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Unraveling Interconnections: Analyzing the Impact of a Founder's Characteristics on Business Growth Strategy

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Abstract: This study examines the influence of founder characteristics on the selection of business growth strategies in companies undergoing an initial public offering (IPO). The research is based upon quantitative analysis of data from entrepreneur-led IPOs on the London Stock Exchange. The study investigates the impact of founder's work experience, external directorships, education, age, ownership, and the presence of a founder–CEO, on the choice between mergers and acquisitions (M&A) and research and development (R&D) as growth strategies. The results show that founders with a throughput functional background and extensive external directorships are more likely to adopt M&A as a growth strategy. Moreover, founders with higher education levels and a PhD are more inclined towards R&D investment. The findings also suggest that older founders are more likely to invest in R&D, whilst higher levels of ownership tends to deter R&D expenditure. Interestingly, the presence of a founder–CEO is associated with a lower likelihood of investing in R&D and a higher propensity for M&A, although these correlations are not statistically significant. These results shed light on the influence of founder characteristics on strategic decision-making during the IPO stage and provide implications for understanding the dynamics of business growth strategies in transitioning companies.

Keywords: entrepreneurship; research and development; mergers and acquisitions; strategy; decision-making; corporate governance

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1. Introduction

When a company is initially formed, it is typically privately owned, with shares being transferred amongst shareholders in private deals conducted discreetly. However, as a company grows and achieves success, there arises an opportunity to sell shares in the public market, thereby raising new capital to support future expansion [1]. This transition from private share ownership to public share ownership is known as an initial public offering (IPO) [2]. The IPO represents a significant milestone in a company's lifecycle [3], signifying the shift from being privately owned by a limited number of investors to becoming publicly owned, with shares being traded on a stock exchange.

The initial public offering (IPO) process encompasses a series of stages [3]. First, a company evaluation takes place, in which the prospective public entity (the issuer) collaborates with investment banks and underwriters to determine an appropriate valuation [4]. The company will engage the services of an underwriter that will support the issuer in readying itself for the offering. This will include deciding upon the optimal offering price. Registration is then undertaken, and a prospectus is submitted. These documents contain essential information about the issuer, including its finances, operations, risk exposure and allocated funds. The company is ultimately listed on the Stock Exchange, where the issuer's shares are officially available to the general public for the purposes of trading and investment.

To facilitate this transition from private to public ownership, a successful IPO requires careful navigation and substantial effort from company management. The offering must be made as enticing as possible to potential investors, who prioritize risk mitigation in their

investment decisions. Investors seek more than just a robust company with significant return potential; they also require strong leadership and management capabilities [5]. Often, the chief executive officer (CEO) is the company's original founder, possessing deep knowledge of the products, staff, and markets [6]. However, the founder may lack the necessary influence to attract investors [7] or the drive to maximize growth and profits [8]. This is especially the case if the need to maximize profits conflicts with the organization's existing operational culture developed by the founder over the preceding years [9,10]. In such cases, potential investors will wish to see evidence that a professional CEO with decision-making authority will be taking control of decision-making [11].

An IPO offers several potential additional benefits to a company. It provides an avenue for raising substantial capital to fund expansion, research and development (R&D), acquisitions, or debt repayment. 'Going public' also enhances the company's visibility and credibility, enabling it to attract new customers, partners, and employees [5]. Additionally, it provides an opportunity for early investors and employees to realize the value of their holdings by selling shares on the public market. However, an IPO also involves certain challenges and considerations. The IPO process can be time-consuming, costly, and complex, requiring extensive regulatory compliance and financial reporting. It exposes the company to increased scrutiny from investors, analysts, and the media. Moreover, there may be a degree of volatility and uncertainty in the stock price immediately after the IPO [12].

It is therefore important for companies considering an IPO to carefully assess their readiness, the prevailing market conditions, and the desired long-term objectives before proceeding with the offering [13]. Professional advice from investment bankers, legal experts, and accountants is often sought to navigate the complexities of the IPO process. Based upon this advice, a business growth strategy is then developed that will be attractive to investors.

A business growth strategy refers to a plan or set of actions implemented by a company to achieve sustained expansion and increased profitability. It involves identifying opportunities for growth and outlining the steps necessary to capitalize on these opportunities. Whilst growth strategies can relate to market penetration; market expansion; diversification; strategic partnerships/alliances; franchising/licensing; and operational efficiency, for firms passing through the IPO stage, the most likely business growth strategies are mergers and acquisitions (M&A) or research and development (R&D) [14].

M&A involves combining with, or acquiring, other companies in order to gain market share, access new markets, or leverage complementary strengths [15–17]. M&A can provide rapid growth opportunities, but it requires careful evaluation and integration to ensure success [18,19].

In contrast, R&D involves creating new products or improving existing ones to meet evolving customer needs [20]. It may include innovation and investment in technology or processes that enhance product offerings [21,22]. There is often high risk associated with R&D as a business growth strategy but also potentially greater potential returns on investment [23,24].

It is therefore important for a company to assess its goals, capabilities, and resources and the competitive landscape in which it operates when formulating a growth strategy. Strategies can be tailored to the specific needs and circumstances of each business, and they often evolve over time as market conditions change. The purpose of this paper is to consider the influence that the company founder has on the choice of the business growth strategy for companies transitioning through the IPO stage.

2. Materials and Methods

Previous studies have explored the theoretical links between the characteristics of the business founder, their suitability to be the CEO of the firm after the IPO stage [25], and how their characteristics may also impact upon the selected business growth strategy [14]. Using actual data available from public records, this paper will investigate how this theoretical position (Figure 1) is reflected in practice. A specific gap remains in our

knowledge regarding the entrepreneurial founders' influence upon the business growth strategy decision in threshold firms operating at the IPO stage.



Figure 1. Conceptual Model Relating Founder's Characteristics to Business Growth Strategy. Source: authors' own work.

This study reports on a quantitative study, based upon the philosophy of positivism [26] and taking a deductive approach [27]. The time-horizon for the data collection is longitudinal [28], as subsequent R&D and M&A actions are related back to influences at the time of the IPO stage.

To further investigate the model defined in Figure 1, data were collected on entrepreneurial IPOs that were floated on the London Stock Exchange (AIM market) over a defined 36-month period.

Companies that wish to be admitted to the London Stock Exchange are required to prepare a prospectus prior to listing. The function of the prospectus is to set out all of the information that has to be made public for investors who may wish to appraise and invest in the company. The detailed information makes the IPO prospectus a fundamental source document for this research. The majority of firm level data were acquired from Thomson One Banker, which is a comprehensive database combining global company information from many sources, including Datastream, Worldscope, Compustat, Extel, and First Call.

From an original population of 1207 potential IPOs during the sample period, companies falling into the following categories were excluded:

- Re-admissions and transfers;
- Investment trusts;
- Investment and acquisition vehicles;
- Spin-offs, de-mergers and equity carve-outs;
- Reverse takeovers and equity re-organizations;
- Companies outside of the UK;
- Missing prospectus;
- Those without a corporate governance system in place prior to IPO;
- Non-entrepreneurial companies.

After the application of the above exclusion policies, the remaining 208 companies were included in this study. From previous research [14], functional background, external directorships, formal education, age, and share ownership of the founder-CEO may influence the strategic choices made at the IPO transition from private to public ownership. The following hypotheses relating to a founder-CEO's characteristics (Table 1) were therefore proposed:

2.1. Dependent Variables

Two dependent variables were used, these being R&D intensity, which was measured as R&D expenditure per employee during the 48-month period following the IPO, and M&A intensity, which was determined as being the total quantity of M&A in the 48-month period following the IPO (or until the date of delisting).

Table 1. Hypotheses Investigated in this Research Study.

	Hypotheses
Hypotheses relating to the founder–CEO’s functional background	1a. A positive relationship exists between a founder with an output functional background and the intensity of R&D expenditures, and there is a negative relationship between a founder with a throughput functional background and the intensity of R&D expenditures.
	1b. A negative relationship exists between a founder with an output function experience and the intensity of M&A expenditures, and there is a positive relationship between a founder with a throughput functional background and the intensity of M&A expenditures.
Hypotheses relating to the founder–CEO’s external directorships	2a. A positive relationship exists between the founder’s past external directorships and the intensity of M&A expenditures.
	2b. A negative relationship exists between the founder’s past external directorships and the intensity of R&D expenditures.
Hypotheses relating to the founder–CEO’s education	3a. A positive relationship exists between a founder’s formal educational level and the intensity of R&D expenditures.
	3b. A negative relationship exists between a founder’s formal educational level and the intensity of M&A.
Hypotheses relating to the founder–CEO’s formal education	3c. A positive relationship exists between a founder with a PhD and the intensity of R&D expenditures.
	3d. A negative relationship exists between a founder without a PhD and the intensity of M&A expenditures.
Hypotheses relating to the founder–CEO’s age.	4a. A negative relationship exists between a founder’s age and the intensity of R&D expenditures.
	4b. A positive relationship exists between a founder’s age and the intensity of M&A expenditures.
Hypotheses relating to the founder–CEO’s share ownership.	5a. A positive relationship exists between a founder’s share ownership and the intensity of R&D expenditures.
	5b. A negative relationship exists between a founder’s share ownership and the intensity of M&A expenditures.
Hypotheses relating to the founder–CEO’s strategic choices.	6a. A positive relationship exists between the presence of a founder–CEO and the intensity of R&D expenditures.
	6b. A negative relationship exists between the presence of a founder–CEO and the intensity of M&A expenditures.

source: authors’ own work.

2.2. Independent Variables

The following independent variables were defined:

- Founder’s functional background was defined in output and throughput domains. Those founders with R&D and/or marketing/sales experience were assigned to the output functional category (value = 0), whilst those with production and operations; accounting/finance; legal; and/or general management experience were assigned to the throughput category (value = 1);
- Founder’s external directorships were defined as being the sum of external executive positions and board memberships held by the founder before IPO;
- Founder’s age was measured in years;
- Board composition was defined as being the proportion of external members expressed as a percentage.
- Using the Daellenbach et al. [23] method, education level was indicated on a five-point scale that considered the highest level of education attained by the founder (0 if a university degree was not held; 1 if an undergraduate degree was held, 2 if a master’s degree was held, 3 if an MBA was held, 4 if a PhD (or other doctorate) was held);

- A further ‘dummy’ variable was used to indicate if the founder held a PhD (1 if the founder held a PhD [or equivalent doctorate level qualification] and 0 if otherwise).

2.3. Control Variables

A firm’s growth strategy may be linked to the characteristics of a firm’s founders. Company and ownership characteristics that may possibly influence R&D or M&A decisions were considered. Controls are vital because founder characteristics often vary with firm attributes [29]. Using the approach and definitions previously established by Filatotchev and Piesse [30], the following control variables were considered:

- Firm size—measured as the value of the total assets based upon data from Thomson One Banker and to which a natural logarithm transformation was applied;
- Firm debt levels—measured as the leverage debt/common equity calculated using Thomson data, expressed as a %, and delayed by 1 year;
- Venture capital control—measured as the % of outstanding shares held by venture capitalists based upon data collected from IPO prospectuses;
- Past profitability—measured as the return on assets (ROA) delayed by 1 year;
- Capital expenditure—normalized by total sales.

The above dependent, independent and control variables were modelled as equations in which Equation (1) relates to R&D:

$$\begin{aligned}
 R\&D/employment = \alpha + \beta_1 founderfunctionalbackground + \beta_2 founderexternaldirectorship \\
 + \beta_3 founderage + \beta_4 foundereducation + \beta_5 founderownership + \beta_6 founderCEO \\
 + \beta_7 Venutventurecapital + \beta_8 Lnassets + \beta_9 Leverage_{t-1} + \beta_{10} ROA_{t-1} + \beta_{11} firmage \\
 + \beta_{12} Boardcomposition + \beta_{13} industrydummy + \beta_{14} numberofM\&A_{t-1} + \mu
 \end{aligned} \tag{1}$$

and Equation (2) relates to M&A:

$$\begin{aligned}
 NumberofM\&A = \alpha + \beta_1 founderfunctionalbackground + \beta_2 founderexternaldirectorship \\
 + \beta_3 founderage + \beta_4 foundereducation + \beta_5 founderownership + \beta_6 founderCEO \\
 + \beta_7 Venutventurecapital + \beta_8 Lnassets + \beta_9 Leverage_{t-1} + \beta_{10} ROA_{t-1} + \beta_{11} firmage \\
 + \beta_{12} Boardcomposition + \beta_{13} industrydummy + \beta_{14} R\&D/employment_{t-1} + \mu
 \end{aligned} \tag{2}$$

Notes: In Equations (1) and (2) above, $\beta_1 \dots \beta_{14}$ are the regression coefficients to be estimated.

3. Findings

Table 2 reports on the descriptive statistics and correlations for the variables used in the analysis. As this table shows, the mean annual R&D expenditure per employee for UK IPOs was GBP 20,000, and the quantity of M&A was 0.48. Average assets are GBP 32.1 million (ln assets equals 2.44). The mean firm age was 8.31 years. Moreover, founders usually owned a large proportion of shares after the IPO, with a mean of 22%. In contrast, venture capitalists owned 4%. Founders held an average of 2.56 board positions outside the company before the IPO. Some correlation coefficients between the two growth strategies and firm-level parameters, such as founder–CEO selection, are significant and have opposite orientations. Taken together, these descriptive statistics are consistent with expectations.

Table 2. Descriptive Statistics and Correlation for All Variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. R&D expenditure per employee	0.02	0.05	1													
2. Number of M&A	0.48	1.12	−0.07	1												
3. Ln assets	2.44	1.54	−0.18 †	0.27 †	1											
4. Leverage	1.80	35.23	−0.02	−0.02	−0.04	1										
5. ROA	−0.27	0.89	−0.34 †	0.10 †	0.38 †	−0.04	1									
6. Firm's age	8.31	5.47	−0.06	0.07	0.10 †	−0.05	0.11 †	1								
7. Venture capital ownership %	0.04	13.19	0.02	0.00	−0.02	−0.01	−0.02	0.09 *	1							
8. Founder's functional background	0.57	0.50	−0.00	−0.07	0.09 †	−0.07	0.04	0.03	0.11 †	1						
9. Founder's external directorship	2.56	4.14	0.04	0.20	0.14 †	−0.03	−0.01	−0.05	−0.05	−0.02	1					
10. Founder's age	45.99	11.94	0.06	−0.04	0.13 †	−0.04	0.02	0.05	−0.07	0.09 †	0.14 †	1				
11. Founder's educational level	1.20	1.47	0.13 †	−0.11 †	0.00	−0.04	0.02	−0.08 *	0.01	0.14 †	−0.10 †	0.11 †	1			
12. Founder's PhD degree	0.16	0.37	0.17 †	−0.09 *	−0.08 *	−0.02	−0.00	−0.03	−0.00	0.14 †	−0.11 †	0.12 †	0.84 †	1		
13. Founder's ownership %	0.22	18.23	−0.16 †	0.02	0.07	0.11 †	0.12 †	0.06	−0.21 †	−0.01	0.17 †	0.06	−0.15 †	−0.18 †	1	
14. Founder-CEO	0.55	0.50	−0.13 †	0.09 *	0.11 †	−0.04	0.08 *	−0.01	0.05	−0.13 †	−0.03	−0.19 †	−0.03	−0.11 †	0.14 †	1

Source: authors' own work. Notes: Observations = 747. Pearson's correlation coefficients were used for continues variables, and point biserial correlation coefficients were used for dichotomous variables. * denotes significant at 5% level; † denotes significant at 1%. VIF test was adopted to test collinearity amongst independent variables. All VIF values < 2.

Tables 3 and 4 report on the estimated coefficients. The results generally confirm assumptions made with regard to the endogenous choice of growth strategies and support some of the hypotheses with respect to the inter-relationships between founder characteristics and growth strategy, but with some specific variations being identified.

Table 3. Equation (1): Dependent Variable—R&D Expenditures/Number of Employees.

Variable	Model 1		Model 2	
	β	SE	β	SE
Ln assets	−0.0002084	0.0012005	0.0001717	0.0011987
Leverage t-1	−0.0000106	0.0000428	−0.0000117	0.0000426
ROA t-1	−0.0227786 ***	0.0026895	−0.0228153 ***	0.0026691
Firm's age	−0.0000448	0.0002801	−0.0001033	0.0002771
Venture capital ownership %	0.0004996	0.0119486	0.0015433	0.0118805
Board composition %	0.0218781 *	0.0105223	0.0222111 *	0.0104329
Financial sector	−0.0076013	0.0071843	−0.0091885	0.0070645
Information technology sector	−0.0043745	0.0037238	−0.00406	0.0037025
Founder's functional background	−0.001899	0.0031383	−0.0021709	0.0031124
Founder's past external directorship	0.0008081 *	0.0003781	0.0008383 *	0.0003759
Founder's age	0.0001809	0.0001316	0.0001624	0.0001309
Founder's educational level	0.0036113 **	0.0010592		
Founder's PhD			0.0178794 ***	0.0041336
Founder's ownership %	−0.0269733 **	0.0089447	−0.0251271 **	0.0089131
Founder-CEO	−0.0050354	0.0031837	−0.0042421	0.0031624
Number of M&A t-1	−0.0016511	0.0013103	−0.0018238	0.0012988
Constant	−0.0034249	0.0089078	−0.0025348	0.0088368
χ^2	160.98		169.9	

Source: authors' own work. Note: Number of firm-years observations: 747. Significance at 0.1%; 1%, 5% and 10% is denoted by ***, ** and * respectively.

Table 4. Equation (2): Dependent Variable—M&A Expenditures/Number of Employees.

Variable	Model 1		Model 2	
	β	SE	β	SE
Ln assets	0.1684558 ***	0.0363561	0.1706559 ***	0.0365829
Leverage t-1	−0.0001565	0.0013422	−0.0001834	0.0013444
ROA t-1	0.0360008	0.0889842	0.0229265	0.0890189
Firm's age	−0.2092518 *	0.0982082	−0.2292021 *	0.0980971
Venture capital ownership %	0.2100723	0.3744927	0.2383712	0.3752341
Board composition %	−0.0687032	0.3304916	−0.1061383	0.3302182
Financial sector	−0.0594043	0.2252567	−0.0137527	0.2232577
Information technology sector	−0.230129 *	0.1166275	−0.2231082 †	0.1168629
Founder's functional background	0.0158513 †	0.0087671	0.017008 †	0.0087373
Founder's past external directorship	0.0556451 ***	0.0116353	0.0568523 ***	0.0116507
Founder's age	−0.0077105 †	0.0041212	−0.0083576 *	0.0041272
Founder's educational level	−0.0435393	0.0333627		
Founder's PhD			−0.0169555	0.1319434
Founder's ownership %	−0.099586	0.2799929	−0.0544655	0.281214
Founder-CEO	0.090921	0.099857	0.0849039	0.0999202
R&D expenditures/no of employees t-1	−0.3884505	0.8698507	−0.4955797	0.8737373
Constant	0.4044011	0.2789776	0.3812168	0.2789224
χ^2	88.19		86.21	

Source: authors' own work. Note: Number of firm-years observations: 747. Significance at 0.1%; 1%, 5% and 10% is denoted by ***, * and † respectively.

3.1. Founder's Work Experience

Specifically, in Model 1 of Equation (2) (Table 4), the coefficient of founder's work experience was positive and statistically significant, suggesting that the founder's throughput functional background was positively associated with M&A. The confirmed hypothesis 1b

indicated that a founder with throughput functional background tends to adopt an M&A growth strategy in order to improve growth efficiency and avoid risks. The coefficient of founder experience was negative in Equation (1), indicating that those with an output functional background are more likely to invest in R&D. However, this was statistically insignificant. This test did not therefore support hypothesis 1a, but it did provide support for hypothesis 1b.

3.2. Founder's External Directorships

The impact of a founder's past external directorships on growth strategy was examined. The coefficient of founder's external directorships was positive and statistically significant in Equation (2), indicating that founder's past external directorships accelerated an IPO firm's development via M&A. In other words, the firms in the sample would adopt M&A as their growth strategy if their top executives had more external contacts. This result supports hypothesis 2a. Moreover, in Equation (1), the coefficients on a founder's past external contacts were also positive and statistically significant, indicating external ties have an important impact upon R&D activities. This result did not support hypothesis 2b and may therefore suggest that R&D is a strategy that requires interaction and the exchange of knowledge.

3.3. Founder's Education

The research considered the effect of the founder's education on growth strategy. In Model 1, the founder's education level was positively associated with R&D spending, suggesting that a more educated founder would tend to adopt R&D as a growth strategy following IPO. This association was statistically significant. In contrast, the influence of the founder's educational level on the intensity of M&A was negative, indicating that a more educated founder is less likely to select M&A as the preferred growth strategy after the IPO. However, this result was not significant at conventional levels. These results support hypothesis 3a, but not hypothesis 3b.

These results were further explained by Model 2, which examined the influence of education level. The coefficient concerning founders with PhDs was positive and statistically significant, suggesting that a founder with a PhD is more likely to invest in R&D. Such a result supports hypothesis 3c. However, the founder's PhD did not show a significant association with M&A spending and therefore did not support hypothesis 3d.

3.4. Founder's Age

The study then reflected upon the founder's age in terms of the choice of business growth strategy. Interestingly, the results indicate the opposite of hypotheses 4a and 4b. More specifically, in Equation (1), the coefficient of founder's age was positive, indicating that firms with older founders are more likely to invest in risky R&D. However, this result was not significant at conventional levels. By contrast, the coefficient of founder's age was negative and significant, indicating that firms with older founders would be less likely to decide to grow via M&A.

3.5. Founder's Ownership

The impact of the founder's ownership on corporate growth was examined. The coefficient of founder's ownership in Equation (1) was negative and statistically significant, indicating that firms with a higher level of founder share ownership tend to have lower R&D intensity. This result leads to a rejection of hypothesis 5a and suggests that founders with a large proportion of share ownership tend to avoid risky investment. The research failed to find evidence to support the negative relationship between founder's ownership and M&A strategic choices. More specifically, the coefficient of ownership in Equation (2) was negative but was statistically insignificant.

3.6. Founder's Investment in R&D

The results indicate that a firm with a founder–CEO is less likely to invest in R&D projects. In Equation (1), the coefficient of founder–CEO selection was negative, suggesting that a firm with a founder–CEO tends to invest less in risky R&D, but it should be noted that this is statistically insignificant. Furthermore, in Equation (2), the coefficient of founder–CEO selection was positive, indicating that a firm with founder–CEO tends to expand via merger and acquisition. However, once again, the correlation is statistically insignificant. The results did not therefore support hypotheses 6a and 6b.

3.7. Performance of Control Variables

In terms of the control variables, R&D has a negative relationship with previous performance (Equation (1)). This is consistent with the assumption that IPO firms may build their innovative capabilities only when they have sufficient financial resources. In addition, there was a negative relationship between the firm's age and M&A intensity. This may imply that newly listed firms generally lack the resources required to conduct mergers and acquisitions at the time of the IPO. However, this situation will change over time, at which point their focus may move to an M&A strategy.

It was also identified that M&A has a positive relationship with firm size (Equation (2)). This is consistent with the assumption that IPO firms may need to build new capabilities through innovation at the early stage, but their M&A activities will then increase as the firm grows.

Furthermore, R&D was also positively associated with board independence rate, indicating that external non-executive directors may bring in valuable resources to facilitate R&D. This result was consistent with the positive relationship between founder's external directorship and R&D expenditure.

Finally, the information technology sector was negatively and significantly associated with M&A intensity.

4. Discussion

Based upon the results for individual variables presented, there are several ramifications that need to be considered. Firstly, the research identified evidence that functional based preferences may occur in strategic decision-making. Previous research on this subject had mixed results [31–35]; however, this study has identified that founders with career experience in throughput functions generally prefer M&A compared to ones without this background. The explanation for this finding can be drawn from Hambrick and Mason's [36] perception argument—that functionally biased founders can create different cognitions and perceptions toward this environment.

Barker and Mueller [37] extend this argument and point out that executives may have similar perceptions of their firm's competitive environments but make alternative R&D or M&A decisions. Such different reactions can be attributed to executives' different value preferences, which are based upon their previous experiences. As a result, they suggest that it is too narrow to argue that functional biases on their own would produce such differences in perceptions, that strategy research should link an executive's functional background with their career experience, and that it is important to consider any linkages between career experience and strategic decision-making.

Tyler and Steensma [33] consider the notion that more technical careers and education inspire people to value innovation more highly. This research has extended the previous studies by Barker and Mueller [37] and Tyler and Steensma [33] by linking founder's career experience with firm's growth strategy selections. The reason that founders with output career experience consider R&D the primary strategy cannot be simply attributed to their different perceptions about the uncertain IPO environment compared with founders with a throughput background. Rather, founders make R&D investment decisions considering different values which are a function of their previous experience.

The results suggest that further consideration is required concerning the founder's attitudes toward risky investment, such as R&D. These results indicate that both the founder's ownership, and the presence of a dual founder–CEO role, have a negative impact upon R&D investment (although the effect of founder–CEO was statistically insignificant). R&D is a specific type of investment, in that its outcome is neither immediate nor certain. R&D expenditures may not result in any payoff, and they may translate into increased profits only after many years [38–40].

Firms at the time of being publicly listed are riskier than at any time in their history, as so much is being changed simultaneously. Much of their value resides in future growth prospects as opposed to being based upon past realizations of success, so it is the expectation of future success that determines the willingness of investors in the market to fund these firms. A high failure rate associated with R&D investment is commonplace. Entrepreneurial activities involve considerable investments [41], both financial and personal, so a failure usually means enormous losses to the entrepreneur. The failure of a newly listed firm greatly affects not only a founder's financial well-being and career opportunities but also potential investors' confidence about the company's capacity for growth. An entrepreneurial founder may therefore act conservatively by adopting a less risky growth strategy to avoid such failure.

Another possible explanation for such risk-averse behavior relates to the founder's original motivation for the IPO. Pagano et al. [42] conclude that in many cases companies may select to go public to enable founders to liquidate their assets, as opposed to strategically considering financing future investments. Thus, the underlying assumption is that the IPO is often only a mechanism for founders to sell their shares to the public. This short-term behavior can pressure IPOs to over-emphasize current earnings in order to attract profit-maximizing investors.

The failure of empirical tests to confirm the hypothesized positive relationships between founder's age and M&A intensity appears to be counterintuitive. In particular, results indicate that there is a negative and statistically significant relationship between a founder's age and their M&A expenditures, suggesting that young founders more often adopt M&A as a strategy to achieve growth. Previous studies have suggested several possible explanations; for example, some authors have indicated that the desire to undertake an acquisition ranked as one of the most important reasons for an IPO to occur [43]. For instance, Celikyurt et al. [44] suggest that in the case of a typical IPO firm, average expenditure on M&A significantly exceeds either investments or spending on research and development (R&D). The IPO therefore permits companies to follow an M&A strategy, rather than an R&D strategy, that would not otherwise be affordable, by providing a channel for the injection of the necessary capital (cash and publicly traded stocks) required to facilitate the desired M&A activities.

Despite their frequency in practice, many M&A based activities do not deliver the predicted financial benefits [45]. In fact, when considering stock value as a measure, as many as 70% of M&A-based activities fail to improve firm performance [46]. Some authors therefore hold that whilst M&A has the potential to produce positive outcomes, it is nevertheless a high-risk strategy. M&A failure may be caused by a variety of factors such as including a slow integration of the acquiring and acquired firms. M&A is therefore a complex and challenging strategy for top executives to implement and manage [47].

One management problem relates to how well a young IPO firm can integrate with a more mature acquired firm which often has a diverse culture, structure, and operating method [46]. Older founders tend to be risk-averse, and hence younger ones are more likely to take this approach and seek potential positive returns. This finding extends Hitt et al. [48]'s analysis by focusing on the higher level of M&A risk faced by young and fast-growing firms.

The strongest founder attribute associated with M&A was that of external contacts. Barney [49] points out that a company's competitive strategy is critically linked to its accumulated and available resources. That is, what a firm possesses would determine what it can accomplish. This finding contributes to a greater understanding of inter-

organizational relations and the implications of external networks. The results of this study imply that formal and informal networks can be a source of informational and social influences that together may influence the shaping of strategy.

Previous research has focused attention on social influences associated with founders and top executives [50,51]. This paper extends this work and suggests that the founder's external contacts contribute to IPO firms' merger and acquisition activities. This may be due to several factors. For example, active interaction between the founder and the external environment may convey best practices and information to other firms. Thus, founders may guard against threatening external challenges and acquire valuable resources that can be achieved via M&A instead.

The empirical results presented indicate that there is a positive relationship between a founder's social contact and the firm's R&D investment. One possible explanation can be drawn from social capital theory and recent developments of R&D research, as R&D should not only be considered the generation of new technology but also be treated as a firm's competence in exploiting and utilizing social capital [52,53].

The recognition of the second role of R&D suggests that the ability to exploit valuable resources and competence via learning within an industry will both affect technological opportunities and the ability to appropriate returns on R&D expenditure [54]. As a result, founders who develop social ties with external groups will gain access to a broader range of ideas, wisdom, resources, and opportunities than those who are restricted to a single one. These ideas and opportunities motivate R&D spending because such social ties generate links between people with a variety of skills, information, and experience.

5. Conclusions

In summary, this study provides valuable insights into the influence of founder characteristics on strategic choices after the IPO stage of firm development. The findings underscore the importance of considering founder attributes, such as functional background, external contacts, ownership, and the presence of a founder-CEO, in understanding the selection between M&A and R&D strategies.

The research contributes to our understanding of how founder characteristics shape strategic decision-making and offers implications for both theory and practice in the field of entrepreneurship and strategic management. Based on the insights provided by this research, founders should consider how their functional background (throughput- or output-oriented) is influencing their natural inclination towards M&A or R&D strategies respectively. If they are looking to pursue M&A, they should also recognize the importance of building and maintaining external contacts, as these can provide links to valuable insights and resources. However, if they are highly educated, they may have a predisposition towards R&D strategies but should remain open to considering M&A if it aligns with business goals.

Founders should understand that age and risk tolerance may impact strategic choices, with younger founders being more inclined to take the risks associated with M&A, whilst older founders might prioritize stability and lean towards R&D. Founders holding a significant portion of company shares should be aware that this could influence their willingness to take risks, particularly in R&D, and that it is important to strike a balance between cautious decision-making and the need for innovation.

The findings from this research can be linked to the three classic generic strategies proposed by Porter [53,55], i.e., cost leadership, differentiation, and focus. Founders with a throughput functional background are found to prefer M&A, which would indicate a cost-focused strategy, as it can lead to economies of scale and operational efficiencies. The negative association between a founder's ownership and R&D intensity suggests that higher ownership leads to avoiding risky investments, which also aligns with a cost leadership approach.

In terms of differentiation, highly educated founders' preference for R&D can lead to unique products or services, setting the company apart from its competitors. External

contacts could also bring diverse insights into the company's decision-making processes, which would support a differentiation strategy by enabling the company to offer distinctive value to customers.

The negative relationship between a founder's age and M&A could indicate a focus strategy with younger founders being more inclined to focus on specific market segments via M&A activities.

There are limitations to the study in that only 208 companies passing through the IPO stage were considered, and that all of these were related to the London Stock Exchange. It is therefore possible that with a larger data sample and/or considering different stock markets the findings may have been different. Furthermore, we needed to exclude several types of company from the study, as detailed in Section 2. If we were to widen the research in the future to consider these other types, then the findings may also vary. Finally, as the hypotheses were theory driven, we only considered certain founder characteristics. Had we considered other characteristics, we might have discovered additional relationships between founder characteristics and the business strategies that they subsequently selected.

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