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# EVIDENCE ON THE EFFECT OF FINANCIAL DISTRESS ON CORPORATE ORGANIZATIONAL STRUCTURE FROM A MANAGERIAL QUALIFICATIONS PERSPECTIVE

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## ABSTRACT

*This paper introduces a managerial skills dimension into analysis of corporate financial distress and corporate restructuring. We use an ordered logit model to examine how manager qualifications affect whether a company declares bankruptcy, is liquidated or reorganized, and how different forms of organizational structure emerge after companies experience distress. The current paper uncovers additional evidence that manager qualifications are important during financial distress. However, we determine that managerial skills are not panacea and beyond a certain limit no talent and skills can save a failing firm from bankruptcy.*

## INTRODUCTION

This paper introduces a managerial skills dimension into analysis of corporate financial distress and corporate restructuring. We use an ordered logit model to examine how different forms of organizational structure arise after companies experience distress. Our sample companies were on the Fortune 500 list before the financial crisis in 2008. We examine corporations that experienced distress and underwent corporate restructuring as a way of coping with financial turmoil, and evaluate whether skills and experiences of company CEOs are related to the way firms emerged from distress. We discover that that the likelihood of corporate survival as independent going concern is associated with good education and with prior experience of enduring through financial distress.  If a company faces distress, it also faces different possibilities such as bankruptcy and liquidation, reorganization, being a takeover target, taking over a different company, et cetera. Some of these possibilities will be detrimental for corporate survival as going concern, for example liquidation or being a takeover target. Other possibilities allow for continued independence, for example Chapter 11 reorganization or acting as a raider and taking over another corporation. We rank these possibilities based on continued organizational independence from the least preferred choice of liquidation to the most preferred choice of not filing for bankruptcy and taking over another firm.  Next, we measure managerial skills and abilities by several variables that describe employment tenure, schooling, and prior experiences.

Employment tenure is measured by age, which proxies for general experience, and by firm tenure. Schooling is measured by dummy variables that show whether a given manager graduated from top 100 universities in Times Higher Education list, and whether the manager has an MBA or law degree. Prior experiences are measured by dummy variables that show whether a manager has led a company through unprecedented growth, through corporate restructuring, or through financial distress. Finally, we use an ordered logit model and examine if managerial characteristics affect choices of post-distress organizational

structure, controlling for financial conditions and governance structure. The literature holds some controversy regarding the effect of managerial characteristics and firm performance. Gottesman and Morey (2010) find no evidence that qualifications improve firm performance, Perez-Gonzalez (2006) discover negative effects, and Chemmanur and Paeglis (2005) and Rakhmayil and Yüce (2013) find positive effects of education on firm performance. Additionally, Lin et al. (2011), Custódio and Metzger (2013) and others document effects of prior work experiences on performance. The likelihood of survival through financial distress was initially assessed through financial performance only; see for example Beaver (1966) or Altman (1968). Later research, for example Altman et al. (2010), Tinoco and Wilson (2013), Filipe et al. (2016) introduced more dimensions into analysis, such as prior firm history, past rates of growth, and economic conditions. A recent wave of literature including Leverty and Grace (2012), Andreou et al. (2017), Cornaggia et al. (2017) adds managerial characteristics to this mix.

The current paper extends this literature and uncovers more evidence that manager qualifications are important during financial distress. However, we show that managerial skills are not panacea and beyond a certain limit no talent and skills can save a failing firm from bankruptcy. We follow companies from the 2008 Fortune 500 list that experienced financial distress during the 2008 financial crisis, and examine how manager qualifications influence the outcomes. Our evidence suggests that better manager qualification is a positive factor for firm survival. Next, we conduct scenario analysis using our empirical model, and show how several aspects of manager qualification affect the hypothetical outcome of financial distress. Based on our scenario analysis, the crucial factors for keeping companies afloat are prior relevant managerial experience and good education. However, it appears there is a limit to which these qualification factors are relevant for staying out of liquidation, and companies in very bad financial condition cannot be saved regardless of manager qualification. This paper is organized as follows. The next section presents literature review, then we describe the dataset, reveal the methodology, and present estimation results. Next, we present scenario analysis, which is followed by the conclusion.

## LITERATURE REVIEW

Earlier literature did not consider managerial qualifications as a factor for corporate performance or corporate survival, and focused on financial performance data. On the other hand, modern economic theory suggests that education and skills augment labour and we should expect that improved qualifications should lead to higher productivity. However, when researcher started to focus on this issue, some surprising results surfaced. Pfeffer and Fong (2002) and Gottesman and Morey (2010) examine the relationship between managerial background and firm performance, and find no evidence that manager education is a relevant factor for influencing career success or firm performance. The authors argue this was a signal that business education was not relevant to the problems faced by businesses at the time. These results add to the ongoing controversy, especially considering Perez-Gonzalez (2006) who discovered the detrimental effect of lack of good education on firm performance, and Maxam et al (2006) who found negative effects of education on mutual fund results. Next, Malmendier and Tate (2009) discover that media-induced superstar status is not a signal of managerial quality. Their evidence points that award-winning CEOs earn more money for themselves and spend time on unrelated activities such as writing books, and all this occurs while their firms underperform. Additionally, a negative effect of managerial indiscretion on firm performance is documented by Cline et al (2018). Next, many recent papers do find a positive effect of education and experience on performance. Chemmanur and Paeglis (2005) document such effects for firms undergoing IPO. They find evidence that managers with better education and more reputable background and experience are better able to convey value of IPO firms to investors. Rakhmayil and Yüce (2008, 2013) find evidence that better educated executives use greater leverage and achieve higher firm value, measured by Tobin's Q. Terviö (2008) and Baranchuk et al. (2011) offer theories how managerial abilities are related to firm value and offer sound arguments that better able managers should increase firm performance.

Recent papers try to measure managerial ability not only by education and degrees, but also using various indicators of interpersonal characteristics. Kaplan et al. (2012) find evidence that firm performance is positively associated with various measures of managerial skills and abilities. Falato et al. (2015) find that managers with better credentials are associated with better performance and greater compensation. Choi et al. (2015) find a positive association between a measure of managerial ability and cash flows.

Another indicator of managerial ability is prior experience. Güner et al. (2008) study how corporate directors affect M&A deals and find that directors with investment banking experience are associated with deals that have access to greater financing.  Chang et a. (2010) study CEO departures and find that stock market reaction was more negative following departures of CEOs where predeparture firm performance was greater. Lin et al. (2011) examine the effect of prior military service for CEOs whose companies engage in mergers and acquisition. They discover that firms run by CEOs with prior experience in the military achieve greater financial results and better corporate governance. Custódio and Metzger (2013) find evidence that relevant target industry experience for acquirer CEOs results in greater acquisition returns. Custódio et al. (2013) study how lifetime work experience affects CEO pay, and uncover evidence that CEO pay is higher for managers with greater general lifetime managerial experience. Custódio and Metzger (2014) find evidence that employment histories of CEOs carry weight in formulating corporate policies for their respective companies.  Thus, the current literature suggests several ways to assess managerial ability, and most recent evidence points that more able managers create more value for the shareholders. Measures of such abilities include educational characteristics such as prestige of education or MBA degrees, interpersonal characteristics, and employment history and life experiences. The next question is whether managerial ability has any role in helping resolve financial distress.

Earlier literature on assessing the likelihood and severity of corporate financial distress used to focus solely on accounting variables and financial ratios. Beaver (1966) suggested a ratios-based model of bankruptcy prediction. Altman (1968) also used financial ratios to estimate the probability of bankruptcy, and presented a refined ratios-based model in Altman (2013). While original bankruptcy prediction models focused only on accounting data from subject companies, later research revealed than other data may also be relevant. DePamphilis (2015a) lists bankruptcy models that vary by data used and empirical methodology and divides them into four categories: credit scoring, structural, reduced form, and other models. Current bankruptcy research relies on a combination of variables, financial and non-financial. Altman et al. (2010) study importance of non-financial information in SME risk management and find that prior history of legal actions, company filing histories, audit report/opinion data and firm-specific characteristics improve power of prediction models. Not only accounting ratios, but also firm-specific characteristics of large publicly listed companies such as size and growth rate were shown to be good predictors of default by Tinoco and Wilson (2013). At the same time, market and economic conditions variables such as interest rates and GDP were only marginally useful. Next, in their study of financial distress for small and medium sized enterprises, Filipe et al. (2016) use firm-specific variables as well as economic variables, and find economic variables to be more relevant factors in predicting distress. Thus, it appears that there may be moderating variables, such as firm size, in the relationship between financial distress and economic conditions.

Shein (2011) lists three approaches that should be implemented jointly to be effective in resolving distress. They include strategic changes, operational changes, and financial changes, and together they form a so-called "turnaround tripod". Such strategies could be implemented in a myriad of ways. A company may choose to engage or not engage in corporate restructuring. One common tactic of resolving financial distress is through mergers and acquisitions, documented by Clark and Ofek (1994), Almeida et al. (2011), Gormley and Matsa (2011), among others. DePamphilis (2015b) outlines various possibilities for financial conditions of a failing company and specific methods of restructuring that are most effective in resolving distress. Also, a company in distress may choose to file or not file for bankruptcy, and firms filing for bankruptcy incur various direct and indirect transaction costs. On the other hand, Gilson (1997) finds evidence that firms not filing for bankruptcy protection have more difficulties in negotiations with creditors. In other

words, there are vast options in handling financial distress, not all options are equally effective, and the most appropriate ways out of trouble may depend on firm-specific circumstances and economic conditions.

Better qualified managers will be able to understand the situation more accurately and will find a more effective resolution. Lia et al (2010) offer evidence that CFO qualification is a key factor in deciding outcome of a financial distress. Leverty and Grace (2012) find that better skilled managers can get their companies out of distress faster, and companies that went bankrupt had less skilled executives. Andreou et al. (2017) study how firms survived the 2008 financial crisis and find evidence that better skilled managers improve firm performance and show more effective management during crisis. Next, Andreou et al. (2016) investigate bank managers and find that more qualified managers add more value both during normal business condition and during crisis. Höwer (2016) finds that manager relationship with financial institutions is significant in deciding outcomes of financial distress. Similarly, Cornaggia et al. (2017) provide evidence that manager qualification is considered by credit analysts for credit scoring, and higher ability managers obtain better credit ratings for their companies. To summarize, recent research offers evidence that manager qualification is an important factor for determining firm survival.

Data

Our dataset includes corporations that were in Fortune 500 list in 2008 and experienced a corporate restructuring event in the five-year window after the 2008 financial crisis, between 2008 and 2013. We obtain financial statements data for these companies from Compustat - Capital IQ database. Data on corporate bankruptcy, liquidations and reorganizations were obtained from UCLA-LoPucki Bankruptcy Research Database (BRD). Data on corporate restructuring events such as takeovers were obtained from the Wall Street Journal. Corporate governance data are hand collected from corporate web pages. Finally, the data on manager qualifications and experiences were hand collected from manager biographies available from corporate web pages and from Bloomberg Company Profiles database. We found 23 companies which matched our data requirements and had available observations for all relevant variables. Table 1 presents the history of corporate restructuring events for our companies. Variable ENDGAME describes the restructuring outcome for respective companies. In our dataset one company was liquidated during the five-year window, two companies filed for Chapter 11 and stayed independent, one company filed for Chapter 11 merged with another company. We also observe that 15 firms avoided filing for bankruptcy and either became acquisition targets, and 4 firms avoided bankruptcy through merger. When we consider relative frequencies of corporate restructuring events, we can see that 8 out of 23 events occurred in 2009 and this was the most active year for corporate restructuring in our dataset. Table 2 reports industry composition of our sample. Out of 23 firms, 1 corporation is in Telecommunication Services, two firms in each of the industry sectors Energy, Information Technology, and Utilities. Next, there are four firms in each of Consumer Discretionary, Consumer Staples, Health Care, and Industrials. Overall, our sample represents most sectors of the US economy and our data is not tilted towards any given industry sector.

Table 1: Outcome Data

| Endgame | Ordered Choice | Number of Outcomes by Year | | | | | | Total | Percent |
|---|---|---|---|---|---|---|---|---|---|
| | | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | | |
| Bankruptcy and liquidation | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 4.35% |
| Filed for Chapter 11 and stayed independent | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 8.70% |
| Filed for Chapter 11 and merged with another company | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 4.35% |
| No filing for Ch.7/Ch. 11 and became acquisition target | 4 | 2 | 5 | 2 | 2 | 4 | 0 | 15 | 65.22% |
| No filing for Ch.7/Ch. 11 and merged with another company | 5 | 0 | 1 | 1 | 0 | 1 | 1 | 4 | 17.39% |
| | Total | 2 | 8 | 3 | 3 | 6 | 1 | 23 | 100 |

*This table shows corporate restructuring outcomes for the year of the 2008 financing crisis, and for five years following the crisis. The firms listed in this table meet all data requirements for estimation of our empirical model. All companies in the sample were in Fortune 500 list in 2008 and experienced a corporate restructuring event in the five-year window after the 2008 financial crisis, between 2008 and 2013. We obtained financial statements data for these companies from Compustat - Capital IQ database. Data on corporate bankruptcy, liquidations and reorganizations were obtained from UCLA-LoPucki Bankruptcy Research Database (BRD). Data on corporate restructuring events such as takeovers were obtained from the Wall Street Journal. Corporate governance data are hand collected from corporate web pages. Finally, the data on manager qualifications and experiences were hand collected from manager biographies available from corporate web pages and from Bloomberg Company Profiles database.*

Financial statements data for our sample companies are presented in Table 3. Total Assets range from $2,321.68 million to $91,047 million. EBIT ranges from -$11,982 million to $6,946.23 million, and Revenues vary between $3,799 million to $148,979 million. We use Altman (2013) revised Zeta model to assess the likelihood of bankruptcy and present relevant model inputs and computed Z-scores in Table 4. In our sample, average Working capital/Total Assets is 9.0522%, average Retained Earnings/Total Assets is 5.0334%, average EBIT/Total Assets is 4.3241%, average Market value of equity/Book value of Total Liabilities is 80.8672%, and average Revenues/Total assets is 1.4070. The computed Z-score is on average 2.2126 and ranges from -1.8868 to7.4258. Altman (2013) suggests the critical value of 2.675 for the Z-score. Hence, an average company in our sample is likely to go bankrupt because our mean Z-score of 2.2126 is below the critical level.

We use control variables to account for corporate governance effects on firm performance. Table 5 presents descriptive statistics for the corporate governance variables. Variable BDCLASSIFIED takes value of 1 if corporate board is classified and zero otherwise. DIROUTSIDE is a variable that indicates the number of independent directors, and DIRTOTAL is the total number of directors on the board. Variable OUTSIDE%= DIROUTSIDE/DIRTOTAL. For companies in our sample, the average number of independent directors is 8.4348, the average total number of directors is 10.8261, and average proportion of outside directors on company boards is 0.7688. To measure manager qualifications, we use variables identified in prior research. The descriptive statistics for qualifications data are presented in Table 6. Manager experience is measured by age that proxies for overall experience and firm tenure that measures firm-specific experience. Average AGE is 56.3044 and average FIRM TENURE is 11.4348 years. We also account for prior specific experiences by introducing three dummy variables. Variable GROWTH takes value of 1 if manager biography indicates successful business growth that was achieved because of the contribution by this individual. Variable RESTRUCTURING takes value of 1 if a manager led corporate restructuring effort that was unrelated to financial distress. Next, variable DISTRESS takes value of 1 if a

manager`s biography indicates that this manager survived through corporate bankruptcy or financial distress. Finally, we introduce three dummy variables that describe schooling. Variable SCHOOL takes the value of 1 if manager biography states that this individual graduated from any of the top 100 universities in the world, according to Times Higher Education ranking.  Variables MBA and LAWDEGREE take value of 1 if the manager`s biography states this manager has MBA degree or a law degree. Otherwise, the dummy variables equal to zero. Correlations among manager qualification measures are also presented in Table 6. Several variables exhibit relatively high correlations, for example the correlation between variables MBA and SCHOOL is 0.7424, correlation between MBA and FIRM TENURE is -0.3553, correlation between RESTRUCTURING and GROWTH is 0.5231. Thus, we expect that multicollinearity among variables may be a problem and several estimated coefficients may appear insignificant while they may in fact be significant.

Table 2: Industry Composition of the Sample

| Industry | Count | Percent |
|---|---|---|
| Consumer Discretionary | 4 | 17.39% |
| Consumer Staples | 4 | 17.39% |
| Energy | 2 | 8.70% |
| Health Care | 4 | 17.39% |
| Industrials | 4 | 17.39% |
| Information Technology | 2 | 8.70% |
| Telecommunication Services | 1 | 4.35% |
| Utilities | 2 | 8.70% |
| Total | 23 | 100.00% |

*This table presents industry composition of our sample. Industry classification is done according to GIC Sector code data item obtained from Compustat Capital IQ database. Count is the number of firms in our sample per category, and Percent is the proportion of firms in the corresponding industry sector in the sample. The firms listed in this table meet all data requirements for estimation of our empirical model. All companies in the sample were in Fortune 500 list in 2008 and experienced a corporate restructuring event in the five-year window after the 2008 financial crisis, between 2008 and 2013. We obtained financial statements data for these companies from Compustat - Capital IQ database. Data on corporate bankruptcy, liquidations and reorganizations were obtained from UCLA-LoPucki Bankruptcy Research Database (BRD). Data on corporate restructuring events such as takeovers were obtained from the Wall Street Journal. Corporate governance data are hand collected from corporate web pages. Finally, the data on manager qualifications and experiences were hand collected from manager biographies available from corporate web pages and from Bloomberg Company Profiles database.*

Table 3: Pre-Event Accounting Data, 2007-2012

| | TOTAL ASSETS, $ Millions | WORKING CAPITAL $ Millions | RETAINED EARNINGS $ Millions | EBIT $ Millions | SHARES OUT STANDING $ Millions | SHARE PRICES, Dollars | MARKET VALUE EQUITY $ Millions | BOOK VALUE OF TOTAL LIABILITIES $ Millions | REVENUES $ Millions |
|---|---|---|---|---|---|---|---|---|---|
| Mean | 20178.30 | 1318.60 | -3487.43 | 640.68 | 451.09 | 28.45 | 9978.63 | 19397.31 | 21789.47 |
| Median | 13948.70 | 628.00 | 1660.82 | 697.60 | 295.00 | 22.51 | 4469.01 | 10182.00 | 12186.68 |
| Maximum | 91047.00 | 16630.92 | 11890.00 | 6946.23 | 1729.25 | 75.71 | 49946.59 | 176387.00 | 148979.00 |
| Minimum | 2321.68 | -2068.80 | -102926.00 | -11982.00 | 54.42 | 0.35 | 117.34 | 1177.37 | 3799.00 |
| Std. Dev. | 19729.01 | 3729.84 | 24240.82 | 3244.92 | 482.28 | 22.20 | 12058.52 | 35306.66 | 31365.54 |
| Obs. | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |

*This table presents financial statements data for the items needed to compute Altman's Z-Scores for all firms in our sample. TOTAL ASSETS is the Total assets item on a company's the balance sheet. WORKING CAPITAL is the difference between the total current assets minus total current liabilities as reported on a company's balance sheet. RETAINED EARNINGS is Retained earnings data item on a company's balance sheet. EBIT is Earnings before interest and taxes, as reported on a company's income statement. SHARES OUTSTANDING is Common Shares Outstanding, as reported on a company's balance sheet. SHARE PRICES is Price – Close annual data item in the Compustat. MARKET VALUE EQUITY is (SHARES OUTSTANDING) x (SHARE PRICES). BOOK VALUE OF TOTAL LIABILITIES is the sum of: Current Liabilities – Total, Deferred Taxes and Investment Tax Credit, Liabilities – Other, Long-Term Debt – Total, and Minority Interest data items on a company's balance sheet. This is Liabilities – Total data item in the Compustat. REVENUES is Revenue-Total data item in the Compustat, it represents the gross income received from all divisions of the company. Data items from the financial statements are the most recent available before the corporate restructuring event. For example, if a restructuring event occurred in 2009, the accounting data are from 2008 financial statements. The data are not adjusted for inflation because any inflation adjustments are canceled out in computing financial ratios and Altman's Z-Score, since accounting data from the same year are placed in the numerator and in the denominator of a financial ratio. We obtained financial statements data for these companies from Compustat - Capital IQ database.*

Table 4: Bankruptcy Prediction Data

|  | X1, % | X2, % | X3, % | X4, % | X5 | Z-score |
|---|---|---|---|---|---|---|
| Mean | 9.0522 | 5.0334 | 4.3241 | 80.8672 | 1.4070 | 2.2126 |
| Median | 7.8851 | 23.9792 | 5.7541 | 66.6085 | 1.0073 | 1.9232 |
| Maximum | 37.7703 | 66.1976 | 15.7755 | 221.4188 | 4.6851 | 7.4258 |
| Minimum | -12.1961 | -213.1600 | -13.1602 | 0.3790 | 0.2011 | -1.8868 |
| Std. Dev. | 12.9895 | 59.7444 | 7.7512 | 61.2454 | 1.2687 | 1.9816 |
| Observations | 23 | 23 | 23 | 23 | 23 | 23 |

*This table presents bankruptcy prediction data required in Altman (2013) revised Zeta bankruptcy prediction model. X1= Working capital/Total Assets, X2=Retained Earnings/Total Assets, X3=EBIT/Total Assets, X4=Market value of equity/ Book value of Total Liabilities, X5= Revenues/ Total Assets. Altman's Z =0.012\*X1+0.014\*X2+0.033\*X3+0.006\*X4+0.999\*X5. According to Altman (2013), the critical value of Z-score which indicates a high probability of bankruptcy is 2.675. Companies with scores lower than 2.675 have higher likelihood of bankruptcy; companies with scores above 2.675 have lower likelihood of bankruptcy. Estimated means of variables X1 through X5 reported in Altman (2013) are as follows. Sample of bankrupt firms: X1=-6.1%, X2=-62.6%, X3=-31.8%, X4=40.1%, X5=1.5. Sample of non-bankrupt firms: X1=41.4%, X2=35.5%, X3=15.4%, X4=247.7%, X5=1.9.*

Table 5: Corporate Governance Data

|  | BDCLASSIFIED | DIROUTSIDE | DIRTOTAL | OUTSIDE % |
|---|---|---|---|---|
| Mean | 0.6087 | 8.4348 | 10.8261 | 0.7688 |
| Median | 1 | 9 | 11 | 0.8333 |
| Maximum | 1 | 15 | 17 | 0.9231 |
| Minimum | 0 | 0 | 6 | 0 |
| Std. Dev. | 0.4990 | 3.0870 | 2.6569 | 0.1935 |
| Observations | 23 | 23 | 23 | 23 |

*This table presents variables that describe corporate governance regimes in the firms from our sample. Variable BDCLASSIFIED is a dummy variable that takes value of 1 if the board is classified, and zero otherwise. Variable DIROUTSIDE is the number of independent directors on the board. DIRTOTAL is the total number of directors on the board. OUTSIDE%= DIROUTSIDE/DIRTOTAL.*

Table 6: Manager Qualifications Data

|  | Age | Firm Tenure | School | MBA | Law Degree | Growth | Restructuring | Distress |
|---|---|---|---|---|---|---|---|---|
| Mean | 56.3044 | 11.4348 | 0.5217 | 0.4783 | 0.0870 | 0.4348 | 0.1739 | 0.0435 |
| Median | 56 | 9 | 1 | 0 | 0 | 0 | 0 | 0 |
| Maximum | 70 | 27 | 1 | 1 | 1 | 1 | 1 | 1 |
| Minimum | 45 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Std. Dev. | 6.9114 | 8.2121 | 0.5108 | 0.5108 | 0.2881 | 0.5069 | 0.3876 | 0.2085 |
| **Correlations** | | | | | | | | |
| AGE | 1 | | | | | | | |
| FIRM TENURE | -0.0417 | 1 | | | | | | |
| SCHOOL | 0.1590 | -0.1432 | 1 | | | | | |
| MBA | 0.2144 | -0.3553 | 0.7424 | 1 | | | | |
| LAWDEGREE | -0.1509 | 0.3099 | 0.2955 | 0.0134 | 1 | | | |
| GROWTH | 0.4146 | -0.0912 | -0.0382 | 0.0382 | -0.2707 | 1 | | |
| RESTRUCTURING | 0.2000 | -0.3390 | -0.2496 | 0.0200 | -0.1416 | 0.5231 | 1 | |
| DISTRESS | 0.1166 | -0.2504 | -0.2227 | 0.2227 | -0.0658 | 0.2431 | 0.4647 | 1 |
| Observations | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 |

*This table presents manager qualifications data. Variable AGE is the CEO's age at the time of the distress event; this variable is a proxy for overall industry experience. Variable FIRM TENURE is the number of years the manager had been employed by the firm in any capacity at the time of the distress event. It proxies for a firm-specific experience. Variable SCHOOL is a dummy variable that takes value of 1 if the manager graduated from a university listed in top 100 universities in Times Higher Education ranking available at https://www.timeshighereducation.com/world-university-rankings , and zero otherwise. MBA is a dummy variable that takes value of 1 if the manager has an MBA degree, and zero otherwise. LAWDEGREE is a dummy variable that takes value of 1 if the manager has a law degree, and zero otherwise. GROWTH is a dummy variable that takes value of 1 if the manager's biography indicates this manager took an active role in achieving outstanding business growth, and zero otherwise. RESTRUCTURING is a dummy variable that takes value of 1 if the manager's biography indicates this manager previously assumed an active role in corporate restructuring that was not related to financial distress and corporate turnarounds, and zero otherwise. DISTRESS is a dummy variable that takes value of 1 if the manager's biography indicates this manager previously assumed an active role in managing financial distress and corporate turnarounds, and zero otherwise.*

## METHODOLOGY

The choice of method is driven by the variability of ways how firms emerge from distress. Similar problems of outcome severity in social sciences have been successfully studied using ordered choice models, as described in Greene and Hensher (2010). We use an ordered logit model to study how manager qualifications affect financial distress outcomes for companies in our sample. Let $S_i = k$ be the qualitative corporate restructuring outcome of financial distress in terms of firm's independence and continuation as a going concern. We rank the outcomes from 1 to 5 as described from the perspective of firm survival as a going concern, and acknowledge that this ranking may be different if viewed from a different perspective.

The least preferred outcome for shareholders is liquidation; hence we assign value of k=1 to this choice. A preferable choice is filing for bankruptcy and engaging in Chapter 11 reorganization as opposed to Chapter 7 liquidation, hence we assign a higher value of k=2 to this choice. The next choice is filing for Chapter 11 and merging with another company, k=3, a thoroughly documented by Clark and Ofek (1994) method of corporate survival. Choice k= 4 is avoiding Chapter 11 filing and becoming an acquisition target. It is better than the previous choice because no filing for bankruptcy takes place. Lastly, choice k=5 is the most preferred choice out of all available choices in our dataset; a company avoids filing for bankruptcy and retains a reasonably strong negotiating position so that it is not an acquisition target but a merger partner. In this model, we consider a latent variable $S_i{}^*$, associated with the actual corporate restructuring outcome $S_i$, and presume that a mathematical relationship exists between the corporate restructuring outcome and a set of explanatory variables. We define four thresholds $h_{im}$, m=1,2,3,4, which divide the imaginary corporate restructuring space into five outcome categories listed above. The actual corporate restructuring outcome $S_i$ is described as follows:

$$S_i = k = \begin{cases} 1, if\ -\infty < S_i^* < h_{i,1} \\ m, if\ h_{i,m-1} < S_i^* < h_{i,m}, \text{ m=2,3,4} \\ 5,\ \ if\ h_{i,4} < S_i^* < +\infty \end{cases} \quad\quad (1)$$

The latent variable $S_i{}^*$ is the predicted corporate restructuring outcome and can be described in the following equation:

$$S_i^* = \gamma_i + \varepsilon_i = \beta_Z \times Z_i + \sum_{d=1}^{n} \beta_d M_{i,d} + \sum_{p=1}^{q} \beta_p G_{i,p} + \varepsilon_i \quad\quad (2)$$

where $\beta_Z$, $\beta_d$, $\beta_p$ are coefficients, $Z_i$ is Altman's Z-score for company $i$, $M_{i,d}$ is management qualification variable for company $i$, d = 1 to 8 in our case as there are n=8 variables which describe manager qualifications. $G_{i,p}$ is a governance control variable for company $i$, there are q=2 control variables in our model. Lastly, $\varepsilon_i$ is an error term that is assumed to follow a logistic distribution.

We estimate six different specifications of the empirical model described in equation (2). Many explanatory variables are correlated with each other, as shown in Table 6. In formulating model specifications, we always include Altman's Z-score and corporate governance control proxies. Next, we include different combinations of the manager qualifications variables and verify whether the estimated coefficients remain statistically significant, in a manner similar to estimating a stepwise regression model.

## ESTIMATION RESULTS

We estimate the thresholds $h_{im}$, m=1,2,3,4, as well as coefficients $\beta_Z$, $\beta_d$, $\beta_p$, d = 1 to 8, using a maximum log likelihood procedure by using Newton-Raphson optimization algorithm. The estimation results are presented in Table 7. Each model specification produces a highly significant likelihood ratio statistic

ranging from 14.6360 to 27.6374, which verifies the existence of the relationship between our explanatory variables and the variance in corporate restructuring outcomes. Pseudo R-squared for our specifications varies between 0.2979 and 0.5728; hence, the model explains a significant portion in the variation of outcomes.   The significant variables for deciding the restructuring outcomes of financial distress are listed below and reported in Table 7. The first two variables describe general and firm – specific experience. Log (Age) is positive and significant in specification (6), its coefficient is 38.7112 and significant at 10% level. Given that Age is a proxy for general experience, we interpret this as evidence that more experienced managers should improve chances of survival. Variable FIRM TENURE is positive significant in specifications (1) and (2), for example for specification (2) the coefficient for FIRM TENURE is 0.2875 and significant at 5% level. This offers more evidence that firm-specific experience is another positive factor for survival. These results are in line with existing literature, for example Kaplan et al (2012), Custódio et al. (2013), Falato et al. (2015), Cornaggia et al. (2017) find similar effects of general experience and ability on firm performance.

Table 7: Estimation Output

| Specification | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Zetaindex | -0.3656 | -0.3313 | -0.4347 | -0.1897 | 0.2031 | -0.0772 |
|  | (0.3985) | (0.6717) | (0.5763) | (0.8144) | (0.8156) | (0.9012) |
| Log(Age) | -0.8293 | 24.7838 | 28.4870 | 25.6763 | 41.2576 | 38.7112$^*$ |
|  | (0.9077) | (0.2175) | (0.2089) | (0.1424) | (0.1041) | (0.0616) |
| Firm Tenure | 0.1363$^*$ | 0.2875$^{**}$ | 0.3936 | 0.2090 | 0.2245 | 0.3150 |
|  | (0.0907) | (0.0473) | (0.1494) | (0.1327) | (0.2597) | (0.2535) |
| School | 2.7420$^{**}$ | 8.0245$^{***}$ | 8.3698$^{**}$ | 7.0045$^{***}$ |  | 4.5809 |
|  | (0.0454) | (0.0017) | (0.0258) | (0.0000) |  | (0.3405) |
| Mba |  |  | 1.7835 |  | 7.9687$^{***}$ | 5.5707 |
|  |  |  | (0.5250) |  | (0.0056) | (0.2407) |
| Lawdegree |  |  |  | 2.5442 | 9.6726$^{**}$ | 6.4042 |
|  |  |  |  | (0.2543) | (0.0173) | (0.2371) |
| Growth | 2.2139 | 3.0638 | 3.7761 | 2.6683 | 2.6884 | 3.4771 |
|  | (0.3896) | (0.4870) | (0.3924) | (0.5541) | (0.4992) | (0.2861) |
| Restructuring | -4.0085 | -15.0687$^{***}$ | -17.7596$^{**}$ | -14.2199$^{***}$ | -17.3596$^{***}$ | -19.2422$^*$ |
|  | (0.1954) | (0.0002) | (0.0153) | (0.0000) | (0.0000) | (0.0558) |
| Distress | 5.2978$^{**}$ | 18.8328$^{***}$ | 21.1680$^{**}$ | 16.9951$^{***}$ | 12.0082$^{***}$ | 17.8901 |
|  | (0.0112) | (0.0013) | (0.0244) | (0.0000) | (0.0049) | (0.3847) |
| Bdclassified |  | -4.2838 | -5.3401 | -4.0116$^*$ | -5.6564 | -6.2845$^*$ |
|  |  | (0.1018) | (0.1278) | (0.0795) | (0.1058) | (0.0963) |
| Outside% |  | 0.9775 | -0.0247 | -0.2673 | -11.7813 | -7.0942 |
|  |  | (0.8561) | (0.9965) | (0.9602) | (0.1763) | (0.3517) |
| Pseudo R-squared | 0.2979 | 0.5320 | 0.5368 | 0.5414 | 0.5462 | 0.5728 |
| Schwarz criterion | 2.9992 | 2.8529 | 2.9829 | 2.9729 | 2.9623 | 3.0444 |
| Hannan-Quinn criter. | 2.5928 | 2.3601 | 2.4521 | 2.4421 | 2.4315 | 2.4758 |
| LR statistic | 14.6360$^{**}$ | 25.6685$^{***}$ | 25.9005$^{***}$ | 26.1205$^{***}$ | 26.3542$^{***}$ | 27.6374$^{***}$ |
| Prob(LR statistic) | 0.0410 | 0.0023 | 0.0039 | 0.0036 | 0.0033 | 0.0037 |
| Akaike info criterion | 2.4562 | 2.2082 | 2.2886 | 2.2786 | 2.2680 | 2.3005 |
| Log likelihood | -17.2461 | -11.2904 | -11.1744 | -11.0644 | -10.9476 | -10.3059 |

*This table shows estimation results based on equation (2). We use specifications (1-6) to mitigate the effects of multicollinearity in the explanatory variables. The latent variable $S_i$ * is the predicted outcome: $S_i^* = \gamma_i + \varepsilon_i = \beta_Z \times Z_i + \sum_{d=1}^n \beta_d M_{i,d} + \sum_{p=1}^q \beta_p G_{i,p} + \varepsilon_i$ , where $\beta_Z$, $\beta_d$, $\beta_p$ are coefficients, $Z_i$ is Altman's Z-score for company i, $M_{i,d}$ is management qualification variable for company i, d = 1 to 8. $G_{i,p}$ is a governance control variable for company i, there are q=2. Lastly, $\varepsilon_i$ is an error term. The time period is from 2008 to 2013. ZETAINDEX is the Altman's Z-score. Management qualification variables include the following. LOG(AGE) is the natural logarithm of a firm manager's CEO at the time of the onset of the corporate restructuring event. FIRM TENURE is the CEO's tenure at the firm.  Dummy variable GROWTH = 1 if manager biography indicates successful business growth that was achieved because of the contribution by this individual. RESTRUCTURING = 1 if a manager led corporate restructuring effort that was unrelated to financial distress. DISTRESS = 1 if a manager survived through prior corporate bankruptcy or financial distress. SCHOOL = 1 if manager graduated from any of the top 100 universities in the world, according to Times Higher Education ranking.  MBA and LAWDEGREE = 1 if the manager has MBA degree or a law degree. Governance control variables include the following. BDCLASSIFIED = 1 if corporate board is classified. Otherwise, the dummy variables equal to zero. OUTSIDE% is the proportion of outside directors in the corporate board.  p-values in parentheses. $^{***}$ indicates 1% significance, $^{**}$ indicates 5% significance, $^*$ indicates 10% significance levels.*

The next three variables describe qualifications. Variable SCHOOL is statistically significant in Specifications 1, 2, 3, and 4. For example, in specification (4) the coefficient for SCHOOL is estimated

7.0045 with p-value < 0.0001. Managers who graduated from top schools deliver added positive contribution to corporate restructuring outcome. Variable MBA is positive and significant in specification (5), the coefficient for this variable is 7.9687 with p-value 0.0056. Variable LAWDEGREE is also significant in specification (5), we presume this result is because MBA and LAWDEGREE are highly correlated with variable SCHOOL. Recall that in Table 6 the estimated correlation between MBA and SCHOOL is 0.7424, and the estimated correlation between LAWDEGREE and SCHOOL is 0.2955. Thus, the fact that these variables appear insignificant in other specifications may be due to the statistical properties of the data and not because these factors are irrelevant. These effects are in line with recent literature on the relationship between education and firm performance, for example with Chemmanur and Paeglis (2005), Switzer and Huang (2007), Rakhmayil and Yüce (2013), and contrast with earlier findings by Pfeffer and Fong (2002) and Gottesman and Morey (2010). We interpret these results as a possible confirmation that business schools may have adjusted their curriculum and made it more relevant for modern business decision making.

Next, consider the estimated coefficient for RESTRUCTURING. In specifications 2, 3, 4, 5, and 6 it is negative and significant. For example, in specification 3 it is estimated -17.7596 with p-value 0.0153. Recall that variable RESTRUCTURING describes prior experience in corporate restructuring that is not related to dealing with financial distress. It seems that the fact that an average manager has this experience is a detrimental factor that increases the likelihood of observing lower ranked outcomes, for example bankruptcy and liquidation. Note that this experience is not related to dealing with distress, and we could speculate that when a manager has prior experience of changing corporate structure but not dealing with distress, one may expect that instead of addressing the financial distress problem directly, such manager may engage in corporate restructuring instead of directly dealing with the cause of financial difficulties. An alternative explanation is that because in Table 6 variables RESTRUCTURING and GROWTH have estimated correlation 0.5231, we might be observing another effect of multicollinearity and should not take this coefficient sign at face value. Finally, the coefficient for variable DISTRESS is positive and significant in specifications 1, 2, 3, 4, and 5. For example, the coefficient in specification 5 is estimated 12.0082 with p-value 0.0049. This provides clear evidence that prior experience of dealing with financial distress is a key factor, and a manager who has such experience should improve chances of corporation survival as an independent going concern. These results are similar to findings by Lin et al. (2011) in a sense that relevant experience, even if it was obtained in a different context, proves to be an asset.

Scenario Analysis

It may be difficult to interpret parameter estimates in Table 7 because the model is specified in terms of cumulative probability distribution for the predicted corporate restructuring outcome variable $S_i$\*. To illustrate the relationships between our covariates and the fitted value of $S_i$\*, we conduct scenario analysis and present the results in Table 8. We consider several scenarios where some covariates are set to zero, and study how substituting a maximum or minimum value of a specific combination of covariates affects the predicted outcome. This will help us better understand how each constellation of parameters should affect the outcome of financial distress. The first scenario is a situation where a company with average parameters runs into serious financial distress. The seriousness of distress is modeled by the value of Z-score = -1.8868, which is the reported in Table 4 the smallest Z-score in our sample. All other model inputs are set at their average values. CEO's age is set to 56, firm tenure is set to 11, the company has a classified board, there are 8 outside directors and the total number of directors is 10. These parameters are average values for our covariates

Table 8: Scenario Analysis

| Description | Parameters | Predicted Outcome |
|---|---|---|
| Scenario 1. An average company runs into serious financial distress | Z-Score =-1.8868, Age =56, FIRM TENURE = 11, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | No filing for Ch.7/Ch. 11 and became acquisition target |
| Scenario 2. An average company run by insiders runs into serious financial distress | Z-Score =-1.8868, Age =56, FIRM TENURE = 11, BDCLASSIFIED=1, Outside Directors =0, Total Directors = 10, all other variables = 0 | No filing for Ch.7/Ch. 11 and became acquisition target |
| Scenario 3. An average company runs into serious financial distress and hires a new CEO from outside the firm. The CEO has experience running companies but lacks experience managing distress. | Z-Score =-1.8868, Age =56, FIRM TENURE = 0, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Filed for Chapter 11 and stayed independent |
| Scenario 4. An average company runs into serious financial distress. The company CEO is highly educated in business and has experience in corporate restructuring but not in managing distress. | Z-Score =-1.8868, Age =56, FIRM TENURE = 11, SCHOOL =1, MBA=1, BDCLASSIFIED=1, RESTRUCTURING =1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Bankruptcy and liquidation |
| Scenario 5. An average company runs into serious financial distress. The company hires a brand new highly educated young CEO to manage the situation. | Z-Score =-1.8868, Age =35, FIRM TENURE = 0, SCHOOL =1, MBA=1, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Bankruptcy and liquidation |
| Scenario 6. An average company runs into serious financial distress. The company hires a highly educated CEO to manage the situation. The new CEO has experience managing distress. | Z-Score =-1.8868, Age =45, FIRM TENURE = 0, SCHOOL =1, MBA=1, DISTRESS=1 BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | No filing for Ch.7/Ch. 11 and merged with another company |
| Scenario 7. An average company is on the verge of financial distress. | Z-Score = 2.675, Age =56, FIRM TENURE = 11, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Filed for Chapter 11 and merged with another company |
| Scenario 8. An average company is on the verge of financial distress. The company hires a new CEO with reasonable business experience. | Z-Score = 2.675, Age =56, FIRM TENURE = 0, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Filed for Chapter 11 and stayed independent |

*This table presents results of scenario analysis to illustrate the estimated results. Narrative description of the scenario is presented in Description section of the table. Estimated coefficients are taken from Table (7) and substituted into equation (2) together with scenario variables listed in the Parameters section of the table. The actual corporate restructuring outcome $S_i$ is described in equation (1) as follows:*

$$S_i = k = \begin{cases} 1, if \; -\infty < S_i^* < h_{i,1} \\ m, if \; h_{i,m-1} < S_i^* < h_{i,m}, \; m=2,3,4 \\ 5, \; if \; h_{i,4} < S_i^* < +\infty \end{cases}$$

*where k=1 stands for liquidation, k=2 denotes Chapter 11 reorganization, k=3 denotes filing for Chapter 11 and merging with another company, k=4 denotes avoiding Chapter 11 filing and becoming an acquisition target, and k=5 stands for not filing for bankruptcy and becoming a partner in the merger of equals.*

Table 8: Scenario analysis (continued)

| Description | Parameters | Predicted outcome |
|---|---|---|
| Scenario 9. An average company is on the verge of financial distress. The company hires a new CEO. The CEO does not have prestigious educational background but does have experience managing financial distress. | Z-Score = 2.675, Age =56, FIRM TENURE = 0, DISTRESS=1, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | No filing for Ch.7/Ch. 11 and merged with another company |
| Scenario 10. An average company is on the verge of financial distress. The company hires a brand new highly educated middle age CEO to manage the situation. The new CEO does have experience managing distress. | Z-Score = 2.675, Age =45, FIRM TENURE = 0, SCHOOL =1, MBA=1, DISTRESS=1 BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | No filing for Ch.7/Ch. 11 and merged with another company |
| Scenario 11. An average company is on the verge of financial distress. The company is run by a highly educated CEO who has experience in corporate restructuring but not managing distress. | Z-Score = 2.675, Age =56, FIRM TENURE = 11, SCHOOL =1, MBA=1, RESTRUCTURING =1, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Bankruptcy and liquidation |
| Scenario 12. An average company is on the verge of financial distress. The company is run by a highly educated CEO with business degree. | Z-Score = 2.675, Age =56, FIRM TENURE = 11, SCHOOL =1, MBA=1, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | No filing for Ch.7/Ch. 11 and became acquisition target |
| Scenario 13. An average company is on the verge of financial distress. The company hires a brand new highly educated middle age CEO to manage the situation. The new CEO has no experience managing distress. | Z-Score = 2.675, Age =45, FIRM TENURE = 0, SCHOOL =1, MBA=1, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Filed for Chapter 11 and stayed independent |
| Scenario 14. An average company is on the verge of financial distress. The company is run by a CEO who has extensive company experience, graduated from prestigious university, does not have an MBA, and only has experience in corporate restructuring but not managing distress. | Z-Score = 2.675, Age =56, FIRM TENURE = 30, SCHOOL =1, RESTRUCTURING =1, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Filed for Chapter 11 and stayed independent |
| Scenario 15. An average company is on the verge of financial distress. The company is run by a CEO who has extensive company experience, does not have an MBA or prestigious educational background, and has experience in business growth and corporate restructuring, but not managing distress. | Z-Score = 2.675, Age =56, FIRM TENURE = 30, RESTRUCTURING =1, GROWTH=1, BDCLASSIFIED=1, Outside Directors =8, Total Directors = 10, all other variables = 0 | Bankruptcy and liquidation |

*The latent variable $S_i^*$ is the predicted corporate restructuring outcome and can be described in equation (2): $S_i^* = \gamma_i + \varepsilon_i = \beta_Z \times Z_i + \sum_{d=1}^{n} \beta_d M_{i,d} + \sum_{p=1}^{q} \beta_p G_{i,p} + \varepsilon_i$ where $\beta_Z, \beta_d, \beta_p$ are coefficients, $Z_i$ is Altman's Z-score for company i, $M_{i,d}$ is management qualification variable for company i, d = 1 to 8 in our case as there are n=8 variables which describe manager qualifications. $G_{i,p}$ is a governance control variable for company i, there are q=2 control variables in our model. Lastly, $\varepsilon_i$ is an error term that is assumed to follow a logistic distribution. The choice of specification for equation (2) is based on the choice of relevant scenario variables and the highest LR statistic in Table (7). Predicted outcome from equation (2) is substituted into equation (1), which gives the most likely outcome, listed in Predicted outcome section of the table.*

reported in Tables 5 and 6. We round down the average values to make them sensible, i.e. a company will have 10 directors on board in total, not 10.8261 directors. Table 8 shows that such scenario should result in the company not filing for Chapter 11 but instead becoming an acquisition target. The outcome in Scenario

1 is the same as in Scenario 2, where the corporate board is filled with insiders, since Outside Directors = 0. Thus, we conclude that once an average company finds itself in financial distress, whether the board is run by insiders or outsiders makes little difference.

Consider Scenario 3, where an average company board is dominated by outsiders, just like in Scenario 1, and the board fires the old CEO and hires a new one, and the new CEO has average general management experience (Age = 56, Firm Tenure = 0). Under these circumstances the company is likely to file for Chapter 11 and stay independent. Contrast this with Scenario 4, where the company has the same parameters and the new CEO is highly educated and has irrelevant corporate restructuring experience and no experience managing distress. In such scenario the model predicts that the firm will enter bankruptcy process and will be liquidated. Thus, we can see that additional education, coupled with irrelevant experience, appears to present risk to company survival, which is a surprising outcome and we are not sure how to interpret it. We speculate that education provides greater knowledge, but this knowledge is detrimental to company survival when it is coupled with irrelevant experience. The same outcome, bankruptcy, and liquidation, is predicted in Scenario 5 when the newly hired CEO is highly educated (SCHOOL=1, MBA=1) but has limited general experience (Age = 35) and possesses no specific experience in managing distress or corporate restructuring. Liquidation is averted in Scenario 6, where the new CEO has greater general experience and prior experience in managing corporate distress (Age = 45, DISTRESS = 1). Under these circumstances the model predicts that the company will not file for Chapter 11 but instead will merge with another company.

The next set of scenarios considers a possibility that a company is on the verge of financial distress but the financial condition is not ominous yet. We use Z-score 2.675 to account for this condition, since Altman (2013) lists this value as the critical value for the Z-score. Consider Scenario 7, an average company finds itself on the verge of distress. The predicted outcome is filing for Chapter 11 and merging with another company. This outcome is in line with evidence presented in Clark and Ofek (1994). It is interesting to compare this outcome with one in Scenario 8, where the current CEO is dismissed and a new one is hired (Firm Tenure = 0), which results in a predicted outcome that the company files for Chapter 11 and stays independent. If the new CEO has experience managing financial distress (DISTRESS=1) in Scenario 9, such company is predicted to not file for bankruptcy and to merge with another company. Similarly, in Scenario 10 the newly hired CEO has experience managing distress, has good education (SCHOOL=1, MBA=1, DISTRESS=1) and the company is predicted to not file for bankruptcy just like in Scenario 9.

Examine a different situation in Scenario 11. The company has a CEO who has prestigious education but irrelevant experience (SCHOOL=1, MBA=1, RESTRUCTURING=1). This scenario is similar to Scenario 4 except here the financial situation of the company is borderline (Z-score = 2.675) and not as grim as in Scenario 4 (Z-score = -1.8868). However, the predicted outcome is still bankruptcy and liquidation. This scenario leads to a conjecture that existence of irrelevant experience seems to be a detrimental factor for corporate managers, since companies whose CEOs have restructuring experience but not financial distress experience are systematically predicted to end up in liquidation. Furthermore, Scenario 12 considers a company in an analogous situation as above, but whose manager does not have restructuring experience. The model predicts that such company will end up not filing for bankruptcy protection and will likely become an acquisition target.

Consider what happens in Scenario 13 when the board dismisses the previous CEO and hires a new manager who has outstanding educational credentials and less than average general experience (Firm Tenure = 0, Age =45). This is similar to Scenario 10 but here the new manager does not have prior experience of dealing with distress. The model predicts that the company will file for Chapter 11 and stay independent, while in Scenario 10 above the company was predicted to not have to file for bankruptcy. This again shows that existence of prior experience is a key factor that determines the outcome of distress.

Lastly, imagine that a company is run by an experienced CEO than has been with the company for a long time (Age = 56, Firm Tenure = 30), but in Scenario14 the manager has better education and some unrelated to distress experience (SCHOOL=1, RESTRUCTURING=1) while in Scenario 15 the CEO does not have education but instead this manager has a lot of various prior experiences than are unrelated to distress (GROWTH=1, RESTRUCTURING=1). In both scenarios the company is at the brink of financial distress (Z-score = 2.675). The outcome for the manager with excellent education is filing for Chapter 11 and staying independent, while the outcome for the company run by a very experienced manager with less excellent education is bankruptcy and liquidation.

To summarize, scenario analysis based on our empirical model shows the following regularities. First, good education helps improve the outcome of financial distress, but there is a limit to such improvement and if the financial condition of the company is very poor, no amount of education will prevent liquidation. Second, various scenarios seem to suggest that prior unrelated experience of managers, such as experience in corporate restructuring that is not related to financial distress, is damaging for the outcome and makes bankruptcy and liquidation more likely. Lastly, prior relevant experience of managing financial distress is an outcome-determinative factor for corporate survival. Overall, we can see that once a company finds itself in distress, the outcome of this situation will depend on a financial condition and a constellation of managerial qualifications and prior experiences.

**CONCLUSION**

Financial distress always brings uncertainty to investors, customers, suppliers, employees, and other stakeholders associated with the company. We study how managerial characteristics influence the outcome of distress and whether the corporation has any hopes of surviving as a going concern. This paper uses an ordered logit model to capture the effects of variability in manager education and prior experiences on the way a corporation emerges from financial distress. The results of this research illustrate the relationship between different managerial characteristics and experiences on one hand, and corporate survival and post-distress organizational structure on the other hand. We analyze how managerial characteristics are related to corporate survival as going concern, as well as to the modes of organizational structure after distress. Our dataset contains measures for CEO age, firm tenure, university, MBA or law degree, and prior experiences such as firm growth, corporate restructuring, and surviving through financial distress. We find evidence that these managerial characteristics are jointly related to the likelihood of survival. Empirical results provide the strongest support for the relationship between survival and manager's school, prior restructuring experience, and prior experience of surviving financial distress.

This research is limited to the specific industry sectors used in the study. It is also limited by the small number of observations. The empirical model was estimated using data from the following industries: Consumer Discretionary, Consumer Staples, Energy, Health Care, Industrials, Information Technology, Telecommunication Services, and Utilities. Unfortunately, no data was available from Materials, Financials, and Real Estate industries. Hence, generalizations of the results to the missing industry sectors may be problematic. Next, only 23 firms were used in the study due to data availability problems. Estimation of the model requires a large number of data items that are often unavailable several years after liquidation or restructuring. Future research that uses more firms might perhaps pinpoint additional details in the relationship between managerial skills and corporate restructuring outcomes.

Finally, we conduct scenario analysis based on our empirical model. The results of scenario analysis show that better educated managers improve chances of corporate survival. Another positive factor for improving the likelihood of survival is prior experience of successfully managing a company through distress. Irrelevant experience, shortage of general industry experience, and severe financial condition all lead to bankruptcy no matter how well educated a manager is.

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## BIOGRAPHY

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