CORPORATE GOVERNANCE AND FINANCIAL DISTRESS: GLOBAL EVIDENCE, MACROECONOMIC GOVERNANCE FACTORS, AND DISTRESS DURATION

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ABSTRACT

Corporate Governance and Financial Distress: Global Evidence,

Macroeconomic Governance Factors, and Distress Duration

This study examines the impact of corporate governance mechanisms and ownership structures on financial distress through comparative analyses of the global, developed, and emerging market samples. Additional emphasis is given to the effects of macroeconomic governance factors and distress duration on the analyzed relationships. The results are based on a comprehensive sample of 6,539 firms and 49,950 firm-years from 23 developed and 27 emerging countries between 2006 and 2019. Sampling bias and endogeneity concerns are eliminated with detailed tests. The study finds that board size, board independence, CEO duality, ownership concentration, institutional blockholders, and strategic entity blockholders are significant determinants of financial distress, yet their effects differ across markets. Second, additional analyses of board structure show that independent board members have mitigating effects on dual CEO's distress-increasing actions. Third, the effects of corporate governance and ownership attributes differ under varying levels of macroeconomic governance conditions. Specifically, levels of country investor protection and creditor rights significantly affect the impact of firm-level governance on financial distress. Fourth, distress duration influences the impacts of corporate governance and ownership attributes on financial distress. As firms remain distressed for consecutive years, effects of some governance and ownership variables begin to change, findings validated by the tracing of selected distressed firms.

ÖZET

Kurumsal Yönetim ve Finansal Sıkıntı: Küresel Kanıtlar, Makroekonomik Yönetişim Faktörleri ve Sıkıntı Süresi

Bu çalışma, küresel, gelişmiş ve yükselen piyasalar örneklemlerinin karşılaştırmalı analizleri yoluyla kurumsal yönetim mekanizmalarının ve sahiplik yapılarının finansal sıkıntı üzerindeki etkilerini incelemektedir. Ayrıca, makroekonomik yönetişim faktörlerinin ve sıkıntı süresinin analiz edilen ilişkiler üzerinde etkileri de incelenmiştir. Sonuçlar, 2006 ve 2019 yılları arasında 23 gelişmiş ve 27 gelişmekte olan ülkeden 6.539 firma ve 49.950 firma yılını içeren kapsamlı bir örnekleme dayanmaktadır. Sistematik hata ve içsellik olasılıkları, kapsamlı testlerle ortadan kaldırılmıştır. Çalışma, ilk olarak, yönetim kurulu büyüklüğü ve bağımsızlığı, genel müdür ikiliği, sahiplik konsantrasyonu, kurumsal ve stratejik blok hissedarlarının finansal sıkıntının önemli belirleyicileri olduğunu, ancak etkilerinin piyasalar arasında farklılık gösterdiğini ortaya koymaktadır. İkincisi, yönetim kurulu yapısına ilişkin ek analizler, bağımsız yönetim kurulu üyelerinin, ikili genel müdürün olumsuz eylemleri üzerinde hafifletici etkileri olduğunu göstermektedir. Üçüncüsü, kurumsal yönetim ve sahiplik etkileri, değişen makroekonomik yönetişim koşullarına göre farklılık göstermektedir. Özellikle, ülkelerin yatırımcı koruma seviyeleri ve alacaklı hakları, kurumsal yönetimin finansal sıkıntı üzerindeki tesirini etkilemektedir. Dördüncüsü, sıkıntı süresi, kurumsal yönetim ve sahiplik yapılarının finansal sıkıntı üzerindeki tesirini etkilemektedir. Firmalar ardışık yıllar boyunca sıkıntılı kaldıkça, bazı kurumsal yönetim ve sahiplik değişkenlerinin etkileri değişmeye başlamaktadır.

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To my beloved wife Neriman

and

our precious children Zafer Mete and Nisan

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION 1

CHAPTER 2: LITERATURE REVIEW 10

2.1 Definition and measurement of financial distress 10

2.2 Determinants of financial distress 13

2.3 Firm-level corporate governance as determinants of financial distress..... 14

2.4 Ownership structure and financial distress 29

2.5 Country-level governance factors 37

2.6 Duration of financial distress 39

CHAPTER 3: METHODOLOGY 41

3.1 Sample construction 41

3.2 Variables description 46

3.3 Summary hypotheses 62

3.4 Methods of analysis 63

3.5 Endogeneity concerns and mitigation methods 64

CHAPTER 4: RESULTS 73

4.1 Descriptive statistics 74

4.2 Governance and financial distress 77

4.3 Impact of macroeconomic factors 118

4.4 Impact of distress duration 162

4.5 Robustness tests 188

CHAPTER 5: CONCLUSION 198

5.1 Summary of the main findings 198

5.2 Implications and contributions 208

5.3 Limitations 215
5.4 Recommendations for future research 217
APPENDIX A: REJECTING SAMPLING BIAS 218
APPENDIX B: ECONOMIC SECTORS PER COUNTRY AND REGION 227
APPENDIX C: REFINITIV ESG SCORE BREAKDOWN 228
APPENDIX D: REFINITIV SHAREHOLDERS SCORE BREAKDOWN 229
APPENDIX E: FACTOR ANALYSIS FOR CONTROL VARIABLES 230
APPENDIX F: COUNTRY STOCK INDEXES 234
APPENDIX G: ENDOGENEITY TESTS 235
APPENDIX H: CORRELATION COEFFICIENTS 245
APPENDIX I: CORPORATE GOVERNANCE MEANS PER COUNTRY 246
APPENDIX J: TOTAL BLOCKHOLDERS AND BLOCKHOLDER TYPES 247
APPENDIX K: BLOCKHOLDER SUB-TYPES 248
APPENDIX L: PROT SCORES PER YEAR 249
APPENDIX M: CREDIT SCORES PER YEAR 250
APPENDIX N: COUNTRY AVERAGE PROT AND CREDIT SCORES 251
REFERENCES 252

LIST OF TABLES

Table 1. Summary Literature on Corporate Governance and Financial Distress 17

Table 2. Firm and Firm-Year Distribution per Market, Region, and Country..... 45

Table 3. Economic Sector Distribution of Sample Firms 46

Table 4. Literature Using PD and DD as Distress Measure..... 49

Table 5. Corporate Governance Variable Definitions..... 51

Table 6. Shareholder Classification and Top Investor Counts of Sample Firms..... 53

Table 7. Ownership Variable Definitions 54

Table 8. Control Variable Definitions..... 57

Table 9. Descriptive Statistics..... 75

Table 10. Corporate Governance Variable Means for Each Market and Region 78

Table 11. Ownership Variable Descriptive Statistics for Each Market and Region . 81

Table 12. Governance and Financial Distress Regression Results: Global Sample . 85

Table 13. Governance and Financial Distress Regression Results: DM Sample..... 92

Table 14. Governance and Financial Distress Regression Results: EM Sample 96

Table 15. Board Independence Interaction with Governance Variables..... 101

Table 16. High and Low Board Independence Sub-Samples: Global Sample 104

Table 17. High and Low Board Independence Sub-Samples: Developed Markets 105

Table 18. High and Low Board Independence Sub-Samples: Emerging Markets . 106

Table 19. Summary Findings: Governance and Financial Distress 111

Table 20. Summary Findings: Interacting Effect of Board Independence..... 116

Table 21. Average PROT and CREDIT Scores 120

Table 22. Corporate Governance Mean Differences: High and Low PROT 121

Table 23. Corporate Governance Mean Differences: High and Low CREDIT..... 122

Table 24. Ownership Mean Differences: High and Low PROT 125

Table 25. Ownership Mean Differences: High and Low CREDIT 127

Table 26. Impact of Country-Level Investor Protection: Global Sample 130

Table 27. Impact of Country-Level Investor Protection: DM Sample 137

Table 28. Impact of Country-Level Investor Protection: EM Sample 142

Table 29. Impact of Country-Level Creditor Rights: Global Sample 147

Table 30. Impact of Country-Level Creditor Rights: DM Sample 151

Table 31. Impact of Country-Level Creditor Rights: EM Sample 154

Table 32. Summary Findings: Impact of Country Investor Protection 157

Table 33. Summary Findings: Impact of Country Creditor Rights 158

Table 34. One-Year Probability of Default Mapping for S&P Ratings 164

Table 35. Financially Healthy, Distressed, and Gray Firm-Years across Sectors .. 165

Table 36. Financial Distress Duration across DM and EM Firm-Years 167

Table 37. Results of Distress Duration Regressions: Global Sample 168

Table 38. Results of Distress Duration Regressions: DM Sample 172

Table 39. Results of Distress Duration Regressions: EM Sample 175

Table 40. Distressed Firm Tracing: Count of Firms in First Distress Years 177

Table 41. Governance and Ownership Values of Traced Firms: Global Sample ... 179

Table 42. Governance and Ownership Values of Traced DM Firms 181

Table 43. Governance and Ownership Values of Traced EM Firms 184

Table 44. Summary Findings: Impact of Distress Duration 187

Table 45. Robustness Tests with Probability of Default: Global Sample 191

Table 46. Robustness Tests with Probability of Default: DM Sample 192

Table 47. Robustness Tests with Probability of Default: EM Sample 193

Table 48. Robustness Tests with Binary PD: Global Sample 196

Table 49. Robustness Tests with Binary PD: DM Sample 197

LIST OF APPENDIX TABLES

Table A1. Comparison of the Number of Firms, Firm Years, and Market Cap 219

Table A2. Comparison of Market Capitalization for Each Period 221

Table A3. Comparison of Selected Control Variables 222

Table A4. Comparison of Default Probability 223

Table A5. T-test Results Comparing Mean PD for Each Sector 225

Table E1. Company-Specific Variables Included in Factor Analysis 230

Table E2. Results of Factor Analysis 232

Table E3. Component Correlation Matrix 232

Table G1. Endogeneity Tests for Ownership Variables 238

Table G2. Endogeneity Tests of Corporate Governance Variables 243

ABBREVIATIONS

3SLS	Three-Stage Least Squares
AAER	Accounting and Auditing Enforcement Releases
AVGESG	Average ESG Score
AVGSCORE	Average Country Shareholder Score
BLOCK	Total Blockholders
BSM	Black, Scholes, Merton
C	Constant
CAPM	Capital Asset Pricing Model
CEO	Chief Executive Officer
CORP	Corporation Blockholders
CREDIT	Creditor Rights Score
CRI	Credit Research Institute
CSR	Corporate Social Responsibility
DD	Distance to Default
DM	Developed Market
DUAL	CEO Duality
DURA	Financial Distress Duration
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
EDF	Expected Default Frequency
EM	Emerging Market
EMEA	Europe, Middle East, and Africa
ESG	Environmental, Social, and Corporate Governance

EXCESS	Excess Return over Country Stock Exchange Return
GLS	Generalized Least Squares
GMM	Generalized Methods of Moments
HEDG	Hedge Fund/Investment Advisor Blockholders
INDEP	Board Independence
INDV	Individual Investor Blockholders
INST	Institutional Blockholders
IV	Instrumental Variable
LEV	Financial Leverage
LM	Lagrange Multiplier
MCAP	Market Capitalization
MSA	Measurement of Sampling Adequacy
MSCI	Morgan Stanley Capital International
OLS	Ordinary Least Squares
P	Price
PD	Probability of Default
PDiR	Probability of Default Implied Ratings
PROT	Protecting Investors Score
RIC	Reuters Identification Code
ROA	Return on Assets
ROE	Return on Equity
ROS	Return on Sales
SHSCORE	Shareholders Score
SIZE	Board Size
STRAT	Strategic Entity Blockholders

S&P	Standard and Poor’s
TA	Total Assets
TOBIN	Tobin’s Q
TRBC	Refinitiv Business Classification
TURN	Shareholder Turnover
UAE	United Arab Emirates
UK	United Kingdom
US	United States
WC	WorldScope Code

CHAPTER 1

INTRODUCTION

The role of corporate governance mechanisms and ownership structure as determinants of financial distress has recently been a prominent topic of discussion in the literature. Several studies show that effective governance structures for healthy firms are not uniformly applicable to financially distressed firms, and, at times, could indeed produce detrimental results (Darrat et al., 2016; Fich & Slezak, 2008; Gillan & Martin, 2002). For example, aggressive control and monitoring by blockholders to push for wealth-increasing actions could lead to augmented leverage and excessive risk-taking, which increases financial distress (Jensen & Meckling, 1976). Therefore, several authors incorporate governance characteristics as determinants of financial distress, which created a growing strand of literature (Cao et al., 2015; Daily & Dalton, 1994a; Darrat et al., 2016; Elloumi & Gueyié, 2001; Miglani et al., 2015; Wang & Deng, 2006).[1] However, these studies provide the literature with several conflicting pieces of evidence and indecisive findings. Moreover, there is a very limited number of studies, if any, that analyze the relationship between governance and financial distress with a comparative and comprehensive sample while considering the effects of macroeconomic governance factors and duration of distress. This study, therefore, aims to close this gap by analyzing a global sample of firms from developed and emerging countries, providing the literature with robust evidence concerning the effects of corporate governance and ownership mechanisms on financial distress, with an additional focus on the effects of macroeconomic factors and distress duration.

[1] Throughout the thesis, when brevity is required, the word "governance" is used as an overarching term that includes corporate governance mechanisms and ownership structure.

Past studies do not agree on the best corporate governance mechanisms and ownership structures that alleviate or aggravate financial distress (Habib et al., 2020). Nevertheless, this study concentrates on the structure of the board of directors, the characteristics of the CEO, and the possibility of an agency conflict between shareholders and bondholders. Since the board of directors is the main body steering corporate governance, a malfunction of the board and a failure in delivering effective internal control might trigger a corporate failure (Hermalin & Weisbach, 1998; Simpson & Gleason, 1999). Besides, when the CEO holds dual positions, as also the chairperson of the board, the governance mechanism might be significantly compromised with reduced monitoring effectiveness and deteriorated board independence (Baysinger & Hoskisson, 1990; Jensen, 1993). Moreover, management decisions under the influence of powerful shareholders could be aggressively value-focused and risky which could increase the possibility of default, and be at the expense of creditors (Ashbaugh-Skaife et al., 2006). Finally, although scarcely investigated, firm shareholders' rights are a major area of concern that might induce agency conflicts, downgrade the strength of corporate governance mechanisms, and increase financial distress. Accordingly, I use in this thesis board size, board independence, CEO duality, and firm shareholders score as potential determinants of financial distress.

As for the ownership structure, this study focuses on concentrated ownership, particularly blockholders, since the concentration of the holdings would allow the alignment of control rights and cash flows, while providing the blockholders with voting rights and incentives to monitor the management (Ashbaugh-Skaife et al., 2006; Shleifer & Vishny, 1997). Considering that blockholders are a diverse collection of shareholders with different investing incentives and peculiar

characteristics, this study does not limit the analyses to total blockholders and extends the models to blockholder types and sub-types. Hence, I classify blockholders into two types, i.e., institutional blockholders and strategic entity blockholders. While institutional blockholders are relatively active-oriented and composed of companies or organizations that buy shares of the firms on behalf of other people, strategic entities include corporations, individual investors, and government agencies, which are passive owners and not regarded as part of the free float. I further broaden the analysis and examine the effects of hedge fund/investment advisor blockholders as a sub-type of institutional blockholders, and corporations and individual investor blockholders as the sub-types of strategic entity blockholders.

The macroeconomic governance context within which the firms operate is very important for a well-functioning financial system. Although some firm-level corporate governance mechanisms and ownership structures are identified as value-increasing, these mechanisms might drift the firm into financial distress, especially under certain macroeconomic conditions (Habib et al., 2020). Some studies show that country-level governance factors concerned with the protection of the creditors and the shareholders have a significant impact on the governance mechanisms (Denis & McConnell, 2003; La Porta et al., 1999; Shleifer & Vishny, 1997). However, there is limited study in the literature examining the effects of macroeconomic variables on the relationship between firm-level governance attributes and financial distress in developed and emerging markets. This study fills this gap in the literature by analyzing the effects of corporate governance factors, namely the degree of investor protection and creditor rights, on the relationship between firm-level governance and financial distress.

The relationship between governance and financial distress might also be significantly affected by the duration of financial distress. As indicated by Hambrick and D'Aveni (1992), bankruptcy is not a distinct event but the later stage of a downward spiral, which is an extended course of deterioration. Although very narrowly studied, it is intuitive to think that the relative impact of firm-level corporate governance mechanisms on financial distress would change as the firm fails to recover from distress for extended periods. This study closes this gap in the literature by providing evidence of the effect of financial distress duration on the relationship between firm-level governance and financial distress.

Consequently, this study examines the impact of corporate governance mechanisms and ownership attributes on financial distress, with additional emphasis on the effects of macroeconomic factors and distress duration. The sample used in the analyses is panel data comprising 6,539 firms and 49,950 firm-years from 23 developed and 27 emerging market countries between 2006 and 2019. The selection process of the final firm years is free of sampling and survivorship bias. Sophisticated tests address endogeneity concerns, validating the use of ordinary least squares methodology in analyses. Models include a robust set of control variables, which are selected by detailed factor analysis. The financial distress proxy in the analyses is a widely used distance to default measure due to Bharath and Shumway (2008). This thesis tests a total of 14 hypotheses in three groups of analyses by examining the global sample, followed by the developed market and emerging market sub-samples for each group of analyses.

The first group examines the effect of corporate governance and ownership variables on financial distress. The findings suggest that board size and CEO duality have increasing impacts on financial distress in developed markets, but not in

emerging markets. Additionally, board independence is a significant determinant of financial distress; however, it has a decreasing impact in developed markets and an increasing impact in emerging markets. The results highlight that the effects of corporate governance mechanisms on financial distress differ across markets. The findings also show that blockholders have an increasing impact on financial distress in developed markets, but not in emerging markets, suggesting that concentrated ownership is detrimental to the financial health of the firms only in developed countries. Moreover, institutional blockholders, and their sub-type of the investment advisor/hedge fund blockholders, have an increasing effect on financial distress in both developed and emerging markets. On the other hand, individual investor blockholders, as the sub-type of strategic entities, have decreasing impact on financial distress in both markets. Besides these results, additional analyses find that in developed markets the increasing impact of CEO duality on financial distress is mitigated by higher levels of board independence. When there is a lower number of independent directors on the board, dual CEO's actions increase financial distress. Moreover, the results also suggest that when board independence is higher, ownership concentration has an increasing impact on financial distress, implying that blockholders can more easily expropriate creditors when the board has more external members than internal directors.

The second group of analyses examines the impact of macroeconomic governance factors on the relationship between firm-level governance and financial distress. The findings suggest that country-level governance factors have significant impacts on the relationship between firm-level governance and financial distress. Board size has an increasing impact on financial distress when country investor protection is high, whereas CEO duality has an increasing impact when protection is

low. These relationships exist only in developed markets, not in emerging markets. On the other hand, board independence's decreasing impact on financial distress in developed markets and its increasing impact in emerging markets are only relevant when investor protection is high. The results also suggest that when the country's investor protection level is high, increased firm-level shareholder rights lead to increased financial distress. The finding indicates that higher firm-level shareholder rights, when coupled with higher country-level investor protection, exaggerate shareholder-creditor conflict and might lead to distorted investment decisions and excessive risk-taking. In addition, when the country's investor protection is high, concentrated ownership has a deteriorating effect on financial health in both developed and emerging countries. As for the blockholders sub-types, the findings suggest that when investor protection is high, institutional blockholders have an increasing effect on financial distress in developed countries, and strategic blockholders have a decreasing effect on financial distress in developed countries and an increasing effect on financial distress in emerging countries. The results indicate that blockholders are more powerful with higher country investor rights, therefore they are more likely to significantly impact financial distress. As opposed to the findings related to country investor protection, the impact of corporate governance mechanisms on financial distress does not change based on the level of country creditor rights. Nevertheless, the impact of ownership structures on financial distress is affected by the country's level of creditor rights. If the level of creditor rights in a developed country is higher, ownership concentration and institutional blockholders have increasing effects, whereas strategic blockholders and their sub-types have a decreasing impact on financial distress. Besides, institutional blockholders are detrimental to the financial health of the emerging firm when

country creditor rights are low. The analyses also suggest that the impact of firm size on financial distress is contingent on the level of the country's macroeconomic factors. If the country's investor protection and creditor rights levels are low, firm size might indeed lead to increased financial distress. If country investor protection is higher, larger firm indicates decreased financial distress.

The third group of analyses examines the impact of financial distress duration on the relationship between governance and financial distress. The findings indicate that as the duration of distress increases, so does financial distress. Besides, the interaction of distress duration with corporate governance and ownership variables suggests significant findings. As the firm remains distressed for consecutive years, the negative impacts of CEO duality in developed countries and shareholder score in the global sample reverse and start to have favorable effects on the financial health of the firm. On the other hand, as distress duration increases, favorable effects of board independence in developed countries and favorable effects of strategic entity blockholders and individual investor blockholders become unfavorable to the firm’s financial health. These findings suggest that distress duration changes the effects of some corporate governance and ownership variables on financial distress.

Overall, these findings provide the literature with robust evidence on the impacts of corporate governance mechanisms and ownership variables on financial distress within a comparative context of the global sample, developed markets, and emerging markets. Moreover, this study expands the governance–distress literature by offering an integrated approach that reveals the effects of country-level governance characteristics and distress duration on the relationship between firm-level governance and distress. The findings of this study are expected to resolve most

of the conflicting and undecisive evidence and offer future research alternatives. Therefore, this thesis is:

- The largest cross-country study with a robust sample that analyzes the effect of corporate governance and ownership attributes on financial distress.
- The first comprehensive cross-country study to analyze the impact of country-level corporate governance factors on the relationship between firm-level governance and financial distress.
- The first comprehensive cross-country study to analyze the impact of distress duration on the relationship between firm-level governance and financial distress.[2]

The remainder of the thesis is organized as follows. Chapter 2 reviews the literature and develops 14 separate hypotheses that are tested in this study. Chapter 3 describes the methodology used to test the hypotheses by defining the sample construction process, variables used in the analyses, tests that overcome the endogeneity concerns, and the baseline model used in the analyses. Chapter 4 presents the results of analyses in three groups. The first group examines the effects of corporate governance and ownership variables on financial distress, as well as the interacting effect of board independence on CEO duality. The second group analyzes the effect of country-level investor protection and creditor rights on the relationship between firm-level governance and financial distress. The third group analyzes the impact of financial distress duration on the relationship between firm-level governance and financial distress. Chapter 4 also presents the results of the robustness tests. Chapter 5 concludes the study by providing a summary of the main

[2] According to the latest surveys (e.g. Habib et al., 2020) and to the humble efforts of the author in reviewing the literature, there exists no global comparative study in these areas.

findings, contributions with implications, the limitations of the study, and suggestions for future research.

CHAPTER 2

LITERATURE REVIEW

This chapter reviews the relevant literature and develops hypotheses that are tested to examine the relationship between governance and financial distress. First, I review the financial distress definitions and measurements used in the literature and frame the definition employed in this study. Second, I review past studies that focus on understanding the determinants of financial distress, which are grouped into firm fundamentals, market-related and macroeconomic determinants, and corporate governance mechanisms. Third, I elaborate on the literature related to firm-level corporate governance variables as determinants of financial distress. Here, I specifically focus on the board of directors, CEO duality, shareholders' rights, and ownership structure, which are the main governance mechanisms that this study concentrates on. Fourth, I review the literature on country-level governance factors, i.e., shareholder rights and creditor protection, within the financial distress framework. Finally, I examine the limited literature on financial distress duration. Each group of literature review is followed by relevant hypotheses that are tested in this study. A total of 14 hypotheses are developed.

2.1 Definition and measurement of financial distress

The definition, measurement, and determinants of financial distress are still subject to debate. Financial distress is a rather ambiguous concept that has often been related to insolvency, default, failure, and bankruptcy. (Altman et al., 2019; Altman & Hotchkiss, 2010). Habib et al. (2020) argue that financial distress encompasses these generic terms, however, it does not necessarily result in any of the four. Yet, a

persistent financial deterioration might eventually result in default or bankruptcy, which leaves the shareholders and creditors with significant losses. Knowing that there is impending financial distress, stakeholders and creditors may have incentives to take necessary actions to protect their interests, the result of which may be favorable or unfavorable in terms of the financial situation of the firm.

There is no standardized distress definition nor a common proxy. Several authors associate financial distress with a single legal event, typically bankruptcy, and build ex-post dichotomous classification models (Altman, 1968; Ohlson, 1980; Zmijewski, 1984; Altman et al., 2017). Such a juridical definition is very popular because it allows easy separation of firms into two groups, yet results in an ex-post classification with ex-ante forecasting implications (Balcaen & Ooghe, 2006).

Other authors interpret financial distress as a dynamic path where a set of adverse financial symptoms can be identified with several determinants. Asquith et al. (1994) define financial distress as EBITDA of less than 80 percent of interest expense in any two consecutive years. Wruck (1990) defines financial distress as an insufficient cash flow to cover current liabilities. Flagg et al. (1991), on the other hand, define financial distress within the context of four corporate failure events (i.e., troubled debt restructurings, "going concern" qualified opinions, reductions in dividends, and violations of debt covenants). Other financial distress definitions include cash insolvency (Laitinen, 1993; Whitaker, 1999), default on bank loans (Ward & Foster, 1997) negative operating cash flows (Parker et al., 2002), negative net income (Elloumi & Gueyié, 2001; Miglani et al., 2015), interest coverage ratio (Asquith et al., 1994; Fich & Slezak, 2008), and abnormality of the financial situation (Wang & Deng, 2006). These authors in general consider a firm as

financially distressed without an occurrence of actual business failures, such as bankruptcy or default.

Another group of authors based their financial distress prediction efforts on market-based models that draw from Black and Scholes (1973) and Merton (1974). Prominent measures in this group include the BSM-Prob (Hillegeist et al., 2004), distance to default (Bharath & Shumway, 2008; Eisdorfer et al., 2018; Koh et al., 2015; Sundaram & Yermack, 2007), Moody's CreditEdge (previously KMV's expected default frequency—EDF) (Gao et al., 2018), and the CHS measure (Campbell et al., 2008). These studies attempt to associate financial distress with a default likelihood measure calculated or implied from the market data. Another study in this group is Trujillo-Ponce et al. (2014), which uses credit default swaps as a proxy for financial distress.

In general, the definition, measurement, and classification of financial distress are arbitrary and differ across studies (Keasey & Watson, 1991). However, the sole use of accounting information to proxy for financial distress, such as the case in prominent ex-post classification models, is extensively criticized because accounting data do not reflect all relevant indicators of financial distress.[3] To overcome the limitations of these accounting-based financial distress proxies, a few more recent papers use market-based ex-ante measures of financial distress to analyze the relationship between governance and financial distress (Cao et al., 2015; Schultz et al., 2017; Switzer & Wang, 2013). Schultz et al. (2017) suggest that incorporating a market-based ex-ante measure makes it possible to study the governance characteristics of firms suffering default likelihood, rather than merely studying the governance of the firms that failed. Bharath and Shumway (2008) support using ex-

[3] See Balcaen and Ooghe (2006) for an extensive argument.

ante forecasting models and suggest a naïve alternative that utilizes the functional form of Merton's (1974) bond pricing model.

2.2 Determinants of financial distress

Determining whether the firm is in financial distress and whether serious financial problems are approaching is of utmost importance for stakeholders and creditors to make necessary decisions that protect their valuable claims. But what are the determinants that offer potential indicators of financial distress? The literature has proposed and tested several alternatives.

Financial distress determinants studied and modeled in past studies can be categorized into three groups: firm fundamentals, market-related and macroeconomic determinants, and corporate governance mechanisms (Habib et al., 2020). Several studies that predict financial distress use only accounting data, mostly financial ratios. Nevertheless, early papers produced well-known prediction models (e.g. Altman's Z-Score (1968), Ohlson's O-Score (1980), Zmijewski Financial Score (ZFS) (1984)). Several criticisms have been raised against these studies that use accounting information in isolation (Balcaen & Ooghe, 2006); however, the variables and prediction scores are still widely prominent in distress and bankruptcy prediction by academicians and in practice (Altman et al., 2019). Besides the accounting variables, several studies theorized and empirically tested other firm-level fundamentals. These studies use research and development investments (Zhang, 2015), audit opinions (Flagg et al., 1991; Ting et al., 2008), foreign currency hedging and derivatives (Magee, 2013), employee relations (Kane et al., 2005), corporate social responsibility (Chang et al., 2013), and management reports (Gandhi et al.,

2019), to name a few. These authors find that not only the accounting variables but also the firm fundamentals have explanatory power to determine financial distress.

The second group of studies investigates the effects of macroeconomic and market-related variables (Duffie et al., 2007). Several authors incorporate in prediction models some variables such as country risk factors (Altman et al., 2017; Tinoco & Wilson, 2013), excess stock returns (Fich & Slezak, 2008; Koh et al., 2015), industry-adjusted profitability (Opler & Titman, 1994), and industry-adjusted return (Whitaker, 1999), finding improvements on the existing models.

Numerous past papers have incorporated these two groups of determinants in an integrated approach. For instance, Shumway (2001) and Trujillo-Ponce et al. (2014) include both accounting and market variables in their models. Tinoco and Wilson (2013) use accounting, macroeconomics (short-term Treasury bill rate and retail price index), and market variables, to augment the predictive ability of the accounting-based distress prediction models. Additionally, Cao et al. (2015), Darrat et al. (2016), Fich & Slezak (2008), and Schultz et al. (2017) use accounting, economic, and market variables along with corporate governance variables. Nevertheless, none of these models consider the effects of different macroeconomic settings on the relation between the predictors and financial distress.

Third and the final group of financial distress determinants are firm-level corporate governance structures, which are discussed in-depth in the next section.

2.3 Firm-level corporate governance as determinants of financial distress

Corporate governance is a set of rules and procedures by which a company is managed in the sense that agency conflicts are minimized (Jensen & Meckling, 1976). Weak corporate governance establishes opportunities for owners and

managers to seek personal gains at the expense of minority shareholders and creditors. Specifically, corporate governance establishes mechanisms to induce the decision-makers to act in the interest of the suppliers of capital and to restrain managers from pursuing their self-interest (Shleifer & Vishny, 1997). Particularly, "Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment" (Shleifer & Vishny, 1997, p.737). Similarly, Becht et al. (2003) state that "corporate governance is concerned with the resolution of collective action problems among dispersed investors and the reconciliation of conflicts of interest between various corporate claimholders" (p.3). Strong corporate governance mechanisms, therefore, monitor managers, mitigate agency problems, reduce related agency costs, and help improve shareholder value while protecting creditor claims.

The role of corporate governance mechanisms (e.g., the board size, board composition, and CEO duality) in explaining and mitigating financial distress has recently been a prevalent topic of discussion in the literature. Several studies show that effective governance structures for healthy firms are not uniformly applicable to financially distressed firms, and, at times, could indeed produce detrimental results (Darrat et al., 2016; Fich & Slezak, 2008; Gillan & Martin, 2002). For example, strong shareholder protection in healthy firms might ensure that managers choose value-increasing investments, whereas powerful shareholders in distressed firms might pressurize management to take risky decisions. These so-called value-increasing actions could result in agency problems between shareholders and creditors, leading to risk shifting or asset substitution behavior, and potentially drifting the firm further into financial distress (Jensen & Meckling, 1976; Myers, 1977). Moreover, aggressive control and monitoring by blockholders to push for

wealth-increasing actions could lead to augmented leverage and excessive risk-taking, which increases financial distress. Therefore, identifying corporate governance mechanisms and ownership structures that affect financial distress is extremely important, since financial distress affects the cost of debt, cost of capital, and various other firm characteristics.

Several authors test the power of corporate governance characteristics in predicting financial distress and bankruptcy. Fich and Slezak (2008), for instance, find that firm-level corporate governance enhances the predictive power of accounting models. The authors state that corporate governance structures might have two influences on financial distress. First, by affecting the firm to disclose accurate financial reports that are free of manipulation that disguises failing performance. Second, by facilitating an efficient response to financial distress that help avoid corporate default and bankruptcy.

Table 1 summarizes the selected literature that analyzes the relationship between governance characteristics and financial distress. The immediate inference from the literature listed in Table 1 is that the scopes of the studies are limited, and the boundaries differ significantly. First, these papers utilize various definitions and measurements of financial distress. As discussed in the previous section, diverse and arbitrary use of financial distress definition and measurement among the papers draws attention. While some studies use ex-post legal definitions such as bankruptcy and default (Chaganti et al., 1985; Daily & Dalton, 1994b; Darrat et al., 2016; Hambrick & D'Aveni, 1992; Lee & Yeh, 2004), others use scores of accounting-based models such as Altman-Z (Fich & Slezak, 2008) or Zmijewski score (Miglani et al., 2015). A group of studies uses financial distress proxies that are based on companies' fundamentals, for instance having negative net income for consecutive

Table 1. Summary Literature on Corporate Governance and Financial Distress

Author	Sample	Financial Distress Measure	Method
Cao et al. (2015)	97 US AAER firms included in the RiskMetrics database from 1982 to 2005	Binary: Default / Non-default Continuous: Merton (1974) distance to default	Hazard Analysis and OLS
Chaganti et al. (1985)	21 bankrupt and 21 matched non-bankrupt US firms from 1971 to 1976	Binary: Bankrupt / Non-bankrupt	Mean Comparison
Daily and Dalton (1994a)	50 bankrupt and 50 matched non-bankrupt US firms in 1990	Binary: Bankrupt / Non-bankrupt	Logit
Daily and Dalton (1994b)	57 bankrupt and 57 matched surviving US firms from 1972 to 1982	Binary: Bankrupt / Non-bankrupt	Logit
Darrat et al. (2016)	217 bankrupt and 9,100 non-bankrupt (healthy) US firms from 1996 to 2006	Binary: Chapter 11 Bankruptcy filing	Logit
Donker et al. (2009)	177 Netherlands firms (33 distressed) from 1992 to 2002	Binary: Insolvency, bankruptcy, liquidation	Logit
Elloumi and Gueyie (2001)	46 distressed and 46 matched healthy Canadian firms from 1996 to 1998	Binary: Distressed if earnings per share for the last five years are negative, 0 otherwise	Logit
Fich and Slezak (2008)	781 US firms (34 bankrupts) from 1991 to 2000	Continuous: Altman Z-Score and Interest Coverage Ratio	Hazard Analysis
Hsu and Wu (2014)	117 failed and 117 non-failed UK firms from 1997 to 2010	Binary: corporate failure	Logit
Lee and Yeh (2004)	45 distressed and 88 matching healthy Taiwanese firms from 1996 to 1999	Binary: Default on loan and net worth falls below half of its capital stock	Logit
Manzaneque et al. (2016)	308 paired Spanish firm years from 2007 to 2012	Binary: EBITDA < Financial Expense and/or MCAP falls two consecutive years	Logit
Miglani et al. (2015)	171 financially distressed and 106 healthy Australian firms from 1999 to 2003	Binary: Five consecutive years of negative net income Continuous: Zmijewski Financial Score	Logit Pooled OLS Panel Fixed and Random Effects
Parker et al (2002)	176 US firms from 1988 to 1996	Binary: change of operating cash flow from positive to negative and actual default	Hazard Analysis
Platt and Platt (2012)	87 bankrupt and 205 non-bankrupt US firms from 1998 to 2009	Binary: Bankrupt / Non-bankrupt	Mean Comparison
Shahwan (2015)	86 Egyptian firms in 2008	Binary: Altman Z-Score Classification	Logit
Simpson and Gleason (1999)	287 US banking firms from 1989 to 1993	Continuous: SNL Bank Safety Rating	Logit
Switzer et al. (2018)	719 financial firms in 28 Asian and European Countries from 2010 to 2012	Continuous: Merton (1974) probability of default	Panel Fixed Effects
Wang and Deng (2006)	97 bankrupt and 97 matched non-bankrupt Chinese firms from 2002 to 2003	Binary: Bankrupt / Non-bankrupt	Logit

years (Elloumi & Gueyié, 2001; Miglani et al., 2015), change in operating cash flow from positive to negative (Parker et al., 2002), interest coverage ratio (Fich & Slezak, 2008), and low stock price performance (Aldamen et al., 2012). A few later papers, however, use market-based measurements such as Merton's probability of default (Cao et al., 2015; Schultz et al., 2017; Switzer et al., 2018).

Second, the studies test dissimilar groups of corporate governance characteristics as explanatory variables. Corporate governance variables are measured either as a combined index, such as the G-Index of Gompers et al., (2003), the Gov-Score of Brown & Caylor, (2006), and the entrenchment index of Bebchuk et al., (2009), or as separate attributes as significant elements of corporate governance, such as board size (Cao et al., 2015; Fich & Slezak, 2008), board independence (Elloumi & Gueyié, 2001; Miglani et al., 2015), CEO duality (Daily & Dalton, 1994b; Darrat et al., 2016), blockholders (Miglani et al., 2015; Parker et al., 2002), institutional ownership (Cao et al., 2015; Lee & Yeh, 2004), and several other governance mechanisms.

Third, the studies use different econometric methods to build their models. The typical method is to dichotomously separate the financial distress measure as distressed and non-distressed and to use a cross-sectional logistic regression (Logit) analysis to investigate the effects of corporate governance on financial distress (Daily & Dalton, 1994b; Darrat et al., 2016; Hambrick & D'Aveni, 1992; Lee & Yeh, 2004; Wang & Deng, 2006). Nevertheless, other studies use OLS (Cao et al., 2015) and some more contemporary studies use Panel Data analysis against a continuous financial distress measure (Miglani et al., 2015; Switzer et al., 2018). Again, there is no standard approach in modeling the governance-distress relationship and controlling for different sets of accounting, firm-specific, and market variables. The

studies use different groups of control variables (including accounting variables, firm fundamentals, and market variables), a few of whom have counterintuitive signs. Some papers do not even use any control variables and only conduct mean comparison t-tests (Chaganti et al., 1985; H. D. Platt & Platt, 2006), which could have resulted in omitted variables and yielded spurious relationships. Moreover, these papers analyze a sample of selected companies in a single country.[4]

The literature does not have conclusive evidence nor a corporate governance theory that proposes the best corporate governance mechanisms that mitigate or exacerbate financial distress (Carpenter et al., 2008). Nevertheless, Cao et al. (2015) suggest that concentrating on a smaller group of governance mechanisms that are supported by the theory and evidence would yield more productive results. The authors in general agree that the most important governance attributes are the structure of the board of directors and the characteristics of the CEO (Habib et al., 2020). Therefore, this study focuses on board size, board composition, and CEO duality. Moreover, excessive rights of the shareholders might create a source of agency conflict between shareholders and creditors, leading to increased financial distress. To examine this effect, or at least to control for it, I also include shareholder rights in the analyses. Detailed reviews on each corporate governance mechanism are provided in the following part.

2.3.1 Board of directors and financial distress

Jensen (1993) places the board of directors at top of the internal control mechanism, as the board has an extremely crucial authority including hiring, firing, and compensating the CEO. Lipton and Lorsch (1992) state that a strong board is vital for

[4] One cross-country study is Switzer et al. (2018), which analyze 719 financial firms in Europe and Asia.

effective internal control and corporate governance. The Board of directors, with directors' human capital, provides resources to the firm that help reduce financial distress (Switzer et al., 2018). Therefore, it is of utmost importance to investigate the relationship between board structure and financial distress.

Two main factors that are conceived affecting a board's ability to perform as a viable corporate governance mechanism are board size and board independence. The board of directors of a firm primarily serves two roles: advisory and monitoring. In a broader framework, board size is generally related to the advisory role, whereas board independence is related to the monitoring role (Darrat et al., 2016). Both factors are essential for a healthy operating board of directors. Following several other studies (Cao et al., 2015; Chaganti et al., 1985; Elloumi & Gueyié, 2001; Fich & Slezak, 2008; Parker et al., 2002; Platt & Platt, 2012; Wang & Deng, 2006), I include board size and board independence in the analyses to understand the impact of board structure on financial distress.

2.3.1.1 Board size and financial distress

Jensen (1993) states that smaller boards might provide efficient monitoring and better functioning to the firm, while oversized boards[5] are likely to be easily influenced by the CEO. Lipton and Lorsch (1992) argue that members of smaller boards will get acquainted with each other and have an effective consensus and coordination as more directors are likely to actively contribute. On the other hand, Simpson and Gleason (1999) argue that a smaller board could bring about the collusion of the management with shareholders' interests and increase the distress risk of the firm. Platt and Platt (2012) argue that while a larger board may bring

[5] Lipton and Lorsch (1992) and Jensen (1993) recommend limiting the boards to seven and eight people, and at most ten, to reduce the free-riding problem.

together a wide variety of skills, perspectives, and experiences, smaller boards may act quicker in taking necessary decisions especially during crisis periods such as financial distress. These authors highlight the potential positive and negative aspects of both smaller and larger board of directors.

Besides these theoretical arguments, the evidence on the effect of board size on financial distress is also mixed. Darrat et al. (2016), Elloumi and Gueyié (2001), Schultz et al. (2017), Switzer et al. (2018), and Wang and Deng (2006) find no relationship between board size and financial distress. On the other hand, other authors find significant, yet mixed evidence. Cao et al. (2015) and Fich and Slezak (2008) find that larger boards are associated with increased financial distress, whereas Chaganti et al. (1985) and Platt and Platt (2012) find that larger boards indeed have a decreasing impact on financial distress. These mixed results could be due to different samples and periods used, as well as not controlling for the relevant market and macroeconomic factors. In a more comprehensive study covering 28 Asian and European countries, Switzer et al. (2018) find that financial firms with larger boards have higher default risks. Again, this study is only limited to financial firms in Europe and Asia.

Although there is no consensus in theory and evidence concerning the effect of board size on financial distress, I consider that Jensen's (1993), as well as Lipton and Lorsch's (1992) arguments, are on stronger grounds in that smaller boards provide efficient monitoring and coordination that might alleviate financial distress. Moreover, Gilson (1990) shows that after firms enter bankruptcy protection, their board sizes are often reduced. Fich and Slezak (2008) regard Gilson's finding as a support to their results that smaller boards are often better at monitoring and creating value during periods of financial distress. Relying on the theoretical framework and

empirical research, I hypothesize that board size is positively related to a firm's financial distress.

Hypothesis 1: Board size is positively related to financial distress.

2.3.1.2 Board independence and financial distress

Independent directors are defined as the board members who are neither firm's full-time executives (inside directors) nor those who have close associations with the firm (gray directors). Therefore, the sole relationship of the independent directors with the firm is them being the board member. Independent board members have significant roles in implementing effective corporate governance rules and judging the level of financial risk of the firm (Nuhoğlu & Erdoğan, 2017). Therefore, the literature investigated the potential effects of independent board members on financial distress.

Several past studies fail to establish a relationship between independent directors and financial distress (Chaganti et al., 1985; Daily & Dalton, 1994b; Miglani et al., 2015; Parker et al., 2002). Besides these inconclusive results, a few studies find that outside directors are associated with increased financial distress, especially in certain situations. (Darrat et al., 2016; Hsu & Wu, 2014). Darrat et al. (2016), for instance, find that in firms whose operations are more complex and require specialist knowledge, lower board independence is associated with lower bankruptcy risk, whereas, in firms with less sophisticated operations, higher board independence is associated with decreased bankruptcy risk. Hsu and Wu (2014) analyze the corporate failure aspect of UK firms with a matched sample of failed and non-failed firms. Their findings suggest that percentage of grey directors (not independent directors) have a negative association with corporate failure. Li et al.

(2021) show that independent director monitoring is associated with an increased risk of financial distress in the sample Chinese firms.

However, literature generally concludes that boards with a higher percentage of independent members provide better monitoring and advice that help decrease corporate distress risk (Cao et al., 2015; Elloumi & Gueyié, 2001; Fich & Slezak, 2008; Hambrick & D'Aveni, 1992; Khan & Kong, 2022; H. Platt & Platt, 2012; Wang & Deng, 2006). The decreasing effect of board independence mainly relies on the agency theory. Fama and Jensen (1983) argue that outside board members act as decision agents in firms and play arbiter roles in decisions associated with serious agency problems, such as replacing top management or compensating the CEO. Fama (1980) discusses that independent directors will have higher motivations to provide more effective monitoring over the management to preserve their reputational capital and have a competitive advantage in the external labor market. Bhojraj and Sengupta (2003) suggest that independent board members play an active role in monitoring the management, thereby reducing corporate risks stemming from information asymmetry and agency costs. This reduced risk in turn benefits the firm with higher bond yields. As a result, the board's control and monitoring functions are likely to be better exercised by the independent directors (Zahra & Pearce, 1989) as opposed to insiders or grey directors.

Also, independent board members will be in a better position to urge management into a strategic transformation in the event of deteriorating firm performance, such as increased financial distress (Daily & Dalton, 1994a). Fich and Slezak (2008) argue that independent board members are more sensitive to claimholders in terms of fiduciary responsibilities, which leads them to act in favor of the financial health of the firm. Considering the theoretical framework and past

research, I hypothesize that board independence is negatively related to financial distress.

Hypothesis 2: Board independence is negatively related to financial distress.

2.3.2 CEO duality and financial distress

Advocates of CEO duality find support from the stewardship theory, arguing that a dual CEO helps maintain the unity of control, demonstrates powerful leadership, and prevents conflict between a separate CEO and board chairperson (Davis et al., 1997; Donaldson & Davis, 1991). On the other hand, several authors suggest that the CEO and the board chairmanship positions should be separately held by different individuals because when the CEO holds dual positions, the board governance mechanism is significantly compromised with reduced monitoring effectiveness and deteriorated board independence (Baysinger & Hoskisson, 1990; Imhoff, 2003; Jensen, 1993; Rechner & Dalton, 1991). The CEO, as the manager setting the agenda of the board, has control over important decisions. Jensen (1993) posits that when the CEO has a dual position as also the chair of the board, the board might fail to act as an effective control mechanism, considering the duty of the board is to hire, fire, and compensate the CEO. Moreover, the dual CEO has a considerable influence on the decisions regarding the candidates for boards seats, therefore increasing the risk that CEO-appointed new board members will not be truly independent even though they are outside directors (Ashbaugh-Skaife et al., 2006). Even if composed of a high number of independent members, the board of directors' effectiveness in monitoring the management will be limited to the degree of its being captured by the compromise and loyalty to the management (Simpson & Gleason, 1999).

Fama and Jensen (1983) discuss that when decision control and decision management are concentrated (when CEO is also the head of the board of directors), shareholders have little protection against the unscrupulous decisions of the entrenched CEO. Jensen (1993) states that the CEO, as also the chair of the team of directors, would likely steer the board of directors parallel to his or her interests. Therefore, an independent chair is essential in enabling the board to accomplish its critical monitoring and advice functions. Dalton and Kesner (1987) see CEO duality as a "very real threat to the exercise of independent judgment by the board of directors" (p.35). Therefore, a serious conflict of interest emerges when the CEO acts as the chairperson of the board, whose role includes monitoring and evaluating the top manager. Besides these arguments regarding conflict of interest, several researchers argue that a dual CEO is also associated with weaker firm performance. Adams et al. (2005), for instance, find that firms with powerful CEOs have increased risks with more variable stock returns.

Several studies empirically tested the relationship between CEO duality and financial distress, most of them finding no relationship between the two (Chaganti et al., 1985; Daily & Dalton, 1994b; Elloumi & Gueyié, 2001; Miglani et al., 2015; Platt & Platt, 2012; Schultz et al., 2017; Wang & Deng, 2006). Besides this inconclusive evidence, there is limited finding that CEO duality leads to increased levels of financial distress. Darrat et al. (2016) demonstrate that firms with powerful CEOs, proxied by CEO duality, are more likely to suffer from bankruptcy. Daily and Dalton (1994b) suggest that with a dual CEO, problems faced during financial distress might be exacerbated because required radical changes such as the turnover of the management are unlikely to be adopted. Similarly, Elloumi and Gueyié (2001) find that CEO turnover in financially distressed firms is significantly more common

when the boards have non-CEO chairs. These findings support the argument of Lipton and Lorsch (1992) that the separation of the CEO from the chairperson of the board could help the board of directors to act quickly when a crisis occurs and to break out from unfavorable financial conditions. Finally, Switzer et al. (2018) with a more contemporaneous and comprehensive sample, find that if the CEO is also the chair of the board, the default risk of the firm becomes higher.

With a view to the fundamental problems that CEO duality poses on the firm, I assume that separation of the CEO from the board chairmanship would be a more reasonable mechanism for reducing the overall corporate risk and financial distress. Therefore, I hypothesize that when a CEO is also the chairperson of the board of directors, the firm will have increased financial distress levels.

Hypothesis 3: CEO duality is positively related to financial distress.

2.3.3 Board independence and CEO duality

As discussed previously, several studies find inconclusive results on the relationship between CEO duality and financial distress (Chaganti et al., 1985; Daily & Dalton, 1994b; Elloumi & Gueyié, 2001; Miglani et al., 2015; Platt & Platt, 2012; Schultz et al., 2017; Wang & Deng, 2006). The reason for these insignificant results might be that studies investigate the impact of CEO duality in isolation, i.e., without considering the mitigating effect of independent board members.

Hermalin and Weisbach (1998) propose a model where the board's effectiveness in monitoring the CEO is a function of board independence. What the authors suggest is that independent boards can more easily collect costly information about the CEO, which would help them decide to whether retain or dismiss the CEO.

Their model implies that independent boards can more easily monitor the CEO and might have a mitigating effect on his or her unfavorable actions that would deteriorate the financial distress of the firm.

Daily and Dalton (1994b) find evidence showing that the increasing impact of CEO duality on the probability of bankruptcy is stronger when the percentage of independent directors is low. Similarly, Daily and Dalton (1994a) find that bankrupt firms are more likely to have dual CEOs and lower proportions of independent board members, while the interaction of the two is significant.

Jensen (1993) underlines the importance of a board culture that fosters an effective control environment where consent is not rewarded, and constructive conflicts are encouraged. When the CEOs are powerful to influence and control the board, the board culture deteriorates and the firm performance decreases. As suggested by Lipton and Lorsch (1992), the monitoring function is reduced if the board cannot provide effective checks and balances to the CEO. Therefore, I suggest that the degree of CEO power (i.e., CEO duality) should be evaluated in interaction with the level of board independence.

A dual CEO might result in a compromised board of directors in its monitoring and control function. However, this might be mitigated by independent directors, particularly during times of financial distress. In line with the theoretical discussions of Hermalin and Weisbach (1998) and previous evidence from Daily and Dalton (1994b), I hypothesize that the increasing effect of CEO duality on financial distress is moderated by increased levels of independent board members.

Hypothesis 4: Positive effect of CEO duality on financial distress is mitigated by independent board members.

2.3.4 Shareholder rights and financial distress

Shareholders' rights imply the power and effectiveness of shareholders in the firm. Strong shareholders would act as a control mechanism to ensure that management makes decisions to maximize shareholders' wealth. It is valid to expect a positive relationship between shareholders' score and value (Cremers & Ferrell, 2014; Gompers et al., 2003). However, management decisions under the influence of powerful shareholders could be aggressively value-focused and risky which could increase the probability of default, and be at the expense of creditors (Ashbaugh-Skaife et al., 2006). Especially when the firm is levered and suffering a decent level of financial distress, shareholders would have incentives to transfer wealth from creditors to themselves (Ashbaugh-Skaife et al., 2006). Therefore, any governance mechanism designed for the benefit of shareholders might be negatively affecting the benefits of creditors.

A positive relationship between increased shareholder rights and increased financial distress implies a potential agency problem between shareholders and creditors. This agency problem can lead to asset substitution (or risk-shifting), in which shareholders in a distressed company choose to invest in high-risk projects to benefit from the positive outcome if the project becomes successful, but push the cost towards creditors if the project fails (Jensen & Meckling, 1976). Closer alignment with shareholder interests would intensify the conflict of interests between shareholders and creditors, distorting investment goals and increasing the probability of excessive risk-taking, especially during periods of financial distress (Aghion et al., 1992, 1992; Hart, 2000). Increased shareholder rights can also trigger another agency conflict called the underinvestment problem where shareholders forego valuable investment opportunities because a larger portion of the benefits would go to the

creditors (Myers, 1977). Similarly, Garlappi et al. (2008) contend that if shareholders can expropriate creditors during bankruptcy, they can ensure a safe return in case of liquidation. Therefore, as default becomes inevitably looming, the equity risk declines.

Besides the theoretical discussions, there is limited evidence that shows stronger shareholder rights are associated with increased financial distress. Ashbaugh-Skaife et al. (2006) find that higher shareholder rights are related to lower firm credit ratings. Similarly, Klock et al. (2005) find that firms with weaker shareholder rights (better anti-takeover provisions) have lower debt financing costs as compared to firms with better shareholder rights. Based on the literature and scant evidence, I hypothesize that increased shareholder rights are associated with increased financial distress.

Hypothesis 5: Stronger shareholder rights are positively related to financial distress.

2.4 Ownership structure and financial distress

Shleifer and Vishny (1997) suggest that "the most direct way to align cash flow and control rights of outside investors is to concentrate shareholdings" (p.754). This concentration occurs when one or several shareholders have larger holdings of ownership stakes. A shareholder with an ownership interest of 5 percent or more is generally regarded as a blockholder because of associated voting rights and monitoring incentives (Ashbaugh-Skaife et al., 2006; Bhojraj & Sengupta, 2003). The blockholders and their relationship with financial distress are analyzed as total blockholders and their two types: institutional and strategic blockholders.

2.4.1 Total blockholders

Jensen and Meckling (1976) argue that blockholders, with their large ownership stake in the firm, have incentives to monitor the decisions of the managers to ensure that these decisions are maximizing their shareholding value. Jensen (1993) and Shleifer and Vishny (1997) state that blockholders are important elements of corporate governance because they have sufficient voting rights to pressurize the management of the firm, or even turn the management over in some cases if they see managerial opportunistic actions. Blockholders can use two sets of governance mechanisms to put pressure on the managers: voice and exit (Edmans, 2014; Edmans & Holderness, 2017). Voice can be exercised in different ways, such as direct intervention (e.g. public criticism of management actions, advising to the manager), monitoring (e.g. private questions to the management on their actions), or governing (e.g. voting rights). On the other hand, when the implementation of voice alternatives is difficult for the blockholders, they can choose to exit, i.e., selling their shares and causing a fall in the stock price (Edmans, 2014; Edmans & Holderness, 2017). Besides these governance benefits of blockholders, Shleifer and Vishny (1997) consider blockholders as a form of ownership concentration that helps address the agency problem by collecting costly information to monitor the managers.

Parallel to these arguments, Elloumi and Gueyié (2001), Miglani et al. (2015), and Parker et al. (2002) find a negative relationship between blockholders and financial distress arguing that the monitoring ability of the blockholders would discipline the management, which in turn would benefit all shareholders and decrease financial distress. Parker et al. (2002) find that increased levels of blockholder ownership have a negative relationship with the probability of bankruptcy. According to these authors, this favorable effect is because the

blockholders have an influencing effect on the operations that help the survival of the firm in the event of financial distress, and that the existence of blockholders provides positive signals on the future of the firm.

On the flip side of the argument, the literature also provides competing views on ownership concentration, suggesting that blockholders may increase managerial pressure to capture personal benefits at the expense of shareholders and creditors (Bhojraj & Sengupta, 2003). Shleifer and Vishny (1997) highlight that if blockholders have sufficient power beyond a certain threshold, they are inclined to follow private benefits which have a wealth-decreasing impact on creditors. During periods of financial distress, this effect of wealth distribution from creditors to shareholders is exaggerated (Ashbaugh-Skaife et al., 2006). Moreover, Jensen and Meckling (1976) highlight that blockholders, as residual claimants, could induce managers to invest in projects with very high returns if successful but with very low success probability. Therefore, as the percentage of shares held by the blockholders increases, the likelihood of creditors being expropriated by the shareholders increases in a way that intensifies financial distress. Claessens et al. (2002) and La Porta et al. (2000) reinforce this argument of expropriation.

There is empirical evidence supporting the positive relationship between blockholders and financial distress, which supports the argument of wealth shifting from creditors to shareholders. Ashbaugh-Skaife et al. (2006) find that total blockholders are negatively related to the firm credit ratings, probably due to the influence of the blockholders on management to ensure private benefits that are unfavorable for the creditors. Similarly, Bhojraj and Sengupta (2003) document the unfavorable impact of blockholders on firm bond ratings, strengthening the argument for the expropriation of the bondholders by the concentrated shareholders. Moreover,

Lee and Yeh (2004) find a positive relationship between blockholders and financial distress, suggesting the potential collusion of concentrated shareholders with management. Following the second group of theory and empirical findings, I posit that large controlling shareholders would potentially force managers into decisions favoring their private benefits at the expense of creditors and the financial well-being of the firm. Therefore, I hypothesize that blockholders are positively related to firm's financial distress.

Hypothesis 6: Blockholders are positively related to financial distress.

2.4.2 Institutional blockholders

While studying total blockholders is very important to understand the impact of ownership concentration and controlling shareholders on financial distress, dissecting the types of blockholders would provide a clearer insight into the analysis. As indicated by Edmans (2014), blockholders are a diverse set of different parties of shareholders, each with its peculiar characteristics. Even if we can define what constitutes a blockholder (such as holding 5% of the outstanding common shares), considering blockholders as an aggregate group with common characteristics may ignore the important relationship between each blockholder type and financial distress. Therefore, to provide a better holistic analysis, we need to investigate each blockholder type separately and analyze differing relations with financial distress. Accordingly, I classify total blockholders into two main types, i.e., institutional blockholders and strategic blockholders, and review the related literature accordingly.[6]

[6] Institutional Blockholders are composed of companies or organizations that buy shares of the firms on behalf of other people. These blockholders are that are relatively active shareholders of the firms,

An extensive body of literature argues that institutional blockholders provide important controlling and monitoring functions and play an active role in improving financial reporting and firm performance (Chung et al., 2002; Shleifer & Vishny, 1997). Jensen (1993) suggests that as institutional investors concentrate their equity ownership, resolving the free-rider problem becomes easier relative to the limited capability of several small shareholders involved in collective action. What Jensen (1993) argues is that institutional blockholders can start to exercise effective corporate control rights that help constrain the self-serving behavior of the managers. Consistent with this argument, Daily and Dalton (1994a) find that bankrupt firms have lower levels of institutional shareholdings compared to healthy firms. Li et al. (2021) find that institutional ownership reduces the risk of financial distress.

Besides the efficient monitoring argument, Lipton and Lorsch (1992) state that institutional investors, due to their vast and diverse portfolios, do not act as owners like their individual counterparts. According to these authors, institutional blockholders manage their portfolios by indexing them to the market average, rather than deeply analyzing each company. Therefore, the controlling and monitoring roles of institutional investors are weaker than strategic entities or insider owners. Institutional blockholders are relatively active-oriented shareholders, which are expected to act on the interests of shareholders but not necessarily on the interests of creditors. Therefore, bondholder expropriation and wealth-shifting arguments for ownership concentration as discussed above are also valid (and potentially exacerbated) for the institutional blockholders (Claessens et al., 2002; Jensen & Meckling, 1976; Shleifer & Vishny, 1997).

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and they are not classified as strategic entities. They include investment advisors, hedge funds, banks and trusts, insurance companies, pension funds, private equity, sovereign wealth fund, and venture capitals. Strategic Blockholders include corporations, government agencies, holding companies, individual investors, and other insider investors, which are generally passive owners of the firm. Strategic investor shares are not regarded as free float.

Lee and Yeh (2004) find no relationship between institutional shareholders and financial distress. The insignificant result might be because the authors do not distinguish between the effects of institutional blockholders and non-blockholders. Ashbaugh-Skaife et al. (2006) find that institutional shareholdings are negatively related to the firm credit ratings, probably due to the influence of the institutional investors on management to ensure private benefits that are unfavorable for the creditors. Erkens et al. (2012) find that firms with higher institutional owners undertook higher risks during the period before the great financial crisis, which resulted in significantly worse stock returns during 2007 and 2008.

Bhojraj and Sengupta (2003) find adverse impacts of institutional blockholders on firm bond ratings, supporting the argument that institutional blockholders can exert excessive pressure on management which results in the expropriation of the bondholders by concentrated shareholders. Cao et al. (2015) find that a higher concentration of institutional investor ownership has an increasing impact on the default risk of the firms. They argue that the main reason for this adverse effect comes from information asymmetry between the institutional blockholders and creditors, considering that financial reporting might be less effective in preventing information asymmetry and alleviating shareholder-debtholder conflict. The authors also argue that the unfavorable effect of institutional blockholders on the default risk is exacerbated in poor information environments. Moreover, Darrat et al. (2016) find that the probability of bankruptcy is significantly lower if institutional blockholders own fewer shares, substantiating the increasing effect of institutional blockholders on financial distress. Considering the theoretical arguments and empirical findings, I hypothesize that institutional blockholders would act in a way that increases firm's financial distress.

Hypothesis 7: Institutional blockholders are positively related to financial distress.

Besides focusing on the institutional blockholders in aggregate, it has value to separately analyze the largest sub-type of institutional investors, i.e., hedge funds/investment advisor blockholders. Edmans (2014) argues that hedge funds have limited business connections that hold them back from activism. Altman et al. (2019) suggest that hedge funds have trading expertise in distress claims and bankruptcy procedures. Although some hedge funds emphasize only stock picking, activist hedge funds are indeed experts on managerial intervention. Clifford and Lindsey (2016) suggest that hedge funds are more likely to take part in active monitoring of the management as compared to other institutional investor types. Evidence on hedge fund activism yield larger share returns, higher performance (Bebchuk et al., 2009), and even spillover effect on non-target firms (Gantchev et al., 2019). With their survey of institutional investors, McCahery et al. (2016) find that hedge funds engage in shareholder activism more willingly compared to other institutional investors.

Lim (2015) analyzes the impact of hedge funds on firms in the restructuring period to resolve financial distress. The author finds that activist hedge fund involvement alleviates contracting problems, which might result in different sorts of conflicts in financially distressed firms. Jiang et al. (2012) examine the US Chapter 11 firms and find that hedge funds play an activist role during the bankruptcy process, which brings about several corporate outcomes. The literature agrees that hedge funds are more inclined to active monitoring of the management even during times of financial distress, however, their impact on the firm's level of financial

distress is unclear. Nevertheless, I assume that the bondholder expropriation and agency conflict arguments as in institutional investors are also valid for hedge fund/investment advisor blockholders.[7]

Hypothesis 8: Hedge fund/investment advisor blockholders, as the sub-type of institutional blockholders, are positively related to financial distress.

2.4.3 Strategic blockholders

Edmans and Holderness (2017) argue that blockholders are heterogeneous in terms of blockholder types, as institutions and strategic entities may have different investment horizons, expertise, conflict of interest, and governance mechanisms. Strategic blockholders include corporations, government agencies, holding companies, individual investors, and other insider investors, which are generally passive-oriented and not regarded as part of free float.

Although strategic blockholders are an important group of investors, to my knowledge, there has not been any research studying their impact on financial distress. Nevertheless, there is scant research on the effect of strategic blockholder sub-types, i.e., corporation and individual blockholders, on other corporate matters. Dou et al. (2016) find that individual blockholders have a significant influence on a firm's earnings management and financial reporting practices. Yim (2020) study the individual blockholders in Korean firms and their ability to monitor accounting information, documenting that individual blockholders can enhance accounting reporting but with certain limits. Although there is limited evidence in this area of research, I hypothesize that strategic blockholders, and their sub-types of the

[7] The sub-types of institutional investors provided by Refinitiv database include "hedge fund" and "hedge fund/investment advisor." Therefore, the hypothesis is built by combining the two groups into "hedge fund/investment advisor" sub-type.

corporation and individual investor blockholders, have a decreasing effect on a firm's financial distress.

Hypothesis 9: Strategic blockholders are negatively related to financial distress.

Hypothesis 10: Corporation blockholders, as the sub-type of strategic blockholders, are negatively related to financial distress.

Hypothesis 11: Individual investor blockholders, as the sub-type of strategic blockholders, are negatively related to financial distress.

2.5 Country-level governance factors

The macroeconomic context within which the firms operate is very important for a well-functioning financial system. There is sufficient evidence that suggests that macroeconomic factors are indeed significant determinants of a firm's financial distress (Habib et al., 2020). Tinoco and Wilson (2013) find that incorporating macroeconomic variables significantly improves the power of financial distress prediction models. Similarly, Altman et al. (2017) document that financial distress prediction is more accurate when macroeconomic parameters are included in the Altman Z-score model.

The legal environment and the country-level corporate governance factors, such as the degree of investor protection and creditor rights, also have significant impacts on firm-level governance factors.[8] A higher level of investor protection

[8] Besides investor protection and credit rights, there is another strand of literature that investigate the impact of commercial law origins. La Porta et al. (1998) show that countries have significantly different corporate governance mechanisms depending on the origins of commercial law (common- vs. civil-law). Common law is the English law, which is made by judges and subsequently

within a country ensures loyalty to shareholders and restricts managerial self-dealing (Shleifer & Vishny, 1997). If the legal framework of the country does not alleviate agency problems between owners and managers and does not give sufficient rights to minority investors, then the investors maintain effective controls by holding large shares (Shleifer & Vishny, 1997). The evidence from several countries shows that the relationship between ownership and firm performance varies by the level of investor protection within each country (Denis & McConnell, 2003). Himmelberg et al. (1999) find that weaker country-level investor protection relates to more concentrated insider ownership, which consequently increases the cost of capital and risk premium. Therefore, I hypothesize that the relationship between governance and financial distress might be affected by the degree of shareholder protection.

Hypothesis 12: Country-level investor protection affects the relationship between governance and financial distress as hypothesized in hypotheses 1-3 and 5-11

Creditors have an array of legal protections which also varies across countries. These protections include such rights as the ability to take assets as collaterals and the entitlement to liquidate or vote to reorganize the company when the debt is unpaid (Shleifer & Vishny, 1997). The legal settings of the countries affect the level of access to credits. A higher level of creditor protection enables wider equity and debt market and an increased willingness of the financiers to give funds to the companies (La Porta et al., 1997). Lower creditor rights, on the other hand, intensify

incorporated into legislature. Civil law origins are German, French, and Scandinavian laws, which are legislator- and scholar-made, dating to Roman law (La Porta et al., 1997). English common-law countries have the highest degree, while the French civil-law countries have the lowest degree of investor protections, and ownership concentration is negatively associated with investor protection (La Porta et al., 1998). However, this strand of literature is out of the scope of this thesis.

the agency problems between shareholders and debtholders, which would be incorporated in the cost of debt as stronger covenants or higher rates, thereby increasing the likelihood of default. Several studies find evidence that the ability to obtain debt is positively related to the degree of creditor protection (Giannetti, 2003). These findings imply that the level of creditor rights may affect the relationship between governance and financial distress.

Hypothesis 13: Country-level creditor rights affect the relationship between governance and financial distress as hypothesized in hypotheses 1-3 and 5-11

2.6 Duration of financial distress

Another important factor that may affect the relationship between governance and distress is the duration of financial distress, which is defined as the number of years spent after entering financial distress. As indicated by Hambrick and D'Aveni (1992), bankruptcy is not a distinct event but the later stage of a "downward spiral," which is an extended course of deterioration. According to the authors, corporate governance might play a key role in correcting (or worsening) the downward trend.

I expect that the relative impact of firm-level governance on financial distress would change as the firm fails to recover from financial distress for extended periods. For instance, the blockholders might not be as actively monitoring the firm in the first occurrence of distress, but one can assume that the intensity of monitoring would increase as the distress further deteriorates (Jostarndt & Sautner, 2008). For instance, Jostarndt (2007) finds that the duration of distress is a significant predictor in the relationship between ownership concentration and financial distress. Gao et al. (2018) analyze the effect of the interaction between financial distress and distress

duration on stock returns, finding that the duration of financial distress significantly affects the probability of distress risk. Darrat et al. (2016) find that the significant impacts of corporate governance variables become stronger as the firm is farther from bankruptcy. They suggest that unlike accounting ratios, which reflect the current firm status, corporate governance factors are more farsighted and can provide wiser ideas for a longer time horizons. I hypothesize that the duration of financial distress significantly affects the relationship between governance and financial distress.

Hypothesis 14: Duration of distress affects the relationship between governance and financial distress as hypothesized in hypotheses 1-3 and 5-11

CHAPTER 3

METHODOLOGY

This chapter describes the methodology employed to test the hypotheses in the previous chapter. First, I define the sample construction process and describe the final sample used in this study. Second, I explain the variables in five groups: financial distress variable, corporate governance variables, ownership variables, control variables, and macroeconomic variables. Third, I discuss the endogeneity concerns prevalent in the corporate governance literature and propose ways to overcome these concerns. I present the endogeneity tests for corporate governance and ownership variables, econometrically showing that endogeneity is not a concern in this study and that panel data ordinary least squares is a valid approach. Finally, I define the methods of analysis and the baseline model used in the analyses.

3.1 Sample construction

The study's scope is all publicly traded firms in developed and emerging markets. Therefore, sample construction started with identifying public firms in Developed Markets (DM) listed in the MSCI World Index (23 countries from North America, EMEA[9], and Pacific) and Emerging Markets (EM) in the MSCI Emerging Markets Index (27 countries from South America, EMEA, and Asia).[10] All sample firms and annual data are taken from Refinitiv (formerly Thomson Reuters) and DataStream. A total of 96.906 publicly traded firms are identified in the entire DM and EM universe. 26.503 firms that were dead in 2005 or before are excluded from the sample. Since this study focuses on non-financial firms, a total of 7,868 financial

[9] EMEA refers to Europe, Middle East, and Africa

[10] MSCI stands for Morgan Stanley Capital International. See the entire list of the countries and classifications at https://www.msci.com/market-classification

sector firms are excluded from the sample. In defining financial firms, I relied on Refinitiv Business Classification (TRBC) methodology and eliminated firms with sector code 55 (financials).[11] This Economic Sector code includes business sector codes of 5510 (banking and investment services), 5730 (financial technology and infrastructure), and 5530 (insurance).

Moreover, 7,958 firms with less than 3 years of trading data, 189 dual listings, and 9,527 firms which do not have either firm-level static data or WorldScope financial data are eliminated.[12] This elimination remained the sample with 44,861 firms whose common stocks are traded in each country's major stock exchange at any time between 2006 and 2019, inclusive. These firms are limited to common stocks and their primary securities, excluding dual listings.

For these 44,861 firms, I checked the availability of corporate governance data in Refinitiv's Environmental, Social, and Corporate Governance (ESG) database. A total of 37 separate ESG variables are downloaded for the sample firms; however, 37,122 firms turned out to have none of these variables available. This compulsory elimination remained the sample with 7,739 firms.

A valid question at this point is to ask whether this latest elimination due to corporate governance data availability led to sampling bias. To put it differently, whether the remaining firms represent the population in a way that would not harm the generalizability of the results of this study.

[11] TRBC stands for Thomson Reuters Business Classification, which is the former name of Refinitiv Business Classification. TRBC is a market-based system that classifies firms based on the market they serve rather than the goods and services they produce. The system adapts a five-level hierarchical structure which includes, from top to bottom, economic sectors, business sectors, industry groups, industries, and activities. More details on https://www.refinitiv.com/en/financial-data/indices/trbc-business-classification

[12] These firms do not have either static data such as Ticker Symbol, Company Name, or Reuters Identification Code (RIC) or financial data such as balance sheet and income statement information in Refinitiv database.

As warned by several authors, sample selection bias is a common problem within empirical corporate governance research. Most studies analyze only the listed and the largest companies, which are likely to be the most valuable and profitable ones in the relevant country (Börsch- Supan & Köke, 2002). Moreover, commercial databases only garner corporate governance data for the larger portion of the listed companies and keep the focus away from smaller companies. Sampling bias is therefore nearly inevitable in corporate governance research, a phenomenon that the literature mostly acknowledges. For instance, Börsch- Supan and Köke (2002) find that "all empirical studies on corporate governance in Germany suffer from the econometric problem of selection bias" (p.306).

To empirically test whether the selected firms suffer sampling bias, I conduct a comparative analysis between the two groups of firms (i.e., between the eliminated firms due to corporate governance data unavailability and the remaining firms with available governance data). The results of this analysis suggest that although selected 7,739 firms are slightly less than 17% of the total number of firms, they constitute 88% of total market capitalization in the sample period. Eliminated firms with no governance data are smaller and younger firms and have slightly higher financial distress (measured as the probability of default). Nevertheless, the mean difference comparison within each economic sector revealed that most of the sectors in the two groups have similar financial distress means and variances. Therefore, no systematic sampling bias that might impact the analyses and results of this study is detected. Details on the analysis and findings are in APPENDIX A.

Continuing with sample construction, for the remaining 7,739 distinct firms with 51,150 firm years, I check the availability of the financial distress variable for each firm year. Since the models in this study are dynamic panel regressions, I

eliminated firms that have single firm-year observations, and which do not have lagged financial distress values. This last step resulted in the further elimination of 1,200 firms. The final sample comprises 6,539 firms and 49,950 firm years with non-missing financial distress data between the years 2006 and 2019, inclusive.

The final sample presents unbalanced panel data, therefore the available observation years for each sample firm vary. The reason for using an unbalanced panel is to overcome another common methodological problem of survivorship bias in time series and panel data analyses. This bias occurs if the existing (survived) firms in the market are seen as representatives of the global population without considering those that have died (Brown et al., 1992). It is fair to assume that surviving firms have systematically superior governance practices and lower distress probabilities than delisted firms. Therefore, when a firm is delisted (regardless of the reason) or a new firm is listed in the sample period, I keep the historical data within the sample, thereby causing no such bias. An example of unbalanced panel data usage is Himmelberg et al. (1999).

The sample construction process does not adopt a country filter, which requires deleting all firm years in a country if it has less than a certain number of firms or firm years with valid observations.[13] The reason is that this dissertation is not a country-level comparative study; rather, it focuses on markets and macroeconomic factors by controlling for firm and period fixed effects. The results are provided as a global sample, developed market sub-sample, and emerging market sub-sample, indicating that all firms are grouped within respective markets and regions. Nevertheless, several country-level descriptive statistics are provided before regression analyses to have a clearer view of the distribution of the firms among

[13] For instance, Gao et al. (2018) employ a country filter of 50 firms. They include in the sample if the country has at least 50 firms with valid EDF and market capitalization values.

countries and regions. Firm and firm-year distributions for each market, region, and country are in Table 2.

Table 2. Firm and Firm-Year Distribution per Market, Region, and Country

Market/	Firm		Firm Year	
Region/Country	N	%	N	%
EM	1,220	18.7%	8,703	17.4%
South America	218	3.3%	1,434	2.9%
Argentina	35	0.5%	117	0.2%
Brazil	72	1.1%	611	1.2%
Chile	30	0.5%	224	0.4%
Colombia	15	0.2%	90	0.2%
Mexico	40	0.6%	296	0.6%
Peru	26	0.4%	96	0.2%
Asia	699	10.7%	5,010	10.0%
China	221	3.4%	975	2.0%
India	95	1.5%	782	1.6%
Indonesia	37	0.6%	305	0.6%
Malaysia	49	0.7%	417	0.8%
Pakistan	2	0.0%	6	0.0%
Philippines	23	0.4%	202	0.4%
South Korea	117	1.8%	988	2.0%
Taiwan	120	1.8%	1,074	2.2%
Thailand	35	0.5%	261	0.5%
EMEA	303	4.6%	2,259	4.5%
Czech Rep.	2	0.0%	25	0.1%
Egypt	9	0.1%	74	0.1%
Greece	25	0.4%	191	0.4%
Hungary	4	0.1%	35	0.1%
Kuwait	7	0.1%	37	0.1%
Poland	29	0.4%	204	0.4%
Qatar	9	0.1%	54	0.1%
Russia	35	0.5%	331	0.7%
Saudi Arabia	18	0.3%	95	0.2%
South Africa	118	1.8%	941	1.9%
Türkiye	39	0.6%	229	0.5%
UAE	8	0.1%	43	0.1%

Market/	Firm		Firm Year	
Region/Country	N	%	N	%
DM	5,319	81.3%	41,247	82.6%
North America	2,706	41.4%	18,714	37.5%
Canada	349	5.3%	2,953	5.9%
United States	2,357	36.0%	15,761	31.6%
EMEA	1,402	21.4%	11,115	22.3%
Austria	25	0.4%	195	0.4%
Belgium	44	0.7%	335	0.7%
Denmark	34	0.5%	306	0.6%
Finland	38	0.6%	354	0.7%
France	148	2.3%	1,264	2.5%
Germany	169	2.6%	1,188	2.4%
Ireland	14	0.2%	124	0.2%
Israel	11	0.2%	111	0.2%
Italy	77	1.2%	498	1.0%
Netherlands	58	0.9%	459	0.9%
Norway	57	0.9%	337	0.7%
Portugal	16	0.2%	136	0.3%
Spain	61	0.9%	471	0.9%
Sweden	116	1.8%	749	1.5%
Switzerland	101	1.5%	749	1.5%
United Kingdom	433	6.6%	3,839	7.7%
Pacific	1,211	18.5%	11,418	22.9%
Australia	455	7.0%	3,384	6.8%
Hong Kong	238	3.6%	2,073	4.2%
Japan	415	6.3%	5,069	10.1%
New Zealand	53	0.8%	324	0.6%
Singapore	50	0.8%	568	1.1%
Grand Total	6,539	100.0%	49,950	100.0%

This table summarizes the number of firms and firm-years in each country, region, and market. Percentages for each line are also provided for comparison purposes.

The number of firms with available corporate governance data in each country varies from as low as 2 firms (i.e., Czech Republic and Pakistan) to as high as 2,357 firms (i.e., United States). Particularly, EM countries have a lower number of firms compared to the DM countries. Overall, more than 80% of the sample firms and firm years are from DM. North America accounts for more than 40% of the sample firms.

The United States by itself accounts for more than one-third of the entire sample. Within EM, Asia has the largest share comprising more than half of the EM firms.

The number of firms in each economic sector and each market is shown in Table 3. More detailed data for each country and region are provided in APPENDIX B. Economic sector groupings follow Refinitiv Business Classifications (TRBC). As seen in the table, the number of firms within each sector classification is rather balanced within both the DM and the EM. Industrial, consumer cyclical, and technology sectors have the highest number of firms in both the DM and the EM.

Table 3. Economic Sector Distribution of Sample Firms

Code	TRBC Economic Sector	DM	EM	Total
50	Energy	405	89	494
51	Basic Materials	561	183	744
52	Industrials	931	195	1,126
53	Consumer Cyclicals	895	168	1,063
54	Consumer Non-Cyclicals	379	163	542
56	Healthcare	608	66	674
57	Technology	758	177	935
59	Utilities	212	91	303
60	Real Estate	465	80	545
	Other	105	8	113
	Total	5,319	1,220	6,539

The table shows the number of firms within each economic sector and each market based on the Refinitiv Business Classification (TRBC) codes.

3.2 Variables description

This section describes each set of variables used in this study. The variables include the financial distress measure (distance to default) as the dependent variable, corporate governance, ownership, and control variables as the explanatory variables, and macroeconomic variables. Firm-year data are captured from the Refinitiv database and country-year (i.e., macroeconomic) data are gathered from the World Bank Doing Business database.[14]

[14] https://www.doingbusiness.org/en/doingbusiness

While most of the sample companies have fiscal years ending on 31 December, several others have different fiscal year ends. For the company-level variables, to assign the observation to a firm-year, I follow WorldScope and Refinitiv treatment methodology.[15] Normally, the year in which a firm's fiscal year ends is the calendar year the financial data is assigned. However, the databases apply a cutoff date if the fiscal year ends within a short period after the calendar year starts. Fiscal years ending before 10 February for US companies and 15 January for non-US companies are assigned to the previous year. Any reference to year-end or firm-year end in this dissertation denotes this treatment methodology.

Distance to default, the board size, and control variables are winsorized at 1st and 99th percentiles, following Altman et al. (2017), Bharath and Shumway (2008), Cao et al. (2015), and Darrat et al. (2016), among others. Winsorizing remedies outliers in the variables and helps mitigate the econometric problem that arises from extreme values. I do not winsorize the probability of distress variable, other corporate governance variables, ownership variables, and macroeconomic variables because they are by nature standardized measures within a certain range, thereby not suffering from outlier values.

There is no missing value in the dependent variable, macroeconomic variables, and some control variables. Others have a few missing values which are random and not systematic, therefore not impacting the results of the analyses.

3.2.1 Financial distress variable

Constructing a proper financial distress measure is central to this study because financial distress is the main dependent variable in the models tested. I calculate the

[15] Refinitiv Worldscope Data Definitions Guide (Issue 16) dated 10 April 2020.

distance to default (DD) following Bharath and Shumway (2008), who adopt a naïve alternative of Merton's (1974) structural DD model and Moody's Expected Default Frequency (EDF). Although Merton DD has been widely adopted in several studies, such as Campbell et al. (2008), Duffie et al. (2007), and Vassalou and Xing (2004), Bharath and Shumway (2008) argue that the predictive accuracy of Merton DD mainly comes from its functional form, not from its complex solution procedure of the two nonlinear equations to obtain the inputs of the model. Campbell et al. (2008) also conclude that the predictive power of Merton DD is due to the strict restrictions on its functional form. Therefore, Bharath and Shumway (2008) propose a naïve DD model that provides academic researchers with a realistic and simplified alternative, while maintaining the structural power of the model that properly estimates financial distress. I calculate DD for each firm-year following Bharath and Shumway (2008) as follows:

$$DD_{i,t} = \frac{\ln[(E_{i,t} + D_{i,t})/D_{i,t}] + \left(r_{i,t-1} - 0.5\sigma_{Vi,t}^2\right)T_{i,t}}{\sigma_{Vi,t}\sqrt{T_{i,t}}}$$

$$\sigma_{Vi,t} = \frac{E_{i,t}}{E_{i,t} + D_{i,t}}\sigma_{Ei,t} + \frac{D_{i,t}}{E_{i,t} + D_{i,t}}(0.05 + 0.25 \times \sigma_{Ei,t})$$

and

$$PD_{i,t} = N(-DD_{i,t})$$

Where $DD_{i,t}$ is the distance to default for each firm i and each sample year t; $E_{i,t}$ is the market value of outstanding shareholders' equity at the end of the year in US dollars; $D_{i,t}$ is the face value of each firm's debt in US dollars, as an approximation of the market value of debt;[16] $r_{i,t-1}$ is the firm's previous year's annual stock return, as an approximation of expected return in year *t*; $\sigma_{Ei,t}$ is the

[16] Following Bharath and Shumway (2008), Brogaard et al. (2017), and Vassalou and Xing (2004), face value of debt is approximated as the book value of current liabilities plus one-half of long-term debt.

volatility of the firm's equity estimated using the annualized standard deviation of monthly log price changes in one year; $\sigma_{Vi,t}$ is the total volatility of the firm calculated using $\sigma_{Ei,t}$[17]; $T_{i,t}$ is the forecasting horizon, which is set to one year; $PD_{i,t}$ is the probability of default in a one-year horizon; and $N(.)$ is the cumulative standard normal distribution function.

Both DD and PD have been extensively used in corporate governance literature as proxies for financial distress, default risk, and insolvency risk. Table 4 summarizes selected literature that uses Bharath and Shumway's (2008) naïve DD and/or PD as a dependent variable and a proxy for financial distress, default risk, or insolvency risk.

Table 4. Literature Using PD and DD as Distress Measure

Author	Sample	DD or PD	Proxy for	Methodology
Aktas et al. (2019)	12,105 US Firm-years from 1993 to 2013	PD	Credit Risk	Panel Fixed Effects
Ali et al. (2021)	556 US firms from 2005 to 2010	DD	Insolvency Risk	Panel Fixed Effects
Bhagat et al. (2015)	702 US firms from 2002 to 2012	Both PD and DD	Default Risk	Panel Fixed Effects
Bottazzi et al. (2011)	19,628 Italian firms and 147 default events from 1998 to 2003	DD	Default Probability	Probit
Brogaard et al. (2017)	7,128 US firms from 1993 to 2013	PD	Default Risk	Panel Fixed Effects
Cao et al. (2015)	97 US firms from 1982 to 2005	DD	Default Risk	OLS
Iliev et al. (2021)	1,565 US firms from 2011 to 2017	1 = PD above the 90th percentile	High Default Risk	Panel Fixed Effects
Koh et al. (2015)	28,347 US firm-years from 1995 to 2003	1 = two years of failing DD	Financial Distress	Panel Logit
Safiullah and Shamsuddin (2018)	188 Banks in 28 Countries from 2003 to 2014	Both	Insolvency Risk	GLS Random effects
Schultz et al. (2017)	222 Australian firms from 2000 to 2007	PD*1000	Default Risk	OLS-Panel-GMM

[17] To calculate $\sigma_{Vi,t}$, Bharath and Shumway (2008) first approximate the volatility of debt as $\sigma_{Di,t} = 0.05 + 0.25\sigma_{Ei.t}$. They include 0.25 times stock return volatility to allow for default risk volatility and include 0.05 in this approximation as a representation of term structure volatility.

PD provides an easier-to-comprehend measure indicating the probability that a firm would default in one year; however, it is highly skewed across the sample which does not make it a suitable candidate to be used in the linear regression models. Most of the firm years have very low default probabilities, such as the case in credit ratings, therefore the PD variable is extremely right-skewed.

DD, on the other hand, tells us how many standard deviations the logarithm of the ratio of asset value to debt value needs to deviate from its mean for default to happen (Vassalou & Xing, 2004). DD is an inverse measure of financial distress; a higher DD implies less distress. Unlike PD, DD has a normal distribution and therefore it is more suitable for regression analysis. Figure 1 shows the distribution for PD and DD. Due to its suitability for linear regression analysis and following Bhagat et al. (2015), Cao et al. (2015), and Koh et al. (2015), I use DD as the dependent variable in this dissertation.

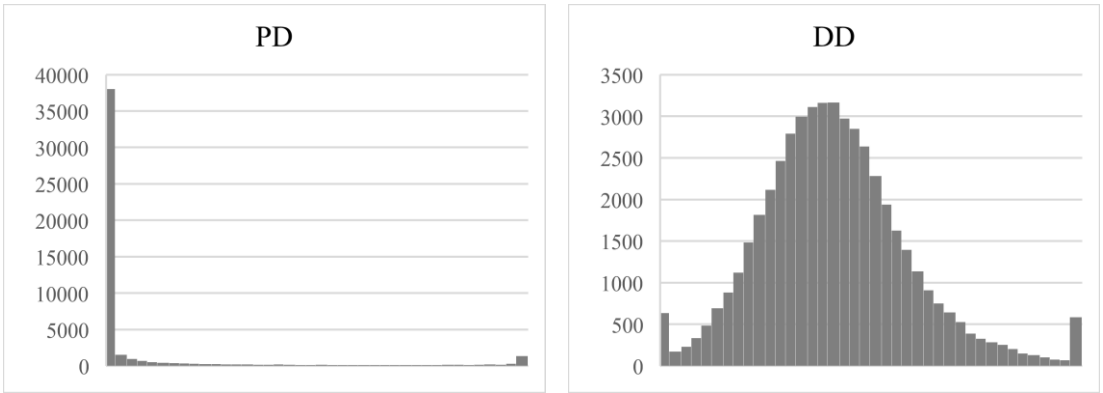

Figure 1. Histograms for probability of default (PD) and distance to default (DD)

3.2.2 Corporate governance variables

Four separate corporate governance variables are used in this dissertation: board size, board independence, CEO duality, and shareholder score. Corporate governance variables, definitions, and available observations are in Table 5.

Table 5. Corporate Governance Variable Definitions

Variable	Explanation	Available Obs. %
SIZE	Board Size. The total number of board members at the end of the fiscal year. Refinitiv ESG Code: CGBSDP060	99.67%
INDEP	Board Independence. Percentage of independent board members as reported by the company. Refinitiv ESG Code: CGBSO07V	93.55%
DUAL	CEO Duality. The dummy variable gets a score of 1 if the CEO simultaneously chairs the board or if the chairperson of the board has been the CEO of the company, and 0 otherwise. Refinitiv ESG Code: CGBSO09V	99.88%
SHSCORE	Shareholders Score. Shareholders' category score measures the firm's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices. Refinitiv ESG Code: TRESGCGSRS	99.88%

The variable explanations are taken verbatim from the Refinitiv ESG database data descriptions. https://www.refinitiv.com/en/financial-data/company-data/esg-data

SIZE is the total number of directors on the corporate board regardless of their insider or individual status. The variable is winsorized at the 1st and 99th percentiles to treat extreme values, especially on the right side. INDEP captures the percentage of independent directors as board members. The variable is between 0% and 100% and retrieved directly from the ESG database. DUAL is a dummy variable taking the value of 1 if the CEO of the firm simultaneously chairs the board, and 0 otherwise.

SHSCORE is a score between 0 and 100 that measures equal treatment towards shareholders and the use of anti-takeover devices. The score composes of 12 sub-categories and provides a proxy for shareholders' power within a firm. The shareholder score is part of the Refinitiv Governance Score, which is one of the three pillars of the Refinitiv ESG Score. The breakdown of the Refinitiv ESG Score is in APPENDIX C and the sub-categories of the Refinitiv Shareholders Score are in APPENDIX D. I divide the SHSCORE by 100 and include it as a percentage in the analyses.

3.2.3 Ownership variables

This study focuses on blockholders and their impacts on financial distress. Blockholder is a term used for large shareholders of a specific corporation. The distinction between a sheer shareholder and a blockholder lies in the size of the shares under control. The threshold of this size, however, is not agreed upon in the literature (Edmans & Holderness, 2017). A more or less standard limit for classification as a blockholder is holding at least five percent of the firm's common stock, a de facto threshold that mandates the large shareholder publicly report her holdings for most countries (Edmans, 2014; Edmans & Holderness, 2017). Following this standard, I set a threshold of five percent to identify a shareholder as a blockholder.

The data are generated using Refinitiv's Ownership Profiles database for each firm-year end. Within the sample firms, the number of blockholders in each firm-year ranges from 0 to 12. This indicates that while some firms have a very diffuse ownership structure, with no single shareholder holding five percent of the common stocks, some firms have several different blockholders.

Blockholders are grouped by shareholder types and sub-types. Table 6 provides shareholder classification and top investor counts of the sample firms according to the first firm year of occurrence in the sample. This exercise is done to have a general understanding of the blockholder composition of sample firms and understand the largest groups for analyses.

As shown in Table 6, although the Refinitiv database provides shareholder types and several sub-types, a few of these sub-types account for the larger portion of all shareholders. The two main shareholder types, investment managers and strategic entities account for 99% of all shareholders. In terms of sub-types, investment

Table 6. Shareholder Classification and Top Investor Counts of Sample Firms

Type and Sub-Type	N	% of Total	% of Type
Investment Managers	3,497	53.5%	
Investment Advisor/Hedge Fund	2,971	45.4%	85.0%
Private Equity	122	1.9%	3.5%
Sovereign Wealth Fund	108	1.7%	3.1%
Insurance Company	97	1.5%	2.8%
Bank and Trust	80	1.2%	2.3%
Pension Fund	61	0.9%	1.7%
Venture Capital	53	0.8%	1.5%
Foundation	5	0.1%	0.1%
Strategic Entities	2,981	45.6%	
Corporation	1,754	26.8%	58.8%
Individual Investor	780	11.9%	26.2%
Holding Company	177	2.7%	5.9%
Government Agency	144	2.2%	4.8%
Other Insider Investor	126	1.9%	4.2%
Other	61	0.9%	
TOTAL	6,539	100.0%	

This table shows shareholder classification and top investor counts of the sample firms. N is calculated as the number of top investor types and sub-types for the first firm year of occurrence of each firm. Investment Advisor/Hedge Fund is the aggregate of Refinitiv sub-types of Investment Advisor, Hedge Fund, and Investment Advisor/Hedge Fund. Although the database classifies these three groups separately, due to their similar characteristics, I opt to group them in one combined sub-type.

advisor/hedge fund, corporation, and individual investor account for 85% of all sub-types as classified in the sample. Therefore, I construct ownership concentration variables based on three sub-types (investment advisor/hedge fund, corporation, and individual investor), two types (investment managers and strategic entities), and one aggregate total blockholder variable.

Moreover, investment managers, as the largest blockholder type, are a good proxy for institutional investors, in that they include types of shareholders classified as institutions in the literature, such as investment advisors, hedge funds, wealth funds, insurance companies, banks and trusts, and pension funds (Aggarwal et al., 2011; Franks & Mayer, 1997). Further, they do not include certain types of institutions that are regarded as strategic entities, such as holding companies and government agencies. Therefore, this type of blockholder can be seen as a "non-strategic institutional investor." For the sake of brevity, I will refer to this

blockholder type as institutional investors. Ownership variables, definitions, and available observations are in Table 7.

Table 7. Ownership Variable Definitions

Variable	Explanation	Available Obs %
BLOCK	Total Blockholder (%). The total share of the firm held by the blockholders. Blockholders are defined as shareholders owning at least 5% of outstanding shares.	99.55%
INST	Institutional Blockholders (%). Constructed from total share held by investment manager blockholders. This type of institutional blockholders is not classified as a strategic entity and is a relatively active shareholder of the firms. They include investment advisors, hedge funds, banks and trusts, insurance companies, pension funds, private equities, sovereign wealth funds, and venture capitals.	99.55%
HEDG	Institutional Blockholder Sub-Type: Investment Advisor/Hedge Fund Blockholder (%). Total shares held by Investment Advisor and/or Hedge Fund Blockholders, which are a sub-type of Investment Managers.	99.55%
STRAT	Strategic Entity Blockholder (%). The total share held by strategic blockholders, which include Corporations, Government Agencies, Holding Companies, Individual Investors, and Other Insider Investors. Strategic blockholders are generally passive owners of the firm and their shares are not regarded as free float.	99.55%
CORP	Strategic Entity Blockholder Sub-Type: Corporation Blockholder (%). Total shares held by Corporation blockholders, which are a sub-type of strategic entities	99.55%
INDV	Strategic Entity Blockholder Sub-Type: Individual Blockholder (%). Total shares held by Individual Investor Blockholders, which are a sub-type of strategic entities	99.55%

All ownership variables have more than 99.5% of observations available in the sample. BLOCK captures the aggregate blockholding percentage at the end of each firm-year, disregarding the types of blockholders. This variable is a proxy for the concentration of ownership and gives us a measure showing how concentrated or dispersed the firm shareholders are. For further analyses, total blockholders are divided into institutional investors and strategic entities.

INST is the total percentage of shares held by investment manager blockholders, or institutional investors. This type of blockholders are relatively active shareholders; Refinitiv classifies 90% of these blockholders as active in terms

of their trading orientation.[18] Institutional investors contain several sub-types as listed in Table 6, however, I only analyze HEDG as the only sub-type because others have a very limited number of observations for a robust analysis. HEDG is the most populated sub-type and represents total shares held by investment advisor/hedge fund blockholders.

STRAT is the total percentage of shares held by strategic entity blockholders such as corporations, individuals, holding companies, and government agencies. STRAT composes of generally passive owners of the firms, and their shares are not regarded as free float. Refinitiv classifies 80% of STRAT as passive investors. For more detailed analysis, STRAT is further analyzed in two sub-groups: corporations (CORP) and individual investor (INDV) blockholders. CORP is the total percent shares held by strategic corporations, excluding government agencies and holding companies, while INDV is the total percent shares held by individual blockholders.

3.2.4 Control variables

To make proper inferences on the relationship between governance and financial distress, we should control for several firm-level characteristics that independently affect financial distress. There are several different variables used in previous studies that are shown to influence firm distress situations. An arbitrary choice of controls or pure reliance on past studies could complicate the models and impair the results. Therefore, in determining the control variables, I not only depend on previous literature but also conduct an empirical factor analysis to define the control variables to be included in the models of this study.

[18] Based on the investment orientation data acquired from the Refinitiv's Ownership Profiles database.

Initially, I chose the variables used as control variables in corporate governance and financial distress literature along with other variables that might be proper candidates for control. A total of 43 separate company-specific variables are collected. Since I have plenty of variables that are extremely hard, if not impossible, to work with, I need to define the underlying structure among them. Therefore, I utilize a factor analysis (principal component analysis) as a means for data reduction, and the selection of surrogate variables, which represent each underlying component that does not suffer multicollinearity. Details and the results of the factor analysis, including extracted components and their correlation matrix are in APPENDIX E.

As a result of the factor analysis, I select seven control variables as a proxy for each component to be controlled for; natural logarithm of total assets as a proxy for firm size, return of assets as a proxy for profitability, leverage as a proxy for financial risk, the natural logarithm of Tobin's Q as a proxy for value, age of the firm as a proxy for maturity, and beta as a proxy for riskiness. The inclusion of all these variables is also supported by previous literature. Control variables, definitions, and available observations are in Table 8.

All control variables have more than 99% available observations, and the missing observations are random, indicating no systematic bias. ROA is calculated as net income divided by total assets. As a proxy for accounting profitability, ROA represents the firm's likelihood of recovery from financial distress. This variable is predicted to be positively associated with DD (negatively with PD). Profitability controls, such as ROA, are used by several previous studies including Cao et al. (2015), Daily & Dalton (1994), Darrat et al. (2016), and Parker et al. (2002).

LEV represents the firm's financial risk-bearing and represents the firm's potential to find external financing in the event of distress. When the leverage is so

Table 8. Control Variable Definitions

Variable	Explanation	Available Obs %
ROA	Return on Assets = Net Income / Total Assets Net Income (Refinitiv WorldScope code: WC01706): Net income the company uses to calculate its earnings per share. It is before extraordinary items. Total Assets are as explained below.	100%
LEV	Leverage = Total Liabilities / Total Assets. Total Liabilities (Refinitiv WorldScope code: WC03351): All short- and long-term obligations expected to be satisfied by the company. Total Assets are as explained below.	100%
BETA	Historical beta is calculated as a rolling one-year period of monthly logarithmic changes. Calculated using DataStream expression builder.	99.9%
EXCESS	Stock excess return, which is calculated as annualized adjusted stock return minus the country's major stock index return. Annual stock return is calculated using year-end stock price, which is adjusted for stock dividends, stock splits, and right issues (Refinitiv WorldScope code for adjusted stock price: P). County-level annual stock index returns are calculated using year-end country index values (Details of stock indexes for each country are in APPENDIX F).	99.9%
TOBIN	The Natural Logarithm of Tobin's Q is calculated as the enterprise value of a company divided by the replacement value of its assets. Below 1.0 indicates that the stock is undervalued; above 1.0 indicates that the stock is overvalued. Calculated using DataStream expression: 168E.	99.4%
TA	Natural logarithm of total assets in US dollars. (Refinitiv WorldScope code: WC02999). Total Assets are the sum of total current assets, long-term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment, and other assets.	100%
AGE	Firm age is calculated as the sample year minus the incorporation year of the firm. If no incorporation year is found in the database, I use the base year (the year the Refinitiv database starts to provide firm variables). AGE is combined into 4 percentile groups: 1 if the age of the firm is below the 25th percentile, 2 if between 25th and 50th percentile, 3 if between 50th and 75th percentile, and 4 if above the 75th percentile.	99.8%

Variable explanations are taken verbatim from the Refinitiv database data definitions. https://www.refinitiv.com/en/financial-data/company-data

high that prevents the firm to obtain additional external financing, it becomes unlikely to turn around from financial distress. Leverage can change a firm's external financing choices and the use of debt capital (Cao et al., 2015). Moreover, high leverage may be coupled with poor operating performance and increase the likelihood of corporate failure (Altman et al., 2019). When leverage increases, the probability of default is expected to increase. Therefore, LEV is predicted to be negatively associated with DD. Financial leverage is widely used as a control

variable in corporate governance-financial distress studies (e.g., Cao et al., 2015; Darrat et al., 2016; Lee & Yeh, 2004; Miglani et al., 2015; Schultz et al., 2017).

BETA is the coefficient of slope in a linear regression of the basic Capital Asset Pricing Model (CAPM), where excess company return is regressed on excess market index return. This coefficient is estimated using the DataStream expression builder and as a rolling one-year period of monthly logarithmic returns. Beta measures the systematic risk the firm faces and is predicted to be negatively associated with DD because as the systematic risk increases so does financial distress. Previous literature finds that distressed firms have higher betas (e.g., Campbell et al., 2008). Aldamen et al. (2012) and Schultz et al. (2017) use beta as control variable.

EXCESS is excess stock return calculated as annualized adjusted stock return minus the country's major stock index return (index stock exchanges of each country are listed in APPENDIX F). Recent literature finds that distress risk is associated with lower excess returns, and termed this puzzle as a distress risk anomaly (Campbell et al., 2008; Dichev, 1998). Some authors find that this anomaly is only limited to low-capitalization stocks in developed North American and European countries and non-existent elsewhere (Gao et al., 2018). On the other hand, the risk-based theory suggests that higher financial distress risk requires a value premium (Fama & French, 1992). I follow previous literature and include excess return as a control variable (Cao et al., 2015; Darrat et al., 2016; Wang & Deng, 2006). Consistent with the risk-based theory, I expect distressed stocks to have higher excess returns and predict a negative relation with DD.

TOBIN is the natural logarithm of Tobin’s Q, which is calculated as the enterprise value of a company divided by the replacement value of its assets. TOBIN

is a widely used proxy for firm value and indicates whether a firm is overvalued or undervalued. Literature controls for firm value and uses similar proxies, such as market-to-book ratio (Cao et al., 2015; Parker et al., 2002; Simpson & Gleason, 1999) or stock price (Darrat et al., 2016), as a control variable. I predict that a lower level of financial distress is associated with higher firm value, therefore a positive relationship between TOBIN and DD.

TA is the natural logarithm of total assets in U.S. dollars as reported in year-end financial reports. This variable controls for size effects, because larger firms tend to be more resilient in times of financial distress (Parker et al., 2002). Besides, Altman et al. (2019) argue that firm size is not necessarily mean corporate health and safety, as recent bankruptcies, such as General Motors and WorldCom, had tens of billions of book value of assets before they went bankrupt. Although there are competing views on the effect of TA on financial distress, several prior studies use this variable as a control (Aldamen et al., 2012; Cao et al., 2015; Fich & Slezak, 2008; Miglani et al., 2015) in their corporate governance-financial distress models. I predict that TA is positively related to DD.

AGE is the firm age calculated as the sample year minus the incorporation year grouped in four equal percentiles. Older and more mature firms are expected to better endure adverse economic conditions. Younger firms might more likely be growth-oriented and undertake risky actions. Therefore, I predict a positive relation with DD. I did not directly insert age as calculated; rather, I convert it into an ordinal variable as the cut point is every 25th percentile. This treatment is similar to Schultz et al. (2017).

3.2.5 Macroeconomic variables

The legal environment and the country-level corporate governance factors, such as the degree of investor protection and creditor rights have significant impacts on firm-level governance factors. This study uses the scores of getting credit and protecting minority investors as proxies for investor protection and credit rights. These variables are constructed from the World Bank Doing Business database, which includes data for more than 200 countries and the series goes back as early as 2004.

3.2.5.1 Investor protection (PROT)

Investor protection is proxied by the World Bank's Protecting Minority Investors Score, which measures the protection of minority investors from conflicts of interest and shareholders' rights in corporate governance and related-party transactions. The score consists of the following indices:

- Extent of disclosure
- Extent of director liability
- Ease of shareholder suits
- Extent of shareholder rights
- Extent of ownership and control
- Extent of corporate transparency

Higher levels of investor protection within a country ensure loyalty to shareholders and restrict managerial self-dealing (Shleifer & Vishny, 1997). The dearth of such protection might induce higher concentrated ownerships (i.e., blockholders) in the country, thereby varying the firm-level corporate governance mechanisms and ownership structures. The World Bank Protecting Minority Investors Score measures what is needed to be measured in this context. Also, the

score, with its sub-indices, is similar to the managerial anti-self-dealing index in Djankov et al. (2008), which allows comparison with previous work.

3.2.5.2 Credit rights (CREDIT)

Credit rights are proxied by the World Bank's Getting Credit Score, which measures the legal rights of lenders and borrowers regarding secured transactions and the reporting of credit information. The score consists of the following:

- Strength of legal rights index
- Depth of credit information index
- Credit registry coverage (% of adults)
- Credit bureau coverage (% of adults)

The level of creditor rights is predicted to have a significant impact on the effects of governance on financial distress. As suggested by La Porta et al. (1997) and Shleifer & Vishny (1997), lower creditor rights will intensify the agency conflict between shareholders and creditors, increasing the cost of capital, and thereby increasing the probability of default. The World Bank Getting Credit score comparatively proxies creditor access and legal rights. The score is very similar to the creditor rights index in La Porta et al. (1997), therefore allowing comparison with prior research.

In aggregate, the two scores (i.e., protecting minority investors and getting credit) measure the access to finance in the country. This is a very important aspect in financial distress research since the level of finance and the availability to the shareholders and creditors is expected to have significant impacts on the relationship between governance and financial distress.

3.3 Summary hypotheses

Chapter 2 reviews the literature and develops the hypotheses that are tested to investigate the relationship between governance and financial distress. A total of 14 hypotheses are related to this study as listed below:

Hypothesis 1: Board size is positively related to financial distress.

Hypothesis 2: Board independence is negatively related to financial distress.

Hypothesis 3: CEO duality is positively related to financial distress.

Hypothesis 4: Positive effect of CEO duality on financial distress is mitigated by independent board members.

Hypothesis 5: Stronger shareholder rights are positively related to financial distress.

Hypothesis 6: Blockholders are positively related to financial distress.

Hypothesis 7: Institutional blockholders are positively related to financial distress.

Hypothesis 8: Hedge fund/investment advisor blockholders, as the sub-type of institutional blockholders, are positively related to financial distress.

Hypothesis 9: Strategic blockholders are negatively related to financial distress.

Hypothesis 10: Corporation blockholders, as the sub-type of strategic blockholders, are negatively related to financial distress.

Hypothesis 11: Individual investor blockholders, as the sub-type of strategic blockholders, are negatively related to financial distress.

Hypothesis 12: Country-level investor protection affects the relationship between governance and financial distress as hypothesized in hypotheses 1-3 and 5-11

Hypothesis 13: Country-level creditor rights affect the relationship between governance and financial distress as hypothesized in hypotheses 1-3 and 5-11

Hypothesis 14: Duration of distress affects the relationship between governance and financial distress as hypothesized in hypotheses 1-3 and 5-11

3.4 Methods of analysis

The financial distress measure used in this study is the distance to default (DD), with higher DD indicating lower financial distress. To analyze the effect of firm-level governance and ownership on financial distress and test the hypotheses built in the previous chapter and summarized in the previous section, I use a panel data analysis of DD on corporate governance, ownership, lagged DD, control variables, and firm- and period-fixed effects. The baseline model is as follows:

Financial Distress = f(Corporate Governance, Ownership, Lagged Financial Distress, Controls, Firm Fixed Effects, Period Fixed Effects)

The use of the lagged DD is to control for any remaining dynamic endogeneity as discussed by Schultz et al. (2017) and Wintoki et al. (2012).[19] The redundant fixed effects – likelihood ratio test is significant (p-value 0.0000) for both cross-section and period fixed effects, indicating that a pooled sample cannot be employed. The use of firm- and period-fixed effects is validated by a Hausman test (p-value 0.0000), indicating that the random effects model is not appropriate for the sample and sub-samples. The model includes an intercept.

[19] Wintoki et al. (2012) argue that another source of endogeneity might occur when the past dependent variable has a significant impact on the current value. This might be the case when the nature of the relationship is dynamic, implying that current financial distress is affected by previous period. The cure for this type of endogeneity is to use lagged dependent variable as also suggested by Schultz et al. (2017).

The ownership variables in the baseline model are tested in three separate regressions. First, total blockholder holding, BLOCK, is tested without differentiating the type of blockholder. This variable also proxies for ownership concentration and any significant finding indicates the effect of ownership concentration on financial distress. Second, blockholders are divided into two types: institutional blockholders, INST, and strategic blockholders, STRAT. INST tests the effect of active institutional blockholders and STRAT tests the effect of passive strategic entities on financial distress. The third model further investigates the effect of blockholder sub-types on financial distress. INST has only one sub-type: investment advisor/hedge fund, HEDG, which tests the effect of investment advisor and/or hedge fund blockholders on financial distress. On the other hand, STRAT has two sub-types: corporations, CORP, and individual blockholders, INDV. CORP tests the effect of corporation blockholders and INDV tests the effect of individual blockholders on financial distress.

Moreover, in this study, I focus not only on whether corporate governance and ownership variables affect financial distress but also on the question of which macroeconomic conditions affect this relationship between governance and financial distress. Governance might matter only in certain markets or under certain investor and creditor protection. As also suggested by Love (2011), any significant findings would support a causal inference on the direction of the relationship, if not direct proof.

3.5 Endogeneity concerns and mitigation methods

One of the most prevalent problems in empirical corporate finance is endogeneity, which can be defined as the correlation between one or more of the explanatory

variables and the error term (Roberts & Whited, 2013; Wooldridge, 2015). This definition of endogeneity in a more traditional sense implies that an explanatory variable is endogenous when it is determined within the context of the model (Wooldridge, 2010). The correlation between an explanatory variable and the error term indicates the violation of one of the OLS assumptions, therefore requires detailed scrutiny for robust and reliable results.

3.5.1 Causes of endogeneity

Roberts and Whited (2013) and Wooldridge (2010) identify three causes of endogeneity: omitted variables, measurement error, and simultaneity. I review these three endogeneity sources, discuss their potential impacts on this study, and explain remedial actions and tests undertaken to address endogeneity.

3.5.1.1 Omitted variables

Omitted variables might become an issue when we cannot include the control variables in the regression model due to data unavailability (Wooldridge, 2010). If there are omitted variables such as unobserved firm-level and time-varying characteristics, the model is likely to suffer from unobserved heterogeneity. When not accounted for, unobserved heterogeneity violates the independence of observations and non-endogeneity assumptions, leading to spurious correlations (Börsch- Supan & Köke, 2002).

The inability to include omitted variables in the model means that these variables will appear in the disturbance term, rather than among the explanatory variables. If these omitted variables are correlated with the included variables, then there will be problems for inference (Roberts & Whited, 2013). Panel data is widely

used in causality research because of its ability to control for unobserved heterogeneity.

Panel fixed effects control for omitted firm-level variables (for instance, talent and education of the board) that might be influencing the relationship between governance and financial distress. Börsch- Supan and Köke (2002) state that firm fixed-effect panel data alleviate endogeneity emanating from unobserved heterogeneity. In addition to firm-level fixed effects, there could be some time-varying omitted variables (for instance, changing econometric conditions or growth opportunities) that could influence a firm's financial risk-taking behavior. This possibility is addressed by incorporating period-fixed effects in the regression models. Therefore, I utilize panel data regressions with both firm-fixed and period-fixed effects.

Himmelberg et al. (1999) use panel regression with fixed effects to remove any unobserved heterogeneity due to firm-level characteristics. Other examples of panel data fixed effects usage in corporate governance-financial distress literature include Switzer et al. (2018) for 28 countries outside of North America and Miglani et al. (2015) for Australian firms.

3.5.1.2 Measurement error

Measurement error occurs when the variables in the model are recorded erroneously by the data collectors or when the proxy used for the unobservable variable quantifies a theoretically different concept than what is intended to be measured (Roberts & Whited, 2013). Measurement error is statistically similar to the omitted variables bias, even though both are conceptually different (Wooldridge, 2010).

Although a significant cause of endogeneity, measurement error might not be as serious as other endogeneity causes in corporate governance research. Wintoki et al. (2012), for instance, do not count measurement error as a potential cause of endogeneity in corporate governance-performance literature. The reason might be that the firm-level governance and accounting variables used in corporate governance studies are generally directly observable and easy to quantify. Moreover, firm-level variables in this study are constructed from the Refinitiv database and macroeconomic variables are constructed from the World Bank database, as both databases are widely used in empirical research.

Measurement error, if any, in this dissertation might emerge from the dependent variable, i.e., the financial distress measure. Nevertheless, I assume that the use of a well-studied distance to default variable following Bharath and Shumway (2008) and several other subsequent studies will minimize such error. Besides, as pointed out by Roberts and Whited (2013), the OLS estimation produces consistent results if the explanatory variables are uncorrelated with the measurement error, which I assume is the case in this study.

3.5.1.3 Simultaneity

Simultaneity bias happens when the explanatory variable(s) and the dependent variable are determined simultaneously (i.e., in equilibrium), making the direction of causal inference ambiguous (Roberts & Whited, 2013; Wooldridge, 2010).

Such as the case in governance-performance research, there are arguments to suppose that causality might run in the reverse direction in governance-distress literature, i.e., from financial distress to corporate governance. First, firms with higher financial distress levels might attract risk-loving investors that aim to benefit

from the premium associated with financial distress. Similarly, increased distress can deter some investors who end up reducing their total shareholdings as a response to increased distress. This might be an issue, especially for non-strategic and more active blockholders. Second, firms with increased financial distress may opt for amending governance practices, such as amending the board structure or improving shareholders' rights. As discussed by Mumford (2003), financial distress might pressurize firms to shift corporate governance mechanisms. This might be the case especially when the firms have sufficient flexibility to amend their board structure, such as size, percent of independent members, and CEO duality. Both possibilities result in the notorious reverse causality problem.

Although the points raised above seem to have valid rationales in themselves, there are reasons to argue that reverse causality concerns are on weaker grounds in governance-distress research compared to governance-performance research. First, the literature provides evidence that, unlike the financial distress risks which fluctuate throughout the years, corporate governance variables are quite persistent and slow-moving.[20] Therefore, it is unlikely for firms to adapt immediately to the governance practices when a shock comes to financial distress. Second, several past research finds that there is no distress risk anomaly in most of the stocks, meaning that increased financial distress is not associated with the increased return (Dichev, 1998; Gao et al., 2018). Moreover, investors' goal is to maximize expected value, and they are more likely to invest based on their risk profiles and expected future returns, not on the financial distress levels of the stocks. Therefore, the hypothesis

[20] For instance, Wintoki et al. (2012) state that board structure is highly persistent and use two-year intervals to mitigate the concern of using lags of the corporate governance variables in their system GMM model.

that changing distress might attract certain investors does not seem to find sufficient theoretical ground.[21]

Besides the theoretical discussions, there is also a group of literature that has empirically provided evidence showing that the direction of the relationship is running from corporate governance to financial distress. Miglani et al. (2015) conduct a 3SLS simultaneous equation system and show that the causal relationship is from corporate governance to financial distress. Darrat et al. (2016) conduct a matched pair analysis with first and second lags of corporate governance variables, excluding the firms whose senior managers could have been changed due to increased financial distress. Their results remained similar to this restricted sample; therefore, the authors conclude that the cause-and-effect relationship runs from corporate governance to financial distress, not vice versa. Switzer et al. (2018) employ an instrumental variable approach using a generalized method of moments estimators. The authors run the GMM over-identification constraints test and GMM endogeneity test, showing that endogeneity is not a concern and OLS is a valid approach for their governance-distress study.

Somewhat contradictory evidence comes from Schultz et al. (2017), who use difference and system GMM models in their study.[22] The authors conclude that the significant relationship between governance variables and financial distress

[21] Nevertheless, to control for any potential value and profitability effect, I include control variables (ROA and TOBIN) in the regression models. Furthermore, I conduct empirical endogeneity tests using instrumental variables within GMM context, showing that endogeneity might not be a problem and OLS is a valid approach in this governance-distress study.

[22] System and difference GMM use the lags of dependent and explanatory variables (levels or differences, respectfully) as instruments. Several authors regard the instrumental variable approach as a special case of GMM (Baum et al., 2003). The idea of system and difference GMM comes from the assumptions that explanatory and dependent variables are simultaneously determined with contemporary explanatory variable, and that the lag of explanatory variable only impacts its contemporary value, while the contemporary dependent variable has no way to impact past explanatory variable (Baum et al., 2003; Roberts & Whited, 2013; Roodman, 2009; Wintoki et al., 2012). However, since the governance variables are quite persistent over time (a CEO with a dual chair in time t-1 is very likely to have a dual chair in t), this methodology is likely to suffer the issue of weak instruments. For a detailed survey on weak instruments see Stock et al. (2002)

disappears once the endogeneity concerns are accounted for with the difference and system GMM estimators due to Arellano and Bond (1991). However, there are at least four issues that need further attention before reaching this conclusion. First, Roodman (2009) suggests that the difference and system GMM estimators are designed for cases when T is small and N is large. If T is large, the number of instruments tends to explode, if N is small, autocorrelation tests and cluster-robust standard errors might be erroneous. Therefore, the sample size should have a large N to accommodate the exploding number of instrumental variables created by the lags of dependent and explanatory variables. Second, Roodman (2009) warns that the GMM estimators can generate many instruments and therefore the reporting of instrument count and robustness test to reduce it are required to ensure the validity of results. Without such reporting and robustness tests, one can suspect the overfitting of the GMM estimators. Third, highly persistent variables, such as dummy variables, can generate biased parameter estimates in the difference and system GMM. Corporate governance variables are known to be persistent across firms and time, therefore might not be appropriate for difference and system GMM estimators, a shortcoming also acknowledged by Schultz et al. (2017). Finally, but most importantly, endogeneity tests are required to reach such conclusions that the OLS is irrelevant and that the system and difference GMM or instrumental variable estimates should be used. Performing GMM or instrumental variable estimates when endogeneity is not a problem, i.e. when explanatory variables are not correlated with the error term, means that the asymptotic variance will always be larger, sometimes even larger than that of the OLS (Wooldridge, 2015). Therefore, to identify if the baseline model suffers any remaining endogeneity and to select the most appropriate

estimator, I follow Switzer et al. (2018) and employ endogeneity tests using instrumental variables.

3.5.2 Endogeneity tests

To address issues related to endogeneity, the baseline model in this study includes a comprehensive set of control variables validated by factor analysis, a one-year lag of dependent variable, and firm- and period-fixed effects that deal with unobserved heterogeneity. Furthermore, the study applies the model to a comprehensive global sample, which is robust in selection and survivorship bias. These measures might take care of endogeneity issues as indicated by Börsch- Supan and Köke (2002). Nevertheless, I assume that endogeneity might still be a concern in the causal relationship between governance and financial distress, as well as between non-strategic blockholders and financial distress.

To relieve the study of any remaining endogeneity concerns, I refer to endogeneity tests using instrumental variables within the GMM context, following Baum et al. (2003). The tests aim to determine if the model suffers any remaining endogeneity and understand whether OLS is consistent and instrumental variable or GMM is not required. A similar test in governance-distress literature is used by Switzer et al. (2018), who assume potential endogeneity only for institutional investors. This study provides a comprehensive set of endogeneity tests assuming endogeneity might be an issue for both ownership and corporate governance variables.

In APPENDIX G I report two groups of tests to address potential endogeneity between blockholders and financial distress as well as between corporate governance mechanisms and financial distress. For blockholders, I use annual share turnover

(Aggarwal et al., 2011) and average country shareholders score (Chhaochharia & Laeven, 2007; F. Li, 2016; Renders & Gaeremynck, 2006) as instruments. For corporate governance variables, I use the average country environmental social, and governance (ESG) score and average country shareholders score (Chhaochharia & Laeven, 2007; Renders & Gaeremynck, 2006) as instruments. The results of weak-instrument-robust inference (Stock-Wright LM S Statistics) and overidentification test of all instruments (Hansen J statistics) show that all instruments are relevant and orthogonal.

GMM endogeneity tests indicate that both ownership and corporate governance variables are exogenous. The findings are similar to those of Switzer et al. (2018), indicating that endogeneity is not an issue for this study and that OLS is a valid method. Results of the tests, instrumental variable selection, and detailed discussions are in APPENDIX G.

CHAPTER 4

RESULTS

This chapter presents the results of three groups of analyses performed on three sample groups; the global sample, developed markets, and emerging markets. Initially, detailed descriptive statistics for all variables are provided. Next, three groups of tests and results are given. Each of these three groups of tests includes summary findings parts, where the results are summarized comparatively for each of the sample groups. The first group scrutinizes the effects of corporate governance and ownership variables on financial distress by both analyzing the means of each sample group and testing the baseline regression defined in the previous section. The results suggest several significant findings that corporate governance indeed impacts financial distress. This group of results also tests the interacting effect of board independence on CEO duality in their relation to financial distress, finding that more independent boards have mitigating effects on the adverse impact of CEO duality on financial distress. The second group of analyses reports the effect of macroeconomic factors, namely country-level investor protection and country-level creditor rights, on the relationship between governance and financial distress. Several corporate governance and ownership variables show dissimilar impacts on financial distress under different macroeconomic settings, indicating that the relationship of corporate governance practices and ownership structures with financial distress is influenced by country-level investor and creditor rights. The third group of analyses tests the impact of financial distress duration on the relationship between governance and financial distress. This section maps the default probabilities into market-implied ratings and creates a dichotomous financial distress variable to calculate the number

of years the firm stays financially distressed. The results show that as the firm continues to stay distressed for multiple years, the impact of several governance factors on financial distress changes, and particularly reverses. The final section summarizes the robustness tests and presents the additional tests performed with the different dependent variables, namely the probability of default and a binary financial distress variable.

4.1 Descriptive statistics

Descriptive statistics for the dependent variable, corporate governance variables, ownership variables, and control variables are listed in Table 9. Although a detailed analysis of means before regression analyses are provided in the following sections, this table provides a snapshot of the entire data and variables.

On average, developed market (DM) firms have slightly higher financial distress with lower DD (and higher PD). The default probability of DM firms is 11.9%, whereas for emerging market (EM) firms this figure is 11.1%. Although I use DD as the dependent variable for the regression models, the DD by itself does not immediately explain the level of financial distress the firm is suffering. However, the PD gives the cumulative distribution of the default probability of the firm, which is measured between 0 and 1. Moreover, I use the PD variable as the dependent variable of the robustness tests reported at the end of this chapter.

As for the corporate governance variables, DM countries have smaller but more independent boards, more frequent occurrence of CEO duality, and higher shareholder scores, on average. The ownership variables are investigated in three layers of blockholders: total blockholders, blockholder types, and blockholder sub-types. The mean shareholding figures shown in Table 9 are calculated for the entire

sample. This means that the arithmetic averages take into account the observations with no blockholding, and thus some mean values are shown to be smaller than five percent, lower than the necessary condition for being regarded as a blockholder. Whereas Table 11 presents the percent holdings of blockholders averaged only among firm-years that have the specific blockholding.

Table 9. Descriptive Statistics

			All Firm Years		Developed		Emerging	
Variable	Min	Max	Mean	S.Dev.	Mean	S.Dev.	Mean	S.Dev.
DD	-4.26	15.12	3.94	3.42	3.90	3.40	4.12	3.52
PD	0	1	0.118	0.265	0.119	0.267	0.111	0.255
SIZE	4	21	9.90	3.27	9.80	3.22	10.41	3.44
INDEP	0	1	0.584	0.263	0.623	0.261	0.405	0.189
DUAL	0	1	0.383	0.485	0.408	0.491	0.262	0.438
SHSCORE	0	1	0.505	0.288	0.506	0.288	0.496	0.292
BLOCK	0	1.000	0.340	0.226	0.307	0.212	0.490	0.232
INST	0	0.990	0.149	0.159	0.165	0.160	0.075	0.133
STRAT	0	1.000	0.190	0.248	0.141	0.217	0.415	0.259
HEDG	0	0.990	0.126	0.146	0.145	0.149	0.036	0.090
CORP	0	1.000	0.117	0.211	0.082	0.176	0.283	0.273
INDV	0	0.932	0.038	0.113	0.036	0.110	0.047	0.126
ROA	-0.56	0.30	0.03	0.11	0.03	0.12	0.06	0.08
LEV	0.05	1.20	0.53	0.22	0.54	0.22	0.51	0.19
BETA	-1.92	4.75	1.05	1.03	1.07	1.06	0.96	0.86
EXCESS	-1.227	0.909	-0.03	0.35	-0.03	0.35	-0.02	0.33
TOBIN	0.327	9.183	1.65	1.48	1.66	1.46	1.63	1.56
TA	$0.1 M	$145.4 M	$11.2 M	$22.0 M	$11.3 M	$22.3 M	$10.8 M	$20.2 M
AGE	0	349	34	30	34	31	31	22
PROT	28.0	88.0	71.0	9.0	71.8	8.3	67.3	10.9
CREDIT	12.9	100.0	75.7	17.7	79.4	16.5	58.7	11.9

This table provides descriptive statistics for the variables used in this study. DD is the distance to default (reverse measure of financial distress), PD is the probability of default, SIZE is board size, INDEP is board independence in percentages, INDEP is board independence in percentages, DUAL is CEO duality as a dummy variable indicating 1 if the CEO has a dual chair, SHSCORE is the shareholders' score, BLOCK is blockholder percentage holdings, INST is institutional blockholder percentage holdings, STRAT is strategic entity blockholder percentage holdings, HEDG is investment advisor/hedge fund blockholder percentage holdings, CORP is corporation blockholder percentage holdings, INDV is individual investor blockholder percentage holdings, ROA is the return on assets, LEV is leverage, BETA is annual beta, EXCESS is the excess return over the country major stock exchange, TOBIN is Tobin's Q, TA is total assets in million US dollars, AGE is company age, PROT is World Bank's Protecting Minority Investors Score, CREDIT is World Bank's Getting Credit Score. Descriptive statistics for TOBIN and TA are calculated before taking the natural logarithm; for AGE are calculated before grouping within percentiles.

On average, DM firms have lower levels of total blockholders compared to EM firms. Exploring further into blockholder types reveals that institutional blockholders

are more dominant in DM, whereas strategic investors are more dominant in EM. Investment advisor/hedge fund blockholders, as the sub-type of institutional investor blockholders, are also significantly more dominant in DM. On the other hand, corporation and individual blockholders, the sub-types of strategic entities, are more dominant in EM countries.

Besides observable differences in corporate governance and ownership variables between DM and EM, the control variables are quite comparable between the two markets. This finding also somewhat verifies that there is ignorable bias, if any, between the two market groups in terms of control variables. As for the macroeconomic variables, the findings are like those in previous studies. Both investor protection and creditor rights are higher in DM countries. Detailed descriptive analyses for each variable are spared for the following sections.

Pearson and Spearman nonparametric correlation coefficients for all variables are in APPENDIX H. All correlation coefficients between explanatory variables are low, indicating that the sample does not suffer from multicollinearity. DD is significantly negatively correlated with SIZE, specifying that larger board size is associated with increased financial distress. INDEP and DUAL are also negatively correlated, denoting that higher board independence and CEO duality imply increased distress. SHSCORE is negatively correlated with DD, suggesting that higher firm-level shareholder protection might be exacerbating the agency conflict between shareholders and creditors and resulting in increased financial distress. BLOCK, INST, and HEDGE are negatively correlated, indicating that total blockholders and institutional blockholders have a positive relationship with financial distress. The correlation coefficient between CORP and DD is positive, implying that increased strategic corporation blockholders are associated with

decreased financial distress. All the control variables have predicted correlation signs with DD. ROA, excess return, Tobin's q, and firm age are positively associated with DD, indicating a negative relationship with financial distress. On the other hand, leverage, beta, and total assets are negatively associated with DD, indicating a positive relationship with financial distress. Finally, CREDIT is negatively correlated with DD, indicating a positive relationship with financial distress. Of course, these are only pairwise correlations and do not represent true relationships as indicated by the regression models.

4.2 Governance and financial distress

This section examines the effect of corporate governance and ownership variables on financial distress using a robust dataset comprising developed and emerging markets. First, I analyze the mean differences between markets and regions for both corporate governance and ownership variables. Subsequently, I test the baseline model in three sample groups; the global sample, developed markets, and emerging markets. Several significant findings are reported. Next, I scrutinize the interacting effect of board independence on CEO duality and ownership concentration.

4.2.1 Analysis of means

Analyzing the mean differences in corporate governance and ownership variables across markets and regions is valuable before evaluating the results of regression analysis. The underlying patterns and differences convey noteworthy details that might help us better understand the findings of regression models. The means of corporate governance variables are presented in Table 10. The same level of detail for each country is listed in APPENDIX I.

Table 10. Corporate Governance Variable Means for Each Market and Region

Market/ Region	Firm Years N	Board Size	Board Independence	CEO Duality	Shareholders Score
Developed	41,247	9.8	62.3%	40.8%	50.6%
North America	18,714	9.5	79.1%	57.9%	51.1%
EMEA	11,115	10.2	54.8%	22.2%	51.4%
Pacific	11,418	9.8	40.1%	31.0%	49.1%
Emerging	8,703	10.4	40.5%	26.2%	49.6%
South America	1,434	10.5	35.8%	31.8%	51.0%
Asia	5,010	10.1	41.3%	29.5%	48.8%
EMEA	2,259	10.9	41.9%	15.4%	50.4%
Grand Total	49,950	9.9	58.4%	38.3%	50.5%

This table shows the mean values of corporate governance variables for each market and region. Board size is shown in absolute terms and other variables are shown in percentages.

On average, DM countries have smaller but more independent boards, more frequent occurrences of CEO duality, and higher shareholder scores. North American countries have the smallest average board size, with 9.5 directors, whereas Emerging EMEA countries have an average board size of 10.9 directors, the highest score among all regions. Board independence and CEO duality are highest in North American countries, i.e., the United States and Canada. On average 79% of board directors are independent and approximately 58% of the boards are chaired by the firm CEO. These averages are well beyond the DM averages of 62.3% and 40.8%, respectively. The EM countries both have lower independent directors on their boards and lower CEO dual chairs, with 40.5% and 26.2%, respectively. The EM region that has the lowest average board independence is South America with 35.8% and that has the lowest average CEO duality is EMEA countries. Average shareholder scores for DM and EM are rather comparable. However, DM countries have on average slightly higher average firm-level shareholder score of 50.6%, as compared to the EM countries with 49.6 percent.

The histograms for board size, board independence, and shareholders' score are in Figure 2. The histograms are created for the global, DM, and EM samples, respectively. Visual analysis reveals that board size for the DM and EM are normally

distributed, yet slightly right-skewed. The higher bars on the right end of the board size histograms are due to the winsorization treatment of the variable. Board independence for all samples is left-skewed, meaning the firms have on average higher percentages of independent directors on their boards (58.4%). DM firms are even more left-skewed because average board independence is higher (62.3%). In EM, the firms have lower levels of board independence (40.5%) and the variable is closer to a normal distribution. The high rising first bars in board independence histograms are due to the number of firms with no independent directors on their boards, i.e., zero independence. The bars in the shareholder score histogram represent intervals of five percentage points from zero to 100. We can observe that each bar is similar, yet slightly jagged in EM countries.

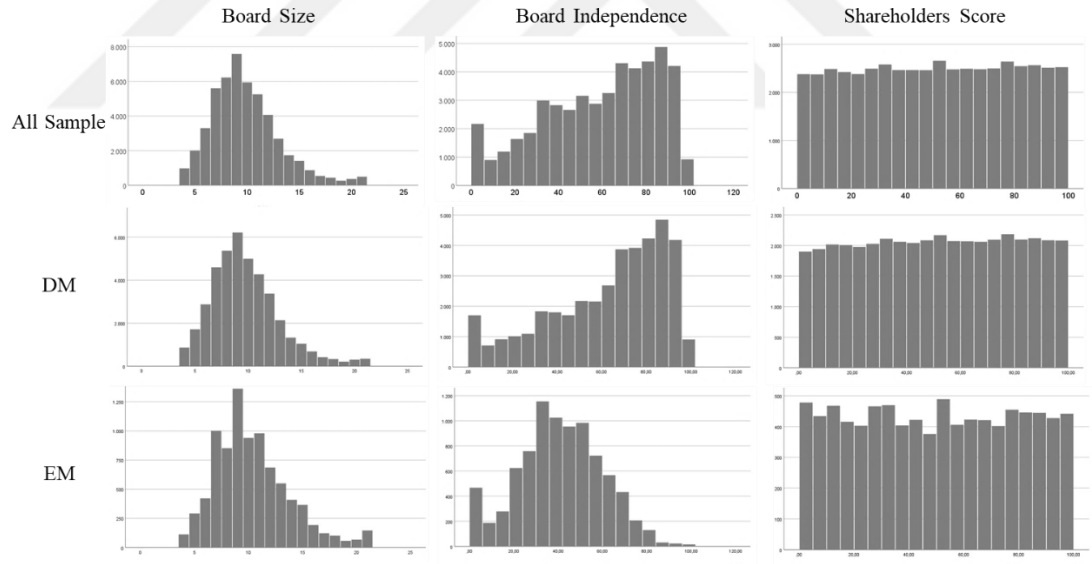

Figure 2. Histograms of corporate governance variables

Before moving further into regression results, we analyze ownership variables by investigating the details of total blockholders, blockholder types, and sub-types. Detailed descriptive statistics for ownership variables are in Table 11. Further

analysis and country-level total blockholder and blockholder type details are in APPENDIX J, and blockholder sub-type details are in APPENDIX K. Table 11 presents mean differences in two separate panels. Panel A shows total blockholders (BLOCK) and blockholder types: institutional blockholders (INST) and strategic blockholders (STRAT). Panel B shows blockholder sub-types: investment advisor/hedge fund blockholders (HEDG), corporation blockholders (CORP), and individual investors blockholder (INDV).

On average 91.8% of DM firm-years have at least one blockholder and these blockholders hold 32.6% of common shares. These percentages are higher in EM, where 94.7% of firm-years have at least one blockholder and these blockholders hold on average 51.4% of shares. This finding is similar to that of La Porta et al. (1999), who argue that ownership concentration is higher in countries with lower shareholder protection, which is the case in EM countries. More discussion is provided in the following section where we investigate the impact of macroeconomic factors.

Examination of the details of blockholder types reveals that the DM countries have a higher percentage of non-strategic, active institutional investors compared to the EM countries. The highest ownership concentration is observed in South America where blockholders hold 57.7% of company shares, while the lowest is observed in North America, where blockholders hold only 29.7% of shares. As for the blockholder types, 73.8% of DM firm-years have institutional blockholders which hold on average 21.8% of total shares. The highest institutional investor shareholding is seen in North American firms, 89% of which have at least one institutional blockholder that holds on average 25% of total shares. These averages are significantly lower in EM countries, where only 42% of the firm-years have institutional blockholders, which hold on average 18.3% of total common shares.

Table 11. Ownership Variable Descriptive Statistics for Each Market and Region

Panel A: Total Blockholder and Blockholder Types

		Total Blockholder			Blockholder Types					
		BLOCK			INST			STRAT		
Market/ Region	Total N	N	% N	% Hold	N	% N	% Hold	N	% N	% Hold
Developed	41,247	37,849	91.8%	32.6%	30,458	73.8%	21.8%	17,648	42.8%	32.1%
N.America	18,714	17,528	93.7%	29.7%	16,649	89.0%	25.0%	4,503	24.1%	22.9%
EMEA	11,115	10,506	94.5%	36.6%	7,574	68.1%	19.3%	6,578	59.2%	36.2%
Pacific	11,418	9,815	86.0%	33.5%	6,235	54.6%	16.5%	6,567	57.5%	34.4%
Emerging	8,703	8,245	94.7%	51.4%	3,659	42.0%	18.3%	7,558	86.8%	47.3%
S.America	1,434	1,261	87.9%	57.7%	626	43.7%	18.8%	1,121	78.2%	54.5%
Asia	5,010	4,779	95.4%	48.4%	1,787	35.7%	12.1%	4,622	92.3%	45.3%
EMEA	2,259	2,205	97.6%	54.5%	1,246	55.2%	26.9%	1,815	80.3%	47.7%
TOTAL	49,950	46,094	92.3%	36.0%	34,117	68.3%	21.5%	25,206	50.5%	36.6%

Panel B: Blockholder Sub-Types

		Blockholder Sub-types								
		HEDG			CORP			INDV		
Market/ Region	Total N	N	% N	% Hold	N	% N	% Hold	N	% N	% Hold
Developed	41,247	28,544	69.2%	20.8%	10,962	26.6%	29.6%	6,562	15.9%	22.1%
N.America	18,714	16,430	87.8%	23.9%	2,094	11.2%	24.0%	2,521	13.5%	17.7%
EMEA	11,115	6,899	62.1%	18.1%	3,345	30.1%	29.7%	2,323	20.9%	25.5%
Pacific	11,418	5,215	45.7%	14.7%	5,523	48.4%	31.7%	1,718	15.0%	23.8%
Emerging	8,703	2,096	24.1%	15.6%	5,845	67.2%	41.6%	1,615	18.6%	24.2%
S.America	1,434	497	34.7%	15.3%	776	54.1%	45.2%	232	16.2%	27.4%
Asia	5,010	684	13.7%	9.1%	3,940	78.6%	41.9%	905	18.1%	20.9%
EMEA	2,259	915	40.5%	20.5%	1,129	50.0%	38.0%	478	21.2%	28.9%
TOTAL	49,950	30,640	61.3%	20.4%	16,807	33.6%	33.8%	8,177	16.4%	22.5%

This table presents mean differences in ownership variables. Panel A shows total blockholders and blockholder types: institutional and strategic blockholders. Panel B shows blockholder sub-types: investment advisor/hedge fund, strategic corporations, and individual investors. *Total N* column shows available observations in the respective market and region. *N* for each blockholder variable indicates the total number of firm years with the specific blockholder. *%N* stands for the number of sample firm-years that have the specific blockholder. *%Hold* indicates the average ownership holdings for each blockholders, averaged among firm-years that have the specific blockholding. For example, in DM, 28,544 firm-years out of 41,247 firm-years have HEDG blockholders, which stands for 69.2% of all DM firm-years. These 28,544 firm-years have on average 20.8% of common shareholdings. This average holding percentage disregards the firm-years that have no HEDG blockholders and calculates the mean of total blockholding of 28,544 firm-years.

While the DM firms have higher institutional blockholders, these firms have significantly lower strategic entity blockholders as compared to the EM firms. In DM, only 42.8% of firm years have at least one strategic entity blockholders, which holds on average 32.1% of shares. The lowest concentration in terms of strategic blockholders is observed in North America, only 24.1% of which have at least one

strategic blockholder that holds on average 22.9% of shares. Conversely, strategic entities are quite strong in EM countries. 86.6% of all EM firm-years have at least one strategic blockholder, which holds on average 47.3% of total shares.

In terms of blockholder sub-types in Panel B of Table 11, we observe that investment advisor/hedge fund blockholders are even more prevalent and dominant in DM countries compared to EM countries. In DM, 69.2% of firm-years have HEDG, which holds on average 20.8% of total shares. Like total institutional blockholding, the largest HEDG blockholding is seen in North American firms, 87.8% of which have at least one HEDG blockholder that holds on average 23.9% of total shares. In EM, this blockholder sub-type is much less dominant compared to non-strategic institutional blockholders. Only 24.1% of all EM firm-years have at least one HEDG and this blockholder type holds on average 15.6% of total shares. Within EM, Asian firms have the least number of investment advisor/hedge fund blockholders with 13.7% of firm years holding only 9.1% of total firm shares.

When we analyze strategic entity sub-types, we see that non-government corporation blockholders in EM are significantly more dominant in EM. 67.2% of EM firm years have at least one corporation blockholder which holds on average 41.6% of common shares. These figures are 26.6% and 29.6% in DM, respectively. The highest CORP concentration is seen in Asian firms, 78.6% of which have at least one corporation blockholder with an average shareholding of 41.9%. The lowest CORP concentration is observed in North American firms. Only 11.2% of these firms have CORP, which holds on average 24% of total shares. In terms of individual investors, the EM firms have slightly higher concentration as compared to the DM firms, yet the difference is not as significant as with corporation blockholders. In DM, 15.9% of firm-years have individual strategic blockholders who hold on

average 22.1% of common shares. Again, the lowest INDV concentration is seen in North American firms. In EM, 18.6% of firm-years have individual investor blockholders who hold on average 24.2% of total shares.

4.2.2 Results of regression analyses

The first group of regression analyses uses the baseline regression described in Section 3.4 which is applied first to the global sample and then to the DM and EM sub-samples. All models presented in this section have common post-regression tests. I do not report these tests since they are very similar for each model. For every regression, whose results are reported below, Durbin-Watson statistics is around 2.0 and within the upper and lower limits, indicating that the models do not suffer from autocorrelation. Residuals are normally distributed. All models have an F-stat probability of 0.0000. The variance inflation factors for each variable are lower than 2.0 and generally close to 1.0, stating the models do not suffer multicollinearity.

Seven separate models are tested for each of the three sample groups. Each model has continuous DD as the dependent variable and lagged DD, control variables, and firm- and period-fixed effects as explanatory variables. The first three models in each sample group include only ownership variables in three layers: total blockholders, blockholder types (institutional and strategic blockholders), and blockholder sub-types (investment manager/hedge fund, corporation, and individual blockholders). The fourth model only includes corporate governance variables; board size, board independence, CEO duality, and shareholder score. The last three models include both corporate governance variables and ownership variables (in three layers). The results are presented and discussed in the following sections.

4.2.2.1 Global sample

First, I use the entire sample to test the baseline model. The global sample incorporates all 50 countries in DM and EM. Seven separate models are tested in an incremental approach as described previously. The results of the regressions are in Table 12. The dependent variable in all seven models is the distance to default (DD), which is a continuous and reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. All models include lagged DD and a full set of controls as explanatory variables, as well as constant and firm- and period-fixed effects. R-squared and adjusted r-squared figures are reported below each model.

Findings in Table 12 reveal significant relations between firm-level corporate governance mechanisms and financial distress. Before going deeper into these results and discussing whether they support our hypotheses, it is important to review the control variables to see if their signs and significance are as expected. In all models, the control variables have significant coefficients with meaningful signs.

ROA is significantly and positively related to DD, indicating that as the profitability of a firm, measured by return on assets, increases so does its distance to default. The more profitable the firm, the less it suffers from financial distress. This finding is comparable to the results of Daily and Dalton (1994a) and Parker et al. (2002), who find that profitability is negatively related to financial distress.

As expected, LEV is negatively associated with DD, indicating that as the firm's leverage increases, so do its default probability and financial distress levels. The coefficient of LEV is not only statistically but also economically very significant, implying that leverage by itself is a very important determinant of financial distress. This result supports the findings of several previous

Table 12. Governance and Financial Distress Regression Results: Global Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				-0.023***	-0.023***	-0.024***	-0.024***
				(0.008)	(0.008)	(0.008)	(0.008)
INDEP				0.101	0.084	0.125	0.14
				(0.113)	(0.113)	(0.113)	(0.113)
DUAL				-0.119***	-0.122***	-0.125***	-0.128***
				(0.04)	(0.04)	(0.04)	(0.04)
SHSCORE				-0.078	-0.084	-0.072	-0.067
				(0.058)	(0.059)	(0.059)	(0.059)
BLOCK	-0.558***				-0.539***		
	(0.112)				(0.116)		
INST		-1.096***				-1.117***	
		(0.143)				(0.146)	
STRAT		0.076				0.18	
		(0.154)				(0.16)	
HEDG			-1.161***				-1.19***
			(0.151)				(0.154)
CORP			0.22				0.246
			(0.166)				(0.173)
INDV			0.804***				1.057***
			(0.282)				(0.289)
LAG.DD	-0.052***	-0.052***	-0.052***	-0.053***	-0.054***	-0.054***	-0.055***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ROA	2.716***	2.639***	2.639***	2.609***	2.661***	2.578***	2.578***
	(0.163)	(0.163)	(0.163)	(0.165)	(0.165)	(0.165)	(0.165)
LEV	-8.473***	-8.453***	-8.454***	-8.531***	-8.498***	-8.476***	-8.478***
	(0.122)	(0.122)	(0.122)	(0.124)	(0.124)	(0.124)	(0.124)
BETA	-0.501***	-0.499***	-0.498***	-0.495***	-0.499***	-0.496***	-0.496***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
EXCESS	-1.39***	-1.391***	-1.394***	-1.358***	-1.367***	-1.369***	-1.373***
	(0.038)	(0.038)	(0.038)	(0.039)	(0.039)	(0.039)	(0.039)
TOBIN	2.461***	2.459***	2.461***	2.494***	2.478***	2.477***	2.479***
	(0.042)	(0.042)	(0.042)	(0.043)	(0.043)	(0.043)	(0.043)
TA	-0.064*	-0.069**	-0.066*	-0.05	-0.066*	-0.07*	-0.068*
	(0.035)	(0.034)	(0.035)	(0.036)	(0.036)	(0.036)	(0.036)
AGE	0.193***	0.191***	0.188***	0.177***	0.181***	0.177***	0.174***
	(0.037)	(0.037)	(0.037)	(0.038)	(0.038)	(0.038)	(0.038)
C	9.194***	9.228***	9.15***	9.138***	9.546***	9.545***	9.459***
	(0.543)	(0.541)	(0.541)	(0.552)	(0.561)	(0.559)	(0.559)
R2	0.689	0.689	0.689	0.688	0.689	0.688	0.688
Adj.R2	0.637	0.637	0.637	0.634	0.635	0.634	0.634
Firms	6355	6355	6355	6367	6341	6341	6341
Firm Years	44457	44457	44457	43163	42982	42982	42982

The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. The global sample included in the models is 6,539 firms and 49,950 firm years. The loss of some observations is due to the lagged DD and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

studies (Cao et al., 2015; Darrat et al., 2016; Miglani et al., 2015; Wang & Deng, 2006), which find comparable relationships between firms' debt levels and financial distress.

BETA is significantly negatively related to DD as predicted, specifying that the higher the systematic risk the firm is exposed the higher it suffers from financial

distress. Financially distressed firms are exposed to a systematic risk that they cannot diversify, and BETA is the measurement of this systematic risk within the CAPM framework. The finding is similar to the results of Aldamen et al. (2012) and Campbell et al. (2008), who argue that as the systematic risk increases so does the financial distress.

EXCESS, i.e., excess return over major country index as listed in APPENDIX F, is statistically significantly and negatively related to DD, suggesting that excess stock return is associated with increased financial distress. The finding supports the risk-based theory that higher financial distress risk requires a value premium (Fama & French, 1992). The finding also casts doubt on the distress risk anomaly argument of Dichev (1998) and Campbell et al. (2008), who find that distress risk is associated with lower excess returns. The sample firms in the global sample do not show any indication of distress risk anomaly, rather our findings show that distressed firms have higher excess returns as supported by the risk-based theory.

TOBIN, calculated as the natural logarithm of Tobin's Q, which is calculated as the enterprise value of a company divided by the replacement value of its assets, is a widely used proxy for firm valuation. TOBIN is statistically significantly and positively related to DD, signifying that higher firm value is associated with lower levels of financial distress. As predicted, the findings suggest that a lower level of financial distress is associated with higher firm value.

TA is weakly negatively associated with DD in the global sample, indicating that larger firms are associated with increased financial distress. This finding is contradictory to the previous literature (Darrat et al., 2016; Miglani et al., 2015; Simpson & Gleason, 1999) and the reverse of the predicted sign. Analysis of the DM

and EM sub-samples separately shows that this contradiction is existent only in the EM firms. The discussion is provided in the Emerging Markets sub-part below.

AGE is statistically significantly associated with DD, indicating that older and more mature firms have lower financial distress levels as compared to younger firms. The result is parallel to the expectation that older firms can better endure adverse economic conditions whereas younger firms are more growth-oriented that are inclined to take risky actions.

Besides control variables, lagged DD is significant in all models, indicating that past financial distress levels significantly impact contemporary financial distress levels. This also indicates that the model could have been suffering from dynamic endogeneity, as suggested by Wintoki et al. (2012), however, the lagged DD now overcomes any such potential endogeneity problem. A similar remedy is also advised by Schultz et al. (2017).

The models in Table 12 disclose several significant relationships between financial distress and governance mechanisms, the main areas of interest in this study. In the global sample, SIZE, DUAL, BLOCK, INST, and HEDG are significantly negatively and INDV is significantly positively related to DD. The coefficients of these variables in all models are both statistically and economically significant.

SIZE is negatively related to DD, indicating that board size has a positive effect on financial distress in the global sample. Cao et al. (2015) and Fich and Slezak (2008) find similar results. Additional board members might increase the diversity with additional skills and experience (H. Platt & Platt, 2012), but they seem to fail to provide effective oversight in terms of financial distress. Jensen (1993) and Lipton and Lorsch (1992) state that as the board size increases, its efficiency in

delivering efficient monitoring reduces. This lack of monitoring seems to also affect levels of financial distress as increased board size unfavorably impacts firm default probability. Our finding in Table 12 supports hypothesis 1 that increased board size has an increasing effect on financial distress in the global sample.

DUAL is significantly negatively associated with DD, specifying that CEO duality has a positive impact on financial distress. Daily and Dalton (1994b), Darrat et al. (2016), and Switzer et al. (2018) find similar results in their empirical studies. As argued by Jensen (1993), a dual CEO, who is also the leader of the team of directors, might steer the board towards his or her interests and deteriorate the financial well-being of the firm. The results of the global sample show that dual CEO increases financial distress levels, thereby, implying that an independent chair is essential to enable the board to accomplish its critical monitoring and advice functions. With this finding in the global sample, hypothesis 3 that CEO duality has a significant positive impact on financial distress is supported.

The results show that BLOCK is negatively associated with DD, indicating that as the shares of total blockholders increase, so do the levels of financial distress. This finding is also similar to the findings of previous literature (Ashbaugh-Skaife et al., 2006; Bhojraj & Sengupta, 2003; Lee & Yeh, 2004). The finding supports the theoretical arguments that blockholders may increase managerial pressure to capture personal benefits at the expense of minority shareholders and creditors and that blockholders have the inclination to follow private benefits which have a wealth-decreasing impact on creditors (Ashbaugh-Skaife et al., 2006; Shleifer & Vishny, 1997). As a result, the findings in Table 12 support hypothesis 6 that high blockholder ownership has an increasing impact on financial distress.

BLOCK is also a suitable proxy for ownership concentration. The variable has significantly high correlation coefficients with other widely used ownership concentration proxies, such as total holdings of the top 10, top 5, and top 3 shareholders.[23] To understand if the results for blockholders also support similar conclusions for concentrated ownership, I replace BLOCK with each of these three ownership concentration variables in models 1 and 5. For all other three variables, the results remained unchanged.[24] These robust results lead us to the conclusion that not only blockholders but also concentrated ownership has an increasing impact on financial distress.

INST is significantly and negatively associated with DD, suggesting that institutional blockholding has a deteriorating impact on the financial health of the firm. Increased blockholding of institutional shareholders, such as investment advisors, hedge funds, private equity, sovereign wealth fund, insurance company, banks, and pension funds, is associated with increased financial distress in the global sample. Similar results are documented by Cao et al. (2015) and Darrat et al. (2016). A potential explanation could be found in the agency theory, in that large institutions might collude with management to expropriate creditors at the cost of increased financial distress. As a result, the findings in Table 12 support hypothesis 7 that increased institutional blockholders positively affect financial distress. The findings in Table 12 also show that HEDG, the sub-type of institutional investors, is negatively associated with DD. As the investment advisor/hedge fund blockholding increases, the financial distress of the firm increases. HEDG is a slightly more active sub-type of institutional shareholders, and their presence is not favorable in terms of

[23] Pearson correlation coefficients between BLOCK and total holdings of top 10, top 5, and top 3 shareholders are 0.953, 0.971, and 0.937, respectively.
[24] Regression results are not reported for brevity purposes. However, the correlation coefficients and standard errors are very similar to those in Table 12.

the financial health of the firms. Nevertheless, hypothesis 8 is supported by these findings.

Although positive, the coefficient of STRAT is not significant, suggesting that hypothesis 9 is not supported for the global sample. This result denotes that strategic blockholders do not have a positive or negative significant impact on financial distress. This lack of significance could be because strategic entities have a broad range of sub-types, including corporations, individual investors, holding companies, and government agencies. Although holding companies and government agency blockholders are very limited in number to draw statistically significant conclusions from and therefore not included in the models, the other two subtypes (i.e., CORP and INDV) have sufficient observations. Models 3 and 7 show the results of the regression with strategic entity blockholder sub-types, i.e., corporations and individual investors. CORP is not statistically significant, suggesting that hypothesis 10 is not supported for the global sample. However, INDV is positively and statistically significantly related to DD. This positive association indicates that as the total individual strategic entity blockholding increases, financial distress decreases, thereby supporting hypothesis 11 for the global sample. This finding indicates that individual blockholders are favorable for the financial health of the firm.

A few other explanatory variables failed to show significant coefficients. INDEP is not significant for all four models in the global sample. Hypothesis 2 suggests that board independence is negatively associated with financial distress. However, INDEP is not significant in the global sample although its sign is as predicted. This insignificant result is parallel to the previous studies which fail to find a relationship between independent directors and financial distress (e.g., Chaganti et al., 1985; Daily & Dalton, 1994b; Miglani et al., 2015).

Moreover, SHSCORE is not significant for the models tested. Hypothesis 5 suggests that increased firm-level shareholder protection would increase financial distress, because increased shareholder rights exaggerate the conflicts between equity owners and creditors, potentially leading to excessive risk-taking and distorted investment decisions (Ayotte et al., 2012). However, SHSCORE is found to be insignificant when tested for the global sample.

The coefficients of the explanatory variables have predicted signs, but they are insignificant at the 10% level. The reason for these insignificant results could be due to the analysis of the global sample without considering other factors, such as macroeconomic effects, that can impact the relationship between governance and financial distress. The following sections investigate related questions.

4.2.2.2 Developed markets

To test whether the results are valid for the developed markets, I run the same models for the DM sub-sample of 23 countries. Like the approach for the global sample, seven separate models are tested. The results of the regressions are in Table 13. The dependent variable in all seven models is the distance to default (DD), which is a continuous and reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. All models include lagged DD and a full set of controls as explanatory variables, as well as constant and firm- and period-fixed effects. R-squared and adjusted r-squared figures are reported below each model.

The results suggest that lagged DD and the control variables in the DM sub-sample have similar coefficients as the global sample. One exception is TA, which is

Table 13. Governance and Financial Distress Regression Results: DM Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				-0.019**	-0.019**	-0.02**	-0.02**
				(0.009)	(0.009)	(0.009)	(0.009)
INDEP				0.219*	0.194	0.236*	0.244**
				(0.121)	(0.121)	(0.122)	(0.121)
DUAL				-0.132***	-0.135***	-0.137***	-0.14***
				(0.043)	(0.043)	(0.043)	(0.043)
SHSCORE				-0.067	-0.071	-0.057	-0.058
				(0.063)	(0.063)	(0.063)	(0.063)
BLOCK	-0.551***				-0.514***		
	(0.119)				(0.123)		
INST		-0.997***				-1***	
		(0.147)				(0.15)	
STRAT		0.089				0.237	
		(0.171)				(0.18)	
HEDG			-1.033***				-1.057***
			(0.155)				(0.157)
CORP			0.112				0.154
			(0.192)				(0.203)
INDV			0.633**				0.942***
			(0.315)				(0.325)
LAG.DD	-0.048***	-0.049***	-0.049***	-0.05***	-0.051***	-0.051***	-0.051***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ROA	2.618***	2.617***	2.619***	2.592***	2.561***	2.557***	2.557***
	(0.17)	(0.17)	(0.17)	(0.172)	(0.172)	(0.172)	(0.172)
LEV	-8.402***	-8.401***	-8.404***	-8.486***	-8.433***	-8.431***	-8.434***
	(0.128)	(0.128)	(0.128)	(0.131)	(0.131)	(0.131)	(0.131)
BETA	-0.487***	-0.486***	-0.486***	-0.482***	-0.484***	-0.483***	-0.483***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
EXCESS	-1.328***	-1.33***	-1.331***	-1.288***	-1.295***	-1.299***	-1.3***
	(0.041)	(0.041)	(0.041)	(0.042)	(0.042)	(0.042)	(0.042)
TOBIN	2.397***	2.388***	2.389***	2.416***	2.41***	2.402***	2.402***
	(0.045)	(0.045)	(0.045)	(0.046)	(0.047)	(0.046)	(0.046)
TA	-0.01	-0.008	-0.007	0.004	-0.015	-0.013	-0.012
	(0.037)	(0.037)	(0.037)	(0.038)	(0.038)	(0.038)	(0.038)
AGE	0.179***	0.177***	0.175***	0.164***	0.169***	0.167***	0.165***
	(0.039)	(0.039)	(0.039)	(0.04)	(0.04)	(0.04)	(0.04)
C	8.335***	8.295***	8.263***	8.195***	8.62***	8.543***	8.516***
	(0.573)	(0.572)	(0.573)	(0.586)	(0.593)	(0.593)	(0.593)
R2	0.694	0.694	0.694	0.693	0.693	0.693	0.693
Adj.R2	0.644	0.644	0.644	0.641	0.641	0.641	0.641
Firms	5144	5144	5144	5158	5134	5134	5134
Firm Years	37054	37054	37054	35819	35666	35666	35666

The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. The total DM sample included in the models is 5,319 firms and 41,247 firm years. The loss of some observations is due to the lagged DD and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

not significant in the DM sub-sample. This result is similar to the findings in previous literature that find no association between firm size and financial distress (Cao et al., 2015; Fich & Slezak, 2008; Lee & Yeh, 2004). All other controls are both statistically and economically significant.

The findings in Table 13 reveal several significant relationships between governance mechanisms and financial distress in DM firms, which are comparable to those in the global sample. In developed markets, SIZE, DUAL, BLOCK, INST, and HEDG are significantly negatively and INDV is significantly positively related to DD. The coefficients and the significance of these variables are quite similar to those in the global sample models; therefore, we can conclude similar results as in the global sample. Increased SIZE leads to increased financial distress. The board size is smaller in DM markets than in EM markets. Additional board member does not increase the monitoring ability of the board in terms of financial distress. Like the results from the global sample, the size of the board has an increasing effect on financial distress. This finding supports hypothesis 1 for the DM sample.

DUAL is significantly negatively related to DD, indicating that a dual CEO has an increasing effect on financial distress. CEO duality is a more common practice in DM where 40.8% of the firms have dual CEOs than in EM where only 26.2% have duality. Although prevalent, DUAL is positively related to financial distress in DM firms. Similar to the results in the global sample, Jensen's (1993) argument that dual-hatted CEO will have the potential to pursue personal gains is supported in the DM sub-sample. The result supports hypothesis 3 for the DM firms.

BLOCK is negatively related to DD in the DM sample, suggesting that total blockholder shares have an increasing effect on financial distress. This finding is similar to the findings of previous literature (Ashbaugh-Skaife et al., 2006; Bhojraj & Sengupta, 2003; Lee & Yeh, 2004) and supportive of hypothesis 6. The result is unchanged when I do the same exercise as in the global sample and replace BLOCK with other ownership concentration variables, i.e., total holdings of the top 10, top 5, and top 3 shareholders. All variables have both statistically and economically

significant coefficients.[25] These robust results lead to the conclusion that not only blockholders but also concentrated ownership has an increasing impact on financial distress in DM countries.

Like the results in the global sample, INST and HEDG both are significantly negatively related to DD in the DM firms. These findings suggest that institutional investors and investment advisor/hedge fund blockholders have positive impacts on financial distress, thereby supporting hypotheses 7 and 8, respectfully, for the DM firms. Cao et al. (2015) and Darrat et al. (2016) find similar results for their DM samples in the US. INST and HEDG blockholders are significantly more dominant in the DM firms as compared to the EM firms. Besides this dominance, they have a deteriorating impact on the financial well-being of the firm.

Furthermore, like the results in the global sample, STRAT and CORP are not significant. Therefore, hypotheses 9 and 10 are not supported for the DM sub-sample. However, INDV is significantly positively associated with DD, suggesting that individual blockholders, as a sub-type of strategic entities, have a decreasing impact on financial distress. Although individual investors are less dominant in DM firms compared to EM firms, their positive effect on a firm's financial health is significant. As a result, hypothesis 11 is supported by the DM firms.

INDEP is the one variable that differentiates the results of the DM sub-sample from those of the global sample. The findings in Table 13 suggest that INDEP is positively related to DD in the DM sample, a result emphasizing the negative significant effect of independent board members on financial distress, thereby supporting hypothesis 2. Similar results are existent in literature (Cao et al., 2015; Elloumi & Gueyié, 2001; Fich & Slezak, 2008; Hambrick & D'Aveni, 1992; H. Platt

[25] Regression results are not reported for brevity purposes. However, the correlation coefficients and standard errors are very similar to those in Table 12.

& Platt, 2012; Wang & Deng, 2006). The theoretical support for this finding comes from the agency theory, which argues that outside directors will act as decision agents in difficult situations and provide more effective monitoring of the management, especially the CEO (Fama, 1980; Fama & Jensen, 1983). Moreover, independent directors are more sensitive to claimholders in terms of fiduciary responsibilities, which leads them to act in favor of the financial health of the firm.

Finally, SHSCORE has a negative but insignificant coefficient. Hypothesis 5 suggests that increased firm-level shareholder protection would increase financial distress, because increased shareholder rights exaggerate the conflicts between equity owners and creditors, potentially leading to excessive risk-taking and distorted investment decisions (Ayotte et al., 2012). However, SHSCORE is found to be insignificant, therefore hypothesis 5 is not supported for the DM firms.

4.2.2.3 Emerging markets

Next, I test the baseline regression for the emerging markets by running the same models for the EM sub-sample of 27 countries. Like the approach in the global sample and DM sub-sample, seven separate models are tested. The results of the regression results are in Table 14. As usual, the dependent variable in all seven models is the distance to default (DD), which is a continuous and reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. All models include lagged DD and a full set of controls as explanatory variables, as well as constant and firm- and period-fixed effects. R-squared and adjusted r-squared figures are reported below each model.

Table 14. Governance and Financial Distress Regression Results: EM Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				-0.002	-0.005	-0.007	-0.004
				(0.017)	(0.017)	(0.017)	(0.017)
INDEP				-0.641**	-0.615**	-0.56*	-0.554*
				(0.3)	(0.299)	(0.3)	(0.3)
DUAL				-0.148	-0.153	-0.16	-0.154
				(0.113)	(0.112)	(0.113)	(0.113)
SHSCORE				-0.079	-0.094	-0.103	-0.075
				(0.152)	(0.151)	(0.152)	(0.152)
BLOCK	-0.455				-0.504		
	(0.318)				(0.324)		
INST		-1.444***				-1.615***	
		(0.513)				(0.527)	
STRAT		-0.106				-0.128	
		(0.35)				(0.354)	
HEDG			-1.809***				-1.868***
			(0.599)				(0.604)
CORP			0.238				0.225
			(0.331)				(0.335)
INDV			1.042*				1.115*
			(0.622)				(0.631)
LAG.DD	-0.066***	-0.065***	-0.066***	-0.066***	-0.068***	-0.067***	-0.068***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
ROA	3.15***	2.484***	2.471***	2.408***	3.151***	2.477***	2.456***
	(0.524)	(0.514)	(0.514)	(0.517)	(0.528)	(0.517)	(0.517)
LEV	-8.832***	-8.791***	-8.763***	-8.738***	-8.757***	-8.714***	-8.687***
	(0.364)	(0.362)	(0.363)	(0.366)	(0.367)	(0.366)	(0.366)
BETA	-0.596***	-0.584***	-0.584***	-0.581***	-0.596***	-0.584***	-0.583***
	(0.035)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
EXCESS	-1.857***	-1.828***	-1.834***	-1.845***	-1.874***	-1.845***	-1.851***
	(0.097)	(0.098)	(0.098)	(0.099)	(0.099)	(0.099)	(0.099)
TOBIN	3.335***	3.371***	3.36***	3.437***	3.355***	3.387***	3.38***
	(0.124)	(0.124)	(0.125)	(0.125)	(0.125)	(0.126)	(0.126)
TA	-0.255**	-0.288***	-0.291***	-0.251**	-0.251**	-0.285***	-0.287***
	(0.099)	(0.097)	(0.097)	(0.098)	(0.101)	(0.098)	(0.099)
AGE	0.171*	0.171	0.168	0.168	0.154	0.155	0.15
	(0.103)	(0.104)	(0.104)	(0.105)	(0.105)	(0.105)	(0.105)
C	12.427***	12.867***	12.703***	12.484***	12.806***	13.245***	13.013***
	(1.599)	(1.561)	(1.563)	(1.555)	(1.617)	(1.579)	(1.581)
R2	0.692	0.690	0.690	0.690	0.693	0.690	0.691
Adj.R2	0.631	0.628	0.628	0.627	0.631	0.628	0.628
Firms	1211	1211	1211	1209	1207	1207	1207
Firm Years	7403	7403	7403	7344	7316	7316	7316

The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. The total EM sample included in the models is 1,220 firms and 8,703 firm years. The loss of some observations is due to the lagged DD and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

The results suggest that lagged DD and most of the control variables in the EM sub-sample have similar coefficients as the global sample and the DM sub-sample. The two exceptions are TA and AGE. TA is significantly negatively related to DD, indicating that larger firms are associated with increased financial distress. Although limited only to emerging markets and non-existent in the global markets, this finding

is contradictory to the previous literature (Darrat et al., 2016; Miglani et al., 2015; Simpson & Gleason, 1999) and the reverse of the predicted sign. The result implies that as the EM firms grow, they do this with financially risky actions and at the expense of the financial well-being of the firm. Moreover, the finding also implies that being a large firm in EM might imply having an increased default likelihood. Nevertheless, I leave the discussion here and propose this mixed finding as a starting point for future research.

Moreover, AGE is statistically insignificant. It was predicted that older and more mature firms better endure adverse economic conditions, whereas younger firms are more growth-oriented and inclined to make risky decisions. However, the results of the EM sample do not support this prediction, although it was supported for the DM and global samples. All other control variables (i.e., ROA, LEV, BETA, EXCESS, and TOBIN) are both statistically and economically significant in the EM.

In terms of corporate governance and ownership variables, Table 14 shows that while some results for EM are comparable to those in the global and DM samples, some results differ. Like the results in the DM sample, INST and HEDG are significantly negatively associated with DD in the EM firms. Although institutional investors are less dominant in EM, they have a significant positive effect on financial distress. These findings support hypotheses 7 and 8.

Besides, INDV is significantly positively related to DD, indicating that individual investors have a mitigating effect on financial distress also in EM. The finding is also supported by descriptive statistics. As individual investors are more dominant in EM firms compared to DM firms, their positive effect on a firm's financial health is significant. The result supports hypothesis 11 for the EM firms.

Some significant findings in the global and the DM sample are not observed in the EM sample; SIZE, DUAL, and BLOCK have comparable signs but insignificant coefficients. SIZE is on average higher in EM firms, but hypothesis 1 that the increased number of directors on the board has a positive effect on financial distress is not supported for the EM firms. Although the sign of the coefficient is as predicted, it is not significant as the case in previous findings. Insignificant findings about the relationship between board size and financial distress are typical in the literature (Darrat et al., 2016; Elloumi & Gueyié, 2001; Schultz et al., 2017; Switzer et al., 2018; Wang & Deng, 2006).

Another insignificant finding in the EM sample is CEO duality. DUAL is found to be insignificant in the EM sample, while it is significant in the global and DM samples. CEO duality is less prevalent in EM than in DM; therefore, its effect on financial distress might be inexistent. Therefore hypothesis 3 is not supported for the EM firms.

Another variable that is significant in the DM but insignificant in the EM sub-sample is BLOCK. This insignificant finding supports neither the argument that the monitoring ability of the blockholders on management would benefit the shareholders and decrease financial distress nor the argument that blockholders would increase managerial pressure for the sake of personal gains and at the expense of the financial distress. Therefore, hypothesis 6 is not supported by EM firms.

Comparable to the results of the global and the DM samples, STRAT and CORP have insignificant coefficients. As discussed above, only INDV is significantly and positively related to DD, but other strategic blockholder variables are not significant. Therefore, hypotheses 9 and 10 are not supported by the EM firms.

One surprising result in EM that is opposite to the results in DM is the negative relationship between INDEP and DD. This finding indicates that board independence is associated with increased financial distress, which is contradictory to hypothesis 2 which is tested in this study. Yet, the finding provides additional insights for further research. As opposed to the several previous studies that suggest that independent boards provide better monitoring and help decrease financial distress, the finding in Table 14 suggests that independent boards might be failing in their effective oversight functions. Two potential explanations are possible for the EM firms. First, independent board members in EM are colluding with dominant shareholders that expropriate creditors, causing increased financial distress. Second, independent board members do not have the necessary knowledge and experience to help the firm avoid financial distress, and insider directors in the EM are more successful in decreasing financial distress. This finding supports the opposite of hypothesis 2 for EM firms. Similar findings were presented by a few previous studies, such as Darrat et al. (2016) and Hsu and Wu (2014). Moreover, Li et al. (2021) find that independent director monitoring is associated with an increased risk of financial distress in Chinese firms.

INDEP has different results in all three sample groups. It is insignificant in the global sample, negatively related to financial distress in the DM, and positively related to financial distress in EM. The reason for these contradictory findings might be due to the different levels of mitigation of board independence on the deteriorating effect of CEO duality on the financial health of the firm. The mitigating effect of board independence on CEO duality is investigated in the following section.

4.2.3 Interacting effect of board independence

Results in the previous section suggest mixed evidence on the relation between board independence and financial distress. While independent board members in DM have a decreasing effect on financial distress, independent board members in EM have the opposite effect. And there is no significant relationship in the global sample. This mixed evidence also exists in earlier literature (Adams et al., 2010; Hermalin & Weisbach, 1998). Moreover, results in the preceding part suggest a positive relation between CEO duality and financial distress in the DM and the global sample, but no relation in the EM firms. As suggested by previous studies, the negative impact of CEO duality could be mitigated by an independent board of directors (Daily & Dalton, 1994b; Hermalin & Weisbach, 1998). Hermalin and Weisbach (1998) suggest that the board's effectiveness in monitoring the CEO is a function of board independence. This section, therefore, tests hypothesis 4 that independent boards mitigate the increasing effect of CEO duality on financial distress.

4.2.3.1 Interaction effect: Global, DM, and EM samples

This part tests the effect of INDEP in interaction with other corporate governance and ownership variables. Interactions of INDEP with SIZE, DUAL, SHSCORE, BLOCK, INST, STRAT, HEDG, CORP, and INDV are included in the models. Although the focus is the INDEP x DUAL interaction variable, the remaining interactions are included to control for other potentially significant results. The tests are done for the global, DM, and EM samples, the results of which are presented in Table 15. A total of nine models are tested: the first three for the global sample, the next three for the DM sub-sample, and the last three for the EM sub-sample.

Table 15. Board Independence Interaction with Governance Variables

	Global Sample			Developed Markets			Emerging Markets		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SIZE	-0.011	-0.01	-0.009	-0.008	-0.007	-0.008	0.005	0.01	0.01
	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)	(0.03)	(0.03)	(0.03)
INDEP	0.47*	0.378	0.415	0.55*	0.458	0.452	-0.394	-0.333	-0.308
	(0.271)	(0.273)	(0.267)	(0.286)	(0.288)	(0.284)	(0.912)	(0.918)	(0.829)
DUAL	-0.314***	-0.316***	-0.323***	-0.341***	-0.338***	-0.346***	-0.309	-0.345	-0.355
	(0.076)	(0.077)	(0.077)	(0.081)	(0.081)	(0.081)	(0.231)	(0.232)	(0.232)
SHSCORE	-0.064	-0.069	-0.06	-0.116	-0.114	-0.115	0.275	0.246	0.305
	(0.127)	(0.127)	(0.127)	(0.141)	(0.141)	(0.141)	(0.319)	(0.32)	(0.319)
BLOCK	-0.127			0.077			-0.791		
	(0.236)			(0.271)			(0.515)		
INST		-0.716*			-0.66			-0.516	
		(0.382)			(0.409)			(1.043)	
STRAT		0.17			0.48			-0.685	
		(0.255)			(0.303)			(0.525)	
HEDG			-0.901**			-0.889**			0.822
			(0.426)			(0.449)			(1.442)
CORP			0.379			0.624*			-0.534
			(0.277)			(0.342)			(0.495)
INDV			1.137**			1.178**			0.151
			(0.477)			(0.559)			(0.951)
INDEP x SIZE	-0.027	-0.032	-0.032	-0.024	-0.026	-0.026	-0.027	-0.045	-0.038
	(0.02)	(0.02)	(0.02)	(0.021)	(0.021)	(0.021)	(0.063)	(0.063)	(0.064)
INDEP x DUAL	0.372***	0.37***	0.378***	0.39***	0.381***	0.389***	0.374	0.431	0.478
	(0.127)	(0.127)	(0.127)	(0.131)	(0.131)	(0.131)	(0.475)	(0.478)	(0.477)
INDEP x SHSCORE	-0.033	-0.002	-0.013	0.081	0.099	0.099	-0.919	-0.85	-0.965
	(0.202)	(0.203)	(0.202)	(0.216)	(0.216)	(0.216)	(0.693)	(0.697)	(0.693)
INDEP x BLOCK	-0.689*			-0.953**			0.745		
	(0.354)			(0.397)			(1.00)		
INDEP x INST		-0.593			-0.493			-2.14	
		(0.542)			(0.572)			(1.82)	
INDEP x STRAT		0.071			-0.449			1.63	
		(0.412)			(0.481)			(1.04)	
INDEP x HEDG			-0.418			-0.239			-5.09**
			(0.594)			(0.619)			(2.49)
INDEP x CORP			-0.264			-0.956*			2.16**
			(0.483)			(0.576)			(1.01)
INDEP x INDV			-0.113			-0.43			2.74
			(0.797)			(0.884)			(2.02)
LAG.DD	-0.055***	-0.055***	-0.055***	-0.051***	-0.051***	-0.052***	-0.068***	-0.068***	-0.07***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.012)	(0.012)	(0.012)
ROA	2.656***	2.573***	2.576***	2.553***	2.552***	2.554***	3.166***	2.477***	2.439***
	(0.165)	(0.165)	(0.165)	(0.172)	(0.172)	(0.172)	(0.528)	(0.518)	(0.518)
LEV	-8.483***	-8.464***	-8.464***	-8.415***	-8.417***	-8.419***	-8.75***	-8.681***	-8.667***
	(0.124)	(0.124)	(0.124)	(0.131)	(0.131)	(0.131)	(0.369)	(0.367)	(0.367)
BETA	-0.499***	-0.496***	-0.496***	-0.484***	-0.484***	-0.483***	-0.595***	-0.581***	-0.58***
	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)	(0.036)	(0.036)	(0.036)
EXCESS	-1.368***	-1.37***	-1.373***	-1.296***	-1.3***	-1.3***	-1.876***	-1.848***	-1.863***
	(0.039)	(0.039)	(0.039)	(0.042)	(0.042)	(0.042)	(0.099)	(0.099)	(0.099)
TOBIN	2.476***	2.478***	2.478***	2.406***	2.4***	2.398***	3.362***	3.391***	3.389***
	(0.043)	(0.043)	(0.043)	(0.047)	(0.047)	(0.046)	(0.126)	(0.126)	(0.126)
TA	-0.064*	-0.066*	-0.065*	-0.012	-0.01	-0.009	-0.244**	-0.28***	-0.291***
	(0.036)	(0.036)	(0.036)	(0.038)	(0.038)	(0.038)	(0.101)	(0.098)	(0.099)
AGE	0.184***	0.179***	0.176***	0.174***	0.17***	0.168***	0.152	0.149	0.143
	(0.038)	(0.038)	(0.038)	(0.04)	(0.04)	(0.04)	(0.105)	(0.105)	(0.105)
C	9.29***	9.35***	9.261***	8.342***	8.36***	8.344***	12.622***	13.064***	13.00***
	(0.579)	(0.578)	(0.578)	(0.615)	(0.615)	(0.615)	(1.644)	(1.61)	(1.611)
R2	0.689	0.688	0.689	0.693	0.693	0.694	0.693	0.691	0.691
Adj.R2	0.635	0.634	0.634	0.641	0.641	0.642	0.631	0.628	0.628
Firms	6341	6341	6341	5129	5134	5134	1204	1207	1207
Firm Years	42959	42982	42982	35652	35666	35666	7307	7316	7316

This table presents the results of panel data regression models testing the interaction of board independence with other governance variables and their impact on financial distress. The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

Following the baseline model, all nine models include lagged DD, an entire set of control variables, and firm- and period-fixed effects.

Models 1, 2, and 3 test the interaction of INDEP with corporate governance and ownership variables for the global sample. The results suggest that while DUAL is significantly negatively related to DD, the INDEP x DUAL interaction term is significantly positively related. CEO duality has an increasing impact on financial distress, as we found in the previous section; however, when board independence interacts with duality, the effect of CEO duality turns the opposite. The result is similar in models 4, 5, and 6 which test the interaction for the DM sub-sample. Similarly, in DM, the same interaction variable is statistically significant and in the opposite direction of DUAL. As a result, independent board members are found to be mitigating the effect of dual CEO on financial distress in the global and DM samples. However, this interaction does not exist in the EM sample where both the DUAL variable and INDEP x DUAL interaction are insignificant. Therefore, hypothesis 4 is supported for the global and the DM samples, but not supported for the EM sample.

The results in Table 15 also show significant interaction of INDEP x BLOCK in the global and the DM samples. Results in the previous section suggest that total blockholder ownership is negatively related to DD, suggesting a significant and increasing effect on financial distress. In models 1 and 4, though, BLOCK is insignificant, whereas INDEP x BLOCK interaction is significant. This result implies that blockholders have an increasing effect on financial distress only when the board has more independent members.

Other significant interactions are seen in the EM sample. INDEP x HEDG is negatively and INDEP x CORP is positively related to DD. In the previous tests that use the baseline model, HEDG was also found to be negatively related to DD in the

EM sub-sample. When the interaction term is added to the regression, the significant result in the HEDG shifted to the interaction term, indicating that investment advisors/hedge fund blockholders might be effective when the board has a higher number of independent members. Previous tests do not find a significant impact of CORP on financial distress. However, the results in model 9 indicate that INDEP x CORP is significantly positively related to DD. These findings require further analyses, which are provided in the following part.

4.2.3.2 Split-sample analysis: Global, DM, and EM samples

To investigate further the mitigating impact of board independence on CEO duality and to verify the findings in Table 15, I conduct a split sample analysis for the three sample groups. I specifically look at the impact of high and low board independence on the relationship between CEO duality and financial distress. I define low board independence as INDEP less than .50 and high independence as INDEP higher than .50. I exclude the firm years that have exactly 50% independent directors. A total of 1,345 such firms (952 DM and 393 EM) and 2,632 firm-years (1,827 DM and 805 EM) are excluded. The baseline regression (except the INDEP variable) is run for low and high INDEP groups for each of the global, DM, and EM samples. The results of the analyses for the global sample are presented in Table 16, the results for the DM sub-sample are in Table 17, and the result for the EM sub-sample are in Table 18.

In both the global and the DM samples, DUAL is found to be negatively related to DD only when independent directors are a minority on the board. In the high INDEP sub-sample DUAL is not significant, verifying that when independent directors are more than the insider and/or gray directors, the increasing effect of dual

Table 16. High and Low Board Independence Sub-Samples: Global Sample

	Low Board Independence			High Board Independence		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.019*	-0.019	-0.018	-0.005	-0.007	-0.007
	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)
DUAL	-0.203***	-0.204***	-0.208***	-0.053	-0.054	-0.054
	(0.065)	(0.065)	(0.065)	(0.055)	(0.055)	(0.055)
SHSCORE	-0.076	-0.078	-0.068	0.001	0.013	0.011
	(0.101)	(0.101)	(0.101)	(0.077)	(0.077)	(0.077)
BLOCK	0.03			-0.831***		
	(0.222)			(0.148)		
INST		-0.835**			-1.051***	
		(0.354)			(0.169)	
STRAT		0.428*			-0.385	
		(0.252)			(0.252)	
HEDG			-0.873**			-1.064***
			(0.399)			(0.174)
CORP			0.37			-0.481
			(0.252)			(0.296)
INDV			1.209***			0.385
			(0.456)			(0.449)
LAG.DD	-0.11***	-0.111***	-0.111***	-0.049***	-0.049***	-0.049***
	(0.009)	(0.009)	(0.009)	(0.006)	(0.006)	(0.006)
ROA	2.243***	2.248***	2.241***	2.759***	2.708***	2.718***
	(0.356)	(0.356)	(0.356)	(0.199)	(0.199)	(0.199)
LEV	-8.435***	-8.436***	-8.43***	-8.572***	-8.561***	-8.557***
	(0.257)	(0.257)	(0.257)	(0.152)	(0.152)	(0.152)
BETA	-0.642***	-0.642***	-0.642***	-0.459***	-0.457***	-0.457***
	(0.026)	(0.026)	(0.026)	(0.014)	(0.014)	(0.014)
EXCESS	-1.571***	-1.572***	-1.578***	-1.476***	-1.473***	-1.474***
	(0.072)	(0.072)	(0.072)	(0.049)	(0.049)	(0.049)
TOBIN	2.605***	2.596***	2.603***	2.6***	2.596***	2.596***
	(0.083)	(0.083)	(0.083)	(0.056)	(0.056)	(0.056)
TA	-0.228***	-0.233***	-0.227***	0.07	0.055	0.057
	(0.072)	(0.072)	(0.072)	(0.046)	(0.046)	(0.046)
AGE	0.292***	0.289***	0.287***	0.119**	0.115**	0.114**
	(0.075)	(0.075)	(0.075)	(0.046)	(0.047)	(0.047)
C	12.237***	12.246***	12.141***	7.282***	7.522***	7.466***
	(1.133)	(1.131)	(1.13)	(0.699)	(0.698)	(0.698)
R2	0.716	0.717	0.717	0.706	0.705	0.705
Adj.R2	0.650	0.650	0.650	0.644	0.643	0.643
Firms	2728	2728	2728	4541	4541	4541
Firm Years	14444	14444	14444	26251	26251	26251

This table presents the results of panel data regression models testing the impact of high and low board independence on the relation between CEO duality and financial distress in the global sample. Low board independence is defined as INDEP less than .50 (models 1, 2, and 3) and high independence as higher than .50 (models 4, 5, and 6). The dependent variable is the distance to default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

CEO on financial distress is mitigated. The results suggest that independent boards can more easily monitor the CEO and have a mitigating effect on her unfavorable actions that would deteriorate the financial distress of the firm. The result is comparable to the findings of Daily and Dalton (1994a) that the increasing

Table 17. High and Low Board Independence Sub-Samples: Developed Markets

	Low Board Independence			High Board Independence		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.017	-0.017	-0.016	-0.004	-0.005	-0.005
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
DUAL	-0.209***	-0.21***	-0.213***	-0.062	-0.065	-0.066
	(0.071)	(0.07)	(0.07)	(0.057)	(0.057)	(0.057)
SHSCORE	-0.085	-0.084	-0.084	0.008	0.019	0.016
	(0.117)	(0.117)	(0.117)	(0.079)	(0.079)	(0.079)
BLOCK	0.225			-0.797***		
	(0.258)			(0.152)		
INST		-0.468			-0.991***	
		(0.384)			(0.172)	
STRAT		0.63**			-0.349	
		(0.303)			(0.266)	
HEDG			-0.619			-0.971***
			(0.422)			(0.178)
CORP			0.359			-0.51
			(0.323)			(0.315)
INDV			1.553***			0.279
			(0.563)			(0.469)
LAG.DD	-0.105***	-0.105***	-0.106***	-0.051***	-0.05***	-0.051***
	(0.01)	(0.01)	(0.01)	(0.006)	(0.006)	(0.006)
ROA	2.098***	2.108***	2.105***	2.708***	2.708***	2.717***
	(0.401)	(0.4)	(0.4)	(0.203)	(0.203)	(0.203)
LEV	-8.567***	-8.551***	-8.54***	-8.464***	-8.476***	-8.474***
	(0.299)	(0.299)	(0.299)	(0.154)	(0.154)	(0.154)
BETA	-0.585***	-0.584***	-0.585***	-0.464***	-0.464***	-0.464***
	(0.031)	(0.031)	(0.031)	(0.014)	(0.014)	(0.014)
EXCESS	-1.372***	-1.372***	-1.377***	-1.459***	-1.456***	-1.455***
	(0.086)	(0.086)	(0.086)	(0.05)	(0.05)	(0.05)
TOBIN	2.376***	2.368***	2.375***	2.596***	2.587***	2.587***
	(0.097)	(0.097)	(0.097)	(0.057)	(0.057)	(0.057)
TA	-0.129	-0.132	-0.132	0.093**	0.093**	0.095**
	(0.084)	(0.084)	(0.084)	(0.047)	(0.047)	(0.047)
AGE	0.313***	0.308***	0.306***	0.118**	0.115**	0.115**
	(0.09)	(0.09)	(0.09)	(0.047)	(0.047)	(0.047)
C	10.667***	10.673***	10.687***	6.853***	6.878***	6.822***
	(1.308)	(1.306)	(1.304)	(0.718)	(0.718)	(0.719)
R2	0.730	0.730	0.730	0.704	0.704	0.704
Adj.R2	0.671	0.671	0.671	0.644	0.644	0.644
Firms	1757	1757	1757	4071	4071	4071
Firm Years	9871	9871	9871	24216	24216	24216

This table presents the results of panel data regression models testing the impact of high and low board independence on the relation between CEO duality and financial distress in the DM sample. Low board independence is defined as INDEP less than .50 (models 1, 2, and 3) and high independence as higher than .50 (models 4, 5, and 6). The dependent variable is the distance to default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

impact of CEO duality on financial distress is existent when the percentage of independent directors is low.

This mitigating effect of independent boards on the relationship between CEO duality and financial distress is limited to the global sample and the DM, and inexistent in the EM. Previous results in sub-part 4.2.2.3 show that INDEP indeed

Table 18. High and Low Board Independence Sub-Samples: Emerging Markets

	Low Board Independence			High Board Independence		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.018	-0.017	-0.016	0.036	0.023	0.025
	(0.022)	(0.022)	(0.022)	(0.034)	(0.035)	(0.034)
DUAL	-0.221	-0.224	-0.219	0.095	0.099	0.142
	(0.151)	(0.151)	(0.151)	(0.213)	(0.216)	(0.216)
SHSCORE	-0.057	-0.077	-0.046	-0.03	0.044	0.03
	(0.192)	(0.192)	(0.192)	(0.315)	(0.319)	(0.319)
BLOCK	-0.598			-1.177*		
	(0.421)			(0.627)		
INST		-2.258***			-1.502*	
		(0.828)			(0.824)	
STRAT		-0.266			-1.075	
		(0.441)			(0.807)	
HEDG			-1.824*			-2.281***
			(1.08)			(0.872)
CORP			-0.068			-0.76
			(0.397)			(0.895)
INDV			-0.059			1.17
			(0.765)			(1.543)
LAG.DD	-0.107***	-0.109***	-0.108***	-0.034	-0.039*	-0.043*
	(0.015)	(0.015)	(0.015)	(0.023)	(0.023)	(0.024)
ROA	2.174***	2.176***	2.155***	3.8***	2.926***	2.97***
	(0.738)	(0.738)	(0.738)	(0.976)	(0.941)	(0.945)
LEV	-8.523***	-8.581***	-8.538***	-10.262***	-9.816***	-9.7***
	(0.492)	(0.493)	(0.493)	(0.754)	(0.74)	(0.74)
BETA	-0.733***	-0.733***	-0.732***	-0.389***	-0.358***	-0.358***
	(0.049)	(0.049)	(0.049)	(0.065)	(0.066)	(0.066)
EXCESS	-2.071***	-2.074***	-2.075***	-1.862***	-1.841***	-1.848***
	(0.132)	(0.131)	(0.132)	(0.183)	(0.185)	(0.185)
TOBIN	3.494***	3.471***	3.482***	3.175***	3.257***	3.197***
	(0.165)	(0.165)	(0.165)	(0.257)	(0.26)	(0.261)
TA	-0.421***	-0.432***	-0.427***	-0.051	-0.265	-0.309*
	(0.136)	(0.136)	(0.136)	(0.192)	(0.184)	(0.186)
AGE	0.077	0.084	0.082	0.019	0	-0.01
	(0.135)	(0.135)	(0.135)	(0.212)	(0.215)	(0.215)
C	15.845***	15.979***	15.679***	10.019***	13.28***	13.623***
	(2.171)	(2.171)	(2.172)	(3.037)	(2.929)	(2.952)
R2	0.714	0.714	0.714	0.740	0.734	0.735
Adj.R2	0.634	0.635	0.634	0.657	0.649	0.649
Firms	971	971	971	470	470	470
Firm Years	4573	4573	4573	2035	2035	2035

This table presents the results of panel data regression models testing the impact of high and low board independence on the relation between CEO duality and financial distress in the EM sample. Low board independence is defined as INDEP less than .50 (models 1, 2, and 3) and high independence as higher than .50 (models 4, 5, and 6). The dependent variable is the distance to default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

has an increasing effect on financial distress in the EM. When firms in emerging markets have more independent directors on their boards of directors, these firms suffer even more from financial distress. Therefore, the lack of interaction (and no mitigation effect) can be partially explained by the previous results. Independent board members are positively associated with financial distress in EM, therefore their

mitigation on dual CEO should not be expected. As a result, hypothesis 4 is supported for the global and the DM samples, but not for the EM sample.

A series of robustness tests are conducted at this stage to verify this mitigating effect of board independence on CEO duality. These tests are done for the global sample and the DM separately but are not reported for brevity purposes. First, I divided board independence into high and low groups from the median value. The high board independence group includes those firm years that have above median independent directors, and the low board independence group includes those that have below median independence. Again, firm years with board independence at the median value are excluded. The results suggest that CEO duality is effective only when the board has below-average independent directors. Second, I define low board independence as below the 25th percentile and high independence as above the 75th percentile of board independence. The results suggest that dual CEO is positively related to financial distress only when board independence is below the 25th percentile. Therefore, with both robustness tests, the finding that board independence has a mitigating effect on the relationship between CEO duality and financial distress remained unchanged.

The final robustness test includes the verification of the direction of relationships in the interaction of INDEP x DUAL. While I test the hypothesis that board independence has a mitigating impact on the relationship between CEO duality and financial distress, CEO duality could also be affecting the relationship between board independence and financial distress. This indicates a reverse mitigation interaction and requires additional analysis. To verify the direction of interaction between INDEP and DUAL, I conduct a split sample analysis by dividing the firm years as those with a dual CEO and those with separated chairs and running the

baseline model for these two groups separately. In both dual and not-dual sub-samples, INDEP is not significant, suggesting that CEO duality does not have an impact on the relationship between board independence and financial distress. The results are not reported for brevity purposes. Therefore, we can conclude that it is board independence that has a mitigating role in the relationship between CEO duality and financial distress, not vice versa.

The results in Table 16, Table 17, and Table 18 reveal additional significant spin-off findings. In the previous analysis in which we test the interaction of INDEP with other corporate governance and ownership variables, as reported in Table 15, we find that interactions of INDEP x BLOCK in the global and the DM samples are significant. Blockholders have a significantly increasing effect on financial distress only when a majority of the board is composed of independent directors, a relation existent for all sample groups. When the board has more insider directors blockholders are not as effective. Therefore, the argument for expropriation of creditors by blockholders (Jensen & Meckling, 1976; La Porta et al., 2000) is supported when the board of directors is composed mostly of independent directors. Robustness tests are done to validate this finding. Separating low and high board independence from the median or top and bottom 25 percentiles does not change the results.

Additionally, the results in Table 16 and Table 17 suggest that INDV is significantly positively related to DD when the board comprises a low percentage of independent directors. As suggested by Fama (1980), outside board members provide more effective monitoring of management decisions that might lead to unfavorable corporate results, such as financial distress. On the contrary, when the board lacks this effective outside monitoring mechanism, i.e., when the board has more insiders

than outsiders, the mediator role of independent members in alleviating the agency problems disappears (Fama & Jensen, 1983). This lack of monitoring, therefore, might be overcome by individual blockholders. When the board has low board independence, individual blockholders might be acting as effective monitors and decreasing financial distress. Again, robustness tests including different separation methods for board independence (separating from the median and analyzing only the bottom and top 25th percentile) do not change the findings.

The other significant interactions in EM as presented in Table 15 were INDEP x HEDG and INDEP x CORP. However, these findings are not validated by the follow-on analyses where I test the models separately in low and high board independence samples.

4.2.4 Summary of findings

This section analyzes the impact of corporate governance and ownership variables on financial distress using a robust dataset comprising developed and emerging markets and by testing the baseline regression defined in Chapter 3. Before the regression analyses, I examine the mean differences in corporate governance and ownership variables between developed and emerging markets. The findings indicate that DM firms have smaller but more independent boards, more frequent occurrence of CEO duality, and higher shareholder scores, as compared to the EM firms. DM firms have on average 9.8 directors on the board, whose 62.3% is composed of independent directors and 40.8% have a dual-hatted CEO. Moreover, the average shareholders' score in DM is 50.6%. These figures for the EM firms are 10.4, 40.5%, 26.2%, and 49.6%, respectively.

On the other hand, EM firms have higher ownership concentration, as measured by the percentage of total blockholders, than DM firms. While 91.8% of DM firms have at least one blockholder and these blockholders hold 32.6% of common shares, these percentages are higher in EM, where 94.7% of firms have at least one blockholder, which holds on average 51.4% of shares. When we examine the details of blockholder types, we observe that the composition of blockholders varies between the two markets. While Institutional blockholders (and their sub-type of an investment advisor/hedge fund blockholders) are dominant in DM, strategic entity blockholders (and their sub-types of corporation blockholders and individual investor blockholders) are dominant in EM. 73.8% of DM firms have institutional blockholders which hold on average of 21.8% of total shares, while only 42% of EM firms have institutional blockholders and they hold an average of 18.3% of total common shares. Whereas institutional blockholders are dominant in the DM, strategic entity blockholders are dominant in the EM. In DM, only 42.8% of firm-years have at least one strategic entity blockholders, which holds on average 32.1% of shares, whereas strategic blockholders are quite strong in EM countries. 86.6% of all EM firm-years have at least one strategic blockholder, which holds on average 47.3% of total shares.

After analyzing the mean differences, I present the results of regression analyses that test the effects of corporate governance and ownership variables on financial distress. I conduct the regressions to test hypotheses 1-3 and 5-11 for the global, DM, and EM samples, separately. I document several significant findings that support the tested hypotheses. Table 19 provides a summary and a comparison of the findings between the developed and emerging markets as detailed in part 4.2.2.

Table 19. Summary Findings: Governance and Financial Distress

Panel A: Summary of Hypotheses and Findings

	Findings		
Hypotheses Tested	Global Sample	DM Sample	EM Sample
H1: SIZE has + effect on FD	Supported ***	Supported **	N/S
H2: INDEP has - effect on FD	N/S	Supported **	Opposite **
H3: DUAL has + effect on FD	Supported ***	Supported ***	N/S
H5: SHSCORE has + effect on FD	N/S	N/S	N/S
H6: BLOCK has + effect on FD	Supported ***	Supported ***	N/S
H7: INST has + effect on FD	Supported ***	Supported ***	Supported ***
H8: HEDG has + effect on FD	Supported ***	Supported ***	Supported ***
H9: STRAT has - effect on FD	N/S	N/S	N/S
H10: CORP has - effect on FD	N/S	N/S	N/S
H11: INDV has - effect on FD	Supported ***	Supported ***	Supported *

Panel B: Control Variables and Findings

Control	Predicted	Effect on Financial Distress		
Variables	Effect on FD	Global Sample	DM Sample	EM Sample
ROA	-	- ***	- ***	- ***
LEV	+	+ ***	+ ***	+ ***
BETA	+	+ ***	+ ***	+ ***
EXCESS	+	+ ***	+ ***	+ ***
TOBIN	-	- ***	- ***	- ***
TA	-	+ *	+ insig.	+ ***
AGE	-	- ***	- ***	- insig.

This table provides a comparative review of the findings in part 4.2.2 by summarizing the results of the regression analyses that test the effect of corporate governance and ownership variables on financial distress. Panel A lists the tested hypotheses and the findings for each sample group, namely the global sample, which includes all firms in 50 countries, and developed market (DM) and emerging market (EM) sub-samples. Supported hypotheses are indicated as "Supported" followed by the significance of the finding (***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively). If the hypothesis is not supported, it is shown as "N/S." An opposite finding is also indicated. Panel B lists the control variables and their predicted signs, comparing them with the regression results for each sample group. Signs indicate the direction of the relationship of the control variable with Financial Distress. The significance of the findings is also displayed following the signs.

Panel A lists the tested hypotheses and the findings for the global sample, developed market, and emerging market sub-samples. Overall, the findings suggest that several corporate governance practices and ownership structures indeed have significant impacts on financial distress in both DM and EM. To begin with, board size has a significantly positive effect on financial distress in the global sample and the DM sample. This result indicates that additional board member is failing to provide effective monitoring that would help decrease financial distress, thereby supporting the arguments of Jensen (1993) and Lipton and Lorsch (1992). This finding, though, is not existent in emerging markets. Overall, hypothesis 1 that board

size has an increasing effect on financial distress is supported in the global and DM samples, but not in the EM sample.

Although board independence has no significant effect in the global sample, it has a decreasing impact on financial distress in DM and an increasing impact on financial distress in EM, indicating that hypothesis 2 is supported only for the DM firms. The theoretical basis for this hypothesis is the agency theory, which argues that outside directors will act as decision agents in challenging circumstances and provide effective monitoring of the management (Fama, 1980; Fama & Jensen, 1983). Moreover, independent directors are more sensitive to claimholders in terms of fiduciary responsibilities, which leads them to act in favor of the financial health of the firm. This theoretical paradigm is valid for the developed markets as the finding is relevant only to the DM. However, for emerging markets, board independence is associated with increased financial distress, which is contradictory to hypothesis 2. This result suggests that independent boards might be lacking effective oversight functions in EM firms. Two potential explanations may be considered. First, independent board members in EM are colluding with dominant shareholders that expropriate creditors, causing increased financial distress. Second, independent board members do not have the necessary knowledge and experience to help the firm avoid financial distress, and insider directors in the EM are more successful in decreasing financial distress. Similar findings were presented by Darrat et al. (2016) and Hsu and Wu (2014), especially in certain conditions. Li et al. (2021) show that independent director monitoring is associated with an increased risk of financial distress in their sample of Chinese firms. This conflicting evidence in the EM requires further analysis, which is outside the scope of this thesis.

CEO duality has an increasing effect on financial distress in the global sample and DM, but not in EM. CEO duality is a more common phenomenon in DM, where 40.8% of the firms have dual CEOs than in EM, where only 26.2% have dual CEO. Besides this prevalence, CEO duality is positively related to financial distress in DM firms. This finding suggests that dual CEO increases financial distress levels, indicating that an independent chair is essential to enable the board to accomplish its critical monitoring and advice functions in the developed markets (Baysinger & Hoskisson, 1990; Imhoff, 2003; Jensen, 1993). The finding supports the argument of Jensen (1993) that dual-hatted CEO will have the potential to pursue personal gains and weakens the argument of supporters of the stewardship theory, which claims that a dual CEO maintains the unity of control and demonstrates powerful leadership for the well-being of the firm. Besides this significant finding in the DM, the relationship between dual CEO and financial distress is insignificant in the EM. As a result, hypothesis 3 is supported for the DM, but not for the EM firms.

Firm-level shareholders' score has no impact in either of the three sample groups. Hypothesis 5 suggests that increased firm-level shareholder protection would increase financial distress, because increased shareholder rights exaggerate the conflicts between equity owners and creditors, potentially leading to excessive risk-taking and distorted investment decisions (Ayotte et al., 2012). However, SHSCORE is found to be insignificant when tested for three sample groups; therefore, hypothesis 5 is not supported.

Total blockholders, as also a proxy for ownership concentration, have an increasing impact on financial distress in the global sample and the DM, but not in the EM. This result is similar to the findings of previous literature studying developed market firms (Ashbaugh-Skaife et al., 2006; Bhojraj & Sengupta, 2003;

Lee & Yeh, 2004). The evidence supports hypothesis 6 and the underlying theoretical arguments that blockholders may increase managerial pressure to capture private benefits at the expense of a firm's financial health. The finding is unchanged when BLOCK is replaced with other ownership concentration proxies, indicating that not only blockholders but also ownership concentration has an increasing effect on financial distress in DM firms. Nevertheless, the relationship is not significant for EM firms.

Institutional blockholders and their sub-type of investment advisor/hedge fund blockholders, as the more active type of blockholders, have increasing effects on financial distress in all three sample groups. As documented previously by Cao et al. (2015) and Darrat et al. (2016), increased institutional blockholding is associated with deteriorated financial health. The finding supports Lipton and Lorsch's (1992) argument that institutional investors, due to their vast and diverse portfolios, do not act as owners like their individual counterparts, therefore their controlling and monitoring roles are weaker than anticipated. The finding also supports the theoretical arguments of the agency theory that large institutions might collude with management to expropriate from creditors at the cost of increased financial distress (Claessens et al., 2002; Jensen & Meckling, 1976; Shleifer & Vishny, 1997). Eventually, hypotheses 7 and 8 are supported for all sample groups.

Strategic entity blockholders and their sub-type of corporation blockholders do not affect financial distress in either of the three sample groups. Therefore, hypotheses 9 and 10 are not supported. On the other hand, individual investor blockholders, which are a sub-type of strategic entity blockholders, have a decreasing impact on financial distress in all sample groups, thereby supporting hypothesis 11.

This finding indicates that individual blockholders are favorable for the financial health of the firm.

Panel B of Table 19 lists the control variables and their predicted signs, comparing them with the regression results for the global, DM, and EM samples. In three sample groups, all control variables, except two, are found to be significant with the signs as predicted. ROA (as a proxy for profitability) and TOBIN (as a proxy for firm value) are significantly and negatively related to financial distress in all samples. As the profitability and firm value increase, the firm's financial distress decreases. LEV (firm's leverage), BETA (measurement of systematic risk), and EXCESS (excess return over major country index) are significantly and positively related to financial distress in all sample groups. As the leverage, systematic risk, and excess return increase, so does the firm's financial distress. Particularly, the latter finding casts doubt on the distress risk anomaly argument of Dichev (1998) and Campbell et al. (2008).

Besides these significant findings, two control variables require special attention. First, TA, as a proxy for firm size, has an opposite sign in all sample groups, yet is insignificant in the DM sample group. This finding indicates that larger firms are associated with higher levels of financial distress in the global sample and the EM firms. This finding is contradictory to the previous literature (Darrat et al., 2016; Miglani et al., 2015; Simpson & Gleason, 1999) and the reverse of the predicted sign. Yet, the finding is aligned with Altman et al. (2019) argument that "firm size is no longer a proxy for corporate health and safety (p.4)." Moreover, the result implies that as the EM firms grow, they do this with financially risky actions and at the expense of their financial well-being. The finding also implies that being a large firm in EM signifies having an increased default likelihood. Anyhow, the

finding requires additional analyses, which are provided in the next section. Second, AGE, as a proxy of firm maturity, is insignificant in EM firms. Although this control variable is significantly and positively related to financial distress in the global and DM samples, the insignificant result in the EM firms indicates that the maturity of firms is not a significant determinant of financial distress in emerging markets.

In the final part, I test hypothesis 4 that the positive effect of CEO duality on financial distress is mitigated by independent board members. To this aim, I conduct two groups of analyses. First, I test the effect of board independence in interaction with other corporate governance and ownership variables. Second, I test the effect of board independence by a split-sample analysis, in which I separate the firm years as low board independence and high board independence and run the baseline regression. All tests are done in three sample groups. The findings are summarized in Table 20.

Table 20. Summary Findings: Interacting Effect of Board Independence

Panel A: Hypothesis 4 and Findings

Hypothesis Tested	Global Sample	DM Sample	EM Sample
H4: INDEP mitigates + effect of DUAL on FD	Supported ***	Supported ***	N/S

Panel B: Spin-off Findings

Findings	Global Sample	DM Sample	EM Sample
BLOCK has + effect on FD when INDEP is high	+ ***	+ ***	+ *
INDV has - effect on FD when INDEP is low	- ***	- ***	N/S

This table provides a comparative review of the findings in part 4.2.3 Panel A shows the results of the analyses which test hypothesis 4 that the positive effect of CEO duality on financial distress is mitigated by independent board members. If the hypothesis is supported for the relevant sample group, it is indicated as "Supported" followed by the significance of the finding (***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively). If the hypothesis is not supported, it is shown as "N/S." Panel B lists the spin-off findings that are revealed with the analyses. Signs indicate the direction of the relationship of the ownership variable with Financial Distress. The significance of the findings is also displayed following the signs.

In both global and DM samples, CEO duality is found to be negatively related to DD only when independent board members are low. No such relationship is found in the EM sample. When independent directors are in majority (in global, DM, and EM), CEO duality does not affect financial distress, indicating that the unfavorable effect of the dual CEO on financial distress is mitigated with an independent board. The results suggest that independent boards can more easily monitor the dual CEO and have a mitigating effect on her unfavorable actions that would increase the financial distress of the firm. The result is comparable to the findings of Daily and Dalton (1994a) and the theoretical arguments of Hermalin and Weisbach (1998). The finding, which is validated by a series of robustness tests, supports hypothesis 4 for the global and the DM firms, but not for the EM firms.

As shown in Panel B of Table 20, two spin-off findings are reported in this group of analyses. First, when the board has more insider directors, blockholders do not influence financial distress, however, when the board has more independent directors, blockholders have a significantly increasing effect on financial distress. This finding is existent in the global, DM, and EM samples. Therefore, when the board of directors is composed mostly of independent directors, the argument of expropriation of creditors by blockholders (Jensen & Meckling, 1976; La Porta et al., 2000) is supported. Second, when the board has a lower rate of independence, individual blockholders have a decreasing effect on financial distress, implying that individuals act as effective monitors when board independence is low. In other terms, when the monitoring by independent directors is not effective, individual blockholders step in as an effective control and monitoring mechanism. This finding is existent in the global and the DM samples, but not in the EM sample.

4.3 Impact of macroeconomic factors

This section examines the impact of macroeconomic governance factors on the relationship between firm-level governance and financial distress using the same robust dataset comprising developed and emerging markets. The macroeconomic variables used in this series of analyses are Protecting Minority Investors Score (PROT) and Getting Credit Score (CREDIT), which are due to the World Bank Doing Business database. I split the sample at the medians of PROT and CREDIT into high and low sub-samples and assign them accordingly to each country year, basically creating two dummy variables. As a result, I ended up with Low- and High-PROT split samples that test the impact of country-level investor protection and Low- and High-CREDIT split samples that test the impact of country-level creditor rights. These divisions are required to understand the effect of corporate governance and ownership differences on financial distress under different macroeconomic settings.

The median values are computed for each year by including every country with available observations in the computation year. In calculating yearly median values, total firm-years within a country are disregarded and each country is counted as one observation. This approach is required since the sample is extremely skewed in terms of available firm years for each country.[26] Moreover, the yearly treatment allows the countries to shift between high and low groups throughout the sample period based on their respective scores. For instance, Türkiye's PROT score was below the median in 2008 but improved in 2009 and remained above the median thereafter. Similarly, Spain's PROT is below the median until 2012, but above the median since

[26] Available firm-years range from 6 in Pakistan to 15,761 in U.S.

2013. Yearly country PROT scores and median values are in APPENDIX L, and country CREDIT scores and median values are in APPENDIX M.

To examine the impact of country-level investor protection and creditor rights, I first analyze the mean differences in corporate governance and ownership variables between high and low PROT and CREDIT groups. Next, I examine the impact of country-level investor protection on the relationship between governance and financial distress. To this aim, I test the baseline model with PROT split samples into three groups; the global sample, developed markets, and emerging markets. Finally, I examine the impact of country-level creditor rights on the relationship between governance and financial distress. Similarly, I test the baseline model with CREDIT split samples into three groups. Several significant findings are reported.

4.3.1 Analysis of means

Before starting with the results of the split sample analyses, examining the mean differences between the low and high PROT and CREDIT countries will help understand the variances among markets and regions. Table 21 shows the average PROT and CREDIT in each market and region. The table also reports the percentage of firm years above the median.

Overall, the average PROT is 71 and the average CREDIT is 75.5. For both scores, DM countries have higher averages as compared to EM countries. DM has an average of 71.7 PROT score whereas EM has an average of 67.3, indicating that developed markets have on average higher investor protection as compared to emerging markets. The difference between the two markets is higher in terms of CREDIT scores; DM has an average of 79.1 and EM has an average of 58.6,

Table 21. Average PROT and CREDIT Scores

Market/ Region	Firm-Years N	PROT Mean	PROT Above Median %	CREDIT Mean	CREDIT Above Median %
Developed	41,247	71.7	75.6%	79.1	82.1%
N. America	18,714	73.7	100.0%	93.4	100.0%
EMEA	11,115	71.0	64.5%	63.6	63.8%
Pacific	11,418	69.2	46.5%	70.6	70.7%
Emerging	8,703	67.3	50.4%	58.6	40.3%
S. America	1,434	64.0	8.9%	58.2	31.5%
Asia	5,010	67.9	59.7%	59.2	44.3%
EMEA	2,259	68.0	56.2%	57.5	37.2%
Grand Total	49,950	71.0	71.2%	75.5	74.9%

This table shows the average Protecting Minority Investors Score (PROT) and Getting Credit Score (CREDIT) in each market and region. The above median columns report the percentage of firm years above the yearly median scores.

indicating that developed markets are better at providing creditor rights.[27] All North American countries (Canada and U.S.) have above median PROT and CREDIT scores through the sample period, where 100% of the country years are above the median. On the other extreme, South American countries have only 8.9% of the firm-years above median PROT (only Colombia and some periods of Chile have higher than average scores).

A more detailed summary that shows each country's average scores and percentages of firm years that are above the median are presented in APPENDIX N. An important conclusion from this table in the appendix is that not all DM countries are good at investor protection and creditor rights, and not all emerging countries are bad at investor protection and creditor rights. For instance, Germany as a developed market has all years below median PROT, while all years above median CREDIT. On the other hand, Austria and Norway are good at investor protection, as their scores are above median PROT in all years, while they are worse at creditor rights, as less than 7% of all years are above the median. Similarly, within EM, there are countries significantly in the high median group, such as Colombia, India, and

[27] An important caveat here is that the scores in Table 21 are averages of firm-years, meaning that they are sensitive to sample size differences between regions.

Malaysia. Again, some other EM countries have higher PROT and higher CREDIT scores compared to the global median. Therefore, grouping the country-years into high and low PROT and CREDIT should help us dispense with the arbitrary geographical or pure market-based classification, thereby having a direct comparison between the high and low macroeconomic groups.

4.3.1.1 Mean differences in corporate governance variables

Before moving into the split-sample regression analysis to investigate the effect of corporate governance and ownership variables on financial distress under different macroeconomic settings, I now investigate the mean differences of corporate governance variables in low and high PROT and CREDIT countries. The means of corporate governance variables of each market and region for high and low PROT groups are in Table 22 and high and low CREDIT groups are in Table 23.

Table 22. Corporate Governance Mean Differences: High and Low PROT

	Board Size		Board Independence		CEO Duality		Shareholder Score	
Market / Region	Low	High	Low	High	Low	High	Low	High
Developed	9.9	9.7	44.6%	68.0%	24.2%	46.2%	50.2	50.8
N. America		9.5		79.1%		57.9%		51.1
EMEA	10.7	9.9	53.9%	55.2%	26.1%	20.1%	50.9	51.7
Pacific	9.4	10.3	39.0%	41.5%	22.9%	40.3%	49.7	48.5
Emerging	10.3	10.4	34.7%	46.3%	29.9%	22.6%	49.5	49.7
S. America	10.7	8.6	35.2%	42.6%	34.2%	7.8%	51.2	49.2
Asia	9.9	10.2	36.6%	44.5%	30.7%	28.6%	48.1	49.3
EMEA	10.8	11.0	30.1%	51.0%	22.4%	9.9%	50.2	50.6
Grand Total	10.0	9.8	41.6%	65.3%	25.9%	43.3%	50.0	50.7

This table shows the mean differences of corporate governance variables between high and low protecting minority investors score (PROT) groups for each market and region. Low columns indicate PROT lower than the median, and high columns indicate PROT higher than the median. Median scores are calculated yearly as in APPENDIX L. Low columns for North America are blank because all country years in this region are above the median.

On average, board size is slightly higher in the DM low PROT group, while it is marginally higher in the EM high PROT group. In DM, the low PROT group has an average board size of 9.9 while the high PROT group has an average size of 9.7.

Table 23. Corporate Governance Mean Differences: High and Low CREDIT

	Board Size		Board Independence		CEO Duality		Shareholder Score	
Market / Region	Low	High	Low	High	Low	High	Low	High
Developed	11.3	9.4	40.5%	67.1%	33.0%	42.5%	50.1	50.8
N. America		9.5		79.1%		57.9%		51.1
EMEA	10.9	9.8	57.6%	53.1%	32.9%	16.1%	51.0	51.6
Pacific	11.8	9.0	20.3%	49.2%	33.2%	30.1%	49.1	49.2
Emerging	10.3	10.5	35.2%	48.5%	25.2%	27.6%	49.3	50.0
S. America	9.7	12.3	31.6%	45.0%	29.6%	36.6%	51.5	49.9
Asia	10.1	10.1	33.6%	50.9%	27.6%	31.8%	47.9	50.0
EMEA	11.0	10.7	40.7%	43.9%	17.6%	11.7%	50.6	50.1
Grand Total	10.9	9.5	38.3%	65.3%	29.8%	41.1%	49.8	50.7

This table shows the mean differences in corporate governance variables between high and low getting credit score (CREDIT) groups for each market and region. Low columns indicate CREDIT lower than the median, and high columns indicate CREDIT higher than the median. Median scores are calculated yearly as in APPENDIX M. Low columns for North America are blank because all country years in this region are above the median.

In EM, the low PROT group has an average board size of 10.3 while the high group has an average size of 10.4. Among the regions, the difference in board size averages varies considerably. For instance, while developed EMEA and South American countries with lower PROT have higher board sizes, Pacific, emerging EMEA, and Asian countries with lower PROT have lower board sizes.

As for board independence, we see that both the DM and EM countries with high PROT have higher ratios. When the country has a higher level of investor protection, the firms tend to have higher levels of independent directors on their boards. In DM high PROT group, board independence is as high as 68% while the low group has only 44.6%. In the EM, the high PROT group has average board independence of 46.3% yet the low PROT group has an independence of 34.7%. This mean difference is existent across each region both in DM and EM.

The mean differences in CEO duality vary between low and high groups across DM and EM. In DM, the high PROT group has a higher occurrence of CEO duality (except in EMEA countries) as compared to the low PROT group. While the high PROT group has an average of 46.2% firm-years with dual CEO, the low PROT group has only 24.2%. This difference is reversed in EM countries, where the low

PROT group has a higher CEO duality of 29.9% and the high PROT group has a lower CEO duality of only 22.6%. In all EM regions, this difference exists; CEO duality is higher in the low PROT group as compared to the high PROT group.

In terms of firm-level shareholders' score, the high PROT group has on average higher scores than the low PROT group. The high PROT group has an average score of 50.7 and the low PROT group has an average score of 50 in the global sample. This observation is existent for both DM and EM. In DM high PROT group has 50.8 and the low group has 50.2, in EM these scores are 49.7 and 49.5, respectively. Among the regions, though, this pattern between high and low groups is not uniform. For instance, in Pacific and South America, low PROT countries have higher firm-level shareholders score compared to the high PROT group, whereas Asian and emerging EMEA countries have lower firm-level shareholders score in the low PROT group.

In Table 23, we observe that the average board size is higher in the DM low CREDIT group as compared to the DM high group, while it is marginally higher in the EM high CREDIT group as compared to the EM low group. In DM, the low CREDIT group has an average board size of 11.3 while the high CREDIT group has an average board size of 9.4. In EM, the low CREDIT group has an average board size of 10.3 while the high group has a size of 10.5. Among the regions, the differences in board size averages are mixed. While, for instance, South American firms have higher board sizes in the high CREDIT group, emerging EMEA firms have lower board sizes in the same group.

Both DM and EM countries with high CREDIT have higher board independence ratios. This result is like what we see for PROT. When the country has a higher level of creditor rights, the firms tend to have higher levels of independent

directors on their boards. In DM high CREDIT group, board independence is 67.1% while the low group has only 40.5%. In EM, the high CREDIT group has average board independence of 48.5% yet the low CREDIT group has a ratio of only 35.2%. This mean difference exists across each region both in DM and EM, except for developed EMEA countries, where low CREDIT countries have higher board independence.

In terms of CEO duality, the high CREDIT group of DM has a higher CEO duality as compared to the low CREDIT group, with 42.5% and 33%, respectively. This difference also exists in EM countries, where the high CREDIT group has a higher CEO duality at 27.6% and the low CREDIT group has a lower CEO duality at 25.2%. Among the regions, the difference between high and low CREDIT groups differs, as some regions have a higher rate of CEO Duality in high CREDIT group (such as South America and emerging EMEA), whereas in other regions high CREDIT groups have lower rates of CEO Duality.

As for the firm-level shareholder score, the high CREDIT group has on average higher scores than the low CREDIT group in the global sample, with 50.7 and 49.8, respectively. This difference is observed for both the DM and EM countries. In DM, the high CREDIT group has 50.8 and the low group has 50.1; in EM, the high group has 50 and the low group has 49.3. Nevertheless, this pattern between high and low groups is not uniform among the regions.

4.3.1.2 Mean differences in ownership variables

This part investigates mean differences of ownership variables in low and high PROT and CREDIT countries in two tables. Table 24 shows the mean differences in ownership variables between high and low PROT groups. All six blockholder

Table 24. Ownership Mean Differences: High and Low PROT

Panel A: Total Blockholder and Blockholder Types

	Total Blockholder				Institutional Investor				Strategic Entities			
	Low		High		Low		High		Low		High	
Market/Region	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold
Developed	86.7	32.0	93.4	32.8	55.7	15.2	79.7	23.3	59.2	32.6	37.5	31.9
N.America			93.7	29.7			89.0	25.0			24.1	22.9
EMEA	92.3	38.9	95.7	35.3	52.8	13.8	76.6	21.4	71.9	39.8	52.2	33.4
Pacific	83.1	27.0	89.3	40.4	57.6	15.9	51.2	17.1	51.0	25.9	65.0	41.9
Emerging	93.0	53.9	96.5	49.1	28.8	16.1	55.0	19.5	88.3	51.5	85.5	42.9
S.America	86.8	56.4	100.0	68.8	43.7	19.0	43.0	16.5	76.0	53.5	100.0	61.8
Asia	95.2	50.2	95.5	47.1	19.2	10.4	46.8	12.6	92.9	49.3	91.8	42.6
EMEA	96.6	58.3	98.4	51.6	28.9	17.9	75.7	29.6	94.9	53.8	69.0	41.2
Grand Total	88.6	38.9	93.8	34.9	47.6	15.3	76.7	23.0	67.9	40.0	43.4	34.6

Panel B: Blockholder Sub-Types

	Investment Inv./Hedge Fund				Corporation				Individual Investor			
	Low		High		Low		High		Low		High	
Market/Region	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold
Developed	48.5	14.3	75.9	22.1	40.3	27.4	22.2	31.0	17.6	24.2	15.4	21.3
N.America			87.8	23.9			11.2	24.0			13.5	17.7
EMEA	45.6	12.3	71.1	20.2	36.0	34.0	26.9	26.5	24.8	28.5	18.7	23.4
Pacific	50.3	15.4	40.3	13.6	43.1	23.8	54.5	39.0	12.9	18.8	17.5	28.1
Emerging	19.8	12.6	28.3	17.6	66.6	46.4	67.7	37.0	17.9	28.6	19.2	20.2
S.America	36.5	15.1	15.6	21.8	52.1	45.4	74.2	43.9	17.6	27.6	1.6	11.7
Asia	11.1	8.7	15.4	9.4	82.5	48.0	76.0	37.5	14.0	20.2	20.8	21.2
EMEA	15.7	10.9	59.9	22.5	53.1	42.5	47.5	34.1	26.3	38.7	17.2	17.4
Grand Total	39.9	14.0	70.0	21.9	48.2	35.3	27.8	32.8	17.7	25.5	15.8	21.1

This table presents mean differences of ownership variables between high and low protecting shareholder scores (PROT) groups, i.e., above and below the median, respectively. Panel A shows total blockholders and blockholder types: institutional and strategic blockholders. Panel B shows blockholder sub-types: investment advisor/hedge fund, strategic corporations, and individual investors. *%N* stands for the number of sample firm-years that have the specific blockholder. *%Hold* indicates the average ownership holdings for each blockholders, averaged among firm-years that have the specific blockholding.

variables are reported for each group. Panel A of each table shows total blockholders and blockholder types, namely institutional and strategic blockholders. Panel B of each table shows blockholder sub-types, namely investment advisor/hedge fund, strategic corporations, and individual investors. %N indicates the number of sample firm-years that have the specific blockholder. %Hold indicates average ownership holdings for each blockholders, averaged among firm-years that have the specific blockholding.

Ownership concentration, as measured by total blockholders, is marginally higher when PROT is high (93.8% in the high group versus 88.6% in the low group).

However, these blockholders hold more concentrated shares in low PROT countries (38.9% versus 34.9%). In DM, 93.4% of firms have at least one blockholder holding an average of 32.8% of shares in high PROT countries, whereas these ratios are 86.7 and 32, respectively, in low PROT countries. In EM, 96.5% of high PROT countries have blockholders holding 49.1% of firm shares. In low PROT EM countries, firms have lower levels of blockholders at 93% that hold on average 53.9% of shares.

In terms of blockholder types, institutional investors are dominant in the high PROT countries in both DM and EM. In the global sample, 76.7% of the firms have institutional blockholders in high PROT countries (47.6% in low PROT), which hold on average 23% of shares (15.3% in low PROT). These figures indicate that institutional blockholders are significantly dominant in the countries where better investor protection is provided. A similar trend is observable for the investment advisor/ hedge fund blockholders, a more active sub-type of institutional blockholders. Overall, this sub-type of blockholders is more dominant when PROT is high in both DM and EM.

In terms of strategic entities, in the global sample, 67.9% of firms in the low PROT countries have strategic blockholders, holding 40% of the shares. In high PROT countries, 43.4% of firms have strategic entity blockholders which hold 34.6% of firm shares. Overall, strategic entities are more dominant when shareholder protection is low, as a pattern exists in both DM and EM samples. However, in Pacific and South American firms, strategic entity blockholders are more dominant in the high PROT group, as opposed to the rest of the sample. Corporation and Individual investor blockholders, as the sub-types of strategic entities, are similarly dominant in low PROT countries both in DM and EM.

Table 25 shows the mean differences of all six ownership variables between high and low CREDIT groups. Similar notations are used as in Table 24. Total blockholders are slightly higher when CREDIT is high, however, these blockholders hold more concentrated shares in low CREDIT countries. This finding is analogous to the finding in Table 24.

Table 25. Ownership Mean Differences: High and Low CREDIT

Panel A: Total Blockholder and Blockholder Types

	BLOCK				INST				STRAT			
	Low		High		Low		High		Low		High	
Market/Region	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold
Developed	86.1	33.2	93.0	32.5	50.3	13.5	79.0	23.0	62.3	34.9	38.5	31.1
N.America			93.7	29.7			89.0	25.0			24.1	22.9
EMEA	95.3	40.7	94.1	34.2	55.1	16.0	75.5	20.7	76.4	39.2	49.4	33.4
Pacific	75.1	21.6	90.5	37.6	44.4	9.8	58.8	18.5	45.3	26.0	62.6	36.9
Emerging	93.1	50.6	97.2	52.6	32.1	20.4	56.8	16.6	85.6	47.4	88.6	47.1
S.America	90.5	58.3	82.3	56.1	48.0	20.1	34.1	14.8	81.0	53.4	72.1	57.2
Asia	92.1	45.6	99.5	51.6	17.7	9.8	58.3	13.0	89.3	45.1	96.0	45.6
EMEA	96.8	54.9	98.9	53.9	49.4	28.1	64.8	25.4	81.7	48.1	78.1	47.2
Grand Total	89.0	40.7	93.4	34.5	42.7	15.7	76.9	22.5	72.0	41.0	43.2	34.2

Panel B: Blockholder Sub-Types

	HEDG				CORP				INDV			
	Low		High		Low		High		Low		High	
Market/Region	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold	% N	% Hold
Developed	40.3	12.0	75.5	21.8	39.1	27.1	23.9	30.5	13.5	26.6	16.4	21.3
N.America			87.8	23.9			11.2	24.0			13.5	17.7
EMEA	45.9	13.5	71.3	19.8	37.4	30.3	25.9	29.2	19.1	28.6	21.9	24.0
Pacific	33.5	9.4	50.7	16.1	41.0	23.6	51.4	34.4	6.6	19.6	18.5	24.4
Emerging	21.6	16.9	27.7	14.0	66.5	42.9	68.1	39.8	16.5	22.9	21.6	25.7
S.America	38.1	16.7	27.1	11.3	56.2	43.5	49.7	49.2	15.8	27.3	17.1	27.8
Asia	7.6	8.2	21.2	9.5	77.6	44.4	79.9	39.0	14.8	17.7	22.1	23.6
EMEA	37.7	20.6	45.3	20.4	51.8	38.0	46.8	38.1	20.3	28.0	22.6	30.4
Grand Total	32.6	13.3	71.0	21.5	50.4	35.7	28.0	32.6	14.7	24.9	16.9	21.8

This table presents mean differences of ownership variables between high and low getting credit scores (CREDIT) groups, i.e., above and below the median, respectively. Panel A shows total blockholders and blockholder types: institutional and strategic blockholders. Panel B shows blockholder sub-types: investment advisor/hedge fund, strategic corporations, and individual investors. *%N* stands for the number of sample firm-years that have the specific blockholder. *%Hold* indicates the average ownership holdings for each blockholders, averaged among firm-years that have the specific blockholding.

In terms of blockholder types, institutional blockholders are more dominant in high CREDIT countries, where they exist in 76.9% of firms and hold 22.5% of shares, as compared with low CREDIT countries, where they exist in 42.7% of firms

and hold 15.7% of shares. Institutional blockholders are dominant across both DM and EM countries. A similar relationship is observed for investment advisor/hedge fund blockholders, the more active sub-type of institutional blockholders.

As opposed to institutional blockholders, strategic entity blockholders are more dominant in low CREDIT countries, where they exist in 72% of the firms and hold 41% of shares, as compared with high CREDIT countries, where they exist in 43.2% of firms and hold 34.2% of shares. When we examine the markets, we see that in the DM, strategic blockholders are dominant in low CREDIT countries, whereas in EM they are only marginally dominant in high CREDIT countries. Similar results are drawn for strategic entity sub-types, i.e., corporation and individual blockholders. While these blockholders are more dominant in the low CREDIT countries of the DM, they are more dominant in the high CREDIT countries of the EM.

Analyses of means help us understand the average differences in corporate governance and ownership variables in the group of countries with different levels of investor protection and creditor rights. However, mean differences alone tell us very little about how these macroeconomic variables affect the relationship between firm-level governance and financial distress. The next part investigates this question.

4.3.2 Impact of country-level investor protection

The first group of regression analyses uses the baseline regression described in Section 3.4 which is applied first to the global sample and then to the DM and EM sub-samples. I separate the firm-years from yearly medians into low- and high-PROT groups and test three different models for each group. In total, six models are tested for each global, DM, and EM sample: three models for the low-PROT group and three models for the high-PROT group.

All models presented in this section have common post-regression tests, which are not reported since they are very similar for each analysis. For all models, Durbin-Watson statistics is around 2.0 and within the upper and lower limits, indicating that the models do not suffer from autocorrelation. Residuals are normally distributed. All models have an F-stat probability of 0.0000. The variance inflation factor for each variable is lower than 2, and mostly close to 1, specifying that the models do not suffer multicollinearity. All these post-regression tests indicate that the regressions do not suffer major modeling issues.

Each model has DD as the continuous dependent variable and corporate governance, ownership, lagged DD, control variables, and firm- and period-fixed effects as explanatory variables. Ownership variables are included in three layers: total blockholders, blockholder types (institutional and strategic blockholders), and blockholder sub-types (investment manager/hedge fund, corporation, and individual blockholders). The results are presented and discussed in the following sections.

4.3.2.1 Global sample

First, I use the entire sample to test hypothesis 12 that country-level investor protection affects the relationship between governance and financial distress. The global sample incorporates all 50 countries in DM and EM. Six separate models are built in an incremental approach as described previously. The results of the regressions are in Table 26. The dependent variable in all six models is the distance to default (DD), which is a continuous and reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. All models include lagged DD, a full

set of controls as explanatory variables, a constant, and firm- and period-fixed effects. R-squared and adjusted r-squared figures are reported below each model.

Table 26. Impact of Country-Level Investor Protection: Global Sample

	Low Investor Protection			High Investor Protection		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.028**	-0.029**	-0.029**	-0.029***	-0.03***	-0.031***
	(0.014)	(0.014)	(0.014)	(0.01)	(0.01)	(0.01)
INDEP	-0.015	0.008	0.036	0.113	0.147	0.153
	(0.172)	(0.173)	(0.173)	(0.162)	(0.162)	(0.162)
DUAL	-0.169**	-0.169**	-0.171**	-0.015	-0.022	-0.021
	(0.075)	(0.075)	(0.075)	(0.051)	(0.051)	(0.051)
SHSCORE	0.072	0.07	0.081	-0.152**	-0.132*	-0.134*
	(0.111)	(0.112)	(0.112)	(0.071)	(0.071)	(0.071)
BLOCK	-0.154			-0.677***		
	(0.227)			(0.139)		
INST		-0.529			-1.183***	
		(0.34)			(0.164)	
STRAT		0.073			0.22	
		(0.267)			(0.215)	
HEDG			-0.83**			-1.149***
			(0.384)			(0.17)
CORP			0.169			0.283
			(0.269)			(0.246)
INDV			1.559***			0.52
			(0.504)			(0.383)
LAG.DD	-0.067***	-0.066***	-0.067***	-0.064***	-0.064***	-0.064***
	(0.009)	(0.009)	(0.009)	(0.006)	(0.006)	(0.006)
ROA	3.57***	3.335***	3.313***	2.128***	2.122***	2.131***
	(0.283)	(0.282)	(0.282)	(0.206)	(0.206)	(0.206)
LEV	-7.452***	-7.416***	-7.449***	-8.8***	-8.789***	-8.783***
	(0.253)	(0.252)	(0.252)	(0.146)	(0.146)	(0.146)
BETA	-0.578***	-0.569***	-0.567***	-0.465***	-0.463***	-0.463***
	(0.026)	(0.026)	(0.026)	(0.014)	(0.014)	(0.014)
EXCESS	-1.432***	-1.417***	-1.422***	-1.485***	-1.49***	-1.491***
	(0.074)	(0.074)	(0.074)	(0.046)	(0.046)	(0.046)
TOBIN	2.591***	2.608***	2.609***	2.559***	2.551***	2.553***
	(0.083)	(0.084)	(0.083)	(0.053)	(0.053)	(0.053)
TA	-0.482***	-0.477***	-0.468***	0.159***	0.156***	0.156***
	(0.076)	(0.075)	(0.075)	(0.043)	(0.043)	(0.043)
AGE	0.234***	0.232***	0.233***	0.157***	0.153***	0.152***
	(0.08)	(0.08)	(0.08)	(0.045)	(0.045)	(0.045)
C	15.421***	15.294***	15.086***	6.334***	6.336***	6.284***
	(1.184)	(1.167)	(1.167)	(0.678)	(0.677)	(0.677)
R2	0.713	0.711	0.711	0.698	0.698	0.698
Adj.R2	0.647	0.644	0.645	0.638	0.638	0.638
Firms	2312	2312	2312	4992	4992	4992
Firm Years	12504	12504	12504	30478	30478	30478

This table presents the results of panel data regression models testing the impact of country-level investor protection on the relationship between governance and financial distress in the global sample. Low Investor Protection is defined as PROT less than the median value (Models 1, 2, and 3) and High Investor Protection as higher than the median (Models 4, 5, and 6). The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

Findings in Table 26 reveal the significant impact of PROT on the relationships between firm-level governance mechanisms and financial distress. Before studying these results and discussing whether they support hypothesis 12, I review the control variables to see if their signs and significance are meaningful. In all models, each control variable has a significant coefficient and sign. The coefficients and standard errors for ROA, LEV, BETA, EXCESS, TOBIN, and AGE are similar in high- and low-PROT groups. Their coefficients and standard errors are comparable to the results of the baseline regression in sub-part 4.2.2.1 indicating that country-level investor protection does not have a significant impact on control variables as determinants of financial distress.

There is one exception in the control variables which requires further attention. TA has statistically significant coefficients in all six models; however, while the sign of the relationship is negative in the low-PROT group, it is positive in the high-PROT group.[28] This result is interesting and partially explains the mixed results in Section 4.2.2 where we found that TA has no significant effect on financial distress in DM, while it has an increasing impact on EM. This mixed result can be explained by the impact of country-level investor protection. In countries where investor protection is low, TA, as a proxy for firm size, has a negative effect on DD. When macro-level investor protection is low, firm size has an increasing effect on financial distress: as the firm grows, so does its probability of default. As the EM countries on average have lower PROT scores, this negative relationship is existent in the EM sub-sample as found in the previous analyses. On the other hand, in the high-PROT group, TA has a positive effect on DD. When the country-level investor protection is high, firm size has a decreasing effect on financial distress. This result is parallel to

[28] This result is also existent in DM and EM sub-sample as I discuss in the following sub-parts.

the previous studies which find a similar direction of the relationship between firm size and financial distress (Darrat et al., 2016; Miglani et al., 2015; Parker et al., 2002; Schultz et al., 2017). Since most of the past studies take place in high-PROT DM countries, the results are as expected.

Investigation of the regression results in Table 26 reveals several findings that illustrate the significant impacts of country-level investor protection on the relationship between governance and financial distress. DUAL is significantly negatively associated with DD in the low-PROT group but has no relation in the high-PROT group. This result suggests that CEO duality has a positive impact on financial distress when the country has lower investor protection levels. Jensen's (1993) argument that a dual CEO might lead the board to achieve personal gains at the cost of the financial wealth of the firm is supported when the macroeconomic context of the country is unfavorable for minority investors. Within countries where the investors are not adequately protected, dual CEO has an increasing effect on financial distress. Conversely, the negative effect of DUAL on DD is insignificant in the high-PROT group. This result indicates that in the countries where minority investors are protected, the dual CEO incurs no impact on the financial distress of the firm.

In the previous analyses, no relation between SHSCORE and DD was documented, denoting that firm-level shareholder protection has no impact on the financial distress of the firm. However, in Table 26, the results show that SHSCORE is significantly and negatively related to DD in the high-PROT group, suggesting that firm-level shareholder protection has an increasing impact on financial distress only when country-level investor protection is high. As suggested by previous studies, increased firm-level shareholder rights exaggerate shareholder-creditor conflict and

might lead to distorted investment decisions and excessive risk-taking (Ayotte et al., 2012). According to the findings in Table 26, this is true when firm-level shareholder protection is coupled with country-level protection, i.e. when investor protection is high. The hypothesis that increased firm-level shareholder protection would lead to increased financial distress is supported for the global sample and for the countries where investor protection is high.

The results show that BLOCK is negatively associated with DD in the high-PROT group, indicating that total blockholders have an increasing effect on financial distress only in the countries where investor protection levels are high. As I did in the previous studies, I replace BLOCK with other ownership concentration variables, namely total holdings of the top 10, top 5, and top 3 shareholders. For all these three variables, the relationship is significant in the high PROT group but insignificant in the low PROT group. Therefore, the results indicate that blockholders (and concentrated ownership) have an increasing effect on financial distress when country-level investor protection is high.

INST is significantly and negatively associated with DD when PROT is high, suggesting that institutional blockholding has a deteriorating impact on the financial health of the firm when country-level investor protection is high. Previous analyses show that increased blockholding of institutional shareholders, such as investment advisors, hedge funds, private equity, sovereign wealth fund, insurance company, banks, and pension funds, are associated with increased financial distress in the global sample. However, results in Table 26 suggest that this association is not significant when investor protection is low. Cao et al. (2015) and Darrat et al. (2016) also document the increasing impact of institutional investors on financial distress in the U.S., where the investor protection level is high. The results also show that

HEDG, the sub-type of institutional investors, is negatively associated with DD in both high- and low-PROT groups. As the investment advisor/hedge fund blockholding increases, the financial distress of the firm increases regardless of the level of investor protection in the country.

Although positive, the coefficient of STRAT is not significant in both the low and the high groups. This result suggests that strategic blockholders do not have a positive or negative significant impact on financial distress in the global sample. When we investigate the sub-types of STRAT in model (3) and model (6), we observe that CORP is also not statistically significant for both low- and high-PROT groups. On the other hand, INDV is positively and statistically significantly related to DD when the country's investor protection is low. This result indicates that individual blockholders have a decreasing impact on financial distress when the country has unfavorable investor protection levels.

INDV has the opposite impact on financial distress as compared to INST. Institutional blockholders have a significantly increasing effect on financial distress when country-level investor protection is high, whereas individual blockholders have a significantly decreasing effect on financial distress when country-level investor protection is low. The descriptive statistics in Table 24 show that these two types of blockholders are dominant in the group of countries where they show significant results.[29]

The results also show that SIZE is negatively associated with DD in both high- and low-PROT groups. As the board size increases, so does the financial distress of the firm regardless of the level of investor protection in the country. In the global sample, country investor protection has no impact on the relation between board size

[29] One exception is CORP. In Table 24, corporation blockholders are dominant in low-PROT countries compared to high-PROT countries, however the coefficients of CORP in Table 26 are not significant.

and financial distress. The coefficients and standard errors are very similar in all six models.

Besides these significant results, a few of the explanatory variables failed to show significant coefficients. INDEP is not significant for all six models in the global sample. This result is aligned with previous findings. As discussed above, STRAT and CORP are insignificant in the models they are tested. The coefficients of these variables have predicted signs, but they are insignificant even at the 10% level in both high- and low-PROT groups. The reason for these insignificant results could be due to the analysis of the global sample without considering the DM and EM countries separately. The next parts present the results of the models for developed and emerging markets, respectfully.

Overall, hypothesis 12 that country-level investor protection affects the relationship between governance and financial distress is supported by several corporate governance and ownership variables in the global sample. Country-level investor protection has significant impacts on the relationship between governance mechanisms (specifically, DUAL, SCHSCORE, BLOCK, INST, and INDV) and financial distress. When investor protection is low, CEO duality has an increasing and individual investor blockholders have a decreasing effect on financial distress. For the countries with high investor protection levels, these effects do not exist. On the other hand, when country-level investor protection is high, firm shareholder score, total blockholders (also as a proxy of ownership concentration), and institutional investors have increasing effects on financial distress. For countries with low investor protection levels, these effects are inexistent. These findings suggest that level of country investor protection has a significant impact on the relationship between governance and financial distress.

Moreover, country-level shareholder protection helps explain the mixed results on the relationship between firm size and financial distress documented in the previous section. When country-level investor protection is high, larger firms have lower default probabilities; whereas, when investor protection is low, larger firms have indeed higher default probabilities. This result suggests that the findings in the previous studies that document that larger firms have lower levels of financial distress are not generalizable to the global sample. The macroeconomic situation, namely overall investor protection levels, of the country affects the impact of firm size on financial distress.

4.3.2.2 Developed markets

To investigate the effects of country-level investor protection on the relationship between governance and financial distress and to test hypothesis 12 for the developed markets, I test the models for the DM sub-sample of 23 countries. Like the approach for the global sample, six separate models are tested. The results of the regressions are in Table 27. The dependent variable in all six models is DD. Again, all models include lagged DD and a full set of controls as explanatory variables, as well as constant and firm- and period-fixed effects. R-squared and adjusted r-squared figures are reported below each model.

Like the results in the global sample, control variables have significant coefficients in the DM sample. The coefficients and standard errors for ROA, LEV, BETA, EXCESS, TOBIN, and AGE are comparable in high- and low-PROT models. Again, TA is an exception among the control variables. Although TA has statistically significant coefficients in all six models, the sign of the relationship is negative in the low-PROT group and positive in the high-PROT group. This result indicates that the

Table 27. Impact of Country-Level Investor Protection: DM Sample

	Low Investor Protection			High Investor Protection		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.02	-0.021	-0.022	-0.026**	-0.027**	-0.028**
	(0.016)	(0.016)	(0.016)	(0.011)	(0.011)	(0.011)
INDEP	0.076	0.087	0.099	0.275	0.321*	0.323*
	(0.182)	(0.183)	(0.183)	(0.172)	(0.172)	(0.172)
DUAL	-0.172**	-0.172**	-0.173**	-0.025	-0.032	-0.032
	(0.082)	(0.082)	(0.082)	(0.053)	(0.053)	(0.053)
SHSCORE	0.104	0.105	0.105	-0.114	-0.092	-0.096
	(0.121)	(0.121)	(0.121)	(0.076)	(0.076)	(0.076)
BLOCK	-0.081			-0.61***		
	(0.253)			(0.146)		
INST		-0.276			-1.122***	
		(0.353)			(0.169)	
STRAT		0.087			0.43*	
		(0.313)			(0.234)	
HEDG			-0.692*			-1.078***
			(0.396)			(0.175)
CORP			-0.034			0.399
			(0.329)			(0.276)
INDV			1.215*			0.751*
			(0.63)			(0.411)
LAG.DD	-0.047***	-0.047***	-0.048***	-0.062***	-0.062***	-0.062***
	(0.011)	(0.011)	(0.011)	(0.006)	(0.006)	(0.006)
ROA	3.534***	3.536***	3.517***	2.062***	2.056***	2.069***
	(0.296)	(0.296)	(0.296)	(0.213)	(0.213)	(0.213)
LEV	-8.04***	-8.043***	-8.051***	-8.464***	-8.457***	-8.455***
	(0.276)	(0.276)	(0.276)	(0.152)	(0.152)	(0.152)
BETA	-0.552***	-0.552***	-0.551***	-0.456***	-0.455***	-0.455***
	(0.027)	(0.027)	(0.027)	(0.014)	(0.014)	(0.014)
EXCESS	-1.248***	-1.248***	-1.25***	-1.429***	-1.436***	-1.435***
	(0.084)	(0.084)	(0.084)	(0.049)	(0.049)	(0.049)
TOBIN	2.435***	2.432***	2.43***	2.5***	2.494***	2.494***
	(0.091)	(0.092)	(0.091)	(0.056)	(0.056)	(0.056)
TA	-0.362***	-0.358***	-0.353***	0.159***	0.155***	0.156***
	(0.087)	(0.087)	(0.087)	(0.045)	(0.045)	(0.045)
AGE	0.216**	0.216**	0.22**	0.152***	0.146***	0.146***
	(0.091)	(0.091)	(0.091)	(0.047)	(0.047)	(0.047)
C	13.709***	13.634***	13.558***	5.949***	5.97***	5.938***
	(1.336)	(1.337)	(1.339)	(0.708)	(0.707)	(0.707)
R2	0.735	0.735	0.735	0.693	0.693	0.693
Adj.R2	0.681	0.681	0.681	0.633	0.633	0.633
Firms	1517	1517	1517	4313	4313	4313
Firm Years	9075	9075	9075	26591	26591	26591

This table presents the results of panel data regression models testing the impact of country-level investor protection on the relationship between governance and financial distress in the DM sample. Low Investor Protection is defined as PROT less than the median value (Models 1, 2, and 3) and High Investor Protection as higher than the median (Models 4, 5, and 6). The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

effect of TA as a determinant of financial distress in the developed markets should be investigated within the context of country investor protection. When investor protection is low, firm size has an increasing effect on financial distress. When investor protection is high, firm size has a decreasing effect on financial distress.

The results in the global sample show that SIZE is negatively associated with DD in both high- and low-PROT groups (see Table 26). However, in the DM, SIZE is negatively associated with DD only in the high PROT group. Increased board size has an increasing effect on financial distress in developed countries when the level of investor protection is high. When the country-level investor protection is low, board size does not influence financial distress in the DM.

In the global sample, INDEP is found to be statistically insignificant for all models tested. In the DM, though, there is a weak positive relation between INDEP and DD in the high-PROT group. This finding suggests that in the DM countries increased board independence has a decreasing effect on financial distress when the country's investor protection is high. This result indicates that high country-level investor protection in the developed markets induces independent members to act in a way that decreases financial distress levels.

Like the finding in the global sample, in the DM countries, DUAL is significantly negatively associated with DD in the low-PROT group but has no relation in the high-PROT group. CEO duality has an increasing effect on financial distress when the DM country has lower investor protection levels. Jensen's (1993) argument is supported for the DM countries but those with lower investor protection. The increasing effect of dual CEO on financial distress is insignificant in the DM countries where minority investors are better protected.

BLOCK is negatively associated with DD in the high-PROT group, indicating that when the DM country has high levels of investor protection, total blockholders have an increasing effect on financial distress in the DM. This result is valid not only for the global but also for the DM sample. Accordingly, blockholders have an increasing effect on financial distress in the DM when the country-level investor

protection is high. Again, when BLOCK is replaced with total holdings of the top 10, top 5, and top 3 shareholders, the negative coefficient remained significant in the high-PROT group but insignificant in the low-PROT group.

The effect of INST in DM is alike the findings in the global sample. In the DM, INST is significantly negatively associated with DD when PROT is high, suggesting that institutional blockholding has a deteriorating impact on the financial health of the DM firm when the country-level investor protection is high. The association is insignificant when investor protection is low. The results also show that HEDG, the sub-type of institutional investors, is negatively associated with DD in both high- and low-PROT groups. As the investment advisor/hedge fund blockholding increases, the financial distress of the firm increases regardless of the level of investor protection in the country.

In the global sample and the previous models, we find that STRAT has no significant impact on the financial distress of the firm. In Table 27, the findings document a weak positive relationship between STRAT and DD at a 10% significance level when the country's investor protection is high. Strategic investors have a decreasing effect on financial distress in DM countries when investor protection is high. When we investigate the sub-types of STRAT in models (3) and (6), we observe that CORP is not statistically significant for both low- and high-PROT groups. On the other hand, INDV is positively and significantly related to DD in both low- and high-PROT groups. Regardless of the levels of country investor protection, individual investors have a decreasing effect on financial distress in the DM.

Besides these significant findings, unlike the finding in the global sample, SHSCORE has no significant effect on financial distress regardless of the levels of country investor protection in DM countries.

Overall, hypothesis 12 that country-level investor protection affects the relationship between governance and financial distress is supported by several corporate governance and ownership variables in the developed markets. Country-level investor protection has significant impacts on the relationship between governance (specifically, SIZE, INDEP, DUAL, BLOCK, INST, and STRAT) and financial distress. When investor protection is low, CEO duality has an increasing effect on financial distress, an effect that is inexistent for the countries with high investor protection. On the other hand, when country-level investor protection is high, the board size, total blockholders (also as a proxy of ownership concentration), and institutional investors have increasing effects, and board independence and strategic entity blockholders have decreasing effects on financial distress. For the countries with low investor protection, these effects are inexistent. These findings suggest that level of country investor protection has a significant impact on the relationship between governance and financial distress in developed markets.

Akin to the finding in the global sample, country-level shareholder protection helps explain the mixed results on the relationship between firm size and financial distress in developed market firms documented in the previous section. When country-level investor protection is high, larger DM firms have lower default probabilities; whereas, when investor protection is low, larger DM firms have indeed higher default probabilities. This result suggests that the findings in the previous studies that document that larger firms have lower levels of financial distress are not generalizable to the entire DM sample. The impact of firm size on financial distress

is affected by the macroeconomics of the country, namely the overall investor protection levels.

4.3.2.3 Emerging markets

Hypothesis 12 and the effect of country-level investor protection on the relationship between governance and financial distress for the emerging markets is tested by running the baseline models for the EM sub-sample of 27 countries. Like the approach in the global sample and DM sub-sample, six separate models are tested. The results of the regressions are in Table 28. The dependent variable in all six models is DD. All models include lagged DD and a full set of controls as explanatory variables, a constant, and firm- and period-fixed effects.

Like the results in the global and the DM sample, control variables have significant coefficients with comparable standard errors in both high- and low-PROT models. Like the findings for the DM and global sample, although TA has statistically significant coefficients in the models tested for EM, the sign of the relationship is negative in the low-PROT group and positive in the high-PROT group. When investor protection is low, firm size has an increasing effect on financial distress; whereas when investor protection is high, firm size has a decreasing effect on financial distress.

In the global sample, INDEP is found to be statistically insignificant and in the DM sample, INDEP is found to be weakly positively related to DD. On the other hand, the results in Table 28 suggest that INDEP is negatively associated with DD in the high-PROT group in the EM sample. This finding indicates that a higher rate of board independence has an increasing effect on financial distress when investor

Table 28. Impact of Country-Level Investor Protection: EM Sample

	Low Investor Protection			High Investor Protection		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	0.014	0.018	0.02	-0.018	-0.018	-0.019
	(0.027)	(0.027)	(0.027)	(0.024)	(0.024)	(0.024)
INDEP	-0.607	-0.525	-0.514	-0.874*	-0.864*	-0.872*
	(0.443)	(0.447)	(0.448)	(0.464)	(0.464)	(0.464)
DUAL	-0.202	-0.198	-0.197	0.011	0.008	0.019
	(0.163)	(0.165)	(0.165)	(0.17)	(0.17)	(0.17)
SHSCORE	-0.066	-0.086	-0.06	-0.284	-0.285	-0.282
	(0.247)	(0.25)	(0.25)	(0.199)	(0.199)	(0.2)
BLOCK	-0.325			-1.127**		
	(0.475)			(0.46)		
INST		-1.631*			-1.425**	
		(0.923)			(0.645)	
STRAT		-0.025			-1.005*	
		(0.5)			(0.534)	
HEDG			-1.837*			-1.304*
			(1.108)			(0.708)
CORP			0.335			-0.587
			(0.468)			(0.541)
INDV			0.824			-1.188
			(0.852)			(1.046)
LAG.DD	-0.102***	-0.098***	-0.097***	-0.098***	-0.098***	-0.097***
	(0.019)	(0.019)	(0.019)	(0.016)	(0.016)	(0.016)
ROA	2.427***	1.201	1.183	2.913***	2.939***	2.915***
	(0.781)	(0.752)	(0.752)	(0.756)	(0.756)	(0.757)
LEV	-5.989***	-6.093***	-6.095***	-11.977***	-11.961***	-11.955***
	(0.586)	(0.585)	(0.586)	(0.508)	(0.509)	(0.51)
BETA	-0.677***	-0.639***	-0.638***	-0.53***	-0.529***	-0.529***
	(0.065)	(0.065)	(0.065)	(0.043)	(0.043)	(0.043)
EXCESS	-2.001***	-1.935***	-1.935***	-2.03***	-2.028***	-2.03***
	(0.152)	(0.154)	(0.154)	(0.13)	(0.13)	(0.13)
TOBIN	3.664***	3.735***	3.728***	3.376***	3.359***	3.361***
	(0.197)	(0.198)	(0.199)	(0.171)	(0.173)	(0.173)
TA	-0.57***	-0.563***	-0.564***	0.4***	0.395***	0.386**
	(0.153)	(0.146)	(0.147)	(0.152)	(0.152)	(0.153)
AGE	0.02	0.028	0.027	0.323**	0.325**	0.317**
	(0.161)	(0.162)	(0.162)	(0.153)	(0.153)	(0.154)
C	16.629***	16.423***	16.199***	4.681**	4.734**	4.631*
	(2.503)	(2.412)	(2.412)	(2.377)	(2.377)	(2.385)
R2	0.683	0.678	0.678	0.743	0.743	0.742
Adj.R2	0.583	0.576	0.576	0.686	0.686	0.685
Firms	795	795	795	679	679	679
Firm Years	3429	3429	3429	3887	3887	3887

This table presents the results of panel data regression models testing the impact of country-level investor protection on the relationship between governance and financial distress in the EM sample. Low Investor Protection is defined as PROT less than the median value (Models 1, 2, and 3) and High Investor Protection as higher than the median (Models 4, 5, and 6). The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. The negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

protection is high in the EM country. This result is aligned with the results provided in Section 4.2.2 however it contradicts the finding in the DM.

Like the findings in the global sample and the DM sub-sample, BLOCK is negatively associated with DD in the high-PROT EM countries. The result indicates

that when the EM country has high levels of investor protection, total blockholders have an increasing effect on financial distress. The result is valid when BLOCK is replaced with the top 10, top 5, and top 3 shareholder total holdings. For all these three variables, the relation is significant in the high-PROT group but insignificant in the low-PROT group.

The effect of INST in EM differs from the findings in the global sample and the DM sub-sample. In the EM, INST is significantly negatively associated with DD in both the low- and high-PROT groups, suggesting that institutional blockholding has a deteriorating impact on the financial health of the EM firm irrespective of the level of country-level investor protection. When we look at the sub-type of institutional investors, namely HEDG, we see a similar result: a negative relationship with DD in both high- and low-PROT groups. As the investment advisor/hedge fund blockholding increases in the EM country, the financial distress of the firm increases regardless of the level of investor protection.

In the global sample and the models in Section 4.2.2 STRAT is found to be a statistically insignificant determinant of DD. In the DM sub-sample, we find that STRAT has a positive effect on DD. Contrary to these previous results, Table 28 shows a significant negative relationship between STRAT and DD when the country's investor protection is high. Strategic investors have a decreasing effect on financial distress in the EM when investor protection is high. When we investigate the subtypes of STRAT, we note that both CORP and INDV are not statistically significant in the high and low groups. The level of country investor protection does not affect the relationship between corporation blockholder or individual blockholders and financial distress.

Finally, SIZE, DUAL, and SHSCORE do not affect financial distress regardless of the level of country investor protection in the EM. Unlike the previous findings in the global sample and the DM sub-sample, these three variables have no significant effect on DD in EM countries for both high- and low-PROT groups.

Overall, hypothesis 12 that country-level investor protection affects the relationship between governance and financial distress is supported by several corporate governance and ownership variables in emerging markets. Country-level investor protection has significant impacts on the relationship between governance (specifically, INDEP, BLOCK, and STRAT) and financial distress. When country-level investor protection is high, board independence, total blockholders (also as a proxy of ownership concentration), and strategic investor blockholders have increasing effects on financial distress. For the countries with low investor protection, these effects are inexistent. Moreover, the effects of board independence and strategic investor blockholders are the reverse of what we find for the DM countries, suggesting that the contradictory and insignificant findings in the previous section could be explained by the country-level investor protection differences. In particular, these findings suggest that level of country investor protection has a significant impact on the relationship between governance and financial distress in emerging markets.

Like the finding in the global sample and the DM sub-sample, country-level shareholder protection helps explain the mixed results on the relationship between firm size and financial distress in emerging market firms documented in the previous section. When country-level investor protection is high, larger EM firms have lower default probabilities; whereas, when investor protection is low, larger EM firms have indeed higher default probabilities. The macroeconomics of the country, namely the

overall investor protection levels, impact the relationship between firm size and financial distress.

4.3.3 Impact of country-level creditor rights

This second group of analyses follows a similar approach as in the previous section. I use the baseline regression described in Section 3.4 and apply it to the global sample and then to the DM and EM sub-samples. I separate each sample from yearly medians into low- and high-CREDIT groups and test three different models for each group. In total, six separate models are tested for each global, DM, and EM sample: three models for the low CREDIT group and three models for the high CREDIT group.

All models presented in this section have common post-regression tests, which have similar results. As is the case with the models in the previous section, for all models, Durbin-Watson statistics is around 2.0 and within the upper and lower bounds, suggesting that the models do not suffer from autocorrelation. Residuals are normally distributed. The f-stat probability of all models is 0.0000. The variance inflation factors for each variable in each model are close to 1, indicating no multicollinearity. All these post-regression tests indicate that the regressions do not suffer major modeling issues.

The models have DD as the continuous dependent variable and corporate governance, ownership, lagged DD, control variables, and firm- and period-fixed effects as explanatory variables. A similar three layers approach as in the previous sections is adopted, i.e., ownership variables are tested in three separate sets: total blockholders, blockholder types (institutional and strategic blockholders), and

blockholder sub-types (investment manager/hedge fund, corporation, and individual blockholders). The results are presented and discussed in the following parts.

4.3.3.1 Global sample

Initially, I use the entire sample to test hypothesis 13 that country-level creditor rights affect the relationship between governance and financial distress. The global sample consists of all 50 countries in DM and EM. Six separate models are tested in an incremental approach as described previously. The results of the regressions are in Table 29. The dependent variable in all six models is the distance to default (DD), which is a continuous and reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress, and a positive sign indicates vice versa. All models include lagged DD, the entire set of control variables, a constant, and firm- and period-fixed effects. R-squared and adjusted r-squared figures are reported below each model.

Results in Table 29 disclose several significant impacts of CREDIT on the relations between firm-level governance mechanisms and financial distress. Before studying these results and discussing whether they support hypothesis 13, I review the control variables to see if their signs and significance are meaningful. In all models, the control variables have significant coefficients and signs. The coefficients and standard errors for ROA, LEV, BETA, EXCESS, TOBIN, and AGE are similar in each high- and low-CREDIT group. These results are also comparable with the results in previous analyses, indicating that country-level creditor rights do not have a significant impact on control variables as determinants of financial distress. However, TA has statistically significant and negative coefficients in the low-CREDIT models, while it has insignificant coefficients in the high-CREDIT

Table 29. Impact of Country-Level Creditor Rights: Global Sample

	Low Creditor Rights			High Creditor Rights		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.034***	-0.034***	-0.034***	-0.023**	-0.025**	-0.024**
	(0.012)	(0.013)	(0.013)	(0.01)	(0.01)	(0.01)
INDEP	0.094	0.117	0.13	0.022	0.071	0.085
	(0.208)	(0.209)	(0.209)	(0.139)	(0.139)	(0.139)
DUAL	-0.085	-0.084	-0.085	-0.029	-0.037	-0.039
	(0.071)	(0.071)	(0.071)	(0.051)	(0.051)	(0.051)
SHSCORE	-0.027	-0.029	-0.023	-0.112	-0.097	-0.096
	(0.114)	(0.114)	(0.114)	(0.07)	(0.07)	(0.07)
BLOCK	-0.103			-0.527***		
	(0.237)			(0.136)		
INST		-0.74*			-1.04***	
		(0.387)			(0.161)	
STRAT		0.137			0.357*	
		(0.268)			(0.204)	
HEDG			-0.858**			-1.118***
			(0.428)			(0.169)
CORP			0.054			0.433*
			(0.292)			(0.224)
INDV			0.936*			1.048***
			(0.54)			(0.352)
LAG.DD	-0.105***	-0.103***	-0.103***	-0.054***	-0.054***	-0.054***
	(0.01)	(0.01)	(0.01)	(0.006)	(0.006)	(0.006)
ROA	2.348***	1.753***	1.736***	2.658***	2.656***	2.66***
	(0.433)	(0.426)	(0.426)	(0.182)	(0.181)	(0.181)
LEV	-9.307***	-9.254***	-9.254***	-8.276***	-8.271***	-8.274***
	(0.31)	(0.308)	(0.308)	(0.14)	(0.14)	(0.14)
BETA	-0.742***	-0.729***	-0.729***	-0.452***	-0.451***	-0.451***
	(0.03)	(0.03)	(0.03)	(0.013)	(0.013)	(0.013)
EXCESS	-1.628***	-1.606***	-1.611***	-1.38***	-1.385***	-1.387***
	(0.08)	(0.08)	(0.08)	(0.045)	(0.045)	(0.045)
TOBIN	2.718***	2.766***	2.769***	2.501***	2.489***	2.49***
	(0.097)	(0.098)	(0.097)	(0.05)	(0.05)	(0.05)
TA	-0.355***	-0.365***	-0.363***	0.03	0.03	0.031
	(0.083)	(0.081)	(0.081)	(0.042)	(0.042)	(0.042)
AGE	0.189**	0.185**	0.184**	0.16***	0.156***	0.154***
	(0.082)	(0.083)	(0.082)	(0.044)	(0.044)	(0.044)
C	15.288***	15.405***	15.36***	7.831***	7.778***	7.725***
	(1.325)	(1.297)	(1.296)	(0.643)	(0.642)	(0.642)
R2	0.737	0.735	0.735	0.688	0.688	0.688
Adj.R2	0.678	0.675	0.675	0.627	0.627	0.628
Firms	2014	2014	2014	5163	5163	5163
Firm Years	11123	11123	11123	31859	31859	31859

This table presents the results of panel data regression models testing the impact of country-level creditor rights on the relationship between governance and financial distress in the global sample. Low Creditor Rights are defined as CREDIT less than the median value (Models 1, 2, and 3) and High Creditor Rights as higher than the median (Models 4, 5, and 6). The dependent variable is Distance to Default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

models.[30] Previously I found that TA has no significant impact on financial distress in DM. Next, I found that the impact of country-level investor protection partially explains these mixed results. Now I find that country-level creditor rights also affect

[30] This result is also existent in DM and EM sub-sample as I will discuss in the following sub-parts.

the relationship between total assets and financial distress. In low-CREDIT countries, TA, as a proxy for firm size, has a negative effect on DD, indicating that when creditor rights are low, firm size has an increasing effect on financial distress. On the other hand, in the high-CREDIT group, TA does not affect DD. When the country-level creditor rights are high, the total asset does not influence financial distress.

Several significant results for corporate governance attributes documented in the low- and high-PROT groups are inexistent in Table 29. INDEP, DUAL, and SHSCORE are insignificant for both high- and low-CREDIT groups. Apart from these insignificant results, SIZE is significant in both low and high groups. All these findings indicate that country creditor rights have no impact on the relation between firm governance attributes and financial distress.

On the other hand, Table 29 reveals several significant results for ownership variables. The findings suggest that BLOCK is negatively associated with DD in the high-CREDIT group, indicating that when the country has high levels of creditor rights, total blockholders have an increasing effect on financial distress. This result is similar to the results of the PROT groups. Following the approaches in the previous sets of analyses, I replace BLOCK with the total holdings of the top 10, top 5, and top 3 shareholders, which are other proxies for ownership concentration. However, the results do not change.

In both low- and high-CREDIT groups, INST is significantly and negatively associated with DD. This result indicates that high institutional blockholding has a deteriorating impact on the financial health of the firm regardless of the level of country creditor rights. The same result is also found for HEDG, the sub-type of institutional investors: as the investment advisor/hedge fund blockholding increases,

the financial distress of the firm increases in the global sample irrespective of the level of creditor rights.

Moreover, findings in Table 29 document a weak positive relation between STRAT and DD when the country's creditor rights are high. Strategic investors have a decreasing effect on financial distress in the global sample when the creditors are highly protected. As for the sub-types of strategic blockholders, CORP is also weakly positively related to DD when CREDIT is high. On the other hand, INDV is positively and significantly related to DD in both low- and high-PROT groups. Regardless of country creditor rights, individual investors have a decreasing effect on financial distress in the global sample.

Overall, hypothesis 13 that country-level creditor rights affect the relationship between governance and financial distress is supported for several ownership variables (specifically, BLOCK, STRAT, and CORP), but not for corporate governance variables, in the global sample. When creditor rights are high, total blockholders (also as a proxy of ownership concentration) have an increasing effect; strategic entity and corporation blockholders have a decreasing effect on financial distress. For the countries with low creditor rights, these effects do not exist.

Furthermore, the findings suggest that country-level creditor rights affect the relationship between total assets and financial distress. When country creditor rights are low, larger firms have higher default probabilities, whereas, when creditor rights are high, firm size has no impact on financial distress. A country’s level of creditor rights affects the relationship between firm size and financial distress.

4.3.3.2 Developed markets

After the models are tested in the global sample, I first start with the DM sub-sample. To investigate the effects of country creditor rights on the relationship between governance and financial distress and to test hypothesis 13 for the developed markets, I run the same models for the DM sub-sample of 23 countries. Like the approach for the global sample, six separate models are tested. The results of the regressions are in Table 30. Again, all models follow the same baseline model for two groups: low creditor rights and high creditor rights, which are separated by the yearly median values.

Comparable to the findings in the global sample, control variables have significant results in the DM sub-sample. Coefficients and standard errors for ROA, LEV, BETA, EXCESS, TOBIN, and AGE are similar in high- and low-PROT models. Again, TA is an exception among the control variables. Total asset is statistically significant in the low-CREDIT but insignificant in the high-CREDIT group. When the creditor rights are low, firm size has an increasing effect on financial distress; however, this relation is inexistent in the group with high creditor rights. This finding is analogous to the result in the global sample.

The findings on the governance attributes are comparable to the results in the global sample. INDEP, DUAL, and SHSCORE are insignificant for both high- and low-CREDIT groups. Besides these insignificant results, SIZE is significant in both low and high groups. All these findings indicate that country creditor rights have no impact on the relationship between firm-level governance and financial distress in developed markets.

Apart from the insignificant findings for the corporate governance variables, Table 30 shows that all ownership variables have significant results in the high-

Table 30. Impact of Country-Level Creditor Rights: DM Sample

	Low Creditor Rights			High Creditor Rights		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.027*	-0.027*	-0.027*	-0.024**	-0.025**	-0.025**
	(0.014)	(0.014)	(0.014)	(0.011)	(0.011)	(0.011)
INDEP	0.146	0.148	0.156	0.116	0.183	0.182
	(0.236)	(0.237)	(0.236)	(0.143)	(0.143)	(0.143)
DUAL	-0.08	-0.08	-0.08	-0.038	-0.046	-0.048
	(0.077)	(0.077)	(0.077)	(0.053)	(0.053)	(0.053)
SHSCORE	0.008	0.008	0.007	-0.078	-0.057	-0.059
	(0.129)	(0.129)	(0.129)	(0.073)	(0.073)	(0.073)
BLOCK	0.096			-0.487***		
	(0.276)			(0.139)		
INST		-0.094			-1.038***	
		(0.427)			(0.163)	
STRAT		0.168			0.594***	
		(0.319)			(0.217)	
HEDG			0.04			-1.112***
			(0.473)			(0.17)
CORP			0.042			0.429*
			(0.369)			(0.242)
INDV			0.62			1.162***
			(0.614)			(0.38)
LAG.DD	-0.084***	-0.084***	-0.084***	-0.049***	-0.05***	-0.05***
	(0.012)	(0.012)	(0.012)	(0.006)	(0.006)	(0.006)
ROA	3.162***	3.165***	3.152***	2.552***	2.548***	2.549***
	(0.549)	(0.549)	(0.549)	(0.184)	(0.184)	(0.184)
LEV	-9.749***	-9.75***	-9.751***	-8.253***	-8.254***	-8.258***
	(0.387)	(0.387)	(0.387)	(0.143)	(0.143)	(0.143)
BETA	-0.835***	-0.835***	-0.836***	-0.441***	-0.44***	-0.44***
	(0.037)	(0.037)	(0.037)	(0.014)	(0.014)	(0.014)
EXCESS	-1.464***	-1.464***	-1.464***	-1.311***	-1.318***	-1.319***
	(0.101)	(0.101)	(0.101)	(0.046)	(0.046)	(0.046)
TOBIN	2.332***	2.333***	2.332***	2.463***	2.452***	2.451***
	(0.122)	(0.122)	(0.121)	(0.052)	(0.052)	(0.051)
TA	-0.338***	-0.336***	-0.335***	0.042	0.044	0.044
	(0.103)	(0.103)	(0.103)	(0.043)	(0.043)	(0.043)
AGE	0.098	0.097	0.096	0.162***	0.158***	0.156***
	(0.099)	(0.099)	(0.099)	(0.045)	(0.045)	(0.045)
C	15.692***	15.673***	15.664***	7.501***	7.428***	7.436***
	(1.652)	(1.653)	(1.649)	(0.658)	(0.657)	(0.658)
R2	0.774	0.774	0.774	0.686	0.687	0.687
Adj.R2	0.729	0.729	0.729	0.627	0.628	0.628
Firms	1108	1108	1108	4546	4546	4546
Firm Years	6789	6789	6789	28877	28877	28877

This table presents the results of panel data regression models testing the impact of country-level creditor rights on the relationship between governance and financial distress in the DM sample. Low Creditor Rights are defined as CREDIT less than the median value (Models 1, 2, and 3) and High Creditor Rights as higher than the median (Models 4, 5, and 6). The dependent variable is the distance to default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

CREDIT sample. The findings indicate that BLOCK is negatively associated with DD in the high-CREDIT group, indicating that when the DM country has high levels of creditor rights, total blockholders have an increasing effect on financial distress.

This result is also valid when I replace BLOCK with other ownership concentration variables as described in the previous sections.

The global sample showed no significant impact of country creditor rights on the relation between INST/HEDG and DD in Table 29. However, for the DM sub-sample in Table 30, INST, and its sub-type of HEDG are significantly and negatively associated with DD in the high-CREDIT group. The results indicate that high institutional blockholding (and high investment advisor/hedge fund blockholding) has an increasing effect on financial distress in the DM countries where creditor rights are high.

In the previous analyses of the global sample, STRAT is found to be weakly related to DD in the high-CREDIT group. In the DM sub-sample, though, this relation is existent strongly at 1%. Increased levels of strategic blockholders are associated with decreased financial distress in the DM countries where creditor rights are high. When creditor rights are low, no such relation exists. Investigating the strategic blockholders sub-types we see that CORP and INDV are significantly positively related to DD in high-CREDIT groups. Although creditor rights do not affect the relationship between individual blockholders and financial distress in the global sample, they significantly affect this relationship in the developed markets.

Overall, hypothesis 13 that country-level creditor rights affect the relationship between governance and financial distress is supported for all ownership variables, but not for corporate governance variables, in the developed market sample. When creditor rights are high, total blockholders (also as a proxy of ownership concentration), institutional blockholders, and their sub-type of investment advisor/hedge funds have increasing effects; strategic entity blockholders and their sub-type of corporation blockholders and individual blockholders have decreasing

effects on financial distress. For the countries with low creditor rights, these relationships do not exist.

Furthermore, the findings suggest that country-level creditor rights affect the relationship between total assets and financial distress in the DM sample. When country creditor rights are low, larger firms have higher default probabilities, whereas, when creditor rights are high, firm size has no impact on financial distress. The country's level of creditor rights affects the relationship between firm size and financial distress in DM.

4.3.3.3 Emerging markets

As the final sub-sample, I test hypothesis 13 and the effect of creditor rights on the relationship between governance and financial distress for emerging markets. I run the same baseline model for the EM sub-sample of 27 countries. Like the approach in the global sample and DM sub-sample, six separate models are tested. The results of the regressions are in Table 31. The dependent variable in all six models is DD. All models include lagged DD and all controls as explanatory variables, a constant, and firm- and period-fixed effects. R-squared and adjusted r-squared figures are presented below each model.

Most control variables have significant coefficients with comparable standard errors in both high- and low-PROT models. However, ROA turned out to be an insignificant determinant of DD in the low-CREDIT group. Moreover, AGE is insignificant in all six models. This result is expected because AGE is also insignificant in section 4.2.2.3 in the baseline regressions. As for TA, the results in the EM are analogous to the results in the global sample and the DM: firm size has an increasing effect on financial distress only when creditor rights are low.

Table 31. Impact of Country-Level Creditor Rights: EM Sample

	Low Creditor Rights			High Creditor Rights		
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.012	-0.012	-0.013	0.001	0.003	0.001
	(0.022)	(0.022)	(0.022)	(0.029)	(0.029)	(0.029)
INDEP	-0.119	-0.043	-0.045	-0.791	-0.776	-0.833
	(0.375)	(0.378)	(0.378)	(0.546)	(0.547)	(0.547)
DUAL	-0.134	-0.137	-0.137	0.021	0.027	0.013
	(0.146)	(0.147)	(0.147)	(0.188)	(0.188)	(0.188)
SHSCORE	-0.013	-0.018	0.022	-0.402	-0.387	-0.407
	(0.203)	(0.205)	(0.206)	(0.249)	(0.249)	(0.249)
BLOCK	-0.519			-0.544		
	(0.414)			(0.572)		
INST		-1.705**			-0.02	
		(0.735)			(0.932)	
STRAT		-0.161			-0.823	
		(0.451)			(0.621)	
HEDG			-1.864**			-0.638
			(0.809)			(1.211)
CORP			-0.413			0.67
			(0.455)			(0.608)
INDV			1.217			0.529
			(0.983)			(0.973)
LAG.DD	-0.097***	-0.094***	-0.095***	-0.092***	-0.092***	-0.092***
	(0.016)	(0.016)	(0.016)	(0.019)	(0.019)	(0.019)
ROA	1.231*	0.197	0.209	4.485***	4.466***	4.535***
	(0.67)	(0.647)	(0.647)	(0.955)	(0.956)	(0.959)
LEV	-9.743***	-9.744***	-9.711***	-7.869***	-7.903***	-7.69***
	(0.498)	(0.496)	(0.496)	(0.683)	(0.684)	(0.683)
BETA	-0.595***	-0.573***	-0.573***	-0.552***	-0.553***	-0.55***
	(0.048)	(0.048)	(0.048)	(0.055)	(0.055)	(0.055)
EXCESS	-2.045***	-1.986***	-2.005***	-2.114***	-2.115***	-2.128***
	(0.127)	(0.128)	(0.129)	(0.164)	(0.164)	(0.164)
TOBIN	3.857***	3.927***	3.935***	3.061***	3.075***	3.06***
	(0.171)	(0.172)	(0.172)	(0.211)	(0.212)	(0.213)
TA	-0.396***	-0.41***	-0.402***	-0.054	-0.047	-0.062
	(0.135)	(0.128)	(0.129)	(0.176)	(0.177)	(0.178)
AGE	0.064	0.061	0.062	0.114	0.116	0.11
	(0.135)	(0.137)	(0.137)	(0.189)	(0.189)	(0.189)
C	15.754***	15.905***	15.725***	9.659***	9.599***	9.262***
	(2.149)	(2.06)	(2.061)	(2.84)	(2.841)	(2.854)
R2	0.720	0.716	0.716	0.719	0.719	0.719
Adj.R2	0.644	0.638	0.638	0.642	0.642	0.642
Firms	906	906	906	617	617	617
Firm Years	4334	4334	4334	2982	2982	2982

This table presents the results of panel data regression models testing the impact of country-level creditor rights on the relationship between governance and financial distress in the EM sample. Low Creditor Rights are defined as CREDIT less than the median value (Models 1, 2, and 3) and High Creditor Rights as higher than the median (Models 4, 5, and 6). The dependent variable is the distance to default (DD), which is a reverse measure of financial distress. A negative sign of an explanatory variable indicates an increasing effect on financial distress and a positive sign indicates vice versa. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

All corporate governance attributes and ownership variables other than INST and HEDG have insignificant coefficients in both low- and high-CREDIT groups. INST is significantly and negatively associated with DD when creditor rights are low. Interestingly, this finding is the opposite of what is found in the developed

markets, where a negative association is existent when creditor rights are high. In emerging markets, high institutional blockholding has an increasing effect on financial distress if the level of country creditor rights is low. The same result also exists for HEDG, the sub-type of institutional investors. Investment advisor/hedge fund blockholding is associated with increased financial distress when the level of creditor rights is low. Overall, hypothesis 13 that country-level creditor rights affect the relationship between governance and financial distress is supported only for institutional blockholders and their sub-type, in the emerging market sample.

4.3.4 Summary of findings

This section examines the impact of macroeconomic governance factors on the relation between firm-level governance and financial distress in the global sample, developed markets, and emerging markets separately. Global, DM, and EM samples are separated at the yearly medians of Protecting Minority Investors Score (PROT) and Getting Credit Score (CREDIT), which enabled us to test the impact of different macroeconomic governance factors on the relationship between firm-level governance and financial distress.

First, I analyze the means of PROT and CREDIT, showing that for both scores, DM countries have higher averages as compared to EM countries. While DM countries have an average PROT of 71.1 and CREDIT of 79.1, EM countries have average scores of 67.3 and 58.6, respectively. However, this difference is not uniform across countries; some DM countries are worse at investor protection and creditor rights, whereas some EM countries are better at investor protection and creditor rights. This variation within each market substantiates the rationale of grouping the country years into high and low PROT and CREDIT split samples.

Next, I analyze the mean differences in corporate governance and ownership variables between high and low PROT and CREDIT split samples. When PROT is higher than the median (as compared to the low median group); board size is smaller in DM but greater in EM, board independence is higher in both DM and EM, CEO duality is higher in DM but lower in EM, and shareholder score is greater in both DM and EM. When CREDIT is higher than the median; board size is smaller in DM but greater in EM, board independence is higher in both DM and EM, CEO duality is higher in both DM and EM, and shareholder score is greater in both DM and EM.

In terms of ownership variables, when PROT is above the median (as compared to the low median group); total blockholders, as also the proxy for ownership concentration, are more dominant in both DM and EM, institutional investor blockholders and their sub-type of investment advisor/hedge fund blockholders are more dominant in both DM and EM, strategic entity blockholders and their sub-types of corporation blockholders and individual blockholders are less dominant in both DM and EM samples. To be precise, institutional blockholders dominate in countries where investor protection is high, whereas strategic blockholders dominate when investor protection is low. When CREDIT is above the median, similar relationships for total blockholders and institutional investors exist; they are more dominant in DM and EM as compared to the below-median group. On the other hand, strategic entity blockholders and their sub-types are more dominant in DM when CREDIT is below the median but more dominant in EM when CREDIT is above the median. In other words, strategic entities in DM dominate when creditor rights are low, whereas in EM they dominate when creditor rights are high.

Following the analysis of means, I investigate the impacts of country-level investor protection and creditor rights on the relation between firm-level governance

attributes and financial distress. I separate the firm-years at yearly medians into low- and high-PROT groups to test the effect of country investor protection (hypothesis 12), and into low- and high-CREDIT groups to test the effect of country creditor rights (hypothesis 13). The findings suggest that macroeconomic governance factors have a significant influence on the governance-distress relationship. Summary findings related to the impact of investor protection are provided in Table 32 and findings related to the impact of country creditor rights are in Table 33.

Table 32. Summary Findings: Impact of Country Investor Protection

Panel A: Hypothesis 12 and Findings

Hypothesis Tested	GLOBAL	DM	EM
H12: Country investor protection affects the governance – financial distress relationships	Supported for DUAL, SHSCORE, BLOCK, INST, and INDV	Supported for SIZE, INDEP, DUAL, BLOCK, INST, and STRAT	Supported for INDEP, BLOCK, and STRAT

Panel B: Details of Relationships in Low and High PROT Groups

	GLOBAL		DM		EM	
Details of Relationships	Low	High	Low	High	Low	High
SIZE effect on FD	+ **	+ ***		+ **		
INDEP effect on FD				- *		+ *
DUAL effect on FD	+ **		+ **			
SHSCORE effect on FD		+ **				
BLOCK effect on FD		+ ***		+ ***		+ **
INST effect on FD		+ ***		+ ***	+ *	+ **
HEDG effect on FD	+ **	+ ***	+ *	+ ***	+ *	+ *
STRAT effect on FD				- **		+ *
CORP effect on FD						
INDV effect on FD	- ***		- *	- *		
TA effect on FD	+ ***	- ***	+ ***	- ***	+ ***	- ***

This table provides a comparative review of the findings in part 4.3.2 by summarizing the results of the regression analyses that test the effect of country investor protection (PROT) on the relationship between firm-level governance and financial distress. Panel A summarizes hypothesis 12 and the findings for each sample group, namely the global sample, developed market (DM), and emerging market (EM) samples. The corporate governance and ownership variables for which hypothesis 12 is supported are indicated for each sample group. Panel B summarizes the findings of the split-sample analyses, which separate the country-years from the median PROT score into Low- and High-PROT groups. For each low and high group and under each sample group, the direction of relationships with financial distress followed by the significance of the relationships is listed. ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively.

Board size has an increasing effect on financial distress when country-level investor protection is high in the DM sample. In the global sample, the increasing

Table 33. Summary Findings: Impact of Country Creditor Rights

Panel A: Hypothesis 13 and Findings

Hypothesis Tested	GLOBAL	DM	EM
H13: CREDIT affects the governance – financial distress relationships	Supported for BLOCK, STRAT, and CORP	Supported for BLOCK, INST, HEDG, STRAT, CORP, and INDV	Supported for INST and HEDG

Panel B: Details of Relationships in Low and High CREDIT Groups

	GLOBAL		DM		EM	
Details of Relationships	Low	High	Low	High	Low	High
SIZE effect on FD	+ ***	+ **	+ *	+ **		
INDEP effect on FD						
DUAL effect on FD						
SHSCORE effect on FD						
BLOCK effect on FD		+ ***		+ ***		
INST effect on FD	+ *	+ ***		+ ***	+ **	
HEDG effect on FD	+ **	+ ***		+ ***	+ **	
STRAT effect on FD		- *		- ***		
CORP effect on FD		- *		- *		
INDV effect on FD	- *	- ***		- ***		
TA effect on FD	+ ***		+ ***		+ ***	

This table provides a comparative review of the findings in part 4.3.3 by summarizing the results of the regression analyses that test the effect of country creditor rights (CREDIT) on the relationship between firm-level governance and financial distress. Panel A summarizes hypothesis 13 and the findings for each sample group, namely the global sample, developed market (DM), and emerging market (EM) samples. The corporate governance and ownership variables for which hypothesis 13 is supported are indicated for each sample group. Panel B summarizes the findings of the split-sample analyses, which separate the country years from the median CREDIT score into Low- and High-CREDIT groups. For each low and high group and under each sample group, the direction of relationships with financial distress followed by the significance of the relationships is listed. ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively.

impact of SIZE is significant regardless of the level of country investor protection. On the other hand, SIZE is insignificant in both the low- and high-PROT groups.

The effect of board independence on financial distress in DM and EM is observed only when PROT is high. In the high-PROT DM countries, board independence has a decreasing effect on financial distress, and in the high-PROT EM countries, it has an increasing effect. This finding implies that the effect of independent directors on financial distress is influenced by macroeconomic factors such as country investor protection and the country being a part of DM or EM.

CEO duality has an increasing impact on financial distress in the global and DM samples when the country has lower investor protection levels. I find no

relationship in the EM sample. This result supports Jensen's (1993) argument that a dual CEO might lead the board to achieve personal gains at the cost of the financial wealth of the firm when the macroeconomic context of the country is unfavorable for minority investors. The effect of DUAL in EM is insignificant in both low- and high-PROT groups.

Previous analyses do not show a significant relationship between firm shareholder score and financial distress. However, when the macroeconomic factor of country investor protection is included in the global sample, the results suggest that firm-level shareholder score has an increasing impact on financial distress when country-level investor protection is high. This finding implies that when firm-level shareholder protection is coupled with country-level protection, i.e., when the investor protection is high in the country, hypothesis 5 that increased firm-level shareholder protection would lead to increased financial distress is supported for the global sample.

Total blockholders, also as a proxy for ownership concentration, have an increasing effect on financial distress when the level of investor protection is high. This result is valid for both the DM and the EM countries. As for the blockholder types, institutional blockholders have a deteriorating impact on the financial health of the firm when the country-level investor protection is high in the DM countries. In addition, previous results indicate that strategic entity blockholders have no significant effect on financial distress when the macroeconomic governance factors are not accounted for. However, the results in this section suggest that strategic blockholders indeed have a significant impact on financial distress when the country's investor protection is high. Yet, the direction of the relationship differs across markets. Strategic Blockholders, when investor protection is high, have a

decreasing effect on financial distress in the DM countries and an increasing effect in the EM. Overall, these results indicate that blockholders, particularly institutional and strategic blockholders, have an impact on the financial health of the firm when the country has sufficient investor protection levels. On the other hand, the impact of country-level investor protection is not observed for the blockholder sub-types, i.e., HEDG, CORP, and INDV.

As a result, hypothesis 12 is supported by many governance and ownership variables in each sample group. For the global sample, the hypothesis is supported by CEO duality, firm shareholders score, total blockholders, institutional blockholders, and individual blockholder. For the developed market sub-sample, the hypothesis is supported by board size, board independence, CEO duality, total blockholders, institutional blockholders, and strategic entity blockholders. For the emerging market sub-sample, the hypothesis is supported by board independence, total blockholders, and strategic entity blockholders.

In addition to the corporate governance and ownership variables, the results suggest an important spin-off finding related to the effect of firm size on financial distress. When macro-level investor protection is low, firm size has an increasing effect on financial distress: as the firm grows, so does its probability of default. On the other hand, when investor protection is high, firm size has a decreasing effect on financial distress. This relation is valid for both the DM and EM samples. The finding suggests that firm size might indeed lead to increased financial distress if the country's investor protection level is low.

In the final part of this section, I analyze the impact of country-level creditor rights on the relationship between firm-level governance attributes and financial distress. The summary findings are in Table 33.

Results suggest that country creditor rights have a significant impact on the relationship between ownership variables and financial distress. On the other hand, as opposed to country-level investor protection, creditor rights do not have a significant impact on the relationship between corporate governance variables (i.e., the board size, board independence, CEO duality, and shareholder score) and financial distress.

All ownership variables in the global sample and the DM sample have significant effects on financial distress when country creditor rights are high. Total blockholders have an increasing effect on financial distress when the level of creditor rights is high. This result is valid for the global and the DM samples, but not for the EM firms.

Previous analyses suggest that institutional investors have a deteriorating impact on the financial health of the firm in both the DM and the EM countries. The findings in Table 33 suggest that this relationship is affected by the level of country creditor rights. In DM, institutional blockholders have an increasing effect on financial distress when CREDIT is high. On the other hand, in EM, this effect exists only when CREDIT is low. The same relationships in DM and EM are found with HEDG, the sub-type of institutional blockholders.

The results also suggest that strategic blockholders, including the sub-types of corporations and individuals, have a decreasing impact on financial distress in the DM when the county-level creditor rights are high. The same relationships for these ownership variables are also observed in the global sample, except for individual blockholders, who have a significant impact on financial distress in both the low and high groups. We can conclude that higher creditor rights are required for the

decreasing effect of strategic investors on the financial health of the firm in the DM firms.

The similar spin-off finding that we document in the low PROT group related to firm size is valid for the countries with low creditor rights, in which firm size has an increasing impact on financial distress. In the high CREDIT group, no relation between firm size and financial distress is observed.

4.4 Impact of distress duration

This section tests hypothesis 14 and analyzes the effect of financial distress duration on the relationship between governance and financial distress. The question this section attempts to answer is whether the effect of firm-level corporate governance mechanisms on financial distress changes as the firm fails to recover for extended financial distress periods.

I define distress duration as the number of years spent after entering financial distress. First, I convert the financial distress probabilities (PD) into a dichotomous variable that separates each firm year as healthy or distressed. I utilize an econometrics-driven approach, specifically the PD implied rating (PDiR) mapping of Duan & Li (2021), to create the binary financial distress variable, from which distress duration is calculated. Next, I test the impact of distress duration on financial distress and the governance-distress relation. The analyses are done in six separate models for each of the global, DM, and EM samples. Finally, I analyze the distressed firms through their distress durations by taking the firms at their 3rd year of distress and tracing back until their last healthy year. A total of 514 (414 DM and 100 EM) firms are identified and analyzed.

4.4.1 Mapping of default probabilities

In the previous analyses, I use Distance to Default (DD) as the continuous dependent variable that captures how far away the firm is from default in one year. Using the cumulative normal distribution, DD is converted into the probability of default (PD) to assign each firm-year default probability. For duration analysis, we need a dependent variable that captures the duration the firm stayed financially distressed. Nevertheless, how much distance to default or what level of default probability should be sufficient to consider a firm as financially distressed? Neither DD nor PD answers this question or serves the purpose of dichotomously separating distressed firms from healthy firms. Therefore, before examining the impact of financial distress duration, we first need to set an unbiased threshold that can group the firm years as distressed and healthy. The main problem is to find the appropriate default probability cutoff that objectively reflects the proper threshold.

A review of the literature unveils that there are several approaches to classify default probabilities dichotomously into distressed and healthy groups. For instance, Iliev et al. (2021) consider a firm distressed if the PD level is above the 90th percentile. On the other hand, Gao et al. (2018) create deciles and classify firms into high and low default frequency groups, comparing firms in decile 10 with those in decile 1 to investigate the group differences between financially distressed and healthy firms. However, these approaches are arbitrary and do not have a data-driven basis.

Acknowledging previous practices in the literature, I do not arbitrarily categorize firms; rather, I take an empirical approach and follow the PD implied rating (PDiR) mapping of Duan & Li (2021). Using the forward intensity model, the authors utilize the large database of Credit Research Initiative (CRI) and match S&P

ratings with one-year PDs including buffer zones.[31] One-year PD mapping with S&P ratings and letter grade explanations are in Table 34.

Table 34. One-Year Probability of Default Mapping for S&P Ratings

S&P Rating	Explanation	lb (bps)	ub (bps)
AAA	Highest rating. Extremely strong capacity to meet financial commitments	0	0.0035
AA	Very strong capacity to meet financial commitments	0.0035	0.4069
A	Strong capacity to meet financial commitments, but somewhat susceptible to adverse economic conditions and changes in circumstances	0.4069	3.9506
BBB	Adequate capacity to meet financial commitments, but more subject to adverse economic conditions	3.9506	28.1227
BB	Less vulnerable in the near term but faces major ongoing uncertainties to adverse business, financial and economic conditions	28.1227	100.4544
B	More vulnerable to adverse business, financial, and economic conditions but currently can meet financial commitments	100.4544	1126.8589
CCC	Currently vulnerable and dependent on favorable business, financial and economic conditions to meet financial commitments	1126.8589	3142.9287
CC	Highly vulnerable; default has not yet occurred, but is expected to be a virtual certainty	3142.9287	8370.6423
C	Currently highly vulnerable to non-payment, and ultimate recovery is expected to be lower than that of higher-rated obligations	8370.6423	10000

This table shows the mapping of the one-year probability of default against Standard and Poor's (S&P) ratings. Rating explanations are taken verbatim from https://www.spglobal.com/ratings/en/about/ intro-to-credit-ratings. Lower bound (lb) and upper bound (ub) basis points (bps) mapping probabilities are adapted from Duan & Li (2021).

This mapping technique provides valuable insights into how to separate financially distressed firms from healthy ones. S&P considers ratings from AAA to BBB as investment grade and below BB as speculative grade, in which vulnerability to market and business conditions increases. Below CCC, the firm is already in hardship and dependent on favorable conditions to meet financial obligations. Accordingly, I classify a firm-year as financially distressed if the probability of default in the fiscal year is in the CCC category or below (i.e., 11.268589% or above

[31] Forward intensity model is due to Duan et al. (2012). Credit Research Initiative (CRI) at National University of Singapore (NUS) covers 133 economies with over 70,000 exchange-listed firms. The sample the authors use is all the exchange-listed firms for the period between the years 2000 and 2017, which is sufficiently representative of the sample of this study.

PD). All the firm-years with an investment grade equivalent PD are classified as non-distressed (PD up to 0.281227%). BB and B credit rating equivalent PDs (between 0.281227% - 11.268589%) are regarded as gray and classified neither as distressed nor as healthy. This gray group is excluded from the analysis to clean up the potential "noise" in the classification. Such grouping categorized 73.3% of all firm-years as healthy (73.1% of DM, 74.5% of EM), 19.6% of firm-years as distressed (19.8% of DM, 19% of EM), and 7.1% of firm-years as gray (7% of DM and 6.5% of EM). Moreover, this grouping has a balanced distribution across sectors as shown in Table 35.

Table 35. Financially Healthy, Distressed, and Gray Firm-Years across Sectors

	Developed Markets				Emerging Markets			
Economic Sector	Healthy	Distressed	Gray	Total	Healthy	Distressed	Gray	Total
Energy	2191	845	262	3298	564	152	46	762
Basic Materials	3530	1045	401	4976	994	252	86	1332
Industrials	5406	1604	600	7610	841	423	113	1377
Consumer Cyclicals	5165	1650	530	7345	899	168	64	1131
Consumer Non-Cyclicals	2543	522	215	3280	916	152	73	1141
Healthcare	2856	596	241	3693	319	23	17	359
Technology	4125	920	329	5374	1054	257	94	1405
Utilities	1428	349	139	1916	497	110	42	649
Real Estate	2690	584	185	3459	367	111	31	509
Other	221	46	29	296	32	5	1	38
Total	30155	8161	2931	41247	6483	1653	567	8703

This table summarizes the number of firm years mapped into three categories: healthy, distressed, and gray across economic sectors and markets.

4.4.2 Financial distress duration and results of analyses

I define financial distress duration (DURA) as the number of consecutive firm-years the firm remains distressed. I assign 0 to the firm-years that have a PD value lower than 0.281227% and assign 1 to the first year the PD increases above 11.268589%. If the firm remains distressed in the following year, I assign 2 to this firm year, indicating the second year of distress, and so on. If the firm becomes healthy after being distressed, i.e., PD falls below 0.281227%, I assign 0 to this firm-year. If the

PD increases again above 11.268589%, I assign 1 to this firm year, starting the distress duration counter again. If the firm-year is in the gray area, I exclude that firm year by not assigning either 1 or 0. The firm-year following a gray year either remains gray or is assigned 1 if in the distress zone and 0 if in the healthy zone.

To assign the financial distress duration of each sample year starting from 2006, I extend the distress calculation window until as early as 1999. This extended sample year enables me to assign the correct distress duration, especially to the first few sample periods. For instance, firm-years in 2006 include distress duration up to 7 years, meaning 2000, as the first year of distress, is considered even though the year is before the sample period of this study.

Initial assignment reveals that some firms are suffering extended periods of financial distress, as much as 12 firm years in one extreme case. Since these periods are limited in number and behave as outliers, I winsorize distress duration at the 99th percentile, which is 4 years. Table 36 summarizes the initial and winsorized financial distress durations and counts of firm-years in developed and emerging markets.

To test the impact of financial distress duration on the relationship between governance and financial distress, I first include DURA in the baseline regression as a stand-alone explanatory variable and next include it in interaction with corporate governance and ownership variables. Like the models in the previous sections, the models tested in this section include firm- and period-fixed effects, lagged dependent variables, and control variables. This section estimates and reports six separate models for the global sample and each market sub-sample. The first three models for each sample group test the direct impact of duration, without interaction terms. The last three models test the interaction of distress duration with each corporate governance and ownership variable.

Table 36. Financial Distress Duration across DM and EM Firm-Years

Distress	Developed Market		Emerging Market		Total	
Duration	Initial	Winsorized	Initial	Winsorized	Initial	Winsorized
0	30155	30155	6483	6483	36638	36638
1	5255	5255	1104	1104	6359	6359
2	1846	1846	320	320	2166	2166
3	587	587	139	139	726	726
4	250	473	59	90	309	563
5	123		20		143	
6	52		4		56	
7	24		3		27	
8	10		3		13	
9	7		1		8	
10	4				4	
11	2				2	
12	1				1	
Gray	2931	2931	567	567	3498	3498
Total	41247	41247	8703	8703	49950	49950

This table shows the initial and winsorized financial distress durations and counts of firm-years for developed and emerging markets. Financial distress duration (DURA) is defined as the number of consecutive firm years the firm remained distressed, i.e., below the mapped probability of default implied ratings as in Table 34.

4.4.2.1 Global sample

First, I use the entire sample to test hypothesis 14 that distress duration affects the relationship between governance and financial distress. The findings of regression analyses for the global sample are in Table 37. The first three models test the direct effect of distress duration on financial distress. In all three models, DURA is significantly and negatively related to DD, suggesting that the duration of financial distress significantly and positively affects the probability of distress. As the firm remains distressed for consecutive years, it is likely to have an increased level of financial distress in the following year. This result is parallel to the findings of Gao et al. (2018).

The last three models in Table 37 include distress duration interaction with each corporate governance and ownership variable. In these three models, the DURA variable is also significantly and negatively related to DD, indicating the effect of distress duration is existent even with the presence of interaction terms. Besides the

Table 37. Results of Distress Duration Regressions: Global Sample

	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.017**	-0.018**	-0.018**	-0.017**	-0.018**	-0.018**
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)
INDEP	-0.013	0.019	0.03	0.015	0.051	0.063
	(0.109)	(0.109)	(0.109)	(0.111)	(0.112)	(0.112)
DUAL	-0.082**	-0.085**	-0.087**	-0.106***	-0.109***	-0.114***
	(0.039)	(0.039)	(0.039)	(0.041)	(0.041)	(0.041)
SHSCORE	-0.042	-0.031	-0.027	-0.079	-0.069	-0.067
	(0.057)	(0.057)	(0.057)	(0.059)	(0.059)	(0.059)
BLOCK	-0.234**			-0.172		
	(0.112)			(0.117)		
INST		-0.745***			-0.718***	
		(0.141)			(0.151)	
STRAT		0.381**			0.458***	
		(0.154)			(0.159)	
HEDG			-0.777***			-0.806***
			(0.149)			(0.159)
CORP			0.413**			0.401**
			(0.167)			(0.174)
INDV			1.158***			1.305***
			(0.281)			(0.287)
DURA	-1.577***	-1.58***	-1.579***	-1.567***	-1.583***	-1.629***
	(0.019)	(0.019)	(0.019)	(0.082)	(0.082)	(0.081)
DURA x SIZE				-0.001	0	0
				(0.005)	(0.005)	(0.005)
DURA x INDEP				-0.08	-0.093	-0.086
				(0.065)	(0.071)	(0.071)
DURA x DUAL				0.066**	0.065*	0.075**
				(0.033)	(0.033)	(0.034)
DURA x SHSCORE				0.124**	0.125**	0.134**
				(0.056)	(0.056)	(0.056)
DURA x BLOCK				-0.127*		
				(0.072)		
DURA x INST					-0.067	
					(0.107)	
DURA x STRAT					-0.143*	
					(0.077)	
DURA x HEDG						0.061
						(0.111)
DURA x CORP						0.029
						(0.087)
DURA x INDV						-0.331**
						(0.145)
LAG.DD	-0.101***	-0.101***	-0.101***	-0.101***	-0.101***	-0.102***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ROA	1.569***	1.49***	1.491***	1.58***	1.498***	1.495***
	(0.162)	(0.161)	(0.161)	(0.162)	(0.161)	(0.161)
LEV	-6.537***	-6.518***	-6.523***	-6.533***	-6.512***	-6.517***
	(0.123)	(0.123)	(0.123)	(0.123)	(0.123)	(0.123)
BETA	-0.415***	-0.412***	-0.412***	-0.414***	-0.412***	-0.411***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
EXCESS	-0.911***	-0.91***	-0.913***	-0.91***	-0.909***	-0.912***
	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
TOBIN	1.821***	1.818***	1.819***	1.82***	1.816***	1.816***
	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)
TA	-0.201***	-0.203***	-0.2***	-0.205***	-0.207***	-0.202***
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
AGE	0.152***	0.15***	0.148***	0.153***	0.15***	0.148***
	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
C	11.44***	11.425***	11.345***	11.485***	11.474***	11.377***
	(0.542)	(0.539)	(0.539)	(0.544)	(0.541)	(0.541)
R2	0.744	0.744	0.744	0.744	0.744	0.744
Adj.R2	0.696	0.696	0.696	0.696	0.696	0.696
Firms	6270	6270	6270	6270	6270	6270
Firm Years	40021	40021	40021	40021	40021	40021

This table presents the results of panel data regression models testing the impact of financial distress duration (DURA) on the relationship between governance and financial distress in the global sample. The first three models test the direct impact of duration, without interaction terms. The last three models test the interaction of distress duration with all governance variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

direct effect of distress duration, the results suggest several significant interactions with DURA.

Previous analyses show that CEO Duality has an increasing effect on financial distress in the global sample. Analysis of macroeconomic factors revealed that the impact is more pronounced in countries where investor protection is lower than average. The results in Table 37 suggest that distress duration reverses this relation. The interaction of DURA x DUAL has a statistically significant and positive effect on the dependent variable DD. This finding suggests that as the firm remains distressed for increased durations, the negative impact of the dual CEO reverses and starts to have a favorable impact on the financial health of the firm.

Results in the previous chapters suggest that SHSCORE has an increasing effect on financial distress only when country-level investor protection is high. This result implies that increased firm-level shareholder rights, when coupled with high country-level investor protection, exaggerate shareholder-creditor conflict, leading to increased financial distress. However, in Table 37, the interaction of DURA x SHSCORE has a significantly positive effect on DD, signifying a decreasing effect on financial distress. This result implies that as the firm remains distressed for prolonged periods, firm shareholder rights become favorable for the financial health of the firm. In other words, as the firms remain financially distressed for several years, the agency conflict aspect of minority shareholder rights disperses, and these rights become more valuable in decreasing financial distress.

BLOCK in model (1) and DURA x BLOCK in model (4) are significantly negatively related to DD, suggesting that total blockholders have an increasing impact on financial distress no matter the duration of financial distress.

STRAT in model (2) and INDV in model (3) are significantly and positively related to DD. This finding is parallel to the findings in the previous analyses that strategic blockholders, particularly individual blockholders, have a decreasing effect on financial distress. However, when the interaction of DURA is included in modes (5) and (6), the positive effects of STRAT and INDV drive backward. As the distress duration increases, the favorable effects of STRAT and INDV become unfavorable in terms of the firm financial health. We can conclude that strategic entity and individual investor blockholders have an increasing impact on financial distress, as the firm remains distressed for multiple years.

Overall, hypothesis 13 that distress duration affects the relationship between governance and financial distress is supported by several corporate governance and ownership variables in the global sample. Specifically, DUAL, SHSCORE, BLOCK, STRAT, and INDV have significant interactions with DURA in the baseline regression. As the firm remains distressed for consecutive years, the negative impacts of DUAL and SHSCORE reverse and start to have a favorable impact on the financial health of the firm. On the other hand, as the distress duration increases, the favorable effects of STRAT and INDV become unfavorable in terms of the firm's financial health. Finally, BLOCK has an increasing impact on financial distress no matter the duration of financial distress. For all other corporate governance and ownership variables, the interaction variables have insignificant coefficients. This implies that previous findings for SIZE, INDEP, INST, HEDG, and CORP are also valid for global firms in financial distress for prolonged periods.

4.4.2.2 Developed markets

I use the DM sample to test hypothesis 14 that distress duration affects the relationship between governance and financial distress. The findings of regression analyses for the DM sample are in Table 38. The first three models test the direct effect of distress duration on financial distress. Like the findings in the global sample, in all three models, DURA is significantly and negatively related to DD, suggesting that the duration of distress has an increasing impact on the probability of default in the DM sample. This result is parallel to the findings of Gao et al. (2018). The last three models in Table 38 include distress duration interaction with each corporate governance and ownership variable for the DM sample. In these three models, DURA is also significantly and negatively related to DD, signifying that the effect of distress duration is significant even with the presence of interaction terms.

Besides the direct effect of distress duration, the results reveal several significant interactions for the DM sample. Findings in the previous chapters document that board independence reduces financial distress (increases distance to default) in developed markets, especially when country-level investor protection is high. Nevertheless, according to the results in Table 38, when firms continue to stay distressed through consecutive years, INDEP starts to have an increasing impact on financial distress. Independent boards of the financially distressed firms that remained distressed for prolonged periods are not successful in decreasing financial distress, contrarily, they increase the chances of default further.

The interaction of CEO duality with distress duration is very similar to the results in the global sample. Although CEO Duality has an increasing effect on financial distress in the DM sample, its interaction with distress duration reverses this

Table 38. Results of Distress Duration Regressions: DM Sample

	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.014*	-0.015*	-0.015*	-0.014*	-0.015*	-0.015*
	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)
INDEP	0.096	0.132	0.135	0.15	0.187	0.193
	(0.117)	(0.117)	(0.117)	(0.119)	(0.12)	(0.12)
DUAL	-0.092**	-0.094**	-0.097**	-0.118***	-0.122***	-0.125***
	(0.041)	(0.041)	(0.041)	(0.043)	(0.043)	(0.043)
SHSCORE	-0.018	-0.006	-0.006	-0.05	-0.037	-0.04
	(0.061)	(0.061)	(0.061)	(0.064)	(0.064)	(0.064)
BLOCK	-0.166			-0.112		
	(0.119)			(0.125)		
INST		-0.638***			-0.592***	
		(0.145)			(0.155)	
STRAT		0.522***			0.591***	
		(0.173)			(0.18)	
HEDG			-0.659***			-0.684***
			(0.152)			(0.162)
CORP			0.418**			0.391*
			(0.196)			(0.206)
INDV			1.171***			1.315***
			(0.317)			(0.326)
DURA	-1.57***	-1.571***	-1.57***	-1.531***	-1.535***	-1.577***
	(0.021)	(0.021)	(0.021)	(0.089)	(0.088)	(0.088)
DURA x SIZE				0	0	0.001
				(0.005)	(0.005)	(0.005)
DURA x INDEP				-0.147**	-0.148**	-0.158**
				(0.07)	(0.074)	(0.075)
DURA x DUAL				0.071**	0.073**	0.08**
				(0.036)	(0.036)	(0.036)
DURA x SHSCORE				0.108*	0.106*	0.116*
				(0.061)	(0.061)	(0.06)
DURA x BLOCK				-0.107		
				(0.081)		
DURA x INST					-0.1	
					(0.113)	
DURA x STRAT					-0.125	
					(0.089)	
DURA x HEDG						0.062
						(0.116)
DURA x CORP						0.048
						(0.108)
DURA x INDV						-0.279*
						(0.153)
LAG.DD	-0.099***	-0.1***	-0.1***	-0.1***	-0.1***	-0.1***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ROA	1.58***	1.571***	1.573***	1.584***	1.574***	1.57***
	(0.168)	(0.168)	(0.168)	(0.169)	(0.169)	(0.169)
LEV	-6.402***	-6.399***	-6.405***	-6.392***	-6.388***	-6.4***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
BETA	-0.397***	-0.396***	-0.396***	-0.396***	-0.396***	-0.395***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
EXCESS	-0.864***	-0.868***	-0.868***	-0.862***	-0.865***	-0.866***
	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
TOBIN	1.775***	1.766***	1.766***	1.772***	1.763***	1.761***
	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
TA	-0.156***	-0.154***	-0.153***	-0.161***	-0.159***	-0.155***
	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
AGE	0.147***	0.145***	0.144***	0.148***	0.146***	0.144***
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
C	10.537***	10.478***	10.452***	10.583***	10.526***	10.485***
	(0.573)	(0.572)	(0.572)	(0.575)	(0.574)	(0.574)
R2	0.748	0.748	0.748	0.748	0.748	0.748
Adj.R2	0.702	0.703	0.703	0.702	0.703	0.703
Firms	5074	5074	5074	5074	5074	5074
Firm Years	33191	33191	33191	33191	33191	33191

This table presents the results of panel data regression models testing the impact of financial distress duration (DURA) on the relationship between governance and financial distress in the DM sample. The first three models test the direct impact of duration, without interaction terms. The last three models test the interaction of distress duration with all governance variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

relation. This finding suggests that as the firm remains distressed for extended periods, the negative impact of dual CEO reverses.

Previous analyses find no relation between SHSCORE and financial distress in the DM countries. However, in Table 38, the interaction of DURA x SHSCORE has a significantly positive impact on DD, indicating a decreasing effect on financial distress. This result implies that as the firm remains distressed for prolonged periods, the agency conflict aspect of firm shareholder rights disperses, and indeed higher SHSCORE becomes favorable for the financial health of the firm. As the firms remain financially distressed for several years, minority shareholder rights become more valuable in terms of decreasing financial distress.

INDV in model 3 is significantly and positively related to DD. This finding is aligned with the findings in the previous analyses that individual blockholders have a decreasing effect on financial distress. However, when the interaction of DURA is included in model 6, the effect of individual blockholders reverses. As the distress duration increases, the influence of INDV becomes unfavorable for financial distress. Nevertheless, a similar relationship for STRAT, which we observe in the global sample, is inexistent in the DM sample.

Overall, hypothesis 13 that distress duration affects the relationship between governance and financial distress is supported by several corporate governance and ownership variables in the DM sample. Specifically, INDEP, DUAL, SHSCORE, and INDV have significant interactions with DURA in the regressions. As the firm remains distressed for consecutive years, the negative impacts of DUAL and SHSCORE reverse and start to have a favorable impact on the financial health of the firm. These results are analogous to those in the global sample. On the other hand, as the distress duration increases, favorable effects of INDEP and INDV become

unfavorable in terms of the firm's financial health. A similar relationship is found in the global sample for INDV. For all other corporate governance and ownership variables, the interaction variables have insignificant coefficients. This implies that previous findings for SIZE, BLOCK, INST, STRAT, HEDG, and CORP are valid for DM firms in financial distress for lengthy distress periods.

4.4.2.3 Emerging markets

I use the EM sample to test hypothesis 14 that distress duration affects the relationship between governance and financial distress. The findings of regression analyses for the EM sample are in Table 39. The first three models test the direct effect of distress duration on financial distress. Similar to the findings in the global sample and the DM sample, in all three models, the distress duration variable (DURA) is significantly and negatively related to DD, suggesting that the duration of financial distress has an increasing impact on the probability of default in emerging markets.

The last three models in Table 39 include the interaction of distress duration with corporate governance and ownership variables. In these three models, DURA is also significantly and negatively related to DD, signifying that the effect of distress duration is significant even with the presence of interaction terms.

Besides the direct effect of distress duration, we observe two significant interactions for the EM, namely the interaction of DURA with SHSCORE and INDV. Previous analyses documented no relation between SHSCORE and DD in emerging markets. The results in Table 39, though, indicate that the interaction of DURA x SHSCORE has a significantly positive effect on DD, suggesting a decreasing impact on financial distress. This is a similar finding to those in the global

Table 39. Results of Distress Duration Regressions: EM Sample

	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.01	-0.011	-0.009	-0.009	-0.011	-0.008
	(0.017)	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)
INDEP	-0.631**	-0.582**	-0.578**	-0.7**	-0.649**	-0.653**
	(0.29)	(0.292)	(0.292)	(0.301)	(0.303)	(0.303)
DUAL	-0.107	-0.112	-0.108	-0.128	-0.128	-0.137
	(0.11)	(0.111)	(0.111)	(0.116)	(0.116)	(0.116)
SHSCORE	-0.122	-0.126	-0.103	-0.227	-0.236	-0.212
	(0.147)	(0.148)	(0.148)	(0.153)	(0.154)	(0.154)
BLOCK	-0.599*			-0.594*		
	(0.315)			(0.33)		
INST		-1.491***			-1.518***	
		(0.519)			(0.555)	
STRAT		-0.255			-0.288	
		(0.344)			(0.358)	
HEDG			-1.643***			-1.551**
			(0.596)			(0.643)
CORP			0.187			0.091
			(0.328)			(0.339)
INDV			0.774			0.934
			(0.606)			(0.616)
DURA	-1.508***	-1.521***	-1.52***	-1.8***	-1.878***	-1.924***
	(0.049)	(0.049)	(0.049)	(0.211)	(0.212)	(0.204)
DURA x SIZE				0.004	0.006	0.006
				(0.011)	(0.011)	(0.011)
DURA x INDEP				0.169	0.178	0.239
				(0.215)	(0.226)	(0.221)
DURA x DUAL				0.031	0.016	0.034
				(0.093)	(0.094)	(0.093)
DURA x SHSCORE				0.352**	0.369**	0.383***
				(0.147)	(0.148)	(0.148)
DURA x BLOCK				-0.021		
				(0.181)		
DURA x INST					0.047	
					(0.318)	
DURA x STRAT					0.042	
					(0.185)	
DURA x HEDG						-0.169
						(0.381)
DURA x CORP						0.23
						(0.173)
DURA x INDV						-0.766*
						(0.423)
LAG.DD	-0.105***	-0.104***	-0.104***	-0.105***	-0.104***	-0.104***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
ROA	1.293**	0.714	0.692	1.3**	0.714	0.69
	(0.522)	(0.51)	(0.51)	(0.523)	(0.511)	(0.511)
LEV	-7.564***	-7.528***	-7.501***	-7.556***	-7.522***	-7.489***
	(0.358)	(0.356)	(0.357)	(0.359)	(0.357)	(0.358)
BETA	-0.542***	-0.527***	-0.527***	-0.539***	-0.524***	-0.525***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
EXCESS	-1.278***	-1.243***	-1.249***	-1.281***	-1.247***	-1.252***
	(0.099)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
TOBIN	2.505***	2.528***	2.526***	2.512***	2.536***	2.524***
	(0.125)	(0.126)	(0.126)	(0.125)	(0.126)	(0.126)
TA	-0.376***	-0.397***	-0.399***	-0.388***	-0.407***	-0.411***
	(0.098)	(0.095)	(0.096)	(0.099)	(0.096)	(0.096)
AGE	0.114	0.117	0.114	0.11	0.111	0.111
	(0.102)	(0.103)	(0.103)	(0.102)	(0.103)	(0.103)
C	15.277***	15.516***	15.253***	15.533***	15.774***	15.537***
	(1.578)	(1.536)	(1.538)	(1.583)	(1.542)	(1.543)
R2	0.742	0.740	0.740	0.743	0.740	0.741
Adj.R2	0.686	0.683	0.683	0.686	0.684	0.684
Firms	1196	1196	1196	1196	1196	1196
Firm Years	6830	6830	6830	6830	6830	6830

This table presents the results of panel data regression models testing the impact of financial distress duration (DURA) on the relationship between governance and financial distress in the EM sample. The first three models test the direct impact of duration, without interaction terms. The last three models test the interaction of distress duration with all governance variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

sample and the DM sample. As the EM firm remains distressed, increased minority shareholder rights help decrease the financial distress levels of the firm.

In the previous analyses, we found that INDV has a significantly positive relationship with DD in emerging markets, suggesting that individual blockholders have a decreasing impact on financial distress in the EM. Nevertheless, when we analyze INDV in interaction with financial distress duration, its effect reverses. As the distress duration increases, the influence of INDV becomes unfavorable for financial distress. The result is like the findings for the global and DM samples.

Overall, hypothesis 13 that distress duration affects the relationship between governance and financial distress is supported only for SHSCORE and INDV in the EM sample. As the firm remains distressed for consecutive years, the negative impact of SHSCORE reverses and starts to have a favorable impact on the financial health of the firm. On the other hand, as the distress duration increases, the favorable effect of INDV becomes unfavorable in terms of the firm's financial health. A similar relationship is found in the global and DM samples. For all other corporate governance and ownership variables, the interaction variables have insignificant coefficients. This result suggests that previous findings for other variables are also valid for EM firms that are in financial distress for prolonged periods.

4.4.3 Tracing distressed firms

To understand the further impact of distress duration on the relationship between firm-level governance and financial distress, I analyze the selected distressed firms through their distress durations. I took the firms in their third year of distress and traced them back until their last healthy year. As the starting sample, there are 587 DM and 139 EM firms in their third distress year (see Table 36). I gathered four

years of data including the latest healthy year and consecutive three years of distress. A total of 414 DM firms and 100 EM firms have non-missing corporate governance data for their four-year period, therefore these firms remained for analysis. Although relatively limited in number, these 514 firms (and 4 x 514 = 2056 firm-years) provide valuable opportunities to observe directly the temporal change in corporate governance and ownership attributes as the firm continues to be financially distressed.

Table 40 shows the count of firms in their first year of distress. For instance, in 2006 there are 13 DM firms in their first distress year. These firms were healthy (not distressed) in 2005. In 2007, they are in their second year of distress, and in 2008 in their third year of distress. Analysis of Table 40 suggests that the traced firms are distributed randomly across period years. We observe no clustering of firm years in certain years that could bias the analyses.[32]

Table 40. Distressed Firm Tracing: Count of Firms in First Distress Years

Year	Developed Market	Emerging Markets	Total
2005	5		5
2006	13		13
2007	53	2	55
2008	39	1	40
2009	14	1	15
2010	9		9
2011	58	14	72
2012	28	25	53
2013	19	5	24
2014	36	22	58
2015	55	6	61
2016	35	9	44
2017	50	15	65
Total	414	100	514

This table shows the count of firms in their first year of distress. These are the firms that reach their third distress year and have a complete set of governance variables for 4 years.

[32] Limited number of EM firm counts before 2010 is due to the limited number of sample firms in the same period.

The previous part presents the results of regression analyses that investigate the interaction effect of financial distress duration for the global, DM, and EM samples. For each sample group, I run six separate models and analyze the interacting effect of distress duration on the relationship between governance and financial distress.

This part, though, investigates the temporal changes of corporate governance and ownership variables of the selected 514 traced firms, to document comparable results that help substantiate previous findings. Although the results of the regression models in the previous part present the main findings, comparison with the traced firms in this part provides us with valuable insights in terms of evaluating the findings. In a similar approach as before, I analyze the traced firms in three groups: global, DM, and EM samples.

4.4.3.1 Global sample

The results of the previous analyses suggest that distress duration significantly interacts with CEO duality, shareholder score, total blockholders, strategic blockholders, and individual blockholders.[33] Now we take a different approach and analyze the sample of 514 traced firms throughout their one healthy and three consecutive distress years. The averages of corporate governance and ownership variables of these firms are in Table 41.

Traced firms have an average SIZE of 10.3 in their last healthy years, which is slightly higher than the global average of 9.9. This number of board members marginally decreases as the distress duration increases. However, this change does not seem to be significant, as previous analyses in Table 37 do not reveal any significant interactions. The average INDEP of 514 traced firms is considerably

[33] See Table 37 models (3), (4) and (5).

Table 41. Governance and Ownership Values of Traced Firms: Global Sample

	Years in Distress									
	0		1		2		3		All Global	
	Mean		Mean		Mean		Mean		Mean	
SIZE	10.3		10.2		10.1		9.9		9.9	
INDEP	49.4%		50.3%		51.1%		52.5%		58.4%	
DUAL	38.9%		40.7%		39.9%		38.1%		38.3%	
SHSCORE	50.7%		51.1%		52.8%		53.0%		50.5%	
	%N	%Hold	%N	%Hold	%N	%Hold	%N	%Hold	%N	%Hold
BLOCK	91.4	38.4	93.2	38.2	92.4	39.1	91.2	40.4	92.7	51.4
INST	67.1	21.9	66.9	22.3	65.8	22.9	61.7	24.0	68.3	21.5
STRAT	55.3	37.3	56.4	36.8	55.4	38.0	58.4	37.7	50.5	36.6
HEDG	58.9	20.2	59.1	21.3	58.2	22.0	55.4	22.8	61.3	20.4
CORP	38.5	32.0	40.9	30.6	40.9	32.9	43.6	32.7	33.6	33.8
INDV	21.4	26.5	21.4	25.9	20.4	24.1	21.4	23.0	16.4	22.5

This table documents four consecutive years of firm-level corporate governance and ownership variables of 514 firms. These are the firms that reach their third distress year and have a complete set of governance variables for four years. 0 is the last non-distressed year, whereas 1, 2, and 3 are the consecutive distress years. Corporate governance variables are mean values. Ownership variables are shown as the percentage of firms having a certain sub-type of blockholder (%N) and the average common stock holdings of these blockholders (%Hold). The last column shows the average of the entire sample and provides a comparison with these 514 firms.

below the global average, suggesting that the firms suffering at least three consecutive years of distress have lower independent board members. No interaction with distress duration in the global sample is found in the previous analyses; however, there are significant results in the DM sample (see Table 38), which we discuss in the next sub-part.

DUAL is higher than the global average in years 1 and 2, and slightly lower in year 3. The firms have higher CEO duality in the first year of distress, but it marginally decreases, as the firms remain distressed in the following years. This pattern can be partially explained by the previous finding in Table 37 where the interaction with distress duration has a statistically significant and positive effect on the dependent variable DD. CEO duality causes increased distress levels; however, as the firm remains distressed for increased durations, the negative impact of the dual CEO reverses.

SHSCORE for the traced firms is marginally higher than the global average in their last healthy year and continues to increase as the firms remain distressed. This trend indicates that as distress duration increases, firms continue to improve shareholder rights. This pattern partially explains the positive interaction found in Table 37. As the firm remains distressed for prolonged periods, firm shareholder rights do not cause agency conflicts, yet become favorable for the financial health of the firm.

On average, BLOCK remains lower with marginal fluctuations through the distress years, suggesting that total blockholders of these 514 firms on average hold lower shares than the global average. Previous analyses revealed a significant interaction between distress duration and total blockholders. Traced firms have a smaller number of INST and HEDG and they continue to decrease as the duration of distress increases. For instance, 67.1% of the firms have institutional blockholders in their last healthy year but this number diminishes to 61.7% in the third year.

On the other hand, STRAT, and their sub-type of CORP and INDV, are much more dominant in the traced firms as compared to the global average. These blockholders remain dominant throughout the three consecutive distress duration. Previous analyses show that as distress duration increases, favorable effects of STRAT and INDV reverse and become unfavorable for financial distress, indicating that strategic entity blockholders have a financial distress-increasing effect, as the firm remains distressed for multiple years. The findings in Table 41 support this previous finding to some extent since the level of the strategic entity and individual investor blockholders are more dominant in the traced firms.

4.4.3.2 Developed markets

The results of the previous analyses suggest that distress duration significantly interacts with board independence, CEO duality, shareholder score, and individual investors, reversing their relationships with financial distress in DM firms.[34] Now we take the other approach and analyze the sample of 414 traced DM firms throughout their one healthy and three consecutive distress years. The averages of corporate governance and ownership variables of these firms are in Table 42.

Table 42. Governance and Ownership Values of Traced DM Firms

	Years in Distress									
	0		1		2		3		All DM	
	Mean		Mean		Mean		Mean		Mean	
SIZE	10.1		10.0		9.9		9.9		9.8	
INDEP	51.4%		52.3%		53.3%		54.9%		62.3%	
DUAL	41.1%		42.3%		41.3%		39.6%		40.8%	
SHSCORE	49.7%		50.5%		52.6%		52.8%		50.6%	
	%N	%Hold	%N	%Hold	%N	%Hold	%N	%Hold	%N	%Hold
BLOCK	90.1	35.0	92.0	34.9	91.3	36.6	89.9	37.6	91.8	32.6
INST	72.5	22.5	71.5	23.3	70.3	24.0	65.9	24.7	72.8	21.8
STRAT	47.1	32.7	47.8	32.4	47.3	34.8	50.7	34.2	42.8	32.1
HEDG	66.2	20.6	65.7	22.2	65.7	22.7	61.8	23.2	69.2	20.8
CORP	30.2	26.2	32.6	24.6	33.3	28.5	36.5	28.3	26.6	29.6
INDV	21.0	26.8	20.8	26.8	20.5	25.0	21.7	23.1	15.9	22.1

This table documents four consecutive years of firm-level corporate governance and ownership variables of 414 DM firms. These are the firms that reach their third distress year and have a complete set of governance variables for four years. 0 is the last non-distressed year, whereas 1, 2, and 3 are the consecutive distress years. Corporate governance variables are mean values. Ownership variables are shown as the percentage of firms having a certain sub-type of blockholder (%N) and the average common stock holdings of these blockholders (%Hold). The last column shows the average of the entire sample of the developed market and provides a comparison with these 414 firms.

Traced DM firms have an average SIZE very close to the global average through their distress years. Table 38 also does not reveal any significant interactions of SIZE with distress duration, validating that the duration of distress does not have a significant impact on the relationship between board size and financial distress.

[34] See Table 38 models (3), (4) and (5).

The average INDEP of 414 traced firms is considerably below the DM average, suggesting that the firms suffering at least three consecutive years of distress have lower independent board members. Table 42 also suggests that as firms continue to remain distressed, they tend to improve board independence but remain below the average. Preceding analyses suggest that, when DM firms continue to stay distressed for consecutive years, INDEP starts to have an increasing impact on financial distress. Independent boards of financially distressed firms that remained distressed for prolonged periods are not successful in decreasing financial distress; contrarily, they increase the chances of default.

Previously, we found that DUAL has an increasing effect on financial distress in the global sample. The effect is existent when country-level investor protection is low. However, distress duration reverses this relation. Governance data in Table 42 suggest that the traced firms already have slightly high duality levels when they enter financial distress. As firms continue to stay distressed for consecutive years, average CEO duality starts to decrease. In the third distress year, the average CEO duality for these firms is even lower than the entire sample average. This trend partially explains the finding in Table 38 that as the firm remains distressed for extended periods, the negative impact of dual CEO reverses.

SHSCORE for the traced firms is lower than the DM average in their last healthy year but continues to increase as the firms remain distressed and surpass the DM average in the second and third years. As distress duration increases, firms continue to improve shareholder rights. This pattern partially explains the positive interaction found in Table 38. As the firms continue to remain distressed, increased shareholder rights start to become favorable for the financial health of the firm.

Ownership variables have similar patterns as in the global sample. Traced DM firms have a smaller number of INST and their sub-type HEDG as the duration of distress increases. Conversely, STRAT, and their sub-type of CORP and INDV, are much more dominant in the traced DM firms.

Special attention is given to INDV, the only significant ownership variable that interacts with distress duration in Table 38. I find in the previous sections that individual blockholders decrease the level of financial distress in developed markets, especially when country-level creditor rights are high. Again, as the firms continue to stay distressed, the relation reverses, implying that individual investors are becoming detrimental to the company's financial health. Table 42 reveals that the traced firms already have higher-than-average individual blockholders. When distress duration increases, INDV holdings slightly decrease but remain above the DM average. These findings and observations support the findings in Table 38.

4.4.3.3 Emerging markets

The results of the previous analyses suggest that distress duration significantly interacts with shareholder score and individual investor blockholders in EM firms.[35] Here we analyze the sample of 100 traced EM firms throughout their one healthy and three consecutive distress years. The averages of corporate governance and ownership variables of these firms are in Table 43.

Traced EM firms have an average SIZE higher than the global average at the onset of financial distress. As the distress duration increases, the average number of board members marginally decreases. However, this change does not seem to be

[35] See Table 39 models (3), (4) and (5).

Table 43. Governance and Ownership Values of Traced EM Firms

	Years in Distress									
	0		1		2		3		All EM	
	Mean		Mean		Mean		Mean		Mean	
SIZE	11.1		10.8		10.6		10.3		10.4	
INDEP	41.3%		41.9%		42.1%		42.4%		40.5%	
DUAL	30.0%		34.0%		34.0%		32.0%		26.2%	
SHSCORE	54.6%		53.2%		53.6%		53.8%		49.6%	
	%N	%Hold	%N	%Hold	%N	%Hold	%N	%Hold	%N	%Hold
BLOCK	97.0	51.6	98.0	51.2	97.0	48.9	97.0	51.3	94.7	51.4
INST	45.0	17.9	48.0	16.1	47.0	16.0	44.0	19.8	42.0	18.3
STRAT	89.0	47.6	92.0	46.5	89.0	45.1	90.0	46.0	86.8	47.3
HEDG	29.0	16.1	32.0	13.3	27.0	14.6	29.0	19.0	24.1	15.6
CORP	73.0	42.1	75.0	41.6	72.0	41.3	73.0	41.8	67.2	41.6
INDV	23.0	25.4	24.0	21.9	20.0	19.8	20.0	22.3	18.6	24.2

This table documents four consecutive years of firm-level corporate governance and ownership variables of 100 EM firms. These are the firms that reach their third distress year and have a complete set of governance variables for four years. 0 is the last non-distressed year, whereas 1, 2, and 3 are the consecutive distressing years. Corporate governance variables are mean values. Ownership variables are shown as the percentage of firms having a certain sub-type of blockholder (% N) and the average common stock holdings of these blockholders (%Hold). The last column shows the average of the entire sample of emerging markets and provides a comparison with these 100 firms.

significant since previous analyses in Table 39 do not reveal any significant interaction with distress duration.

The average INDEP of 100 traced firms is marginally above the EM average, suggesting that the firms suffering at least three consecutive years of distress have higher independent board members. This result is the opposite of what is found in DM firms. In terms of DUAL, governance data in Table 42 suggest that the traced firms already have slightly high duality levels when they enter financial distress. As distress duration increases, firms on average maintain and increase the duality levels. However, no significant interaction is reported in Table 39.

Previous analyses did not find any effect of SHSCORE on financial distress in EM firms. However, Table 39 shows a significant interaction between shareholder score and distress duration, suggesting that as the EM firms remain distressed, increased minority shareholder rights help decrease the financial distress levels of the

firm. Moreover, Table 43 shows that the traced firms already have higher shareholder scores in their last healthy years and maintain their higher levels throughout distress periods, a finding partially supports the previous results.

As for the ownership variables, traced 100 EM firms differ from the 414 DM firms. As shown in Table 43, all types of blockholders are dominant in the traced 100 EM firms as compared to the EM averages. Traced EM firms have a larger number of STRAT and their sub-type of CORP and INDV as blockholders, as well as a larger number of INST and their sub-type HEDG.

For the individual investor blockholders, I find in the previous chapters that individual investors decrease the level of financial distress in emerging markets. Like the relation in DM, as the firms continue to stay distressed, the relation reverses, implying that the individual investors are becoming harmful to financial health. Table 43 shows that the traced firms already have higher-than-average individual blockholders. Although their holdings slightly decrease as the firm remains distressed, average holdings stay above the EM average.

4.4.4 Summary of findings

This section analyzes the impact of financial distress duration on the relationship between governance and financial distress. The main purpose is to study changes in the effect of firm-level corporate governance and ownership variables on financial distress as the firm remains financially distressed for consecutive periods. To this aim, I initially convert the financial distress probabilities (PD) into a dichotomous healthy-distressed variable, using the PDiR mapping of Duan & Li (2021) to create the binary financial distress variable, from which distress duration is calculated. The PD rates are matched with the S&P rating system, such that each firm-year with a

rating from AAA to BBB is classified as healthy, a rating of BB or B is regarded as gray, and a rating below CCC is classified as financially distressed. This data-driven mapping approach enabled us to rely on the historic global data and to overcome the arbitrary separation of distressed firm-years from financially healthy firm-years.

After the classification of the firm years and calculation of the distress duration variable, I test the impact of distress duration on financial distress and the governance-distress relationship. I did the analyses in six separate models for each global, DM, and EM sample. The first three models test the direct impact of distress duration on financial distress. Results show that as the firm remains distressed for consecutive years, it is likely to have an increased level of financial distress in the following year, a finding similar to that of Gao et al. (2018)

The last groups of models for each sample include distress duration interaction with corporate governance and ownership variables. The results show that hypothesis 14 that distress duration affects the relationship between governance attributes and financial distress is supported for variables. Summary findings related to the impact of distress duration are in Table 44.

Overall, distress duration affects the relationship between governance and financial distress for several corporate governance and ownership variables. As the firm remains distressed for consecutive years, the negative impacts of CEO duality and shareholder score reverse and start to have favorable effects on the financial health of the firm. This significant interaction for CEO duality is observed in the global and the DM samples, and the interaction for shareholder score is seen in all three sample groups. On the other hand, as the distress duration increases, favorable effects of strategic entity blockholders in the global sample and individual investor blockholders in all three samples become unfavorable in terms of the firm's financial

Table 44. Summary Findings: Impact of Distress Duration

Panel A: Hypothesis 14 and Findings

Hypothesis Tested	GLOBAL	DM	EM
H14: DURA affects the governance–financial distress relationships	Supported by DUAL, SHSCORE, STRAT, and INDV	Supported by INDEP, DUAL, SHSCORE, and INDV	Supported by SHSCORE, and INDV

Panel B: Details of Relationships with DURA Interaction

Interaction Effects	GLOBAL	DM	EM
DURA x SIZE effect on FD			
DURA x INDEP effect on FD		+ ** (reversed)	
DURA x DUAL effect on FD	- ** (reversed)	- ** (reversed)	
DURA x SHSCORE effect on FD	- ** (reversed)	- * (reversed)	- *** (reversed)
DURA x BLOCK effect on FD	+ * (same)		
DURA x INST effect on FD			
DURA x HEDG effect on FD			
DURA x STRAT effect on FD	+ * (reversed)		
DURA x CORP effect on FD			
DURA x INDV effect on FD	+ ** (reversed)	+ * (reversed)	+ * (reversed)

This table provides a comparative review of the findings in parts 4.4.2 and 4.4.3 by summarizing the results of the regression analyses that test the effect of distress duration (DURA) on the relationship between firm-level governance and financial distress. Panel A summarizes hypothesis 14 and the findings for each sample group, namely the global sample, developed market (DM), and emerging market (EM) samples. The corporate governance and ownership variables for which hypothesis 14 is supported are indicated for each sample group. Panel B summarizes the details of the relationships and the interaction effect of the DURA variable with each corporate governance and ownership variable. For each sample group, the direction of relationships with financial distress followed by the significance of the relationships is listed. ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively. Additionally, if the interaction variable changes direction compared to the governance and ownership variable, it is indicated as "reversed." If the direction of the relationship remains the same, it is indicated as "same."

health. Similarly, the favorable effect of board independence becomes unfavorable in the DM sample. Finally, total blockholders have an increasing impact on financial distress no matter the duration of financial distress.

In the final group of tests, I analyze the selected distressed firms through their distress durations. I took the firms in their third year of distress and traced them back until their latest healthy year. A total of 514 (414 DM and 100 EM) such firms are identified and admitted to the analyses. Although relatively limited in number, these 514 firms (and 4 x 514 = 2056 firm-years) provide valuable opportunities to observe the temporal changes in corporate governance and ownership attributes as the firm

continues to stay financially distressed. The findings indicate supportive evidence for the previous findings on distress duration as summarized in Table 44. Traced firms have slightly higher CEO duality levels when they enter financial distress. As firms continue to stay distressed for consecutive years, average CEO duality starts to decrease. Shareholder score continues to improve as the firm remains distressed and exceeds the average score in the later years of financial distress in the global and DM samples. In the EM sample, the average shareholder score of the traced firms is already remarkably higher than average. Individual investor blockholders are more dominant in the traced firms in all three sample groups as compared to the sample averages. However, during the consecutive years of distress, their holdings start to decrease but remain above sample averages. A similar trend is observed for the strategic entity blockholders in the global sample. Finally, board independence in the traced firms in DM is considerably below the sample average, however as the firm remains distressed, it starts to hire more independent board members but remains below the average. All these trends that are observed in the traced firm analyses partly explain the effects of distress duration on the relationship between governance and financial distress, providing additional robustness tests. Moreover, the trends in corporate governance and ownership variables are slowly evolving over the years, implying that governance variables are relatively more persistent and have longer-term effects, as also suggested by Darrat et al. (2016).

4.5 Robustness tests

Several robustness tests confirm the findings reported in this chapter. First, I substantiate that the results for total blockholders are also valid for concentrated ownership. I replace the total blockholder (BLOCK) variable with other ownership

concentration variables, namely top 10, top 5, and top 3 shareholders, in the models of all sample groups. For all these three ownership concentration proxies, the results remain unchanged, as the correlation coefficients and standard errors are very similar to those reported in this chapter. These robust results indicate that the findings reported regarding blockholders are also relevant for concentration ownership.

Second, the mitigating effect of board independence on CEO duality is confirmed with robustness tests. These tests are done for the global sample and the DM separately but are not reported for brevity purposes. First, I divided board independence into high and low groups from the median value. The high board independence group includes those firm years that have above median independent directors, and the low board independence group includes those that have below median independence. Again, firm years with board independence at the median value are excluded. The results suggest that CEO duality is effective only when the board has below-average independent directors. Second, I define low board independence as below the 25th percentile and high independence as above the 75th percentile of board independence. The results suggest that dual CEO is positively related to financial distress only when board independence is below the 25th percentile. Therefore, with both robustness tests, the finding that board independence has a mitigating effect on the relationship between CEO duality and financial distress remained unchanged.

The third robustness test includes the verification of the direction of the relation of the interaction variable of INDEP x DUAL. While I test hypothesis 4 that board independence has a mitigating impact on the relationship between CEO duality and financial distress, CEO duality could also be affecting the relationship between board independence and financial distress. This indicates a reverse mitigation

interaction and requires additional analysis. To verify the direction of interaction between INDEP and DUAL, I conduct a split sample analysis by dividing the firm years as those with a dual CEO and those with separated chairs and running the baseline model for these two groups separately. In both dual and not-dual sub-samples, INDEP is not significant, suggesting that CEO duality does not have an impact on the relationship between board independence and financial distress. The results are not reported for brevity purposes. Therefore, we can conclude that it is board independence that has a mitigating role in the relationship between CEO duality and financial distress, not vice versa.

Fourth, the effect of distress duration on the relationship between governance and financial distress is verified with the tracing analysis of the distressed 514 firms. Observation of the related corporate governance and ownership variables of these firms throughout the latest healthy and consecutive distressed years explains, although partly, the impact on distress duration. Although not a direct validation, this tracing analysis provides additional robust evidence for the findings.

Fifth, I replace Distance to Default (DD) with Probability of Default (PD) and re-run the baseline regression for the global sample, developed and emerging market sub-samples. As summarized in Table 4, corporate governance literature has extensively used both DD and PD as proxies for financial distress. Although PD provides an easier-to-interpret measure showing the probability that a firm would default in one year, it is an extremely skewed variable. Acknowledging that the skewness of the dependent variable could yield slightly different results than those with DD, for the sake of completeness and robustness purposes, I conduct analyses with the PD variable. Like part 4.2.2 I test seven separate models for three sample groups, namely global, DM, and EM samples. Results of the robustness tests with PD

for the global sample are in Table 45, the developed markets are in Table 46, and the emerging markets are in Table 47.

Table 45. Robustness Tests with Probability of Default: Global Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				0.001	0.001	0.001	0.001
				(0.001)	(0.001)	(0.001)	(0.001)
INDEP				-0.014	-0.012	-0.014	-0.015
				(0.011)	(0.011)	(0.011)	(0.011)
DUAL				0.008**	0.008**	0.008**	0.008**
				(0.004)	(0.004)	(0.004)	(0.004)
SHSCORE				0.012**	0.013**	0.012**	0.012**
				(0.005)	(0.005)	(0.005)	(0.005)
BLOCK	0.06***				0.06***		
	(0.011)				(0.011)		
INST		0.092***				0.094***	
		(0.014)				(0.014)	
STRAT		0.021				0.017	
		(0.015)				(0.015)	
HEDG			0.101***				0.105***
			(0.014)				(0.014)
CORP			0.019				0.019
			(0.016)				(0.016)
INDV			-0.006				-0.02
			(0.027)				(0.027)
LAG.PD	-0.07***	-0.07***	-0.07***	-0.072***	-0.072***	-0.072***	-0.072***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ROA	-0.318***	-0.313***	-0.313***	-0.309***	-0.31***	-0.305***	-0.304***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.015)	(0.015)
LEV	0.617***	0.615***	0.615***	0.615***	0.612***	0.61***	0.61***
	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)
BETA	0.027***	0.027***	0.027***	0.027***	0.027***	0.027***	0.027***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
EXCESS	0.129***	0.13***	0.13***	0.127***	0.127***	0.128***	0.128***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
TOBIN	-0.157***	-0.157***	-0.157***	-0.162***	-0.16***	-0.16***	-0.16***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
TA	-0.018***	-0.018***	-0.018***	-0.022***	-0.02***	-0.02***	-0.02***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
AGE	-0.012***	-0.011***	-0.011***	-0.012***	-0.011***	-0.011***	-0.011***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
C	0.102**	0.105**	0.105**	0.171***	0.122**	0.126**	0.126**
	(0.052)	(0.051)	(0.051)	(0.052)	(0.053)	(0.052)	(0.052)
R2	0.536	0.536	0.536	0.537	0.537	0.537	0.537
Adj.R2	0.458	0.458	0.458	0.456	0.457	0.457	0.457
Firms	6355	6355	6355	6367	6341	6341	6341
Firm Years	44457	44457	44457	43163	42982	42982	42982

The dependent variable is the probability of default (PD), which is a direct measure of financial distress. A positive sign of an explanatory variable indicates an increasing effect on financial distress and a negative sign indicates vice versa. The global sample included in the models is 6,539 firms and 49,950 firm years. The loss of some observations is due to the lagged PD and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

Each model is built following the baseline regression in section 3.4 with the period- and firm-fixed effects. The interpretation of the results is slightly different

Table 46. Robustness Tests with Probability of Default: DM Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				0.001	0.001	0.001	0.001
				(0.001)	(0.001)	(0.001)	(0.001)
INDEP				-0.016	-0.011	-0.013	-0.014
				(0.012)	(0.012)	(0.012)	(0.012)
DUAL				0.009**	0.009**	0.009**	0.01**
				(0.004)	(0.004)	(0.004)	(0.004)
SHSCORE				0.013**	0.014**	0.013**	0.013**
				(0.006)	(0.006)	(0.006)	(0.006)
BLOCK	0.075***				0.074***		
	(0.011)				(0.012)		
INST		0.098***				0.098***	
		(0.014)				(0.014)	
STRAT		0.041**				0.037**	
		(0.016)				(0.017)	
HEDG			0.103***				0.106***
			(0.015)				(0.015)
CORP			0.034*				0.037*
			(0.018)				(0.019)
INDV			0.031				0.016
			(0.03)				(0.031)
LAG.PD	-0.058***	-0.057***	-0.057***	-0.059***	-0.06***	-0.059***	-0.059***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
ROA	-0.308***	-0.308***	-0.308***	-0.306***	-0.3***	-0.3***	-0.3***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
LEV	0.627***	0.627***	0.627***	0.629***	0.624***	0.624***	0.624***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
BETA	0.027***	0.027***	0.027***	0.026***	0.026***	0.026***	0.026***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
EXCESS	0.126***	0.126***	0.126***	0.123***	0.123***	0.123***	0.123***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
TOBIN	-0.157***	-0.157***	-0.157***	-0.162***	-0.16***	-0.16***	-0.16***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
TA	-0.023***	-0.023***	-0.023***	-0.028***	-0.026***	-0.026***	-0.026***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
AGE	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
C	0.171***	0.175***	0.174***	0.25***	0.195***	0.201***	0.2***
	(0.055)	(0.055)	(0.055)	(0.056)	(0.056)	(0.056)	(0.056)
R2	0.536	0.542	0.542	0.543	0.543	0.543	0.543
Adj.R2	0.458	0.467	0.467	0.466	0.466	0.466	0.466
Firms	5144	5144	5144	5158	5134	5134	5134
Firm Years	37054	37054	37054	35819	35666	35666	35666

The dependent variable is the probability of default (PD), which is a direct measure of financial distress. A positive sign of an explanatory variable indicates an increasing effect on financial distress and a negative sign indicates vice versa. The total DM sample included in the models is 5,319 firms and 41,247 firm years. The loss of some observations is due to the lagged PD and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

than the results of previous analyses, because, as the opposite of DD, PD is a direct measure of financial distress, whereby a positive sign of an explanatory variable indicates an increasing effect on financial distress and a negative sign indicates vice versa. Post-regression results indicate that although the dependent variable is

Table 47. Robustness Tests with Probability of Default: EM Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				-0.002	-0.005	-0.007	-0.004
				(0.017)	(0.017)	(0.017)	(0.017)
INDEP				-0.641**	-0.615**	-0.56*	-0.554*
				(0.3)	(0.299)	(0.3)	(0.3)
DUAL				-0.148	-0.153	-0.16	-0.154
				(0.113)	(0.112)	(0.113)	(0.113)
SHSCORE				-0.079	-0.094	-0.103	-0.075
				(0.152)	(0.151)	(0.152)	(0.152)
BLOCK	-0.455				-0.504		
	(0.318)				(0.324)		
INST		1.444***				1.615***	
		(0.513)				(0.527)	
STRAT		-0.106				-0.128	
		(0.35)				(0.354)	
HEDG			1.809***				1.868***
			(0.599)				(0.604)
CORP			0.238				0.225
			(0.331)				(0.335)
INDV			-1.042*				-1.115*
			(0.622)				(0.631)
LAG.PD	-0.066***	-0.065***	-0.066***	-0.066***	-0.068***	-0.067***	-0.068***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
ROA	3.15***	2.484***	2.471***	2.408***	3.151***	2.477***	2.456***
	(0.524)	(0.514)	(0.514)	(0.517)	(0.528)	(0.517)	(0.517)
LEV	-8.832***	-8.791***	-8.763***	-8.738***	-8.757***	-8.714***	-8.687***
	(0.364)	(0.362)	(0.363)	(0.366)	(0.367)	(0.366)	(0.366)
BETA	-0.596***	-0.584***	-0.584***	-0.581***	-0.596***	-0.584***	-0.583***
	(0.035)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
EXCESS	-1.857***	-1.828***	-1.834***	-1.845***	-1.874***	-1.845***	-1.851***
	(0.097)	(0.098)	(0.098)	(0.099)	(0.099)	(0.099)	(0.099)
TOBIN	3.335***	3.371***	3.36***	3.437***	3.355***	3.387***	3.38***
	(0.124)	(0.124)	(0.125)	(0.125)	(0.125)	(0.126)	(0.126)
TA	-0.255**	-0.288***	-0.291***	-0.251**	-0.251**	-0.285***	-0.287***
	(0.099)	(0.097)	(0.097)	(0.098)	(0.101)	(0.098)	(0.099)
AGE	0.171*	0.171	0.168	0.168	0.154	0.155	0.15
	(0.103)	(0.104)	(0.104)	(0.105)	(0.105)	(0.105)	(0.105)
C	12.427***	12.867***	12.703***	12.484***	12.806***	13.245***	13.013***
	(1.599)	(1.561)	(1.563)	(1.555)	(1.617)	(1.579)	(1.581)
R2	0.692	0.690	0.690	0.690	0.693	0.690	0.691
Adj.R2	0.631	0.628	0.628	0.627	0.631	0.628	0.628
Firms	1211	1211	1211	1209	1207	1207	1207
Firm Years	7403	7403	7403	7344	7316	7316	7316

The dependent variable is the probability of default (PD), which is a direct measure of financial distress. A positive sign of an explanatory variable indicates an increasing effect on financial distress and a negative sign indicates vice versa. The total EM sample included in the models is 1,220 firms and 8,703 firm years. The loss of some observations is due to the lagged PD and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

extremely skewed, residuals are normally distributed. All other post-regression results are also like those of the tests conducted with DD.

The robustness results in Table 45, Table 46, and Table 47 indicate that most of the results reported previously are robust with the use of PD as a dependent variable. All control variables, except TA in all samples and AGE in the EM sample, have

statistically significant coefficients with predicted signs. The discussions regarding the TA, the proxy for firm size, are robust with additional tests. The AGE is insignificant in the EM, as is the case in previous analyses.

Besides the control variables, analysis of corporate governance and ownership variables reveals that there are no conflicting findings as compared to those in previous analyses. DUAL is significantly positively associated with PD in the global and DM samples, specifying that CEO duality has a positive impact on financial distress. SHSCORE is significantly positively associated with PD in the global and DM samples. Previous tests in part 4.2.2 find no relationship between shareholder score and DD, yet the results in part 4.3.2 revealed that SHSCORE has indeed a positive association with financial distress when country investor protection is high. The result of this robustness test provides additional evidence.

The findings regarding BLOCK, INST, and HEDG are robust with the use of the PD variable for all three samples. Total blockholders are positively associated with financial distress in the global and DM samples, and institutional blockholders and their sub-type of investment advisor/hedge fund blockholders are positively associated with financial distress in all three samples. The results suggest that STRAT is positively related to PD in the DM sample. Previous tests in part 4.2.2 find no relationship between STRAT and DD in all sample groups, but the results in part 4.3.2 revealed that strategic entity blockholders have indeed a positive association with financial distress in developed markets when country investor protection is high. The result of this robustness test supports this finding.

The seventh and final robustness test includes replacing DD the Binary PD variable that is created in the duration of distress analysis in part 4.4.1 and re-running the baseline regression for the global sample, developed and emerging market sub-

samples. Binary PD is created based on the PD implied rating (PDiR) mapping of Duan & Li (2021), whereby 1 indicates that the firm is distressed and 0 indicates that the firm is financially healthy. Healthy firms are the ones with PD figures corresponding to S&P letter grades between AAA to BBB, and financially distressed firms are the ones below CCC. The default probabilities equivalent to letter grades BB and B are excluded from the analysis considering they are in the gray area. I admit that this binary dependent variable could yield slightly different results than those with DD and the exclusion of "gray" firms would mean some loss of valuable information from the sample. However, for the sake of robustness purposes, I conduct analyses with this binary PD variable.

Like the previous robustness tests, I build seven separate models for three sample groups, namely global, DM, and EM samples. The models here are slightly different from the baseline regression in that since the dependent variable is a binary measure of distress, I exclude lagged dependent variables from the analysis. With the lagged binary PD, the models suffered modeling issues such as autocorrelation.

I only report here the results for the global and the DM sample, and verbally describe the results of the EM sample. Results for the global sample are in Table 48 and results for the developed markets are in Table 49.

The use of binary PD as a dependent variable reveals results that are similar to the results of the analyses in 4.2.2 which supported several hypotheses in Chapter 2. All control variables, except TA in all samples and AGE in the EM sample, have statistically significant coefficients with predicted signs. The previous discussions regarding the TA, a proxy for firm size, are robust with additional tests. The AGE is insignificant in the EM, as is the case in previous analyses.

Table 48. Robustness Tests with Binary PD: Global Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				0.002**	0.002**	0.002**	0.002**
				(0.001)	(0.001)	(0.001)	(0.001)
INDEP				-0.036**	-0.031*	-0.034**	-0.036**
				(0.016)	(0.016)	(0.016)	(0.016)
DUAL				0.015***	0.016***	0.016***	0.016***
				(0.006)	(0.006)	(0.006)	(0.006)
SHSCORE				0.011	0.012	0.011	0.011
				(0.008)	(0.008)	(0.008)	(0.008)
BLOCK	0.116***				0.118***		
	(0.016)				(0.016)		
INST		0.146***				0.149***	
		(0.02)				(0.021)	
STRAT		0.078***				0.073***	
		(0.021)				(0.022)	
HEDG			0.159***				0.161***
			(0.022)				(0.022)
CORP			0.05**				0.046*
			(0.023)				(0.024)
INDV			-0.088**				-0.079*
			(0.04)				(0.041)
ROA	-0.477***	-0.471***	-0.472***	-0.465***	-0.466***	-0.46***	-0.46***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
LEV	0.751***	0.748***	0.748***	0.748***	0.745***	0.742***	0.742***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
BETA	0.046***	0.046***	0.046***	0.046***	0.046***	0.046***	0.046***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
EXCESS	0.148***	0.148***	0.148***	0.148***	0.148***	0.148***	0.149***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
TOBIN	-0.245***	-0.245***	-0.245***	-0.251***	-0.248***	-0.248***	-0.248***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
TA	-0.013***	-0.012**	-0.012**	-0.018***	-0.015***	-0.015***	-0.014***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
AGE	-0.013**	-0.012**	-0.012**	-0.014**	-0.013**	-0.013**	-0.013**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
C	0.044	0.039	0.041	0.145*	0.067	0.065	0.07
	(0.076)	(0.075)	(0.075)	(0.076)	(0.077)	(0.077)	(0.077)
R2	0.536	0.536	0.536	0.537	0.538	0.537	0.537
Adj.R2	0.449	0.449	0.449	0.446	0.447	0.447	0.447
Firms	7414	7414	7414	7434	7403	7403	7403
Firm Years	46889	46889	46889	45632	45429	45429	45429

The dependent variable is the binary probability of default (PD), which is created in the duration of distress analysis based on the PD implied rating (PDiR) mapping of Duan & Li (2021). 1 indicates the firm is distressed and 0 indicates the firm is financially healthy. BB and B credit rating equivalent PDs are excluded from the analysis considering they are in the gray area. The global sample included in the models is 6,539 firms and 49,950 firm years. The loss of some observations is due to the gray PDs and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

As for the corporate governance and ownership variables, previous results regarding SIZE, DUAL, SHSCORE, BLOCK, INST, HEDG, and INDV are robust with additional tests conducted with binary PD as the dependent variable. Besides, the results in Table 48 indicate that INDEP is negatively related to financial distress in the global sample. Previous analyses find this association only for the DM sample.

Table 49. Robustness Tests with Binary PD: DM Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE				0.002**	0.002**	0.002**	0.002**
				(0.001)	(0.001)	(0.001)	(0.001)
INDEP				-0.036**	-0.031*	-0.034**	-0.036**
				(0.016)	(0.016)	(0.016)	(0.016)
DUAL				0.015***	0.016***	0.016***	0.016***
				(0.006)	(0.006)	(0.006)	(0.006)
SHSCORE				0.011	0.012	0.011	0.011
				(0.008)	(0.008)	(0.008)	(0.008)
BLOCK	0.116***				0.118***		
	(0.016)				(0.016)		
INST		0.146***				0.149***	
		(0.02)				(0.021)	
STRAT		0.078***				0.073***	
		(0.021)				(0.022)	
HEDG			0.159***				0.161***
			(0.022)				(0.022)
CORP			0.05**				0.046*
			(0.023)				(0.024)
INDV			-0.088**				-0.079*
			(0.04)				(0.041)
ROA	-0.477***	-0.471***	-0.472***	-0.465***	-0.466***	-0.46***	-0.46***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
LEV	0.751***	0.748***	0.748***	0.748***	0.745***	0.742***	0.742***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
BETA	0.046***	0.046***	0.046***	0.046***	0.046***	0.046***	0.046***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
EXCESS	0.148***	0.148***	0.148***	0.148***	0.148***	0.148***	0.149***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
TOBIN	-0.245***	-0.245***	-0.245***	-0.251***	-0.248***	-0.248***	-0.248***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
TA	-0.013***	-0.012**	-0.012**	-0.018***	-0.015***	-0.015***	-0.014***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
AGE	-0.013**	-0.012**	-0.012**	-0.014**	-0.013**	-0.013**	-0.013**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
C	0.044	0.039	0.041	0.145*	0.067	0.065	0.07
	(0.076)	(0.075)	(0.075)	(0.076)	(0.077)	(0.077)	(0.077)
R2	0.536	0.536	0.536	0.537	0.538	0.537	0.537
Adj.R2	0.449	0.449	0.449	0.446	0.447	0.447	0.447
Firms	7414	7414	7414	7434	7403	7403	7403
Firm Years	46889	46889	46889	45632	45429	45429	45429

The dependent variable is the binary probability of default (PD), which is created in the duration of distress analysis based on the PD implied rating (PDiR) mapping of Duan & Li (2021). 1 indicates the firm is distressed and 0 indicates the firm is financially healthy. BB and B credit rating equivalent PDs are excluded from the analysis considering they are in the gray area. The total DM sample included in the models is 5,319 firms and 41,247 firm years. The loss of some observations is due to the gray PDs and some insignificant missing data in explanatory variables. Standard errors are in parentheses. ***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

Additionally, the results in Table 48 and Table 49 show that STRAT and CORP are positively associated with binary PD. Previous analyses in 4.2.2 show insignificant findings.

CHAPTER 5

CONCLUSION

This final chapter is organized into four sections. The first section provides a summary of the main findings. Although more detailed summaries of the findings are provided in Chapter 4 and at the end of each group of analyses, this section offers a brief executive summary. The second section discusses the contributions of the findings and their implications for policymakers, regulators, investors, and managers. The third section reviews the limitations of the study and the reasons for these limitations. The final section recommends areas for future research.

5.1 Summary of the main findings

Overall, this thesis tests 14 hypotheses, as developed in Chapter 2 and summarized in Section 3.3 in three groups of analyses. The findings provide the literature with robust evidence on the impacts of corporate governance mechanisms and ownership structures on financial distress, with a comparative analysis of the global sample, developed market, and emerging market sub-samples. Moreover, the analyses show that macroeconomic governance factors and distress duration significantly affect the impacts of corporate governance mechanisms and ownership characteristics.

5.1.1 Governance and financial distress

The first group of analyses tests the impact of corporate governance and ownership variables on financial distress. The analysis of means in Table 10 shows that developed market firms have smaller but more independent boards, more frequent occurrence of CEO duality, and higher shareholder scores as compared to emerging

market firms. Moreover, as summarized in Table 11, emerging market firms have higher ownership concentration than developed market firms; however, the composition of blockholders varies between the two markets. While Institutional blockholders (and their sub-type of the investment advisor/hedge fund blockholders) are dominant in developed markets, strategic entity blockholders (and their sub-types of the corporation blockholders and individual investor blockholders) are dominant in emerging markets.

After the analysis of means, the results of the regressions of the baseline model suggest that several corporate governance practices and ownership structures indeed have significant impacts on financial distress in both developed and emerging markets. The summary of findings and relevant hypotheses are listed in Table 19. Board size has a significantly positive effect on financial distress in the global sample and developed markets, but not in emerging markets. This result indicates that additional board member is failing to provide effective monitoring that would help decrease financial distress, thereby supporting the arguments of Jensen (1993) and Lipton and Lorsch (1992) in developed markets. Board independence has a decreasing impact on financial distress in developed markets and an increasing impact on financial distress in emerging markets. The arguments of Fama (1980) and Fama and Jensen (1983) that outside directors act as decision agents in difficult conditions and provide effective monitoring over the management are supported for the developed markets. However, the findings in the emerging markets suggest a contradictory result. Two potential explanations for the emerging markets could be that independent board members are colluding with dominant blockholders that expropriate creditors and that they do not have sufficient experience and specific knowledge to avoid financial distress. CEO duality has an increasing impact on

financial distress in the global sample and developed markets, but not in emerging markets. The finding strengthens the argument of Jensen (1993) that a dual-hatted CEO will have the possibility to pursue personal gains and weakens the argument of supporters of the stewardship theory, which claims that a dual CEO maintains the unity of control and demonstrates powerful leadership for the well-being of the firm. Finally, in the first group of analyses, firm-level shareholders' score is found to have no impact in either of the three samples.

Total blockholders, as also a proxy for ownership concentration, have an increasing impact on financial distress in the global sample and developed markets, but not in the emerging markets. This result suggests that blockholders may increase managerial pressure to capture private benefits at the expense of the firm's financial health, a result similar to the findings of previous literature studying developed market firms (Ashbaugh-Skaife et al., 2006; Bhojraj & Sengupta, 2003). Institutional blockholders and their sub-type of the investment advisor/hedge fund blockholders have an increasing effect on financial distress in all three samples. The finding supports Lipton and Lorsch's (1992) argument that institutional blockholders, due to their vast and diverse portfolios, do not act as owners like individual blockholders, therefore their monitoring roles are weaker than predicted. The finding also supports the theoretical arguments of the agency theory that institutional blockholders might collude with management to expropriate creditors at the cost of increased financial distress (Claessens et al., 2002; Shleifer & Vishny, 1997). Strategic entity blockholders and their sub-type of corporation blockholders do not affect financial distress in either of the three samples. On the other hand, individual investor blockholders, one of the sub-types of strategic entities, have a decreasing impact on financial distress in all three samples. This finding indicates that individual

blockholders are better at controlling and monitoring and they are favorable for the financial health of the firm.

Besides, all control variables, except two, are significant with predicted signs. As the return on assets (profitability) and Tobin's q (firm value) increase, the firm's financial distress decreases. As the leverage, beta (systematic risk), and excess return increase, the firm's financial distress increases. These control variables are significant in all samples. On the other hand, total assets, the proxy for firm size, has an opposite sign in all three samples, yet is insignificant in the developed markets, suggesting opposite evidence than predicted. The result implies that as emerging market firms grow, they do this with financially risky actions and at the expense of their financial well-being. Moreover, firm age is found to be insignificant for emerging markets, indicating that maturity is not a significant determinant of financial distress in emerging markets.

As part of the first group of analyses that examine the impact of governance on financial distress, I also test the mitigating effect of board independence on the relationship between CEO duality and financial distress, whose results are summarized in Table 20. As a result of the interaction and split-sample analyses and robustness tests, the findings suggest that dual CEO has an increasing impact on financial distress only when the firm has lower levels of independent board members. Although the finding is limited to the developed markets and nonexistent in the emerging markets, it provides additional insight into the interaction between board members and the CEO. Specifically, independent boards can more easily monitor the CEO and have a mitigating effect on her unfavorable actions that would deteriorate the financial health of the firm. With lower levels of independent directors on the board, dual CEOs can consider less monitored and their actions might increase

financial distress. The result is comparable to the findings of Daily and Dalton (1994a) and the theoretical arguments of Hermalin and Weisbach (1998). Additionally, the analyses reveal two additional findings that were not hypothesized in this study. Total blockholders have an increasing effect on financial distress when the board has more independent directors. This result, which is existent in all three samples, suggests that, when there are more external directors than insiders, blockholders can more easily expropriate the creditors as indicated by Jensen and Meckling (1976) and La Porta et al. (2000). Finally, individual blockholders have a decreasing impact on financial distress when the board has lower levels of independent directors. Although the finding is limited to the developed markets and not relevant in the emerging markets, it implies that when the monitoring of independent directors is not effective, individual blockholders intervene as an effective control and monitoring mechanism. These findings also substantiate the argument that not only the level of concentrated ownership but also the types of blockholders are important in determining the impact of blockholders on financial distress.

5.1.2 Impact of macroeconomic factors

The second group of analyses examines the impact of macroeconomic governance factors on the relationship between firm-level governance and financial distress. Analysis of the means of both scores, as summarized in Table 21, shows that developed countries have higher average macroeconomic governance scores than emerging countries. However, as listed in APPENDIX L and APPENDIX M, there are some developed countries with lower scores than the emerging markets average and some emerging countries with higher scores than the developed markets'

average. Moreover, these scores are not necessarily stable through the sample period. Therefore, global, developed market, and emerging market samples are separated at the yearly medians of the Protecting Minority Investors Score and the Getting Credit Score, to test the impact of different macroeconomic levels on the relationship between governance and financial distress. Analyses of mean differences between high and low investor protection and creditor rights in terms of corporate governance and ownership variables reveal important diversities between the groups. As summarized in Table 22, when country investor protection is higher than the median (as compared to the lower group), board independence and shareholders' score are also higher in both developed and emerging markets. Board size is lower in developed markets but higher in emerging markets and CEO duality is higher in developed markets but lower in emerging markets. As summarized in Table 23, when country creditor rights are higher than the median (as compared to the lower group), board independence, CEO duality, and shareholders score are also higher in developed and emerging markets. On the other hand, board size is lower in developed markets but higher in emerging markets.

In terms of ownership variables, as summarized in Table 24, when investor protection is higher than the median, total blockholders (ownership concentration) are more dominant in both developed and emerging markets. However, this finding in terms of blockholder types differs. Institutional blockholders dominate in countries where investor protection is high, whereas strategic blockholders dominate when investor protection is low. When country creditor rights are above the median, as summarized in Table 25, total blockholders and institutional investors are more dominant in developed and emerging markets as compared to the below-median group. On the other hand, strategic blockholders in developed markets dominate

when creditor rights are low, whereas in emerging markets they dominate when creditor rights are high.

The regression results suggest that macroeconomic governance factors have significant influences on the effects of corporate governance and ownership variables on financial distress. Summary findings for the impact of country investor protection are in Table 32. Board size has an increasing effect on financial distress when country-level investor protection is high in developed markets. The effects of board independence on financial distress in developed and emerging markets are observed only when investor protection is high. In developed countries where investor protection is higher than the median, board independence has a decreasing effect on financial distress, and in emerging countries where investor protection is higher, it has an increasing effect. This finding implies that the effect of independent directors on financial distress is influenced by macroeconomic factors such as country investor protection and the country being in developed or emerging markets. CEO duality has an increasing impact on financial distress in the global and developed market samples when the country has lower investor protection levels. When the country does not favor investor rights, dual CEO will be detrimental to the firm's financial health. Previously we found no significant results in terms of the effect of firm-level shareholder score on financial distress; however, when we analyze the effect of country investor protection, we find a significant result in the global sample. The result suggests that when the country's investor protection is high, increased shareholder rights will lead to increased financial distress. This finding indicates that when increased firm-level shareholder rights are combined with high country-level investor protection, shareholder-creditor conflict is exaggerated, leading to distorted

investment decisions and excessive risk-taking (Aghion et al., 1992; Jensen & Meckling, 1976; Myers, 1977).

In terms of ownership variables, total blockholders have a deteriorating effect on the financial health of the firm only when country-level investor protection is high. Namely, when the blockholders are relatively more powerful with better investor rights within a country, they have a significantly positive impact on the financial distress of the firm, in both developed and emerging markets. As for the blockholder types, institutional blockholders have a deteriorating impact on the financial health of the firm when country-level investor protection is high in developed countries. Therefore, creditor expropriation and wealth-shifting arguments are valid for institutional blockholders when country investor rights are higher. In addition, previous results indicate that strategic entity blockholders have no significant effect on financial distress. However, when the country's investor protection is high, the results suggest that strategic blockholders have a significant impact on financial distress. Yet, the direction of the relationship differs across markets. When investor protection is high, strategic blockholders have a decreasing effect on financial distress in developed countries and an increasing effect in emerging countries. Overall, these results indicate that blockholders, particularly institutional and strategic blockholders, have an impact on the financial health of the firm when the country has sufficient investor protection levels that favor the actions of blockholders.

Summary findings for the impact of country creditor rights are in Table 33. The results of the analyses suggest that country creditor rights have a significant impact on the relationship between ownership variables and financial distress but have no impact on the relationship between corporate governance variables and financial

distress. When the level of creditor rights in the country is high, total blockholders have an increasing effect on financial distress in the global sample and developed markets. Institutional blockholders in developed markets have an increasing effect on financial distress when country creditor rights are higher than the median. On the other hand, in emerging markets, this effect exists only when country creditor rights are lower. The same relationships in developed and emerging markets are observed with hedge fund/investment advisor blockholders, the sub-type of institutional blockholders. These findings suggest that institutional blockholders have an increasing impact on financial distress in both developed and emerging markets; however, their effect in developed markets exists only when the country's creditor rights are higher, and in emerging markets exists only when the country's creditor rights are lower than the median. The results also suggest that strategic blockholders, including the sub-types of corporations and individuals, have a decreasing impact on financial distress in developed markets when the county-level creditor rights are high. The same relationships for these ownership variables are also observed in the global sample. The findings imply that higher creditor rights are required for the decreasing effect of strategic investors on the financial health of the firm in the developed firms.

The second group of analyses also reports an important spin-off finding related to the effect of firm size on financial distress. When macroeconomic investor protection is low, firm size has an increasing effect on financial distress: as the firm grows, so does its probability of default. The same increasing effect also exists when the country's creditor rights are low. On the other hand, when investor protection is high, firm size has a decreasing effect on financial distress. Yet, this effect is not observed when country creditor rights are high. All findings are existent in all three

samples. These results suggest that firm size might indeed lead to increased financial distress if the country's investor protection and creditor rights levels are low. Therefore, the results imply that firm size is indeed a proxy for corporate health and a determinant of financial distress, as opposed to Altman et al. (2019) argument, yet the effect is contingent on the level of country investor protection and creditor rights.

5.1.3 Impact of distress duration

The third and final group of analyses examines the impact of financial distress duration on the relationship between governance and financial distress. The direct impact of distress duration on financial distress is positive, indicating that as the firm remains distressed for consecutive years, it is likely to have increased financial distress, a result similar to the findings of Gao et al. (2018). The analysis of distress duration in interaction with corporate governance and ownership variables shows that distress duration has a significant impact on several of the governance-distress relationships tested in this thesis. These results are summarized in Table 44. As the firm remains distressed for consecutive years, the negative impacts of CEO duality and shareholder score reverse and start to have favorable effects on the financial health of the firm. The significant interaction for CEO duality is observed in the global and the developed markets samples, and the interaction for shareholder score is observed in all three sample groups. On the other hand, as the distress duration increases, favorable effects of strategic entity blockholders in the global sample and individual investor blockholders in all three samples become unfavorable to the firm’s financial health. Similarly, the favorable effect of board independence becomes unfavorable in the developed market sample. These findings suggest that

distress duration changes the impacts of some corporate governance and ownership variables on financial distress.

The third group of analyses also includes the examination of selected distressed firms that are traced through their latest healthy and following three years of distress durations. These analyses provide supportive evidence for the previous results related to the interaction of distress duration. As firms continue to stay distressed for consecutive years, average CEO duality starts to decrease. Shareholder score continues to improve as the firm remains distressed and exceeds the average score in the later years of financial distress in the global and developed markets samples. In the emerging market sample, the average shareholder score of the traced firms is already remarkably higher than average in the first year of financial distress. Individual investor blockholders are more dominant in the traced firms in all three sample groups as compared to the sample averages. However, during the consecutive years of distress, their holdings start to decrease but remain above sample averages. A similar trend is observed for the strategic entity blockholders in the global sample. Finally, board independence in the traced firms in developed markets is considerably below the sample average, however as the firm remains distressed, it starts to hire more independent board members but remains below the average. All the trends that are observed in the traced firm analyses partly explain the effects of distress duration on the relationship between governance and financial distress, providing additional robustness tests.

5.2 Implications and contributions

Overall, the findings of this thesis provide the literature with robust evidence on the impacts of corporate governance mechanisms and ownership structure on financial

distress within a comparative context of the global sample, developed markets, and emerging markets. Moreover, this study extends the literature on corporate governance and distress by offering an integrated approach that considers the effects of country-level governance characteristics and distress duration. The findings of this study provide important contributions to the literature with several implications.

First, this thesis is the largest cross-country study with a robust sample that analyzes the effect of corporate governance and ownership attributes on financial distress. I suggest that the size and the scope of the sample, vigorous methodology, and comprehensive empirical tests employed in this study yielded robust results that have strong practical and policy implications, as well as a solid baseline for future research. The results indicate that corporate governance mechanisms and ownership structures are indeed significant predictors of financial distress, yet their effects differ across markets, under specific macroeconomic governance conditions, and the duration of distress the firm has been suffering. Useful implications for policymakers, regulators, managers, and investors are proposed below.

The findings in the first group of analyses indicate that board size and CEO duality have positive effects on financial distress in developed markets. Furthermore, the level of board independence is significantly related to financial distress levels. This direction of the relationship, though, is negative in developed markets and positive in emerging markets. Important implications for firms in developed markets that aim to decrease financial distress are to reduce the size of their boards, to leave off the practice of the CEO simultaneously serving as the chairman of the board, and to increase the number of independent directors on the board. Emerging market firms, on the other hand, should consider a relatively lower number of independent directors on the board, as board independence is associated with increased financial

distress levels. The results suggest that blockholders increase financial distress in developed markets, but not in emerging markets. Nevertheless, institutional blockholders, with their sub-type, increase financial distress in both developed and emerging markets. On the other hand, individual investor blockholders, the sub-type of strategic entities, decrease financial distress in both developed and emerging markets. The results imply that the effects of corporate governance mechanisms and ownership structures on financial distress are not uniform across developed and emerging markets. The findings in this study have strong implications for the assessment of financially distressed firms and any corporate governance reform initiative in developed and emerging countries. This study will support investors to integrate relevant corporate governance and ownership attributes in their information tools when evaluating the riskiness and attractiveness of their investment portfolios. And this evaluation is contingent on the market the firm is operating. Additionally, the results of this study are significant for the regulators and policymakers in devising the best corporate governance practices for their respective countries. Finally, the results hint at important messages to the managers of the firms. For the investors who do not effectively involve in the daily processes of the firms they invest in, governance attributes provide them with important tools to align their interests with those of the managers. Knowing the findings of this study, managers could assess the effectiveness of the governance practices in their firms.

Besides, analyses show that in developed markets higher levels of board independence mitigate the positive impact of dual CEO on financial distress. When board independence is lower, dual CEO's actions increase financial distress. This finding suggests that independent boards can more easily monitor the dual CEO and have a mitigating effect on her unfavorable actions that would increase the financial

distress of the firm. The results also suggest that when board independence is higher, ownership concentration increases financial distress, implying that blockholders can more easily expropriate creditors when the board has more external members than internal directors. These findings have implications for both the investors and the policymakers. Investors should factor in the percentage of independent board members in evaluating the riskiness of the firm with a dual CEO. Moreover, minority investors and creditors should consider the level of concentrated ownership and board independence together, as blockholders are effective when the board has a higher number of independent directors. The findings also provide the policymakers with additional information that corporate governance practices might be considered in interaction, rather than in isolation when formulating best practices.

Another important contribution of this thesis is that it is the first comprehensive cross-country study that analyzes the impact of country-level corporate governance factors on the relationship between firm-level governance and financial distress. The results suggest that country-level governance mechanisms have important implications on the relationship between firm-level governance and financial distress. In developed countries, board size has an increasing impact and board independence has a decreasing impact on financial distress when country investor protection is high, whereas CEO duality has an increasing impact when protection is low. These findings imply that investors should consider the level of country investor rights in evaluating the distress risk of the firms in developed countries. A risk-averse investor, if investing in a developed country with low investor protection might consider the firms without dual-hatted CEOs. If investing in a developed country with high investor protection, he might consider firms with smaller and more independent boards. If the investor is in an emerging market with higher investor

protection, he might consider investing in firms with lower levels of board independence. Moreover, when country investor protection is high, increased firm-level shareholders' rights lead to increased financial distress in the global sample. This finding is especially important for policymakers to consider the potential exaggeration of the shareholder-creditor conflict in countries with higher investor protection. Moreover, creditors should be cautious about higher shareholders' rights, especially under favorable macroeconomic conditions, that might lead the firms to excessive risk-taking.

Concentrated ownership has a deteriorating effect on financial health in both developed and emerging countries when country investor protection is high. The increasing impact of institutional blockholders on financial distress is observed in countries with better investor protection. The findings imply that blockholders are more powerful with higher country investor rights, therefore they are more likely to significantly impact financial distress. These findings suggest that when concentrated shareholders are endowed with increased country-level investor protection, they are more likely to engage in distress-increasing actions. Therefore, minority investors should consider ownership concentration and the country's macroeconomic situation in their investment choices. Another significant finding that differentiates developed markets from emerging markets is the effect of strategic blockholders on financial distress. In developed countries with higher investor protection, strategic blockholders have a decreasing effect on financial distress, whereas, in emerging countries with higher investor protection, they have an increasing effect. Therefore, investors should take into consideration the presence of strategic entities, the level of country-level investor protection, and the market the firm is operating in before evaluating the financial distress risk of the firm.

The level of country creditor rights does not change the impact of corporate governance mechanisms on financial distress; however, creditor rights change the impact of ownership structures. When the level of creditor rights in developed countries is higher, ownership concentration and institutional blockholders have increasing effects, while strategic entity blockholders and their sub-types or corporation and individual blockholders have decreasing impacts on financial distress. Besides, institutional blockholders affect financial distress in developed countries when country creditor rights are high, and in emerging markets when country creditor rights are low. Minority investors should be cautious about the presence of institutional investors as they are detrimental to the financial health of the firm. However, the level of country creditor rights and the market play a role in determining institutional investor impact. Especially higher creditor levels in developed markets and lower creditor rights in emerging markets are significant contexts for institutions. The results imply that the effects of corporate governance mechanisms and ownership structures on financial distress are different under varying levels of macroeconomic governance conditions. Therefore, any practical governance solutions designed as one-size-fits-all under different macroeconomic scenarios could be counterproductive, if not detrimental, to the financial health of the firm.

The analyses also suggest that the impact of firm size on financial distress is reliant on the level of country governance factors. When country investor protection and creditor rights levels are low, firm size indeed leads to increased financial distress. When country investor protection is higher, larger firm signifies decreased financial distress. The implication for the investors is to evaluate the riskiness of the larger firms within the macroeconomic context of the related country. The results

suggest that firm size is indeed a proxy for corporate financial health, yet its effect is contingent on the level of country investor protection and creditor rights.

Another contribution to the literature is that this thesis is the first comprehensive cross-country study to analyze the impact of distress duration on the relationship between firm-level governance and financial distress. The results of the third group of analyses suggest that the duration of distress is a significant determinant of financial distress. Furthermore, the interactions of distress duration with corporate governance and ownership variables propose significant results. As the firm remains distressed for consecutive years, the negative impacts of CEO duality in developed countries and shareholder score in the global sample reverse and start to have favorable effects on the financial health of the firm. On the other hand, as the distress duration increases, favorable effects of board independence in developed countries start to become unfavorable to the firm's financial health. This finding implies that, although the presence of CEO duality and increased firm-level shareholders' rights increase financial distress (especially under certain macroeconomic conditions), they start to be beneficial as the firm remains distressed for extended periods. Similarly, although independent board members in developed countries decrease financial distress, their effects start to reverse as the firm remains distressed. Therefore, firms suffering multi-year-long financial distress may consider improving shareholders' rights, assigning the CEO as the chairperson of the board, and decreasing board independence levels as potential turn-around strategies. As distress duration increases, favorable effects of individual investor blockholders become unfavorable to the firm's financial health. This finding implies that individual blockholders might not be efficient in firms that suffer several years of financial distress. Overall, these findings imply that distress duration changes the

impacts of some corporate governance and ownership variables on financial distress. These results are particularly significant for the investors and the managers of distressed firms. In evaluating the riskiness of the firms and the effects of governance attributes on the level of financial distress, they should also consider the duration of distress the firm has been suffering in the past years. Moreover, managers could adapt strategies for the best governance practices as their firms remain distressed for consecutive years.

Overall, this study provides robust results with significant practical and policy implications for all stakeholders of public firms. The findings indicate that corporate governance mechanisms and ownership structures are indeed significant predictors of financial distress, yet their effects differ across markets, under specific macroeconomic governance conditions, and the duration of distress the firm has been suffering.

5.3 Limitations

The literature documents significant relationships between key audit matter disclosures and financial distress (Camacho-Miñano et al., 2021). The evidence suggests that the greater the number of key audit matter disclosure, the higher the level of financial distress of the firm. Moreover, Sierra-García et al. (2019) show that clients with higher financial leverage report a higher number of key audit matters. Although key audit matters seem to be a potentially significant determinant of financial distress, they are not readily available in the commercial databases that I use in this study. Since the manual collection of the data for such a large sample is impractical and extremely exhausting, not to mention potential measurement errors, key audit matters are not included in the models of analyses.

Some of the past studies use a combined governance index to measure and compare the corporate governance effectiveness of the firms. Some examples of governance indices available in the literature are the G-index of Gompers et al. (2003), the entrenchment index of Bebchuk et al. (2009), and the Gov-Score of Brown and Caylor (2006). Some authors include a governance index as a predictor of financial distress (Cao et al., 2015). For publicly traded companies, the Refinitiv database provides a historical governance pillar score, which is a commercial alternative to a governance index.[36] However, the analyses (not reported for brevity purposes) show that the governance pillar score is not a significant determinant of financial distress. This might be because the score composes of several attributes of governance, some of which are irrelevant to financial distress and the combination of several governance elements creates an insignificant variable. Nevertheless, other governance scores could be considered as alternatives.

Finally, this study acknowledges that any remaining limitation could stem from the measurement capability of the financial distress proxy. As discussed in depth in Chapter 2, the literature is abundant in arbitrary financial distress proxies. I acknowledge that using different proxies might yield different results in terms of the impact of governance factors on financial distress. Nevertheless, the Merton-type financial distress proxy of distance to default measure due to Bharath and Shumway (2008) is a broadly used measure in the financial distress literature.[37] Other commercially available proxies, such as Moody's CreditEdge or StarMine Combined Credit Risk, could be used as alternatives to distance to default and as additional robustness tests for the results. However, these commercial solutions are unaffordable for this research.

[36] Refinitiv governance pillar score and its components are briefly mentioned in APPENDIX C.
[37] For detailed discussion and the past studies using this measure, see Part 3.2.1

5.4 Recommendations for future research

The first recommendation for future research is to evaluate the models and analyses in this thesis after overcoming the limitations discussed above. The inclusion of key audit matters and corporate governance indices might yield significant results with important implications. Moreover, if affordable, the tests could be conducted with a commercial financial distress variable. The second recommendation is that future researchers could focus on regional differences within each market. Developed markets are composed of countries located in North America, EMEA, and the Pacific, emerging markets are composed of countries located in South America, Asia, and EMEA. For instance, a relevant research question might be to investigate how different corporate governance mechanisms and ownership structures affect financial distress among these regions. The final research recommendation is to investigate other corporate governance and ownership variables as determinants of financial distress. For instance, audit committee and nomination committee characteristics, gender diversity, and compensation policies might be areas of future studies. Additionally, ownership characteristics could be expanded to include active versus passive and foreign versus local investors and blockholders. These variables have been studied in the literature with conflicting results, thereby requiring robust evidence with comprehensive research.

APPENDIX A

REJECTING SAMPLING BIAS

This appendix presents details on the comparative analysis between 7,739 firms with available corporate governance data in the Refinitiv database and 37,122 firms with no available data, which are automatically excluded from the sample. The question attempted to answer with this analysis is whether this final elimination due to corporate governance data unavailability led to a sampling bias. I check whether the remaining firms represent the population in a way that would not harm the generalizability of the results of this corporate governance – financial distress study.

The literature recognizes that data availability is one of the most challenging subjects in empirical corporate governance research (Börsch- Supan & Köke, 2002). Researchers often focus on the largest firms, index firms, or firms that are under the spotlight. In any case, to reject a sampling bias that could harm my study, I expect that (i) the selected group is representative of the population (ii) the two groups have meaningfully comparable variable means (iii) the two groups have comparable financial distress measure (in terms of years and sectors).

Out of 37,122 firms without corporate governance variables, I eliminated 1,153 firms with no data after 2006 inclusive, and 1,727 firms with no financial distress or market capitalization data. The firms whose corporate governance data is not collected by Refinitiv are by nature smaller as compared to those who have available corporate governance data. Therefore, before comparing the excluded firms with the selected ones, I applied a market capitalization filter by eliminating the bottom 20 percentile of the excluded firms. In total 3,068 such firms are deleted. The final group of exclusion is 31,174 distinct firms with 238,742 firm years. This group is

compared with the selected group of 7,739 distinct firms with 51,150 firm years. I conduct the comparison in three groups. First is the comparison of data availability and market capitalization. Second, is the comparison of control variables. The third is the comparison of default probability across years and industries.

First, I compare the selected firms (and firm years) with the eliminated firms in terms of number and market capitalization. This comparison aims to understand how well the selected companies represent the overall population. Table A1 shows the firm, firm-year, and total market capitalization comparison of the two groups.

Table A1. Comparison of the Number of Firms, Firm Years, and Market Cap

Panel A: Firm and Firm-Year Comparison

Market / Region	With Governance Data		Without Governance Data		% Coverage	
	Firm	Firm-Year	Firm	Firm-Year	Firm	Firm-Year
Developed	6,113	42,041	17,986	129,917	25.4%	24.4%
Americas	3,234	19,242	4,346	23,618	42.7%	44.9%
EMEA	1,546	11,259	5,654	38,293	21.5%	22.7%
Pacific	1,333	11,540	7,986	68,006	14.3%	14.5%
Emerging	1,626	9,109	13,188	108,825	11.0%	7.7%
Americas	257	1,473	488	3,940	34.5%	27.2%
Asia	1,041	5,352	10,590	89,515	9.0%	5.6%
EMEA	328	2,284	2,110	15,370	13.5%	12.9%
Grand Total	7,739	51,150	31,174	238,742	19.9%	17.6%

Panel B: Market Capitalization Comparison

Market / Region	MCAP With Governance Data	MCAP Without Governance Data	% Coverage
Developed	404,874 M	29,390 M	93.2%
Americas	209,801 M	6,071 M	97.2%
EMEA	118,954 M	7,781 M	93.9%
Pacific	76,118 M	15,537 M	83.0%
Emerging	70,559 M	37,963 M	65.0%
Americas	12,041 M	1,693 M	87.7%
Asia	44,014 M	32,529 M	57.5%
EMEA	14,504 M	3,740 M	79.5%
Grand Total	$ 475,433 M	$ 67,353 M	87.6%

A closer review of Table A1 discloses that firms under Refinitiv ESG data coverage are approximately 20% of the population firms. Developed Markets (DM) have higher coverage with more than 25%, and Emerging Markets (EM) have lower

coverage with 11%. North and South America have the highest number of firms with available ESG data, 42.7%, and 34.5%, respectively. In terms of firm years, coverage percentages are similar to the number of firms, except in EM countries, whose only 7.7% of total firm years have available governance data.

Although the total number of firms is around 20% (and firm-years around 18%) of the population, these firms cover nearly 88% of the total market capitalization of the entire DM and EM. Firms with governance data have a total of 475 billion dollars of global market capitalization, whereas those without governance data only have 67 billion dollars of market cap. The ratio is even higher in DM, with more than 93% coverage. In EM, South America and EMEA countries have relatively high figures, whereas Asia has less than 60% of market capitalization covered by Refinitiv ESG governance data. To compare the market capitalization coverage throughout the sample period, I provide a yearly comparison in Table A2.

Comparison of firm-year and market capitalization for each sample year in each market highlights the increasing trend of corporate governance data coverage through the years. Particularly, the first two years of the sample EM countries have a relatively low number of firms, which cover less than 50% of total market capitalization. After 2008, though, the number of firms with corporate governance data increased. On average, two-thirds of EM market capitalization is covered by the final sample. As a result of these analyses, I assume that the selected sample firms with available governance data are representative of the population, in terms of market capitalization.

Second, I compare control variables to confirm that the two groups (i.e., firms with available corporate governance data and those without data) have meaningfully similar means. I compare age, total assets, number of employees, return of assets,

Table A2. Comparison of Market Capitalization for Each Period

	Sample			Excluded			Sample Coverage	
Year	Firm-Year	Average MCAP	TOTAL MCAP	Firm-Year	Average MCAP	TOTAL MCAP	% Firm-Year	% Total MCAP
Panel A: Developed Markets								
2006	1,709	13.17 M	22,508 M	9,492	.268 M	2,546 M	15.3%	89.8%
2007	1,830	14.05 M	25,712 M	10,214	.256 M	2,618 M	15.2%	90.8%
2008	2,113	8.41 M	17,766 M	9,078	.171 M	1,551 M	18.9%	92.0%
2009	2,398	8.90 M	21,339 M	9,472	.185 M	1,757 M	20.2%	92.4%
2010	2,567	9.80 M	25,158 M	9,856	.215 M	2,119 M	20.7%	92.2%
2011	2,589	9.21 M	23,839 M	9,551	.200 M	1,911 M	21.3%	92.6%
2012	2,628	9.78 M	25,702 M	9,158	.205 M	1,874 M	22.3%	93.2%
2013	2,717	11.19 M	30,399 M	8,942	.231 M	2,066 M	23.3%	93.6%
2014	2,746	11.38 M	31,237 M	8,863	.227 M	2,011 M	23.7%	94.0%
2015	3,305	9.63 M	31,824 M	8,564	.229 M	1,963 M	27.8%	94.2%
2016	3,869	8.53 M	33,018 M	8,889	.235 M	2,087 M	30.3%	94.1%
2017	4,131	9.46 M	39,075 M	9,341	.253 M	2,362 M	30.7%	94.3%
2018	4,582	8.00 M	36,650 M	9,261	.244 M	2,259 M	33.1%	94.2%
2019	4,857	8.46 M	41,107 M	9,236	.245 M	2,267 M	34.5%	94.8%
All Years	42,041	$ 9.64 M	$ 405,335 M	129,917	$ 0.226 M	$ 29,390 M	24.4%	93.2%
Panel B: Emerging Markets								
2006	24	25.76 M	618 M	5,842	.198 M	1,155 M	0.4%	34.9%
2007	52	30.06 M	1,563 M	6,456	.307 M	1,980 M	0.8%	44.1%
2008	158	12.09 M	1,911 M	5,894	.183 M	1,076 M	2.6%	64.0%
2009	254	14.20 M	3,607 M	6,500	.278 M	1,805 M	3.8%	66.7%
2010	547	10.19 M	5,576 M	7,180	.320 M	2,301 M	7.1%	70.8%
2011	603	8.34 M	5,028 M	7,220	.272 M	1,965 M	7.7%	71.9%
2012	686	8.15 M	5,589 M	7,683	.291 M	2,239 M	8.2%	71.4%
2013	720	7.55 M	5,434 M	7,961	.325 M	2,590 M	8.3%	67.7%
2014	762	7.19 M	5,482 M	8,288	.391 M	3,243 M	8.4%	62.8%
2015	797	6.43 M	5,124 M	8,402	.505 M	4,243 M	8.7%	54.7%
2016	874	6.35 M	5,547 M	8,719	.469 M	4,089 M	9.1%	57.6%
2017	1,066	7.94 M	8,463 M	9,350	.448 M	4,191 M	10.2%	66.9%
2018	1,175	6.41 M	7,535 M	9,443	.341 M	3,224 M	11.1%	70.0%
2019	1,391	6.56 M	9,127 M	9,887	.391 M	3,862 M	12.3%	70.3%
All Years	9,109	$ 7.75 M	$ 70,605 M	108,825	$ 0.349 M	$ 37,963 M	7.7%	65.0%
Total	51,150	$ 9.30 M	$ 475,940 M	238,742	$ 0.282 M	$ 67,353 M	17.6%	87.6%

leverage, beta, volatility, and Tobin's q for each sample year and the DM and EM separately. These variables are selected because they are the control variables (except employees) in the models of analysis in this dissertation. Table A3 displays the comparison of selected variables for developed and emerging markets.

As expected, excluded firms are younger, potentially more growth-oriented, and smaller in size in terms of total assets and number of employees. The excluded firms have on average lower profit, lower leverage, lower beta, higher volatility, and lower value, as compared to included firms with available corporate governance data.

Table A3. Comparison of Selected Control Variables

Panel A: Developed Markets

	Age		Total Assets		Employees		ROA		Leverage		Beta		Volatility		Tobin's Q	
Year	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded
2006	40	26	12.60 M	.337 M	30,485	1,468	0.066	-0.027	0.55	0.47	1.13	1.17	0.23	0.38	1.79	1.73
2007	39	25	13.37 M	.357 M	30,496	1,404	0.066	-0.037	0.55	0.46	1.01	0.99	0.25	0.41	1.68	1.69
2008	37	26	13.45 M	.398 M	28,926	1,494	0.040	-0.048	0.56	0.47	1.26	1.03	0.48	0.56	1.08	0.92
2009	36	26	11.23 M	.399 M	26,676	1,402	0.025	-0.068	0.54	0.47	1.12	0.82	0.41	0.53	1.43	1.37
2010	35	26	11.82 M	.397 M	25,935	1,365	0.049	-0.048	0.52	0.45	1.05	0.86	0.30	0.42	1.58	1.58
2011	36	27	12.86 M	.424 M	26,804	1,400	0.050	-0.057	0.53	0.45	1.15	0.89	0.31	0.40	1.34	1.26
2012	36	28	13.27 M	.447 M	27,357	1,430	0.040	-0.064	0.53	0.46	1.09	0.94	0.29	0.39	1.39	1.31
2013	36	29	13.04 M	.438 M	27,017	1,460	0.035	-0.056	0.52	0.47	1.01	0.79	0.27	0.40	1.58	1.51
2014	37	30	13.60 M	.428 M	26,789	1,486	0.037	-0.059	0.53	0.47	1.05	0.62	0.26	0.37	1.58	1.52
2015	36	31	11.37 M	.424 M	23,440	1,577	0.021	-0.068	0.54	0.48	0.93	0.74	0.31	0.40	1.64	1.58
2016	34	30	10.11 M	.440 M	21,104	1,653	0.020	-0.081	0.54	0.47	1.27	0.85	0.33	0.41	1.73	1.69
2017	33	30	10.02 M	.431 M	20,286	1,649	0.023	-0.089	0.53	0.46	0.78	0.42	0.26	0.37	1.92	1.97
2018	33	31	10.07 M	.439 M	19,102	1,627	0.025	-0.090	0.53	0.46	1.02	0.77	0.33	0.39	1.69	1.61
2019	32	31	9.52 M	.455 M	17,711	1,534	0.006	-0.098	0.54	0.49	1.15	0.79	0.34	0.40	1.92	1.77
All Years	35	28	$11.49 M	$0.414 M	23,871	1,486	0.032	-0.063	0.53	0.47	1.07	0.84	0.31	0.42	1.64	1.54

Panel B: Emerging Markets

	Age		Total Assets		Employees		ROA		Leverage		Beta		Volatility		Tobin's Q	
Year	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded	Sample	Excluded
2006	22	22	27.76 M	.266 M	46,983	1,719	0.090	0.022	0.52	0.50	0.92	0.85	0.24	0.43	1.70	1.33
2007	26	23	25.45 M	.301 M	42,112	1,734	0.101	0.027	0.49	0.49	0.92	0.87	0.27	0.50	2.09	1.83
2008	27	23	20.15 M	.340 M	36,357	1,928	0.091	0.022	0.48	0.49	0.93	1.05	0.46	0.59	1.33	0.98
2009	28	23	13.52 M	.364 M	33,462	1,815	0.078	0.017	0.49	0.48	0.86	0.90	0.35	0.50	1.78	1.49
2010	29	24	10.45 M	.395 M	24,234	1,918	0.079	0.029	0.50	0.48	0.92	0.86	0.28	0.39	1.81	1.52
2011	30	25	11.59 M	.434 M	25,125	2,004	0.066	0.030	0.51	0.48	0.99	0.99	0.30	0.39	1.48	1.20
2012	31	25	11.05 M	.456 M	27,326	1,996	0.060	0.026	0.51	0.47	0.99	0.95	0.29	0.39	1.61	1.30
2013	31	25	11.17 M	.474 M	25,786	2,110	0.052	0.022	0.52	0.45	0.90	1.05	0.28	0.38	1.59	1.39
2014	32	26	11.07 M	.482 M	26,577	2,158	0.052	0.021	0.52	0.45	1.01	0.65	0.27	0.36	1.61	1.65
2015	32	27	10.42 M	.474 M	26,665	2,288	0.046	0.020	0.52	0.45	1.02	1.10	0.32	0.46	1.53	2.08
2016	33	27	9.44 M	.494 M	28,557	2,683	0.051	0.022	0.52	0.44	0.96	1.04	0.30	0.40	1.48	1.82
2017	32	28	10.26 M	.517 M	26,623	2,697	0.057	0.020	0.51	0.45	0.92	0.95	0.26	0.33	1.72	1.72
2018	33	28	10.89 M	.520 M	25,545	2,661	0.055	0.009	0.51	0.45	0.93	0.91	0.31	0.38	1.45	1.36
2019	32	28	9.35 M	.537 M	20,975	2,447	0.052	0.005	0.50	0.45	1.05	1.08	0.30	0.37	1.84	1.48
All Years	32	26	$10.83 M	$0.445 M	26,025	2,153	0.057	0.020	0.51	0.46	0.97	0.95	0.30	0.41	1.62	1.53

All these variables (except the number of employees) are used as control variables in the models of this study

Finally, I compare the average probability of default (PD) measured as described in Chapter 3. Distance to default (DD) is our main financial distress proxy and dependent variable for the models in this dissertation, and PD is the cumulative normal distribution equivalent of DD. Any bias in the dependent variable would seriously harm the results of the analyses. For instance, if the firms with governance data have systematically low default probabilities compared to the excluded firms, then any finding suggesting a favorable relationship between DD and corporate governance variables might be attributable to sampling bias rather than the impact of the corporate governance practice of the firms. Therefore, I provide a yearly PD comparison for developed and emerging markets to see if there is a systematic discrepancy in the sample. Table A4 shows this comparison.

Table A4. Comparison of Default Probability

	Developed Markets		Emerging Markets	
Year	Sample	Excluded	Sample	Excluded
2006	0.030	0.077	0.004	0.118
2007	0.034	0.125	0.055	0.109
2008	0.153	0.179	0.037	0.071
2009	0.477	0.432	0.463	0.502
2010	0.033	0.064	0.014	0.038
2011	0.058	0.077	0.053	0.095
2012	0.168	0.177	0.203	0.233
2013	0.063	0.098	0.057	0.079
2014	0.050	0.065	0.096	0.105
2015	0.098	0.118	0.099	0.071
2016	0.137	0.121	0.147	0.079
2017	0.080	0.104	0.071	0.091
2018	0.069	0.082	0.053	0.101
2019	0.210	0.216	0.187	0.203
All Years	0.121	0.138	0.113	0.132

In both DM and EM, average default probabilities for the sample and the excluded firms vary for each sample year. For instance, during the great financial crisis and its aftermath, the average PD skyrockets close to 50% in the sample and

the excluded firms. In 2010 and 2011, average PD drops back to pre-crisis figures. This change occurs for both the sample and the excluded firms in DM and EM. A comparison of the averages for each sample year shows that the default probabilities of both sample and excluded firms change proportionately, implying no bias.

For all sample years, eliminated firms have slightly higher PD figures for both DM and EM. In DM, excluded firms have an average of 13.8% PD whereas sample firms have 12.1%. Likewise, in EM, excluded firms have an average of 13.2% PD, while sample firms have 11.3%. To understand whether this difference implies a sampling bias, I conduct an independent samples t-test for each sector in developed and emerging markets. The main objective for this group of tests is to observe if the mean differences between the sample and excluded firms are significant.

I grouped selected and excluded firms in TRBC sector codes. To have a balanced comparison, I randomly selected an equal number of firm years from each sector of excluded firms to match with the number of selected firms in each sector of the sample firms. For instance, the selected sample includes a total of 5,055 basic materials sector firm years, whereas excluded firms have 17,060 firm years. I randomly selected a total of 5,055 firm years from the excluded firms and compared these two equal groups. The only exception is the DM utility sector, in which excluded firm-years are lower than selected firm-years.

The results of the t-tests for each sector in both DM and EM are in Table A5. The null hypothesis for the t-tests is that the PD means of the firms with available corporate governance data are equal to those of the firms which have no available governance data. Results suggest no indication of systematic sampling bias since most of the sectors in the two groups have similar financial distress means.

Table A5. T-test Results Comparing Mean PD for Each Sector

Panel A: Developed Markets

		Selected Firm- Years		Excluded Firm-Years		t-test for Equality of μ		
Sector	N	Mean	S.Dev	Mean	S.Dev	t	Sig.	
Energy	3358	0.151	0.288	0.163	0.293	-1.580	0.114	
Basic Materials	5055	0.125	0.270	0.113	0.256	2.263	0.024	**
Industrials	7716	0.128	0.273	0.135	0.279	-1.535	0.125	
Consumer Cyclicals	7429	0.142	0.292	0.147	0.293	-1.127	0.260	
Consumer Non-Cyclicals	3333	0.097	0.244	0.101	0.245	-0.638	0.523	
Healthcare	3884	0.104	0.254	0.113	0.233	-1.516	0.130	
Technology	5481	0.105	0.254	0.129	0.271	-4.753	0.000	***
Utilities	1933	0.106	0.247	0.162	0.303	-6.275	0.000	***
Real Estate	3545	0.102	0.248	0.111	0.242	-1.618	0.106	

Panel B: Emerging Markets

Energy	774	0.118	0.262	0.129	0.258	-0.842	0.400	
Basic Materials	1388	0.109	0.249	0.118	0.256	-0.969	0.332	
Industrials	1445	0.196	0.331	0.174	0.302	1.901	0.057	*
Consumer Cyclicals	1183	0.080	0.213	0.097	0.220	-1.886	0.059	*
Consumer Non-Cyclicals	1188	0.071	0.200	0.082	0.195	-1.440	0.150	
Healthcare	403	0.043	0.160	0.068	0.177	-2.147	0.032	**
Technology	1482	0.114	0.259	0.129	0.261	-1.519	0.129	
Utilities	670	0.091	0.218	0.134	0.275	-3.165	0.002	***
Real Estate	536	0.132	0.275	0.150	0.287	-1.039	0.299	

***, ** and * indicate statistical significance levels of 1%, 5% and 10%, respectively.

To summarize, I conducted a comparative analysis between the sample firms and the excluded firms, which are eliminated due to corporate governance data unavailability. The results of this analysis suggest that although 7,739 firms with corporate governance data are about 17% of the total number of firms, they constitute 88% of the total market capitalization for the sample period. Eliminated firms with no governance data are smaller, younger, and more volatile firms with lower beta and market value. They also have slightly higher financial distress (measured as the probability of default). Nevertheless, the mean difference comparison within each economic sector reveals that most sectors in the two groups have similar financial distress means and variances.

As a result, sample firms are representative of the population in terms of total market capitalization. They have meaningfully comparable variable means with excluded firms and have similar financial distress measures (across years and

sectors). Therefore, I assume that no systematic sampling bias that might impact the analyses and results of this dissertation is detected.

APPENDIX B

ECONOMIC SECTORS PER COUNTRY AND REGION

Market/	Sector Code										
Region/Country	50	51	52	53	54	56	57	59	60	Other	Total
Developed Markets	405	561	931	895	379	608	758	212	465	105	5319
North America	233	243	399	427	152	415	449	106	234	48	2706
Canada	94	101	25	32	15	12	20	16	28	6	349
United States	139	142	374	395	137	403	429	90	206	42	2357
EMEA	94	135	313	265	110	116	172	51	100	46	1402
Austria	2	4	7	2			2	2	5	1	25
Belgium	2	6	5	4	5	8	6	1	7		44
Denmark	2	1	10	2	4	10	3	1		1	34
Finland	1	9	12	5	3	1	5	1	1		38
France	9	8	40	36	11	11	18	6	6	3	148
Germany	5	21	38	30	8	14	30	5	16	2	169
Ireland	1	3	1	3	3	1			2		14
Israel	1	2	1		1	1	4		1		11
Italy	6	4	18	21	4	4	8	11	1		77
Netherlands	5	8	12	4	6	4	9		6	4	58
Norway	21	5	7	5	8	1	4	1	3	2	57
Portugal	1	6	2		2		2	3			16
Spain	5	5	14	9	2	6	6	8	4	2	61
Sweden	2	8	31	27	10	14	13		9	2	116
Switzerland		10	30	14	7	15	16	2	6	1	101
United Kingdom	31	35	85	103	36	26	46	10	33	28	433
Pacific	78	183	219	203	117	77	137	55	131	11	1211
Australia	56	111	61	61	34	30	42	11	43	6	455
Hong Kong	9	21	28	47	23	14	25	22	49		238
Japan	10	50	105	81	46	24	60	13	21	5	415
New Zealand	2	1	8	10	6	6	4	8	8		53
Singapore	1		17	4	8	3	6	1	10		50
Emerging Markets	89	183	195	168	163	66	177	91	80	8	1220
South America	14	33	30	22	43	7	12	39	15	3	218
Argentina	3	4	4	3	8		3	8	2		35
Brazil	5	5	11	7	11	5	4	12	9	3	72
Chile	3	2	4	4	4	1	2	9	1		30
Colombia	2	3	2		2		1	5			15
Mexico		8	6	7	12	1	2	1	3		40
Peru	1	11	3	1	6			4			26
Asia	51	85	130	106	78	49	132	34	34		699
China	14	29	52	30	20	20	32	11	13		221
India	11	17	10	13	11	12	12	5	4		95
Indonesia	6	7	2	5	7	1	4	1	4		37
Malaysia	5	3	8	7	11	3	5	4	3		49
Pakistan	1	1									2
Philippines	1		1	2	5		2	6	6		23
South Korea	7	12	30	24	16	10	16	2			117
Taiwan	1	14	22	20	3	1	57		2		120
Thailand	5	2	5	5	5	2	4	5	2		35
EMEA	24	65	35	40	42	10	33	18	31	5	303
Czech Republic							1	1			2
Egypt		2	2		1		3		1		9
Greece	2	2	6	3	3	1	2	2	1	3	25
Hungary	1				1	1	1				4
Kuwait		1	1	1			2		2		7
Poland	5	6	3	5	3		2	4	1		29
Qatar	3				1		2	1	2		9
Russia	8	11		1	2	1	4	7	1		35
Saudi Arabia		9		1	2	1	2	1	2		18
South Africa	3	28	15	19	20	6	9		16	2	118
Türkiye	2	6	7	9	9		3	2	1		39
UAE			1	1			2		4		8
Grand Total	494	744	1126	1063	542	674	935	303	545	113	6539

Economic Sectors are based on Refinitiv Business Classification (TRBC). 50 Energy, 51 Basic Materials, 52 Industrials, 53 Consumer Cyclicals, 54, Consumer Non-Cyclicals, 56 Healthcare, 57 Technology, 59 Utilities, and 60 Real Estate.

APPENDIX C

REFINITIV ESG SCORE BREAKDOWN

Overall	Pillars	Categories
ESG Score	Environment	Resource Use Emissions Environment Innovation
	Social	Workforce Human Rights Community Product Responsibility
	Governance	Management Shareholders CSR Strategy

This table shows the breakdown of the Refinitiv Environmental, Social, and Governance (ESG) Score. The ESG Score comprises three pillars, and the Shareholders Score is one of the three categories of the Governance Pillar.

APPENDIX D

REFINITIV SHAREHOLDERS SCORE BREAKDOWN

Shareholders Score Composition	Explanation
Shareholder Rights Policy	Does the company have a policy for ensuring equal treatment of minority shareholders, facilitating shareholder engagement, or limiting the use of anti-takeover devices?
Equal Shareholder Rights	Does the company treat all shareholders equally?
Voting Cap Percentage	The percentage of maximum voting rights allowed or ownership rights. - limitation or cap on voting rights as reported in annual reports and bylaws - if shareholders have a share ownership limit or limit on a certain percentage of shares over which full voting rights cannot be exercised - when there is no voting cap the percentage is 100%
Director Election Majority Requirement	Are the company's board members generally elected with a majority vote? - simple majority voting through ordinary resolutions including the election of directors during shareholder meetings - when it is a contested and uncontested election, resolution on the uncontested election is taken into the consideration
Shareholders Vote on Executive Pay	Do the company's shareholders have the right to vote on executive compensation? - voting on senior executive compensation like advisory vote, say on pay, approval of overall remuneration report
Public Availability Corporate Statutes	Are the company's articles of association, statutes, or bylaws publicly available?
Veto Power or Golden share	Does the biggest owner (by voting power) hold the veto power or own golden shares? - if the biggest owner or shareholder holds more than 50% of voting shares, it's a golden share - multiple voting rights per share are to be considered to arrive at the percentage of voting shares
State-Owned Enterprise SOE	Is the company a State-Owned Enterprise (SOE)? - an entity owned or controlled by the government or any governmental body, if the latter has more than 50% of votes or has a golden share in the company, which gives it veto power
Anti-Takeover Devices Above Two	The number of anti-takeover devices in place is more than two.
Litigation Expenses To Revenues in millions	Total of all litigation expenses incurred as reported by the company divided by net sales or revenue in million.
Non-audit to Audit Fees Ratio	All non-audit fees are divided by the audit and audit-related fees paid to the group auditor.
Auditor Tenure	The number of years the current auditor is serving the organization.

This table shows the sub-categories of the shareholders' score composes. The explanations are taken verbatim from the Refinitiv ESG database. https://www.refinitiv.com/en/financial-data/company-data/esg-data

APPENDIX E

FACTOR ANALYSIS FOR CONTROL VARIABLES

This Appendix displays the results of factor analysis which reduces a total of 43 company-specific control variable candidates into meaningful components that are used in this study as control variables. I conducted a principal component analysis to select the control variables that are both uncorrelated with each other and representative of all components of the control variables. The analysis is done after all variables are winsorized at 1st and 99th percentiles. Natural logarithm is taken when it is necessary to convert the variable into a normal distribution. The entire list of analyzed variables is in Table E1.

Table E1. Company-Specific Variables Included in Factor Analysis

Variable	Variable
Interest Coverage Ratio (EBIT/Net Income)	Annual Return*
ROA (Net Income/Total Assets)**	Working Capital
ROE (Net Income / Equity)*	Retained Earnings
ROS (EBIT/Sales)*	EBIT
Leverage (Liabilities/Assets)**	Log Sales*
Log Long-Term Debt/Total Assets	Log Total Assets**
Log Cash/Total Assets	Log Market Capitalization
Working Capital/Total Assets	Log Total Liabilities
Log Sales/Total Assets	Log Intangibles*
Retained Earnings/Total Assets	Log Current Liabilities
EBIT/Total Assets*	Log Long-Term Debt*
Log Market Capitalization/Total Liabilities	Net Income
Log Price to Book Value	EBITDA
Log Total Employees*	Log Interest Expense*
Free Float	Log Shareholders Equity*
Beta (1 year monthly)**	Log Research and Development
Beta (2-year monthly)	Log Total Cash*
Log Selling, General, and Administrative Expenses/Total Assets	Log Selling, General, and Administrative Expenses
Alpha (1 year monthly)*	Operating Margin*
Log Tobin's Q **	Age**
Log Tobin's Q (alternative)*	Excess Annual Return (Over Country index)**
Standard Deviation (1 year monthly)*	

This table lists a total of 43 company-specific control variables that are included in the factor analysis. * Indicates that the variable is included in the final component matrix, ** indicates that the variable is finally selected as a control variable for the regression models in this study.

For the factor analysis, the procedures described in Hair et al. (1998) are diligently followed. Initially, all variables are included in the factor analysis as the baseline. Next, factor analysis is estimated and variables are deleted from the component structure if variable (i) does not provide the measurement of sampling adequacy (MSA) value above .50, (ii) has insufficient commonalities across factors (less than .40), and (iii) have cross-loadings to more than one component. Only one variable is deleted at each estimation, and the factor analysis is re-estimated after each elimination. Components are selected if eigenvalues are above 1.0. For each factor matrix, I apply the PROMAX oblique rotation method. Results of the factor analysis including pattern matrix, variable commonalities, eigenvalues, and percent of variance explained by each factor are shown in Table E2.

Table E2 shows the factor analysis results of 22 variables which remained after the other 21 variables are excluded from the analysis due to low MSA, insufficient commonalities, and cross-loadings. All the remaining variables in the table have MSA above .50, indicating that they are appropriate for analysis. Keiser-Meyer-Olin overall MSA is .760, indicating that the overall factor model is appropriate. Bartlett's test of sphericity is significant at .000, validating that there are significant correlations among variables. Moreover, factor analysis explains 80.23% of the variance of the analyzed variables.

The component matrix extracted a total of seven components, each representing an important area of control: size, profitability, excess return, leverage, value, maturity, and riskiness. The correlation matrix of these seven components is shown in Table E3. All correlations are low enough, indicating that these components can be used together in a regression analysis without the risk of multicollinearity.

Table E2. Results of Factor Analysis

	Components							Commonality
Variables	1	2	3	4	5	6	7	
Log Total Assets	0.839							0.903
Log Total Cash	1.009							0.751
Log Shareholders Equity	0.911							0.838
Log Total Employees	0.818							0.695
Log Sales	0.725							0.860
Log Intangibles	0.591							0.483
ROA (Net Income/Total Assets)		0.843						0.844
ROS (EBIT/Sales)		0.950						0.843
Operating Margin		0.890						0.767
EBIT/Total Assets		0.826						0.840
ROE (Net Income / Equity)		0.534						0.390
Excess Annual Return			0.967					0.947
Annual Return			0.924					0.878
Alpha (1 year monthly)			0.882					0.866
Leverage (Liabilities/Assets)				1.001				0.789
Log Long Term Debt				0.741				0.778
Log Interest Expense				0.721				0.827
Log Tobin's Q					0.924			0.892
Log Tobin's Q (alternative)					0.911			0.867
Log Age						0.975		0.955
Beta (1 year monthly)							0.954	0.823
Standard Dev. (1 year monthly)							0.693	0.682
Eigenvalue	6.23	4.16	2.23	1.90	1.47	1.27	1.18	Total: 18.45
% of Variance	27.10	18.10	9.70	8.26	6.41	5.54	5.13	Total: 80.23

The table shows the factor analysis results, including extracted components, variable commonalities, eigenvalues, and percent of variance explained by the extracted components. Extraction method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization. Rotation converged in 6 iterations.

Table E3. Component Correlation Matrix

Component	1	2	3	4	5	6	7
1	1.000						
2	0.353	1.000					
3	0.055	0.191	1.000				
4	0.474	0.164	-0.029	1.000			
5	-0.229	0.098	0.251	-0.354	1.000		
6	0.230	0.107	0.010	0.052	-0.034	1.000	
7	-0.225	-0.291	-0.243	-0.099	-0.064	-0.091	1.000

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.

Out of the seven components extracted after the factor analysis, I selected surrogate variables that best represent each component. In selecting the variable, I

considered both factor loadings and communalities of each variable. As a result of the factor analysis, I select seven control variables as a proxy for each component; natural logarithm of total assets as a proxy for size, return of assets as a proxy for profitability, leverage as a proxy for financial risk, the natural logarithm of Tobin's Q as a proxy for value, age of the firm as a proxy for maturity, and beta as a proxy for riskiness. Selected variables are highlighted in Table E2.

APPENDIX F

COUNTRY STOCK INDEXES

Country	Country Code	Country Index Name	Index Code
Argentina	AR	S&P MERVAL INDEX	ARGMERV
Australia	AU	S&P/ASX 300	ASX300I
Austria	AT	ATX - AUSTRIAN TRADED INDEX	ATXINDX
Belgium	BE	BEL 20	BGBEL20
Brazil	BR	MSCI BRAZIL	MSBRAZL
Canada	CA	S&P/TSX COMPOSITE INDEX	TTOCOMP
Chile	CL	S&P/CLX IGPA CLP INDEX	IGPAGEN
China	CN	SHANGHAI SE A SHARE	CHSASHR
Colombia	CO	BVC CAPITALIZATION	BVCCAPT
Czech Republic	CZ	PRAGUE SE PX	CZPXIDX
Denmark	DK	OMX COPENHAGEN (OMXC20)	DKKFXIN
Egypt	EG	EGYPT HERMES FINANCIAL	EGHFINC
Finland	FI	OMX HELSINKI (OMXH)	HEXINDX
France	FR	FRANCE CAC 40	FRCAC40
Germany	DE	DAX 30 PERFORMANCE	DAXINDX
Greece	GR	ATHEX COMPOSITE	GRAGENL
Hong Kong	KY	HANG SENG	HNGKNGI
Hungary	HU	BUDAPEST (BUX)	BUXINDX
India	IN	NIFTY 500	ICRI500
Indonesia	ID	IDX COMPOSITE	JAKCOMP
Ireland	IE	ISEQ ALL SHARE INDEX	ISEQUIT
Israel	IL	ISRAEL TA 125	ISTA100
Italy	IT	FTSE MIB INDEX	FTSEMIB
Japan	JP	NIKKEI 225 STOCK AVERAGE	JAPDOWA
Kuwait	KW	KUWAIT KIC GENERAL	KWKICGN
Malaysia	MY	FTSE BURSA MALAYSIA KLCI	FBMKLCI
Mexico	MX	MEXICO IPC (BOLSA)	MXIPC35
Netherlands	NL	AEX INDEX (AEX)	AMSTEOE
New Zealand	NZ	S&P/NZX 50	NZ50CAP
Norway	NO	OSLO SE OBX	OSLOOBX
Pakistan	PK	KARACHI SE 100	PKSE100
Peru	PE	S&P/BVL GENERAL(IGBVL)	PEGENRL
Philippines	PH	PHILIPPINE SE I(PSEi)	PSECOMP
Poland	PL	WARSAW GENERAL INDEX 20	POLWG20
Portugal	PT	PORTUGAL PSI-20	POPSI20
Qatar	QA	MSCI QATAR	MSQATAL
Russia	RU	MOEX RUSSIA INDEX	RSMICEX
Saudi Arabia	SA	SAUDI TADAWUL ALL SHARE (TASI)	TDWTASI
Singapore	SG	STRAITS TIMES INDEX L	SNGPORI
South Africa	ZA	FTSE/JSE ALL SHARE	JSEOVER
South Korea	KR	KOREA SE COMPOSITE (KOSPI)	KORCOMP
Spain	ES	IBEX 35	IBEX35I
Sweden	SE	OMX STOCKHOLM 30 (OMXS30)	SWEDOMX
Switzerland	CH	SWISS MARKET (SMI)	SWISSMI
Taiwan	TW	TAIWAN SE WEIGHED TAIEX	TAIWGHT
Thailand	TH	BANGKOK S.E.T.	BNGKSET
Türkiye	TR	BIST NATIONAL 100	TRKISTB
United Arab Emirates	AE	ADX GENERAL	ABUGNRL
United Kingdom	GB	FTSE 100	FTSE100
United States	US	S&P 500 COMPOSITE	S&PCOMP

This table lists the country's stock exchange indices that are used to calculate annual excess returns.

APPENDIX G

ENDOGENEITY TESTS

This Appendix provides a comprehensive set of endogeneity tests within the GMM context. The tests are conducted with instrumental variables. The relevance and orthogonality of all instrumental variables are also shown.

If not taken care of, endogeneity may cause biased and inconsistent estimates, thereby making reliable inferences practically unfeasible (Wintoki et al., 2012). Resolving endogeneity and establishing a proper causal relationship is of utmost importance for viable and applicable results (Love, 2011). If the research does not ascertain a causal link between corporate governance and financial distress, there would be no basis for suggesting better corporate governance practices that would decrease their financial distress risks. Therefore, controlling for endogeneity is of high importance to solidify the findings of this study.

To conduct the endogeneity tests, we require instrumental variables that satisfy two important conditions: relevance and exclusion (Roberts & Whited, 2013). These conditions indicate that a good instrument is both strongly correlated with endogenous variables and orthogonal to the error term (Baum et al., 2003). Orthogonality indicates that the instrument influences the dependent variable only through its effect on the endogenous variable.

The relevance condition can be assessed by an analysis of the excluded instruments in the first stage of instrumental variable regressions and the exclusion condition can be evaluated in an overidentified model, in which there are more instrumental variables than endogenous variables (Baum et al., 2003). The tests can be done by using either a simple instrumental variable estimator or the GMM

estimator, both of which require good instruments.[38] Baum et al. (2003) suggest that the GMM estimator is more efficient when heteroskedasticity is present. The test of heteroskedasticity using levels of instrumental variables is proposed by Pagan and Hall (1983).[39] The results of the tests (not reported) suggest that heteroskedasticity is present in the instrumental variables. Therefore, I implement the GMM estimator in the instrumental variable approach to test for endogeneity. I conduct the endogeneity tests in two groups. First, I test endogeneity for the ownership variables, and second, for the corporate governance variables.

The first group of tests is related to the ownership variables. An important endogeneity concern in this study is that non-strategic blockholders could be affected by the level of financial distress, by adapting their ownership stakes. The hypothesis tested in this study is that certain levels of blockholding affect the financial distress of a firm. Simultaneously, though, the level of financial distress might attract certain types of blockholders or cause them to amend the percentage of shares they hold. If the latter is true, then there is an important endogeneity issue, which should be addressed. To understand the direction of the relation, I implement a series of endogeneity tests.

The variables that I test for endogeneity are BLOCK (total blockholders), INST (institutional blockholders, as the non-strategic blockholder type), and HEDGE (hedge fund/investment advisor, as the sub-type of INST). The variables are tested separately using two instrumental variables: annual share turnover (TURN) and

[38] Endogeneity test is available in Stata with **ivreg2** command and **endog** option. As explained by Baum et al. (2003), **ivreg2** can be estimated with the **gmm** option where GMM estimator is used rather than a simple instrumental variable estimator. The general command I use in Stata to request GMM endogeneity tests is: **xi: ivreg2 dd** [exogenous explanatory variables] **(**[endogenous variable] **=** [instruments]**) i.year i.sectorcode, endog(**[endogenous variable]**) gmm2s robust cluster(id) ffirst**

[39] The Pagan-Hall test is implemented in Stata with **ivhettest** command after estimating the model with **ivreg2**.

average country shareholders score (AVGSCORE). Share turnover is calculated as annual trade volume divided by year-end shares outstanding. Aggarwal et al. (2011) use share turnover as an instrument for institutional ownership in their study of the ownership and corporate governance. Increased share turnover means an increase in stock liquidity which decreases transaction costs, thereby easier for institutional investors to adjust and rebalance their portfolios (Aggarwal et al., 2011; Jones, 2002).

The second instrument, AVGSCORE, is calculated as the annual average shareholders' score of all firms within the country year, excluding the firm itself. As La Porta et al. (1999) discuss, ownership concentration is significantly affected by the level of shareholder protection within the country. Averaging the shareholder score at the country level creates a macroeconomic variable that is expected to be exogenous to individual firms' financial distress. Li (2016), who constructs an instrumental variable to study the relation between CEO power and firm performance, adapts a similar averaging approach. Moreover, Renders and Gaeremynck, (2006) and Chhaochharia and Laeven (2007) successfully use county-level corporate governance variables as instrumental variables for their corporate governance studies.[40]

The results of the 2-step GMM estimation using panel data to test for endogeneity in the ownership variables are in Table G1. The estimates are done in three groups: I use the first BLOCK to test total blockholders (Panel A), then INST to test blockholder types (Panel B), and lastly HEDG to test blockholder sub-types

[40] I also consider lag of country adjusted excess return (Cornett et al., 2007; Switzer et al., 2018) and dividend dummy (Aggarwal et al., 2011) as potential instruments for ownership variables. However, these instrumental variables either correlate with the dependent variable or fail the weak instrument tests. Moreover, when used together, these alternative instruments produced significant over-identifying restrictions, implying that they are not valid instruments for this study.

Table G1. Endogeneity Tests for Ownership Variables

Panel A: Total Blockholder endogeneity test

	IV(1)	IV(2)	IV(3)
BLOCK	2.789	7.396	0.919
	(1.892)	(2.778)	(2.782)
Weak-instrument-robust inference:			
Stock-Wright LM S Statistics Chi-sq P-value	0.5109	0.7819	0.7711
Overidentification test of all instruments:			
Hansen J statistics Chi-sq P-value	-	-	0.5068
GMM Endogeneity test:			
Chi-sq P-value	0.5172	0.5096	0.4749

Panel B: Institutional Blockholder (non-strategic investor type) endogeneity test

	IV(1)	IV(2)	IV(3)
INST	4.470	-3.001	-2.411
	(3.252)	(3.070)	(2.931)
STRAT	Yes	Yes	Yes
Weak-instrument-robust inference:			
Stock-Wright LM S Statistics Chi-sq P-value	0.5482	0.3048	0.4850
Overidentification test of all instruments:			
Hansen J statistics Chi-sq P-value	-	-	0.4758
GMM Endogeneity test:			
Chi-sq P-value	0.5145	0.5107	0.6801

Panel C: Investment Advisor/Hedge Fund (INST Sub-type) endogeneity test

	IV(1)	IV(2)	IV(3)
HEDG	3.648	-2.433	-2.174
	(2.793)	(1.798)	(1.756)
CORP	Yes	Yes	Yes
INDV	Yes	Yes	Yes
Weak-instrument-robust inference:			
Stock-Wright LM S Statistics Chi-sq P-value	0.5459	0.1647	0.3108
Overidentification test of all instruments:			
Hansen J statistics Chi-sq P-value	-	-	0.4642
GMM Endogeneity test:			
Chi-sq P-value	0.5014	0.4412	0.5542

(Panel C). The dependent variable in all specifications is DD (distance to default). Corporate governance variables and control variables in the baseline model are included in all estimations, yet the coefficients and standard errors are not reported for brevity purposes. All estimations include year dummies, industry dummies, and a constant term. In the first step, ownership variables are instrumented with only TURN, only AVGSCORE, and both TURN and AVGSCORE. The second step results of these instruments are reported in columns IV(1), IV(2), and IV(3),

respectively. Robust standard errors corrected for firm-level clustering are reported in parenthesis.

Three test results are reported under each panel. The first two tests (i.e., weak instrument robust inference and overidentifying restrictions) check whether the instruments are orthogonal and uncorrelated with the error term, respectfully. These two tests validate the use of instrumental variables. The third test is the endogeneity test in the GMM context and tests whether the suspected endogenous variable is indeed exogenous.

The weak instrument robust inference test is the joint significance test of endogenous regressor in the main equation. Stock-Wright S statistic is an LM test distributed as chi-squared with degrees of freedom equal to the number of excluded instruments. The null hypothesis is that the coefficients of the endogenous regressors in the structural equation are equal to zero and orthogonality conditions are valid. An insignificant result indicates that the instruments are indeed good. The p-values for all three specifications across all three blockholder variables are insignificant. The results indicate that TURN and AVGSCORE are good instruments for BLOCK, INST, and HEDG, in that the instruments maintain the necessary orthogonality condition.

Since we have more instrumental variables than suspect endogenous regressors in specifications IV(3), I implement the Sargan-Hansen test of overidentifying restrictions. P-values of Hansen J statistics, which are distributed as chi-squared, are provided for each panel. The joint null hypothesis is that the instruments are not correlated with the error term. Overidentifying restrictions for all three ownership variables have insignificant p-values, indicating that the instruments are valid for the model.

The endogeneity test in the GMM context tests whether the suspect regressors are endogenous. The null hypothesis of the test is that specified endogenous regressors can be regarded as exogenous. The test is similar to the C statistics which can be defined as two Hansen J statistics: one for the equation in which the suspect regressor is treated as endogenous, and the other for the equation in which it is treated as exogenous. An insignificant result indicates that there is no sufficient evidence to reject that the suspect endogenous variable is exogenous, and endogeneity might not be a concern in the model.

To sum up, the results of the three tests in all panels indicate that the instruments are good, and the ownership variables are exogenous. The finding is the same as that of Switzer et al. (2018), indicating that endogeneity is not an issue for this study and that OLS is a valid method.

The second group of tests is concerned with the corporate governance variables. Another important endogeneity concern emerges from the possibility that corporate governance variables might be affected by the level of financial distress. Previous studies show that the direction of the relationship is from corporate governance to financial distress and an OLS model is sufficient to address remaining concerns (Darrat et al., 2016; Miglani et al., 2015). Nevertheless, it is a good exercise to check if there are any remaining endogeneity issues between the corporate governance variables and financial distress. I hypothesize that firm-level corporate governance influences financial distress levels. However, one can suspect that a shock to financial distress can also affect firm-level corporate governance. If the latter is true, then we have a serious endogeneity problem. To address this issue, I conduct a series of endogeneity tests using an instrumental variable approach in the GMM context, like what I do with the ownership variables.

I conduct the GMM endogeneity test for all corporate governance variables. SIZE (board size), INDEP (board independence), DUAL (CEO duality), and SHSCORE (firm shareholders score) variables are tested separately using two instrumental variables: average country shareholders score (AVGSCORE) and average country environmental social and governance score (AVGESG). AVGSCORE is the same instrument I use for ownership variables and is calculated as the annual average shareholders' score of all firms within the country year, excluding the firm itself. La Porta et al. (2000) argue that there is a relationship between shareholder protection and corporate governance. If shareholder rights are on average strong in the country, firms might adapt corporate governance attributes accordingly, however, country average shareholder rights should not influence individual financial distress.

The second instrument, AVGESG, is calculated as the annual country average ESG score, excluding the firm itself.[41] Renders and Gaeremynck (2006) use a similar macroeconomic measure, the country's corporate governance score, as an instrument in their governance-performance study. Klapper and Love (2004) show that firm-level corporate governance practices are significantly related to county-level corporate governance practices. The firms tend to adapt corporate governance attributes considering the general country-level ESG environment. Renders and Gaeremynck, (2006) and Chhaochharia and Laeven (2007) utilize county-level corporate governance variables as instrumental variables for their corporate governance-performance studies.[42]

[41] Firm ESG scores are gathered from Refinitiv ESG database. The breakdown of the score is in APPENDIX C.

[42] I also consider lag of firm-level corporate governance rating (Renders & Gaeremynck, 2006), country corporate governance score (Renders & Gaeremynck, 2006), and legal origin (Chhaochharia & Laeven, 2007) as potential instrumental variables for corporate governance variables. However, these instruments either correlate with the dependent variable or fail the weak instrument tests.

The results of the 2-step GMM estimation using panel data to test for potential endogeneity in the corporate variables are in Table G2. The tests are done in four groups: SIZE (Panel A), INDEP (Panel B), DUAL (Panel C), and SHSCORE (Panel D). The dependent variable in all specifications is DD. In all estimations, the variables in the baseline model (ownership variables, control variables, and other corporate governance variables) are included, yet the coefficients and standard errors are not reported for brevity purposes. All estimations include year dummies, industry dummies, and a constant term. In the first step, corporate governance variables are instrumented with only AVGESG, only AVGSCORE, and both AVGESG and AVGSCORE; these second-step results are reported in columns IV(1), IV(2), and IV(3), respectfully. Robust standard errors corrected for firm-level clustering are reported in parenthesis.

Three test results are reported under each panel. The first two tests (i.e., weak instrument robust inference and overidentifying restrictions) check whether the instruments are orthogonal and uncorrelated with the error term, respectfully. These two tests validate the use of AVGESG and AVGSCORE as instrumental variables. The third test is the endogeneity test in the GMM context and tests whether the suspected endogenous variables are indeed exogenous.

Weak instrument robust inference test results have insignificant p-values across all three instrumental variable specifications and for all four corporate governance variables. The results indicate that AVGESG and AVGSCORE maintained necessary orthogonality conditions, and are good instruments for SIZE, INDEP, DUAL, and SHSCORE. We have more instrumental variables than endogenous regressors, therefore, Sargan-Hansen tests of overidentifying restrictions are implemented in specification IV(3). The p-values of this test for all four corporate governance

Table G2. Endogeneity Tests of Corporate Governance Variables

Panel A: Board Size endogeneity test

	IV(1)	IV(2)	IV(3)
SIZE	-0.051	0.162	0.023
	(0.141)	(0.229)	(0.090)
Weak-instrument-robust inference:			
Stock-Wright LM S Statistics Chi-sq P-value	0.7096	0.4547	0.7553
Overidentification test of all instruments:			
Hansen J statistics Chi-sq P-value	-	-	0.4956
GMM Endogeneity test:			
Chi-sq P-value	0.7657	0.4412	0.7146

Panel B: Board Independence endogeneity test

	IV(1)	IV(2)	IV(3)
INDEP	-1.428	-0.162	-0.095
	(6.970)	(1.044)	(0.984)
Weak-instrument-robust inference:			
Stock-Wright LM S Statistics Chi-sq P-value	0.8327	0.872	0.9753
Overidentification test of all instruments:			
Hansen J statistics Chi-sq P-value	-	-	0.8453
GMM Endogeneity test:			
Chi-sq P-value	0.766	0.441	0.4544

Panel C: CEO Duality endogeneity test

	IV(1)	IV(2)	IV(3)
DUAL	-0.033	1.304	-0.115
	(0.411)	(1.980)	(0.396)
Weak-instrument-robust inference:			
Stock-Wright LM S Statistics Chi-sq P-value	0.9342	0.478	0.7023
Overidentification test of all instruments:			
Hansen J statistics Chi-sq P-value	-	-	0.4432
GMM Endogeneity test:			
Chi-sq P-value	0.765	0.4412	0.9233

Panel D: Shareholder Score endogeneity test

	IV(1)	IV(2)	IV(3)
SHSCORE	-0.921	-0.962	-0.963
	(2.494)	(1.019)	(1.018)
Weak-instrument-robust inference:			
Stock-Wright LM S Statistics Chi-sq P-value	0.7041	0.3256	0.6151
Overidentification test of all instruments:			
Hansen J statistics Chi-sq P-value	-	-	0.9853
GMM Endogeneity test:			
Chi-sq P-value	0.767	0.593	0.4397

variables are insignificant, indicating that the instruments are not correlated with the error term, and they are valid instruments. Finally, the GMM endogeneity test p-values are insignificant for all four variables. Results state that the null hypothesis cannot be rejected and therefore the suspected endogenous regressors can be regarded as exogenous.

The results of the three tests in all panels indicate that the instruments are good, and the corporate governance variables are exogenous. This finding, together with the finding in ownership endogeneity tests indicates that endogeneity is not an issue for this study and that OLS is a valid method.

APPENDIX H

CORRELATION COEFFICIENTS

	DD	SIZE	INDEP	DUAL	SHSCORE	BLOCK	INST	STRAT	HEDG	CORP	INDV	ROA	LEV	BETA	EXCESS	TOBIN	TA	AGE	PROT	CREDIT
DD	1	-.015**	-.033**	-.023**	-.022**	-.068**	-.068**	0.00	-.061**	0.00	-.016**	.389**	-.500**	-.265**	.090**	.318**	-.045**	.059**	0.01	-.026**
SIZE	-.022**	1	-.131**	.093**	.030**	-.075**	-.184**	.035**	-.201**	.039**	-.115**	.037**	.202**	-.020**	0.00	-.135**	.522**	.230**	-.029**	-.163**
INDEP	-.047**	-.205**	1	.135**	.095**	-.214**	.425**	-.460**	.458**	-.391**	-.103**	0.00	.074**	.059**	.010*	.172**	-.034**	-.094**	.224**	.631**
DUAL	-.027**	.077**	.122**	1	0.00	-.107**	.050**	-.114**	.082**	-.124**	.039**	.032**	.057**	.034**	0.01	.059**	.109**	.080**	0.00	.217**
SHSCORE	-.023**	.020**	.091**	0.00	1	-.103**	.020**	-.093**	.028**	-.053**	-.009*	0.00	.036**	.012**	-.010*	-.030**	.079**	.020**	0.00	.010*
BLOCK	-.049**	-.044**	-.195**	-.110**	-.110**	1	.144**	.706**	.075**	.497**	.224**	-.042**	-.030**	-.019**	-.046**	-.010*	-.160**	-.179**	.015**	-.137**
INST	-.082**	-.193**	.363**	.021**	0.00	.210**	1	-.498**	.905**	-.394**	-.086**	-.093**	.028**	.053**	-.036**	.114**	-.270**	-.119**	.247**	.469**
STRAT	0.01	.084**	-.411**	-.114**	-.100**	.777**	-.449**	1	-.500**	.736**	.360**	.031**	-.063**	-.053**	0.00	-.078**	.010*	-.072**	-.145**	-.427**
HEDG	-.079**	-.213**	.395**	.058**	.014**	.136**	.885**	-.443**	1	-.403**	-.070**	-.072**	.021**	.057**	-.026**	.135**	-.282**	-.112**	.228**	.528**
CORP	.012**	.064**	-.337**	-.121**	-.068**	.583**	-.350**	.759**	-.346**	1	-.046**	-0.01	-.072**	-.036**	-.010*	-.083**	0.01	-.046**	-.111**	-.335**
INDV	-.015**	-.078**	-.106**	.026**	-.022**	.268**	-.131**	.330**	-.118**	-.103**	1	.029**	-.040**	-.010*	.011**	.054**	-.165**	-.078**	0.01	-.032**
ROA	.285**	.089**	-.044**	.031**	.020**	-.027**	-.137**	.065**	-.117**	.040**	.025**	1	-.226**	-.103**	.195**	.473**	-.035**	.059**	.041**	-.014**
LEV	-.518**	.171**	.068**	.059**	.035**	-.021**	.043**	-.047**	.036**	-.056**	-.018**	-.105**	1	.031**	-.041**	-.193**	.318**	.021**	0.00	.016**
BETA	-.240**	-.034**	.061**	.025**	0.01	-.021**	.059**	-.057**	.065**	-.041**	-.018**	-.114**	.025**	1	-.105**	-.099**	0.00	0.00	.010*	.069**
EXCESS	.089**	.014**	0.00	.010*	-.009*	-.041**	-.070**	0.01	-.061**	0.00	0.01	.231**	-.056**	-.119**	1	.325**	-0.01	0.00	0.01	0.00
TOBIN	.279**	-.156**	.156**	.056**	-.033**	-0.01	.080**	-.057**	.096**	-.045**	.032**	.217**	-.169**	-.079**	.334**	1	-.334**	-.111**	.039**	.214**
TA	-.045**	.508**	-.048**	.114**	.082**	-.127**	-.265**	.056**	-.272**	.042**	-.102**	.179**	.290**	-.018**	.021**	-.355**	1	.193**	-.089**	-.147**
AGE	.053**	.225**	-.121**	.080**	.020**	-.173**	-.135**	-.071**	-.113**	-.059**	-.072**	.096**	.011*	-.021**	.017**	-.111**	.194**	1	-.085**	-.167**
PROT	0.00	-.065**	.242**	-.034**	0.00	.018**	.222**	-.127**	.204**	-.082**	0.00	0.01	0.00	.016**	-0.01	.021**	-.094**	-.075**	1	.391**
CREDIT	-.028**	-.238**	.616**	.185**	.009*	-.151**	.424**	-.410**	.484**	-.298**	-.061**	-.107**	.009*	.073**	-.026**	.197**	-.200**	-.174**	.361**	1

Pearson correlation coefficients are below the diagonal; Spearman nonparametric correlation coefficients are above the diagonal. ** and * indicate significance at the 0.01 and 0.05 levels (2-tailed), respectively.

APPENDIX I

CORPORATE GOVERNANCE MEANS PER COUNTRY

Market/ Region	Firm Years N	SIZE	INDEP	DUAL	SHSCORE
Developed	41247	9.8	62.3%	40.8%	50.6
North America	18714	9.5	79.1%	57.9%	51.1
Canada	2953	9.1	75.6%	31.1%	50.3
United States	15761	9.6	79.7%	62.9%	51.3
EMEA	11115	10.2	54.8%	22.2%	51.4
Austria	195	11.4	67.7%	3.1%	53.1
Belgium	335	11.2	45.9%	20.9%	50.0
Denmark	306	9.1	53.1%	6.2%	51.6
Finland	354	8.0	84.4%	13.8%	49.4
France	1264	12.7	51.2%	66.4%	49.4
Germany	1188	12.9	42.3%	11.8%	50.2
Ireland	124	11.8	61.6%	8.1%	48.5
Israel	111	10.3	42.8%	18.0%	47.7
Italy	498	12.1	52.2%	21.7%	47.7
Netherlands	459	7.6	84.4%	3.7%	55.4
Norway	337	7.9	57.1%	15.4%	53.5
Portugal	136	13.8	36.5%	34.6%	57.7
Spain	471	13.1	42.4%	49.7%	49.7
Sweden	749	9.7	62.9%	15.1%	53.1
Switzerland	749	8.2	45.9%	41.7%	51.2
United Kingdom	3839	8.9	55.9%	11.3%	52.4
Pacific	11418	9.8	40.1%	31.0%	49.1
Australia	3384	6.7	62.0%	10.5%	50.5
Hong Kong	2073	10.7	38.2%	40.2%	47.0
Japan	5069	11.8	18.3%	44.0%	49.6
New Zealand	324	6.7	74.3%	5.9%	49.7
Singapore	568	9.8	56.8%	18.5%	43.9
Emerging	8703	10.4	40.5%	26.2%	49.6
South America	1434	10.5	35.8%	31.8%	51.0
Argentina	117	12.5	18.5%	24.8%	48.3
Brazil	611	9.7	36.9%	36.8%	54.5
Chile	224	8.4	22.6%	16.6%	44.3
Colombia	90	8.6	49.7%	7.8%	50.7
Mexico	296	14.4	48.1%	42.9%	49.8
Peru	96	8.6	30.1%	32.3%	51.6
Asia	5010	10.1	41.3%	29.5%	48.8
China	975	10.5	38.6%	22.5%	47.0
India	782	11.4	51.5%	36.3%	51.7
Indonesia	305	6.7	41.7%	7.6%	50.5
Malaysia	417	9.3	47.6%	12.7%	48.3
Pakistan	6	11.8	35.6%	0.0%	50.0
Philippines	202	10.1	29.6%	56.4%	49.4
South Korea	988	9.2	53.4%	39.9%	49.5
Taiwan	1074	9.9	24.1%	34.8%	47.0
Thailand	261	14.0	43.7%	5.7%	50.1
EMEA	2259	10.9	41.9%	15.4%	50.4
Czech Republic	25	11.8	4.3%	40.0%	45.3
Egypt	74	10.9	18.7%	43.2%	54.1
Greece	191	12.1	30.4%	53.9%	51.6
Hungary	35	18.5	41.4%	42.9%	47.4
Kuwait	37	7.3	11.6%	0.0%	49.8
Poland	204	8.0	32.5%	3.0%	50.0
Qatar	54	9.2	12.5%	11.1%	48.7
Russia	331	11.0	34.6%	13.9%	49.0
Saudi Arabia	95	9.7	37.7%	0.0%	50.0
South Africa	941	11.1	57.0%	11.3%	51.4
Türkiye	229	11.5	30.3%	6.6%	49.7
United Arab Emirates	43	10.0	56.3%	19.0%	42.6
Grand Total	49950	9.9	58.4%	38.3%	50.5

This table shows the mean values of corporate governance variables for each country as grouped in markets and regions. Board size is shown in absolute terms and other variables are shown in percentages.

APPENDIX J

TOTAL BLOCKHOLDERS AND BLOCKHOLDER TYPES

		BLOCK			INST			STRAT		
Market/ Region	Total N	N	% N	% Hold	N	% N	% Hold	N	% N	% Hold
Developed	41247	37849	91.8%	32.6%	30458	73.8%	21.8%	17648	42.8%	32.1%
Americas	18714	17528	93.7%	29.7%	16649	89.0%	25.0%	4503	24.1%	22.9%
Canada	2953	2462	83.4%	26.7%	2094	70.9%	19.3%	1002	33.9%	25.1%
United States	15761	15066	95.6%	30.2%	14555	92.3%	25.8%	3501	22.2%	22.3%
EMEA	11115	10506	94.5%	36.6%	7574	68.1%	19.3%	6578	59.2%	36.2%
Austria	195	174	89.2%	45.7%	73	37.4%	14.7%	160	82.1%	43.0%
Belgium	335	322	96.1%	39.8%	131	39.1%	10.1%	281	83.9%	40.9%
Denmark	306	278	90.8%	32.4%	212	69.3%	23.2%	150	49.0%	27.4%
Finland	354	304	85.9%	27.2%	191	54.0%	12.0%	235	66.4%	25.5%
France	1264	1223	96.8%	41.1%	688	54.4%	16.1%	1003	79.4%	39.0%
Germany	1188	1140	96.0%	39.4%	665	56.0%	13.9%	840	70.7%	42.5%
Ireland	124	111	89.5%	31.2%	102	82.3%	14.2%	68	54.8%	30.1%
Israel	111	97	87.4%	48.5%	36	32.4%	11.3%	86	77.5%	50.0%
Italy	498	481	96.6%	51.5%	180	36.1%	13.8%	458	92.0%	48.7%
Netherlands	459	413	90.0%	30.3%	325	70.8%	15.7%	222	48.4%	33.3%
Norway	337	330	97.9%	41.3%	232	68.8%	17.4%	261	77.4%	36.8%
Portugal	136	136	100.0%	59.6%	63	46.3%	11.0%	136	100.0%	54.8%
Spain	471	445	94.5%	47.4%	216	45.9%	16.0%	426	90.4%	41.3%
Sweden	749	695	92.8%	30.4%	581	77.6%	19.6%	395	52.7%	24.7%
Switzerland	749	635	84.8%	32.8%	355	47.4%	12.4%	474	63.3%	34.7%
United Kingdom	3839	3722	97.0%	32.5%	3524	91.8%	23.5%	1383	36.0%	27.2%
Pacific	11418	9815	86.0%	33.5%	6235	54.6%	16.5%	6567	57.5%	34.4%
Australia	3384	3118	92.1%	32.1%	2484	73.4%	20.2%	1915	56.6%	26.1%
Hong Kong	2073	2035	98.2%	52.4%	817	39.4%	14.2%	1848	89.1%	51.4%
Japan	5069	3797	74.9%	21.8%	2293	45.2%	10.0%	2276	44.9%	26.1%
New Zealand	324	313	96.6%	31.3%	228	70.4%	16.6%	163	50.3%	36.8%
Singapore	568	552	97.2%	52.9%	413	72.7%	34.2%	365	64.3%	41.4%
Emerging	8703	8245	94.7%	51.4%	3659	42.0%	18.3%	7558	86.8%	47.3%
Americas	1434	1261	87.9%	57.7%	626	43.7%	18.8%	1121	78.2%	54.5%
Argentina	117	72	61.5%	58.3%	17	14.5%	26.8%	63	53.8%	59.4%
Brazil	611	563	92.1%	56.2%	371	60.7%	21.0%	480	78.6%	49.8%
Chile	224	224	100.0%	62.0%	67	29.9%	13.9%	222	99.1%	58.3%
Colombia	90	90	100.0%	72.0%	49	54.4%	17.6%	90	100.0%	62.4%
Mexico	296	225	76.0%	46.9%	78	26.4%	10.9%	184	62.2%	53.0%
Peru	96	87	90.6%	68.4%	44	45.8%	19.8%	82	85.4%	62.2%
Asia	5010	4779	95.4%	48.4%	1787	35.7%	12.1%	4622	92.3%	45.3%
China	975	946	97.0%	55.7%	53	5.4%	9.6%	945	96.9%	55.2%
India	782	774	99.0%	55.9%	386	49.4%	10.8%	759	97.1%	51.5%
Indonesia	305	305	100.0%	62.0%	43	14.1%	7.3%	305	100.0%	61.0%
Malaysia	417	416	99.8%	62.7%	174	41.7%	21.1%	412	98.8%	54.4%
Pakistan	6	6	100.0%	54.6%	0	0.0%	0.0%	6	100.0%	54.6%
Philippines	202	195	96.5%	54.8%	30	14.9%	7.0%	192	95.0%	54.6%
South Korea	988	984	99.6%	42.6%	803	81.3%	12.3%	920	93.1%	34.8%
Taiwan	1074	896	83.4%	28.2%	242	22.5%	9.4%	826	76.9%	27.8%
Thailand	261	257	98.5%	46.9%	56	21.5%	11.6%	257	98.5%	44.4%
EMEA	2259	2205	97.6%	54.5%	1246	55.2%	26.9%	1815	80.3%	47.7%
Czech Republic	25	25	100.0%	72.8%	2	8.0%	6.4%	25	100.0%	72.3%
Egypt	74	73	98.6%	60.8%	10	13.5%	7.3%	73	98.6%	59.8%
Greece	191	188	98.4%	50.5%	88	46.1%	11.7%	185	96.9%	45.8%
Hungary	35	35	100.0%	53.0%	16	45.7%	12.2%	35	100.0%	47.4%
Kuwait	37	36	97.3%	51.7%	15	40.5%	19.6%	34	91.9%	46.1%
Poland	204	203	99.5%	55.0%	120	58.8%	16.0%	200	98.0%	46.2%
Qatar	54	53	98.1%	58.8%	7	13.0%	8.8%	53	98.1%	57.6%
Russia	331	311	94.0%	62.8%	29	8.8%	12.0%	309	93.4%	62.1%
Saudi Arabia	95	89	93.7%	56.8%	30	31.6%	58.8%	85	89.5%	38.7%
South Africa	941	933	99.1%	48.6%	874	92.9%	30.0%	575	61.1%	33.3%
Türkiye	229	216	94.3%	64.7%	20	8.7%	6.1%	216	94.3%	64.1%
United Arab Emirates	43	43	100.0%	58.0%	35	81.4%	43.2%	25	58.1%	39.3%
Grand Total	49950	46094	92.3%	36.0%	34117	68.3%	21.5%	25206	50.5%	36.6%

This table shows descriptive statistics for total blockholders (BLOCK) and blockholder types of institutional investors blockholders (INST) and strategic entity blockholders (STRAT) for each sample country. For other explanations see Table 11 notes.

APPENDIX K

BLOCKHOLDER SUB-TYPES

		HEDG			CORP			INDV		
Market/ Region	Total N	N	% N	% Hold	N	% N	% Hold	N	% N	% Hold
Developed	41247	28544	69.2%	20.8%	10962	26.6%	29.6%	6562	15.9%	22.1%
Americas	18714	16430	87.8%	23.9%	2094	11.2%	24.0%	2521	13.5%	17.7%
Canada	2953	1998	67.7%	18.0%	540	18.3%	25.9%	441	14.9%	18.8%
United States	15761	14432	91.6%	24.7%	1554	9.9%	23.4%	2080	13.2%	17.5%
EMEA	11115	6899	62.1%	18.1%	3345	30.1%	29.7%	2323	20.9%	25.5%
Austria	195	45	23.1%	12.4%	100	51.3%	35.2%	4	2.1%	8.7%
Belgium	335	115	34.3%	9.2%	122	36.4%	35.7%	72	21.5%	38.2%
Denmark	306	180	58.8%	19.7%	112	36.6%	27.2%	36	11.8%	10.8%
Finland	354	117	33.1%	9.8%	122	34.5%	18.0%	37	10.5%	19.8%
France	1264	580	45.9%	14.0%	442	35.0%	24.8%	217	17.2%	22.0%
Germany	1188	602	50.7%	12.2%	427	35.9%	41.4%	285	24.0%	28.4%
Ireland	124	100	80.6%	14.0%	42	33.9%	27.2%	27	21.8%	35.4%
Israel	111	33	29.7%	10.8%	45	40.5%	31.7%	11	9.9%	62.5%
Italy	498	169	33.9%	13.8%	201	40.4%	40.6%	152	30.5%	41.0%
Netherlands	459	299	65.1%	14.6%	76	16.6%	25.1%	87	19.0%	27.3%
Norway	337	148	43.9%	15.4%	140	41.5%	26.5%	7	2.1%	19.4%
Portugal	136	51	37.5%	10.6%	105	77.2%	46.4%	51	37.5%	36.6%
Spain	471	178	37.8%	14.0%	294	62.4%	32.4%	159	33.8%	26.1%
Sweden	749	488	65.2%	13.7%	231	30.8%	18.7%	86	11.5%	15.0%
Switzerland	749	317	42.3%	11.0%	213	28.4%	29.2%	247	33.0%	24.3%
United Kingdom	3839	3477	90.6%	22.8%	673	17.5%	24.2%	845	22.0%	22.3%
Pacific	11418	5215	45.7%	14.7%	5523	48.4%	31.7%	1718	15.0%	23.8%
Australia	3384	2396	70.8%	18.8%	1510	44.6%	24.2%	656	19.4%	18.6%
Hong Kong	2073	707	34.1%	13.2%	1505	72.6%	47.7%	597	28.8%	33.7%
Japan	5069	1671	33.0%	9.6%	2063	40.7%	23.6%	370	7.3%	18.5%
New Zealand	324	204	63.0%	15.9%	125	38.6%	35.8%	24	7.4%	16.4%
Singapore	568	237	41.7%	12.1%	320	56.3%	42.5%	71	12.5%	19.2%
Emerging	8703	2096	24.1%	15.6%	5845	67.2%	41.6%	1615	18.6%	24.2%
Americas	1434	497	34.7%	15.3%	776	54.1%	45.2%	232	16.2%	27.4%
Argentina	117	9	7.7%	10.7%	37	31.6%	54.4%	21	17.9%	53.9%
Brazil	611	311	50.9%	17.0%	345	56.5%	41.7%	114	18.7%	21.0%
Chile	224	48	21.4%	13.9%	145	64.7%	48.8%	20	8.9%	35.0%
Colombia	90	16	17.8%	25.8%	68	75.6%	41.1%	0	0.0%	0.0%
Mexico	296	77	26.0%	9.8%	114	38.5%	47.1%	66	22.3%	28.7%
Peru	96	36	37.5%	11.2%	67	69.8%	51.0%	11	11.5%	22.7%
Asia	5010	684	13.7%	9.1%	3940	78.6%	41.9%	905	18.1%	20.9%
China	975	37	3.8%	8.0%	911	93.4%	53.3%	93	9.5%	22.7%
India	782	178	22.8%	9.8%	612	78.3%	43.3%	100	12.8%	25.0%
Indonesia	305	33	10.8%	7.1%	218	71.5%	59.2%	12	3.9%	17.2%
Malaysia	417	39	9.4%	8.4%	409	98.1%	41.6%	37	8.9%	23.1%
Pakistan	6	0	0.0%	0.0%	6	100.0%	14.2%	3	50.0%	5.9%
Philippines	202	25	12.4%	6.9%	182	90.1%	53.8%	20	9.9%	31.4%
South Korea	988	260	26.3%	9.4%	721	73.0%	31.7%	374	37.9%	23.0%
Taiwan	1074	83	7.7%	7.9%	687	64.0%	28.2%	216	20.1%	12.6%
Thailand	261	29	11.1%	12.6%	194	74.3%	41.8%	50	19.2%	24.7%
EMEA	2259	915	40.5%	20.5%	1129	50.0%	38.0%	478	21.2%	28.9%
Czech Republic	25	2	8.0%	6.4%	6	24.0%	69.6%	6	24.0%	82.4%
Egypt	74	7	9.5%	7.8%	53	71.6%	44.1%	18	24.3%	51.7%
Greece	191	88	46.1%	11.5%	82	42.9%	26.3%	92	48.2%	33.4%
Hungary	35	16	45.7%	12.2%	19	54.3%	33.9%	2	5.7%	27.6%
Kuwait	37	0	0.0%	0.0%	25	67.6%	35.0%	4	10.8%	13.9%
Poland	204	41	20.1%	10.0%	74	36.3%	35.3%	69	33.8%	37.1%
Qatar	54	0	0.0%	0.0%	17	31.5%	55.9%	0	0.0%	0.0%
Russia	331	12	3.6%	7.0%	246	74.3%	49.9%	77	23.3%	43.2%
Saudi Arabia	95	4	4.2%	14.5%	16	16.8%	26.1%	14	14.7%	18.9%
South Africa	941	725	77.0%	23.2%	410	43.6%	29.6%	166	17.6%	14.2%
Türkiye	229	20	8.7%	6.1%	170	74.2%	45.5%	24	10.5%	19.9%
United Arab Emirates	43	0	0.0%	0.0%	11	25.6%	37.8%	6	14.0%	42.0%
Grand Total	49950	30640	61.3%	20.4%	16807	33.6%	33.8%	8177	16.4%	22.5%

This table shows descriptive statistics for blockholder sub-types of Investment Advisor/Hedge Fund Blockholder (HEDG), Corporation (CORP), and individual investors (INDV) for each sample country. For other leverage, beta, volatility, and Tobin's q for each sample year and the DM and explanation see Table 11 notes.

APPENDIX L

PROT SCORES PER YEAR

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Argentina										62	62	62	62	62
Australia	64	64	64	64	64	64	64	64	64	64	64	64	64	64
Austria	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Belgium	68	68	68	68	68	68	68	68	68	68	68	68	68	68
Brazil	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Canada	80.8	80.8	80.8	80.8	80.8	80.8	80.8	84	84	84	84	84	84	84
Chile		62.7	62.7	62.7	62.7	66	66	66	66	66	66	66	66	66
China	45.1	52	52	52	52	52	52	52	52	56	56	56	56	62
Colombia			63.3	63.3	80	80	80	80	80	80	80	80	80	80
Czech Republic		58.1	58.1	58.1	58.1	58.1	58.1	62	62	62	62	62	62	62
Denmark	72	72	72	72	72	72	72	72	72	72	72	72	72	72
Egypt			36.4	40	40	40	40	40	40	46	48	54	58	62
Finland	62	62	62	62	62	62	62	62	62	62	62	62	62	62
France	68	68	68	68	68	68	68	68	68	68	68	68	68	68
Germany	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Greece	36	36	36	40	40	40	40	56	64	64	64	64	64	64
Hong Kong	82	82	82	82	82	82	82	82	82	84	84	84	84	84
Hungary			52	52	52	52	52	52	52	52	52	52	52	54
India		66.1	66.1	66.1	66.1	70	70	70	70	76	76	76	80	80
Indonesia			56.7	56.7	60	60	60	60	60	60	64	64	70	70
Ireland	78	78	78	78	78	78	78	78	78	76	80	80	80	80
Israel	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Italy	66	66	66	66	66	66	66	66	66	66	66	66	66	66
Japan	64	64	64	64	64	64	64	64	64	64	64	64	64	64
Kuwait			56.3	56.3	56.3	56.3	56.3	56.3	60	60	60	60	60	64
Malaysia			82.8	82.8	82.8	82.8	82.8	82.8	86	86	86	86	88	88
Mexico	36.5	62	62	62	62	62	62	62	62	62	62	62	62	62
Netherlands	53.9	53.9	53.9	53.9	53.9	53.9	53.9	58	58	58	58	58	58	58
New Zealand	86	86	86	86	86	86	86	86	86	86	86	86	86	86
Norway	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Pakistan												70	72	72
Peru			56.6	56.6	56.6	56.6	59.7	66	66	66	66	68	68	68
Philippines			40	40	40	40	40	40	40	40	40	40	40	44
Poland		66	66	66	66	66	66	66	66	66	66	66	66	66
Portugal	62	62	62	62	62	62	62	62	62	62	62	62	62	62
Qatar			44	44	44	44	44	44	44	44	44	28	28	28
Russia	56	56	56	56	56	56	56	56	56	56	56	58	58	58
Saudi Arabia		51	51	60	60	60	60	60	60	60	60	62	76	80
Singapore	86	86	86	86	86	86	86	86	86	86	86	86	86	86
South Africa			80	80	80	80	80	80	80	80	80	80	80	80
South Korea	63	63	63	63	63	63	63	70	70	74	74	74	74	74
Spain	60.4	60.4	60.4	60.4	60.4	60.4	60.4	60.4	68	68	70	70	70	70
Sweden	49.3	64.4	64.4	64.4	64.4	72	72	72	72	72	72	72	72	72
Switzerland	40	40	40	40	40	40	40	40	40	50	50	50	50	50
Taiwan	59.2	59.2	59.2	59.2	59.2	59.2	59.2	70.3	74	74	74	74	74	76
Thailand		62	61.7	78	78	78	78	78	78	78	78	78	86	86
Türkiye			60.8	65	65	65	65	65	76	76	76	76	76	76
United Arab Emirates			41	41	41	41	41	41	54	68	72	78	78	78
United Kingdom	84	84	84	84	84	84	84	84	84	84	84	84	84	84
United States	72.8	72.8	72.8	72.8	72.8	72.8	72.8	72.8	71.6	71.6	71.6	71.6	71.6	71.6
Median	64	64	62.3	63.2	63.5	64	64	66	66	66	66	68	69	69

This table shows yearly Protecting Minority Investors Scores (PROT) taken from the World Bank Doing Business database. Missing cells indicate that the country has no available firms in that specific year. The bottom row shows the median value for each year, which is used to create Low-PROT and High-PROT sub-samples.

APPENDIX M

CREDIT SCORES PER YEAR

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Argentina										50	50	50	50	50
Australia	84	84	84	84	84	84	84	90	90	90	90	90	90	90
Austria	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Belgium	45	45	45	45	45	45	45	45	45	45	45	45	45	65
Brazil	45	45	45	45	45	45	45	45	45	45	45	45	45	50
Canada	85	85	85	85	85	85	85	85	85	85	85	85	85	85
Chile		45	45	45	45	45	55	50	55	55	55	55	55	55
China	15	35	40	45	45	45	45	45	50	50	50	60	60	60
Colombia			50	50	50	50	50	50	50	90	90	90	90	90
Czech Republic		65.5	65.5	60	60	60	60	60	60	70	70	70	70	70
Denmark	64.6	70	70	70	70	70	70	70	70	70	70	70	70	70
Egypt			16.7	16.7	50	50	50	50	50	50	50	50	50	65
Finland	60	60	60	60	60	60	60	60	60	60	60	60	60	60
France	38.9	44.4	50	50	50	50	50	50	50	50	50	50	50	50
Germany	70	70	75.4	70	70	70	70	70	70	70	70	70	70	70
Greece	39.4	39.4	39.4	39.4	45	45	45	45	45	45	45	45	45	45
Hong Kong	70	70	70	70	70	70	70	70	70	70	75	75	75	75
Hungary			60	60	60	60	55	55	55	70	70	70	75	75
India		55	65	65	65	65	65	65	65	65	65	65	75	80
Indonesia			40	50	50	50	50	50	50	50	55	60	65	70
Ireland	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Israel	65	65	65	65	65	65	65	65	65	65	65	65	65	65
Italy	50.6	45	45	45	45	45	45	45	45	45	45	45	45	45
Japan	59.6	59.6	59.6	59.6	59.6	55	55	55	55	55	55	55	55	55
Kuwait			35	35	35	35	35	35	35	35	35	35	35	35
Malaysia			65.6	65.6	70	70	70	70	70	70	70	75	75	75
Mexico	68.8	68.8	68.8	68.8	68.8	68.8	75	75	75	80	90	90	90	90
Netherlands	45	45	45	45	45	45	45	45	40	40	40	40	45	45
New Zealand	95	95	95	95	95	95	95	95	95	100	100	100	100	100
Norway	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Pakistan												45	45	45
Peru			75	75	75	75	75	75	75	75	75	75	75	75
Philippines			17.5	17.5	17.5	17.5	17.5	35	35	35	35	40	40	40
Poland		65	65	65	75	75	75	75	75	75	75	75	75	75
Portugal	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Qatar			12.9	12.9	12.9	12.9	21.4	30	30	30	30	30	35	40
Russia	27.5	27.5	27.5	49.5	55	55	55	55	55	55	70	70	80	80
Saudi Arabia		31.5	40.5	40.5	40.5	45	45	45	45	45	45	45	45	45
Singapore	65	65	65	65	65	70	70	70	75	75	75	75	75	75
South Africa			65	65	65	65	65	65	65	60	60	60	60	60
South Korea	59.6	59.6	59.6	65	65	65	65	65	65	65	65	65	65	65
Spain	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Sweden	55.4	55.4	55.4	55.4	60	60	60	60	60	60	60	60	60	60
Switzerland	65	65	65	65	65	65	65	65	65	65	65	65	65	65
Taiwan	49.5	49.5	49.5	55	55	55	55	55	55	60	60	50	50	50
Thailand		45	45	45	45	45	45	45	45	45	45	50	70	70
Türkiye			40	40	40	40	40	40	40	45	45	45	55	75
United Arab Emirates			17.8	40	40	40	40	40	40	45	45	45	50	70
United Kingdom	75	75	75	75	75	75	75	75	75	75	75	75	75	75
United States	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Median	59.8	59.6	57.5	57.5	59.8	57.5	55	55	55	60	60	60	60	65

This table shows yearly Getting Credit (CREDIT) Scores taken from the World Bank Doing Business database. Missing cells indicate that the country has no available firms in that specific year. The bottom row shows the median value for each year, which is used to create Low-CREDIT and High-CREDIT sub-samples.

APPENDIX N

COUNTRY AVERAGE PROT AND CREDIT SCORES

		PROT		CREDIT	
Market / Region	Firm Years N	Average	Above Median %	Average	Above Median %
Developed	41,247	71.7	75.6%	79.1	82.1%
North America	18,714	73.7	100.0%	93.4	100.0%
Canada	2,953	82.6	100.0%	85.0	100.0%
United States	15,761	72.0	100.0%	95.0	100.0%
EMEA	11,115	71.0	64.5%	63.6	63.8%
Austria	195	70.0	100.0%	55.0	6.7%
Belgium	335	68.0	68.7%	47.3	0.0%
Denmark	306	72.0	100.0%	69.7	100.0%
Finland	354	62.0	0.0%	60.0	59.0%
France	1,264	68.0	71.1%	49.1	0.0%
Germany	1,188	62.0	0.0%	70.3	100.0%
Ireland	124	78.5	100.0%	70.0	100.0%
Israel	111	78.0	100.0%	65.0	91.0%
Italy	498	66.0	38.4%	45.2	0.0%
Netherlands	459	56.2	0.0%	43.6	0.0%
Norway	337	76.0	100.0%	55.0	5.9%
Portugal	136	62.0	0.0%	45.0	0.0%
Spain	471	64.9	49.0%	60.0	57.3%
Sweden	749	69.3	94.9%	59.1	47.5%
Switzerland	749	44.5	0.0%	65.0	88.1%
United Kingdom	3,839	84.0	100.0%	75.0	100.0%
Pacific	11,418	69.2	46.5%	70.6	70.7%
Australia	3,384	64.0	18.1%	88.0	100.0%
Hong Kong	2,073	83.0	100.0%	72.0	100.0%
Japan	5,069	64.0	34.1%	56.6	34.1%
New Zealand	324	86.0	100.0%	98.5	100.0%
Singapore	568	86.0	100.0%	70.5	100.0%
Emerging	8,703	67.3	50.4%	58.6	40.3%
South America	1,434	64.0	8.9%	58.2	31.5%
Argentina	117	62.0	0.0%	50.0	0.0%
Brazil	611	62.0	0.0%	45.4	0.0%
Chile	224	65.5	17.0%	52.5	0.0%
Colombia	90	79.8	100.0%	76.2	65.6%
Mexico	296	61.9	0.0%	81.0	100.0%
Peru	96	66.8	0.0%	75.0	100.0%
Asia	5,010	67.9	59.7%	59.2	44.3%
China	975	56.3	0.0%	55.3	0.0%
India	782	73.6	100.0%	67.7	99.4%
Indonesia	305	63.1	23.3%	55.7	23.3%
Malaysia	417	85.3	100.0%	71.5	100.0%
Pakistan	6	71.3	100.0%	45.0	0.0%
Philippines	202	40.4	0.0%	31.8	0.0%
South Korea	988	70.0	73.0%	64.8	89.6%
Taiwan	1,074	69.2	68.7%	54.4	0.0%
Thailand	261	79.7	97.7%	52.1	26.1%
EMEA	2,259	68.0	56.2%	57.5	37.2%
Czech Republic	25	60.3	0.0%	64.7	100.0%
Egypt	74	45.4	0.0%	49.7	0.0%
Greece	191	50.7	0.0%	43.3	0.0%
Hungary	35	52.2	0.0%	64.7	74.3%
Kuwait	37	59.9	0.0%	35.0	0.0%
Poland	204	66.0	27.5%	74.6	100.0%
Qatar	54	36.6	0.0%	30.9	0.0%
Russia	331	56.5	0.0%	59.9	36.0%
Saudi Arabia	95	66.0	35.8%	44.1	0.0%
South Africa	941	80.0	100.0%	62.3	45.7%
Türkiye	229	72.0	89.5%	48.7	14.0%
United Arab Emirates	43	68.4	76.7%	47.2	11.6%
Grand Total	49,950	71.0	71.2%	75.5	74.9%

This table shows the average Protecting Minority Investors Score (PROT) and Getting Credit Score (CREDIT) in the country. The above median columns report the percentage of firm years above the yearly median scores.

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