Journal of Open Innovation: Technology, Market, and Complexity 10 (2024) 100286

Contents lists available at ScienceDirect

Journal of Open Innovation: Technology, Market, and Complexity

journal homepage: www.sciencedirect.com/journal/journal-of-open-innovation-technology-market-and-complexity

Australia's FinTech leaders: Education, work experience, and eagerness of self-employment

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ARTICLE INFO

Keywords:
Financial technology
FinTech
CEO
Disruptive technology
Executive personality trait

ABSTRACT

In recent years, many FinTech start-up firms have poured into the FinTech landscape. Since FinTech leaders (including founders and chief executive officers (CEOs)) have a major impact on the performance of their respective firms, research studies on FinTech leaders are indispensable. This paper discusses our study to investigate three major dimensions (education, work experience, and eagerness of self-employment) of FinTech leaders in an Australian context. We also compare these dimensions between FinTech founders and CEOs. Overall, we found that: (a) The majority of FinTech leaders are degree holders and one-third of them have a master's degree. (b) Only about one-third of leaders with a master's degree hold an MBA. (c) Only 19.4% and 11.1% of degree-holding leaders were graduated from the IT and finance discipline, respectively. (d) Only 19.0% of leaders have previous IT work experience and the mean years of such experience is only 2.0. (e) 54.8% of leaders have previous finance work experience and the mean years of such experience is 6.7. (f) When compared with CEOs, founders are more likely to hold a master's degree and are more eager to be self-employed.

1. Introduction

The rise of financial technology (FinTech) has caused a substantial change in the financial market driven by technological advancements (e.g., application programming interface (API), artificial intelligence (AI) and machine learning, big data and data analytics, blockchain and cryptocurrency, cloud computing, and quick response (QR) code) (Xia et al., 2022). FinTech promotes the transparency, responsiveness, cost effectiveness, and consumer friendliness of financial activities. As such, FinTech has revolutionized the financial landscape by challenging the incumbent financial services providers such as banks, insurance firms, and investment firms (Bajunaied et al., 2023; El-Masri et al., 2019; Firmansyah et al., 2023; Mahmud et al., 2023).

In recent years, many FinTech start-up firms have poured into the FinTech landscape (Caragea et al., 2024; Zarrouk et al., 2021). For example, in the first three quarters of 2021, FinTech firms worldwide altogether raised $94.7 billion in capital funding (Insider Intelligence, 2022). With the "heat" of FinTech, many research studies (Austin and Dunham, 2022; Basdekis et al., 2022; Giaretta and Chesini, 2021; Haddad and Hornuf, 2023; Hardjono et al., 2021; Kostin et al., 2022; Lee and Lim, 2021; Li et al., 2023; Ng and Pan, 2022; Soriano, 2018) have been conducted on FinTech from the overall *industry* perspective (e.g., the impact of FinTech on the banking industry), the *firm* perspective (e.g., the competitive strategies for FinTech firms), and the *technology* perspective (e.g., blockchain and public-key management).

We argue that FinTech "leaders" (refer to founders, co-founders,[1] and chief executive officers (CEOs) in this paper) have a profound impact on the performance of their respective firms, which in aggregate also affects the well-being and sustainability of the entire FinTech space. Our argument thus calls for more research studies on FinTech *leaders* (recall that, as explained above, many research studies on FinTech are from the *industry*, *firm*, and *technology* perspectives only).

Today, there exists a large body of literature studying the various credentials (e.g., management style) of business leaders in "general" (i.e., non-FinTech) context (e.g., manufacturing as well as trading and retailing). We doubt, however, the findings of these studies are applicable to the FinTech space. This is because FinTech is quite unique and different from non-FinTech businesses in that FinTech is highly

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[1] To avoid verbosity, for the rest of this paper, founders and co-founders are collectively referred to as "founders".

https://doi.org/10.1016/j.joitmc.2024.100286
Received 22 March 2024; Received in revised form 24 April 2024; Accepted 28 April 2024
Available online 7 May 2024

innovative and lies at the intersection between information technology (IT) and financial services. For example, Campbell et al. (2021) found that the need for authentic leadership [2] behaviors to enable innovation and competitive advantage is higher in FinTech firms than non-FinTech firms. Poirier (2024) argues that FinTech firms need a new style of digital leadership to drive disruptive vision, delegate authority, ferment new cultures, and focus on client-centric execution of business strategy. Furthermore, Musaigwa and Kalitanyi (2023) argue that FinTech leaders should embrace the new digital leadership style which requires them to understand the demands of the digital era to survive and be successful in the contemporary business environment.

Despite the importance and scarcity of studies on FinTech from the leader's perspective, there exist only few studies (Brandl and Hornuf, 2020; Sannino et al., 2020) [3] addressing this area. To narrow this research gap, we therefore performed a study to investigate some attributes/credentials of FinTech leaders in an Australian context. Our study has two major contributions. First, it is one of the few to open up a new research dimension on FinTech leaders. Second, it provides useful information on some typical attributes/credentials of existing FinTech leaders so that: (a) those entrepreneurs who are considering to establish their own FinTech start-up firms can self-evaluate whether they exhibit these attributes/credentials, (b) those FinTech firms which are recruiting their CEOs know what attributes/credentials they should look for from the job applicants, and (c) those job applicants who are considering to apply for a FinTech CEO position know what attributes/credentials they are expected to have.

The rest of the paper is organized as follows. Section 2 discusses FinTech as an open innovation or a financial innovation. Section 3 discusses some other studies related to this paper. Section 4 introduces the research questions and discusses the underlying theories. Section 5 describes the setting of our study. Section 6 then presents and analyzes our study results. This is followed by Section 7, which provides further in-depth discussion on the results. Section 8 discusses the implications and contribution of our study. Section 9 highlights our study limitations. Finally, Section 10 summarizes and concludes the paper.

2. Background: FinTech as an open innovation or a financial innovation

FinTech provides a paradigm shift in financial services involving many products, processes, and services. FinTech offers an evolutionary transformation, growth opportunities, and structural changes in light of technological interdependencies among market players, infrastructures, and ecosystem stakeholders. Salampasis and Mention (2021) argue that transformation dynamics in FinTech contributes to the intellectual curiosity around the symbiotic relationship of finance and technology by focusing on the multidimensional and multidisciplinary role of open innovation within FinTech innovation. Here, *open innovation* is viewed as an innovation strategy in which organizations use internal and external knowledge to leverage their business value, thus maintaining a sustainable competitive advantage (Sá et al., 2023).

Saksonova and Kuzmina-Merlino (2017) argue that FinTech is a *financial innovation* (defined as the process of creating new financial or investment products, services, or processes). This creation process involves updated technology, risk management, risk transfer, credit and equity generation, as well as many other innovations. From a financial innovation perspective, the emergence and growth of FinTech firms in recent years could be attributed to several driving factors such as: (a) the advancements in digital technologies, (b) changing customers' needs and expectations, (c) the impact of the COVID-19 pandemic, (d) reduced barriers for market entry, and (e) expanding investments in the FinTech sector over the last decade (Elsaid, 2023).

Fasnacht (2018) argues that, due to the recovery from the financial crisis and the simultaneous arrival of multiple disruptive trends, banks have pursued open or financial innovation (e.g., FinTech) as a route to grow, differentiate, and survive. The banking, wealth, and asset management industry is encountering keen competition from new market entrants that embrace FinTech as open innovation from the beginning. Fintech serves as a facilitator to create value for clients and businesses as it fits perfectly into the era of sharing, collaborating, and digitalization.

The growing popularity of FinTech has revolutionized the collaboration and competition dynamics among both the new entrants and incumbents. This phenomenon has forced regulators to adapt and evolve (Berman et al., 2022; Zetzsche et al., 2017). More specifically, Alaassar et al. (2023) have observed that there has been a general change in regulatory strategy from risk-based to opportunity-based regulation.

3. Related work

3.1. Studies on leaders and leadership in general business context

Leadership styles and their impacts on firm's performance have been studied by various researchers (Ogbonna and Harris, 2000; Madanchian et al., 2016; Randel et al., 2018; Wang et al., 2018). Examples abound. Horner (2023) identified three leadership styles: performance-driven, process-driven, and people-driven. With respect to these three leadership styles, most business leaders major in one style and minor in another. The *major* style is what leaders naturally lead with and consider most valuable, and the *minor* style is usually a skill that leaders have refined over time.

In the context of talent management, Kafetzopoulos and Gotzamani (2022) identified three leadership styles: *authoritative* (inspires and moves talents toward a common goal), *transformational* (transforms and inspires talents to develop skills and knowledge for value creation), and *entrepreneurial* (makes heterogeneous talents work in a firm more creatively and innovatively in collective processes, especially in an uncertain business environment). Among these three leadership styles, entrepreneurial leadership was found to the most influential style for economic sustainability. Prabhu and Srivastava (2023) studied the impact of CEO's transformational leadership in the context of supply chain agility of small-to-medium enterprises (SMEs) in the manufacturing sector. Their study found that transformational leaders drive initiatives in the supply chain to create competitive advantage for improving the firm's performance.

Soomro and Hanafiah (2022) investigated and compared two types of CEOs — *generalist CEOs* (those who have breadth of knowledge) and *specialist CEOs* (those who are experts in their areas of expertise). They found that generalist CEOs manage their firms holistically, and thrive in a more unpredictable environment because they are more resilient in supporting changing environments. On the other hand, specialist CEOs thrive in a more predictable environment by repeatedly performing same or similar tasks.

3.2. Studies on FinTech leaders

There is a common characteristic of the four studies (Horner, 2023; Kafetzopoulos and Gotzamani, 2022; Prabhu and Srivastava, 2023; Soomro and Hanafiah, 2022) mentioned in Section 3.1 — they mainly address leadership styles or leaders in a general business environment rather than in the specific context of FinTech. According to Penrhyn International (a global executive recruitment firm), FinTech leaders are different from "general" (i.e., non-FinTech) business leaders because the formers require a great extent of "digital" leadership, which includes collaboration and transparency for unrestricted communication, real-time problem solving, and fast-paced creative thinking (Poirier,

[2] *Authentic leadership* is a leadership type exhibited by individuals who have high standards of integrity, take responsibility for their actions, and make decisions based on principle instead of short-term success (Gavin, 2019).

[3] These two studies on FinTech leaders (Brandl and Hornuf, 2020; Sannino et al., 2020) will be discussed in Section 3.2 later.

2024). As such, FinTech leaders often serve as coaches to create the conditions for their teams to outperform.

We only found two studies specifically related to FinTech leaders. In the first study, Brandi and Hornuf (2020) reported that, in Germany, 55% of the 348 FinTech founders participated in the study have a degree in business administration or a related discipline (e.g., management, accounting, or finance), whereas those holding a more "technical-oriented" degree only account for small percentages (e.g., science/engineering: 19%; IT: 9%). In the second (global) study, Sannino et al. (2020) compared CEOs of "leading" FinTech firms with those of "emerging" FinTech firms, and reported that the former CEOs: (a) are generally older, (b) have longer *tenures* (i.e., have been on the job as CEOs of their current FinTech firms), (c) have longer previous experience as entrepreneurs (i.e., founders), and (d) are more likely to possess an MBA.

The main theme of our study is FinTech leaders. Our study differs from the studies by Brandi and Hornuf (2020) and Sannino et al. (2020) in the following aspects:

- Brandi and Hornuf (2020) conducted their study in Germany by focusing on FinTech founders only. Our study, however, was performed in an Australian context and covered both FinTech founders and CEOs.
- Sannino et al. (2020) investigated the differences in some attributes between the CEOs of "leading" and "emerging" FinTech firms. Our study has a different focus — we compared the differences in some attributes between FinTech founders and CEOs.

4. Research questions and underlying rationales/theories

Both entrepreneurs (called "founders" in our study) and CEOs are figureheads of their firms, and are involved in managing businesses and securing profitability (Haynes et al., 2019). However, they have some noticeable differences in *training* and *skill set* (Entrepreneur, 2018; Green, 2017).

First, in terms of training, entrepreneurs do not necessarily have training in business management, whereas CEOs typically need to have a degree, often in a business discipline (Entrepreneur, 2018). An entrepreneur without adequate training on running a business can recruit a CEO to help manage the business after it has been successfully established.

Second, in terms of skill set, entrepreneurs are expected to possess skills on generating new ideas, pitching to investors, and establishing a business infrastructure with limited resources. On the other hand, CEOs should possess skills on maintaining and growing a business once it has already been established (Green, 2017).

Although entrepreneurs and CEOs are two different leadership positions, in some firms (e.g., Amazon and Oracle), the entrepreneurs are also serving (or have served) as the CEOs (in this case, these leaders are called *entrepreneur-CEOs*). This happens when the entrepreneurs are passionate and enthusiastic about their idea and, hence, they plan on being the one to oversee its execution (Entrepreneur, 2018). Some people, however, do not support the concept of entrepreneur-CEO because they argue that: (a) an entrepreneur often does not have relevant training on managing a business, (b) an entrepreneur often struggles with change and hard choices, (c) an entrepreneur is more inclined to use biases and heuristics in strategic decision making, possibly leading to relatively non-rational decisions, and (d) examples of successful entrepreneur-CEOs are the exception, not the norm (Apospori et al., 2005; Busenitz and Barney, 1997; Entrepreneur, 2018; Wasserman, 2008).

What cause the differences in training and skill set between entrepreneurs and CEOs? [4] Several studies have provided clues to this question. The upper echelons theory argues that personal traits (e.g., *education* and *experience*) of senior executives determine their strategy preferences when making corporate decisions (Belenzon et al., 2019). Similarly, Guile and Griffiths (2001) reported that individuals' knowledge and skills are partly determined by their university education and past work experience. Furthermore, other studies (Datta and Rajagopalan, 1998; Nawaz, 2022) argue that education background is a good proxy for cognitive ability of senior executives.

In view of the differences in knowledge and skills between entrepreneurs and CEOs, and the impacts of education and work experience on leaders' knowledge and skills, we set forth the following research questions in our study:

- *Education:*

– **RQ1.1:** Are FinTech leaders most likely to have university degrees?
– **RQ1.2:** Is there a significant difference in the possession of university degrees between FinTech founders[5] and CEOs?
– **RQ1.3:** Are FinTech leaders most likely to have postgraduate degrees?
– **RQ1.4:** Is there a significant difference in the possession of postgraduate degrees between FinTech founders and CEOs?
– **RQ1.5:** Are FinTech leaders most likely to have an MBA?
– **RQ1.6:** Are FinTech leaders most likely to have an IT degree?
– **RQ1.7:** Is there a significant difference in the possession of an IT degree between FinTech founders and CEOs?
– **RQ1.8:** Are FinTech leaders most likely to have a finance degree?
– **RQ1.9:** Is there a significant difference in the possession of a finance degree between FinTech founders and CEOs?

- *Work experience:*

– **RQ2.1:** How many years of IT work experience FinTech leaders have before starting their current jobs?
– **RQ2.2:** Is there a significant difference in the length of IT work experience between FinTech founders and CEOs?
– **RQ2.3:** How many years of finance work experience FinTech leaders have before starting their current jobs?
– **RQ2.4:** Is there a significant difference in the length of finance work experience between FinTech founders and CEOs?

RQ1.5 to RQ1.9 and RQ2.1 to RQ2.4 above warrant some explanation. Today, some people argue that MBA is the most sought-after postgraduate qualification in the commercial world (particularly for those preparing for or already in the C-suite) because of the following reasons: (a) the popularity of MBAs is not just because of their academic rigor, but also due to their networking potential (Sheppard, 2020; Useem and Karabel, 1986), and (b) an MBA lays the foundations for strategic and analytical thinking, commercial acumen, and problem-solving skills that are required for a firm's leader (Schmidt, 2015). This argument gives rise to RQ1.5. Furthermore, the fact that FinTech is an interdisciplinary area between IT and finance gives rise to RQ1.6 to RQ1.9 and RQ2.1 to RQ2.4.

Some studies in a general business context have reported that entrepreneurs and CEOs differ from each other in risk-taking attitude. In general, entrepreneurs have higher risk propensity than CEOs (Busenitz and Barney, 1997; Caliendo et al., 2009, 2010; Hartog et al., 2002; Stewart and Roth, 2001). Also, several other studies have reported that low-risk aversion encourages the choice for entrepreneurship (Chanda

[4] The above reported differences between entrepreneurs and CEOs were observed in a general business context.

[5] Among all the subject FinTech firms in our study, the entrepreneurs who established their firms call themselves founders.

and Unel, 2021; Cramer et al., 2002; Wharton Online, 2020). Furthermore, Kim et al. (2023) argue that:

From an innovation point of view, risk taking is essential for new venture creation [e.g., FinTech start-ups]. This is because for aspiring entrepreneurs, new venture creation is a risky endeavor, especially when compared to engaging in alternate wage-employment [including CEOs].

The argument of Chilenga et al. (2022) is supported by Chilenga et al. (2022), who found that "entrepreneurial mindset did have a significant effect on self-employment intention" (note that this finding is in a general context without specifically focusing on FinTech). All the above findings lead to the following research question:

- **RQ3:** Is there a significant difference on the eagerness of self-employment (e.g., establishing a FinTech start-up firm) between FinTech founders and CEOs?

Note that RQ3 focuses on the eagerness of being self-employed rather than directly measuring risk-taking attitude. This is because various personality traits (e.g., gender, age, height, and parental background) and economic/cultural factors will have an economically significant impact on willingness to take risks (Pavlíček et al., 2021). Our study will not be able to collect data related to some of these personality traits and economic/cultural factors.

5. Study setting

Australia has been an early adopter of innovation and technology in the financial services industry (Global Australia, 2024). The Australian FinTech industry valued A$4 billion and ranked sixth globally and second in the Asia-Pacific Region (Bhimjiani, 2023). There are some uniqueness of Australia's FinTech market. For example:

- *Concentration of FinTech firms in few cities:* Most existing FinTech firms are located in Sydney and Melbourne — the two most prominent financial centers in Australia. However, as the FinTech sector continues to grow, more FinTech start-up firms are expected to appear in some other cities such as Brisbane, Adelaide, and Perth (Bhimjiani, 2023).
- *Talent shortage:* Australia is experiencing the FinTech talent shortage that may not be resolved in the short future (FinTech Australia, 2024). According to a KPMG's survey, 95% of Australia's FinTech firms planned to hire more FinTech staff in the next eight months but only 31% of these firms were satisfied with their ability to recruit (Storm2, 2024).
- *Falling confidence on international competition:* The percentages of surveyed Australia's FinTech firms which believe that they can win their international FinTech counterparts fell from 80% to 69% (FinTech Australia, 2024). This issue has affected the international expansion plans of many Australia's FinTech firms.
- *FinTech regulation:* Obviously, different countries have their different FinTech regulatory systems. In Australia, the key regulatory bodies are the Australian Securities and Investment Commission, the Australian Prudential Regulatory Authority, the Australian Transaction Reports and Analysis Centre, the Reserve Bank of Australia, and the Australian Competition and Consumer Commission (Bassilios, 2023). Each regulatory body performs a different function and a FinTech business may need to interact with more than one regulatory body for the provision of its products and services.

Because Australia is a global FinTech key player and its FinTech environment is different from other countries, we decided to conduct our study in an Australian context. Based on an online directory of over 1000 firms which reported themselves as FinTech firms operating in Australia, we randomly selected a set of potential candidate firms from the online directory. For each of these selected firms, we verified whether it is a "genuine" FinTech firm by checking against the following definition:

A FinTech company is one which offers technologically enabled financial innovation, resulting in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services (Bank for International Settlements, 2018).

If a potential candidate firm fulfils the above definition, it becomes a *subject FinTech firm* (or simply a *subject firm*) for our further study and analysis. Our study involved 200 subject firms. We did not set a maximum number of potential candidate firms. We continued randomly selecting these firms for verification until the number of subject firms reached 200.

For each subject firm, we conducted a questionnaire survey with its founder or CEO (both of them are referred to as "participants"). The questionnaire survey was conducted between October 2023 – December 2023. All in all, 84 participants (from 84 different subject firms) completed and returned the questionnaires. Tables 1 and 2 shows some basic descriptive statistics about the subject firms and the participants. We found that all the 50 founders are also serving as CEOs of their respective firms (i.e., entrepreneur-CEOs). In other words, none of the participants is a founder only. Because of this, the term "founders" in our research questions and our discussion for the rest of this paper refer to "founders and CEOs". Again, we shall simply call "founders and CEOs" as "founders" to avoid verbosity.

6. Study results

6.1. University degree (RQ1.1 and RQ1.2)

Table 3 shows the numbers and percentages of FinTech founders and CEOs with at least one degree (undergraduate or postgraduate). This table shows that the majority of leaders (founders: 84.0%; CEOs: 88.2%; overall — considering founders and CEOs together: 85.7%) are degree holders (RQ1.1).

Next, we investigated whether there exists a significant difference in university education between founders and CEOs. We formulated the null hypothesis H_1^0 for testing: *There is no association between leader type (i.e., founder or CEO) and the possession of a degree*. Based on two-sided Fisher's Exact test,[6] the p-value was 1.000 (> 0.05), thus H_1^0 could not be rejected (RQ1.2).

6.2. Postgraduate degree (RQ1.3 and RQ1.4)

Now we take a closer look at those degree-holding participants (42 founders and 30 CEOs) and examine their degree levels (undergraduate versus postgraduate). Table 4 shows the details.[7] If we consider founders and CEOs together, Table 4 shows that only one-third (i.e., 33.3%) of leaders have a master's degree (RQ1.3).

When separately considering those founders and CEOs with a master's degree, Table 4 shows that: (a) the difference (4.8%) between the percentages of founders with (47.6%) and without (52.4%) a master's degree is not large, and (b) the difference (73.4%) between the percentages of CEOs with (13.3%) and without (86.7%) a master's degree is very large — most degree-holding CEOs have only an undergraduate degree (RQ1.3).

[6] At first glance, Chi-Square test was applicable here because both the independent (founder versus CEO) and dependent (at least one degree versus no degree) variables are categorical. This test, however, could not be used because it required that every cell had at least five observations, which was not the case here (note that, in Table 3, the number of CEOs without a degree is only 4).

[7] All the postgraduate degrees possessed by the relevant participants are at the master's level. No doctoral degree was observed.

Table 1
Primary types of FinTech services.

	Primary types of FinTech services					
	App developers	Platform providers	Cryptocurrency brokers	Digital banks	Peer-to-peer (P2P) lenders	Money-transfer providers
Numbers of subject firms	42	22	8	4	4	4

Table 2
Number of founders and CEOs.

	Numbers	Mean years of working experience[†]
Founders	50	12.6
CEOs	34	22.3
Overall	84	16.5

(†) Up to December 31, 2023.

Table 3
Founders and CEOs with at least one academic degree.

	At least one degree		No degree	
	Numbers	Percentages	Numbers	Percentages
Founders	42	84.0%	8	16.0%
CEOs	30	88.2%	4	11.8%
Overall	72	85.7%	12	14.3%

Table 4
The highest level of academic degrees possessed by founders and CEOs.

	With master's degree		Without master's degree	
	Numbers	Percentages	Numbers	Percentages
Founders	20	47.6%	22	52.4%
CEOs	4	13.3%	26	86.7%
Overall	24	33.3%	48	66.7%

Apparently, Table 4 seems to show that founders are relatively more likely to hold a master's degree than CEOs. This "apparent" observation was tested by one-sided Fisher's Exact test, whose results were: p-value $= 0.040$; odds ratio $= 5.909$. Since the p-value < 0.05 and the odds ratio > 1.0, the test concluded that the above "apparent" observation is statistically supported (RQ1.4) (Heidel, 2023).

6.3. MBA (RQ1.5)

Among the 24 participants with a master's degree (founders: 20, CEOs: 4), Table 5 shows the disciplines and their corresponding numbers of these master's degrees. This table shows that the disciplines of the participants' master's degrees are fairly diversified, and the number of participants holding a non-MBA master's degree ($= 16$) is doubled than those with an MBA ($= 8$). This observation contradicts some people's belief that MBA is the most sought-after postgraduate qualification in the commercial world, particularly for senior executives (Byrne, 2014; Flynn and Quinn, 2006; Williams, 2023).

6.4. IT degree (RQ1.6 and RQ1.7)

For degree-holding participants, we counted those with at least one IT degree, and counted those with none of their degrees in IT. Table 6 shows the results. The table indicates that only few degree-holding leaders (founders: 28.6%; CEOs: 6.7%; overall: 19.4%) were graduated from an IT discipline (RQ1.6).

We also used the statistics in Table 6 to test the null hypothesis H_2^0, that *there is no association between leader type and the possession of an IT degree.* Two-sided Fisher's Exact test generated a p-value of 0.200 (> 0.05). Thus, H_2^0 could not be rejected. In other words, there is no significant difference between founders and CEOs with respect to the possession of an IT degree (RQ1.7).

6.5. Finance degree (RQ1.8 and RQ1.9)

We then performed another statistical analysis and testing related to the possession of a finance degree. Similar to the observation related to RQ1.6 above, Table 7 shows that only few degree-holding leaders (founders: 14.3%; CEOs: 6.7%; overall: 11.1%) were graduated from the finance discipline (RQ1.8). The null hypothesis H_3^0 (*there is no association between leader type and the possession of a finance degree*) was tested by two-sided Fisher's Exact test, which generated a p-value of 0.626 ($>$ 0.05). Thus, H_3^0 cannot be rejected.

6.6. IT work experience (RQ2.1 and RQ2.2)

Out of the 84 participants, only 16 (founders: 12; CEOs: 4) of them have previous IT work experience before commencing their current jobs. Table 8 shows the relevant statistics, where we have the following observations (RQ2.1):

(a) Overall, only 19.0% of participants have previous IT work experience (founders: 24.0%; CEOs: 11.8%).
(b) Overall, the mean years of previous IT work experience is only 2.0 (founders: 2.4 years; CEOs: 1.3 years).

Now, we set up the null hypothesis H_4^0 (*there is no association between leader type and the length of previous IT work experience*) for testing. Since the independent variable (leader type) is categorical and the dependent variable (length of previous IT work experience) is continuous, Mann-Whitney U test was used,[8] which generated a p-value (2-tailed) of 0.331 (> 0.05). Thus, we did not have sufficient evidence to reject H_4^0 (RQ2.2).

6.7. Finance work experience (RQ2.3 and RQ2.4)

46 (founders: 24; CEOs: 22) out of 84 participants have previous finance work experience before commencing their current jobs. Table 9 shows the relevant statistics. We have the following observations (RQ2.3):

(a) Overall, slightly more than half (54.8%) of the participants have previous finance experience (founders: 48.0%; CEOs: 64.7%).
(b) Overall, the mean years of previous finance work experience is 6.7 (founders: 5.5 years; CEOs: 9.2 years).

We tested the null hypothesis H_5^0 (*there is no association between leader type and the length of previous finance work experience*). By similar reason as testing H_4^0, Mann-Whitney U test was used, which generated a p-value (2-tailed) of 0.197 (> 0.05). Thus, we did not have sufficient evidence to reject H_5^0 (RQ2.4).

[8] The 2-sample t-test is inapplicable here because, with respect to previous IT (and also non-IT) work experience, the data in each group (founders and CEOs) are not normally distributed. More specifically, these data distributions are either skewed left or right. On the other hand, Mann-Whitney U test can be used for non-normal data distributions.

Table 5
Different disciplines and their corresponding numbers of the participants' master's degrees.

MBA	Non-MBA						
	Computer Science	Commerce	Economics	Technology Management	Law	Education	Public Health
8	4	2	2	2	2	2	2

Table 6
Founders and CEOs with at least one IT degree.

	At least one degree is in IT		Otherwise	
	Numbers	Percentages	Numbers	Percentages
Founders	12	28.6%	30	71.4%
CEOs	2	6.7%	28	93.3%
Overall	14	19.4%	58	80.6%

Table 7
Founders and CEOs with at least one degree in finance.

	At least one degree is in finance		Otherwise	
	Numbers	Percentages	Numbers	Percentages
Founders	6	14.3%	36	85.7%
CEOs	2	6.7%	28	93.3%
Overall	8	11.1%	64	88.9%

Table 10
Founders and CEOs with and without experience in founding companies or self-employment.

	With experience in founding companies or self-employment		Without experience in founding companies and self-employment	
	Numbers	Percentages	Numbers	Percentages
Founders	50	100.0%	0	0.0%
CEOs	18	52.9%	16	47.1%
Overall	68	81.0%	16	19.0%

Table 8
IT and non-IT work experiences of founders and CEOs.

	With IT work experience		Without IT work experience		IT work experience†		Non-IT work experience†	
	Numbers	Percentages	Numbers	Percentages	Means‡ (years)	Ranges (years)	Means‡ (years)	Ranges (years)
Founders	12	24.0%	38	76.0%	2.4	0.0–25.0	10.2	0.0–34.9
CEOs	4	11.8%	30	88.2%	1.3	0.0–18.3	20.9	0.0–34.7
Overall	16	19.0%	68	81.0%	2.0	0.0–25.0	14.5	0.0–34.9

(†) We counted participants' IT/non-IT work experience prior to their current FinTech leadership positions.
(‡) Means are computed with respect to the total numbers of the respective leader types (i.e., founders = 50; CEOs = 34).

Table 9
Finance and non-finance work experiences of founders and CEOs.

	With finance work experience		Without finance work experience		Finance work experience†		Non-finance work experience†	
	Numbers	Percentages	Numbers	Percentages	Means‡ (years)	Ranges (years)	Means‡ (years)	Ranges (years)
Founders	24	48.0%	26	52.0%	5.5	0.0–28.9	7.1	0.0–25.0
CEOs	22	64.7%	12	35.3%	9.2	0.0–29.9	13.1	0.0–31.0
Overall	46	54.8%	38	45.2%	6.7	0.0–29.9	9.5	0.0–31.0

(†) We counted participants' financial/non-finance work experience prior to their current FinTech leadership positions.
(‡) Means are computed with respect to the total numbers of the respective leader types (i.e., founders = 50; CEOs = 34).

6.8. *Eagerness of self-employment (RQ3)*

In Section 4, we hypothesize that FinTech founders are more eager to be self-employed than FinTech CEOs. Here, a participant's eagerness of self-employment was measured by: (a) the number of companies he/she has established,[9] and (b) the number of occasions of being self-employed as a freelance or independent consultant.

We constructed Tables 10 and 11 to show the relevant details. Table 10 shows the numbers and percentages of founders and CEOs with and without experience in founding companies or self-employment. Table 11 shows the total mean numbers of companies founded and occasions of self-employment by the founders and the CEOs. We have the following observations from these two tables:

(a) Table 10 shows that all the founders have previous experience in founding companies or self-employment. On the other hand, only about half (52.9%) of the CEOs have such experience.
(b) Table 11 shows that, overall, the mean number of founding companies and being self-employed by participants is very small (only 1.47). If we compare this mean number between founders and CEOs, then this mean number for founders (2.04) is about three times that of CEOs (0.64).

Table 11
Numbers of companies founded and occasions of being self-employed as founders and CEOs.

	Mean numbers of companies founded	Mean numbers of occasions of being self-employed	Total mean numbers
Founders	1.96	0.08	2.04
CEOs	0.58	0.06	0.64
Overall	1.40	0.07	1.47

In view of observations (a) and (b) above, we statistically tested whether there is a significant difference in the experience of founding companies and self-employment between founders and CEOs. First, we used one-sided Fisher's Exact test for the data in Table 10 (this test was used because the cell corresponding to founders without any experience

[9] For founders, we did not count the *current* FinTech companies established by them.

in founding companies and self-employment has zero observation in Table 10; also see footnote 6). Since the generated p-value < 0.001, it shows that founders have generally more experience in founding companies or self-employment than CEOs.

Next, we used one-sided Mann-Whitney U test for the data in Table 11 (the 2-sample t-test was inapplicable here because the data distributions were not normal). The generated p-value (one-sided) was smaller than 0.001, thus providing another strong support that founders are more experienced in founding companies or self-employment than CEOs. Overall, we can conclude that FinTech founders are more eager to be self-employed than CEOs.

Table 12 summarizes all the observations and findings discussed above.

7. Discussion

7.1. Considering founders and CEOs together

First, we consider the academic qualifications of FinTech leaders. Overall, the majority of FinTech leaders are degree holders (RQ1.1) and one-third (33.3%) of them have a master's degree (RQ1.3). These observations are generally consistent with the following findings:

- "Having a formal education is a standard requirement for the top tier of the business world" and "the path to becoming a Fortune 500 CEO can include more than a college degree [e.g., a master's degree]" (Williams, 2023).
- Based on a study involving large U.S. firms in the Forbes 800 Compensation List, it was found that most CEOs have an undergraduate degree, while about half possess a postgraduate degree (Jalbert et al., 2002).

Also, our above findings are consistent with the Koellinger's theoretical framework (Koellinger, 2008), which states that the educational backgrounds (e.g., academic degrees) of the executives (e.g., FinTech CEOs), business owners, and entrepreneurs (e.g., FinTech founders) are an important factor explaining innovation (a key element in the FinTech business). If we focus specifically on FinTech founders, our above findings are also in line with some other relevant theoretical frameworks that: (a) education is a key aspect for the economic success of the self-employed (Kangasharju and Pekkala, 2002; Robinson and Sexton, 1994), and (b) knowledge (often acquired via formal education) is a fundamental factor in the innovation and assimilation of new technologies (Hoffman et al., 1998; Von Hippel, 1988).

Table 12
Summary of findings.

University degree	
RQ1.1	The majority of leaders (overall 85.7%) are degree holders.
RQ1.2	No association between leader type & the possession of a degree.
Postgraduate degree	
RQ1.3	Only one-third (33.3%) of leaders have a master's degree.
RQ1.4	Founders are more likely to hold a master's degree than CEOs.
MBA	
RQ1.5	The number of participants holding a non-MBA master's degree (= 16) is doubled than those with an MBA (= 8).
IT degree	
RQ1.6	Only few degree-holding leaders (overall 19.4%) were graduated from an IT discipline.
RQ1.7	No association between founders & CEOs with respect to the possession of an IT degree.
Finance degree	
RQ1.8	Only few degree-holding leaders (overall 11.1%) were graduated from the finance discipline.
RQ1.9	No association between leader type & the possession of a finance degree.
IT work experience	
RQ2.1	Overall, only 19.0% of leaders have previous IT work experience & the mean years of such experience is only 2.0.
RQ2.2	No association between leader type & the length of previous IT work experience.
Finance work experience	
RQ2.3	Overall, slightly more than half (54.8%) of leaders have previous finance experience & the mean years of such experience is 6.7.
RQ2.4	No association between leader type and the length of previous finance work experience.
Eagerness of self-employment	
RQ3	Founders are more eager to be self-employed than CEOs.

When considering those participants with a master's degree in our study, however, only 33.3% (8 out of 24; see Table 5) of them hold an MBA (RQ1.5). This contradicts the findings of some other studies or reports such as the following:

- "The majority of the CEOs [in Fortune 500 companies] obtained a Master of Business Administration (MBA)" (Williams, 2023).
- Among the Fortune 100 companies in 2019, 54% of CEOs held a postgraduate degree, and 59% of those postgraduate degrees were MBA (Best Colleges, 2023).
- "MBA degree holder CEOs sway the scope of third-sector organizations" (Naudé, 2020).

Readers are reminded that the above findings by Williams (2023), Best Colleges (2023), and Naudé (2020) are in the general business context (though some Fortune companies are high-tech firms), whereas our finding (i.e., only 33.3% of master's degree-holders earned an MBA) is in the specific context of FinTech.

The above difference between our finding and others may be attributed by the changing business environment and ecosystem. Naudé (2020) argues that the "traditional" MBA was the outcome of the U.S. industrialization during the late 19th and 20th centuries, during which most U.S. firms focused on increasing globalization and labor productivity (Broadberry, 1995). These firms thus needed managers with the knowledge of managing large corporations, understanding international business, entering new markets, overcoming competitions, and raising capitals. The demand for such knowledge led to the formulation of the typical MBA curriculum today, which mainly focuses on strategy, international trade, marketing and branding, logistics and supply chain management, as well as accounting and finance (Naudé, 2020).

Today, however, the demand of globalization and labor productivity has been diminished (partly due to trade wars) as firms started to refocus on local and regional markets. In addition, because we have transitioned from the era of industrialization to *technological revolution*, the curriculum of a "traditional" MBA no longer looks contemporary and "attractive", leading to the declining MBA enrollments in recent years (Naudé, 2020). This may explain for the small percentage of FinTech leaders with an MBA.

We observed that a growing number of universities worldwide are offering their master's degrees in entrepreneurship to prepare their graduates for founding companies. For example, in Australia, the Australian National University is offering a Master of Entrepreneurship and Innovation and the University of Melbourne is offering a Master of Entrepreneurship. More recently, a few Australian universities are even offering their master's degrees specifically related to FinTech. For instance, Swinburne University of Technology is offering its Master of Financial Technologies and the University of New South Wales is offering an online Master of Financial Technology. However, in our study, none of the leaders with a master's degree earned such a graduate degree specifically on entrepreneurship or FinTech (see Table 5). It may be due to the fact that these "specialized" master's degrees were not yet available or popular at the time when these leaders were studying for their master's degrees. We, however, speculate that as time goes on, more and more FinTech leaders will consider studying these "specialized" master's degrees.

Although FinTech is a high-tech business which lies at the intersection between IT and finance, our findings were that: (a) only few (19.4%) degree-holding leaders were graduated from an IT discipline (RQ1.6), and (b) only 19.0% of leaders have previous IT work experience and the mean years of such experience is only 2.0 (RQ2.1). One may be puzzled about these findings for the seemingly low percentage of leaders with an IT degree and that such leaders have only short IT work experience on average. In their paper, Barber and Bistrova (2015) provided a plausible explanation. Their study found no strong association between CEO's background (education and previous work experience) and firm performance in high-tech (e.g., FinTech) business. They further argue that:

- Technically qualified CEOs (e.g., those graduated with an IT degree) may perform better when their firms are relatively smaller. However, as a firm increases in size, the organizational structure becomes more complex and difficult to drive the research and development (R&D) tasks. In this case, the merit of the CEO's technical knowledge in driving innovation is more than offset by his/her insufficient knowledge and experience in managing large and complex corporations (which are more related to business, management, and finance skills).
- Even in high-tech businesses, "breakthrough" innovation is rare. Many public-listed profitable high-tech firms are mostly exploiting and improving upon *past* breakthroughs (often occurred at the pre-Initial Public Offering (IPO) stage) instead of coming up with new ideas. This diminishes the demand for technically qualified CEOs to "continuously" drive product innovation.

However, our above findings that only few degree-holding leaders were graduated from an IT discipline and have previous IT work experience seem to contradict the theoretical relationship as proposed by Ghasabeh (2020), who argues that transformational leaders (e.g., FinTech leaders) foster more effective use of IT, which can positively contribute to the effectiveness of knowledge management as a significant driver of firm performance.

Next, we consider the finance background of leaders. Only 11.1% of degree-holding leaders were graduated from the finance discipline (RQ1.8). Also, slightly more than half (54.8%) of leaders have previous finance work experience and the mean years of such experience is 6.7 (RQ2.3). Note that the percentage of leaders with previous finance work experience (54.8%) and the mean years of such experience (6.7 years) are larger than the percentage of leaders with previous IT work experience (19.0%) and its corresponding mean years of experience (2.0 years).

Some reports and studies have provided a seemingly explanation for the above difference between the length of previous IT work experience and that of previous finance work experience of leaders. Many FinTech start-ups are funded by venture capitalists (VCs) (Kolokas et al., 2022). "Innovation" (it is somewhat related to the technical knowledge of founders) may be a basis for starting a FinTech firm, but financing is also needed. For example, FinTech founders need to prepare a financial budget/proposal to convince VCs that the firms will make money (Wang and Schøtt, 2022). When VCs consider a funding proposal, they will not only consider the technical knowledge and innovative ability of FinTech founders. Rather, VCs will also consider the managerial skills of a founder in managing the board, setting high-level strategy, hiring qualified employees, and managing the employees (Taulli, 2018). A Harvard Business Review article also argues that, although a technology-oriented founder (e.g., someone with an IT background) may be the best candidate to lead a start-up firm during its early days, as the firm grows, it will need someone with different skills (e.g., finance and management) (Wasserman, 2008). With respect to these managerial tasks, founders with previous finance work experience may be more preferable than someone with an IT background.[10] Gravagna and Adams (2016) even argue that, from a VC's perspective, "the management team is often more important than having a great idea [innovation] … [VCs] see lots of great ideas but only a few teams that are capable of executing on those ideas". Following this argument, one may wonder why only 11.1% of leaders were graduated from the finance discipline (RQ1.8), despite 54.8% of them with previous finance work experience. One plausible reason is given by Gravagna and Adams (2016) who argue that "[management] teams with real-life experience and success will always be more attractive than teams that are packed with academic degrees and no actual experience".

7.2. Comparing founders with CEOs

Based on our study, there is no association between leader type and the following aspects: (a) possession of a degree (RQ1.2), (b) possession of an IT degree (RQ1.7) or a finance degree (RQ1.9), and (c) length of previous IT (RQ2.2) or finance work experience (RQ2.4). In other words, both FinTech founders and CEOs exhibit similarities in aspects (a) to (c). On the other hand, our statistical test found that founders are more likely to hold a master's degree than CEOs (RQ1.4). This finding can be analyzed in the following two scenarios, depending on whether FinTech leaders earned their master's degrees *before* or *after* establishing their current firms:

- ***Before:***
  Relatively speaking, founders have less motivation and demand for doing a master's degree than CEOs. In principle, FinTech founders with sufficient capitals can establish their firms regardless of whether they have a master's degree. If founders do not have the relevant knowledge and skills (perhaps learnt from a postgraduate study) to run their firms, they can recruit qualified CEOs to do the job. This "privilege", however, does not apply to CEOs. Nowadays, securing a CEO position is rarely successful without a relevant degree (and in many cases, a postgraduate degree). This can be explained by the signaling theory, which argues that education (e.g., a master's degree) is merely a signal sent by job candidates to their potential employers (Celani and Singh, 2011; Nakavachara, 2020). This signal can be viewed as a "prestige" message. Higher-ability job applicants find it worthwhile to invest in education and use it as a signal to distinguish themselves from lower-ability applicants. Following this logic, more CEOs should have a master's degree than founders. This implication contradicts our finding which shows the opposite.
- ***After:***
  This scenario implies that the leaders are doing their master's degrees part-time while they are working in their current FinTech firms. This scenario is in favor of founders when compared to CEOs. Founders can delegate some of their job tasks to CEOs to free up some time for pursuing part-time studies. CEOs, however, because of their heavy workload, find it difficult to pursue part-time studies.[11] Thus, this scenario may cause more founders holding a master's degree than CEOs.

Since the above two scenarios have opposite implications, more studies should be conducted on this issue.

Finally, we consider the eagerness of self-employment. We observed that founders are more eager to be self-employed than CEOs (RQ3). This observation is consistent with other similar findings in a general business context. For example, Wirth (2022) argues that many entrepreneurs (e.g., FinTech founders) prefer to start their own business due to several reasons such as the freedom to pursue vision, the desire to challenge the status quo, and better work-life balance.

[10] Riani (2022) argues that financial knowledge is essential for any start-up founders as finance is the lifeblood of business.

[11] Porter and Nohria (2018) argue that "time is the scarcest resource for CEOs". In the U.S., CEOs work an average of 62.5 h a week, while the average American works only 44 h per week.

8. Implications and contribution of our study

8.1. Practical implications

Our study offers several practical implications for different types of FinTech practitioners. First, for aspiring entrepreneurs who want to establish their FinTech start-up firms and practitioners who want to start their FinTech career, our findings provide a benchmark against which to assess their credentials (e.g., academic qualifications and previous work experiences). Secondly, for current FinTech incumbent and start-up firms, our insights into leadership characteristics can inform recruitment and development strategies. Thirdly, our findings regarding the eagerness and self-employment among FinTech leaders could inspire policymakers to formulate appropriate policy interventions aimed at fostering entrepreneurship in the FinTech sector.

8.2. Contribution to theory and policy and highlight of future work

Our study contributes to the broader discourse on leadership and entrepreneurship in high-tech and innovative sectors. By elucidating the specific educational and experiential pathways that characterize FinTech leaders, our study enriches the understanding of the intersection between technology, finance, and leadership. In addition, our study insights could inform educational institutions and policymakers about the evolving needs of the FinTech sector, potentially guiding curriculum development and supportive policies for FinTech entrepreneurship.

Furthermore, our findings have highlighted the following future, potentially fruitful research directions:

- To investigate the impact of master's degree on the quality of leadership in the FinTech industry (RQ1.3, RQ1.4, and RQ1.5).
- To investigate the implications of the difference of IT and finance work experience on company performance and strategy (RQ2.1, RQ2.2, RQ2.3, and RQ2.4).
- To investigate how a master's degree influences strategic decisions, innovation, or overall FinTech company performance (RQ1.3, RQ1.4, and RQ1.5).
- To investigate how pervious work experience in finance influences the ability of company owners (founders) and CEOs to manage financial risk, deal with competition, or design sustainable growth strategies (RQ2.3 and RQ2.4).

9. Study limitations

Ideally, all the data should be collected within a short period for more accurate comparison and analysis. Our questionnaire survey, however, spanned about three months (between October 2023 – December 2023) to complete, as it was fairly difficult to persuade FinTech leaders to squeeze their already busy time for completing and returning the questionnaires for our data analysis. We have already made our best effort to shorten the survey period in order to minimize any effect that may invalidate the results of our study.

Incidentally, all the founders participated in this study are also serving as the CEOs of their firms. In this regard, their credentials and personality traits may be slightly different from non-CEO founders. If suppose all the founders in our study were non-CEO founders, the findings may be different from the currently reported ones.

Because the FinTech space is changing rapidly, the observations and trend of this study may not last long. For example, as FinTech grows, the importance of regulation and supervision becomes more prominent (Lessambo, 2023). Accordingly, future FinTech leaders are expected to possess more knowledge on regulatory and compliance (Majumdar, 2024). We argue, however, that it is still worth to know the status quo about the credentials and personality traits of FinTech leaders in this fast-growing and ever-changing FinTech landscape.

Furthermore, this study was conducted in an Australian context, involving FinTech firms which are operating in Australia. Below are two examples of FinTech leadership difference between Australia and other countries:

- Mulvey (2024) reported a difference in career aspiration between FinTech practitioners (including leaders) in the U.S. and their counterparts in Australia. In the U.S., the "top talented" FinTech practitioners (or leaders) often gravitate toward innovative tech firms. In Australia, however, the "top talented" FinTech practitioners (or leaders) generally prefer to join established incumbents (Mulvey, 2024). This phenomenon may be attributed to organizational culture, potential risks and rewards (including share options), and tax considerations.
- A strong FinTech leader should possess a combination of skill sets including traditional finance, technology, commercial, and risk/compliance. The "right" mix of these skills varies with different stages of FinTech growth and development across countries (Odgers Berndtson, 2024). Obviously, not all countries (including Australia) are at the same FinTech growth and development stage.

Thus, readers are cautioned not to generalize our findings to other regions or countries. We suggest that more similar studies should be performed in other countries for cross-country comparison.

10. Summary and conclusion

As FinTech leaders hold the ultimate responsibility for running their firms and formulating high-level, long-term business strategies, they undoubtedly have a major impact on their firms' performance, which in aggregate affects the well-being and sustainability of the entire FinTech landscape. Thus, research studies on FinTech leaders are indispensable.

In this study, we have investigated three major dimensions of these leaders: education, work experience, and eagerness of self-management. One or more research questions were formulated for each of these dimensions, with a view to studying two types of elements (credentials and personality traits) of these leaders and comparing these elements between FinTech founders and CEOs. On the one hand, no significant differences were found on several aspects (e.g., possession of a degree and the length of previous IT/finance work experience) between FinTech founders and CEOs. On the other hand, when compared to CEOs, founders are more likely to hold a master's degree and are more eager to be self-employed.

In view of the similarities and differences between founders and CEOs reported in this study, it will be interesting and worthwhile to perform future studies to investigate and compare the performance and business strategies of those FinTech firms run by founder-CEOs and those by non-founder CEOs.

Funding

The article publishing charge for open access is supported by the Open Access Journal Scheme of Central Queensland University.

Ethical statement

This study was supported by a human ethics approval (no. 0000023455) from Central Queensland University.

CRediT authorship contribution statement

Pak-Lok Poon: Writing – original draft, Supervision, Methodology, Investigation, Data curation, Conceptualization. **Sau-Fun Tang:** Investigation, Formal analysis, Data curation, Conceptualization. **Nazirite Y. L. Pond:** Writing – review & editing, Validation, Formal analysis.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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