geq 300$	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$
Software and Information Services	Revenue(Y)	$Y \geq 10000$	$1000 \leq Y < 10000$	$50 \leq Y < 1000$	$Y < 50$
	Employees (X)	$Y \geq 200000$	$1000 \leq Y < 200000$	$100 \leq Y < 1000$	$Y < 100$
Real Property	Total Assets (Z)	$Z \geq 10000$	$5000 \leq Z < 10000$	$2000 \leq Z < 5000$	$Z < 2000$
	Employees (X)	$X \geq 1000$	$300 \leq X < 1000$	$100 \leq X < 300$	$X < 100$
Property Management	Revenue(Y)	$Y \geq 5000$	$1000 \leq Y < 5000$	$500 \leq Y < 1000$	$Y < 500$
	Employees (X)	$X \geq 300$	$100 < X < 300$	$10 < X < 100$	$X < 10$
Lend and Commercial service	Total Assets (Z)	$Z \geq 120000$	$8000 \leq Z < 120000$	$100 \leq Z < 8000$	$Z < 100$
	Employees (X)	$X \geq 300$	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$
Others	Employees (X)	$X \geq 300$	$100 \leq X < 300$	$10 \leq X < 100$	$X < 10$

*The units for Revenue(X) and Total Assets (Z) are ten thousand.

REFERENCES

- Acemoglu, D. and Akcigit, U., 2012. Intellectual property rights policy, competition and innovation. *Journal of the European Economic Association*, 10(1), pp.1-42.
- Anon., 2019. Canals: Global smartphone market grew for first time in two years in Q3 2019. [Online]
- Amit, R. and Zott, C., 2001. Value creation in e-business. *Strategic management journal*, 22(6- 7), pp.493-520.
- Bouncken, R.B., Pesch, R. and Kraus, S., 2015. SME innovativeness in buyer–seller alliances: effects of entry timing strategies and inter-organizational learning. *Review of Managerial Science*, 9(2), pp.361-384.
- Chatterjee, R. and Sugita, Y., 1990. New product introduction under demand uncertainty in competitive industries. *Managerial and Decision Economics*, 11(1), pp.1-12.
- Chen, J. (1994), “*The method of learning from technological import to innovation*”, *Science Research Management*, Vol. 15 No. 2, pp. 32-34.
- Davis, P.S. and Harveston, P.D., 2000. Internationalization and organizational growth: The impact of Internet usage and technology involvement among entrepreneur-led family businesses. *Family Business Review*, 13(2), pp.107-120.
- Eisinga, R., Te Grotenhuis, M. and Pelzer, B., 2013. The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown? *International journal of public health*, 58(4), pp.637-642
- Frank, B., Abulaiti, G. and Enkawa, T., 2012. What characterizes Chinese consumer behavior? A cross-industry analysis of the Chinese diaspora in Japan. *Marketing Letters*, 23(3), pp.683-700.
- Truesdell, S.B., Bence, J.R., Syslo, J.M. and Ebener, M.P., 2017. Estimating multinomial effective sample size in catch-at-age and catch-at-size models. *Fisheries Research*, 192, pp.66-83.
- Gatignon, H. and Xuereb, J.M., 1997. Strategic orientation of the firm and new product performance. *Journal of marketing research*, 34(1), pp.77-90.
- Golder, P.N. and Tellis, G.J., 1993. Pioneer advantage: Marketing logic or marketing legend? *Journal of marketing Research*, 30(2), pp.158-170.
- Gim Chung, R.H., Kim, B.S. and Abreu, J.M., 2004. Asian American multidimensional acculturation scale: development, factor analysis, reliability, and validity. *Cultural diversity and ethnic minority psychology*, 10(1), p.66.
- Giesen, E., Berman, S.J., Bell, R. and Blitz, A., 2007. Three ways to successfully innovate your business model. *Strategy & leadership*, 35(6), pp.27-33.
- Hayes, A.F., 2017. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. Guilford Publications.
- Hoffman, K., Parejo, M., Bessant, J. and Perren, L., 1998. Small firms, R&D, technology and innovation in the UK: a literature review. *Technovation*, 18(1), pp.39-55.
- Hofstede, G. 2003. *Culture’s Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations*, Sage, Thousand Oaks, CA.
- Hunger, J.D., Korsching, P.F. and Van Auken, H., 2002. The interaction of founder motivation and environmental context in new venture formation: Preliminary findings. *Iowa State University*.
- Jaworski, B.J. and Kohli, A.K., 1993. Market orientation: antecedents and consequences. *Journal of marketing*, 57(3), pp.53-70.

- Kerin, R.A., Varadarajan, P.R. and Peterson, R.A., 1992. First-mover advantage: A synthesis, conceptual framework, and research propositions. *Journal of marketing*, 56(4), pp.33-52.
- Kohli, A.K. and Jaworski, B.J., 1990. Market orientation: the construct, research propositions, and managerial implications. *Journal of marketing*, 54(2), pp.1-18.
- Kim, L. (2000), “*The dynamics of technological learning in industrialization*”, Discussion paper #2007. INTECH, The United Nations University, Oct.
- Li, T. and Calantone, R.J., 1998. The impact of market knowledge competence on new product advantage: conceptualization and empirical examination. *Journal of marketing*, 62(4), pp.13-29.
- Liu, Z., Zhou, Z., Chen, M. and Liao, S., 2018. Business Model Innovation or Imitation? Strategy Study Based on Real Option Game Theory. *Foreign Economics & Management*, 40(03), pp.79–91.
- LeBlanc, L.J., Nash, R., Gallagher, D., Gonda, K. and Kakizaki, F., 1997. A comparison of US and Japanese technology management and innovation. *International Journal of Technology Management*, 13(5-6), pp.601-614
- Lockett, M. 1988. “*Culture and the problems of Chinese management*”, *Organisation Studies*, Vol. 914, pp. 475-496.
- Narver, J.C. and Slater, S.F., 1990. The effect of a market orientation on business profitability. *Journal of marketing*, 54(4), pp.20-35.
- Niu, L., Yan, M., Liu, X. and Zhao, Q. ,2014. *There is still a gap between Chinese International enterprises and world-class multinational companies*. [online] Sic.gov.cn. Available at: <http://www.sic.gov.cn/News/455/2917.htm> [Accessed 18 Jun. 2014].
- McGrath, R.G., 1999. Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management review*, 24(1), pp.13-30.
- Mitchell, D. and Coles, C., 2003. The ultimate competitive advantage of continuing business model innovation. *Journal of Business Strategy*, 24(5), pp.15-21.
- González-Benito, Ó., González-Benito, J. and Muñoz-Gallego, P.A., 2014. On the consequences of market orientation across varied environmental dynamism and competitive intensity levels. *Journal of Small Business Management*, 52(1), pp.1-21.
- Porter, M.E., 1980. Industry structure and competitive strategy: Keys to profitability. *Financial analysts journal*, 36(4), pp.30-41.
- Porter, M.E. and Millar, V.E., 1985. How information gives you competitive advantage.
- Pohle, G. and Chapman, M., 2006. IBM's global CEO report 2006: business model innovation matters. *Strategy & Leadership*, 34(5), pp.34-40.
- Samuelsson, M. and Davidsson, P., 2009. Does venture opportunity variation matter? Investigating systematic process differences between innovative and imitative new ventures. *Small Business Economics*, 33(2), pp.229-255.
- Schnaars, S.P., 1994. Managing imitation strategies: how later entrants seize markets from pioneers. *Journal of the Academy of Marketing Science*, 24(3), pp.277.
- Shankar, V., Carpenter, G.S. and Krishnamurthi, L., 1999. The advantages of entry in the growth stage of the product life cycle: An empirical analysis. *Journal of Marketing Research*, 36(2), pp.269-276.
- Smit, H.T. and Trigeorgis, L., 2017. Strategic NPV: Real options and strategic games under different information structures. *Strategic Management Journal*, 38(13), pp.2555-2578.

- Si, S., Wang, S. & Welch, S.M. 2018, "Building firm capability through imitative innovation: Chinese manufacturing SME cases", *Chinese Management Studies*, vol. 12, no. 3, pp. 575-590.
- Siti, W. 2001, Small firm marketing in China: a comparative study. *Small Business Economics*, 16: 279-29
- Wang, S., Hu, Q. and Liu, W., 2017. Price and quality-based competition and channel structure with consumer loyalty. *European Journal of Operational Research*, 262(2), pp.563-574.
- Wang, Y. and Yao, Y. 2002 Market reforms, technological capabilities and the performance of small enterprises in China, *Small Business Economics*, 18: 197-211
- Wernerfelt, B. and Karnani, A., 1987. Competitive strategy under uncertainty. *Strategic Management Journal*, 8(2), pp.187-194.
- Yuan, H. and Chen, X. (2002). Boxed Pigs and SMEs Imitative Innovation. *Boxed Pigs and SMEs Imitative Innovation*, (9)2, pp.68-69.
- Zhou, K.Z., 2006. Innovation, imitation, and new product performance: The case of China. *Industrial Marketing Management*, 35(3), pp.394-402.
- Zhou, K.Z., Su, C. and Bao, Y., 2002. A paradox of price-quality and market efficiency: a comparative study of the US and China markets. *International Journal of Research in marketing*, 19(4), pp.349-365.