
Success factors of FinTech start-ups in Hong Kong

Yie Kei Li

United Microelectronics Centre,
Units 1512-1513, 15/F, Building 19W,
19 Science Park W Ave, Science Park, Hong Kong
Email: ykli@outlook.com

Nicholas Harkiolakis*

École des Ponts,
77, rue de Miromesnil, 75008 Paris, France
Email: nick.harkiolakis@gmail.com

*Corresponding author

Abstract: This study surveyed 150 FinTech CEOs or founders in Hong Kong and Shenzhen to understand key success factors for a FinTech start-up. FinTech start-ups tend to be formed by, on average, three founders who complement their expertise in both the IT and financial industry fields. An average start-up capital of around USD 500,000 to USD 1 million seems to be the norm for local FinTech start-ups. Multiple funding sources are typically considered, including family funds, in many cases required by outside investors as proof of commitment. Government policies (e.g., free rental and tax cuts in early stages) were deemed important for initial growth. The study's regional focus might not validate a generalisation to other financial centres but findings contribute further understanding of the FinTech phenomenon in one of the world's most active finance markets. Future research is required to investigate other financial centres worldwide (Silicon Valley, Wall Street, Singapore, etc.).

Keywords: FinTech; business models; financial start-ups; success factors; theoretical framework; Hong Kong.

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Biographical notes: Yie Kei Li has more than 30 years of multinational experience in high-tech industries. Before joining UmeCHK as the Vice President of R&D, he held important executive positions in several high-tech companies such as UNISYS, Cadence Design System, ASTRI in Hong Kong, China, and the USA. In the last ten years, he was involved in innovation activities in Fintech, artificial intelligence, and semiconductor industries. He is active in his participation in activities organised in the industry. He has several external appointments, including a Visiting Professor of Peking University, Fellow of The Hong Kong Association for the Advancement of Science and Technology, advisory committee member on Electronic Engineering in CUHK, and senior member of IEEE. His major research areas are in venture funding, business model, entrepreneurship, and innovation.

Nicholas Harkiolakis is the Vice President for Europe and Middle East and Director of Research for Executive Coaching Consultants. He is the Editor of the *International Journal of Teaching and Case Studies* and Associate Editor of

the *International Journal of Social Entrepreneurship and Innovation*. He is the author of the *Quantitative Research Methods: From Theory to Publication* textbook and the research books *e-Negotiations: Networking and Cross-Cultural Business Transactions*, *Multipreneurship: Diversification in Times of Crisis*, and *Leadership Explained: Leading Teams in the 21st Century*. He is a Professor at the Executive DBA Program of Ecole des Ponts in Paris, France and also teaches graduate courses and supervises dissertations at various universities in France, the UK, and the USA.

1 Introduction

Financial technology (FinTech) is recognised as one of the most important modern innovations in the financial industry and is evolving at a rapid speed, driven in part by the world's open economy, the emergence of blockchain, and the advances in information technology (IT) (Chen et al., 2019). 'FinTech' the term has existed for more than 40 years (Schueffel, 2016) and is touted as a game-changing, disruptive innovation capable of shaking up traditional financial markets (Lee and Shin, 2018). Since Hong Kong is a world-famous financial hub and Shenzhen is recognised as a Silicon Valley of China, there have been so many new FinTech start-ups in the last few years around Hong Kong and Shenzhen area. The technological developments in internet infrastructure, big data analytics, and interconnected mobile devices allow FinTech start-ups to compete with traditional financial firms due to the reliable and personalised services they can provide.

FinTech start-ups play a very important role in the development of the FinTech industry (Gozman et al., 2018). The appeal and the emerging aspect of the industry led many universities in Hong Kong (e.g., The Chinese University of Hong Kong, University of Hong Kong, Hong Kong Baptist University) to attend to the need for professionals in the field by developing appropriate graduate programs. The talent pool in this way became a critical success factor of the FinTech start-ups and local universities try their best to fill the gap for the growing demand for FinTech talents (Mei et al., 2018).

FinTech introduces disruptive innovation to the traditional finance industry, impacting the financial products and services financial institutions provide to shape consumer behaviour (FSB, 2019). Dis-intermediation, decentralisation, and customisation are the core elements of FinTech operation. On the technical side, five core aspects have been identified including:

- 1 security and privacy
- 2 data techniques
- 3 hardware and infrastructure
- 4 applications and management
- 5 service models (Gai et al., 2018).

FinTech as an evolution of the financial industry, led by start-ups, poses challenges for regulators and market participants alike, particularly in balancing the innovation's potential benefits with its possible risks (Arner et al., 2015). For FinTech start-ups, global

investment in 2013 was \$4.05bn tripled to \$12.21 billion in 2014, compared to 63% growth in overall venture-capital investments, confirming this sector as a high growth segment of the financial industry. Expectations for FinTech start-ups in the industry continue to swell, with the amount of money flowing into first-round investments alone growing by 48% (Mention, 2019).

The purpose of this quantitative research study was to provide an understanding of the factors that contribute to the success of FinTech start-ups. The results, will hopefully, be of value to start-ups, government officials and technology advisors, and investors for the development of strategies and programs that help the growth and development of FinTech start-ups.

The following research question has been developed for the purposes of this study:

RQ What factors do founders and senior executives of FinTech start-ups in Hong Kong and Shenzhen believe significantly contribute to the success or failure of start-ups in the FinTech industry?

2 Literature review

An increasing number of FinTech start-ups have been established in Hong Kong Cyberport and Hong Kong Science Parks in the last three years. But some of them grow faster than others, and in general, the business is booming for FinTech start-ups around the world (Williams-Grut, 2017). FinTech has disrupted the finance industry by using the latest technological innovations to improve the efficiency of the capital market and financial service providers (Chuen et al., 2015). As a result, FinTech introduces a new business model that lowers business costs and increases profit margins. In order to remain sustainable and profitable, enterprises will need to have innovative applications and expand their business by offering financial services. At this transitional phase to the new era of FinTech, financial institutions are aggressively exploring the opportunities for applying technology to improve their services and products (Lee and Shin, 2018).

FinTech companies have dealt with a lot of new technologies. Most developing economies rely heavily on start-ups; start-ups have been identified as the measure of innovation and success in the financial industry (Okrah et al., 2018). Identifying the success factors for FinTech start-ups are of great importance to investors, regulators, customers, and merchants across a wide range of industries (Leong et al., 2017). In order to remain sustainable and profitable, enterprises will need to expand their business by providing new FinTech services. There is an estimated 38% of the world population that has no formal bank accounts and another 40% that is underserved by banks, providing a huge potential market for financial institutions (Lee and Teo, 2015). FinTech start-ups are emerging in domains such as asset management, lending, or insurance (Gimpel et al., 2018). Many FinTech start-ups are looking for new pathways to successful business models, the creation of enhanced customer experience, and approaches that result in services transformation (Gomber et al., 2018).

Some factors will likely affect the success of start-ups in the FinTech industry, and these include:

- *Government support* – Government policies can greatly influence the emergence and development of FinTech start-ups (Haddad and Hornuf, 2018). Such policies can ensure the latest technology and a hi-tech labour force is readily available to FinTech start-ups. Governments globally can also support start-ups by providing start-up capital and other means of finance like low-interest rates and tax cuts. Additionally, the government can partner with FinTech start-up for the various initiative. An example of such partnership is the Monetary Authority of Singapore (MAS) that has partnered with FinTech firm Auquan for blockchain-based Project Ubin (Dalal et al., 2017).
- *Capital* – FinTech financing is a key activity to facilitate the FinTech start-up's existence and continued development. Alternative sources of financing include friends and family, loans, crowdfunding, angel investors, accelerators, venture capital, public markets initial public offerings (IPOs), and initial coin offerings (ICOs) (Hill, 2018). To address global sustainability challenges, major investments are required in sustainable businesses that deliver winning results (Bocken, 2015). Venture capital investment has a key role to play in the development of sustainable start-ups.
- *Platform-based business* – FinTech firms tend to be platform-based businesses (Ng et al., 2017). Commonly also referred to as business networks or ecosystems (Tan et al., 2015) a platform-based business is defined as a commercial network of at least two types of entities that are held together through formal contracting or mutual dependency, or both (Pierce, 2009). These entities may include the suppliers, producers, intermediaries, implementers, or customers along a supply chain (Cusumano and Gawer, 2002). A business platform tends to be structured around a number of core entities, whose dominance on the platform stems from their control over the technological architecture or the means of network value creation (Teece, 2007).
- *Related work experience* – Some researchers investigated what kind of work experiences and education training best-fit FinTech job roles and found that start-ups put more attention toward IT workers' leadership and prior start-up experience (Wang and Huang, 2018). Rich domain-specific expertise for the particular work environments for the CEO and his IT technical expertise are considered crucial to a start-up. It also affects the investor's funding decision and the overall company strategy in the long run (Kim and Longest, 2014).
- *Business networks* – represent a means for entrepreneurs to reduce risks and transaction costs as well as to improve access to business ideas, knowledge and capital. A business network consists of a series of formal and informal ties between the central actor and other actors in a circle of acquaintances and represents channels through which entrepreneurs get access to the necessary resources for business start-up, growth, and success (Kristiansen and Mbwambo, 2003).
- *Gender of the CEO* – Inconsistent findings on key differences between male and female CEOs have been reported. However, there is no systematic research on CEO gender differences. Wang et al.'s (2015) research on start-ups found that gender was significantly related to firm tenure, education, previous work experience, and age

among CEOs. Additionally, the authors suggest female CEOs tend to head smaller and younger firms.

- *Data security* – Hauptert et al. (2017) assessed how security is treated by start-ups that provide disruptive technologies in the financial sector. They found that FinTech companies have a new business model and outstanding user experience as their main priority. This strategy is rewarded by a rapidly increasing customer base but reveals a flawed understanding of customer data security that can lead to failure for a FinTech start-up.

Despite the research acknowledging some of the success factors of FinTech start-ups, the majority of them are expected to fail (Dietz et al., 2016). This is because there is a lack of understanding of the technology challenges associated with their products and services and their implications in the operation and success of the start-up. The existing research on FinTech tends to be speculative in nature and unsubstantiated by empirical research (Zavolokina et al., 2016). While the aforementioned factors have been identified as far as their extent and impact are concerned, they have not been systematically validated. Additionally, there might be demographic and other factors that have not been investigated as contributors to FinTech start-up success that could be identified and explored, potentially contributing new knowledge to the field.

With respect to the theoretical treatment of the FinTech phenomenon, Zavolokina et al. (2016) proposed a framework along a systems view with input variables (technology, organisation, and money flow), mechanisms (create, improve or change, disrupt, apply technology to finance, create competition on the market) and output variables (new services, products, processes, or business model). With respect to the input, understanding of the *technologies* which underlie financial services such as mobile payments, data analytics, crowd-based platforms or cryptocurrencies must be complemented with *capital/money flow* and a *focus/organisation* of the providing IT-supported financial services or platforms.

The constituents of the input will enable the establishment of mechanisms for the “creation, change or improvement of existing service/product/process or business model in order to increase its quality for the customer (to make it transparent, accessible, to reduce costs or fees, etc.)” (Zavolokina et al., 2016). These mechanisms are responsible for the disruptive nature of FinTech which in the output phase results in new services, products, processes, or business models for the financial industry. By doing so, FinTech creates competition not only among the start-ups but also among traditional players like banks. Because of the characteristics of the Zavolokina et al. (2016) model and its relevance to the research question of this study it has been selected as the theoretical framework of this study.

3 Methods

The quantitative research methodology with the correlational research design was adopted for this study. The success factors for FinTech start-ups are part of a real-life phenomenon and can be quantified by estimating parameters and measuring variables (Harkiolakis, 2017). The population of this study includes the founders and senior executives of FinTech start-ups in Hong Kong and Shenzhen. Purposive sampling was

used to collect the data. The minimum sample size for this research was 134, according to G*Power (Faul et al., 2007) with two tails $P < 0.05$ and the correlation model (Figure 1).

Figure 1 G*Power analysis results (see online version for colours)

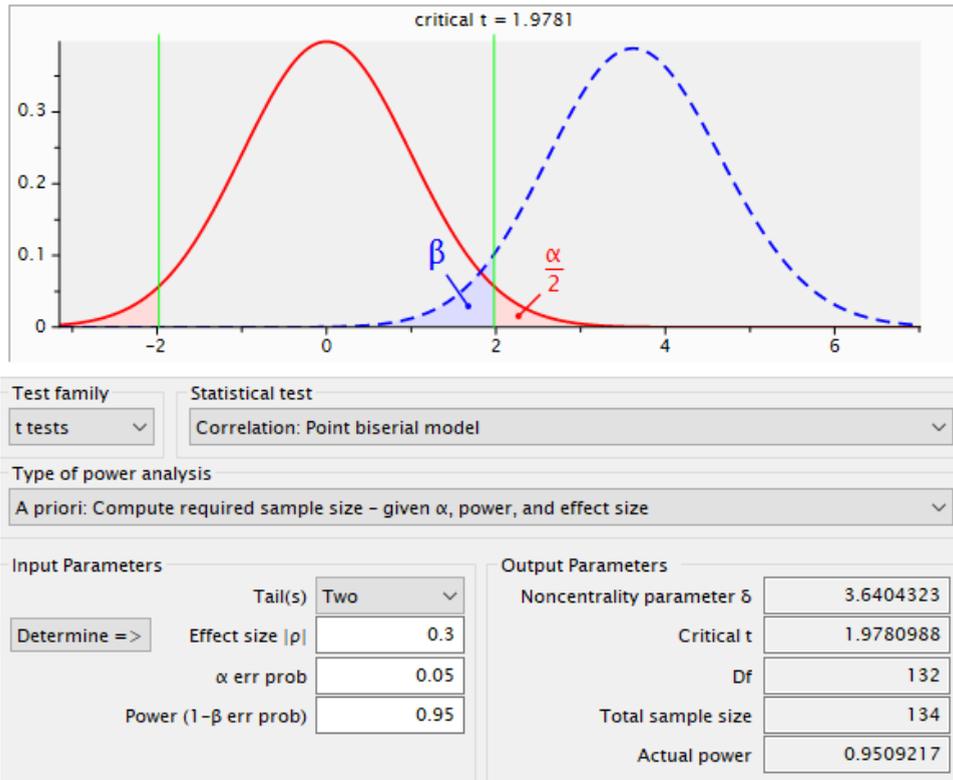
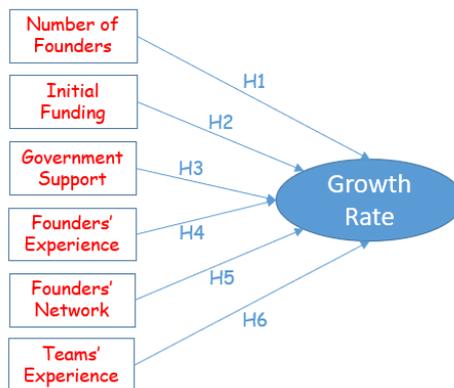


Figure 2 Theoretical framework (see online version for colours)



For the purposes of this research, and based on the literature review and the research question, a select number of factors were considered as potential influencers of the growth rate of a FinTech start-up. Those include the number of the initial founders of the

venture, the amount of initial funding used, the existence of some form of government support, the founders' and team's experience, and the founders' network of influence. Figure 2 depicts the theoretical framework that guided the development of the hypotheses of this study.

Considering an organisation's growth rate as a proxy to its success, and based on the literature review and the theoretical framework of the study, the following hypotheses were established:

- H10 There is no statistically significant correlation between the number of founders and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H1a There is a statistically significant correlation between the number of funders and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H20 There is no statistically significant correlation between the amount of initial funding and growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H2a There is a statistically significant correlation between the amount of initial funding and growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H30 There is no statistically significant correlation between the perception of the importance of government support and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H3a There is a statistically significant correlation between the perception of the importance of government support and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H40 There is no statistically significant correlation between the perception of the importance of the founders' FinTech experience and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H4a There is a statistically significant correlation between the perception of the importance of the founders' FinTech experience and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H50 There is no statistically significant correlation between the perception of the importance of the founders' business network and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H5a There is a statistically significant correlation between the perception of the importance of the founders' business network and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H60 There is no statistically significant correlation between the perception of the importance of the team's FinTech experience and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.
- H6a There is a statistically significant correlation between the perception of the importance of the team's FinTech experience and the growth rate of FinTech start-ups in Hong Kong and Shenzhen.

A questionnaire that served as the data collection instrument was developed to address the hypothesis of this study. Based on the research questions and hypotheses of the study

and grounded in the literature and the theoretical framework of the research, an initial draft of the questionnaire was developed. The questionnaire was organised into a demographics and a subject matter section. The former collected demographic data about the participants and their organisation, while the latter measured the perceptions of the participants with respect to potential success factors like the amount of the initial funding, the FinTech related experience of the team, etc. All opinion style questions were established with a five-point Likert scale (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree). The ordinal nature of the variables was assumed as a scale for statistical analysis purposes (Anderson and Knapp, 1990; Jamieson, 2004; Leung, 2011; Norman, 2010) and was respectively mapped in one, two, three, four, and five intervals.

The initial draft of the questionnaire was reviewed for validity (content, structure, and form) by Mr. Alan Cheung, Director of Secured System Platform, at the Hong Kong Applied Science and Technology Research Institute who is a FinTech expert and Dr. Nicholas Harkiolakis, Professor at Ecole des Ponts Business School who is an IT and quantitative research expert. Based on their input the questionnaire was updated to ensure content validity. An initial pilot study of 15 individuals from the population of the study was conducted to further ensure the functionality and validity of the questionnaire. The results of the pilot study confirmed the appropriateness of the questions for the purpose of the research. Finally, a web-based version of the questionnaire was developed and posted online using Google Forms. The corresponding web link to the questionnaire was promoted through an invitation for participation through the researcher's network and group related to FinTech in the LinkedIn social media site. Additionally, MS information consultation Co., Ltd (<http://www.sz-msc.com>, n.d.), the Shenzhen-based data-collection firm was employed to recruit appropriate participants and promote the call for participation.

For the analysis of the collected information, descriptive and inferential statistics were performed using SPSS version 25. Normality, tests were performed using the Shapiro-Wilk test as well as by visual inspection of the P-P and Q-Q plots. For descriptive statistics, a mean and standard deviation of the scale variables were then calculated, while for the nominal and ordinal variables frequencies were considered. For the inferential part of the analysis, bivariate correlations were conducted to identify potential relationships between scale variables, as well as ANOVA for potential influences of the demographics. Chi-Square tests were also considered for the nominal variables to identify potential influences.

4 Results

The data collection process lasted for two months and resulted in 150 completed questionnaires that formed the sample of the research. Before proceeding with the statistical analysis, the Kosmogorove-Smirnov and Shapiro-Wilk tests were performed with the scale variables of the sample to inspect if they followed the normal distribution. None of those variables was classified as normal. Transformations were performed using the Log10 and SQRT functions to see if normality could be established but neither of the transformations resulted in normalising any of those variables. From then on, all scale variables were assumed non-parametric.

Descriptive statistics (Table 2) revealed the profile of the population. With respect to gender, 116 (77%) participants identified themselves as male while 34 (23%) identified as female. This predominantly male sample was anticipated due to the technical nature of the field. The inherent ‘bias’ is a typical reflection of the population where IT is in general underrepresented by females. Age-wise 53 (35%) of the participants were below 30, while 92 (61%) were in their thirties, and only five were in their forties. The prevalence of participants from younger generations was expected and can be attributed to the young age of the FinTech industry (only begun this decade) and its technical nature. Older generations could be seen to be either unaware, unqualified, or even unwilling to take the risk and enter this newly founded industry. Expertise wise 106 (71%) of the participants came from the IT industry while the remaining 44 (29%) came from finance. This distribution was also expected due to the complete reliance of FinTech on IT. To identify potential demographic influences on the sample, a cross-tabulation was performed between the aforementioned three demographic variables. With the exception of age that seemed to have proportional influences on gender and expertise, the biases observed with the individual variables of gender and expertise were enforced (Table 1). Considering that this is a reflection of the population demographics the sample of this research is considered representative of the population and thus is not expected to adversely affect the rest of the analysis.

Table 1 Cross-tabulations of the demographic variables

		<i>Gender * Field of practice cross-tabulation</i>		
		<i>Field of practice</i>		
		<i>IT</i>	<i>Finance</i>	<i>Total</i>
Gender	Male	91	25	116
	Female	15	19	34
Total		106	44	150

Due to the non-parametric nature of the remaining scale variables in the questionnaire, the median and mode statistics were calculated instead of the typically found mean and standard deviation (Table 2). As indicated in Table 2, it appears that typically FinTech companies in Hong Kong and Shenzhen are formed with an average of three founders, probably due to the nature of the industry that requires expertise in both IT and finance. Multiple funding sources are also used that include combinations of bank loans and personal and family funds. All forms of investors in the industry seem to require the personal financial involvement of the owners to ensure commitment and dedication to the start-up before investing. The higher the external funding, the less control over the start-up the founders were allowed. The majority of the start-ups were founded with an initial capital investment below \$1,000,000 and within this group, less than half a million seemed to be the preferred capital. This was anticipated because apart from the human expertise the technology demands are not significant at least with respect to other technology sectors like microchip manufacturing, mobile technology, etc. FinTech start-ups are, in terms of technology, typically software-oriented with cloud computing as their preferred hardware platform. Growth wise (Table 2), all the participants indicated their organisation’s experience positive yearly growth with a mode of 10%–30%. The high rates indicate the booming FinTech industry in Hong-Kong and Shenzhen and the potential of the market to absorb this new technology application.

Table 2 Descriptive statistics results (see online version for colours)

Variable	N	Median	Mode	Bar chart																						
Number of founders	150	3	3	<table border="1"> <caption>Data for Number of founders bar chart</caption> <thead> <tr> <th>Number of founders</th> <th>Frequency</th> </tr> </thead> <tbody> <tr><td>1</td><td>9</td></tr> <tr><td>2</td><td>34</td></tr> <tr><td>3</td><td>58</td></tr> <tr><td>4</td><td>11</td></tr> <tr><td>5</td><td>13</td></tr> <tr><td>6</td><td>2</td></tr> <tr><td>7</td><td>0</td></tr> <tr><td>8</td><td>14</td></tr> <tr><td>9</td><td>1</td></tr> <tr><td>10</td><td>8</td></tr> </tbody> </table>	Number of founders	Frequency	1	9	2	34	3	58	4	11	5	13	6	2	7	0	8	14	9	1	10	8
Number of founders	Frequency																									
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Number of funding sources	150	2	2	<table border="1"> <caption>Data for Number of funding sources bar chart</caption> <thead> <tr> <th>Number of funding sources</th> <th>Frequency</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>1</td><td>25</td></tr> <tr><td>2</td><td>73</td></tr> <tr><td>3</td><td>49</td></tr> <tr><td>4</td><td>3</td></tr> </tbody> </table>	Number of funding sources	Frequency	0	0	1	25	2	73	3	49	4	3										
Number of funding sources	Frequency																									
0	0																									
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2	73																									
3	49																									
4	3																									
Funding (million \$)	149	2	1	<table border="1"> <caption>Data for Funding (million \$) bar chart</caption> <thead> <tr> <th>Funding Category</th> <th>Frequency</th> </tr> </thead> <tbody> <tr><td>< 0.5 millions</td><td>73</td></tr> <tr><td>0.5 - 1 millions</td><td>46</td></tr> <tr><td>1 - 3 millions</td><td>27</td></tr> <tr><td>>= 3 millions</td><td>3</td></tr> </tbody> </table>	Funding Category	Frequency	< 0.5 millions	73	0.5 - 1 millions	46	1 - 3 millions	27	>= 3 millions	3												
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>= 3 millions	3																									
Growth rate (%)	136	2	2	<table border="1"> <caption>Data for Growth rate (%) bar chart</caption> <thead> <tr> <th>Growth Rate Category</th> <th>Frequency</th> </tr> </thead> <tbody> <tr><td><= 10</td><td>29</td></tr> <tr><td>11 - 30</td><td>83</td></tr> <tr><td>31 - 50</td><td>17</td></tr> <tr><td>> 50</td><td>8</td></tr> </tbody> </table>	Growth Rate Category	Frequency	<= 10	29	11 - 30	83	31 - 50	17	> 50	8												
Growth Rate Category	Frequency																									
<= 10	29																									
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Table 2 Descriptive statistics results (continued) (see online version for colours)

<i>Variable</i>	<i>N</i>	<i>Median</i>	<i>Mode</i>	<i>Bar chart</i>										
Government support important	136	4	4	<table border="1"> <tr><th>Response</th><th>Count</th></tr> <tr><td>Disagree</td><td>4</td></tr> <tr><td>Neither</td><td>12</td></tr> <tr><td>Agree</td><td>79</td></tr> <tr><td>Strongly Agree</td><td>42</td></tr> </table>	Response	Count	Disagree	4	Neither	12	Agree	79	Strongly Agree	42
Response	Count													
Disagree	4													
Neither	12													
Agree	79													
Strongly Agree	42													
FinTech experience of founder important	136	4	4	<table border="1"> <tr><th>Response</th><th>Count</th></tr> <tr><td>Disagree</td><td>5</td></tr> <tr><td>Neither</td><td>5</td></tr> <tr><td>Agree</td><td>83</td></tr> <tr><td>Strongly Agree</td><td>45</td></tr> </table>	Response	Count	Disagree	5	Neither	5	Agree	83	Strongly Agree	45
Response	Count													
Disagree	5													
Neither	5													
Agree	83													
Strongly Agree	45													
Professional network of founder important	137	5	5	<table border="1"> <tr><th>Response</th><th>Count</th></tr> <tr><td>Disagree</td><td>5</td></tr> <tr><td>Neither</td><td>7</td></tr> <tr><td>Agree</td><td>56</td></tr> <tr><td>Strongly Agree</td><td>69</td></tr> </table>	Response	Count	Disagree	5	Neither	7	Agree	56	Strongly Agree	69
Response	Count													
Disagree	5													
Neither	7													
Agree	56													
Strongly Agree	69													
FinTech experience of team important	134	4	5	<table border="1"> <tr><th>Response</th><th>Count</th></tr> <tr><td>Disagree</td><td>7</td></tr> <tr><td>Neither</td><td>4</td></tr> <tr><td>Agree</td><td>57</td></tr> <tr><td>Strongly Agree</td><td>66</td></tr> </table>	Response	Count	Disagree	7	Neither	4	Agree	57	Strongly Agree	66
Response	Count													
Disagree	7													
Neither	4													
Agree	57													
Strongly Agree	66													

With respect to the opinion variables considered in the hypotheses of this research, it appears that the great majority (121) believe the government support in the form of tax reductions, capital infusion, and free rental is very important for the FinTech start-up. The first two were to be expected as any new industry can benefit from an initial boost from the government while the last could be specific to Hong Kong and Shenzhen where

rental space is limited and thus very expensive. The great majority agreed that the founder’s FinTech experience (128) and the team’s FinTech experience (123) was an important element to success as well as the founders’ professional network (135).

Figure 3 Bar charts of cross-tabulations with gender (see online version for colours)

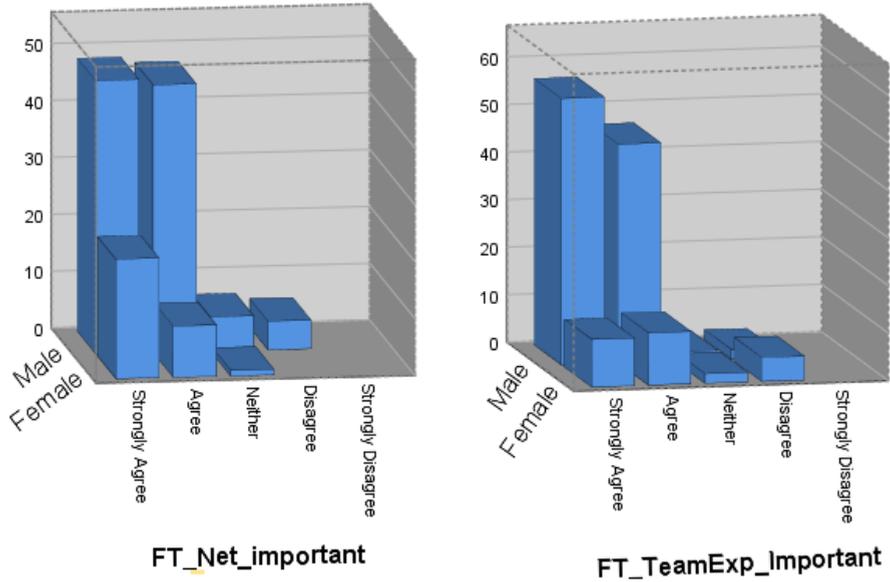


Figure 4 Bar charts of cross-tabulations with the area of expertise (see online version for colours)

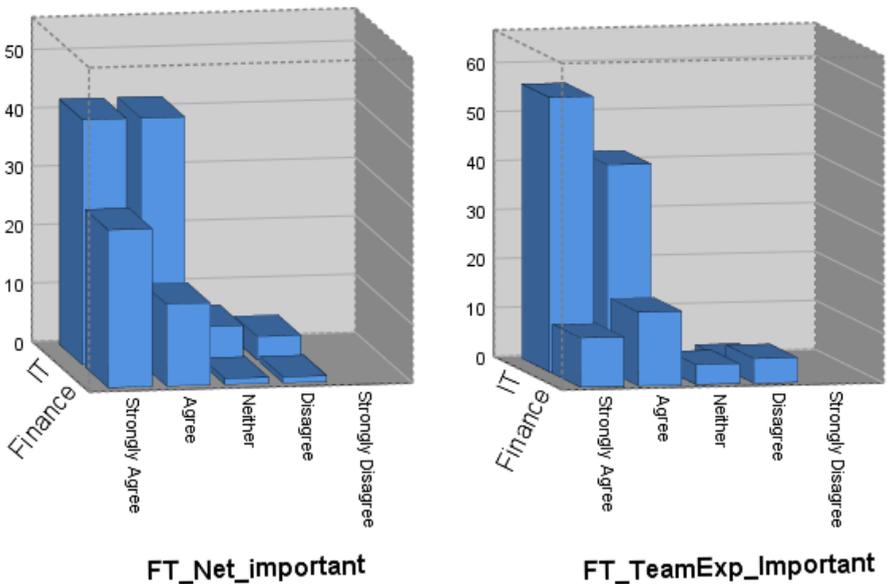


Figure 5 Spearman’s Rho correlations (see online version for colours)

		Correlations Spearman's Rho							
		Number of Founders	Num of Funding Sources	Funding (million \$)	GrowthRate	GovSupport	FT_Exp_Important	FT_Net_important	FT_TeamExp_Important
Years in Fintech	Correlation	-0.069	0.029	-0.036	-0.016	-0.081	-0.132	-0.093	-.205*
	Sig. (2-tailed)	0.399	0.726	0.659	0.852	0.351	0.125	0.281	0.018
	N	150	150	149	136	136	136	137	134
Number of Founders	Correlation		-0.159	-.292**	-.188*	0.076	0.082	-0.008	0.118
	Sig. (2-tailed)		0.053	0.000	0.028	0.379	0.344	0.927	0.173
	N		150	149	136	136	136	137	134
Num of Funding Sources	Correlation			.508**	0.148	0.013	0.013	-0.026	-0.032
	Sig. (2-tailed)			0.000	0.085	0.877	0.877	0.766	0.711
	N			149	136	136	136	137	134
Initial Funding	Correlation				0.125	0.063	0.021	0.022	-.185*
	Sig. (2-tailed)				0.146	0.469	0.810	0.797	0.033
	N				136	135	135	136	133
GrowthRate	Correlation					-0.079	-0.041	0.075	-0.078
	Sig. (2-tailed)					0.384	0.652	0.405	0.395
	N					123	123	125	120
GovSupport	Correlation						.645**	.207*	0.053
	Sig. (2-tailed)						0.000	0.020	0.562
	N						136	127	124
FT_Exp_Important	Correlation							0.119	.229*
	Sig. (2-tailed)							0.183	0.010
	N							127	124
FT_Net_important	Correlation								-0.125
	Sig. (2-tailed)								0.167
	N								123

Source: Group of findings by the authors

In order to explore potential influences of the demographic variables age, gender, and expertise on the opinion variables, cross-tabulations were performed. Most of them revealed no influences with the exception (Figure 3) of founders’ professional network (FT_Net_important) that seemed to be valued as more important by the male participants than the female and team’s FinTech experience (FT_TeamExp_Important) that seemed to be valued more by the female participants than the male participants. Spearman’s Rho correlations were conducted to quantify this finding and revealed weak correlations between gender and founder’s network importance ($\rho(137) = 0.196, p = 0.02$) and between gender and FinTech team’s experience ($\rho(134) = -0.21, p = 0.02$).

The same two opinion variables (Figure 4) also showed weak correlations with the participant’s specialisation. More specifically the start-up owner’s professional network seemed to be valued as more influential to the start-up’s success by the informational technology professionals than the finance professionals ($\rho(137) = 0.17, p = 0.04$) while the opposite was true for the team’s FinTech experience ($\rho(134) = -0.31, p = 0.00$). Further research will be required to shed light on this observation.

For the inferential part of the analysis, Spearman’s Rho correlations were conducted due to the non-parametric nature of the variables. Table 2 summarises the findings with the significant correlations highlighted in colour. The years in FinTech industry appear to show a weak negative correlation with how important the participants believe the team’s FinTech experience is ($\rho(134) = -0.21, p = 0.02$), which would surprisingly suggest that the more time someone spends in FinTech, the less they value the FinTech-related experience of the team as important. Further research will be required to establish the validity of this quantitative finding. The number of founders variable showed a negative correlation with the amount of initial funding ($\rho(149) = -0.30, p = 0.00$) and weaker

negative correlations with the growth rate ($\rho(136) = -0.19, p = 0.03$). The former suggests that the more founders are involved in the start-up the less the amount of initial capital and the weaker the growth rate. These seem counterintuitive as one would expect the more founders are involved, the more capital would be accumulated primarily due to their individual contributions. This significance level ($p = 0.03$) of the latter correlation supports the rejection of the null hypothesis H10 and the acceptance of its alternative H1a although in a different direction than was anticipated. Unless this is attributed to friction and challenges in decision making, further research will also be required to reveal the significance and true origin of this finding. Concerning hypothesis H2, the correlation between the amount of initial funding and growth rate ($\rho(136) = 0.125, p = 0.16$) was not significant (below $p = 0.05$) so the null hypothesis H20 cannot be rejected. It seems that the amount of initial funding is not one of the success factors of the FinTech start-ups in Hong Kong and Shenzhen at least from the perspective of their CEOs and founders.

Something that was anticipated and confirmed by the findings was the strong positive correlation of the number of funding sources with the initial amount of funding ($\rho(149) = 0.51, p = 0.00$). A weak negative correlation ($\rho(133) = -0.19, p = 0.03$) was observed between the amount of initial funding and the importance of the FinTech team's experience suggesting that less experienced teams could be balanced with more funding (probably supplementing their lack of experience by outsourcing or hiring outside experts and services).

Concerning the FinTech's growth rate that served in this research as proxy to the start-up's success, there was no significant correlation with opinion variables like the perception of the importance of the government support ($\rho(123) = -0.08, p = 0.38$), the perception of the importance of the start-up owner's FinTech experience ($\rho(123) = -0.4, p = 0.65$), the perception of the importance of the start-up owner's professional network ($\rho(125) = 0.08, p = 0.41$), and the perception of the importance of the start-up team's FinTech experience ($\rho(120) = -0.08, p = 0.40$). These findings cannot support the rejection of any of H30, H40, H50, and H60. It appears as if the participants do not attribute the success of FinTech start-ups in Hong Kong or Shenzhen to the traditional factors that affect start-up success. Such views might be due to the rapid growth of the FinTech industry that seems to suggest that success is almost ensured if the entry requirements for newcomers are met.

Additional Spearman's Rho correlations were run between the opinion variables to reveal potential influences and dependences (Figure 5). In that respect, the perception of the importance of government support with the importance of the start-up owner's FinTech experience displayed a strong positive correlation ($\rho(136) = 0.65, p = 0.00$). Somehow, it appears, that the authority figures in the modern Chinese culture of government and the business owner are seen as synonymous. Further research will have to be conducted to support and explain the findings. The same rationale could be provided for the weak positive correlation between the perception of the importance of government support with the importance of the start-up owner's professional experience ($\rho(127) = 0.21, p = 0.02$).

A final strong positive correlation of weak significance was observed between the perception of the importance of the start-up team's FinTech experience and the importance of the start-up owner's FinTech experience ($\rho(136) = 0.65, p = 0.00$). This result can be related to the FinTech owners' heavy involvement in product/service development (typical for most start-ups regardless of industry) and thus are perceived as part of the development team.

With respect to the research question of this study, the results show that the more founders of a FinTech start-up the less successful the company (weak correlation). Fewer founders might suggest more dedication and commitment of the founders and thus a factor of success for the company. The factors of the founders' FinTech experience, their professional network, and the FinTech related experience of the team did prove to be of significant importance to the success of the start-up. Further research would have to be conducted to validate and provide in-depth explanations of these findings.

5 Conclusions

This study aimed at identifying the success factors of FinTech start-ups in Hong Kong and Shenzhen. 150 CEOs and owners of FinTech start-ups participated and formed the sample of this study by providing responses to a self-administered questionnaire. A general bias toward males, in their thirties, and with IT expertise was a characteristic of the sample. Considering the typical profile of relatively young IT professionals in Hong Kong and Shenzhen (and the world for that matter), which is predominantly male, the sample seems to reflect the general demographic characteristics of the population of this research and subsequently it can be considered a realistic reflection of the population. Nevertheless, further research might be required to validate the findings and eliminate the influences of potential biases. Age-wise it appears that professionals in the middle of their careers are attracted to start-up venturing. At that stage, the interested professional should have accumulated enough experience to feel comfortable with the subject matter while still influenced by the risk-taking attitudes of younger generations.

The results of the study indicate that a typical scenario for the formation of the FinTech start-up in Hong Kong and Shenzhen might include an average of three founders in their thirties (two from IT and one from finance, two male and one female), putting their own capital along with external funding and forming the start-up. With the exception of the number of the founder that indicate the more founders were involved the higher the growth rate of the start-up, the other characteristics, while prevalent, did not seem to be critical for start-up's success. Supportive government policies like rent subsidies and tax cuts were viewed as positive contributors to the start-ups' growth as well as the personal involvement and commitment of the founder that was valued more than their IT expertise and business networks. The finding of the study can be of value to policymakers and government officials that plan to stimulate the economy and the financial industry in particular.

The geographic focus of the study constitutes a limitation in that the findings cannot be generalised to other locations in China and the world in particular. Also, given the weak correlations identified in this study, future research would be recommended to validate the findings especially at a later stage when the industry grows out of its booming stage and becomes more mature. Future research could also comparatively investigate other FinTech hubs like the Greater Bay Area, Silicon Valley, Wall Street, Singapore and similar financial centres in the world. This will reveal the potential cultural and political influences that might be at play in the formation and subsequent growth of FinTech start-ups.

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