

## Article

# How Past Failure Predicts Subsequent Entrepreneurial Intention: A Comparative Study of Mainland China and Taiwan

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**Abstract:** Entrepreneurship is the center of economic growth process, and it is context-sensitive. We compare Mainland China and Taiwan by investigating the impact of past failure on individual entrepreneurs. Using a large amount of data from GEM (Global Entrepreneurship Monitor), a logistic regression approach was adopted and most of the major variables in models are correlated positively. We demonstrate that past failure does affect entrepreneurs' perceived capability and next enterprising activity positively in the two regions. Unlike the moderating role of culture, entrepreneurial motivation exerts a quite different impact on the relationship between past failure and entrepreneurs' future intention in the two regions. Our results provide not only theoretical implications for context-related entrepreneurial motivation, but practical suggestions for entrepreneurs and policy makers.

**Keywords:** past failure; entrepreneurial intention; entrepreneurial motivation; comparative study; Mainland China; Taiwan

## 1. Introduction

As highlighted by Schumpeter, entrepreneurship is the center of economic growth process [1]. It plays a crucial role in economic development, job creation, innovation and competitiveness, in both developing and developed countries [2]. To achieve the highest level of sustainable economic growth and employment, many countries make efforts to promote entrepreneurship. Additionally, entrepreneurship has been increasingly attracting more attention from governments and researchers, largely in how young people can become entrepreneurs.

It is not surprising that a significant proportion of new ventures fail [3,4]. What happens to entrepreneurs when their business fails? Will they restart or exit from venture? The answer varies from time to time. Early study demonstrates that entrepreneurs have no motives to re-enter into a new business after firm failure, according to the logic of firm dynamics [5]. Those who ever failed would exit out of entrepreneurship, ultimately because they have learned about their actual inferior capabilities. Only those with successful entrepreneurial performance are directed towards subsequent startup. However, recent studies have challenged this logic of firm dynamics theoretically and empirically. Scholars believe that both past failure and success reflect useful learning effects and enhance entrepreneurs' experience and skills, so they are more likely to start again [6]. In terms of entrepreneurs' attributes, entrepreneurs are said to be resilient individuals with positive emotions, who would like to deal with stressful work situations [7,8]. They have qualities and abilities to recover from failure that actually provides valuable insights into the likelihood of serial entrepreneurship [8,9]. It is consistent with empirical evidence that habitual entrepreneurs are a widespread phenomenon.

There are high proportions of serial entrepreneurs in Western countries such as U.S., Australia and Norway [10,11]. In addition, entrepreneurship by crowdfunding has represented a growing area of interest, and crowdfunding online proves to be the practice of funding a start-up company or project [12,13]. However, scholars also recommend that such crowdfunding platforms highlight the positive aspects of firm failure [14].

It is concluded that most of existing literatures agree on the positive effect of business failure on subsequent re-startups, but they generally take Western countries as samples. In China, more and more young people are encouraged to enter into entrepreneurial ventures, and most of them would have to confront obstacles and even failures. How these young entrepreneurs perceive and respond to these difficulties is worthy of our study here, since our market environment differs from that of Western countries greatly.

Besides, it is emphasized that entrepreneurship study must compare different countries, as it is context-sensitive [15]. We chose Mainland China and Taiwan as study samples from GEM database, for the two economies are culturally homogeneous, but they really stand for various economic contexts. According to Reynolds [16], entrepreneurship is motivated by opportunity and necessity, with the former mostly happening in developed countries while the latter in developing ones. The above conclusion would be verified by comparing Chinese and Taiwanese samples on their entrepreneurial intention motivated by opportunity or necessity. Moreover, we also want to examine how these two motivations affect the relationship between past failure and entrepreneurial intention respectively. In addition, we acknowledge that cultural context of a given country is one of the determinants that exerts a great influence on entrepreneurial intent and practice [17,18]. Although Mainland China and Taiwan enjoy similar culture, we are not certain that such culture would favor or disfavor entrepreneurs socially, or if it would have a different effect since the two regions are at different economic status. Moreover, we also want a further study on what role culture plays in the associations between past failure and entrepreneurial planning.

Generally, the study is structured as follows: First, we investigate the direct effect of past failure on future entrepreneurial intention, then we examine how perceived capability passes the direct effect. Lastly, we explore how past failure works on entrepreneurial intention under the condition of entrepreneurial culture and motivation. All these analyses are based on the comparison of Mainland China and Taiwan, since the two regions are culturally homogeneous but economically heterogeneous.

The study supports the existing literatures, and one of the few theoretical contributions lies in the presence of entrepreneurial motivation. Entrepreneurial motivation is viewed as one of the contextual factors rather than cognitive factors of entrepreneurs, which complies with our framework on comparing Mainland China and Taiwan. Practically, the study provides some useful information for policy makers to design adequate measures which facilitate young people in becoming entrepreneurs.

## 2. Conceptual Framework

### 2.1. Past Failure and Entrepreneurial Intention

Business startup means uncertainty and there is bound to be failure. Entrepreneurial failure is the cessation of involvement in a venture because it has not met a minimum threshold for economic viability as stipulated by the entrepreneur [19]. Yet failure, indeed, indicates that the entrepreneur has engaged in some entrepreneurial activity in the past [20].

How past failure relates to subsequent entrepreneurship has varied from time. Early study on firm dynamics asserts that past failure selects those novice entrepreneurs out of re-entrepreneurship for they realize that they are not favorably endowed with entrepreneurial talents [5]. The renascent entrepreneurs have gone through the selecting process and remain in entrepreneurship because they have confidence in their rich entrepreneurial skills from past success. With the further research on entrepreneurial learning, serial entrepreneurship following failure is proved to be pervasive theoretically. Unlike firm dynamics concerning success and subsequent re-startup, entrepreneurial learning emphasizes that

both success and failure represent a prior spell of experience and useful learning effects, and they provide path dependencies in the careers of serial entrepreneurs [10]. Similarly, a research on nascent entrepreneurship has shown the positive effect of entrepreneurial experience on planning a new firm's start [6]. Compared with success, past failure is arguably considered to be more prepared for the trials and tribulations of entrepreneurship [21]. This is because failure represents one of the most difficult, complex and yet, valuable learning experiences that entrepreneurs have ever had the fortune or misfortune to engage in [21]. Failure has been more increasingly recognized as an important resource of developing skills and knowledge [22]. It implies a 'clear signal' that something went wrong and stimulates individual learning to update their skills and knowledge [23]. Learning from failure takes time and represents some dynamic sense-making process [24] so that these renascent entrepreneurs do not make the same mistakes twice in their future re-entering into new firms.

However, Yamakawa, Peng and Deeds's study presents an exception; they conduct a survey on Japanese new venture founders and find a much more subtle relationship between past failure and future entrepreneurship [25]. That is, entrepreneurs' cognitions influence heavily their re-startups after failure, and the extent of failure experiences influence the growth of their subsequent ventures. Besides, study on social entrepreneurial enterprise is referred to and they find social entrepreneurs can learn from failure and enable support agencies to play a role of gatekeeper [26]. As internet startup is growing rapidly, crowdfunding online has become an important tool for entrepreneurial firms and small businesses [12,13]. Entrepreneurial individuals surveyed confirm that their failing on the crowdfunding platform reflects a largely positive experience on their later relaunched projects [14]. A comparative study of crowdfunding journalism in China and Taiwan shows that such projects achieve better development in China because of the perfect online payment system and great tolerance of innovativeness in society [27].

Therefore, we determine to verify the associations between past failure and future entrepreneurial intention by comparing Mainland China and Taiwan, since entrepreneurial study is context-sensitive [15], and the two regions are culturally homogeneous but in different economic status. We propose the following hypothesis:

**Hypothesis 1 (H1):** *Past failure has a positive effect on entrepreneurial intention in both Mainland China and Taiwan.*

## 2.2. Entrepreneurial Perceived Capability

Perceived capability refers to an entrepreneur's cognitive estimate of his or her capabilities to mobilize resources, activity and motivation that is required to control the events in his or her business [28]. People with strong perceived capability have more confidence to control behaviors and predict the outcomes accurately [29]. If they feel that they are qualified for some business, they would like to choose, prepare for and make long-term commitments to that business [30].

Research finds that past experiences have great influence on how entrepreneurs perceive their capabilities, for such experience provides some useful information which may increase the entrepreneurs' capacity to start business [31]. It is worth noting that past experiences are not limited to successful ones. Earlier study proposes that business failures are disheartening, having a negative impact on the entrepreneur's confidence, self-efficacy and risk-taking propensity [32]. With the further research on entrepreneurial learning, scholars began to realize that business failures open doors to resources and learning at the same time. Compared with individuals who succeeded, those who ever failed are more likely to take advantage of opportunities and develop related knowledge and skills [19,33]. Entrepreneurs who fail and try again may have deeper insight towards opportunity identification and they may perceive themselves to be more competent the next time around [34,35]. Therefore, we propose the following hypothesis:

**Hypothesis 2 (H2):** *Past failure has a positive effect on entrepreneurs' perceived capability in both Mainland China and Taiwan.*

It is reported that perceived capability would have great influence on individual career choice and development [36,37]. Perceived capability has been demonstrated as a key predictor of entrepreneurial intent [34,38]. People with high perceived capability are considered to be potential entrepreneurs [39], for they could seize immediate opportunities and treat them in a positive way. Furthermore, the entrepreneurial intentions in the future would be a direct result of how entrepreneurs comprehend their ability to start a business successfully [37,40]. Similarly, Ebrahim and Schøtt find that people's entrepreneurial intention is promoted by their risk appetite, opportunity awareness and their perceived capabilities [37]. It has been inferred that past failure has a positive effect on future entrepreneurial intention and perceived capability; perceived capability is reported to be closely associated with entrepreneurial intention, hence, we propose:

**Hypothesis 3 (H3):** *Entrepreneurs' perceived capability mediates the relationship between past failure and future entrepreneurial intention in both Mainland China and Taiwan.*

### 2.3. Entrepreneurial Culture

Culture could inevitably have a great impact on entrepreneurship by legitimating or promoting individuals' certain positive attitudes related to business creation [16,18]. An entrepreneurial culture is typically understood as a collective programming of the mind, or an aggregate psychological trait that regional people have towards entrepreneurship [41,42]. More specifically, it refers to spatial variation in social acceptance of entrepreneurs and their activities [43]. The more entrepreneurship is regarded as legitimate and respectable, the more resources would be dedicated to entrepreneurial activity and the higher the demand for entrepreneurship would be. From the perspective of social psychology, people's attitude toward entrepreneurship in a specific region may emerge via the presence of local examples or role models [44]. This explains that an individual's perception of entrepreneurship is shaped by observing role models surrounding him or her. Observing successful role models enables potential entrepreneurs to organize the resources required by starting one's own venture and increase the likelihood of adopting entrepreneurial behavior.

According to the theory of planned behavior [20,45], entrepreneurial culture acts as a powerful force to drive individuals to start entrepreneurship mainly from three aspects: subjective norms, personal attitude and behavioral control. This implies that if a person held an overall positive valuation about being an entrepreneur, he or she would have more belief in his or her capability in performing as an entrepreneur [46], and his or her reference group would approve of the entrepreneurial decision [43,44,47], then the person would more possibly start a new business. Besides, entrepreneurial culture plays a moderating role on the associations between entrepreneurs' characteristics and subsequent intentions [48,49]. Some central characteristics such as innovativeness, pro-activeness and risk-taking are stable across cultural contexts [50]. Generally, cultural shaping entrepreneurship is increasingly important in entrepreneurship literature, for it generally reflects how societies accept entrepreneurs, advocate values of innovation, and even create a context whereby entrepreneurship is recognized and encouraged [51,52].

As mentioned above, entrepreneurs with past failure generally prepare better for the next enterprising activities [21,22], and higher level of entrepreneurial culture appears to motivate people's startup intentions [53–55]. Therefore, we assume that entrepreneurial culture may exert influence on the relationship between past failure and future entrepreneurial intentions, that is to say, the more an individual perceives entrepreneurship as socially accepted, the more likely he or she would be to start entrepreneurial activity. The comparison between Mainland China and Taiwan is continued and Hypothesis 4 is proposed accordingly:

**Hypothesis 4 (H4):** *Entrepreneurial culture moderates the relationship between past failure and entrepreneurial intention in both Mainland China and Taiwan.*

#### 2.4. Entrepreneurial Motivation

Entrepreneurial motivation refers to the motives that drive entrepreneurs to obtain resources, knowledge, experience, and access to financing and risk reduction [56,57]. Scholars have long discussed the usefulness of intrinsic versus extrinsic motivation. Intrinsic motivation such as freedom and independence is fundamentally associated to a higher level of entrepreneurial performance than extrinsic motivation such as financial reward and social status [58]. Entrepreneurs who are driven by intrinsic motives are more likely to persist in the face of difficulties and envision possibilities for the new venture that others do not see [59]. Scholars find further the significant interaction impact of intrinsic motivation and entrepreneurial failure on subsequent new ventures [25].

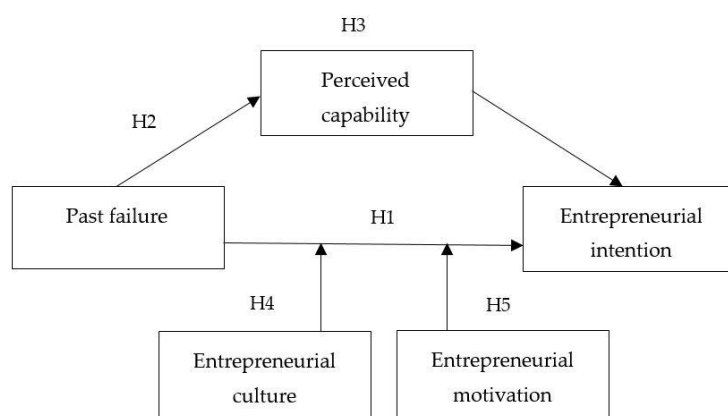
In addition, we have witnessed another general classification of entrepreneurial motivation that is widely accepted: necessity-driven and opportunity-driven [16]. Such classification relates to the earlier work on push versus pull strategy for starting a new venture [60–62], that is, to pull or push people toward entrepreneurship [63]. Like pull strategy, opportunity-driven motivation includes the positive factors such as need for achievement and the will to be independent; whereas necessity-driven motivation involves the negative factors such as the risk of unemployment and dissatisfaction with the current situation [64,65], which is similar to push strategy. Opportunity-driven entrepreneurs would initiatively establish a new business upon the identification of opportunities when low unemployment rate and favorable economic conditions emerge [66]. Necessity-driven entrepreneurs would be compelled to start a venture when losing a job, hitting a glass ceiling, or facing family hardship and frustration at work [67].

Compared with intrinsic versus extrinsic motivation, necessity versus opportunity motivation is context-related and their variations across countries have long been documented [68]. Necessity versus opportunity may be linked to the economic status and market competitiveness [69]. Scholars proposed that entrepreneurial motivation is largely directed by levels of economic development [70]. Scholars compared the entrepreneurial activities in developing countries with those in developed countries, and found that opportunity startups are more likely to grow in developed countries, while necessity in developing ones [16,71]. Relating entrepreneurial motivation to per capita income is plausible [72]. This may be due to the fact that those richer countries have possessed good infrastructure, mature labor market and large numbers of global players, and may possibly attract more foreign investment and bring about extra employment, technology transfer and exports [16,70]. All these provide individuals with opportunities for entrepreneurship by utilizing resources available. A lack of resources as well as instable and non-supportive regulatory environments in developing economies may deter individuals from engaging in entrepreneurial behavior unless it is seen as “an action of last resort” [73], namely necessity-driven entrepreneurship.

Therefore, we propose that opportunity motivation may have a positive impact on the relationship between past failure and entrepreneurial intention in developed economy, while necessity may affect such relationship positively in developing economy. According to indicator of IMF in 2018, Taiwan is a developed economy while Mainland China is a developing one, for per capita GDP in Taiwan and Mainland China are \$24,576.70 and \$9608 respectively. So H5 is issued:

**Hypothesis 5 (H5):** *Entrepreneurial motivation moderates the relationship between past failure and future entrepreneurial intention, and the moderating effect differs greatly in Mainland China and Taiwan.*

Figure 1 shows our research model and all the hypotheses are presented here.



**Figure 1.** A sustainable model of past failure and entrepreneurial intention.

### 3. Research Method

#### 3.1. Sample and Data

The samples used to test the hypotheses are obtained from the GEM, which is a database dedicated to global entrepreneurship survey, and it has more than 2 million observations on the most primitive data on entrepreneurship in more than 100 economies. The GEM database has been increasingly utilized in academic research and more than 700 papers based on this database have been published so far.

Our study focuses on the survey of the year 2015 because it is the most recent data released by the GEM. We used the data from Taiwan and Mainland China to test the hypotheses, for the two economies are rooted in a highly similar culture, but in different stages of economic development indeed. After deleting the unavailable responses, the sample sizes of Mainland China and Taiwan were 3239 and 1837 respectively. The main statistics methods used include correlation, regression and independent sample T-test. The processing of the obtained empirical data is carried out using SPSS 20.0 for Windows.

#### 3.2. Variable Measurement

The major variables included in the framework were past failure, entrepreneurial intention, perceived capability, entrepreneurial culture and entrepreneurial motivation. Past failure in the database was measured by asking the respondents whether they have sold, shut down, discontinued or quit a business they owned and managed in the past 12 months. Entrepreneurial intention refers to a person's propensity to start a new business and it was measured by asking the respondents whether they expected to start a new business within the next 3 years. Perceived capability was measured by asking the respondents whether they had the knowledge, skill, and experience required to start a new business. Entrepreneurial culture generally involves social acceptance of entrepreneurship and the presence of entrepreneurial role models [43,44]. It is measured with four items: 1. Most



people consider starting a new business a desirable career choice; 2. Those successful at starting a new business have a high level of status and respect; 3. You know someone personally who started a business in the past 2 years; 4. You often see stories in the public media and/or internet about successful new businesses. The first two items were used for social acceptance, the last two items for role models. Entrepreneurial motivation is measured by asking whether they are to take advantage of a business opportunity or they have no better choices for work (1 = opportunity; 2 = necessity). Past failure, perceived capability and entrepreneurial intention were dichotomous variables and scored as 1 = yes and 0 = no. Some control variables are included such as gender (0 = male; 1 = female), age and education. Previous research shows that men generally perform better in the perceived capability, risk tolerance and entrepreneurial intention than women [74]. Research on the link between gender and entrepreneurial motivation has yielded limited findings [74], e.g., male entrepreneurs are more likely to be driven by opportunity than female ones [64,75,76]. Age is considered as an antecedent of entrepreneurial intention, the older the entrepreneurs are, the lower entrepreneurial intention they will have [37]. Educational background is one of the main factors to increase individual positive attitudes towards entrepreneurship [77]. People with a higher level of education are more prepared to start a business [78], and those well-educated individuals usually have a higher chance of becoming opportunity-driven entrepreneurs [79].

### 3.3. Correlation Results

Table 1 presents the summary statistics and correlation results of the study sample for Mainland China and Taiwan. The mean entrepreneurial intention is, respectively, 28 percent and 32 percent. When decomposed entrepreneurs are sorted into those with past failures and those without it, 67.4 percent of these entrepreneurs with past failure report having future entrepreneurial intentions relative to the 25.4 percent of those who have not failed before in Mainland China. The figure in Taiwan is 75.3 percent and 26.3 percent. As far as control variables are concerned, we find that the average educational level of Taiwanese respondents is a little higher than that of Chinese respondents. Male respondents account for 50.6 percent in Mainland China, 49.3 percent in Taiwan. The average age for entrepreneurs is about 41 years in both economies. The data results show that most variables are significantly correlated with each other.

In addition, the variance inflation factors (VIF) for all our independent variables in two samples are estimated. Table 2 shows that all VIF values are below the strictest standard of 5, specifically values ranged from 1.016 to 1.195, which indicates that the variables do not suffer from multi collinearity.

**Table 1.** Means, standard deviations, and correlations.

Variable	1	2	3	4	5	6	7	8
1. PF	1.00 (1.00)							
2. EI	0.215 *** (0.276 ***)	1.00 (1.00)						
3. PC	0.064 *** (0.129 ***)	0.235 *** (0.235 ***)	1.00 (1.00)					
4. EC	0.019 (0.071 ***)	0.273 *** (0.298 ***)	0.227 *** (0.165 ***)	1.00 (1.00)				
5. EM	−0.020 (0.021)	−0.068 (−0.039)	−0.096 (−0.179)	−0.108 ** (−0.035)	1.00 (1.00)			
6. Age	−0.029 (−0.084 ***)	−0.233 *** (−0.130 ***)	−0.100 *** (−0.105 ***)	−0.096 *** (−0.043)	−0.084 (−0.012)	1.00 (1.00)		
7. Gender	−0.041 ** (−0.028)	−0.070 *** (0.079 ***)	−0.128 *** (0.077 ***)	−0.027 (0.013)	0.008 (−0.180)	−0.023 (−0.108 ***)	1.00 (1.00)	
8. Education	0.037 ** (−0.042)	0.172 *** (0.055 ***)	0.148 *** (−0.022)	0.116 *** (0.063 ***)	−0.147 *** (−0.062)	−0.430 *** (−0.371 ***)	−0.043 ** (−0.144 ***)	1.00 (1.00)
Mean	0.06 (0.08)	0.28 (0.32)	0.28 (0.26)	0.678 (0.6493)	1.58 (1.14)	41.86 (40.54)	0.51 (0.49)	3.02 (3.97)
SD	0.230 (0.272)	0.448 (0.465)	0.449 (0.437)	0.281 (0.266)	0.586 (0.346)	14.638 (12.573)	0.5 (0.5)	1.241 (1.147)

1. PF = past failure; EI = entrepreneurial intention; PC = perceived capability; EC = entrepreneurial culture; EM = entrepreneurial motivation. 2. Significance level: \*\*\*:  $p < 0.01$ ; \*\*:  $p < 0.05$ .

3. Taiwanese samples are presented in brackets.



**Table 2.** The results of collinearity diagnostics.

Variable	VIF (Mainland China)	VIF (Taiwan)
PF	1.037	1.020
PC	1.034	1.111
EC	1.057	1.195
EM	1.104	1.130
Age	1.087	1.091
Gender	1.016	1.092
Education	1.150	1.114

1. PF = past failure; PC = perceived capability; EC = entrepreneurial culture; EM = entrepreneurial motivation. 2. VIF = variance inflation factor.

### 3.4. Regression Results

As the dependent variables in the models were dichotomous and all of them were operationalized by a single measure, a logistic regression approach (instead of an ordinary least square analysis or a structural equation technique) was adopted to estimate the models. Tables 3 and 4 represent the estimation results based on the Chinese mainland and Taiwan samples separately.

**Table 3.** The mediating effects of PC and the moderating effects of EC (Mainland China).

Variable Model	EI M1	The Mediating Effects (EI) M2 M3		The Moderating Effects (EI) M4 M5	
age	−0.035 ***	−0.008 ***	−0.035 ***	−0.035 ***	−0.035 ***
gender	−0.317 ***	−0.566 ***	−0.212 ***	−0.306 ***	−0.314 ***
education	0.159 ***	0.036 ***	0.122 ***	0.134 ***	0.138 ***
PF	1.831 ***	0.478 ***	1.811 ***	1.999 ***	0.754
PC			0.982 ***		
EC				2.617 ***	2.423 ***
PF*EC					1.911 ***
$\chi^2$	349.106 ***	136.998 ***	469.925 ***	588.776 ***	597.940 ***

1. PF = past failure; EI = entrepreneurial intention; PC = perceived capability; EC = entrepreneurial culture. 2. Significance level: \*\*\*:  $p < 0.01$ .

**Table 4.** The mediating effects of PC and the moderating effects of EC (Taiwan).

Variable Model	EI M1	The Mediating Effects (EI) M2 M3		The Moderating Effects (EI) M4 M5	
age	−0.027 ***	0.020 ***	−0.034 ***	−0.028 ***	−0.029 ***
gender	−0.332 ***	−0.415 ***	−0.255 ***	−0.343 ***	−0.345 ***
education	0.012	0.023	0.08 ***	−0.028	−0.023
PF	2.249 ***	0.902 ***	2.166 ***	2.309 ***	0.914
PC			1.138 ***		
EC				2.844 ***	2.594 ***
PF*EC					2.189 ***
$\chi^2$	186.047 ***	59.064 ***	275.558 ***	349.227 ***	356.760 ***

1. PF = past failure; EI = entrepreneurial intention; PC = perceived capability; EC = entrepreneurial culture. 2. Significance level: \*\*\*:  $p < 0.01$ .

#### 3.4.1. The Mediating Effects of Perceived Capability

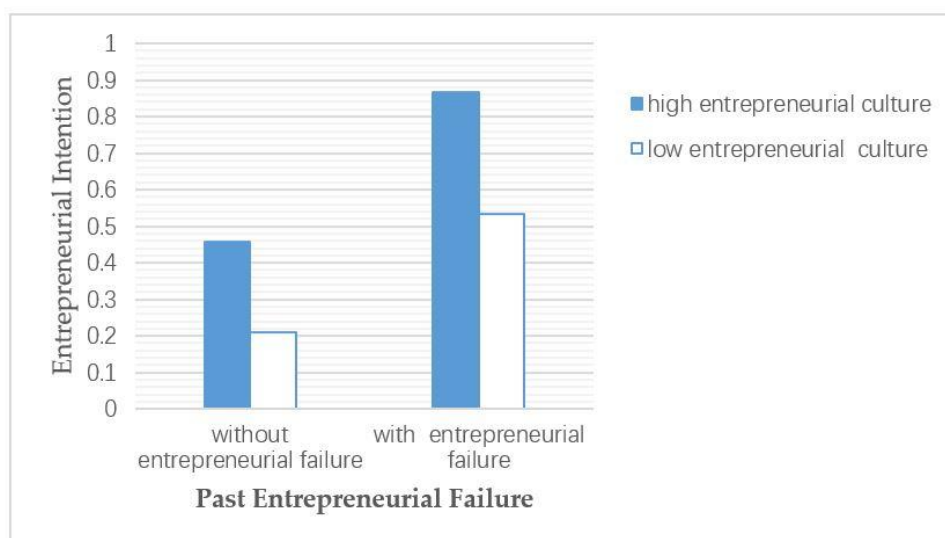
In the two tables above, all the  $\chi^2$  values indicate that the assumed model has an exploratory power. In order to determine the significance of mediation effects, the Baron and Kenny's steps were used [80]. Model 1 shows that past failure entrepreneurs ever experienced has a positive impact on their future entrepreneurial intention ( $\beta_C = 1.831$ ,  $p < 0.01$ ;  $\beta_T = 2.249$ ,  $p < 0.01$ ); H1 is supported. Model 2 suggests that past failure also positively affects perceived capability ( $\beta_C = 0.478$ ,  $p < 0.01$ ;  $\beta_T = 0.902$ ,  $p < 0.01$ );

H2 is supported. After incorporating the perceived capability into Model 3, it could be seen that the influence of past failure on entrepreneurial intention is still significant ( $\beta_C = 1.811, p < 0.01$ ;  $\beta_T = 2.166, p < 0.01$ ). These results suggest that past failure positively affects entrepreneurial intention through perceived entrepreneurial capability, and perceived capability partially mediates the relationship between past failure and entrepreneurial intention; H3 is supported.

We also reveal some noteworthy statistical results for the controls. Both age and gender exert a negative effect on entrepreneurial intention, that is to say, older individuals have lower intent for startup and women have lower intent than men in both economies. For Taiwanese samples, educational level exerts no impact on their entrepreneurial intention, while it does have a significant positive impact for Chinese samples.

### 3.4.2. The Moderating Effects of Entrepreneurial Culture

Similarly, all the  $\chi^2$  values indicate that the assumed model has an exploratory power. We firstly find that entrepreneurial culture has a direct and positive effect on entrepreneurial intention for both samples ( $\beta_C = 2.617, p < 0.01$ ;  $\beta_T = 2.844, p < 0.01$ ). We then examine the moderating effect of entrepreneurial culture; the coefficient of interaction item (PF\*EC) is significant in Model 5 ( $\beta_C = 1.911, p < 0.01$ ;  $\beta_T = 2.189, p < 0.01$ ), suggesting that the effect of past failure on entrepreneurial intention varies with different levels of entrepreneurial culture in both samples; H4 is supported. Figures 2 and 3 respectively depict the interaction histogram, showing that compared with those with no past failures, entrepreneurs with past failures would have stronger entrepreneurial intentions in the future. This relationship between past failure and entrepreneurial intention would be stronger in the context of high entrepreneurial culture than that in low entrepreneurial culture. Entrepreneurial culture takes a positive moderating role in both Mainland China and Taiwan.



**Figure 2.** The moderating effects of EC (Mainland China).

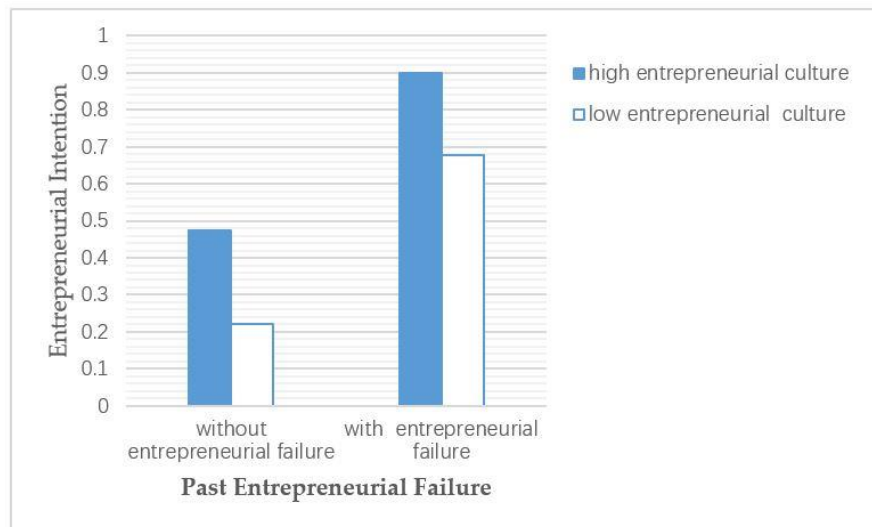
### 3.4.3. The Moderating Effects of Entrepreneurial Motivation

Since entrepreneurial motivation as a moderating variable is dichotomous and it has a large amount of missing data, we divide the samples into opportunity-driven group and necessity-driven group, trying to test the moderating effect on the relationship between past failure and future entrepreneurial intention separately. Specific analysis is shown in Table 5:

**Table 5.** The moderating effects of EM (Mainland China and Taiwan).

Variable	EI (Mainland China)		EI (Taiwan)	
	Opportunity	Necessity	Opportunity	Necessity
PF	0.737	1.810 **	1.910 **	2.457
age	−0.036 **	−0.001	−0.063	−0.602 **
gender	0.127	0.227	−0.229	−1.284 *
education	0.046	0.020	−0.261	0.172
$\chi^2$	307.034 ***		149.186 ***	

1. EI = entrepreneurial intention; PF = past failure; 2. Significance level: \*\*\*:  $p < 0.01$ ; \*\*:  $p < 0.05$ ; \*:  $p < 0.1$ .

**Figure 3.** The moderating effects of EC (Taiwan).

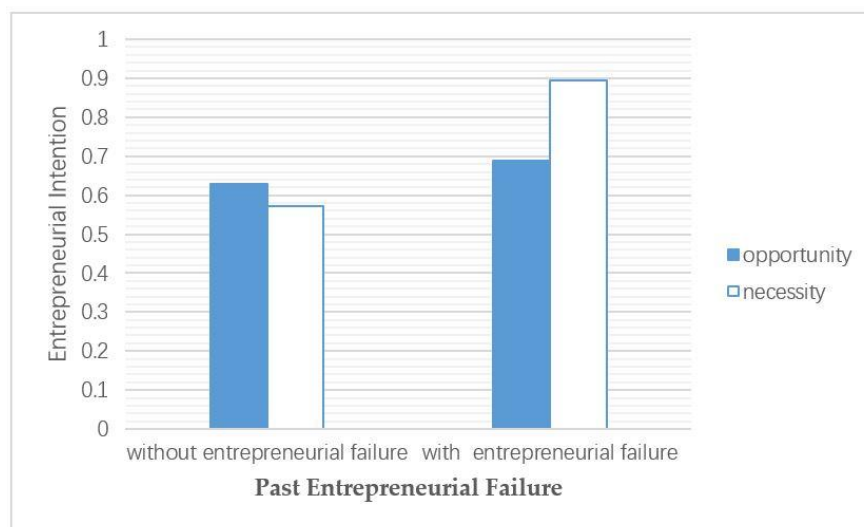
It can be seen that when Chinese entrepreneurs are motivated by necessity to start a new business, their past failure influences entrepreneurial intention positively and significantly ( $\beta_C = 1.810$ ,  $p < 0.01$ ); when they are motivated by opportunity, past failure has no effect on entrepreneurial intention ( $\beta_C = 0.737$ ,  $p > 0.1$ ). On the contrary, when Taiwanese entrepreneurs are motivated by opportunity, their past failure is positively linked to future entrepreneurial intention ( $\beta_T = 1.910$ ,  $p < 0.01$ ); when they are motivated by necessity, past failure has no effect ( $\beta_C = 2.457$ ,  $p > 0.1$ ). Figures 4 and 5 depict clearly the moderating effect of entrepreneurial motivation, proving that for entrepreneurs driven by necessity in Mainland China, their past failure promotes more entrepreneurial intention than for those driven by opportunity. Taiwan samples are just the opposite.

In order to verify further prior work on entrepreneurial motivation being largely directed by levels of economic status [16,70,73], we take a T-Test, shown in Table 6, to show how different the entrepreneurial intention would be in Mainland China and Taiwan under the condition of opportunity and necessity motivation respectively. The results suggest that Chinese samples are more likely to be necessity-driven entrepreneurs ( $0.60 > 0.45$ ,  $p < 0.01$ ), while those in Taiwan tend to be more opportunity-driven ( $0.64 > 0.26$ ,  $p < 0.01$ ).

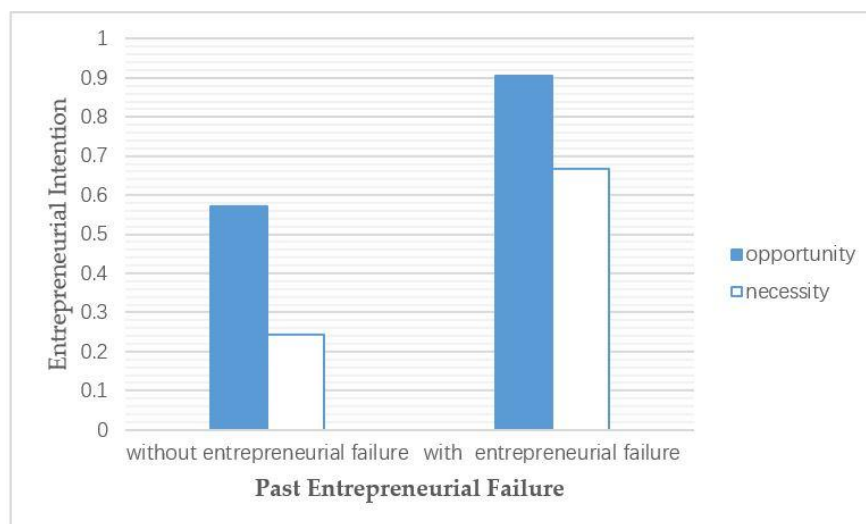
**Table 6.** Results of Independent Sample T-Test.

EM Group	Opportunity (EI)		Necessity (EI)		T	P
	M	SD	M	SD		
Mainland China	0.45	0.500	0.60	0.491	2.728	0.007 ***
Taiwan	0.64	0.484	0.26	0.443	5.185	0.000 ***

EI = entrepreneurial intention; EM = entrepreneurial motivation. 2. Significance level: \*\*\*:  $p < 0.01$ .



**Figure 4.** The moderating effects of EM (Mainland China).



**Figure 5.** The moderating effects of EM (Taiwan).

#### 4. Results

Our study compares the effect of business failure on individual entrepreneurs in Mainland China and Taiwan. All the hypotheses are supported and the results from empirical analysis suggest the following:

Firstly, age, gender and education are found to be closely associated with entrepreneurial intention, but these associations vary from regions. Older people and men usually have stronger intentions for enterprising activities in both Mainland China and Taiwan, complying with prior literatures [37,74]. However, education is quite different in the two regions; it actually has a positive impact in Mainland China yet no impact at all in Taiwan. This may be explained partly that average educational level for Taiwanese entrepreneurs is higher than that of Mainland China ( $M_T = 3.02$ ,  $M_C = 3.97$ ), and education may not be linked to entrepreneurial intention greatly in developed regions.

Secondly, our study reveals that past failure could promote an entrepreneur's intention to start a new business in the future. This verifies the opinion that failure is more recognized as a major source to learn, and entrepreneurs with more skills and knowledge prepare better for new ventures [21,22]. This finding applies to samples in both Mainland China and Taiwan.

Thirdly, perceived capability mediates partly the relationship between past failure and future entrepreneurial intention. Business failure does affect individual entrepreneurs in a positive way, and a key benefit of failure is to provide entrepreneurs with learning opportunities so that they could develop their knowledge and skills, and furthermore, increase their subsequent enterprising intent [27]. Similarly, Mainland China and Taiwan samples support the result.

Lastly, our study demonstrates the moderating roles of entrepreneurial culture and entrepreneurial motivation. As one of the contextual factors, entrepreneurial culture could not only boost the startup intention by itself but also establish a surrounding where those individuals who failed before are strongly encouraged in the pursuit of entrepreneurship. This is supported by Kibler, as he insists that only when an individual is embedded in where entrepreneurial activity is morally accepted or taken-for-granted, entrepreneurial failure could improve his or her certainty that startup is a beneficial career path [48]. We find the similarities of average level of entrepreneurial culture ( $M_C = 0.678$ ,  $M_T = 0.6493$ ) and the moderating effect in Mainland China and Taiwan (see Figures 2 and 3) implies that the two regions are culturally homogeneous.

Furthermore, we conclude that entrepreneurial motivation acts as a moderating role. It involves two things: (1) Entrepreneurial intention driven by motivation varies from samples. Chinese entrepreneurs are mainly driven by necessity while Taiwanese by opportunity; (2) Chinese entrepreneurs' past failures influence their entrepreneurial intentions positively and significantly, only when these individuals have no choice but starting their own ventures, say necessity-driven entrepreneurship; for Taiwan entrepreneurs, such influence does exist only when they identify and seize good opportunities, say opportunity-driven entrepreneurship. The two things agree on the linkage of motivation and economic status [16,71].

## 5. Discussion

In this article, we make a comparative study on the associations of past failure on individual entrepreneurs in Mainland China and Taiwan. The results show that in both Mainland China and Taiwan, entrepreneurs' experienced failures positively predict their planning to start a new firm in the future, and their perceived capabilities mediate the positive effect. This finding complies with the majority of existing literatures and pervasive entrepreneurial activities in practice as well. Entrepreneurial culture is found to play a similar role on individual entrepreneurs in Mainland China and Taiwan, while entrepreneurial motivation works contrarily in both regions.

### 5.1. Theoretical and Practical Implications

Our comparative study supports the existing literatures; one of the few theoretical contributions lies in the presence of entrepreneurial motivation. We view entrepreneurial motivation as one of many contextual factors rather than personal factors of entrepreneurs. Our motivation is actually closely related to the level of economic growth, while intrinsic or extrinsic motivation is self-related and determined by an entrepreneur's perceptions. Context-related motivation is categorized into opportunity-driven and necessity-driven, with the former mostly happening in developed countries while the latter in developing ones [16]. This complies with the framework on comparing Mainland China and Taiwan. We verify the moderating effect of entrepreneurial motivation and thus extend the previous works on the associations of past failure and subsequent entrepreneurship.

Our findings suggest some potential implications for entrepreneurs and policy makers in Mainland China and Taiwan. The paper firstly provides a path for entrepreneurs to improve their skills and startup intention, and that is, entrepreneurs can learn a lot from previous failure. Entrepreneurs should compete with the anti-failure bias in both psychological and business terms. Secondly, policy makers are suggested to build an atmosphere to enhance the ambitions of experienced entrepreneurs. For example, they can set more positive entrepreneurial role models and promote the social legitimacy of entrepreneurship. Additionally, we find more necessity entrepreneurship in Mainland China, which reminds public authorities to do more to help active entrepreneurship. Local governments

should make more attempts to support new firms in the field of funding, regulation, education and R&D transfer, and even some infrastructure and utilities.

## 5.2. Limitations and Future Directions

While the findings of this research present many useful results, several of the limitations must be noted. First, all the variables in our study, except entrepreneurial culture in the GEM database, are measured using a single item with a dichotomous scale. Too few response categories may loosely capture a respondent's attitude and produce more conservative statistical results [81]. Secondly, our study indicates that stronger entrepreneurial culture may predict more entrepreneurial intention and a more positive relationship between past failure and entrepreneurial intention. However, such conclusions do not imply that stronger entrepreneurial culture may always predict more successful entrepreneurship. This is probably because individuals in a highly entrepreneurial culture are simply more motivated to use their initiative and ingenuity in starting a new business [82]. Whether they are successful will be determined by institutions, resources and other factors [83], and these factors really deserve our future attention. Thirdly, study on Japanese samples deserves further consideration [25]. Our future study can compare Mainland China, Taiwan and Japan, examining the differences of entrepreneurial culture and motivation among the three economies and seeing how the differences work on individual entrepreneurs separately. Last but not least, crowdfunding on ine would be a general tendency for entrepreneurship; how failure on the platform would influence the next enterprising and how the platform would help to avoid the fear of failure would also be our future focus, and a comparative study would be recommended.

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