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CONTENTS

Page

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FINANCIAL DISTRESS AND RESTRUCTURING BY LIFE CYCLE IN VIETNAMESE FIRMS

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The paper examines the influence of financial distress on restructuring by life cycle and the recovery of Vietnamese firms by Logit regression model with random effect. The study found that financial distress may take place at any stage of the life cycle especially during times of decline. The research results show that financial distress make companies enhance restructuring their managerial restructuring, reducing investing activities and laying off employees. As it matures, a firm with financial distress is less likely to engage in M&A restructuring. Restructuring through investing activities reduction brings about recovery to companies in distress, but the company's recovery is less affected by its life cycle.

Keywords: *Life cycle, logit, financial distress, restructuring.*

1. Introduction

Vietnamese firms have many chances for integrating with regional and international countries, approaching international capital markets in the process of globalization. However, with the characteristics of a developing economy, most Vietnamese firms are small and medium-sized so their competitiveness is lower, and the capital market is incomplete so firms can easily face financial distress. Financial distress is a situation where cash flow of a firm is insufficient to cover current obligations (Wruck, 1990). Distressed firms could recognize the consequences of inappropriate financial decisions, so they could propose strategies to restructure their firms. However, corporate restructuring strategies need to be carefully selected as they depend on each stage of corporate life cycle (Pashley and Philippatos, 1990). In Vietnam, almost researches have not yet combined life cycle theory with the analysis of the relationship between financial distress and restructuring strategies. The paper wants to know whether financial distress affects on the restructuring strategies of Vietnamese firms. How are restructuring strategies used by financial distressed firms in relation to corporate life cycle? Do restructuring strategies recover to financial distressed firms. The paper will answer these questions by analyzing data samples of 526 listed firms in Vietnam in the period from 2005 - 2016 to study the impact of financial distress on restructuring strategies in relationship with corporate life cycle; and the likelihood of recovery for firms.

2. Theory framwork and literature review

2.1. Theory of corporate financial distress and corporate restructuring

The term financial distress is introduced in trade off theory of capital structure. This theory explains the benefits of using debt in a firm's capital structure to increase firm value due tax shield benefits. However, the risk can occur when the operating income of a firm is not able to pay the financial obligations, then a firm will face financial distress. Corporate financial distress can be described various situations that a firm has difficulty in financial

ISSN 1859-3666

problems (Ross et al., 1999; Altman and Hotchkiss, 2006): failure, insolvency, default and bankruptcy. *Failure* is a situation where cash flow of a firm is insufficient to cover current obligations (Wruck, 1990). *Insolvency* term is argued by Shrader and Hickman (1993) when a firm's total assets are less than its financial obligations. *Default* is the time when a firm violates the terms of the credit agreement (Altman and Hotchkiss, 2006) and the worst situation is that the firm files for bankruptcy. Therefore, financial distress is a broad term describing the various financial difficulties that a firm faces during its operations. Financial distress may occur at any time during the life cycle of a firm if it does not meet financial obligations.

Corporate restructuring is defined as a process of changing, rearranging, and reorganizing of a firm to improve and enhance operational efficiency, corporate restructuring based on the firm's later mission, vision, and strategic direction. Wruck (1990) finds that there are changes in corporate organizations, such as: replacement in top management, restructuring operations or Mergers and Acquisitions of a firm when in financial distress. These corporate restructuring strategies aim to improve and enhance firm performance.

2.2. Life cycle theory of a firm

According to Penrose (1952); Posey (1961), the life cycle of a firm is the same as that of a human biological cycle, which includes stages of development similar to those of living organisms. The life cycle of a firm has unique characteristics, differs in each stage of development, organizational strategy and also varies among industries of firms. Most of later studies research the development of the life cycle theory, suggest the firm's lifecycle consists of four stages: birth, growth, maturity and decline. Firms in the birth stage owned by a group of founding shareholders, and with highly concentrated ownership power. The birh firms have just introduced their products to market. According to Miller and Friesen (1984), the firm's business risk at birth stage is very high, its cash flow is low and slow but operating costs are very high; so the firm's net cash flow in birth stage is usually negative. In the growth stage, there is a distinction between shareholder ownership and management power, managers have more decision making responsibility in a firm. However, firms in growth stage still have to make efforts in the competitive market, so the business risk is still high in this stage. Firms in the maturity stage have a stable position in the market, the net cash flow has been positive, they try their best to maintain their market share and improve their performance. In the decline stage, the demand for the firms'products decreased significantly, their operating cash inflow are not enough to pay for payments. Each stage in the life cycle of a firm has unique characteristics and different difficulties. One of these difficulties is financial distress during their operation.

2.3. Financial distress and restructuring strategies

The managerial restructuring strategy refers to the replacement of managerial personnel at the executive board when a firm occurs financial distress (Denis and Kruse, 2000; Sudarsanam and Lai, 2001; Kam et al., 2008; Koh et al., 2015). Incompetent managers can make wrong decisions, causing loss to the business. They must be replaced by new management teams to re-evaluate the cause of financial distress, reorient and implement strategies to recovery the firms. Operational restructuring strategy aims to change firm's operational direction by pursuing strict cost reductions, reducing overheads, such as: reducing investment (Sudarsanam and Lai, 2001; Koh et al., 2015) or laying off employees (Kang and Shivdasani, 1997; Koh et al., 2015) when facing financial distress. Healy et al. (1992), Clark and Ofek (1994), Sudarsanam and Lai (2001), Kam et al. (2008) find evidence that when firms face financial distress, they tend to conduct M&A (Merger and Acquisition) with another firm. Healy et al. (1992) find that most of M&A deals support firms to improve the ratio of operating cash flow divided by total assets compared to other firms

ISSN 1859-3666

in the same industry. Kam et al. (2008) find that the market reacts positively to announcements of M&A in case of non-SOE distressed firms. These studies show that firms often act when facing financial distress by corporate restructuring strategies.

2.4. The impact of financial distress, lifecycle on corporate restructuring strategies

According to Miller and Friesen (1984), Pashley and Philippatos (1990); life cycle is one of the factors affecting the choice of restructuring strategies and the likelihood of recovery for firms. Miller and Friesen (1984) argue that firms in birth stage have a high ownership concentration, the managers are also the owners. Therefore, these firms have less external pressure for a change in management when facing financial distress. But in later stages, the ownership structure is more complicated, the capital structure uses debt. The separation of ownership and management rights also emerged. At this time, managers are likely to be fired when they do not have enough operating capacity and the firms must replace new managers under pressure from creditors, blockholders to ensure capital support from them. In addition, Kang and Shivdasani (1997) find that the probability of replacing senior managers and laying off employees will increase with the ownership by the firm's main bank and other blockholders. Therefore, firms in distress are likely to use managerial restructuring and laying off employees in the later life cycle stages. Koh et al (2015) find that laying off employees is used throughout the lifecycle stages when firms face financial distress but these authors find no evidence of the relationship between life cycle theory, reducing investments and financial distress. However, there are no prior studies exploring M&A as one of restructuring strategies when researching with financial distress and corporate life cycle. In addition, prior studies are mostly investigated in samples of developed countries, healthier financial markets than the economy in Vietnam. Meanwhile, M&A activities in Vietnam were only carried out from 2000.

2.5. The likelihook of recovery from corporate restructuring strategies

Using a 2-year period to test financial distress, Koh et al (2015) find reducing investment activities are associated with recovery for all firms, but managerial restructuring and laying off employees are ineffectual. Denis and Kruse (2000) also find that firms in distress engaged in operational restructuring strategies, such as: cost reduction, laying off employees decrease their chance of survival. The results of Clark and Ofek (1994) show that the target firms have negative operating income and their performance decrease after conducting acquisition deals. Kam et al. (2008) find that the market reacts negatively to announcements of M&A in case of SOE distressed firms. Therefore, not all corporate retructuring strategies will be effective. The similarity in most studies is that the authors do not investigate the likelihood of recovery from corporate restructuring strategies in relation to life cycle.

3. Data and research methodology

3.1. Description of data

The paper uses the sample of Vietnamese non - financial listed firms, for the period from 2005 to 2016. This timeline is selected to ensure a long enough time for defining life cycle stages, observing completed transactions of M&A and this is minimum timeline to observe the likelihood of recovery. Firms are classified according to the ICB[1] (Industry Classification Benchmark). The paper excludes firms with insufficient observational data. Therefore, the final sample of this paper consits of 526 firms. The market data and financial data of firms are collected from database https://vietstock.vn, M&A deals is taken from Zephyr data. In order to mitigating the effect of outliers, data is subtracted by 1% (winsorized) at each tail of distribution.

1. ICB (Industry Classification Benchmark) is an industry classification for firms launched by Dow Jones and FTSE. The paper excludes telecommunications industry due to insufficient observations.

ISSN 1859-3666

3.2. Research methodology

In order to accomplish the objectives and answer research questions, the paper is based on empirical methods have been applied in the paper of Koh et al (2015) to investigate the impact of financial distress, lifecycle on corporate restructuring strategies; and the likelihood of recovery for firms.

Model 1: Investigating the impact of financial distress, life cycle on corporate restructuring strategies. The regression model is used as follows:

$$Restructuring_{it} = \alpha_1 + \alpha_2 Birth_{it} + \alpha_3 Growth_{it} + \alpha_4 Mature_{it} + \alpha_5 FD_{it} + \alpha_6 Birth*FD_{it} + \alpha_7 Growth*FD_{it} + \alpha_8 Mature*FD_{it} + \alpha_9 TobinsQ_{it} + \alpha_{10} LnAsset_{it} + \alpha_{11} Institutional_{it} + \alpha_{12} Volatility_{it} + \alpha_{13} Return_{it} + \alpha_{14} Leverage_{it} + \alpha_{15} CashFlow_{it} + \varepsilon_{it} \quad (1)$$

The estimation results of model (1) answer the first two questions of the paper.

$Restructuring_{it}$ is a dummy variable takes on the value 1 if the distressed firm uses restructuring strategy at the time t faces financial distress and zero otherwise. The restructurings include managerial restructuring (CEO); operational restructuring strategies, such as: reducing investing activities (INV), laying off employees (EMP); and M&A restructuring (M&A). Thus, model (1) is used 4 times corresponding to each restructuring strategy. CEOit denotes managerial restructuring, takes the value 1 if a firm has replaced one of its top management during the financial distress period (year t) in distress and zero otherwise. The paper excludes CEO changes due to illness, death or retirement.

INV_{it} denotes reducing investing activities.To measure INV, the paper calculates the average value of net investment operating cash flow of firms in the same industry according to the observed years. After that, the paper compares the decline in the firm's net investment operating cash flow with industry mean.

$$INV_{it} = \begin{cases} 1, & \text{if the net investing operating cash flow of distress firm in year t (in distress) is less than the industry mean} \\ 0, & \text{zero otherwise} \end{cases}$$

EMP_{it} denotes laying off employees. To measure EMP, the paper calculates the average of the number of employees of firms in the same industry according to the observed years. After that, the paper compares the decline in the number of employees with industry mean. Labor data is collected from annual reports.

$$EMP_{it} = \begin{cases} 1, & \text{if the number of employees of distress firm in year t (in distress) is less than the industry mean} \\ 0, & \text{zero otherwise} \end{cases}$$

$M\&A_{it}$ denotes Merger and Acquisition restructuring strategy. In the M&A deal, the paper considers either target firm or acquiring firm in sample Vietnamese firma. M&Ait takes the value 1 if the distress firm i in year t (in distress) has successfully traded M&A deal, and zero otherwise.

FD is the dummy variable for a distressed firm. The paper is based on KMV-Merton model of Merton (1974); Bharath and Shumway (2008) to investigate the fluctuations of the market value of the firm's assets. At the maturity, if the market value of firm's assets is less than its debt value, the firm will face financial distress (Shrader and Hickman, 1993). The value of the debt maturing is known as the "financial distress point". d is the distance to financial distress point, calculated as follows:

$$d = \frac{\ln\left(\frac{V}{D}\right) + (\mu - 0.5\sigma_V^2)T}{\sigma_V\sqrt{T}}$$

V is the market value of firm's assets (market equity plus book value of debt). D is the book value of debt. T is the maturity time of debt. μ is the instantaneous expected return on firm's assets. σ_V is the standard deviation of a firm's asset returns. The d value is included in the cumulative standard normal distribution N(-d) to calculate the probability of financial distress of a firm at a period. The higher the value of N (-d), the greater the probability of financial distress. The cut-off value of this model is 0.5. Dummy FD variable where it is equal 1 if year t observed, a

ISSN 1859-3666

firm i has N (-d) ≥ 0.5 is defined financial distress; and zero otherwise. The process of calculating N (-d), the paper has been applied the method of Bharath and Shumway (2008), and Newton Raphson algorithm through Matlab software. The coefficient of FD is expected to be positive, implying that Vietnamese firms are more likely to use restructuring strategies when in financial distress (all else being equal).

To classify firms into their life cycle stages, the paper is based on the method of Anthony and Ramesh (1992), Koh et al. (2015); following four life cycle descriptors: (i) firm age, (ii) annual dividend on earnings after taxes, (iii) percentage of sales growth; and (iv) capital expenditure as a percentage of total market value of firm's assets.

According to Anthony and Ramesh (1992), compared with firms in the later life cycle stages, firms in the birth stage and growth stage have higher sales growth and capital expenditure but in these stages exhibit short firm age, lower dividend payout to retain earnings. The data of observations for each firm characteristic are sorted by every industry group. First, using industry group, the paper splits observations (firm-year) of each life cycle descriptor into quartiles and group the firms by life cycle category, for each quartile is named a score. Basing on the cut off value of each quartile, the paper compares the value of each observation.

In case of percentage of sales growth and capital expenditure indicators: firm-year observation values less than Q1=4, between Q1 and less than Q2 =3, between Q2 and less than Q3=2, equal to Q3 and above =1. By contrast, in case of annual dividend and firm age indicators: firm-year observation values less than Q1=1, between Q1 and less than Q2 =2, between Q2 and less than Q3=3, equal to Q3 and above =4. Then, the paper sums up the scores of four life cycle descriptors for each firm year and splits all observations into quartiles again. After that, the paper bases on cut off value of each quartile to classify four stages of life cycle: firm-year observation values less than Q1 (lowest score value): birth stage, between Q1 and less than Q2 = growth stage, between Q2 and less than Q3=maturity stage, equal to Q3 and above (highest score value) = decline stage

Birth, Growth and Mature are the life cycle dummies. Birth variable takes the value 1 if a firm is in birth life cycle and zero otherwise. Growth variable takes the value 1 if a firm is in growth life cycle and zero otherwise. Mature variable takes the value 1 if a firm is in mature life cycle and zero otherwise (decline stage is base group).

The coefficients of Birth*FD, Growth*FD, Mature*FD indicate the choice of restructuring strategies undertaken by distress firms when they are in the different life cycle stages.

The paper also includes the control variables, including:

TobinsQ controls for growth opportunities, calculated by market value of total assets divided by book value of total assets.

LnAsset controls for firm size, calculated by natural logarithm of firm's total assets.

Volatility controls for firm's risk, calculated by the standard deviation of the monthly stock returns of year.

Return controls for firm's stock returns, calculated by mean of the monthly stock returns of year.

Institutional controls for institutional ownership, calculated by the proportion of shares held by institutional investors.

CashFlow controls for firm's cash flow, calculated by the ratio of net operating cash flow divided by total assets.

Leverage controls for firm's financial leverage, calculated by the ratio of long term debt divided by total of the market value of equity and long term debt.

Model 2: Investigating restructuring strategies affect the likelihood of recovery for distress firms. The regression model is used as follows:

$$Recovery_{it} = \alpha_1 + \alpha_2 Birth_{it}FD + \alpha_3 Growth_{it}FD + \alpha_4 MatureE_{it}FD + \alpha_5 Restructuring_{it}FD + \alpha_6 Birth*Restructuring_{it}FD + \alpha_7 Growth*Restructuring_{it}FD +$$

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α_8Mature*Restructuring$_{it}$FD + α_9TobinsQ$_{it}$FD + α_{10}LnAsset$_{it}$FD + α_{11}Institutional$_{it}$FD + α_{12}Volatility$_{it}$FD + α_{13}Return$_{it}$FD + α_{14}Leverage$_{it}$FD + α_{15}CashFlow$_{it}$FD + ε_i (2)

The estimation results of model (2) answer the third question of the paper. To investigate the likelihood of recovery for distress firms, the paper only selects sample of distressed firms in the total sample (in case of FD = 1). After that, the paper defines a recovered firm as one that increases its distance to financial distress in two consecutive years (N(-d) < 0.5) following the distress year. The minimum period of 2 years is based on the research of Koh et al. (2015). Recovery is the dummy variable for a recovered firm.

$$\text{Recovery}_{it} = \begin{cases} 1, & \text{if the distressed firm recovers from distress (N(-d) < 0.5 in two consecutive years following the distress year} \\ 0, & \text{zero otherwise} \end{cases}$$

Restructuringi represents each restructuring strategy is used, takes on the value 1 if each restructuring strategy is used when in distress and zero otherwise. The restructuring represents managerial restructuring (CEO), reducing investment activities (INV), laying off employees (EMP) and M&A restructuring (M&A). The paper also runs the regression in equation (2) for four times. The coefficient of Restructuring is expected to be positive, with the implication that corporate restructuring is more likely to recover firm.

Birth, Growth and Mature are the life cycle dummies. The interactions of Birth * Restructuring, Growth * Restructuring, Mature * Restructuring investigate if the firm's recovery from the use of a restructuring strategy associated with the life cycle. The measure of variables of Restructuring, Birth, Growth, Mature and control variables is described as model 1.

In each equation (1) and (2); first, the paper runs the following panel Logit regression with fixed effects and random effects. Next, using the Hausman test, the paper accepts the panel logistic regression with random effects for this sample. Finally, the paper uses bootstrapped standard errors to ensure the estimated coefficients are robust. In addition, Logit model also provides the Odds ratios. The Odds ratio is used to compare the probability of an event happening with the probability of not happening. If the Odds > 1, the likelihood of the event happening is greater than the odds of not happening. In contrast, with the Odds < 1, the probability of an event happening is lower than the odds of not happening. The obtained data of variables are handled in Stata 14 software

4. Research results and discussion

4.1. Descriptive statistics

In table 1, the values of restructuring strategy variables (CEO, INV, EMP, M&A) show that, on average, Vietnamese firms have used at least one of the restructuring strategies. Managerial restructuring and reducing investment activities are used more than other restructuring strategies. On average, there are 10.27% of the total observations (year - company) occur financial distress (FD). In case of descriptive statistics of life cycle variables, on average, the results find that there are 19.31% of observations in birth stage; 18.94% of observations belong to the growth stage and 30.16% of observations belong to the mature stage. The descriptive statistics of control variables show that there is a reasonable level of consistency between the means and medians, reflecting normality of distributions. Table 2 presents number of distress firm-year observations and non-distress firm-year observations by the four life cycle categories. Table 2 shows that financial distress can occur at any stage of the life cycle, showing a sharp increase in decline stage.

4.2. The impact of financial distress on corporate restructuring strategies by life cycle

Table 3 presents the regression results of equation (1). The cofficient of Birth is -0,7465 in column (5), and the Odds ratio in column (6) is less than 1 and significant. These results indicate that, compared with Vietnamese firms at other stages of the lifecycle, those in birth stage are less likely to

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Table 1: *Descriptive statistics*

Variable	Obs	Mean	Median	Std. Dev.	Min	Max
CEO	6.312	0,1027	0,000	0,3035	0,000	1,000
INV	6.312	0,0702	0,000	0,2555	0,000	1,000
EMP	5.786	0,0299	0,000	0,1703	0,000	1,000
M&A	6.312	0,0428	0,000	0,2024	0,000	1,000
FD	6.312	0,1027	0,000	0,3035	0,000	1,000
Birth	5.205	0,1931	0,000	0,3948	0,000	1,000
Growth	5.205	0,1894	0,000	0,3919	0,000	1,000
Mature	5.205	0,3016	0,000	0,4590	0,000	1,000
TobinsQ	5.806	1,0069	0,8983	0,5520	0,1202	3,8780
LnAsset	5.807	26,6751	26,6266	1,4667	23,5415	30,4946
Institutional	4.890	0,4161	0,4661	0,2509	0,0000	0,9438
Return	4.527	0,0005	0,0032	0,0550	-0,1458	0,1528
Volatility	4.527	0,1370	0,1208	0,0790	0,0148	0,4487
Leverage	4.723	0,2117	0,0866	0,2587	0,0000	0,9238
Cashflow	5.805	0,0498	0,0332	0,1471	-0,3400	0,5597

Source: author's by Stata software.

Notes: FD is financial distress variable. Birth, Growth, Mature are variables representing the stages of birth, growth, and mature. CEO, INV, EMP, M&A are variables representing the managerial restructuring, reducing investing activities, laying off employees and M&A restructuring. The control variables include: TobinsQ, LnAsset, Institutional, Volatility, Return, CashFlow, Leverage.

Table 2: *Number of distress firm-year observations and non-distress firm-year observations by the four lifec cycle categories*

Stage	Distress firms	Non - distress firms	Total
	(1)	(2)	(3)
Birth	111	894	1.005
Growth	112	874	986
Mature	198	1.372	1.570
Decline	226	1.420	1.646
Total	**647**	**4.560**	**5.207**

Source: author's by Stata software.

engage in laying off employees. Firms in the prior stages are usually small size, so the firms' workforce is occupied to fit the operation scale. So, if firms have no financial instability, they will limit labor cuts in the birth stage. In addition, In column (1), (3) and column (5) of table 3, the paper finds that the respective coefficients of FD are 2,4349; 0,5424 and 0,4710; and significant. The respective Odds ratios are all more than 1. Thesse results show that firms in distress are likely to engage managerial restructuring, reducing investing activities, laying off employees. The change in executive leadership position when firms face financial distress is an evidence that Vietnamese companies have accepted to undertake corporate restructuring from management teams. These results are consistent with the findings of Kam et al. (2008), Koh et al. (2015).

Reducing investing activities help firms re-evaluate and eliminate ineffective investments that are not firms' competitive advantage. By reducing investing activities, distressed firms can reduce costs and focus resources on investments that bring the best benefits to firms. This evidence is consistent

ISSN 1859-3666

with the findings of Sudarsanam and Lai (2001), Koh et al. (2015). Laying off emloyees is considered as a "belt tightening" policy to help distressed firms to stabilize their financial resources in the short term (Koh et al., 2015). Therefore, distressed firms have time to find out better strategies to improve their cash flow. However, the coefficient of M&A is positive but not statistically significant, this shows that there is no evidence to prove the impact of financial distress on M&A deals.

When the paper investigates the interaction relationship between financial distress and life cycle, it only finds that the coefficient of the interaction of Mature*FD is -0,8834 in column (7); the respective odds ratio is less than 1 in column (8). This result indicates that, compared with Vietnamese firms at other stages of the lifecycle, firms in mature stage are less likely to engage in M&A restructuring. One of the reasons is that in the mature stage, firms do not have many investment opportunities, their performance is not better than other stages. And when firms faces financial distress, they are more afraid of the probability of success. So they are less likely to use M&A transactions. In addition, financial leverage is the most influential factor in corporate restructuring strategies.

4.3. The impact of corporate restructuring strategies on the likelihood of recovery

In table 4, the paper finds that the cofficient of Restructuring is 0,6769 in column (3), and significant; the Odds ratio in column (4) is more than 1. This result shows that reducing investing activities have statistically significant positive association with recovery, firms in distress that engaged in investment reduction increase their chances of survival; consistenting with the findings of Koh et al (2015). By reducing investing activities, distress firms try their best to cut ineffective portfolios and focus on the core investment portfolios. This helps distress firms firstly cut operating costs and turn around, overcome financial difficulties. Although the coefficients of FD in columns (1), (5) and column (7) are positive but they not statistically significant, implying managerial restructuring, laying off employees, M&A restructuring are not effective restructuring strategies for ditress firms.

In addition, in column (3), the study finds that the statistically significant interaction of Growth* Restructuring and Mature* Restructuring are -3.4183 and -1.3301, implying that compared with birth firms and decline firms in distress, growth and mature firms engaged in investment reduction decrease their chances of survival. The coffiecients of the interaction of Birth and Restructuring in column (5) and (7) are also -2,3621 and -2,5050 respectively; indicating that, compared with distress firms at the other stages of the life cycle, those in the birth stage engaged in M&A restructuring decrease their chances of survial. Firms in the birth stage are potentially risky, so their restructuring strategies is not be viable for birth firms in distress. Therefore, the likelihood of recovey is little influence of life cycle. The paper also finds that stock returns, financial leverage are factors that have negative influence on the recovery of distress firms.

5. Conclusions and recommendations

5.1. Main findings

The paper uses a panel Logit model with random effects, the sample consists of 526 Vietnamese non - financial listed firms on the Vietnamese stock market to analyze the impact of financial distress on restructuring strategies by life cycle; and the recovery of Vietnamese firms. The paper finds main findings:

First, when firms face financial distress, these firms are more likely to engage in managerial restructuring, reducing investment activities and laying off employees.

Second, there are associated with the restructuring strategies and life cycle, but not all restructuring strategies. The paper finds that distressed firms in mature stage are less likely to engage in M&A restructuring.

Third, operational restructuring by reducing investing activities increase their chances of recovery, but there is little influence of life cycle.

ISSN 1859-3666

5.2. Recommendations

Based on the research results, the paper proposes recommendations to enhance the quality of financial management for Vietnamese firms:

First, the managers need to increase the importance of the life cycle, therefore, they need to identify each stage in the life cycle of a firm. This can help managers know which stage of a firm is in lifecycle to know business risks and financial risks in each stage of life cycle, so that they can make suitable financial decisions for each stage of life cycle.

Second, operational restructuring by reducing investment is an effective restructuring strategy that Vietnam firms in distress need to pay attention to in the restructuring process. To increase the likelihood of recovery, firms need to suggest specific criteria to evaluate the efficiency of investment activities. Firms need to classify which firms' core investments, which investments are expanded to diversify its business lines. For investment activities to diversify, firms should cut back because these activities not suitable when in distress. If diversified investing activities invested by firm itself, these activities can be cut down immediately. If these investment activities have cooperated with other parties, a distress firm need to base on the cooperation agreement contracts to negotiate the reduction plan. Reducing ineffective or unsuitable investment activities when in distress will help firms save costs and focus resources on advantageous operations of the firm. However, the reduction plan must ensure that the inherent value and competitive advantage of the firm must not be lost. Besides, the paper also has the limitation of time research. Some secondary database of the paper to measure variables denoted restructuring strategy are collected by hand, so there are some missing values. Although the results show that the restructuring strategies implemented by distress firm are affected by the life cycle but not all restructuring strategies. In the next research, the paper will try to overcome the remaining limitations.◆

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Table 3: *The impact of financial distress on corporate restructuring strategies by life cycle*

Variable	CEO		INV		EMP		M&A	
	Cofficient (1)	Odds ratio (2)	Cofficient (3)	Odds ratio (4)	Cofficient (5)	Odds ratio (6)	Cofficient (7)	Odds ratio (8)
_cons	**-1,5364**	**0,2152**	**7,3209*** **	**1511,665*** **	**7,0476*** **	**1.150,141** **	**-13,9542*** **	**0,000*** **
	(2,2102)	(0,4533)	(2,7358)	(3656)	(2,5219)	(3.166,604)	(1,4361)	(0,000)
Birth	**-0,5134**	**0,5985**	**-0,3943**	**0,6741**	**-0,7465** **	**0,4740** **	**-0,0021**	**0,9979**
	(0,4635)	(0,2545)	(0,3273)	(0,2790)	(0,3177)	(0,1611)	(0,2113)	(0,2002)
Growth	**0,3245**	**1,3833**	**-0,0972**	**0,9073**	**0,0151**	**1,0152**	**0,0648**	**1,0669**
	(0,2994)	(0,5127)	(0,2876)	(0,2901)	(0,2433)	(0,3157)	(0,1833)	(0,1885)
Mature	**0,1317**	**1,1408**	**0,0384**	**1,0391**	**-0,1089**	**0,8968**	**0,0775**	**1,0805**
	(0,2393)	(0,3858)	(0,2227)	(0,2447)	(0,2850)	(0,2414)	(0,1539)	(1,1933)
FD	**2,4349*** **	**11,4146*** **	**0,5424***	**1,7200***	**0,4710***	**1,6015***	**0,0865**	**1,0903**
	(0,3477)	(3,4631)	(0,3008)	(0,5017)	(0,2577)	(0,4060)	(0,2725)	(0,3942)
Birth*FD	**0,6493**	**1,9143**	**-1,0806**	**0,3393**	**-0,5913**	**0,5535**	**-0,8070**	**0,4461**
	(0,5158)	(0,9196)	(0,8257)	(0,2406)	(0,7902)	(0,4306)	(0,6686)	(0,3393)
Growth*FD	**-0,3798**	**0,6840**	**-0,3638**	**0,6950**	**-0,4657**	**0,6276**	**-0,7739**	**0,4612**
	(0,5247)	(0,3339)	(0,7090)	(0,4007)	(0,6271)	(0,4063)	(0,5155)	(0,2904)
Mature*FD	**0,1627**	**1,1766**	**-0,2596**	**0,7713**	**-0,3427**	**0,7098**	**-0,8834***	**0,4133***
	(0,3512)	(0,5422)	(0,4199)	(0,3002)	(0,4474)	(0,3070)	(0,5043)	(0,2210)
TobinsQ	**0,0631**	**1,0651**	**-0,2749**	**0,7596**	**-0,3698**	**0,6908**	**-0,1092**	**0,8965**
	(0,2053)	(0,2497)	(0,6592)	(0,4071)	(0,5963)	(0,4899)	(0,1253)	(0,0958)
LnAsset	**-0,1092**	**0,8966**	**-0,4196*** **	**0,6573*** **	**-0,4052*** **	**0,6668*** **	**0,4332*** **	**1,5421*** **
	(0,0830)	(0,0716)	(0,0961)	(0,0585)	(0,0951)	(0,0671)	(0,0514)	(0,0986)
Institutional	**-0,2771**	**0,7579**	**-1,4140*** **	**0,2431*** **	**-1,2842** **	**0,2768*** **	**-0,0192**	**0,9809**
	(0,3390)	(0,2869)	(0,4830)	(0,1306)	(0,5435)	(0,1367)	(0,2250)	(0,2665)
Leverage	**0,9773*** **	**2,6573*** **	**2,5262*** **	**12,5060*** **	**2,3365*** **	**10,345*** **	**-1,1674*** **	**0,3111*** **
	(0,3292)	(0,9004)	(0,3688)	(4,8589)	(0,4792)	(4,4772)	(0,3211)	(0,1004)
CashFlow	**-1,2024** **	**0,3005** **	**-0,3242**	**0,7231**	**-0,2321**	**0,7928**	**-0,4189**	**0,6577**
	(0,5266)	(0,1475)	(0,7400)	(0,4976)	(0,8197)	(0,5456)	(0,4536)	(0,2625)
Return	**0,1303**	**1,1391**	**-2,2751**	**0,1027**	**-1,3383**	**0,2622**	**8,2568*** **	**3853,932*** **
	(1,4266)	(1,4246)	(1,6177)	(0,1433)	(1,2216)	(0,3749)	(1,4489)	(4189,969)
Volatility	**1,5715***	**4,8138***	**2,7615*** **	**15,8238*** **	**1,4486**	**4,2571**	**-1,2426**	**0,2886**
	(0,9194)	(4,3589)	(0,9091)	(15,9754)	(1,1073)	(4,5291)	(0,8673)	(0,2521)
Observations	4.300	4.300	4.300	4.300	4.300	4.300	4.300	4.300
Wald chi-squared	307,05***	366,22***	134,36***	160,60***	109,47***	121,15***	212,89***	149,17***
Log likelihood value	-766,32	-766,32	-885,83	-885,83	-788,091	-788,091	-1.227,195	-1.227,195

*Source: author's by Sata software. The bootstrap standard errors are in brackets. *. ** and *** correspond to 10%. 5% và 1% levels of significance, respectively.*

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ISSN 1859-3666

Table 4: *The impact of corporate restructuring strategies on the likelihood of recovery*

Variable	CEO		INV		EMP		M&A	
	Cofficient (1)	Odds ratio (2)	Cofficient (3)	Odds ratio (4)	Cofficient (5)	Odds ratio (6)	Cofficient (7)	Odds ratio (8)
_cons	**3,4245**	**30,7087**	**2,8083**	**16,5816**	**2,8181**	**16,7452**	**3,5458**	**34,6666**
	(3,4577)	(107,9183)	(3,4150)	(66,3543)	(3,2603)	(70,6196)	(3,4482)	(129,8936)
Birth	**0,7370***	**2,0896***	**0,6344**	**1,8858**	**0,7678**	**2,1550**	**0,7068****	**2,0275****
	(0,4386)	(0,8932)	(0,3761)	(0,7728)	(0,5580)	(0,9819)	(0,3212)	(0,6394)
Growth	**-0,0216**	**0,9786**	**0,3024**	**1,3530**	**0,0442**	**1,0452**	**-0,0717**	**0,9308**
	(0,4541)	(0,3235)	(0,3915)	(0,4635)	(0,3992)	(0,3977)	(0,2492)	(0,2731)
Mature	**-0,1015**	**0,9035**	**-0,0766**	**0,9263**	**-0,3200**	**0,7261**	**-0,2407**	**0,7861**
	(0,3964)	(0,3247)	(0,3695)	(0,3692)	(0,3033)	(0,2523)	(0,3348)	(0,2006)
Restructuring	**0,3749**	**1,4549**	**0,6769***	**1,9679***	**0,5316**	**1,7017**	**0,4705**	**1,6008**
	(0,5030)	(0,6552)	(0,3959)	(0,7731)	(0,6934)	(1,308)	(0,4894)	(1,2955)
Birth* Restructuring	**-0,0207**	**0,9795**	**0,8745**	**2,3978**	**-2,3621***	**0,0942***	**-2,5050****	**0,0817***
	(0,9765)	(0,7877)	(0,7812)	(2,4813)	**(1,3593)**	(0,1241)	(1,2105)	(0,1228)
Growth* Restructuring	**-0,6320**	**0,5315**	**-3,4183*****	**0,0328*****	**-0,8419**	**0,4309**	**1,5597**	**4,7574**
	(0,7920)	(0,3987)	(0,6308)	(0,0239)	(1,2414)	(0,5055)	(1,2273)	(6,8087)
Mature* Restructuring	**-0,7012**	**0,4960**	**-1,3301***	**0,2644***	**0,1917**	**1,2113**	**-1,1589**	**0,3138**
	(0,6693)	(0,3153)	(0,7394)	(0,2125)	(0,9749)	(1,4376)	(0,9846)	(0,3973)
TobinsQ	**-3,2190*****	**0,0399*****	**-0,1514**	**0,8594**	**-0,1390**	**0,8702**	**-0,1397**	**0,8694**
	(0,9182)	(0,0265)	(0,9535)	(1,5726)	(1,6464)	(1,272)	(1,4917)	(1,3512)
LnAsset	**-0,0016**	**0,9984**	**-0,0812**	**0,9219**	**-0,0770**	**0,9258**	**-0,1061**	**0,8993**
	(0,1187)	(0,1253)	(0,1333)	(0,1275)	(0,1270)	(0,1519)	(0,1474)	(0,1253)
Institutional	**0,8317**	**2,2971**	**0,8923**	**2,4408**	**0,8704**	**2,3877**	**0,8603**	**2,3637****
	(0,5364)	(1,1438)	(0,5591)	(1,2825)	(0,6146)	(1,3107)	(0,6357)	(0,9509)
Leverage	**-1,2359*****	**0,2905*****	**-1,0417****	**0,3528****	**-0,9959****	**0,3693****	**-0,9466**	**0,388*****
	(0,4116)	(0,1159)	(0,4540)	(0,1549)	(0,4941)	(0,1804)	(0,7191)	(0,1345)
CashFlow	**1,0437**	**2,8395**	**0,8409**	**2,3184**	**0,6030**	**1,8276**	**0,4652**	**1,5923**
	(0,6477)	(2,1322)	(0,7662)	(2,0469)	(0,5347)	(1,5455)	(0,3491)	(0,9242)
Return	**-7,4746*****	**0,0005*****	**-8,1468*****	**0,0002*****	**-7,8978*****	**0,0003*****	**-7,8873*****	**0,0003*****
	(1,7604)	(0,0011)	(1,9727)	(0,0006)	(1,9653)	(0,0007)	(2,7386)	(0,0009)
Volatility	**1,8206**	**6,1758**	**1,3386**	**3,8138**	**1,2028**	**3,3295**	**1,5019**	**4,4902**
	(1,7374)	(10,0248)	(1,4719)	(6,1842)	(1,8394)	(6,4637)	(1,6521)	(7,449)
Observations	612	612	612	612	612	612	612	612
Wald chi-squared	76,78***	97,71***	104,94***	60,08***	94,28***	84,75***	349,93***	838,33***
Log likelihood value	-338,51	-338,51	-350,47	-350,47	-353,07	-353,07	-353,14	-353,14

*Source: author's by Sata software. The bootstrap standard errors are in brackets. *. ** and *** correspond to 10%. 5% và 1% levels of significance, respectively.*

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Summary

Bài viết kiểm định tác động của kiệt quệ tài chính đến các chiến lược tái cấu trúc theo chu kỳ sống; và khả năng hồi phục của công ty Việt Nam bằng mô hình hồi quy Logit với hiệu ứng tác động ngẫu nhiên. Bài viết tìm thấy kiệt quệ tài chính có thể xảy ra ở bất kỳ giai đoạn nào trong chu kỳ sống, nhiều nhất là ở giai đoạn suy thoái. Kết quả cho thấy kiệt quệ tài chính xảy ra khiến các công ty tăng cường sử dụng chiến lược tái cấu trúc nhân sự quản lý, cắt giảm cắt giảm hoạt động đầu tư và cắt giảm lao động. Ở giai đoạn bão hòa công ty kiệt quệ tài chính hạn chế sử dụng chiến lược tái cấu trúc từ thương vụ M&A. Chiến lược tái cấu trúc hoạt động từ việc cắt giảm đầu tư mang lại khả năng hồi phục cho công ty kiệt quệ tài chính, nhưng hiệu quả phục hồi của công ty ít ảnh hưởng bởi chu kỳ sống.

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