

# The Relationship between Initial Conditions and Organizational Survival: An Empirical Examination of Taiwan's Securities Firms

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**Abstract**—Startup firms usually have lower survival probabilities. For startup firms, initial founding conditions are intrinsic characters that may directly influence their survival probabilities. This study aims to examine the effects of initial conditions on a new business's survival probability, using a sample of Taiwan's securities firms. We adopt event history analysis to explore the relationship between survival probability and initial conditions, including initial scale, entry timing, and equity network support at founding. Empirical results support all hypotheses.

**Index Terms**—Initial condition, survival probability, securities industry.

## I. INTRODUCTION

Survival is one of the important goals for firms. From their establishment, firms must strive for survival. Especially for startup firms, survival is a severe challenge in their early stage of development. Prior studies indicate that startup firms are quite likely to fail. 38% of startup firms live to age 5, 65% of 10 year-old firms live to age 15, and 82% of 50 year-old firms live to age 55 [1]. Many organizational ecology studies also found lower survival rates for nascent organizations [2].

The "liability of newness" viewpoint to explain high failure rates of nascent organizations [3]. He argued that startup firms, often with limited resources, must learn or create new social roles, and they lack important, stable external constitutional linkages, and thus have high failure rates.

If startup firms must strive for survival from establishment, founding conditions may influence their survival rates. Hence whether different initial conditions will lead to different survival rates for startup firms is an interesting question. According to an organizational imprinting viewpoint, organizational and environmental features at establishment have lasting effects on firms' behaviors. Therefore firms founded at different time periods will probably have different survival rates [4].

This study thus pays special attention to the effects of several initial conditions on survival. It analyzes Taiwan securities firms and investigates the effects of organizational conditions.

## II. HYPOTHESIS

### A. Initial Scale

Startup firms often face survival pressures. Researchers argue that scale is closely associated with survival [5], and that small firms face greater survival pressure than large firms [6]. The initial scale especially has significant influences on survival [7]. Firms with large initial scales have more financial resources to buffer environmental shocks. Moreover, large firms often have greater bargaining powers in raising funds and recruiting qualified employees [6]. Benefiting from the advantages associated with a substantial founding scale, large firms may have better survival chances.

Environmental selection processes also favor large firms. Large firms often have strong inertia and exhibit higher degrees of stability. Since environment selection processes often favor stable organizations, large firms are more likely to survive [2]. In addition, larger firms are often viewed by key external constituents as more reliable and thus can attain higher legitimacy that can attract constituents, such as customers and suppliers to build exchange relationships with them. Since large firms are easier than small to establish solid exchange relationships with existent social actors and gain legitimacy [8], firms with large initial scales will have higher survival rates.

Hypothesis 1: Firms with large initial scales will have higher survival rates than those with small initial scales.

### B. Entry Timing

Effects of entry timing on survival can be analyzed in terms of first mover advantages. First mover advantages come from the early establishment of brand reputations, the accumulation of experiences, the attainment of scarce resources [9], and the early occupation of better market niches [10]. These factors give early entrants better survival chances. Therefore we propose the following hypothesis:

Hypothesis 2: Early entrants have higher survival rates

### C. Corporate Venture Capital

According to [3], startup firms' low survival rates result from, on the one hand, that they must compete with existent firms for establishing exchange relationships with suppliers and customers and, on the other hand, that they must learn new roles in business systems. Due to easier relationship building and experience learning, startup firms begun by existent firms may have higher survival rates.

Corporate-ventured startup firms can obtain many advantages from their relationships with corporate sponsors.

First, corporate-ventured firms can obtain financial assistance and operation experiences from providers [11]. Financial assistance from corporate sponsors enhances startup firms' abilities to cope with environmental turbulences; operation experiences from venture providers help startup firms pass through early periods of instability. Thus corporate-ventured startup firms may have higher survival rates.

Second, startup firms can establish exchange relationships with their corporate venture providers, and avoid competition with existent firms for establishing exchange relationships with unknown others. Moreover, specific social roles, such as supplying certain materials or providing certain functions, will be transferred from corporate venture providers to startup firms, thus saving resources deployed in trying and learning new roles. We suggest the following:

Hypothesis 3: Corporate-ventured startup firms would have higher survival rates than independent startup firms.

### III. METHODOLOGY

This study adopts Taiwan's securities firms as research samples for the following reasons. First, this can avoid influences of inter-industry differences in technology and environment conditions on survival. Second, the operation domains of securities firms in Taiwan are legally restricted, and their survival will not be influenced by business diversification. In Taiwan, the securities industry can be traced back to the establishment of the "Security and Exchange Commission (SEC)", placed under the Ministry of Economic Affairs, in 1960. In 1961, Taiwan Stock Exchange Corporation (TSEC) was funded by various private and state-owned enterprises, and securities trading began. In 1988, Taiwan's securities industry started to liberalize, and intense competition has emerged since then.

The Taiwan's securities industry was deregulated in 1988, and intense competition has emerged since then. We selected firms established between 1962 and 2000 as samples. The year 2000 was selected as the observation endpoint because this date marked the entry of Taiwan into the World Trade Organization (WTO), causing the securities industry to experience a wave of mergers and acquisitions. The number of securities firms that existed from 1962 to 2000 is 442, 20 of which were dropped from the sample because of missing values for firm variables. The number of securities firms that exited the industry is 266, 2 of which were also excluded because of missing values. Thus the final effective sample includes 422 firms, of which 264 firms disband. The rate of exit is 62.6%.

*Dependent Variable.* The hazard rate is defined as the probability of the occurrence of an event within a particular year for the risk set at that year. This article adopts Cox proportional hazard model [12]. Here the event is defined as the dissolution of a firm. The event will be coded as 1 in case of dissolution and the duration is measured as the years from birth to death. The event will be coded as 0 is the firm is still alive in 2000 and the duration is measured as the years from birth to 2000.

*Independent Variables.* Initial asset ( $Lnasset_i$ ) is measured as the natural logarithm of firm  $i$ 's initial founding assets.

Entry timing ( $Entrytiming_i$ ) is measured as firm  $i$ 's founding year minus 1962. Corporate venture capital ( $CorpVen_i$ ) is coded as 1 if firm  $i$  has institutional investors; as 0 otherwise.

Control variables. This study incorporates four control variables. Industry growth rate at founding ( $FoundingGrowth_i$ ) is measured as "transaction value of the stock market at firm  $i$ 's founding year, minus the transaction value of the stock market in the previous year" divided by the transaction value of the stock market in the previous year. Industry regulation status at founding ( $Deregulation_i$ ) is measured as 0 if firm  $i$  was founded before 1988; as 1 otherwise. Average industry growth rate during firm  $i$ 's existence ( $AvgIndugrow_i$ ) and competitive density ( $Density_{i,t}$ ), a time covariate variable, measured by the number of firms in the securities industry as firm  $i$  is  $t$  years old.

### IV. RESULTS

Table I lists the descriptive statistics and correlation coefficients of all variables.<sup>1</sup> In Table I, correlation coefficients of  $Deregulation_i$  to  $Entrytiming_i$  and  $AvgIndugrow_i$  are .850 and -.816 respectively. The collinearity problem among these variables does not exist after collinearity tests.

TABLE I: DESCRIPTIVE STATISTICS AND CORRELATION COEFFICIENTS<sup>A, B</sup>

	Mean	s.d.	1.	2.	3.	4.	5.	6.
1.FoundingGrowth <sub>i</sub>	.1065	3.084E-02	1.000					
2.Deregulation <sub>i</sub> <sup>c</sup>	.9299	.2557	-.691	1.000				
3.Lnasset <sub>i</sub>	19.9727	1.4522	.206	-.480	1.000			
4.Entrytiming <sub>i</sub>	29.4774	6.1139	-.685	.850	-.459	1.000		
5.CorpVen <sub>i</sub> <sup>c</sup>	.1244	.3305	-.064	-.272	.413	-.144	1.000	
6.AvgIndugrow <sub>i</sub>	.5539	3.6336	.677	-.816	.360	-.656	.062	1.000

a. N=422

b. Absolute values greater than or equal to 0.144 are significant at p<.05 level

c. Nominal scale

TABLE II: COX-REGRESSION RESULTS<sup>A, B, C, D</sup>

Variable and (Expected direction)	Model 1	Model 2	Model 3
$Lnasset_i$ (-)	-.3594***	-.3613***	-.3420***
(Hypothesis 1)	(.0886)	(.0905)	(.0882)
$Entrytiming_i$ (+)	.1382*		.1689*
(Hypothesis 2)	(.0865)		(.0849)
$CorpVen_i$ (-)	-1.0084*	-.9393*	-1.1302*
(Hypothesis 3)	(.5345)	(.5296)	(.5343)
$FoundingGrowth_i$ (-)	-14.6679**	-21.3436***	-18.0218***
	(5.5586)	(5.2625)	(5.5659)
$Deregulation_i$ (-)		-7.0565***	-7.8988***
		(1.3696)	(1.4273)
$AvgIndugrow_i$ (+)	-4.5794***	-5.3070***	-4.9620***
	(.5951)	(.5826)	(.5987)
$Density_{i,t}$ (+)	.0086**	.0048*	.0090**
	(.0033)	(.0021)	(.0033)
Sig.	.0000	.0000	.0000
Chi Square	77.624	76.338	78.038
-2Log likelihood	2685.876	2677.231	2673.114

a. Initial -2Log likelihood=2902.696

b. N=422

c. The number in parentheses is standard deviation.

d. \* <.05, \*\* <.01, \*\*\* <.001

Table II lists Cox regression results. Significant support for hypothesis 1 in models 1, 2, and 3 denotes that larger initial scales are associated with higher survival rates. Hypothesis 2 is supported significantly in models 1 and 3 respectively. Hypothesis 3 also receives supports in models 1, 2, and 3. Control variables are significant in all models.

#### V. DISCUSSION AND IMPLICATIONS

The empirical results support our viewpoint that organizational founding conditions have significant impacts on organizational survival. Firms established at a high growth period have higher survival chances [13]. Evidences from Taiwan's securities industry echo [13]'s viewpoint. Firms founded at a high growth period can obtain more resources and opportunities that help them pass through the liability of newness in the early stages. Though subsequent industry growth after establishment indeed contributes to resource acquirement, this study shows significant influences of growth rates at founding on survival by controlling average industry growth rates over a firm's whole live. This is a point worthy of attention for startup firms.

As for entry timing, results show the positive effect of early entry on survival. Taiwan's securities industry, though experiencing deregulation that brought fierce competition, did not face tremendous changes in technology or market segmentations. Thus early entrants can occupy better niches, establish brand reputations, and accumulate experiences to enjoy temporary monopoly positions [14]. Early entrants may also create buyers' switching costs to get a better competitive position, and accordingly enhance their survival chances.

Firms established with corporate venture capital have higher survival rates. For startup firms, the existence of equity relationships with other firms is an important resource legitimizing their activities. Building inter-organizational relationships has been viewed by entrepreneurs as a strategic action to improve competitiveness [15]. Through these relationships, startup firms can acquire market information and decision experiences [16]. Therefore, founders may establish startup firms through cooperate ventures in order to exploit existent relationships and enhance survival chances.

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