

DOKUZ EYLÜL UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION (ENGLISH)
BUSINESS ADMINISTRATION PROGRAM
DOCTORAL THESIS
Doctor of Philosophy (PhD)

**THE EFFECT OF DEBT HETEROGENEITY ON FIRM
PERFORMANCE AND VALUE**

Elif KORKMAZ ORAK

Supervisor

Prof. Dr. Mübeccel Banu DURUKAN SALI

2024

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APPROVAL PAGE

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Prof. Dr. Asuman ALTAY
Müdür

DECLARATION

I hereby declare that this doctoral thesis titled as “The Effect of Debt Heterogeneity on Firm Performance and Value” has been written by myself in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned recourses in the reference list. I verify all these with my honour.

11.10.2024

Elif KORKMAZ ORAK

ABSTRACT
Doctoral Thesis
Doctor of Philosophy (PhD)
The Effect of Debt Heterogeneity on Firm Performance and Valueⁱ
Elif KORKMAZ ORAK

Dokuz Eylül University
Graduate School of Social Sciences
Department of Business Administration (English)
Business Administration Doctorate Program

Firm performance and value are considered as the key indicators of whether the firm is operating in line with its main purpose of maximizing shareholders' wealth. Accordingly, capital structure, firm size, liquidity, tangibility, solvency, and corporate governance practices are presented as the main determinants of firm performance and value in the studies conducted by finance researchers. Within this context, capital structure decisions have drawn attention in the finance literature; however, the heterogeneity in the debt structure is mostly disregarded.

This dissertation aims to investigate the effect of debt heterogeneity on firm performance and value by emphasizing the monitoring role of debt financing. In this dissertation, non-financial listed firms operating in Brazil, France, Germany, Italy, Mexico, South Korea, Russia, and Türkiye between 2008 and 2022 have been analyzed using panel data regression methods by employing Driscoll-Kraay Standard Error estimators.

The empirical findings show that firm performance decreases as the heterogeneity of the debt structure decreases. These results provide evidence that the effective monitoring hypothesis is valid for the whole sample and the subsamples of developed countries, in addition to the Brazilian, French, Italian, South Korean, and Russian subsamples. However, the results for the Turkish

ⁱ This dissertation has been supported by the Scientific and Technological Research Council of Türkiye (TUBITAK) under the 2214-A International Research Fellowship Program for Doctoral Students for the studies conducted at the University of Bologna.

sub-sample show that firm performance increases as the debt structure becomes less heterogeneous, supporting the free-rider hypothesis. Furthermore, empirical findings demonstrate that firm value increases as the heterogeneity of the debt structure decreases, supporting the free-rider hypothesis. These results are also valid for the subsamples of Germany, Italy, Mexico, Türkiye, as well as the developed and developing countries subsamples.

Keywords: Debt Heterogeneity, Creditor Monitoring, Efficient Monitoring Hypothesis, Free-Rider Hypothesis, Firm Performance, Firm Value



ÖZET

Doktora Tezi

Borç Heterojenliğinin Firma Performansı ve Değeri Üzerindeki Etkisiⁱⁱ

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Firma performansı ve değeri, firmanın faaliyetlerini hissedarlarının servetini maksimize etme amacına uygun olarak yürütüp yürütmediğinin temel göstergeleri olarak kabul edilir. Finans araştırmacıları tarafından yapılan çalışmalar sonucu, firma performansı ve değerinin belirleyicileri sermaye yapısı, firma büyüklüğü, likidite, firma aktiflerinin yapısı, faiz ödeme gücü ve firmaların kurumsal yönetim uygulamaları olarak bulunmuştur. Bu bağlamda, sermaye yapısı kararları finans literatüründe göz önüne alınmış ancak bu çalışmalarda borç yapısındaki heterojenlik göz ardı edilmiştir.

Bu tez, borç finansmanı tarafından sağlanan izleme faaliyetlerini vurgulayarak borç heterojenliğinin firma performansı ve değeri üzerindeki etkisini araştırmayı amaçlamaktadır. Bu tezde, 2008 – 2022 yılları arasında Brezilya, Fransa, Almanya, İtalya, Meksika, Güney Kore, Rusya ve Türkiye’de faaliyet gösteren finansal olmayan halka açık firmalar panel veri regresyon yöntemi ile Driscoll-Kraay standart hata tahmincileri kullanılarak analiz edilmiştir.

Ampirik bulgular, borç yapısının heterojenliği azaldıkça firma performansının azaldığını ortaya koymuştur. Bu sonuçlar, gelişmiş ülkeler alt örnekleme ile Brezilya, Fransa, İtalya, Güney Kore ve Rusya alt örneklemi için etkin izleme hipotezinin geçerli olduğuna dair kanıtlar sunmaktadır. Ancak,

ii Bu tez Bolonya Üniversitesi’nde yürütülen çalışmalar için 2214-A Yurt Dışı Doktora Sırası Araştırma Burs Programı kapsamında Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TÜBİTAK) tarafından desteklenmiştir.

Türkiye alt örneklemine ilişkin sonuçlar borç yapısı daha az heterojen hale geldikçe firma performansının arttığını göstermektedir.

Ayrıca, borç yapısının heterojenliği azaldıkça firma değerinin arttığı görülmektedir ve bu sonuçlar bedavacılık hipotezini desteklemektedir. Bu sonuçlar gelişmiş ve gelişmekte olan ülkeler alt örneklemi ile Almanya, İtalya, Meksika ve Türkiye alt örneklemi için geçerlidir.

Anahtar Kelimeler: Borç Heterojenliği, Etkin İzleme Hipotezi, Bedavacılık Hipotezi, Borç Veren Denetimi, Firma Performansı, Firma Değeri



THE EFFECT OF DEBT HETEROGENEITY ON FIRM PERFORMANCE AND VALUE

CONTENTS

APPROVAL PAGE	ii
DECLARATION	iii
ABSTRACT	iv
ÖZET	vi
CONTENTS	viii
ABBREVIATIONS	xi
LIST OF TABLES	xii
LIST OF APPENDICES	xv
INTRODUCTION	1

CHAPTER ONE

FIRM PERFORMANCE AND FIRM VALUE

1.1. FIRM PERFORMANCE	5
1.1.1. Measures of Firm Performance	9
1.1.2. Firm-Specific Performance Determinants	10
1.1.2.1. Capital Structure	10
1.1.2.2. Interest Coverage Ratio	13
1.1.2.3. Firm Size	14
1.1.2.4. Liquidity	16
1.1.2.5. Tangibility	17
1.1.2.6. Corporate Governance Mechanisms	19
1.2. FIRM VALUE	22
1.2.1. Measures of Firm Value	23
1.2.2. Firm-Specific Firm Value Determinants	32
1.2.2.1. Capital Structure	34
1.2.2.2. Interest Coverage Ratio	37

1.2.2.3. Firm Size	38
1.2.2.4. Liquidity	40
1.2.2.5. Tangibility	41
1.2.2.6. Corporate Governance Mechanisms	42

CHAPTER TWO

DEBT HETEROGENEITY

2.1. TYPES OF DEBT FINANCING	48
2.1.1. Bank Loans	48
2.1.2. Trade Credit	51
2.1.3. Issued Debt Instruments	55
2.1.4. Leasing	58
2.2. DEBT AND CORPORATE GOVERNANCE	59
2.2.1. Corporate Governance Theories and Mechanisms	60
2.2.1.1. Theories of Corporate Governance	62
2.2.1.2. Corporate Governance Mechanisms	64
2.2.2. Debt As A Monitoring Tool	69
2.2.2.1. Creditor Monitoring and Debt Structure	69
2.2.2.2. Theories on Creditor Monitoring Efficiency	74
2.3. EMPIRICAL STUDIES ON DEBT HETEROGENEITY	75

CHAPTER THREE

DATA AND METHODOLOGY

3.1. DATA	81
3.2. METHODOLOGY	84
3.2.1. Diagnostic Tests	85
3.2.2. Research Model and Variables	87
3.2.3. Descriptive Statistics	91
3.2.3.1. Descriptive Statistics: Performance	91
3.2.3.2. Descriptive Statistics: Firm Value	104

3.2.4. Debt Type Distribution	114
3.2.4.1. Debt Types Distributions: Firm Performance	115
3.2.4.2. Debt Types Distribution: Firm Value	122

CHAPTER FOUR

EMPIRICAL FINDINGS

4.1. EMPIRICAL FINDINGS: FIRM PERFORMANCE	128
4.2. EMPIRICAL FINDINGS: FIRM VALUE	159
CONCLUSION	188
REFERENCES	198
APPENDICES	

ABBREVIATIONS

CEO	Chief Executive Officer
EPS	Earnings Per Share
FCF	Free Cash Flow
FDI	Financial Development Index
G20	Group of 20
GDP	Gross Domestic Product
HHI	Herfindahl-Hirschman Index
ROA	Return on Asset
ROE	Return on Equity
ROIC	Return on Invested Capital
ROI	Return on Investment
SGA	Selling, General, and Administrative Expenses
SME	Small Medium Size Enterprise
TV	Terminal Value
UK	United Kingdom
US	United States of America
WACC	Weighted Average Cost of Capital

LIST OF TABLES

Table 1: Summary of the Literature Review Related to Firm Performance and Determinants	p. 6
Table 2: Firm Value Proxies	p. 24
Table 3: Summary of the Literature Review Related to Firm Value and Determinants	p. 33
Table 4: Differences Between Anglo-Saxon and Continental European System	p. 61
Table 5: Debt Heterogeneity Measures in the Finance Literature	p. 79
Table 6: Development Levels and IFRS Adoption Years of the Sample Countries	p. 82
Table 7: Stock Exchange Capitalization	p. 83
Table 8: Number of Firms and Firm-Year Observations	p. 84
Table 9: Variable Definitions	p. 88
Table 10: Debt Types Used in HHI Calculations	p. 91
Table 11: Descriptive Statistics: Whole Sample (Performance)	p. 92
Table 12: Descriptive Statistics: Developed Countries (Performance)	p. 93
Table 13: Descriptive Statistics: Developing Countries (Performance)	p. 94
Table 14: Descriptive Statistics: Brazil (Performance)	p. 96
Table 15: Descriptive Statistics: France (Performance)	p. 97
Table 16: Descriptive Statistics: Germany (Performance)	p. 98
Table 17: Descriptive Statistics: Italy (Performance)	p. 99
Table 18: Descriptive Statistics: Mexico (Performance)	p. 100
Table 19: Descriptive Statistics: Russia (Performance)	p. 101
Table 20: Descriptive Statistics: South Korea (Performance)	p. 102
Table 21: Descriptive Statistics: Türkiye (Performance)	p. 103
Table 22: Descriptive Statistics: Whole Sample (Value)	p. 104
Table 23: Descriptive Statistics: Developed Countries (Value)	p. 105
Table 24: Descriptive Statistics: Developing Countries (Value)	p. 106
Table 25: Descriptive Statistics: Brazil (Value)	p. 107
Table 26: Descriptive Statistics: France (Value)	p. 108
Table 27: Descriptive Statistics: Germany (Value)	p. 109

Table 28: Descriptive Statistics: Italy (Value)	p. 110
Table 29: Descriptive Statistics: Mexico (Value)	p. 111
Table 30: Descriptive Statistics: Russia (Value)	p. 112
Table 31: Descriptive Statistics: South Korea (Value)	p. 113
Table 32: Descriptive Statistics: Türkiye (Value)	p. 114
Table 33: Debt Types Distributions: Whole Sample (Performance)	p. 115
Table 34: Debt Types Distributions: Developed Countries (Performance)	p. 116
Table 35: Debt Types Distributions: Developing Countries (Performance)	p. 117
Table 36: Debt Types Distributions: Brazil Subsample (Performance)	p. 117
Table 37: Debt Types Distributions: France Subsample (Performance)	p. 118
Table 38: Debt Types Distributions: Germany Subsample (Performance)	p. 118
Table 39: Debt Types Distributions: Italy Subsample (Performance)	p. 119
Table 40: Debt Types Distributions: Mexico Subsample (Performance)	p. 120
Table 41: Debt Types Distributions: Russia Subsample (Performance)	p. 120
Table 42: Debt Types Distributions: South Korea Subsample (Performance)	p. 121
Table 43: Debt Types Distributions: Türkiye Subsample (Performance)	p. 122
Table 44: Debt Types Distributions: Whole Sample (Value)	p. 122
Table 45: Debt Types Distributions: Developed Countries (Value)	p. 123
Table 46: Debt Types Distributions: Developing Countries (Value)	p. 123
Table 47: Debt Types Distributions: Brazil (Value)	p. 124
Table 48: Debt Types Distributions: France (Value)	p. 124
Table 49: Debt Types Distributions: Germany (Value)	p. 125
Table 50: Debt Types Distributions: Italy (Value)	p. 125
Table 51: Debt Types Distributions: Mexico (Value)	p. 126
Table 52: Debt Types Distributions: Russia (Value)	p. 126
Table 53: Debt Types Distributions: South Korea (Value)	p. 127
Table 54: Debt Types Distributions: Türkiye (Value)	p. 127
Table 55: Driscoll-Kraay Estimator Results: Whole Sample (Performance)	p. 130
Table 56: Driscoll-Kraay Estimator Results: Developed Countries (Performance)	p. 133
Table 57: Driscoll-Kraay Estimator Results: Developing Countries (Performance)	p. 135

Table 58: Driscoll-Kraay Estimator Results: Brazil (Performance)	p. 138
Table 59: Driscoll-Kraay Estimator Results: France (Performance)	p. 141
Table 60: Driscoll-Kraay Estimator Results: Germany (Performance)	p. 144
Table 61: Driscoll-Kraay Estimator Results: Italy (Performance)	p. 147
Table 62: Driscoll-Kraay Estimator Results: Mexico (Performance)	p. 149
Table 63: Driscoll-Kraay Estimator Results: Russia (Performance)	p. 152
Table 64: Driscoll-Kraay Estimator Results: South Korea (Performance)	p. 154
Table 65: Driscoll-Kraay Estimator Results: Türkiye (Performance)	p. 157
Table 66: Summary of Findings Dependent Variable: Performance	p. 159
Table 67: Driscoll-Kraay Estimator Results: Whole Sample (Value)	p. 160
Table 68: Driscoll-Kraay Estimator Results: Developed Countries (Value)	p. 163
Table 69: Driscoll-Kraay Estimator Results: Developing Countries (Value)	p. 165
Table 70: Driscoll-Kraay Estimator Results: Brazil (Value)	p. 168
Table 71: Driscoll-Kraay Estimator Results: France (Value)	p. 170
Table 72: Driscoll-Kraay Estimator Results: Germany (Value)	p. 173
Table 73: Driscoll-Kraay Estimator Results: Italy (Value)	p. 175
Table 74: Driscoll-Kraay Estimator Results: Mexico (Value)	p. 178
Table 75: Driscoll-Kraay Estimator Results: Russia (Value)	p. 180
Table 76: Driscoll-Kraay Estimator Results: South Korea (Value)	p. 182
Table 77: Driscoll-Kraay Estimator Results: Türkiye (Value)	p. 185
Table 78: Summary of Findings Dependent Variable: Value	p. 187

LIST OF APPENDICES

Appendix 1: Whole Sample Unit Root Tests (Performance)	app p. 1
Appendix 2: Developed Countries Unit Root Tests (Performance)	app p. 2
Appendix 3: Developing Countries Unit Root Tests (Performance)	app p. 3
Appendix 4: Brazil Subsample Unit Root Tests (Performance)	app p. 4
Appendix 5: France Subsample Unit Root Tests (Performance)	app p. 5
Appendix 6: Germany Subsample Unit Root Tests (Performance)	app p. 6
Appendix 7: Italy Subsample Unit Root Tests (Performance)	app p. 7
Appendix 8: Mexico Subsample Unit Root Tests (Performance)	app p. 8
Appendix 9: Russia Subsample Unit Root Tests (Performance)	app p. 9
Appendix 10: South Korea Subsample Unit Root Tests (Performance)	app p. 10
Appendix 11: Türkiye Subsample Unit Root Tests (Performance)	app p. 11
Appendix 12: Whole Sample Unit Root Tests (Value)	app p. 12
Appendix 13: Developed Countries Unit Root Tests (Value)	app p. 13
Appendix 14: Developing Countries Unit Root Tests (Value)	app p. 14
Appendix 15: Brazil Subsample Unit Root Tests (Value)	app p. 15
Appendix 16: France Subsample Unit Root Tests (Value)	app p. 16
Appendix 17: Germany Subsample Unit Root Tests (Value)	app p. 17
Appendix 18: Italy Subsample Unit Root Tests (Value)	app p. 18
Appendix 19: Mexico Subsample Unit Root Tests (Value)	app p. 19
Appendix 20: Russia Subsample Unit Root Tests (Value)	app p. 20
Appendix 21: South Korea Subsample Unit Root Tests (Value)	app p. 21
Appendix 22: Türkiye Subsample Unit Root Tests (Value)	app p. 22
Appendix 23: Whole Sample VIF Values (Performance)	app p. 23
Appendix 24: Developed Countries VIF Values (Performance)	app p. 24
Appendix 25: Developing Countries VIF Values (Performance)	app p. 25
Appendix 26: Brazil Subsample VIF Values (Performance)	app p. 26
Appendix 27: France Subsample VIF Values (Performance)	app p. 27
Appendix 28: Germany Subsample VIF Values (Performance)	app p. 28
Appendix 29: Italy Subsample VIF Values (Performance)	app p. 29
Appendix 30: Mexico Subsample VIF Values (Performance)	app p. 30

Appendix 31: Russia Subsample VIF Values (Performance)	app p. 31
Appendix 32: South Korea Subsample VIF Values (Performance)	app p. 32
Appendix 33: Türkiye Subsample VIF Values (Performance)	app p. 33
Appendix 34: Whole Sample VIF Values (Value)	app p. 34
Appendix 35: Developed Countries VIF Values (Value)	app p. 35
Appendix 36: Developing Countries VIF Values (Value)	app p. 36
Appendix 37: Brazil Subsample VIF Values (Value)	app p. 37
Appendix 38: France Subsample VIF Values (Value)	app p. 38
Appendix 39: Germany Subsample VIF Values (Value)	app p. 39
Appendix 40: Italy Subsample VIF Values (Value)	app p. 40
Appendix 41: Mexico Subsample VIF Values (Value)	app p. 41
Appendix 42: Russia Subsample VIF Values (Value)	app p. 42
Appendix 43: South Korea Subsample VIF Values (Value)	app p. 43
Appendix 44: Türkiye Subsample VIF Values (Value)	app p. 44
Appendix 45: Correlation Matrix Whole Sample (Performance)	app p. 45
Appendix 46: Correlation Matrix Developed Countries (Performance)	app p. 46
Appendix 47: Correlation Matrix Developing Countries (Performance)	app p. 47
Appendix 48: Correlation Matrix Brazil Subsample (Performance)	app p. 48
Appendix 49: Correlation Matrix France Subsample (Performance)	app p. 49
Appendix 50: Correlation Matrix Germany Subsample (Performance)	app p. 50
Appendix 51: Correlation Matrix Italy Subsample (Performance)	app p. 51
Appendix 52: Correlation Matrix Mexico Subsample (Performance)	app p. 52
Appendix 53: Correlation Matrix Russia Subsample (Performance)	app p. 53
Appendix 54: Correlation Matrix South Korea Subsample (Performance)	app p. 54
Appendix 55: Correlation Matrix Türkiye Subsample (Performance)	app p. 55
Appendix 56: Correlation Matrix Whole Sample (Value)	app p. 56
Appendix 57: Correlation Matrix Developed Countries (Value)	app p. 57
Appendix 58: Correlation Matrix Developing Countries (Value)	app p. 58
Appendix 59: Correlation Matrix Brazil Subsample (Value)	app p. 59
Appendix 60: Correlation Matrix France Subsample (Value)	app p. 60
Appendix 61: Correlation Matrix Germany Subsample (Value)	app p. 61
Appendix 62: Correlation Matrix Italy Subsample (Value)	app p. 62

Appendix 63: Correlation Matrix Mexico Subsample (Value)	app p. 63
Appendix 64: Correlation Matrix Russia Subsample (Value)	app p. 64
Appendix 65: Correlation Matrix South Korea Subsample (Value)	app p. 65
Appendix 66: Correlation Matrix Türkiye Subsample (Value)	app p. 66



INTRODUCTION

Firm financial performance, namely firm performance, and firm value are the essential measures demonstrating a firm's ability to reach its financial goals in line with the shareholders' wealth maximization. Accordingly, in the finance literature, the factors affecting firm performance and firm value have been broadly explored, and in this regard, firm size, liquidity, solvency, tangibility, capital structure, and corporate governance practices have been found to be the main determinants of firm performance and value (Avcı, 2016; Da Silva and Leal, 2005; Davydov, 2016; De Massis et al., 2013; Di Miceli Da Silveira and Barros, 2007; Gleason et al., 2000; Harris and Raviv, 1990; Kijkasiwat et al., 2022; Li et al., 2019; McConnell and Servaes, 1995; Morck et al., 1988; Myers, 1984; Uyar, 2009).

Today, most firms are managed by professional managers who do not have any ownership stake in the firm, therefore, professional managers should make decisions consistent with the wealth maximization demands of shareholders. Besides the operational and strategic decisions, managers are also responsible for making financing decisions to assure their firm's long-term sustainability. Financing decisions are crucial in using sources efficiently, investing in positive return projects, and ensuring firm growth; hence, these decisions should be made in accordance with the firm's short-run and long-run objectives as well as the firm's strategy. In order to decrease financing expenses, increase financial performance, and enhance value, firms try to form an optimal debt and equity financing mix. Correspondingly, the choice between debt financing and equity financing, namely the capital structure decision, is a cornerstone of corporate finance research, holding significant implications for financial performance and firm value. Previous research has extensively examined the effect of total debt on firm performance and value, suggesting a statistically significant impact; however, there is no consensus regarding the direction of the relation (Abdullah and Tursoy, 2021; Akpınar, 2016; Chen, 2002; Gleason et al., 2000; McConnell and Servaes, 1995; Myers, 2001; Yılmaz, 2017; Zeitun and Tian, 2007). In doing so, finance researchers assume that firms have homogeneous debt structures, disregarding the heterogeneity of debt structures, even though debt structures may vary in terms of maturity and debt types across firms.

Debt heterogeneity refers to differences in the types and maturity of debt. Even though the number is relatively few, there are studies investigating the effect of the maturity structure of debt on firm performance and value (Akpınar, 2016; Cho, 1998; Mardones and Cuneo, 2020; Toraman et al., 2013; Zeitun and Tian, 2007). However, less is known about how debt heterogeneity affects its performance and value. Unlike previous studies assuming a homogeneous debt structure, this dissertation considers the heterogeneity in debt structure in order to shed light on the relation between debt heterogeneity and firm performance and value. Furthermore, this dissertation contributes to the existing body of knowledge by thoroughly analyzing a broad sample consisting of both developed and developing countries, providing valuable insights for managers in terms of optimizing debt structures to maximize firm performance and value.

In addition to being an essential financing source, debt financing is also considered as a corporate governance mechanism in an environment where ownership and control are separated (Campbell and Kracaw, 1980; Diamond, 1984, 1991; Faccio et al., 2001; Jensen, 1986; Jensen and Meckling, 1976; Morellec et al., 2012; Zwiebel, 1996). Debt financing helps align the interests of managers and shareholders by reducing excess cash through fixed payments that might be misused. Additionally, debt financing disciplines managers through the monitoring function, enabling them to act in the firm's and shareholders' best interests. Accordingly, this dissertation not only discusses the financing aspect of debt financing but also considers it a corporate governance mechanism.

This dissertation contributes to the existing literature by considering debt financing as a corporate governance mechanism. Furthermore, as distinct from previous research that evaluated only financial debts, this dissertation considers trade credit as a source of debt financing by emphasizing its importance in terms of providing funds and its different monitoring implications. Heterogeneous debt structures imply having different types of debt as short-term and long-term bank loans, public debt, trade credit, and other types of interest-bearing debt simultaneously. The different characteristics of each debt type in terms of collateral and covenant requirements, the cost of debt, and the provided monitoring activities make the debt structure worth investigating. In this vein, there are two contradictory hypotheses

arguing the monitoring efficiency provided by different types of creditors, emphasizing the importance of debt structure regarding monitoring activities.

The Efficient Monitoring Hypothesis puts forward that heterogeneous debt structures, referring to having debt with different maturities or different types of debt, help enhance firm performance and value (Jensen, 1986; Rajan, 1992). This hypothesis argues that the efficiency of monitoring activities increases due to the fact that different debt types have different monitoring capabilities. The diversified monitoring skills of creditors complement each other and hence increase the monitoring efficiency. Accordingly, the interests of managers and shareholders are expected to align through more efficient creditor monitoring provided by various lenders, potentially enhancing firm performance.

In contrast with the efficient monitoring hypothesis, the free-rider hypothesis claims that the heterogeneity in debt structures may decrease the efficiency of monitoring activities. As each creditor has a smaller share of the total debt compared to proportions in homogeneous debt structures, they may lose their motivation to monitor, or they may believe that other creditors have already monitored the firm (Carletti et al., 2007; Krugman, 1988). The failure to monitor and control managers may result in reduced managerial discipline, potentially leading to a decline in firm performance and value.

By examining the existence of various types of debt in the debt structure, this dissertation aims to provide empirical results on how debt structure affects firm success. Adding to that, firm size, liquidity, tangibility, interest coverage ratio, leverage, agency costs, financial development index, and a financial crisis dummy have been included in the analysis as control variables. Non-financial firms from the Group of 20 (G20) countries that follow the civil law system and fully adopt International Financial Reporting Standards have been analyzed. In civil law countries, the main source of funding is debt financing and it makes creditor monitoring an important corporate governance mechanism which prioritize creditor monitoring over corporate governance provided by financial markets. Accordingly, civil law countries have been analyzed in this dissertation.

The effect of debt heterogeneity on firm performance and firm value has been examined for Brazilian, French, German, Italian, Mexican, Russian, South Korean, and Turkish non-financial listed firms, covering the years between 2008 and 2022. The sample provides the opportunity to interpret the differences between developing and developed countries because Brazil, Mexico, Russia, and Türkiye are classified as developing countries, while France, Germany, Italy, and South Korea are classified as developed countries.

This dissertation consists of four chapters and a conclusion. The first chapter, focusing on firm performance and firm value, explains the measures and determinants of firm performance and value by presenting the relevant empirical studies. The second chapter explains the types of debt financing, the relation between corporate governance and debt, and the monitoring role of debt. The discussion of the related literature review, and the hypotheses of this dissertation have been presented in Chapter 2. The third chapter, Data and Methodology, presents the dataset, methodology, descriptive statistics, and debt type distributions in total debt structure. The last chapter puts forth the empirical findings of the study. Finally, the conclusion chapter discusses the empirical findings, presents the limitations of the study and further research suggestions.

CHAPTER ONE

FIRM PERFORMANCE AND FIRM VALUE

Financial performance and firm value are essential measures used to determine a firm's success. Firm performance is a comprehensive measure that indicates a firm's overall efficiency and effectiveness, utilizing its sources to generate profit and achieve its financial and strategic goals. It is measured by different metrics such as return on equity, return on total assets, and return on invested capital.

Firm value indicates the economic worth of the firm by considering total assets, total liabilities, and shareholder's equity. The market value of a firm, representing the firm's worth in the market, is computed by multiplying the number of stocks outstanding by stock prices for publicly traded firms. Besides, the fundamental value of a firm considers the cash-generating ability of the firm in the future and is calculated by discounting the expected future cash flows using the weighted average cost of capital. In order to determine a firm's value, different measures such as asset-based, market-based, and income-based methods are used.

Firm performance and value are considered as significant indicators of the financial health and growth prospects of a firm. Furthermore, these indicators are also essential for investors, managers, and policymakers as they are considered in the decision-making process. In this chapter, a comprehensive examination of the measures of firm performance and firm value has been provided. In addition, the determinants that affect firm performance and value retrieved from an extensive literature review are presented.

1.1. FIRM PERFORMANCE

Firm financial performance, namely firm performance, provides a comprehensive evaluation of a firm's financial health and its ability to use its assets efficiently to reach the firm's financial goals. Firm performance is important for various stakeholders including managers, and existing and potential investors. It is used as an important metric to assess managers' and firms' success and guide the

firm's strategy. Additionally, investors may make investment decisions based on the firm performance.

There are various factors that affect financial performance, including size, liquidity, solvency, capital structure, and corporate governance-related activities (Akpınar, 2016; Harris and Raviv, 1990; Jensen, 1986; Kijkasiwat et al., 2022; Li et al., 2019; Merendino and Melville, 2019; Mishra and Dasgupta, 2019; Rajan and Zingales, 1995). Table 1 summarizes the relation between firm performance and its determinants examined in the financial literature. The relations have been extensively studied across different samples, yielding varied findings suggesting the firm- and country-specific differences. Based on the literature review, a negative relation between capital structure and firm performance is expected. Similarly, the literature suggests that tangibility has a negative effect on firm performance. In contrast, firm size, liquidity, interest coverage ratio, and good corporate governance practices are expected to be positively related to firm performance. The expected relations between firm performance and its determinants which have been determined based on the theoretical framework and the literature review have been presented in Table 1.

Table 1: Summary of the Literature Review Related to Firm Performance and Determinants

Variable	Firm Performance		Expected Relation
	Studies supporting positive relation	Studies supporting negative relation	
Capital Structure	Abdullah and Tursoy (2021) Davydov (2016) Mardones and Cuneo (2020)	Abeywardhana (2016) Akpınar (2016) Avcı (2016) Bermig and Frick (2010) Chandrapala and Knápková (2013) Chandrapala and Wickremasinghe (2012) Crisóstomo et al. (2011) Çopuroğlu and Korkmaz (2018) Demirhan and Anwar (2014) Doğan (2013) Gleason et al. (2000) Hasan et al. (2014) Johann et al. (2022)	-

		Kijkasiwat et al. (2022) Kim Foong et al. (2021) Li et al. (2019) Lopes and Carvalho (2021) Maury (2006) Mishra and Dasgupta (2019) Nassar (2016) Pati and Lee (2022) Salim and Yadav (2012) Sheikh and Wang (2013) Toraman et al. (2013) Uyar et al. (2020) Yadav et al. (2022) Yılmaz (2017) Zeitun and Tian (2007)	
Interest Coverag e Ratio	Davydov (2016) Nasimi (2016) Naknok (2022) Pal (2022) Enekwe et al. (2014)		+
Size	Abeywardhana (2016) Adams et al. (2009) Ahinful et al. (2021) Andres (2008) Avcı (2016) Bermig and Frick (2010) Chandrapala and Knápková (2013) Chandrapala and Wickremasinghe (2012) Çopuroğlu and Korkmaz (2018) Gleason et al. (2000) Isik et al. (2017) Lee (2008) Mardones and Cuneo (2020) Maury (2006) Nguyen and Nguyen (2020) Pati and Lee (2022) Salim and Yadav (2012) Sheikh and Wang (2013) Wahba (2013)	Abdullah and Tursoy (2021) Akpınar (2016) Ciavarella (2017) Crisóstomo et al. (2011) Hasan et al. (2014) Kim Foong et al. (2021) Li et al. (2019) Mishra and Dasgupta (2019)	+
Liquidit y	Chandrapala and Wickremasinghe (2012) Czyzewski and Hicks (1992) Çopuroğlu and Korkmaz (2018)	Abeywardhana (2016) Coelho (2019) Hattem (2014) Uremadu and Onyekachi (2019)	+

	Deloof (2003) Demirhan and Anwar (2014) Doğan (2013) Hager (1976) Isik et al. (2017) Johann et al. (2022) Le and Phan, 2017 Lopes and Carvalho (2021) Mardones and Cuneo (2020) Oseifuah and Gyekye (2016) Shin and Soenen (1998) Uyar (2009) Vätavu (2015) Vuković et al. (2022) Wang (2002) Yücel and Kurt (2002)	Wahba (2013, 2014)	
Tangibility	Bagga (2019) Dasuki (2016) İltaş and Demirgüneş (2020) Papadogonas (2007) Park and Lee (2024)	Bagga (2019) Chandrapala and Knápková (2013) Coelho (2019) Dasuki (2016) De Massis et al. (2013) Galbreath and Galvin (2008) Papadogonas (2007) Serrasqueiro and Nunes (2008) Sheikh and Wang (2013) Vätavu (2015) Vuković et al. (2022) Vuković et al., 2020 Wahba (2013) Wahba (2014) Weill (2007) Yadav et al. (2022) Zeitun and Saleh (2015) Zeitun and Tian (2007)	-
Good Corporate Governance Practices	Agustia et al. (2022) Catapan and Colauro (2014) Da Silva and Leal (2005) Merendino and Melville (2019) Wandroski Peris et al. (2017)		+

Source: Created by Author

The different measures of firm performance and the related literature are presented in detail in the following sections.

1.1.1. Measures of Firm Performance

Finance researchers use accounting-based measures as a proxy of financial performance. These are profitability ratios such as return on assets (ROA), return on equity (ROE), and return on invested capital (ROIC) (Mehran, 1995).

Return on Asset (ROA) shows how much net income a firm generates with its total assets (Zutter and Smart, 2022:156) and is calculated as presented in Equation (1):

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Total Assets}} \quad (1)$$

Return on Equity (ROE) is a metric indicating the net income that a firm generates in exchange for its equity. As a performance indicator, ROE shows the extent to which the investments made by shareholders in the firm are converted into profit (Zutter and Smart, 2022:156).

ROE is calculated as exhibited in Equation (2):

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Total Equity}} \quad (2)$$

Return on Invested Capital (ROIC) is a measure that expresses a firm's ability to generate profits relative to the capital it has invested. A higher ROIC indicates that a firm effectively uses its invested capital to generate profit, signaling operational effectiveness (Brigham and Ehrhardt, 2013:73).

Equation (3) shows how ROIC is calculated:

$$\text{Return on Invested Capital (ROIC)} = \frac{\text{Net Operating Profit After Tax (NOPAT)}}{\text{Operating Capital}} \quad (3)$$

Operating capital is calculated by deducting operating current liabilities from operating current assets and adding net plant and equipment.

1.1.2. Firm-Specific Performance Determinants

The finance literature has investigated the determinants of financial performance extensively. Based on this research, the widely accepted determinants can be listed as capital structure, interest coverage ratio, firm size, liquidity, tangibility, and corporate governance mechanisms. In this section the literature on each determinant and the direction of the relation between firm performance and these determinants will be explained.

1.1.2.1. Capital Structure

Capital structure decisions have been considered as a material factor affecting firms' financial performance. Understanding the impact of leverage on firm performance is crucial, as it may have significant implications for a firm's financial health and success. Proper management of leverage can help ensure better firm performance and mitigate risks associated with excess amount of debt. A plethora of studies have been conducted on the relation between capital structure and firm performance, and most of them demonstrate a negative relation between the two. However, it should be noted that there are also studies presenting a positive relation.

In order to analyze the impact of total debt on the firm performance, Gleason et al. (2000) and Maury (2006) analyzed a broad sample encompassing Western European firms, including France, Germany, and Italy. These studies provide evidence that the effect of total debt on the ROA is negative. Mishra and Dasgupta (2019) found that leverage has a negative impact on ROA and ROE for developed bank-based countries, such as France and Germany. Similarly, Bermig and Frick (2010) found that leverage has a statistically significant negative effect on ROIC but an insignificant negative effect on ROE for the German sample. In a similar vein, for French, German and Italian small and medium-sized enterprises (SMEs), Li et al. (2019) present a negative relation between leverage and firm performance, proxied by ROA, if the firms have a low credit risk. Johann et al. (2022) found supporting evidence to the same direction about the relation between leverage and ROA, however; their results present that leverage positively affects ROE for small and medium-sized German firms.

Moreover, Abdullah and Tursoy (2021) present a positive relation between leverage and firm performance proxied by ROA and ROE in their study examining German-listed firms for pre- and post-IFRS periods covering 1993 and 2016.

Kijkasiwat et al. (2022) investigated 2568 publicly listed firms from 17 countries, including Türkiye as an emerging country and France, Germany, and South Korea as developed countries. Their empirical findings show that leverage negatively affects the firm performance in both emerging and developed countries which is consistent with Gleason et al. (2000), Maury (2006), and Mishra and Dasgupta (2019). Similarly, leverage is found to negatively affect firm performance by Pati and Lee (2022) and Yadav et al. (2022) for a South Korean sample.

There is a consensus among studies conducted on Turkish-listed firms that leverage negatively affects firm performance. Avcı (2016), Çopuroğlu and Korkmaz (2018), and Nassar (2016) found a negative relation between leverage and firm performance proxied by ROA and ROE for the Turkish sample. Similarly, Doğan (2013) presents a negative relation between ROA and leverage between 2008 and 2011, and Demirhan and Anwar (2014) present a negative relation between leverage and firm performance during the economic crisis. In addition, the empirical findings of Yılmaz (2017) show that for small firms, leverage negatively affects ROA, ROE, and EPS; however, for large firms, the negative effect has been found only on ROA. Toraman et al. (2013) presents a negative relation between short-term debt and ROA. Akpınar (2016) examined the effect of leverage on firm performance by considering debt maturity suggesting a significant negative relation between short-term debt and ROE. However, long-term and total debt have been found statistically insignificant.

Crisóstomo et al. (2011) examined how capital structure and firm performance are related within the Brazilian context, covering 2001 –2006. Their results put forth a negative relation between leverage and ROA. On the contrary, Davydov (2016) presents a positive relation between leverage and ROA for Brazil, Russia, India, and China. The empirical findings of Mardones and Cuneo (2020) suggest that long-term debt is positively related to ROE, but it is negatively related to ROA for a Mexican sample. Moreover, short-term debt is negatively related to ROA and ROE. For Brazilian firms, their results present that long-term debt negatively affects ROA; however, short-term debt positively affects ROE. In addition, Lopes and Carvalho

(2021) present a negative relation between leverage and ROA by investigating Argentina, Brazil, and Mexico between 2011 and 2017.

Abeywardhana (2016) investigated the SMEs operating in the UK and concluded that leverage negatively affects firm performance proxied by ROA and return on capital employed. Nguyen and Nguyen (2020) and Salim and Yadav (2012) use three proxies to measure firm performance. For Vietnam and Malaysia samples, their findings indicate that leverage negatively affects ROA, ROE, and EPS. Uyar et al. (2020) conducted a multi-country investigation on the relation between leverage and ROA for firms operating in the hospitality and tourism industry. They presented a negative relation between leverage and ROA.

The studies conducted on different samples presented mixed results about the direction of the relation between leverage and firm performance. For instance, Zeitun and Tian (2007) stated that both short-term and total debt significantly negatively affect firm performance for the Jordan sample, while Wahba, (2013) presents a negative relation between short-term debt and performance but a positive one for long-term debt for the Egypt sample. Chandrapala and Knápková (2013), Hasan et al. (2014), Kim Foong et al. (2021), Chandrapala and Wickremasinghe (2012), and Sheikh and Wang (2013) put forth that leverage is negatively related to firm performance proxied by ROA for listed Czech, Bangladesh, Malaysia, Sri Lanka, and Pakistan samples, respectively. However, Coelho (2019) presents a U-shaped relation that is negative at first but then turns positive between leverage and ROA for Portuguese SMEs. Javed et al. (2014) employ ROE as a firm performance proxy and find a negative relation between long-term debt and ROE for Pakistani firms. Le and Phan (2017) and Vătavu (2015) measure firm performance by ROA and ROE, and they present a negative relation between leverage and both firm performance measures for the firms operating in Vietnam and Romania, respectively. Furthermore, for the Malaysian sample, Ahmad et al. (2012) exhibits that short-term and total debt has a negative effect on both ROA and ROE. Their results present a significant positive relation between long-term debt and ROE.

The empirical findings of Gonzalez (2013) provide insights for 39 countries and present a controversial relation between leverage and firm performance. While they found a negative relation for the whole sample, the direction of the relation varies

according to country characteristics, and they put forth a positive relation for civil law countries. This may be due to the different functions of debt financing in different countries. For instance, in bank-based economies, the disciplinary role of debt financing may override the financial distress cost, leading to more efficient managerial decisions and better financial performance (Gonzalez, 2013:182).

For a US sample, Opler and Titman (1994) put forth that firms with higher debt levels tend to experience higher decreases in operating profits and market share relative to firms with lower debt levels during economic downturns. Their results imply that firms with higher debt levels are inclined to face more severe consequences of financial distress during the downturns as the financial distress cost of debt financing may outweigh its potential advantages.

The relation between the mix of debt and equity financing, namely capital structure, and firm performance is one of the well-investigated topics in corporate finance research. However, the empirical evidence on the effect of capital structure on firm performance remains inconclusive. Although there are studies presenting a positive relation between leverage and firm performance, most studies have concluded that leverage has a negative effect on firm performance. Based on the existing literature, a negative relation between leverage and firm performance is expected.

1.1.2.2. Interest Coverage Ratio

The interest coverage ratio (ICR) is a vital determinant indicating how many times a firm can fulfill its interest obligations with its net operating income before interest and taxes (Bernanke, 2010; Graham et al., 2015; Lansing et al., 2010). This ratio, which shows creditworthiness of the firm (Gupta, 2017), is considered as a firm performance determinant (Naknok, 2022; Pal, 2022). Furthermore, Eriotis et al. (2007) point out that ICR is essential in determining a firm's capital structure as it measures the capability of meeting interest expenses, and a higher interest coverage ratio is associated with a lower probability of default (Gupta, 2017).

Davydov (2016) provides evidence that ICR has a positive effect on ROA for Brazilian, Russian, Indian, and Chinese listed firms. Conversely, the empirical findings of Ji (2019) reveal that an ICR of less than one significantly affects stock

prices in the South Korean sample. Delen et al. (2013) also put forward the importance of ICR in determining firm performance, identifying ICR as the fourth most important determinant for Turkish listed firms. Bonazzi and Iotti (2014) examine an Italian sample and emphasize the importance of ICR in terms of profitability and sustainability of financial performance, especially when the firms use bank debt.

Nasimi (2016) investigated a UK sample and their results put forth that ICR has a positive effect on ROE and ROA. Naknok (2022) found that ICR positively affects firm performance proxied by earnings per share and ROE for the Thai firms. Similarly, Pal (2022) presents a positive relation between the interest coverage ratio and the firm performance, especially for the firms operating in the cement industry listed in Bombay Stock Exchange. Enekwe et al. (2014) also found a positive relation between ICR and ROA operating in Nigeria. Based on the scarce number of studies investigating the relation between ICR and firm performance, the positive relation is expected.

1.1.2.3. Firm Size

Firms size is considered as one of the most fundamental firm characteristics that affect firm performance. Across various contexts, a large body of literature has analyzed the relation between firm size and firm performance using different proxies, such as total assets and sales. However, the empirical evidence on this relation has remained mixed. Although the majority of studies report a positive relation between firm size and performance, a few found a negative one.

Gleason et al. (2000) and Maury (2006), in their studies analyzing a broad sample, including France, Germany, and Italy, found a positive relation between firm size and firm performance proxied by ROA. However, Ciavarella (2017) and Li et al. (2019) concluded that firm size negatively affects the financial performance of French, German, and Italian samples. In addition, Mishra and Dasgupta (2019) show a statistically significant negative relation for the German and French samples. For the German sample, Andres (2008) and Bermig and Frick (2010) present a positive relation between firm size and firm performance, while Abdullah and Tursoy (2021) present the opposite. For the South Korean sample, S. Lee (2008) and Pati and Lee

(2022) present the positive effect of firm size on ROA and ROE. Avcı (2016) present that firm size positively affects ROA and ROE, while Çopuroğlu and Korkmaz (2018) and Isik et al. (2017) find a positive effect only on ROA for the Turkish sample. On the contrary, Akpınar (2016) found that firm size negatively affects performance proxied by ROE.

Crisóstomo et al. (2011) investigated Brazilian firms covering 2001-2006 and showed that firm size negatively affects ROA; however, Mardones and Cuneo (2020) present a positive relation between firm size and firm performance (ROA and ROE) for Brazilian and Mexican firms. Lopes and Carvalho (2021) analyzed Brazilian, Argentinian, and Mexican firms for 2011 - 2017 and presented inconclusive results. While their results show a positive relation for Brazil and Argentina, they present a negative but statistically insignificant relation for Mexico.

Abeywardhana (2016), Adams et al. (2009), Ahinful et al. (2021), Chandrapala and Knápková (2013), Nguyen and Nguyen (2020), Chandrapala and Wickremasinghe (2012), Salim and Yadav (2012), Sheikh and Wang (2013), and Wahba (2013) put forth that firm size positively affects the firm performance for UK, US, Ghana, Czech Republic, Vietnam, Sri Lanka, Malaysia, Pakistan, and Egypt samples, respectively. According to Ahmad et al. (2012), firm size positively affects ROA, but there is no significant effect on ROE for listed Malaysian firms. On the contrary, Hasan et al. (2014) and Kim Foong et al. (2021) found a statistically significant negative effect on ROA and ROE for Bangladesh and Malaysian samples, respectively. Mishra and Dasgupta (2019) found that firm size positively affects ROA and ROE for the Argentina sample.

In sum, a review of existing literature suggests a positive relation between firm size and firm performance. While some studies report a negative relation, the prevailing conclusion is that larger firms tend to have better firm performance. Hence, a positive relation between firm size and firm performance is expected in this dissertation.

1.1.2.4. Liquidity

In the finance literature, a significant relation between liquidity and firm performance has been presented. Even though most of the studies present a positive relation, there are also studies putting forth a negative one outlining the existence of other factors in the relation between liquidity and firm performance.

Hatem (2014) analyzed the effect of cash ratio, a proxy for liquidity, on firm performance and reported a statistically significant negative relation for Italian sample, but a positive one for Swedish sample. In addition, Vuković et al. (2022) investigated a European sample and their results show a statistically significant positive relation between liquidity and ROA. Johann et al. (2022) investigated the German sample, and their empirical findings exhibit a positive relation between liquidity and ROA but a negative one between liquidity and ROE. Mardones and Cuneo (2020) found that liquidity positively affects ROA and ROE for the Brazilian sample and positively affects only ROE for the Mexican sample. Similar results were presented by Lopes and Carvalho (2021), showing a positive relation between liquidity and ROA for the Brazilian and Mexican samples.

Uyar (2009) measures liquidity with cash conversion cycle and reports that shorter cash conversion cycles lead a higher ROA among industrial companies listed in Borsa Istanbul. Yücel and Kurt (2002) investigated listed Turkish firms and found that current and quick ratio positively affect net profit margin, ROA, and ROE. In a similar vein, Çopuroğlu and Korkmaz (2018) investigated the Turkish sample, and their empirical results present a positive relation between liquidity and firm performance measured by ROA and ROE. Additionally, Doğan (2013) and Isik et al. (2017) found that liquidity positively affects ROA for Turkish listed firms. Demirhan and Anwar (2014) investigated non-financial listed Turkish firms for the 2008 crisis period, and they put forth that higher liquidity leads to higher financial performance. However, Akpınar (2016) presents an insignificant relation for Turkish listed firms.

In compliance with the insights of previous researchers like Hager (1976), who concluded that shorter cash conversion cycles lead to better operating performance, Czyzewski and Hicks (1992), Wang (2002), and Shin and Soenen (1998) found that more liquid US firms have higher ROA and ROE. Deloof (2003) and Oseifuah and

Gyekye (2016) present similar results indicating that liquidity has a positive impact on ROA and ROE for Japanese and Taiwanese samples. Their empirical findings exhibit that lower cash conversion cycles are associated with higher profitability in Belgian and South African samples, respectively.

Chandrapala and Wickremasinghe (2012) analyzed Sri Lankan firms during 2008-2009 and found a positive relation between liquidity, as measured by current ratio, and ROA and ROE. Similarly, research on Romanian and Vietnamese firms presents that liquidity is positively related to firm performance (Le and Phan, 2017; Vătavu, 2015). However, Nguyen and Nguyen (2020) report a positive relation between liquidity and ROA only for state-owned firms, while the relation between liquidity and firm performance (ROA, ROE, EPS) is negative for non-state-owned firms for a Vietnamese sample during 2013-2018. On the other hand, Abeywardhana (2016) and Coelho (2019) put forth that liquidity is negatively related to ROA for UK-listed and Portuguese firms, respectively. A negative but insignificant relation between liquidity and firm performance for a Nigerian sample was presented by Uremadu and Onyekachi (2019) and for Egyptian firms presented by Wahba (2013, 2014).

Based on the literature review, it can be concluded that liquidity is another important determinant of firm performance. High liquidity provides continuity of the relationships between the firm and its creditors and suppliers enabling it to meet its short-term liabilities. Few studies present a negative relation between liquidity and firm performance, however, most of the research exhibits that liquidity has a positive impact on firm performance within different contexts. Accordingly, a positive effect of liquidity on firm performance is expected.

1.1.2.5. Tangibility

Tangible assets, owing to their relative convenience in liquidation and high recovery rates, serve as collateral, and they are essential in accessing not only greater amounts but also lower-cost external financing (Calomiris et al., 2016; Harris and Raviv, 1991; Scott, 1977; Shleifer and Vishny, 1992). The relation between tangibility, generally proxied by fixed assets-to-total assets, and financial performance has been

extensively studied across different samples. However, contrary to expectations the studies mostly report a negative relation.

Weill (2007) analyzed a comprehensive sample including Belgium, France, Germany, Italy, Norway, Portugal, and Spain. The empirical finding present evidence that tangibility, measured as the ratio of fixed assets to total assets, negatively affects firm performance. Similarly, the empirical findings of De Massis et al. (2013) demonstrate a negative effect of tangibility on firm performance within an Italian sample. In a similar vein, Vuković et al. (2022) found a significant negative relation between tangibility and ROA in European countries. On the other hand, within the South Korean context, Park and Lee (2024) discovered a positive relation between tangibility and ROA, although Yadav et al. (2022) reported a negative one. For the Turkish sample, İltaş and Demirgüneş (2020) concluded a significant positive relation between tangibility and ROA, indicating that firms with higher tangible assets tend to exhibit stronger financial performance. Conversely, Dasuki (2016) reported a negative significant impact on ROA, though insignificant positive impact on ROE for a Turkish sample.

Some of the studies on the relation between tangibility and firm performance across different countries identify similar relations yielding a negative relation (Vătavu 2015; Coelho, 2019; Serrasqueiro and Nunes, 2008; Sheikh and Wang, 2013; Zeitun and Tian, 2007; Wahba, 2013; Zeitun and Saleh, 2015). Vătavu (2015) analyzed Romanian listed firms and found tangibility to be negatively related to ROA. Within the Portuguese sample, Coelho (2019) found a negative relation between tangibility and ROA, and (Serrasqueiro and Nunes, 2008) reported the relation is in the same direction for listed SMEs. Sheikh and Wang (2013), Zeitun and Tian (2007), and Wahba (2013) reported a statistically significant negative relation between tangibility and firm performance for Pakistani, Jordan, and Egyptian samples. Zeitun and Saleh (2015) found that tangibility negatively affects the firm performance in Gulf Cooperation Council countries. Within the Balkan countries' context, a negative relation between tangibility and ROA has been put forth by (Vuković et al., 2020).

Furthermore, there is a body of research reporting inconclusive results regarding the tangibility and firm performance relation. For instance, Papadogonas (2007) analyzed a Greek sample, and their results show that tangibility positively

affects ROA for large firms, while the effect turns negative for small firms. Singh and Bagga (2019) found that tangibility is negatively related to ROA, but positively related to ROE for an Indian sample. In addition, Chandrapala and Knápková (2013), Galbreath and Galvin (2008), and Wahba (2014) present a statistically insignificant relation between tangibility and firm performance for Czech, Australian and Egyptian samples, respectively.

Tangibility, referring to the ratio of a firm's physical assets to total assets, significantly affects the firm performance. Despite the ease of liquidation and serving as collateral, based on the previous research, most studies present a negative relation between tangibility and firm performance; hence, the direction of the expected relation is negative.

1.1.2.6. Corporate Governance Mechanisms

Corporate governance is defined as “a set of rules, practices, and processes used to direct and control an organization” by the Corporate Governance Institute (Corporate Governance Institute, 2024). The guidelines and procedures organize a firm's management structure and activities by enabling it to balance the interests of shareholders and managers, namely, insiders. The definition and theories of corporate governance and its various mechanisms will be explained in detail in Chapter 2 (Section 2.2 Debt and Corporate Governance). In this section, the empirical studies investigating the relation between corporate governance and firm performance has been presented.

The relation between corporate governance mechanisms and financial performance has drawn extensive attention in the finance literature since 1980s (Jensen, 1986c; Shleifer and Vishny, 2007). Firm performance can improve through better management of the firm and efficient usage of the resources as a result of ethical decision-making processes as well as accountable, transparent, fair, and responsible management attitude provided by good corporate governance practices (OECD, 2004). Corporate governance mechanisms, consisting of internal and external mechanisms, play an essential role in preventing managers from self-interested behaviors. According to empirical studies (Catapan and Colauto, 2014; Da Silva and Leal, 2005;

Merendino and Melville, 2019) good corporate governance practices, through protecting shareholder interests, are associated with lower agency conflicts, leading to better performance.

Family ownership is also considered as a corporate governance mechanism as the founding family is willing to transmit the firm to their heirs (Jensen and Meckling, 1976; Steijvers and Voordeckers, 2009). The existence of family ownership aligns the interests of and mitigates the agency conflict between shareholders and managers. Andres (2008) examines ownership structure regarding family ownership existence for a German sample covering 1998 to 2004. The empirical findings present that family ownership leads to better financial performance compared to firms with other types of ownership structures. However, the positive effect of family ownership is only valid when the founding family still participates in managing activities.

In addition, Maury (2006) presents similar results, arguing that family firms have superior financial performance where the founding family plays an active role in Western European samples including France, Germany, and Italy. Sraer and Thesmar (2007) analyzed a French sample and concluded that the firm has a higher financial performance in the case of family ownership. This relation holds for family firms run by the founder family or professional managers and even by founder heirs. If the firm's where the CEO is from the founding family, the positive effect is stronger. Adams et al. (2009) present a positive causal relation between founder CEO and firm performance for US firms.

On the contrary, Demsetz and Villalonga (2001) found no relation between firm performance and ownership structure for US firms. The empirical results of López-Morales and Vargas-Hernández (2014) exhibit an insignificant relation between ownership structure and financial performance proxied by ROE for Argentina, Brazil, and Mexico samples covering 2005 and 2011. Caselli et al. (2023) investigated ownership structure and firm performance relation, considering ownership structure as a factor affecting agency conflict for Italian listed firms between 2007 and 2019. The results present that ownership concentration is positively related to ROA and ROE, but foreign ownership existence has a positive impact on only ROE. Lee (2008) examined how the ownership structure affects the financial performance of South Korean firms. The results suggest that higher ownership

concentration leads to higher financial performance (ROA). However, the effect of foreign and institutional ownership existence on financial performance is statistically insignificant. Jara et al., 2019) examined Argentinian, Brazilian, and Mexican samples from 2000 to 2015 and reported a negative relation between ownership concentration and ROA.

Board of directors is another component of a firm's corporate governance system, and researchers investigated the relation between its size and financial performance (Aguilera et al., 2015; Brennan, 2006). As the higher number of managers on the board leads to a more diverse board, leading to a more effective decision-making process, board size is associated with higher financial performance. In their analysis conducted on a sample including France, Germany, South Korea, and Türkiye, Kijkasiwat et al. (2022) found that CEO duality has a negative relation with ROA, while board size positively affects ROA in emerging countries. On the other hand, they put forward that board size and CEO duality have a negative effect on ROA in developed countries.

Similar results are presented by Mohan Chandramohan (2018), suggesting that board size and CEO duality negatively affect firm performance for listed Indian firms. Merendino and Melville (2019) investigated the effect of corporate governance practices on the financial performance of Italian-listed firms between 2003-2015. Their empirical findings exhibit that a larger board of directors positively affects financial performance, but the effect of board size becomes negative after a certain point. They found that there is no relation between financial performance and board independence. Uyar et al. (2020) put forth a negative relation between CEO duality and ROA, while the relation between board diversity and board meeting attendance rate and ROA is positive.

Catapan and Colauto (2014) and Da Silva and Leal (2005) used the corporate governance index created by Da Silva and Leal (2005), which indicates the effectiveness of firms' corporate governance activities, calculated by considering various corporate governance mechanisms instead of looking at a single mechanism. They found a positive relation between the corporate governance index, implying better corporate governance practices, and ROA for the firms listed in BM&FBOVESPA for 2010–2012 and 1998–2002, respectively. Similarly, Wandroski

Peris et al. (2017) claim that enhanced corporate governance practices have a positive effect on ROA for small firms in Brazil. Similarly, Agustia et al. (2022) discovered that firms conducting joint board-management meetings and holding more frequent meetings tend to exhibit higher levels of firm performance. However, Mardones and Cuneo (2020) found no correlation between ownership structure and firm performance for the Brazil, Chile, Mexico, and Peru samples.

In conclusion, existing literature emphasize the significant relation between corporate governance mechanisms and firm performance. Firms utilizing strong and effective governance practices tend to experience better firm performance. Therefore, it can be concluded that better corporate governance not only supports regulatory compliance but also improves financial performance.

1.2. FIRM VALUE

The profit maximization aim of firms has evolved to the aim of value maximization (Brigham and Ehrhardt, 2013; Ross et al., 2012). The focus on profit maximization has led managers to prioritize short-term profits over long-term investments that will provide positive returns in the long run. This approach results in decisions that are in line with short-term profits and ignore long-term benefits. These managers may manage the earnings by using legal accounting techniques to show their profits to be higher than they were, causing the price of the stocks to increase. However, revealing the actual situation decreases the firm's market value in the long run. (Brigham and Houston, 2015).

Owners of the firm, namely shareholders, want to maximize their wealth through the firm's activities. In line with this aim, the firm value becomes the primary focus of the shareholders and is demanded to be as high as possible in the long run. Therefore, managers working on shareholders' behalf should use the firm sources properly and make decisions to maximize the value. There are two critical ways to increase value. The first is to maximize the expected free cash flows, and the other is to minimize the cost of capital (Feldman, 2005: 10). Investment and financing decisions should be made to increase future cash flows and to decrease financing costs, following this aim.

The price of a stock and the value of a stock are not the same. Maximizing the current stock price is not the firm's aim. Forbes Council Member Phil Town explicates the essential difference between price and value with the statement, "*Price is arbitrary, and value is fundamental* (Town, 2018)". Stock price occurs in the financial market according to investors' expectations based on their limited information about the firm. However, the value is calculated based on the best available data, including expected cash flows and cost of capital, even if inaccurate (Brigham and Houston, 2015). Therefore, the price may be above or below the value. If the market is in equilibrium, market prices equal intrinsic value. A firm's stock price fluctuates due to supply and demand in the market based on inflation, interest rates, market sentiment, etc. However, the intrinsic value of a firm, which takes into consideration the future cash flows of the firm, is a comprehensive measure reflecting the long-term prospects. Hence, the shareholders' focus is on the value of the firm.

Finance researchers have developed different measures for determining firm value. The following section explains these different measures of firm value.

1.2.1. Measures of Firm Value

In the finance literature, there are several measures to assess the firm value. Data from the financial statements, market-based data, dividend payments, and future cash flows of the firms are the components used to calculate firm value. Empirical studies use different proxies to determine the firm value, such as the book value of equity, net asset value, and liquidation value (Fernandez, 2002). Even though asset-based valuation, market-based valuation, and discounted cash flow valuation are three common approaches used to determine the value of a firm (Damodaran, 2012; Feldman, 2005; Stowe et al., 2002), empirical studies use either asset-based or market-based valuation methods to proxy for firm value.

Asset-based valuation methods focus on evaluating the value of a firm's assets, including tangible and intangible ones. Market-based valuation methods rely on market prices to determine a firm's value. On the other side, income-based valuation methods involve forecasting future cash flows and calculating their present value by discounting them with the weighted average cost of capital (WACC). Unlike market-

based valuation methods, income-based valuation methods rely on the projection of future cash flows rather than the current market prices. Market-based methods provide a snapshot of the current market situation; however, income-based valuation methods are more comprehensive methods as they take into account the expected cash-generating ability of the firm in the future (Feldman, 2005:45-46).

The different measures, as exhibited in Table 2, are explained in this section.

Table 2: Firm Value Proxies

Asset-Based Measures	Book Value of Equity
	Net Asset Value
	Liquidation Value
Market-Based Valuation: Price Multiples	Price/Earnings Ratio
	Price/Cash Flow Ratio
	Price/Sales Ratio
	Market/Book (Price/Book) Ratio
	Tobin's Q
Income-Based Valuation	Discounted Cash Flow Model
	Dividend Discount Model

Source: Damodaran, 2012b; Fabozzi et al., 2017; Jordan et al., 2014

Asset-based measures, as presented in Table 2, determine the firm's value based on the book value of total assets, total liabilities, and equity, as well as the market value of assets and liabilities, and the liquidation value of its assets. These measures do not consider factors regarding future activities of the firm, industry, and economy-related factors. Asset-based measures can be listed as book value of equity, net asset value, and liquidation value.

The book value of equity denotes the funds owned by the equity holders. This number shows how much the firm's equity is worth after all liabilities are deducted from its total assets (Fernandez, 2002:24).

Net asset value is the firm value calculated based on the market value of a firm's assets and liabilities. It is calculated by deducting the current market value of

the liabilities from the current market value of the total assets (Pike and Neale, 2006:90).

Liquidation value is the value of a firm's assets in case of liquidation when all liabilities are paid off, and all assets are sold and converted into cash. This value is calculated by deducting all expenses, including tax payments and liabilities to employees, from the amount obtained from the sale of its assets (Fernandez, 2002:25). Determining the liquidation value accurately is not easy because, in the event of liquidation, the firm's assets may be sold below the market value, or some assets may not have a secondary market.

Market-based valuation methods, as presented in Table 2, use price multiples. Price multiples can be listed as price/earnings ratio, price/cash flow ratio, market-to-book ratio, and Tobin's Q. As stock prices on the market rise, the firm value goes up, which increases the wealth of shareholders (Ehrhardt and Brigham, 2010). Price multiples can only be calculated for public firms because these ratios are related to a firm's stock price as exhibited in Table 2. In the finance literature, generally market-based measures are used to determine firm value by the researchers.

The price/earnings (P/E) ratio shows how much \$1 reported earnings are worth on the market. In other words, the P/E ratio is the amount the investors agree to pay for a stock per \$1 net income. For instance, a P/E ratio of 3 indicates that the investors agree to pay three times the earnings per share for the stock.

Calculation of the P/E ratio is exhibited in Equation (4).

$$\text{Price/Earnings (P/E) Ratio} = \frac{\text{Price per share}}{\text{Earnings per share}} \quad (4)$$

If a firm has growth opportunities, the P/E ratio is expected to be higher than a firm with the same EPS. Since investors expect that the firm with a good prospect will generate more earnings in the future, they pay more for these stocks. Stocks with high (low) P/E ratios are referred to as growth (value) stocks (Damodaran, 2012:449; Jordan et al., 2014).

The price/Cash Flow (P/CF) ratio shows how the stock is valued on the market based on its cash flow generation ability.

Equation (5) demonstrates how the P/CF ratio is calculated.

$$\text{Price/Cash Flow Ratio (P/CF)} = \frac{\text{Price per share}}{\text{Cash flow per share}} \quad (5)$$

The P/E ratio and P/CF are generally compared to determine if there is a significant difference between reported earnings and cash flows. A low difference between earnings and cash flow indicates that a firm's revenue streams are stable, it has effective financial management practices, and it is proficient in generating cash flow. (Jordan et al., 2014).

The price-to-sales (P/S) ratio indicates how much the stock is worth in the market based on its sales per share.

The P/S ratio is calculated as presented in Equation (6).

$$\text{Price/Sales (P/S) Ratio} = \frac{\text{Price per share}}{\text{Sales per share}} \quad (6)$$

The P/S ratio is considered as a good indicator to assess firm value because a firm's sales are based solely on the firm's activities, and it is not easily manipulated, unlike the EPS, which can be distorted using accounting techniques (Stowe et al., 2002:216). However, disregarding the expenses may result in a positive perception of firms with growing sales numbers but not increased profitability. On the other hand, a firm can have a negative EPS, which makes the P/E ratio unmeaningful; in this case, the Price/Sales ratio can be analyzed since sales are always positive (Ross et al., 2012; Stowe et al., 2002).

The market/book (M/B) ratio represents how many times a firm's market value is higher (or lower) than its book value of equity. The M/B ratio is the amount investors agree to pay for a stock based on its book value per share.

Equation (7) shows the calculation of the M/B ratio.

$$\text{Market/Book (M/B) Ratio} = \frac{\text{Price per share}}{\text{Book value per share}} \quad (7)$$

The book value shows the historical cost; however, the current market price occurs based on the investors' expectations regarding the future of the firm. Since the book value shows historical cost, the M/B ratio is a good measure to evaluate how much the equity is currently worth concerning its cost. The M/B ratio above 1 implies that the firm is worth more than its cost and has created value for its shareholders. On the other hand, the M/B ratio of less than 1 means that the firm failed to achieve its purpose of value creation (Jordan et al., 2014; Ross et al., 2012).

Tobin's Q ratio is calculated by dividing the market value of assets by the replacement cost of assets (Ross et al., 2012:64). Tobin's Q ratio, also named as Q ratio,

is an alternative to the M/B ratio but has some differences. Tobin's Q ratio considers the market value of all assets instead of the market value of a stock and the replacement cost of assets instead of book value. Tobin's Q is argued to be superior to M/B since it is related to the firm's current value, as book value represents historical costs and each firm's depreciation techniques are different (Ross et al., 2012:64).

$$\text{Tobin's Q Ratio} = \frac{\text{Market Value of Assets}}{\text{Replacement Cost of Assets}} \quad (8)$$

Investors prefer investing in stocks with higher Tobin's Q ratios. If a firm has a Tobin's Q ratio higher than 1, the market value of assets is more than the replacement cost of assets, and the assets are used effectively.

The Income-Based Valuation models assert that firms can create value as long as they can generate cash flow with their assets. According to the Income-Based Valuation model -based on the time value of money- firm value can be defined as the present value of the future cash flows the firm is expected to generate. Hence, more cash flows mean a more valuable firm (Brigham and Ehrhardt, 2013:304; Jordan et al., 2014:196).

The general valuation model is based on the present value approach in which the value equals the sum of the expected future cash flows (Pike and Neale, 2006:100).

$$\text{Value} = \sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t} \quad (9)$$

CF_t denotes the cash flow in time t , where n is the life of the asset and r denotes the required rate of return of the asset expected to generate cash flows.

The required rate of return is determined depending on the riskiness of the asset/firm. The name of the cash flow differs based on the type of the asset to be valued. Cash flow is called dividends for a stock, coupon payments and par value for a bond, cash flows to the firm, or cash flows to equity for a firm (Damodaran, 1996:10).

Income-based firm valuation methods are based on estimating the firm's future cash flows and income generation capacity. In line with the going concern assumption, the firm is assumed to generate cash flows forever in this method. Firm value is calculated by discounting these estimated future cash flows to the present with a discount rate. As exhibited in Table 2, discounted cash flow and dividend discount

models are the income-based firm valuation methods calculated by discounting free cash flows and dividends, respectively.

Income-based valuation models comprise two main components: the determination (estimation) of future cash flows -considering the expected growth- and the determination (estimation) of discount rate. Comprehensive financial estimations have been done to determine the future cash flows the firm will generate. These estimations involve analyzing historical financial data, global and local market conditions, and industry-related factors. After analyzing the future cash flows, the discount rate should be determined to calculate the present value of these cash flows. The discount rate should be determined by considering factors like the firm's risk profile, market conditions, and financing cost. The discount rate generally is the firm's weighted average cost of capital (WACC).

These estimations are usually done until the firm completes its growth stage and turns to maturity, where the cash flows do not significantly differ between years. Based on the going concern assumption, after this period, the growth rate is assumed to be constant forever (Fernandez, 2002), and the terminal value is calculated as presented in Equation 10.

$$\text{Firm Value} = \sum_{t=1}^{t=n} \left(\frac{CF_t}{(1+r)^t} \right) + \frac{TV}{(1+r)^n} \quad (10)$$

$$\text{Terminal Value (TV)} = \frac{CF_n \times (1+g)}{r-g} = \frac{CF_{n+1}}{r-g} \quad (11)$$

The terminal value growth rate of the firm can be determined based on the firm's historical growth rate to examine the current stage of the firm. Calculating the arithmetic or geometric average of sales and earnings growth is the most common way to determine growth rate (Damodaran, 1996:277). As more stable firms are expected to grow smoothly, using historical growth rates is considered a useful for valuing such firms. However, looking at the historical growth rate for high-growth firms has limitations since this method disregards future growth. The other way to determine the growth rate to estimate future cash flows is to use equity analysts' growth rate estimations based on macroeconomic information, sector sector-related information, besides firm-specific public and private information (Damodaran, 2012:282). Another

approach employs the fundamental growth rate, which assesses how much a firm invests its earnings into its assets (Damodaran, 2012:283).

There are two ways to value firms using discounted cash flow (DCF) valuation models. The first one considers bondholders, preferred stockholders, etc., in addition to equity stakeholders and uses free cash flow to the firm (FCFF). On the other hand, the second one considers only the equity stakeholders and uses free cash flow to equity (FCFE). These two different methods employ different cash flows and discount rate calculations (Hitchner, 2011).

Free Cash Flows to the Firm (FCFF) represents the cash available for both the debt and equity holders and the discounted FCFF valuation model calculates a firm's total value. In this valuation model, weighted average cost of capital (WACC) is used as a discount rate because WACC represents the overall cost of capital of a firm, including equity and debt financing. Firm value using FCFF is calculated as follows:

$$\text{Firm Value} = \sum_{t=1}^{t=\infty} \left(\frac{\text{Free Cash Flow to Firm (FCFF)}_t}{(1+WACC)^t} \right) \quad (12)$$

$$\text{Weighted Average Cost of Capital (WACC)} = w_d r_d (1 - T) + w_s r_s + w_{ps} r_{ps} \quad (13)$$

w_d denotes the weight of debt, w_s denotes common stock, and w_{ps} denotes preferred stock in the firm's capital structure. r_d denotes the interest rate on debt, r_s and r_{ps} required return on common and preferred stock, respectively, while T is the tax rate.

Discounting Free Cash Flows to Equity (FCFE) is a tool for assessing a firm's equity value by focusing on the cash flows available to equity holders after all obligations of the firm are fulfilled. If a firm uses debt financing, the FCFF is higher than FCFE as much as the after-tax cost of debt. While discounting FCFF method value the entire firm, discounting FCFE calculates the value the equity of a firm (Damodaran, 2012:23).

Equity value of a firm using FCFE is calculated as follows:

$$\text{Equity Value of a Firm} = \sum_{t=1}^{t=\infty} \left(\frac{\text{Free Cash Flow to Equity (FCFE)}_t}{(1+k_e)^t} \right) \quad (14)$$

k_e denotes the required rate of return by equity holders.

The Dividend Discount Model (DDM) regards the present value of the dividend payments as the main element in determining the value of a stock since

dividends are the income received by the shareholders. DDM has two essential inputs: the expected dividend payments and the cost of equity as the discount rate (Fernandez, 2002; Fernandez, 2013; Jordan et al., 2014). The general DDM is presented in Equation 15.

$$\text{Value of a Stock} = V_0 = \sum_{t=1}^{t=\infty} \left(\frac{\text{Dividend Per Share (DPS)}_t}{(1+k_e)^t} \right) \quad (15)$$

k_e denotes the required return on equity.

Several variations of the DDM exist, each adapted to different circumstances or preferences, including the Gordon Growth Model, Two-Stage DDM, H Model, and Three-Stage DDM (Damodaran, 2012; Fernandez, 2002; Fernandez, 2013; Jordan et al., 2014).

The *Gordon Growth Model* assumes that dividend payments will grow at the same rate indefinitely. This method is generally used for mature firms expected to grow constantly at a stable rate. However, the assumption of the model is hard to meet since the volatile nature of earnings can be affected by macroeconomic and sector-related factors (Damodaran, 2012: 320).

$$P_0 = \frac{D_0 \times (1+g)}{k_e - g} = \frac{D_1}{k_e - g} \quad (16)$$

The *Two-Stage Dividend Discount Model* is based on the assumption that the firm will grow rapidly for some years and then reach its maturity phase that will continue forever. The first stage is called the extraordinary growth stage, and the second stage is called the stable growth stage (Jordan et al., 2014:188-189). This extraordinary growth is assumed to be last n year.

$$P_0 = \sum_{t=1}^{t=n} \left(\frac{DPS_t}{(1+k_{e,hg})^t} \right) + \frac{P_n}{(1+k_{e,hg})^n} \quad (17)$$

$$P_n = \frac{DPS_{n+1}}{k_{e,st} - g_n} \quad (18)$$

Where $k_{e,hg}$ denotes the cost of equity during the extraordinary growth stage, while $k_{e,st}$ at the stable growth stage, and g_n denotes the constant growth rate after the year n .

This model has two main limitations. The first is associated with specifying the extraordinary growth period. The second one assumes a sudden transition from high growth to a stable growth period. However, shifting in growth phases typically occurs gradually.

H Model is a two-stage model that assumes a linearly declining growth after the initial high-growth stage, contrary to the classic two-stage model, which assumes a constant growth rate after high growth (Damodaran, 2012:332).

$$P_0 = \frac{DPS_0 \times (1 + g_n)}{k_e - g_n} + \frac{DPS_0 \times H \times (g_a - g_n)}{k_e - g_n} \quad (19)$$

g_a denotes growth rate at the high-growth stage, g_n denotes growth rate that will last indefinitely, and H denotes half of the high-growth stage.

Although the *H model* does not assume a sudden decline from high growth to the stable growth phase, it relies on a rigid structure where the growth rate declines linearly each year, based on the initial and stable growth rate and the duration of the extraordinary growth period. In addition, the model assumes a constant dividend payout ratio throughout all phases, but typically, the dividend payout ratio rises as the growth rate decreases (Damodaran, 2012:22).

The *Three-Stage Dividend Discount Model* assumes that a firm experiences three phases: growth, transition, and maturity. This model is a combination of *H Model* and *Two-Stage Dividend Discount Model* (Damodaran, 2012:333). Initially, the *Three-Stage Dividend Discount Model* assumes a high stable growth, followed by a transition period where the growth declines gradually, and finally, a low stable growth assumed to continue indefinitely (Damodaran, 2012:334).

$$P_0 = \sum_{t=1}^{t=n1} \left(\frac{EPS_0 * (1 + g_a)^t * \Pi_a}{(1 + k_e)^t} \right) + \sum_{t=n1}^{t=n2} \frac{DPS_t}{(1 + k_{e,t})^t} + \frac{EPS_{n2} * (1 + g_n) * \Pi_n}{(k_{e,st} - g_n)(1 + r)^n} \quad (20)$$

High stable growth phase

Transition

Low Stable growth phase

EPS_t = Earnings per share in year t DPS_t = Dividends per share in year t g_a = Growth rate in high growth phase (lasts $n1$ periods) g_n = Growth rate in stable phase Π_a = Payout ratio in high growth phase Π_n = Payout ratio in stable growth phase k_e = Cost of equity in high growth (h_g), transition (t) and stable growth (st)

Each of the firm valuation methods has strengths and limitations. Asset-based measures provide a straightforward calculation; however, these measures may

disregard the firm's intangible assets and future earnings potential. Market-based valuation methods generally offer insights into the current market situation. They are based on the existence of comparable firms, disregarding the unique factors and growth prospects of the firm. On the other hand, income-based valuation methods are forward-looking as they take into account the future cash flows of the firm, considering growth prospects (Damodaran, 2012:372). However, income-based valuation methods consist of subjective inputs, such as estimating the growth rate of cash flows and discount rate, that cause complexity in the calculation (Damodaran, 2012:713; Fabozzi et al., 2017). A comprehensive valuation should combine multiple methods to mitigate biases and uncertainties, providing a more robust estimate of a firm's intrinsic value.

1.2.2. Firm-Specific Firm Value Determinants

The finance researchers have widely investigated firm value and its determinants. Firm size, liquidity, ownership structure, capital structure, and corporate governance have been found to be significant determinants of the firm value. Table 3 summarizes the relation between firm value and the factors affecting firm value examined in the financial literature. The relations have been extensively studied across different samples, yielding varied findings suggesting the firm- and country-specific differences. Based on the literature review, there is no consensus about the direction of the relation between capital structure and firm value. Similarly, the studies conducted on firm size and firm value present inconclusive results. However, the majority of the studies present that interest coverage ratio, liquidity, and good corporate governance practices have a positive effect on firm value. Conversely, tangibility has a negative effect on firm value. Based on the theoretical framework and the literature review, the expected relations have been presented in Table 3.

Table 3: Summary of the Literature Review Related to Firm Value and Determinants

	Firm Value		
Variable	Studies supporting positive relation	Studies supporting negative relation	Expected Relation
Capital Structure	Akintola et al. (2019) Anton (2016) Chen (2002) Cheng et al. (2010) Da Silva and Leal (2005) Davydov (2016) Di Miceli Da Silveira and Barros (2007) Gunawan et al. (2018) Hirdinis (2019) Jensen (1986) Lin and Chang (2011) McConnell and Servaes (1995) Myers (2001) Natsir and Yusbardini (2020) Uzliawati et al. (2018) Zeitun and Tian (2007)	Ayriçay and Türk (2014) Bermig and Frick (2010) Birgili and Düzer (2010) Cho (1998) Crisóstomo et al. (2011) Faccio and Lasfer (1999) Jara et al. (2019) Lozano et al. (2016) McConnell and Servaes (1995) Morck et al. (1988) Ribeiro and Souza (2023) Uluçol and Türk (2013) Vural et al. (2012) Yener and Karakuş (2012)	+/-
Interest Coverage Ratio	Dothan (2006) Eriotis et al.(2007) Ji (2019)	Ighosewe et al. (2022)	+
Size	Anton (2016) Ayuba et al., (2019) Da Silva and Leal (2005) Iturriaga and Crisóstomo (2010) Jara et al. (2019) Komara et al. (2020) Natsir and Yusbardini (2020) Nursetya and Hidayati (2021) Nurwulandari and Wibowo (2021)	Aggarwal et al. (2008) Al-Khouri (2006) Ammann et al. (2011) Assidi (2020) Beiner et al. (2006) Boubaker (2007) Charfeddine and Elmarzougui (2010) Crisóstomo et al. (2011) Faccio and Lasfer (1999) Iturriaga and Crisóstomo (2010) Lang and Stulz (1994) Monda and Giorgino (2013) Ribeiro and Souza (2023) Sualekhhattak and Hussain (2017)	+/-
Liquidity	Ayriçay and Türk (2014)	Adiputra and Hermawan (2020) Anton (2016)	+

	Birgili and Düzer (2010) Choi and Sias (2011) Di Miceli Da Silveira and Barros (2007) Du et al. (2016) Ribeiro and Souza (2023) Uluyol and Türk (2013) Wang (2002) Zuhroh (2019)	Hidayah and Rahmawati (2019) Kristi and Yanto (2020)	
Tangibility	Benamraoui et al. (2019)	Fosu et al. (2016) Maury and Pajuste (2005) Vuković et al. (2023) Zeitun and Saleh (2015)	-
Good Corporate Governance Practices	Da Silva and Leal (2005) Ribeiro and Souza (2023) Al-Khouri (2006)		+

Source: Created by Author

In this section, the literature on these will be discussed.

1.2.2.1. Capital Structure

The pioneering study of Modigliani and Miller (1958) proposes the Irrelevance Theory, which argues that there is no relation between capital structure and firm value. The Irrelevance Theory assumes a perfect market with no taxes and brokerage fees. Modigliani and Miller (1958) claim that the value of an unlevered firm and a levered firm is the same. According to Modigliani and Miller (1958:270), an increase in debt level renders a firm riskier and causes an increase in the cost of equity. However, the weighted average cost of capital (WACC) remains unchanged since the relatively lower cost of debt compensates higher cost of equity (Brigham and Ehrhardt, 2005).

In 1963, Modigliani and Miller (1963) extended their initial study and considered corporate taxes. As interest payments are not subjected to tax, debt financing provides a tax shield for the firm. Modigliani and Miller (1963) assert that

debt financing enhances the firm value through the tax shield, and optimal capital structure, which maximizes the firm value, should be wholly composed of debt. Modigliani and Miller (1963:436) argue that equity cost rises as the debt level increases. On the other side, WACC decreases due to the relatively lower cost of debt financing and the tax shield.

Miller (1977) examines how the personal tax payments paid on bond and stock returns affect the firm value. Firms create a tax shield issuing bonds; however, bondholders are liable to tax payments on bond returns. Miller (1977) suggests that firms should consider personal taxes while determining the interest rates to attract investors. Personal taxes do not cancel the tax advantage of debt financing, but only decrease the value of the tax shield as a consequence of double taxation (Miller, 1977:267). Another theory regarding the capital structure and firm value, *Static Trade-Off Theory*, suggests an optimal debt level maximizing firm value through the tax benefit of debt financing Myers (1984). However, if debt financing exceeds the optimal level, the tax advantage of debt is eliminated as debt financing leads to financial distress and a higher probability of default (Myers, 1984:577). Contrary to Modigliani and Miller's symmetric information assumption, Signaling Theory assumes that information asymmetry exists between managers and investors (Ross, 1977:27). Managers convey negative signals to the market through equity issuance, creating the perception that potential losses are intended to be shared with new investors. On the other hand, debt issuance is perceived as a positive signal implying the opportunity to invest in positive return projects and is expected to increase firm value.

Empirical studies present mixed results about the relation between capital structure decisions and firm value. One strand of literature argues that debt financing is expected to increase firm value by limiting cash flow which managers may exploit and constrain managers from overinvesting in negative NPV projects (Jensen, 1986). Having debt obliges firms to make regular payments and disciplines managers from investing in projects that do not maximize shareholders' wealth (Myers, 2001). On the other hand, another strand of literature argues that in case of having high levels of debt, an underinvestment problem may result in preventing the firm from investing in a positive NPV project which would increase firm value (Myers, 1977). Harris and

Raviv (1991) and Myers (1977) claim that an optimal capital structure balances these effects.

The first strand of the literature presents positive relation between leverage and firm value. Chen (2002) investigated firms in the Netherlands and concluded that leverage positively affects the value, Tobin's Q, of firms with low growth opportunities. Similarly, Di Miceli Da Silveira and Barros (2007) and Da Silva and Leal (2005) present a positive relation between leverage and Tobin's Q for Brazilian sample and Davydov (2016) present similar results for the firms listed in Brazil, Russia, India and China.

Cheng et al. (2010) present a positive relation between leverage and firm value for the Chinese sample. However, the positive relation turns negative if the debt ratio exceeds 70.48%. Similarly, Lin and Chang (2011) put forth a positive relation as long as the debt ratio is less than 33.33% for Taiwanese firms. Zeitun and Tian (2007) present a positive (negative) relation between short-term debt (total debt) and Tobin's Q for the Jordan sample. For Nigerian firms, Akintola et al. (2019); for Romanian firms Anton (2016) and for Indonesian firms, Gunawan et al. (2018), Hirdinis (2019), Natsir and Yusbardini (2020), and Uzliawati et al. (2018) present that leverage has a positive effect on firm value.

On the other hand, Cho (1998) and Morck et al. (1988) present a statistically significant negative relation between long-term debt and firm value. In addition, Faccio and Lasfer (1999) reported a negative relation between leverage and firm value for high-growth firms in the UK sample. Similar results have been presented for the Turkish sample. Ayriçay and Türk (2014), Birgili and Düzer (2010), Uluyol and Türk (2013) and Vural et al. (2012) reported a negative relation between leverage and firm value for the periods between 2004-2011, 2001-2006, 2004-2010, and 2002-2009, respectively. Moreover, Yener and Karakuş (2012) put forth a negative relation between leverage and firm value for Turkish listed firms between 2004 and 2009. They found a negative relation between long-term debt and firm value for medium-sized firms and short-term debt and firm value for large firms. A negative relation between leverage and firm value proxied by Tobin's Q presented by Crisóstomo et al. (2011) and Ribeiro and Souza (2023) for Brazilian sample, and by Jara et al. (2019) for Argentinian, Brazilian and Mexican sample. Bermig and Frick (2010) found that there

is a negative but statistically insignificant relation between leverage and firm value for German sample, while Lozano et al. (2016) found a statistically significant one for French, German, and Italian firms.

Empirical results of McConnell and Servaes (1995) present a positive (negative) relation between leverage and Tobin's Q for low-growth (high-growth) firms listed on the New York Stock Exchange. In addition, similar empirical results were presented by Iturriaga and Crisóstomo (2010) for Brazilian listed firms. Whereas, for the Pakistani sample, a positive relation between leverage and firm value is independent of the firms' growth opportunities is reported by Sualehkhattak and Hussain (2017). Aggarwal et al. (2008) analyzed a large sample of 25 countries and presented mixed results about the relation between leverage and Tobin's Q. The empirical findings of Aggarwal et al. (2008) demonstrate a positive relation for firms with high-growth opportunities for the whole sample. However, for low-growth firms, the direction of the relation differs based on the countries' characteristics, such as legal systems and financial market development level. Their analysis exhibits that, leverage has a negative effect on low-growth firms' value in the US which is a common law country; however, its effect is positive for low-growth firms in civil law countries (Aggarwal et al., 2008). Moreover, Aggarwal et al. (2008) assert that the relation between leverage and firm value is positive in the countries with a bank-based economy, while there is a negative one for countries with developed financial markets.

Studies investigating the effect of leverage on firm value present inconclusive results even for the same samples. Accordingly, this dissertation analyzes the effect of capital structure on firm value, taking into account the positive and negative relation potential.

1.2.2.2. Interest Coverage Ratio

The interest coverage ratio (ICR) is an essential metric used to measure a firm's ability to pay interest on its current debt. It indicates whether operating earnings are sufficient to cover interest payments (Brigham and Ehrhardt, 2013:105). In this dissertation, ICR is included as a firm-specific value determinant as a measure of firm's ability to fulfill its interest obligations to its lenders.

In the finance literature, ICR has been found positively related to reduced bankruptcy or default risk and higher stock returns (Altman, 1968; Chen and Zhao, 2007). In addition, Eriotis et al. (2007:329) argues that higher ICR is associated with ability of generating high earnings resulting in enhancing firm value. Moreover, Dothan (2006) put forward that interest coverage ratio has a positive effect on firm value. Manik (2016) found that ICR has a positive effect on Tobin's Q within the Indonesian context. On the contrary to their positive relation expectation, Ighosewe et al. (2022) found a negative relation between ICR and Tobin's Q for Nigerian firms. Ji (2019) examined the effect of accrual-based interest coverage ratio (AICR) and cash-based interest coverage ratio (CICR) on the value for a South Korean sample. Their results assert that both AICR and CICR are significant factors affecting stock prices and firm value. The results demonstrate that AICR has a positive effect on the firm value as long as it is higher than the CICR. On the other hand, if CICR is less than 1, it has a significant negative effect on stock prices.

Based on the limited number of studies examining the relation between ICR and firm value, the expected relation is positive, since a higher ICR specifies that a firm can cover its interest obligations with its earnings, reflecting financial health.

1.2.2.3. Firm Size

Firm size is another factor affecting firm value; however, the finance literature presents mixed results about the direction of the relation. In finance research, generally, total assets and sales are used as firm size proxy. Da Silva and Leal (2005) and Iturriaga and Crisóstomo (2010) examined Brazilian listed firms and found a positive relation between firm size and firm value. However, when Iturriaga and Crisóstomo (2010) split the sample based on the growth opportunities, the relation turned into a negative one if the firm has higher growth opportunities. Jara et al. (2019) also present that firm size has a positive effect on value for the firms operating in Argentina, Brazil, and Mexico. Anton (2016), Komara et al. (2020), Natsir and Yusbardini (2020), Nursetya and Hidayati (2021), and Nurwulandari and Wibowo (2021) examined the Indonesian sample, and their empirical results show that firm size has a statistically significant positive effect on firm value. Furthermore, Anton (2016)

and Ayuba et al., (2019) present similar results for the Romanian and Nigerian samples.

The results of the studies conducted for the Turkish sample have a common view that firm size has a positive effect on firm value. Ayriçay and Türk (2014), Uluyol and Türk (2013), and Isik et al. (2017) found a positive relation between firm size and firm value for Turkish firms. Akben-Selcuk (2016) present a positive but statistically insignificant relation between firm size and Tobin's Q. Moreover, Kılıç et al. (2022) investigated Turkish and South Korean firms and present a positive effect of firm size on market-to-book ratio for Turkish firms, while they found a negative effect for the South Korean firms.

However, other studies put forth a statistically significant negative relation between firm size and firm value (Al-Khouri, 2006; Beiner et al., 2006; Faccio and Lasfer, 1999; Lang and Stulz, 1994; Sualehkhattak and Hussain, 2017), while Adiputra and Hermawan (2020), Barontini and Caprio (2006), and Ruan et al. (2011) present statistically insignificant negative relation. Crisóstomo et al. (2011) and Ribeiro and Souza (2023) found a significant negative relation between firm size and Tobin's Q for Brazilian firms. In addition, Aggarwal et al. (2008) examine 25 countries including Brazil, France, Germany, Italy and South Korea and their empirical results present that firm size has a negative effect on Tobin's Q, but this effect is insignificant in the presence of high-growth opportunities. Similarly, D'Amato and Falivena (2020) present a statistically significant negative relation between firm size and Tobin's Q for Western European manufacturing firms.

Studies examining the relation between firm size and firm value for the French sample have reached the same conclusion indicating a negative relation (Assidi, 2020; Boubaker, 2007; Charfeddine and Elmarzougui, 2010; Monda and Giorgino, 2013). Moreover, empirical results of the studies examining broad samples -including France, Germany, and Italy at the same time- present that there is a negative relation between firm size and value (Ammann et al., 2011; Ciavarella, 2017; Lozano et al., 2016). Similarly, Bermig and Frick (2010) found that firm size negatively affects Tobin's Q for German sample.

While the existing studies on firm size and firm value yielded mixed results, no conclusive direction between these two has been presented. In this dissertation, the

effect of firm size on firm value will be examined, considering the positive and negative effects potential.

1.2.2.4. Liquidity

Liquidity shows the ability to fulfill short-term liabilities and plays an important role determining firm value. In finance research, generally, current ratio and quick ratio are used as liquidity proxy. Finance literature presents mixed results about the direction of the relation between liquidity and firm value.

Silveira and Barros (2007) and Ribeiro and Souza (2023) investigated the Brazilian samples and present a positive relation between liquidity and Tobin's Q. Ayriçay and Türk (2014), Birgili and Düzer (2010), and Uluyol and Türk (2013) use current ratio as the liquidity proxy and they found that liquidity has a significant positive effect on firm value for the Turkish sample. In addition, Zuhroh (2019) and Jonathan and Purwaningsih (2023) reported that current ratio positively affects firm value for the Indonesian sample.

On the other hand, Adiputra and Hermawan (2020), Kristi and Yanto (2020) and Anton (2016) present a negative but insignificant relation for the Indonesian and Romanian samples. Wang (2002) found that higher liquidity is linked with higher corporate values in Japan and Taiwan. Conversely, Hidayah and Rahmawati, (2019) presented evidence suggesting a negative relation between liquidity and corporate values. Du et al. (2016) measures liquidity with cash-to-total assets ratio and put forward a positive correlation between liquidity and Tobin's Q for a Chinese sample. However, Petcharabul and Romprasert (2014) found no significant relation between current ratio and corporate values in the technology sector of the Thailand Stock Exchange. Similarly, Öztürk and Karabulut (2017) present a positive but statistically insignificant relation between the current ratio and firm value for Turkish listed firms. However, Akben-Selcuk (2016) present that current ratio has a statistically significant positive effect on Tobin's Q.

Since stock returns show how the market perceives the firm's worth and the market capitalization is directly affected by the stock prices and returns, some studies use stock returns as a firm value proxy. For instance, Kalaycı and Karataş (2005)

analyzed non-financial firms listed in Istanbul Stock Exchange and found that that liquidity ratios (current, quick and cash ratios) were only explanatory for stock returns in the paper and paper products sectors. Gharaibeh (2014) conducted a study on the Amman Stock Exchange, revealing a weak but significant relation between liquidity and stock returns. Choi and Sias (2011) concluded that higher liquidity leads to higher stock returns for US firms; however, Martini et al. (2009) present contradictory results for Indonesian sample.

Based on the previous research on the effect of liquidity on firm value, a positive relation is expected as liquidity implies the ability to fulfill short-term obligations of a firm indicating financial stability.

1.2.2.5. Tangibility

Tangibility refers to physical assets like property and equipment, while firm value represents a firm's overall worth, and the effect of tangibility on firm value has been analyzed by finance researchers. Understanding how the tangible assets of a firm impact its perceived value is essential for investors, creditors, and managers alike. Maury and Pajuste (2005) claim that firms with a higher share of tangible assets tend to possess fewer intangible assets, and this leads a negative relation between tangibility and firm value. Maury and Pajuste (2005) analyzed a Finnish sample and reported a negative relation between the tangible asset ratio and Tobin's Q. Nevertheless, Benamraoui et al. (2019) argue that firms with greater amounts of tangible assets might experience reduced information asymmetry which results in enhanced firm value.

Consequently, the relation between tangibility and firm value is complex, and the direction of the relation is inconclusive. Zeitun and Tian (2007) analyzed Jordan firms, and they present inconclusive results about the direction of relation between tangibility and Tobin's Q, even though they expected a positive relation. (Fosu et al., 2016) found that tangible asset ratio negatively affects market valuation, indicating that UK-listed firms with greater tangibility may experience lower market valuation. These findings are supported by (Vuković et al., 2023) that presented a negative relation between tangibility and Tobin's Q for European firms. In addition, for the Gulf Cooperation Council countries, Zeitun and Saleh (2015) present a statistically significant negative relation between tangibility and firm value.

Although tangible assets are important as collateral, this dissertation expects a negative relation between tangibility and firm value based on the previous research and the argument that in today's conditions intangible assets, such as intellectual property and patents play a more crucial role in enhancing firm value (Corrado et al., 2006; B. H. Hall and Harhoff, 2012; R. E. Hall, 2001).

1.2.2.6. Corporate Governance Mechanisms

Corporate governance is the set of rules and practices that organize a firm's management structure and activities by enabling it to balance the interests of outside shareholders and managers, namely, insiders (Corporate Governance Institute, 2024). The definition and theories of corporate governance and its various mechanisms will be explained in detail in Chapter 2 (Section 2.2 Debt and Corporate Governance). In this section, the empirical studies examining the relation between corporate governance and firm value has been presented.

Implementing good corporate governance practices can enhance firm value by providing investor confidence, promoting ethical decision-making processes, protecting shareholders' rights as well as providing accountability, transparency, fairness, and responsibility (OECD, 2004). Previous research on corporate governance and firm value suggests a significant positive relation by facilitating access to lower costs of financing, hence higher profits, in addition to increasing investor confidence.

In the literature, ownership structure is considered as a corporate governance mechanism and the relation between ownership structure and firm value has drawn attention. Some of the studies focused on insider ownership because of the information advantage of insiders. In cases where managers own shares of the firm, their interests are expected to align with the shareholders' interests. Besides, if the managerial ownership is optimal, the firm is subjected to market discipline and internal monitoring, expecting an increase in firm value (Cho, 1998). However, if the majority of the shares are held by managers, this may give them power and cause increasing conflict of interest, leading to a low level of firm value (Ruan et al., 2009).

In this context, Cho (1998), Morck et al. (1988), and De Miguel et al. (2004) present a non-linear relation between firm value and insider ownership for Fortune

500, US, and Spanish firms, respectively. The firm value increases as insider ownership increases up to a specific point (7%, 5%, and 35%, respectively), then decreases, and after insider ownership reaches a specific level (38%, 25%, and 70%, respectively) increases again. Similarly, McConnell and Servaes (1990, 1995) found a quadratic relation between Tobin's Q and insider ownership. The higher insider ownership causes an increase in Tobin's Q value, but a decreasing effect emerges after a threshold. McConnell and Servaes (1995) noted that the relation is more significant for low-growth firms.

On the contrary, Faccio and Lasfer (1999) found an insignificant relation between managerial ownership and firm value for low-growth UK firms. Nevertheless, they present a cubic relation for high-growth firms. In addition, the empirical results of De Miguel et al. (2004) and Short and Keasey (1999) present non-linear relation between managerial ownership and firm value for Chinese and UK-listed firms, respectively. The relation between managerial ownership and firm value is positive, then negative, and then turns positive again. Navissi and Naiker (2006) found a non-linear relation between shares held by insider investors and firm value for firms operating in New Zealand. The empirical results present a positive relation between insider ownership and the firm value up to a specific point. However, when insider ownership exceeds 30%, the positive relation turns negative (Navissi and Naiker, 2006:255).

Another strand of literature examines the ownership concentration which means distribution of the ownership among shareholders. Ownership concentration may provide efficient management as the large shareholders have an interest on firm's success. On the other hand, large shareholders may prioritize their own interests without regarding minority shareholders' interests. Hence, this issue deserves attention and examined for different samples. Shleifer and Vishny (1986) investigated how the existence of large shareholders affects firm value and proposed that the existence of large shareholder improve the firm's market value due to the large shareholder's monitoring advantage. McConnell and Servaes (1990) present a positive relation between institutional ownership and Tobin's Q for 1976 and 1986. Demsetz and Villalonga (2001) investigate the impact of blockholders and managerial ownership on Tobin's Q and conclude that there is no relation for US-listed firms. Al-Khouri

(2006) analyze both insider ownership and ownership concentration and their relation with firm value for the Jordan sample. The results present a positive relation between ownership concentration and firm value when the board of directors or institutional investors own 25% of shares. However, this study found that CEO ownership has a negative effect on firm value when CEO owns less than 5% of shares (Al-Khouri, 2006:46). Similarly, Sualehkhattak and Hussain (2017) present a significant positive relation between ownership concentration on market value for Pakistani firms with high growth opportunities. According to the empirical findings of Iturriaga and Crisóstomo (2010), there is a non-linear relation between ownership concentration and firm value. Since the risk of exploitation of firm sources by the blockholder rises, the positive effect turns negative after the ownership concentration reaches a specific level (oscillates between 52 and 65 % depending on the firm type) (Iturriga and Crisostomo, 2010:92).

Furthermore, Jara et al. (2019) examined Argentinian, Brazilian, and Mexican samples from 2000 to 2015 and reported a negative relation between ownership concentration and Tobin's Q. Furthermore, Lozano et al. (2016) investigated the relation between firm value and ownership concentration for 16 European countries, including France, Germany, and Italy, and reported a curvilinear (U-shaped) relation in the case of controlling blockholder existence. The results demonstrate that when ownership concentration increases, the incentive for exploitation diminishes. Nevertheless, if there is no second blockholder and existence of lower ownership concentration, the controlling blockholder may be inclined to exploit. However, in case of the existence of other blockholder(s), there is an inverse relation between ownership concentration and firm value.

The effect of family ownership is another important factor for corporate governance as the family prioritizes the sustainability of the firm and family members work aligned with the firm goals. On the other side, it may rise conflicts of interest between family and other shareholders. Accordingly, Morck et al. (1988) investigated the family ownership and firm value relation. Their empirical results demonstrate that younger firms experienced a positive impact on market value if they are controlled by founding family. Conversely, they found a negative effect on market value for older firms controlled by founding families. Anderson and Reeb (2003) stated that family-

owned businesses tend to achieve greater value and performance compared to non-family counterparts. Moreover, Maury (2006) argues that in case the of absence of strong shareholder protection and the existence of family ownership, the conflict of interest between minority shareholders and the controlling family is inclined to increase. However, in an environment with strong shareholder protection family ownership is not disadvantageous to minority shareholders, even it is advantageous as it reduces the potential conflicts between owners and managers. It can be concluded that strong shareholder protection is a way of taking advantage of family control which leads to a higher firm value, otherwise powerful families in power could place their power at the disadvantage of minority shareholders (Maury, 2006).

In addition, corporate governance indexes have been constructed by finance researchers, investigating several mechanisms together instead of examining individual mechanisms to measure effectiveness of corporate governance practices. The empirical findings of Ribeiro and Souza (2023) and Di Miceli Da Silveira et al. (2007) demonstrate that good corporate governance practices- proxied by the corporate governance index- positively affect Tobin's Q for the listed Brazilian firms. Da Silva and Leal (2005) present a positive but statistically insignificant relation between the Corporate Governance Index, implying good corporate governance practices, and Tobin's Q for the firms listed in BM&FBOVESPA for period 1998-2002.

In the finance literature, a positive relation between good corporate governance practices and firm value has been presented. Consequently, a negative one between agency costs and firm value can be claimed, because inefficient or weak corporate governance practices would increase agency costs resulting in lower firm value (Morck et al., 1988). Agency costs occur due to conflicts of interest between owners and managers arising from the separation of ownership and management, and higher agency costs refer to an inefficient corporate governance system (Arora and Sharma, 2016; Core et al., 1999). On the other side, a strong corporate governance system, associated with lower agency costs, provides efficient usage of resources, decreases conflicts of interest by controlling management activities, and enhances firm value. When there is no direct access to corporate governance data, for instance, ownership concentration, CEO duality, board structure, etc., agency cost is used as a proxy to

assess the effectiveness of corporate governance mechanisms by the researchers, as agency cost is considered directly tied to corporate governance practices.

In this dissertation, since direct measures of individual corporate governance mechanisms cannot be accessed, agency cost is used as the proxy. Following Fleming et al., (2005), Florackis (2008), Jelinek and Stuerke (2009), Pandey and Sahu (2019), Singh and Davidson (2003), and Wang (2010), the ratio of selling, general, and administrative (SG&A) expenses to sales, has been used as an agency cost proxy. SG&A expenses are not directly related to main operations of the firm. Higher SG&A expenses are considered as a sign of discretionary spending, such as high managerial compensations, perks, and extensive office spaces implying prioritization of personal benefits over maximizing shareholder wealth.

CHAPTER TWO

DEBT HETEROGENEITY

In order to operate and continue their operations, firms need external funds, and they can find these funds in the form of equity or debt financing. Firms have equity financing internally –as a form of retained earnings- and externally by issuing stock. Debt financing is one of the most critical external fund sources for every type of firm, whether publicly listed or privately held, regardless of firm size.

The main difference between debt and equity financing can be considered ownership status. While the equity holders have the right to vote on firms' decisions, debtholders do not have any right to the firm's decisions. The other difference is income claims; while the debtholders are the first claimant on the income, equity holders have a claim on the firm's income after the debtholders. After all due debts have been paid, board of directors decide on the income to distribute as a form of dividend or retain to the firm (Ross et al., 2012). The fact that the interest payments are mandatory and tax deductible, while dividend payments are subject to the decision of the board of directors, makes debt financing cheaper when compared to equity financing since debtholders take less risk than equity holders who bear the firm's risk. While debt financing has a maturity, equity has an infinite life as the firm operates. In addition, having debt in the capital structure provides a tax shield. This advantage arises since interest payments are tax deductible and it reduces the firm's taxable income.

Debt can be classified either based on maturity or the source of financing. Debt financing is classified as short-term (current) and long-term (non-current) based on maturities. While short-term liabilities should be fulfilled in less than one-year, long-term liabilities have a maturity of more than one year. Short-term liabilities will be due within one year after the reporting period. They cannot be deferred beyond one year, held for trading purposes, and anticipated to be fulfilled within the firms' normal operating cycle (International Accounting Standards Board, 2021). Since trade payables and accruals are part of the working capital and are considered fulfilled in the firm's normal operating cycle, these liabilities are classified under short-term liabilities even if these can be fulfilled in more than one year after the reporting period. The liabilities that will be due in one year -even if they have a maturity of more than one

year when it was issued- should be classified under current liabilities. All other liabilities are listed under long-term (non-current) liabilities (International Accounting Standards Board, 2021). Debt financing is also classified based on the source of debt, and types of debt financing based on the source are explained in more detail in this chapter (Section 2.1).

It is frequently emphasized in the finance literature that the finance manager is responsible for creating the capital structure that will best fit the firm's wealth maximization aim. While creating the capital structure, in addition to deciding which type of financing (equity or debt financing) to use, managers should also make the debt structure decisions carefully. If a firm uses external resources, decision-makers should carefully determine the maturity structure and type of debt financing.

In Chapter 2, in addition to types of debt financing, the corporate governance theories and mechanisms, their relation with debt financing, and the monitoring role of debt financing are examined. Furthermore, empirical studies on debt heterogeneity have been presented. Finally, the hypotheses of this dissertation are stated.

2.1. TYPES OF DEBT FINANCING

Types of debt financing based on the source can be listed as follows: Bank loans, trade credits, commercial papers and bonds, and leasing.

2.1.1. Bank Loans

Banks are essential financing sources for firms by providing both short-term and long-term loans. Bank loans are financial securities that are subject to fixed payments. Banks provide loans to firms requesting external funds in exchange for a predetermined (specific) interest rate. Besides interest payments, firms also bear other costs, such as insurance, commission, taxes, and banking service charges.

Each loan has a default risk, either low or high. In order to analyze the risk level and comprehend the firm's creditworthiness, banks examine the firm-specific factors (such as size, profitability, tangibility, etc.) in detail before the lending decision. The interest rate on the loan is determined considering the credit score that

emerges from this evaluation. In some cases, banks may ask borrower firms for collateral. Banks analyze firms during the loan application process and monitor the firms they lend to (Byers et al., 2008; Plosser and Santos, 2007). Accordingly, the monitoring activities conducted by the banks serves as a corporate governance mechanism providing transparency and decreasing the information asymmetry between lenders and borrowers (Ahn and Choi, 2009). Boyd and Prescott (1986), Diamond (1984,1991), Fama (1985), and Leland and Pyle (1977) argues that banks serve superior monitoring activities since they can access confidential information that other lenders cannot. This advantage provides renegotiation power to banks in case of default (Roberts and Sufi, 2009; Smith and Warner, 1979).

The cost of bank loans depends on maturity and firm-specific factors including default risk. From the lenders' perspective, providing long-term loan is riskier; therefore, analyzing a firm and deciding to lend is more complicated. The cost of long-term loans is higher compared to short-term loan. Banks may provide loans to creditworthy firms at lower interest rates or without collateral. On the other hand, a firm may be considered risky if it has not generated profit in the previous years, is newly established, or is mainly financed by external sources. Moreover, failing to provide any collateral causes a firm to be perceived as risky. Hence, its loan request could be rejected or subjected to higher interest rates than a firm generating profit in the past.

In civil law countries with a bank-based financial system, banks are the main financing sources of firms since the debt markets are not well developed. Accordingly, banks and firms generally have close and long-term relations that enable banks to control and monitor the firms (Beck et al., 2003). This relation provides a consistent financing source for firms. On the other hand, in common law countries, firms generally get funds from the debt markets as they have developed debt markets and firms have transactional short-term relations with banks (Beck et al., 2003). However, bank loans are still important, especially for small and medium enterprises (SMEs) that cannot easily access the financial markets.

Beck et al. (2008) examine the financing choices of firms considering financial and institutional development within a broad sample consisting of 48 countries. They put forth that firms, operating in countries where financial markets are developed, tend

to use equity financing and lease finance, while the development of financial intermediaries increases the tendency to use bank finance. Furthermore, they claim that firm size is also essential in choosing financing type emphasizing the lower use of external financing by small firms compared to larger firms (Beck et al., 2008).

James (1987) and Lummer and McConnell (1989) claims that presence or renewal of a loan agreement with a bank is perceived as a positive signal in the stock market. Lummer and McConnell (1989) examined a US-sample and present that renewal of an existing bank loan results in positive excess returns, while there is no reaction to new bank loans announcements. They also found that contract termination or reduction leads to a negative reaction in the market. The findings can be concluded that the relationship between a firm and a bank are viewed as signals affecting the firm value.

Diamond (1991) proposed a theory regarding the debt-source choices of the firms. Based on Diamond (1991) the firms with highest credit ratings would prefer public debt, nevertheless firms with moderate credit ratings are inclined to have bank loans. On the other hand, firms with low credit ratings would choose the cheapest financing source without caring about disclosing negative information to a financial intermediary or debt market as they already had a bad credit rating. Denis and Mihov (2005) also found that debt source decisions depend on the credit quality of the firm. The importance of information asymmetry is also pointed out by Easterwood and Kadapakkam (1991) regarding the choice of private or public debt. Their results show that larger firms that have better information disclosure have more public debt compared to smaller ones that have higher information asymmetry.

Petersen and Rajan (1994) outline the advantages of bank loans for the small firms operating in USA. Their results emphasize that small firms generally depend on debt, and when they attempt to access public markets, rating agencies avoid rating these firms due to information asymmetries between the firm and the potential creditors. The absence of ratings causes uncertainties regarding the reliability. Accordingly, they put forth that small firms are obliged to rely on bank loans which enables building strong relations with banks resulting in finding cheaper financing (Petersen and Rajan, 1994:34). Krishnaswami et al. (1999) claim that larger firms take advantage of public debt due to economies of scale in issuing cost of public debt. However, their results

demonstrate a positive relation between the growth prospects and private debt. Firms with higher growth prospects and consequently higher information asymmetry tend to have higher level of bank loans rather than public debt.

Both public and private debt financing has distinct benefits depending on the circumstances. Researchers put forth that private debt can be advantageous since banks may not interfere as much during financial distress. On the other side, public debt seems better for the firms less likely to default and have steady cash flows (Cantillo and Wright, 2000).

2.1.2. Trade Credit

Trade credit is a financing agreement between buyer and supplier in which the buyer pays the supplier at a specific maturity rather than immediately. Daily operations of the firms require having trade credit; hence trade credit is considered a *spontaneous source of financing* (Brigham and Ehrhardt, 2013). From the buyer firm's perspective, trade credit is a short-term liability that must be paid within the maturity period agreed upon with the supplier (generally in 30, 60, or 90 days). Conversely, for the other party of the agreement (supplier), it is a short-term receivable.

Trade credit is considered one of the primary external financing sources for all firms regardless of firm size, ownership structure, and public status (Demirgüç-Kunt and Maksimovic, 2001). Not only financially constrained but also financially strong firms use trade credit as external financing to fund their daily operations. According to the World Trade Organization, International Finance Corporation and World Bank, up to 80% of global trade is financed by suppliers through trade credit valued at more than 10 trillion US Dollars (Dornel et al., 2023; World Trade Organization, 2024; World Trade Organization and International Finance Corporation, 2019).

The finance literature has different conclusions about the relation between trade credit and bank loan. One strand of literature supports the “substitution hypothesis,” (Meltzer, 1960) while the other supports the “complementarity hypothesis” (Demirgüç-Kunt and Maksimovic, 2001). Some of the finance researchers support the substitution hypothesis proposed by Meltzer (1960) by using different samples (Atanasova and Wilson, 2004; Bastos and Pindado, 2013; Casey and O'Toole, 2014; Mateut et al., 2006; Nilsen, 2002). According to Atanasova and Wilson (2004),

Biais and Gollier (1997), Mateut et al. (2006), and Nilsen (2002), that trade credit acts as a substitute for bank loan during a period of monetary tightening. Fisman and Love (2003) analyze a substantial sample of 44 countries. Their empirical findings show that trade credit is a substitute for bank loan for firms operating in a country without a developed financial market. However, Beck et al. (2008) argue that small firms cannot substitute trade credit for bank loan in an environment where financial development is low. In addition, Danielson and Scott (2004) argue that trade credit acts as a substitute for bank loan for firms whose last credit application had been rejected or constrained by a bank.

Nilsen (2002) put forward that during the period of monetary tightening, US firms have fewer alternative borrowing sources and tend to increase trade credit level as a substitute for bank loan. However, trade credit is an expensive source of financing than bank loan. While large firms with bond ratings do not increase their trade credit level, firms that do not have bond ratings act like small firms and increase trade credit. De Blasio (2005) also found evidence supporting the substitution hypothesis for Italian manufacturing firms, and the effect is higher during the period of monetary tightening policy. Atanasova and Wilson (2004) present that when UK SMEs have problems with borrowing, they are inclined to use trade credit as a substitute for bank loan more than using internally generated funds. In line with these studies, the empirical findings of Choi and Kim (2005) and Mateut et al. (2006) show that trade credit acts as a substitute for bank financing during a period of tight monetary policy for US and UK manufacturing firms, respectively. Bastos and Pindado (2013) also present empirical findings supporting the substitution hypothesis for Argentine, Brazilian, and Turkish sample from 1999 to 2003 covering the financial crisis period. However, the substitution effect is not long-lasting because the provider of trade credit will also have difficulty in borrowing. Casey and O'Toole (2014) investigated European SMEs and concluded that trade credit is a substitute for bank loan for working capital purposes. The substitution effect increases as the firm size and the debt level of the firm increase.

On the contrary, the other strand of literature supports the complementarity hypothesis by analyzing different countries. Demirgüç-Kunt and Maksimovic (2001) examine 39 countries from 1989 to 1996, and they emphasize that trade credit complements other types of borrowing. Their results also demonstrate that firms

operating in bank-based economies have more trade credit than the firms operating in countries with developed financial markets (Demirgüç-Kunt and Maksimovic, 2001). Moreover, they assert that the tendency to use trade credit increases in bank-based economies compared to countries with developed financial markets providing easier access to a wider range of financing sources (Demirgüç-Kunt and Maksimovic (2001).

Besides presenting that an increase in a firm's cash flows reduces the reliance on trade credit, Ono (2001) supports the complementarity hypothesis of trade credit and bank loans for Japanese manufacturing firms from 1979 to 1996. Giannetti et al. (2011) investigated a US sample and found that trade credit and bank loans are complementary. Their findings support the argument that financing provided by suppliers, who have the informational advantage on the firm due to close monitoring, is perceived as a positive signal and considers these firms more creditworthy. In line with the signaling role of trade credit helping firms in getting bank loans, Atanasova (2012) present a complementary relation between trade credit and bank loan for non-financial UK firms. Agostino and Trivieri (2014) and Andrieu et al. (2018) support the complementarity hypothesis for SMEs operating in Italy and 11 European countries, respectively.

Studies also provide mixed evidence about the relation between trade credit and bank loan. While Alphonse et al. (2006), Burkart and Ellingsen, (2004), Huang et al. (2011), Yang (2011), and Yazdanfar and Öhman (2017) claim that trade credit can act as a substitute for bank loan or a complement, Gertler and Gilchrist, (1993) and Oliner and Rudebusch (1996) does not provide any support for substitution hypothesis. In their theoretical paper, Burkart and Ellingsen (2004:570) suggest that trade credit act as a substitute for bank loan if the firm has enough debt capacity; however, for credit-rationed firms they are complements. Vaidya (2011) presents that trade credit and bank loans are complements for financially constrained firms within the Indian context. In contrast with Burkart and Ellingsen (2004), Alphonse et al. (2006) and Gama and Mateus (2010) put forth that trade credit acts as a substitute for bank debt in case of credit rationing and the existence of long-term relation with a bank.

On the other hand, Alphonse et al. (2006) and Gama and Mateus (2010) argue that substitution and complementarity hypotheses are not mutually exclusive. In addition to their findings that supports substitution hypothesis, Alphonse et al.

(2006:25) provide evidence supporting the complementarity hypothesis for the firms that have a short-term relation with a bank. Similarly, Gama and Mateus (2010:37) support the complementarity hypothesis for Portuguese firms, while their results demonstrate a substitution effect for the Spanish sample. Psillaki and Eleftheriou (2015) also present mixed evidence supporting both substitution and complementarity hypotheses for different firm sizes and industries for the French SMEs sample. While their results support the complementarity hypothesis -except for firms operating in the wood and paper industry- during the monetary tightening periods, for small firms operating in the wood and paper industry and medium-sized firms in the food sector, the results support the substitution hypothesis (Psillaki and Eleftheriou, 2015). Ghosh (2015) presents that trade credit and bank loan are complementary; however, they act as substitutes during the financial crisis, mainly for financially unconstrained firms.

Furthermore, Huang et al. (2011) argue that the substitution effect is countercyclical based on the industrial price index, total trade, money supply (M2), and GDP growth for Chinese companies. Yang (2011) suggests that trade credit is a substitute for bank loan during the period of tight monetary policy, while they act as complements during the period of expansionary monetary policy for Compustat data covering from 1986 to 2006. Yazdanfar and Öhman (2017) present that trade credit is a substitute for long-term debt; however, it complements short-term debt for Swedish SMEs.

The substitution or complementarity effects presented in the studies are independent of the legal origins of the countries. While Atanasova and Wilson (2004), Choi and Kim (2005), Mateut et al. (2006), and Nilsen (2002) support the substitution hypothesis for common law countries, Giannetti et al. (2011) and Atanasova (2012) supports the complementarity hypothesis. On the other hand, Bastos and Pindado (2013), Casey and O'Toole (2014), and De Blasio (2005) found empirical results supporting the substitution hypothesis for civil law countries samples, while Agostino and Trivieri (2014) and Andrieu et al. (2018) found that trade credit and bank loans are complementary.

Besides the financing motivation of using trade credits, trade credits are used with different rationales. For instance, the price discrimination theory supported by Brennan et al. (1988), Meltzer (1960), and Petersen and Rajan (1997) emphasizes that

providers of trade credit can offer different terms to different customers instead of giving different prices, which is subject to legal restrictions. Accordingly, the price is indirectly affected by providing better terms, and customers who can pay early take advantage of it. Transaction cost theory claims that firms can minimize transaction costs through trade credit, as argued by Ferris (1981) and Schwartz (1974), allowing the buyer to accumulate bills and make payments at certain times (monthly or quarterly) instead of transferring money and billing for each transaction. On the other side, Klapper et al. (2012), Lee and Stowe (1993), and Long et al. (1993) consider trade credit as a way to guarantee the quality of purchased products. Liquidation theory argues that besides information advantage, suppliers also have an advantage over other lenders in terms of seizing the goods and selling them to other customers in case of buyer default (Petersen and Rajan, 1997). Unlike other theories, Nadiri (1969) points out the commercial motive of trade credit and puts forward the product differentiation theory. Nadiri (1969) underlines the role of trade credit in encouraging customers to buy, like advertising campaigns, and claims that trade credit affects the demand for a product. In Nadiri's (1969) model, trade credit is considered a long-term investment that helps firms have long-term relations with their customers and generates a return in the long run, like advertising programs.

2.1.3. Issued Debt Instruments

A bond is a debt instrument subject to fixed interest payments that should be fulfilled at specific dates called coupon payments during the maturity period and principal payment at the end of maturity (Ehrhardt and Brigham, 2010). Governments, municipalities, and firms can issue bonds, which are called treasury bonds, municipality bonds, and corporate bonds. Government bonds are not subject to default risk; corporate bonds are subject to default risk. The exposed default risk is based on the issuer firm's characteristics. The higher default risk requires offering higher interest rates. Issued debt instruments are more commonly used in common law countries with market-based economies than civil law countries.

Studies mostly focus on the differences between issued debt instruments and bank debts and the reasons and results of these debts being preferred by firms, instead

of directly investigating the impact of issued debt instruments on firm performance and value. James (1987) investigated the stock price reactions to debt issues including bank loans, non-bank placements, and public debt issues, for firms listed on the New York Stock Exchange. The results showed positive abnormal returns for the announcement of a new bank loan and public debt. However, the positive response is larger for the new bank loan announcement. Moreover, a negative abnormal return is determined for private debt placements and when the firm pays back its debt by issuing other types of debt. Bank loans have shorter maturity compared to public debt issues. Through the new bank loan announcement, the firm can send a signal to shareholders about expectation of cash inflow in the short run.

Davydov (2016) is one of the few studies investigating the effects of public debt and bank debt choice on ROA and Tobin's Q. The study, which examines Brazilian, Russian, Chinese, and Indian contexts, presents that fully bank-financed firms have a higher ROA. Whereas they found a negative relation between bank debt and Tobin's Q. Contrarily, Chava and Purnanandam (2011) present that firms mostly relying on bank debt face greater valuation declines than the firms also have public debt during the crisis.

A stream of research argues that bank loans are superior to public debt in the presence of information asymmetry. In this vein, Leland and Pyle (1977) claim that financial intermediaries such as banks, serve as a crucial intermediary for the safe transfer of information arguing that firms with a high level of information asymmetry prefer borrowing from private sources. However, firms would choose public debt in cases of low level of information asymmetry. They claim that the existence of information asymmetry may cause problems in raising funds from bond investors. Information disclosure may not always be in the best interest of the firm. Moreover, there may be an issue regarding the trustworthiness of the information. Potential investors may struggle to understand if the information is reliable or not.

Furthermore, as discussed by Diamond (1984), bonds have limitations in monitoring because of dispersed ownership and anonymity of bondholders. To address this issue an indenture trustee can be assigned to conduct monitoring actions on behalf of bondholders. However, Amihud et al. (2000) argue that indenture trustee may face difficulties in efficient monitoring. Gilson and Warner (1998) analyzed the effect of

the change from bank debt to public debt on stock prices. Their empirical results present that this switch has a negative effect on stock prices due to “*reduced monitoring*” arising from the concerns about losing the monitoring efficiency provided by the bank. Moreover, Ma et al. (2019) suggest that if a firm has bank debt in its debt structure, bondholders will benefit from monitoring activities by banks and bond will have less covenants.

Houston and James (1996) present that larger firms as well as firms with high level of leverage are less likely to rely on bank debt instead they prefer public debt. As high level of leverage can be perceived as the creditworthiness of the firm and provide convenience in accessing to other form of financing. Moreover, growth opportunities and the relations with banks are other factors in choosing bank or private debt. Johnson (1997) put forth that having debt financing in different forms such as bank loan and public debt provide advantages and balancing the challenges arising from different types of debt. Moreover, Johnson (1997) claims that firms with financial stability, lower information asymmetry and monitoring costs prefer public debt.

Rajan (1992) investigated how firms decide between getting debt from bank debt and issuing bonds differentiating depending on their maturity. Bank debt which is relatively shorter maturity exerts control on the debtor and banks would only be willing to lend as long as the firm has a positive present value investment opportunity. However, issuing bonds (public debt) would avoid this control and provide more freedom to debtor but it may be harder to renegotiate. Furthermore, Rajan (1992) asserts that the credit quality of a firm affects its financing decision suggesting that the highest and lowest quality firms prefer public debt, while medium-quality firms lean towards bank loans. In a similar vein, Hoshi et al. (1993) suggest that availability of investment opportunities of the firms affect the choice between bank debt and public debt. They assert that firms that have strong investment opportunities do not prefer to be monitored by banks because they do not need the benefits of bank monitoring, and they will issue public debt. On the other side, if the firms do not have attractive investment opportunities, they need to be monitored to find funds and they will draw advantage from bank monitoring.

Public debt, namely bonds, is more liquid than bank debt since it can be easily traded on an exchange. The terms of public debt are less strict, granting firms more

freedom in how the funds is used. However, bank debt helps mitigate the risk of misusing funds by the firm decreasing agency costs through closer monitoring and stringent covenants (Amihud et al., 2000). In civil law countries, where they generally have bank-based economies, public debt markets are not well developed (Ergungor, 2004).

2.1.4. Leasing

Leasing is a contractual arrangement between the owner of an asset (the lessor) and the party obtaining the right to use of this asset (the lessee) (Brigham and Ehrhardt, 2013: 734). The lessee pays a prespecified amount to the lessor in exchange for using the asset over a specified period. The leasing agreement generally requires periodic payments and includes claims regarding maintenance, insurance, and in some types of leasing agreements ownership transfer. There are different types of leasing, including operating, financial, combination, and synthetic leases, and sale-and-leaseback arrangements (Brigham and Ehrhardt, 2013: 734).

Leasing has unique characteristics; in contrast to traditional debt financing, which enables gaining ownership of the purchased assets, leasing does not allow obtaining ownership instead of providing the right to use for a prespecified period (Pike and Neale, 2006:392-393). Thus, leasing offers operational flexibility and decreases the risks of owning the asset. On the other side, leasing is not shown on the financial statements in the same way as other types of debt; in some cases, based on the type of leasing agreement, it implies a more favorable view of financial health (Cote, 2020). Besides, unlike traditional debt agreements, leasing has fewer restrictive covenants, resulting in less stringent governance practices (Pike and Neale, 2006:397).

There are studies investigating bank debt and leasing substitutability or complementariness. A plethora of studies present a substitute relation between leasing and debt financing (Deloof and Verschueren, 1999; Lin et al., 2013; Marston and Harris, 1988; Yan, 2006). Deloof and Verschueren (1999) found a substitution relation between long-term bank debt and lease financing, while Lin et al. (2013) put forward a substitution relation for the financially constrained firms. However, Beck et al. (2008) argue that the substitution relation is not valid for the smaller firms. The studies supporting the substitution relation argue that leasing and other types of debt are

alternative ways to acquire an asset, and in the case of choosing leasing to acquire an asset, the need for debt financing is not sought.

Another stream of literature asserts the complementariness of leasing and debt (Ambrose et al., 2018; Ang and Peterson, 1984; Eisfeldt and Rampini, 2009; Lewis and Schallheim, 1992). They claim that leasing may help firms to raise debt financing better terms by conveying a positive signal to lenders about the financial health of the firm. Besides, firms can enhance the tax advantage of provided by leasing through depreciation deductions and debt financing through tax shield by using them simultaneously (Ang and Peterson, 1984; Lewis and Schallheim, 1992).

However, to the best of our knowledge, there are a scarce number of studies examining the relation between leasing and firm performance and firm value. There is a consensus about the relation between leasing and firm performance, suggesting a positive relation (Akinbolaa and Otokiti, 2012; Aremo and Ayorinde, 2022; Atseye et al., 2020; Awwad and Ruzieh, 2021; Mohammad and Orabi, 2014; Sulaiman and Obisesan, 2020).

Even though leasing is a significant financing source for firms, in this dissertation it is not included in the debt heterogeneity calculation because of its unique financial and governance characteristics. This enables a focus on the examination of the heterogeneity in trade credit, bank financing, and issued debt instruments and its effect on firm performance and value.

2.2. DEBT AND CORPORATE GOVERNANCE

The owners of firms employ professional managers as their agents, and the firms are run by these managers. The managers are supposed to make decisions and take action to maximize shareholders' wealth. However, the interests of managers and shareholders may not be aligned, and some conflicts -called agency problem- may occur between the shareholders and the managers who work on their behalf (Brigham and Ehrhardt, 2013). Moreover, inside owners and managers have more information about the firm than the outside owners causing information asymmetry between insiders and outsiders. The insiders may be opportunistic and make decisions to maximize their wealth that are not in the interests of all shareholders.

The information asymmetry between outsiders (outside shareholders) and insiders (inside owners and managers) can be minimized, and the agency problem can be mitigated through corporate governance. Corporate governance is defined as “a set of rules, practices, and processes used to direct and control an organization” by the Corporate Governance Institute (Corporate Governance Institute, 2022). In order to minimize the conflict of interest and protect the rights of the shareholders, corporate governance mechanisms are needed. In line with this purpose, internal and external mechanisms such as laws, regulations, the market for corporate control, creditor monitoring, internal and external audit, the board of directors, and management compensation plans are set forth (Cremers and Nair, 2005; Dalton et al., 1998; Walsh and Seward, 1990). Through these mechanisms, corporate governance controls decision-making and prevents exploitation of the firm's sources.

2.2.1. Corporate Governance Theories and Mechanisms

Principles of Corporate Governance were asserted by Organization for Economic Cooperation and Development (OECD) first in 1999. The principles provide a better understanding of the logic of corporate governance for policymakers, legal authorities, stock exchanges, and corporates in creating a better-quality corporate governance environment. These principles are accountability, transparency, fairness, and responsibility (OECD, 2004).

The accountability principle means to account for top managers' every firm action to shareholders and stakeholders. This explanation is provided by independent monitoring by the board of directors. The transparency principle means disclosing clear, correct, comparable information to the public. The transparency principle acts as a complement to the principle of fairness. In order to show that the firms behave fair in all decisions, every action of firms must be transparent and shared with all stakeholders in a timely and accurate manner. Every stakeholder must have easy access to this information. The fairness principle suggests the materiality of treating all shareholders fairly and equally. This principle is directly related to shareholder protection, including minority and foreign shareholders. The responsibility principle

suggests that firms are responsible for their shareholders and stakeholders by following laws and regulations (OECD, 2023; University of Lincoln, 2022).

The legal system of a country plays an important role in shaping the financial system as bank-based or market-based (La Porta et al., 1998; Beck et al., 2003; La Porta et al., 2008). Consequently, different corporate governance models have been put forth based on the characteristics of legal and financial systems. Anglo-Saxon and Continental European systems represent the two main approaches to corporate governance common in the world as exhibited in Table 4. The Anglo-Saxon corporate governance system is prevalent in the countries which follow common law, while the Continental European corporate governance system is followed by civil law countries. In Anglo-Saxon system corporate governance follows an “outsider” approach which prioritizes shareholder value, and it is called stockholder model, whereas the continental European model follows an “insider” system that prioritizes stakeholders, including employees, suppliers and creditors and it is called stakeholder model (Chhillar and Lellapalli, 2015; Pillay, 2013).

The main differences between Anglo-Saxon and Continental European System are summarized in Table 4.

Table 4: Differences Between Anglo-Saxon and Continental European System

	Anglo-Saxon Corporate Governance System	Continental European System
Legal system	Common Law	Civil Law
Ownership Structure	Dispersed ownership	Ownership by large block holders
Market as a corporate governance mechanism	Active markets for corporate control	Weak markets for corporate control
Shareholder rights	Strong shareholder protection	Weak shareholder protection
Source of funding	Equity	Long-term debt financing

Source: (Aguilera and Jackson, 2003; Pillay, 2013)

In common law countries, firms generally have more dispersed ownership structures than civil law countries, because of the higher protection of shareholders including minority investors (La Porta et al., 1998, 1999, 2002). Due to developed

financial markets, firms are exposed to corporate control by financial markets and the management face the risk of being replaced in case of deviation from good financial performance or a hostile takeover in common law countries (Gantenbein and Volonté, 2019; Jensen and Ruback, 1983). In contrast, civil law countries have concentrated ownership structures leading to a higher protection of controlling shareholders' interest over minority shareholders.

In the civil law countries, legal principles are codified and have stronger regulations for financing institutions, leading a bank-based financial system. On the other side, in common law countries, where the focus is on precedents and contract law, the financial system is mostly market-based (La Porta et al., 1998). Common law countries have more developed financial markets than civil law countries, due to effective corporate governance practices and strong legal protection for investors (La Porta et al., 2000). On the other hand, in the continental European system where the main financing source is debt, creditors have stronger rights, however, shareholders' rights are weaker (Pillay, 2013). These characteristics make creditor monitoring an important corporate governance mechanism in civil law countries which prioritize creditor monitoring over corporate governance provided by financial markets. Hence, in this dissertation civil law countries have been selected as the sample.

2.2.1.1. Theories of Corporate Governance

The corporate governance literature puts forth three theories as the Agency Theory (Jensen and Meckling, 1976), Stewardship Theory (Davis et al., 1997; Donaldson and Davis, 1991), and Stakeholder Theory (Freeman and David, 1983). These theories aim to explain the principal-agent problem that arises due to the separation of ownership and control.

Professional managers (agents) are hired by the owners (principal) to run the firm means separation of ownership and control (Jensen and Meckling, 1976). Managers are supposed to act in the owner's best interests, but sometimes their interests may not be aligned, and managers may act in their interests. Agency Theory -put forth by (Jensen and Meckling, 1976)- argues that separation of ownership and control may cause some problems because of the non-aligned interests of principals

and agents. The principal-agent relationship causes agency costs such as monitoring costs, bonding costs, and residual loss (Jensen and Meckling, 1976:308). Owners should design monitoring systems to check if the agents act in the shareholder's best interests, and the incurred cost is called monitoring costs. For example, the preparation and auditing of financial reports have costs. The other agency cost related to reducing agency problems is bonding costs (Fama and Jensen, 1983; Jensen and Meckling, 1976). Bonding costs include the incentives provided to managers in the form of stock of the firm, share options, or cash bonuses to motivate them to act in the shareholders' interest. Residual loss arises when monitoring and bonding actions are inefficient, and the managers might take actions in their self-interest. This action is beneficial for managers but at the shareholders' cost (Jensen and Meckling, 1976) .

Based on the Agency Theory perspective, debt financing reduces the agency problem between managers and shareholders by aligning the interests and disciplining managers (Chang et al., 2014; Harris and Raviv, 1990; Jensen, 1986; Jermias, 2008; Morellec, 2004; Morellec et al., 2012; Zwiebel, 1996). Even if managers make more effort to reduce the risk of bankruptcy resulting from leverage (Grossman and Hart, 1982; Jensen, 1986), debt financing decreases the risk of misusing the firms' sources and investing in negative net present value (NPV) projects (Zwiebel, 1996). In addition, debt financing reduces agency costs since fixed payments arising from debt contracts decrease the free cash flow, which can be exploited by self-interested managers (Jensen, 1986d, 1989; Stulz, 1990). Moreover, debt contracts may come with specific rules requiring firms to meet prespecified financial performance benchmarks. Creditors can monitor firms if firms comply with the rules (Harris and Raviv, 1990), and this oversight causes a decrease in information asymmetry. This characteristic of debt finance causes it to be considered as a corporate governance mechanism within the agency theory framework (Diamond, 1984a, 1991; Huang et al., 2018).

Stewardship Theory, proposed by (Davis et al., 1997; Donaldson and Davis, 1991), argues that managers act in shareholders' interests in contrast with agency theory. The stewardship theory, which originates in psychology and sociology, introduces a *steward* who puts the firm's interests ahead of her/his own. According to this theory, managers are stewards who make decisions to maximize shareholders' wealth even if their interests and the shareholders' interests are not precisely aligned

(Davis et al., 1997). In case of raising debt financing, potential conflicts may occur between creditors and shareholders. Stewardship Theory claims that managers acting as stewards aim to minimize these conflicts by providing fairness and transparency to creditors as well as protecting shareholders' interests (Mohon, 1999:193). *Stewards* focus on the firm's success and stick to its goals with internal motivation because they identify themselves with the firm and perceive its success as their own. In other words, the firm's success is self-actualization for the manager (Davis et al., 1997).

Freeman and David (1983) first used the stakeholder concept and Freeman (1984) further developed and put forth that stakeholder theory in his pioneering study. This term represents internal and external groups such as employees, suppliers, lenders, customers, government, and society that can affect and be affected by the firm's success (Freeman, 1984). According to stakeholder theory, the primary purpose of the business should be more than the effort to maximize shareholders' wealth. The stakeholder theory argues that the interests of all stakeholders, not just shareholders, should be taken into account during decision-making, leading to less conflict of interest (Freeman and David, 1983).

2.2.1.2. Corporate Governance Mechanisms

Corporate governance mechanisms consist of internal and external mechanisms which are proposed to ensure the firm actions are in line with the best interest of shareholders. According to the Principles of Corporate Governance report published by OECD (2023), internal and external corporate governance mechanisms are complementary in providing accountability, transparency, and long-term value creation for the shareholders (OECD, 2023).

Internal corporate governance mechanisms encompass structure of the board of directors, executive compensation, internal corporate control groups (internal auditors) and code of conduct (Banks, 2004b:33). The board of directors is responsible for the effective management of the firm in compliance with the laws, regulations, and ethical rules. In addition, the board of directors acts as a link between the management and the shareholders ensuring the decisions are in the best interest of the shareholders. In this regard, the board of directors has been considered one of the essential factors

in implementing efficient corporate governance practices, and board characteristics, such as board size, board diversity, executives, etc., have drawn attention of researchers.

Board size refers to the number of directors serving on the board of directors including managers involved in daily operation of the firm, namely executive directors, and independent director, known as non-executive directors. Typically, board should large enough to offer various expertise but also small enough to provide efficiency and cohesive. While on the small boards making decisions take less time, however, small board may lack of diverse perspectives. On the other side, larger boards bring various expertise and ability to set committees to enhance monitor efficiency, but on the larger boards reaching a consensus is more difficult and results in slower decision-making (Dalton et al., 1999; Lipton and Lorsch, 1992). There is no unanimity regarding the efficiency of board of directors and its size. One plethora of studies presents that larger board size leads better corporate governance (Bennouri et al., 2018; Jizi, 2017; Pearce and Zahra, 1992; Vitolla et al., 2020). However, other stream of research present controversial results implying that having a greater number of board members would result in reduced board effectiveness (P. De Andres et al., 2005; Herman, 1981; Hidalgo et al., 2011; Prado-Lorenzo and Garcia-Sanchez, 2010; Yermack, 1996).

A stream of literature focuses on gender diversity on the board of directors emphasize the positive impact of women members on the accuracy and reliability of the disclosed information and enriching the decision-making processes by bringing different perspectives (Kılıç and Kuzey, 2016; Lückerath-Rovers, 2013; Luoma and Goodstein, 1999; Post et al., 2011; Torchia et al., 2011; Vitolla et al., 2020). This effect, arising from the soft skills of women, which enables to build relationships with stakeholders also positively affect the firm performance (Bennouri et al., 2018; Frias-Aceituno et al., 2013; Kılıç and Kuzey, 2016; Lückerath-Rovers, 2013).

Board independence, provided by the presence of independent members, namely non-executives on the board of directors, is seen as another key aspect of corporate governance for overseeing managers and assuring that the actions of boards are in line with the best interests of shareholders (Fama and Jensen, 1983). Because of more objective decisions of independent board members compared to executive directors (Fama and Jensen, 1983; Kosnik, 1987), more independent boards are

expected to enhance accountability and transparency (Frias-Aceituno et al., 2013; Liao et al., 2015; Prado-Lorenzo et al., 2009, Vitolla et al., 2020).

Chief Executive Officer (CEO) duality occurs when the CEO also serves as the chairperson of the board of director. Some studies suggest that CEO duality can make easier decision-making and improves efficiency of the board (Finkelstein and D'Aveni, 1994). However, other strand of literature present that CEO duality decreases board independence and effective monitoring activities leading conflicts of interest (Jensen, 1993; Krishnan and Visvanathan, 2009; Tuggle et al., 2010).

Executive compensation plans help align the interests of management and shareholders through stock options, and performance-based bonuses and encourage executives to work following the maximizing the shareholders' wealth aim (Ross et al., 2012). Contrary to theoretical expectations that executive compensation plans would help align the interests of managers and shareholders, research on this issue exhibits that managers may focus on the compensations rather than the firm's financial performance. Bebchuk and Fried, 2004; Bertrand and Mullainathan, 2001; Crystal, 1991) pointed out the controlling power of managers over the compensation plans decreasing efficiency in reducing conflicts of interest. In addition, managers might be short-term focused and prone to manage earnings to increase their compensations (Bergstresser and Philippon, 2006; Coles et al., 2006; Guidry et al., 1999). However, Fahlenbrach (2009) argues that executive compensation plans help reduce conflicts of interests and act better in the absence of strong corporate governance.

Internal audit is defined as "...an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes." by The Institute of Internal Auditors (The Institute of Internal Auditors, 2023). The code of conduct serves as an internal corporate governance mechanism like an ethical guide defining the ethical responsibilities that should be complied with in decision making processes. Within this context, empirical studies support the argument that internal audit practices reduce information asymmetry by the way of controlling and monitoring actions (Abay, 2013; Beasley et al., 2009;

Gebregiorgis Berhe and Seid Ali, 2014; Hermanson and Rittenberg, 2003; Laing and Weir, 1999; McMullen, 1996).

Ownership structure, which expresses how equity ownership is distributed within the firm, is also a valuable factor in terms of corporate governance (Shleifer and Vishny, 1986). Dispersed ownership structure refers to the situation that a large number of shareholders have the shares of the firm in small proportions. Since no single shareholder holds a large amount of the shares, it is not possible to have control over the firm. The decision-making process requires a consensus or a majority vote among them as the decision-making power is distributed among a large number of shareholders. Concentrated ownership structure is defined as a small number of shareholders or even one shareholder holding a significant percentage of the firm's shares. This situation enables them to dominate shareholders' meetings due to holding a large proportion of the shares. As a result, the controlling shareholder(s), who generally have more than 10% of voting rights, have the power and control over the firm's decisions and actions (Porta et al., 2002:1155).

Dispersed ownership generally leads to greater accountability and transparency due to decisions are subject to review by various shareholders. On the other hand, dispersed ownership causes difficulties in the alignment of interests and coordination among a large number of shareholders (Faccio et al., 2002). Besides enhanced management monitoring as argued by (Claessens et al., 2000; La Porta et al., 1999), concentrated ownership makes decision-making process easier however, it raises concerns about the conflicts of interest between controlling and minority shareholders. According to the studies on ownership structure regarding corporate governance, it can be concluded that a well-balanced ownership provides effective corporate governance by ensuring that decision-making power is distributed to reflect the diverse interests of shareholders.

External corporate governance mechanisms are regulations, legal regimes, external audits, financial markets, block holding monitoring, and investor monitoring (Banks, 2004a:55). Regulations are essential in formalizing corporate governance practices and determining a framework including shareholder rights and responsibilities. The regulations vary by country and the differences result from

cultural, legal, and institutional factors (Cuervo, 2002; Gourevitch, 2003; La Porta et al., 2000, 2008).

External audit activities are conducted by independent parties to ensure the reliability of financial statements and enhance accountability to shareholders, investors, and creditors. Through external audit financial reports are expected to more accurate and reliable, increasing transparency and decreasing information asymmetry (Cohen et al., 2004:21; DeFond and Zhang, 2014:276; Ghosh, 2007:2; Jensen and Meckling, 1976:306). Correspondingly, empirical studies conducted on different samples provide evidence that external audit activities lead to better firm performance and value (Afza and Sajid Nazir, 2014; Al-ahdal and Hashim, 2022; Căărăușu a Terinte, 2022; Cohen et al., 2004; Ghosh, 2007). The market for corporate control is also considered an external disciplinary factor that encourages managers to act in line with shareholders' interests (Bradley, 1990; Cremers and Nair, 2005; Jensen and Ruback, 1983; Mikkelsen et al., 1997) and incentivizes firms to follow laws, regulations, and ethical standards to attract investors (Banks, 2004; Pillay, 2013). In case of poor financial performance and stock value, the firm may become a target for takeovers. The managers who cause inefficient management are threatened with replacement by the new owners of the firm in the event of a takeover. The replacement threat prevents managers from acting on their self-interests and encourages them to run the firm in accordance with the maximization of shareholder value (Bradley, 1990).

Creditor monitoring is another disciplinary mechanism as the close control of borrower's financial performance encourages management to make wise decisions and maintain effective cash flow management (Diamond, 1984a, 1991; Huang et al., 2018). Creditor monitoring refers to close watch exercised by creditors (suppliers, banks, financial institutions, bondholders etc.) over the financial activities and performance of the debtors. This monitoring activity involves regular assessment of the debtors' financial health to ensure that debtors can meet their obligations to mitigate the default risk (Byers et al., 2008; Diamond, 1991; Jادیyappa et al., 2020)). An effective monitoring activity helps creditors make more informed decisions and take actions to protect their interests in case the debtor faces financial distress or default. The studies examining the role of creditors in corporate governance structure are explained in

Section 2.3.1 (Ang et al., 2000; Byers et al., 2008; González,2013; Jensen, 1986c; Jiraporn et al., 2012; Stulz, 1990).

2.2.2. Debt As A Monitoring Tool

2.2.2.1. Creditor Monitoring and Debt Structure

Debt financing reduces information asymmetry due to its monitoring function and has been considered one of the corporate governance mechanisms (Ang et al., 2000; Byers et al., 2008; González,2013; Jensen, 1986c; Jiraporn et al., 2012; Stulz, 1990). In addition to its monitoring function, debt financing disciplines managers through fixed payments, decreasing excess cash that may be exploited; hence, it reduces conflicts of interest (Jensen, 1986; Morellec, 2004; Stulz, 1990; Zwiebel, 1996).

Despite its disciplining role and monitoring function, in the finance literature debt has been predominantly considered as a part of the capital structure (Bauer, 2004; Fama and French, 2002; Frank and Goyal, 2003; Miller, 1988; Myers, 1977; Rajan and Zingales, 1995; Titman and Wessels, 1988; Wiwattanakantang, 1999). Nevertheless, the number of studies that analyze debt as a corporate governance mechanism is relatively few (Campbell and Kracaw, 1980; Diamond, 1984; Faccio et al., 2001; Jensen, 1986; Morellec et al., 2012; Zwiebel, 1996).

The debtholders serve as an external corporate governance mechanism acting as a monitoring entity (Byers et al., 2008; Diamond, 1991). Jensen and Meckling (1976) assert that debt financing is a bonding mechanism for management ensuring they act in the shareholders' interests. Likewise, Jensen (1986) and Stulz (1990) highlight the disciplining function of debt financing by reducing free cash flow to be exploited by self-interested managers in addition to acting as a motivating force to make efficient decisions against default.

Creditors, especially banks, have a different approach to governance than shareholders. The shareholders aim to protect their interests where the agency cost, arising from agency conflicts between shareholders and managers, exists. While

creditors' governance aims to protect creditors' interests against the agency cost of debt (Jadiyappa et al., 2020).

There is information asymmetry between creditors and firm managers since managers have more information about the firm's operations and financial situation. As a lender, banks want the firms to use the borrowed money effectively to ensure that fixed payments are made on time (J. S. Ang et al., 2000). However, the funds borrowed from banks can be misused, and it may result in default. Therefore, in order to mitigate moral hazard and reduce default risk, banks monitor the firms they lend to. Bank monitoring may be the primary motivation behind avoiding moral hazards (Ahn and Choi, 2009). In line with this motivation, a limited number of studies examine banks' monitoring role in reducing information asymmetry between banks and borrowers. Bank monitoring is for the benefit of shareholders in terms of decreasing moral hazard since it disciplines self-interested managers (Shepherd et al., 2008) and acts as a corporate governance mechanism (Shepherd et al., 2008; Shleifer and Vishny, 2007), especially in bank-based economies (Charkham, 1995).

Diamond (1984) and Fama (1985) argue that banks have the advantage of monitoring since they have access to the private information of the borrowing firms. Delegated Monitoring Theory of Diamond (1984) suggests that bank financing is cost-effective compared to public debt in mitigating moral hazard and adverse selection. In addition, banks are superior in providing less costly monitoring activities to other lenders. Diamond (1984) put forth that firms would prefer bank debt to build reputation through strong monitoring activities provided by banks and then they would switch to public debt. Similarly, Fama (1985) and James (1987) claim that banks have private information that public debtholders do not have. In line with Delegated Monitoring Theory, Byers et al. (2008) put forth that bank monitoring is a substitute for corporate governance mechanisms. However, the substitution effect only arises when there is a weak market for corporate control. Ahn and Choi (2009) suggest that when a bank monitors a firm, the firm is less inclined to manage its earnings. Therefore, it can be concluded that bank monitoring act as a corporate governance mechanism that alleviates moral hazard problem. Furthermore, Ang et al. (2000) put forth that the monitoring function of banks decreases agency costs. This decline in agency cost increases even more as the relation between the bank and the firm lengthens. In a

similar vein, Bonfim et al. (2018) found that bank financing helps more opaque small firms in reducing information asymmetry through banks' close monitoring activities. Moreover, borrowing from more than one bank will reduce the monitoring costs of each bank and provide better credit conditions lowering the interest rate.

Studies exhibit how strong relationship with only one lender, especially with banks, affects funds availability and credit terms. In a close relationship, firms are more willing to share information than traditional relationships, believing that information will not be shared with anyone other than the bank with which the relationship is established. Petersen and Rajan (1994) demonstrate that having a close relationship with a lender increases the availability of funds. Moreover, having debt financing from various sources causes an increase cost of debt financing Petersen and Rajan (1994). In addition, Boot (2000) claims that relationship lending reduces the information asymmetry between borrowers and lenders. Through long-lasting relationships, banks get deeper information about the borrower and provide better terms. However, relationship lending may cause hold-up problems as argued by Rajan (1992) and Sharpe (1990). When the relationship gets closer, information asymmetry between relationship lenders and other banks increases. When the firm applies for a loan from another bank rather than a relationship lender, other banks perceive that if the relationship lender has not provided financing, the project or investment is likely to fail. Accordingly, the borrower is forced to borrow from the relationship lender who may charge a higher interest rate due to its informational advantage. Furthermore, as suggested by Rajan (1992) and Sharpe (1990), firms' bargaining power with the lender increases in case of having relationships with more than one bank. Relationship lenders can be inclined to provide better terms to such firms in order to keep the existing relationships with borrowers instead of taking advantage of the private information (Bonfim et al., 2018).

La Porta et al. (1999) propose that substitute corporate governance mechanisms are put forward where investor protection is low. Jiraporn et al. (2012) argue that debt financing acts as a corporate governance mechanism when other corporate governance mechanisms are not efficient due to country-specific factors such as lower financial development and/or the existence of low investor protection. Similarly, González (2013:182) argues that debt financing is an efficient monitoring tool in financially

underdeveloped countries that have a bank-based financial system. However, when there are effective control tools with higher investor protection, the disciplinary role and monitoring function of debt financing loses its importance. Consistent with the argument that debt financing will improve financial performance through its disciplinary role on managers put forth by Jensen (1989) and Wruck (1990), González (2013) found supportive results for the firms operating in bank-based economies.

On another hand, a stream of literature investigates how market reacts to the bank loan announcements, as the bank loans send signals about creditworthiness of the firm and involve monitoring activities that are expected to reduce information asymmetry. Mikkelsen and Partch (1986) and James (1987) present evidence of positive abnormal returns on the firms' stocks after the announcement of new bank loan agreements. However, Mikkelsen and Partch (1986) put forth that common stock or convertible debt issuance leads to a negative response and James (1987) proposed that straight debt issuance causes a negative return. Billett et al. (1995) also support that bank loan announcements convey a positive signal to the market resulting in positive stock returns, unlike public debt issuance announcements. However, the positive effect on the stock returns is higher when the lender bank's quality is higher. Furthermore, Lummer and McConnell (1989) investigated the effect of bank loan announcements by splitting them into two groups as new bank loan announcements and bank loan renewals on stock prices. Their results present that if a bank favorably renews a firm's loan agreement, it transmits positive information to the market, resulting in positive returns. Since banks will have more information about the firm over the years leading to an information advantage that will not be available in the new loan agreement. Coherently, the empirical results show an insignificant effect of a new bank loan announcement on stock prices. Nevertheless, loan reduction or cancellation leads to a decrease in stock prices and if the cancellation is initiated by the lender the negative response of the stock prices is higher. Their results support the idea that a bank plays a substantial role in transmitting firm-specific information to the financial market due to its monitoring ability (Lummer and McConnell, 1989). Slovin et al. (1992) also analyzed bank loan announcements by categorizing them into two groups: new bank loans and bank loan renewals. Their empirical results, consistent with Fama (1985) and Diamond (1991), show that new bank loan announcements and bank loan

renewals transmit positive information to the market leading to an increase in share prices for small firms. Similarly, Best and Zhang (1993) assert a positive reaction to bank loans which is higher when the firm renew a bank loan instead of apply for a new bank loan.

Diamond (1991) argues that firms tolerate costly bank debt because borrowing from banks and being monitored by banks leads to gaining reputation for a firm. Due to their reputation based on their good credit history; firms can lower the cost of public debt. In a similar vein, empirical findings of Datta et al. (1999) show that when firms decide to issue a bond for the first time, they will bear lower costs if they have bank debt. It can be concluded that the superior information, provided by banks through cross-monitoring, reduces agency costs of public debt. Following Fama (1985) and Diamond (1991), Slovin et al. (1992) claim that small firms gain more benefit from monitoring by a lending bank than reputable large firms.

Creditor monitoring is a vital mechanism for decreasing information asymmetry and conflicts of interest between shareholders and managers (Jensen and Meckling, 1976; Shleifer and Vishny, 1986; Dalton et al., 2003; Connelly et al., 2010). Creditor monitoring -as a corporate governance mechanism- is essential in determining the maturity of debt and the type of financing. For instance, managers tend to keep leverage as low as possible to avoid creditor monitoring even if the results may be negative for shareholder wealth (Easterbrook and Easterbrook, 1984; Brailsford et al., 2002). The monitoring role of debt financing affects the type and maturity of the debt used since they have different monitoring applications and this issue have been investigated by finance researchers. Short-term debt requires frequent monitoring, and managers tend to choose long-term debt to avoid frequent monitoring (Ortiz-Molina and Penas, 2008). Additionally, debt maturity decision is affected by firm-specific factors such as size, profitability, growth opportunities, and ownership structure (Myers, 1977; Flannery, 1986; Diamond, 1991; Datta et al., 2005; Jiraporn and Kitsabunnarat, 2007; Ben-Nasr et al., 2015) as well as the country-specific factors such as development level of the country, development of the financial system, and legal system (Demirgüç-Kunt and Maksimovic, 1996; Beck et al., 2003, 2008; Ayyagari et al., 2007).

Like bank debt and public debt, trade credit which relies on supplier relationships also plays a significant role in monitoring. This form of financing allows suppliers to assess the operational efficiency of their customers and financial health, and set trade credit terms accordingly. According to Burkart and Ellingsen (2004), Demirgüç-Kunt and Maksimovic, (2001), Petersen and Rajan (1996) and Smith (1987), suppliers have the advantage in terms of monitoring the firms' and their daily activities compared to other types of lenders. Suppliers have more information about buyers' (borrowers') operations and industry. However, financial intermediaries may not have such detailed information about the firm or the industry. As a result, financial intermediaries put more effort to obtain information about their borrowers are subjected to higher monitoring costs than suppliers that provide trade credit (Burkart and Ellingsen, 2004; Demirgüç-Kunt and Maksimovic, 2001; Petersen and Rajan, 1996). Moreover, misusing the cash borrowed from other lenders, such as banks or financial institutions, is easier than misusing inputs bought from suppliers on credit. Suppliers feel secure when they provide trade credit to their customers, because of the less liquid nature of the inputs and their difficulty in misuse (Burkart and Ellingsen, 2004). Trade credit is provided by suppliers even when another type of financing is not available for its customers (Beck et al., 2008; Demirgüç-Kunt and Maksimovic, 2001; Klapper et al., 2012)

In addition, Burkart and Ellingsen (2004) suggest that firms' dependency to trade credit decreases as an alternative type of financing when there is strong creditor protection, as borrowed cash cannot be diverted easily. Likewise, Demirgüç-Kunt and Maksimovic (2001:6) argue that firms have a higher level of trade credit in case of inefficient monitoring of private borrowers by financial intermediaries.

2.2.2.2. Theories on Creditor Monitoring Efficiency

Two prominent theories, the free-rider hypothesis, and the efficient monitoring hypothesis, offer contrasting perspectives on how raising debt financing from various sources affect the efficiency of creditor monitoring. The free-rider hypothesis claims that the involvement of multiple lenders enhances a free-rider problem, where each creditor may shirk their monitoring responsibilities, relying on others to safeguard their

interests (Carletti et al., 2007; Krugman, 1988). Conversely, the efficient monitoring hypothesis posits that having multiple sources of debt can enhance firm performance and value by mitigating agency costs through increased monitoring (Jensen, 1986; Rajan 1992). Jensen (1986), Harris and Raviv (1990), Rajan (1992), Datta et al. (2005), and Jirapon et al. (2012) support the efficient monitoring hypothesis which means having more than one debt source in the debt structure increases firm value by decreasing agency costs through monitoring by different lenders. On the other hand, Krugman (1988), Carletti et al. (2007), Brunner and Krahnen (2008), and Jادیappa et al. (2020) argue that firm value decreases if a firm borrows from more than one lender due to decreasing monitoring efficiency caused by the free-rider problem.

It can be concluded that the finance literature has not extensively explored the effect of debt heterogeneity on firm performance and value, though there are considerable research investigating the effect of capital structure. Less attention has been paid to the different characteristics and implications – in terms of corporate governance- of different debt types in the capital structure. As different types of debt have different monitoring abilities (Diamond, 1991; James, 1987; Slovin et al., 1993), this issue deserves a deeper investigation within the corporate governance framework as well as the capital structure context. A further investigation of debt heterogeneity may offer valuable insights into governance activities, capital structure theory, and management's decision-making process. Considering debt heterogeneity as a corporate governance mechanism as well as borrowing from different sources, can be described as the most significant contribution of this dissertation to the existing literature.

2.3. EMPIRICAL STUDIES ON DEBT HETEROGENEITY

Contrary to capital structure studies that disregard debt heterogeneity, Rauh and Sufi's (2010:4243) pioneering study on debt heterogeneity emphasizes that debt heterogeneity in capital structure deserves attention. Accordingly, they investigate how credit quality shapes debt structure of US firms. Their results put forth that the firms with low-credit-quality have more heterogeneous debt structures when compared to firms with high-credit-quality. Debt structure of low-credit-quality firms consists of

different types of debt such as secured bank debt that requires covenants and provide monitoring and non-bank debt such as bonds and convertible bonds. Although low-credit quality causes losing access to short-term debt sources, it does not cause losing long-term debt sources (Rauh and Sufi, 2010:4243). However, firms with high-credit-quality rely on fewer types of debt such as senior unsecured debt. Rauh and Sufi (2010) explain their results based on Diamond's (1991) model arguing that high-credit quality firms can access arm's length debt and are inclined to avoid bank debt which requires covenants and close monitoring. However, lower quality firms need to be monitored by banks to prove that they are credible (Bolton and Freixas, 2000; Diamond, 1991). Moreover, Rauh and Sufi (2010) put forth that if the credit rating of a firm deteriorates, the debt structure of the firms becomes more heterogeneous. In case of a downgrade in their credit rating, firms tend to have more secured bank debt and subordinated debt instead of senior unsecured debt.

Following Rauh and Sufi (2010), Colla et al. (2013) examined a US sample including rated and unrated firms. Colla et al.(2013) use Herfindahl-Hirschman Index (HHI) as the debt heterogeneity measure. They use five different types of debt, commercial paper, revolving credit lines, term loans, senior and subordinated bonds, and capital leases, in HHI calculation. Most of the firms in their sample have one type of debt; especially, unrated small firms generally rely on bank debt. Large firms with high credit grades have different types of debt in their debt structures as they can access different debt sources, since having a good credit rating eases accessing capital markets and adding issued debt instruments into the debt structure. In addition, as Diamond (1991) claims that information asymmetry between insiders and outside investors leads to bank debt reliance, the possible reason of debt heterogeneity can be related to information asymmetry. Accordingly, Colla et al. (2013) stated that more transparent (opaque) firms cause lower (higher) information collection costs have more heterogeneous (homogeneous) debt structure. They also stated that asset structure and debt structure are related, indicating having more debt and tangible assets leads to a more heterogeneous debt structure.

Povoa and Nakamura (2014) investigate the determinants of debt heterogeneity, proxied by HHI, for Brazilian listed firms. They found that firm size, market-to-book ratio, and rating status of the firm negatively affect HHI. Their results

indicate that larger firms in Brazil have more heterogeneous debt structures because these firms are more transparent and have easier access to financing sources in accordance with the empirical findings of Colla et al. (2013), Houston and James (1996), Johnson (1997), and Krishnaswami et al. (1999). The negative relation between growth opportunities (market-to-book) and HHI indicates that higher growth opportunities lead to a more heterogeneous debt structure, since the need of external financing is higher for such firms. Moreover, the negative relation between being rated and HHI supports the findings of Colla et al. (2013) that argues rated firms have more heterogeneous debt structures.

Giannetti (2019) investigated the relation between debt heterogeneity and firm turnover for a European sample including Austria, France, Germany, Hungary, Italy, Spain, the UK. They use HHI as a debt heterogeneity proxy using five different debt categories, short-term bank loans, long-term bank loans, short-term securities, long-term securities, and other financial instruments. Their results demonstrate that firms with heterogeneous debt structures are less likely to experience a decrease in turnover.

Jadiyappa et al. (2020) examine debt heterogeneity in terms of monitoring activities conducted by debtholders and argue that heterogeneous debt structures lead to a less efficient monitoring activities caused by free rider problem among debt holders. Accordingly, heterogeneous debt structures result in decreases in market value. They analyzed an Indian sample, and the empirical findings support the free rider problem among debt holders causing a decrease in market value. Tripathy and Uzma (2021) analyze the relation between debt diversification and firm value for Indian firms by measuring debt heterogeneity as the number of debt sources. Their results present that debt diversification negatively affects firm value. Moreover, they investigate the effect of bank debt and non-bank debt on the firm value, and they put forth that non-bank debt negatively affects firm value while bank debt has no significant effect.

Eça et al. (2022) investigate the relation between debt heterogeneity and investment cash flow sensitivity within Brazil context by using HHI as the debt heterogeneity proxy. Their empirical findings suggest that concentrating on one debt source is a way of reducing financial constraints which results in lower investment-cash flow sensitivity. They argue that firms with more concentrated debt structure have

closer relationship with the creditor, hence, the information asymmetry minimizes (Eça et al., 2022:304). Through close monitoring, firms can prove their creditworthiness and increases the possibility of having a greater amount of debt from one creditor. They also claim that creditors are more inclined to close monitor the firms if they provide greater portion of their debt. In addition, in case of default, the coordination of the different creditors would be easier in case of having less heterogeneous debt structure as suggested by (Castro et al., 2020; Lou and Otto, 2020).

Tut (2022) investigates why firms have more than one debt type and whether choosing different debt sources serves as a form of corporate governance mechanism within a US context. The empirical findings show that firms with weak corporate governance systems tend to have more heterogeneous debt structures than the firms with strong corporate governance systems. Their results suggest that managers tend to borrow from different debt sources to benefit from the coordination problem among creditors, namely the free-rider problem. Tut (2022) concludes that concentrated debt structures are superior in terms of monitoring and disciplining managers arguing that heterogeneous debt structure decreases monitoring efficiency. Moreover, Tut (2022) presents that debt concentration and bank debt is negatively related since banks are able to efficiently monitor the borrowers and the benefit arising from debt concentration is not sought. However, they present a positive relation between market debt and debt concentration. Relatively less monitor provided by market debt may increase information asymmetry and necessitate concentrated debt structure to mitigate the risk faced by lenders. In the similar context, Arena (2011) analyzes firms' preferences regarding bank or market debt. They found that smaller firms rely on bank debt, as banks closely monitor such firms and decreases the information asymmetry through their superior ability to access detailed information. However, for the larger firms, especially those with a good credit grade, which is associated with lower information asymmetry, accessing the non-bank debt with a lower cost is easier.

As presented in section 2.4, there are a limited number of studies investigating debt heterogeneity and its relation to firm performance and firm value. In the light of the creditor monitoring theories (free-rider and efficient monitoring hypothesis), along with the empirical studies, different types of debt enable different monitoring activities. It is expected that this situation increases the monitoring efficiency, and debt

heterogeneity is expected to have a positive impact on firm performance and value, following Datta et al. (2005), Harris and Raviv (1990), Jensen (1986), Jiraporn et al. (2012), and Rajan (1992), supporting the efficient monitoring hypothesis.

Accordingly, the following hypotheses are set forth:

H₁: There is a positive relation between debt heterogeneity and firm performance.

H₂: There is a positive relation between debt heterogeneity and firm value.

In this dissertation, following Choi et al. (2021), Colla et al. (2013), Eça et al. (2022), Giannetti (2019), Jادیappa et al. (2020), Lou and Otto (2020), Santos Póvoa and Nakamura (2014), and Tut (2022) Herfindahl-Hirschman Index (HHI) is used to measure debt heterogeneity. The effect of debt heterogeneity (HHI) on firm performance and value is expected to be positive. However, the expected signs of HHI measures are negative, as an increase in HHI means debt structure becomes more homogeneous leading to lower performance and value.

The debt structure consisting of various types of debts has been stated in different ways in the finance literature, such as debt diversification, the granularity of debt, and debt heterogeneity as presented in Table 5. In addition, instead of having multiple debt sources using a single type of debt is called debt specialization and debt structure concentration. In this dissertation, the concept of having multiple debt sources is referred as debt heterogeneity following Lou and Otto (2020), Rauh and Sufi (2010), Santos Póvoa and Nakamura (2014), and Song and Su (2022).

Table 5: Debt Heterogeneity Measures in the Finance Literature

Authors	Debt Heterogeneity Naming	How to measure?
Rauh and Sufi (2010)	Debt Heterogeneity	Debt Composition
Colla et al. (2013)	Debt Specialization	Herfindahl-Hirschman Index
Santos Póvoa and Nakamura (2014)	Debt Heterogeneity	Herfindahl-Hirschman Index
Giannetti (2019)	Debt Specialization	Herfindahl-Hirschman Index
Lou and Otto (2020)	Debt Heterogeneity	Herfindahl-Hirschman Index
Jادیappa et al. (2020)	Debt Diversification	Herfindahl-Hirschman Index

Tripathy and Uzma (2021)	Debt Heterogeneity (Debt Diversification)	Debt Type (Debt heterogeneity) is the bank or non-bank debt ratio.
Choi et al. (2021)	Granularity Of Debt	Herfindahl-Hirschman Index
Song and Su (2022)	Debt Heterogeneity	Firm's use of two types of debt financing, trade credit, and bank credit
Eça et al. (2022)	Debt Structure Concentration	Herfindahl-Hirschman Index
Tut (2022)	Debt Specialization	Herfindahl-Hirschman Index Market debt and Bank debt

Source: Created by the Author

CHAPTER THREE

DATA AND METHODOLOGY

The aim of this dissertation is to analyze the effect of debt heterogeneity, emphasizing the monitoring role of debt financing, on firm performance and firm value by employing Driscoll-Kraay Estimator. While conducting these analyses firm-specific variables and a country specific variable have been included in the models based on the theoretical framework and the literature review.

In this chapter, the sample selection criteria, data, research methodology, research model, and variables will be explained in detail. Additionally, descriptive statistics and proportional allocations of debt types in total debt are presented.

3.1. DATA

In order to analyze the effect of debt heterogeneity on firm performance and value, this dissertation investigates a comprehensive sample consisting of Brazilian, French, German, Italian, Mexican, Russian, South Korean, and Turkish non-financial listed firms covering 2008 and 2022. These countriesⁱⁱⁱ are members of the Group of 20 (G20) countries that follow the International Financial Reporting Standards (IFRS), have a civil law system, and a bank-based economy. Comparing the firm-specific data is challenging because of the differences in financial reporting standards. Hence, this dissertation's sample comprises countries that have fully adopted IFRS. Table 6 presents the IFRS adoption years and the development levels of the countries. Brazil, Mexico, Russia, and Türkiye are classified as developing, while France, Germany, Italy, and South Korea are classified as developed countries (International Monetary Fund, 2022).

Civil law systems have codified and stringent regulations affecting corporate governance practices as well as investor protection mechanisms. In addition, they mostly have bank-based financial systems (La Porta et al.,1998). In common law countries, which generally have market-based economies, financial markets are the

iii Although Argentina meets all the criteria, it had to be excluded from the sample because of the existence of too much missing and inconsistent data.

main source of financing. However, in civil law countries, firms rely heavily on banks and financial intermediaries for financing, making creditor monitoring essential (Pillay, 2013). These characteristics allow a thorough examination of the efficiency of creditor monitoring in civil law countries with bank-based economies. The analyses were carried out for the whole sample as well as the subsamples of developed countries, developing countries, Brazil, France, Germany, Italy, South Korea, Mexico, Russia, and Türkiye independently.

The firm-related data was obtained from annual financial statements and downloaded from Orbis Databases^{iv} provided by Bureau Van Dijck and the country-related data was downloaded from the IMF database, covering the period from 2008 and 2022. In this dissertation, all monetary data are denominated in US Dollars to ensure consistency and comparability across the firms analyzed. Although France, Germany, Italy, and Türkiye started following IFRS in 2005, the data included in the analysis starts in 2008 since firm value data (Tobin's Q) is available from that year. As presented in Table 6, Brazil, South Korea, Mexico, and Russia started following IFRS later, hence, the data for these countries is available starting from 2010, 2011, 2012, and 2012, respectively. Consequently, the dataset analyzed is unbalanced.

Table 6: Development Levels and IFRS Adoption Years of the Sample Countries

Code	Country	IFRS Adoption Year	Developed / Developing
BR	Brazil	2010	Developing
FR	France	2005	Developed
DE	Germany	2005	Developed
IT	Italy	2005	Developed
KR	South Korea	2011	Developed
MX	Mexico	2012	Developing
RU	Russia	2012	Developing
TR	Türkiye	2005	Developing

Source: IFRS, Thomson Reuters, World Bank, IMF

^{iv} The data collection process has been conducted at University of Bologna, Department of Management, and supported by the Scientific and Technological Research Council of Türkiye (TÜBİTAK) under the 2214-A International Research Fellowship Program for Doctoral Students.

Table 7 provides information about the total market capitalization of the stock exchanges in the sample countries. France has the largest market capitalization in the sample indicating a higher development level compared to other countries in the sample, while Türkiye has the lowest market capitalization in the sample. The differences in the sizes of these stock exchanges imply varying levels of access to capital and, hence, financing costs. When evaluating the empirical findings, these differences should be considered.

Table 7: Stock Exchange Capitalization

Country	Stock Exchange(s)	2022 Market capitalization (USD in millions)
Brazil	BM&F Bovespa	829,165.68
France	Euronext Paris	3,274,812.18
Germany	Boerse Berlin Boerse Duesseldorf Boerse Frankfurt Boerse Hamburg Boerse Munchen Boerse Stuttgart	1,889,663.94
Italy	Borsa Italiana (Euronext Milan)	727,736.04
South Korea	South Korea New Exchange South Korea Stock Exchange	1,644,507.58
Mexico	Bolsa Mexicana de Valores	454,370.43
Russia	Moscow Exchange	530,104.33
Türkiye	Istanbul Stock Exchange	330,011.02

Note: Total Euronext market capitalization equals to 6,064,467.44. Based on the report published by (Euronext, 2024), 54% of total capitalization belongs to Euronext Paris and 12% belongs to Borsa Italiana. According to this information, the market capitalization of Euronext Paris and Borsa Italiana has been calculated by the author.

Source: <https://focus.world-exchanges.org/issue/february-2023/market-statistics>

Specifically, the sample, where the dependent variable is firm performance (ROA and ROE), consists of 1417 firms (12481 firm-year observation) listed on the stock exchanges of Brazil, France, Germany, Italy, Mexico, Russia, South Korea, and Türkiye. The sample, where the dependent variable is firm value (Tobin's Q and Market Capitalization), consists of 1321 firms (11737 firm-year observations). Table 8 exhibits the number of firms and firm-year observations included in the analyses by country.

Table 8: Number of Firms and Firm-Year Observations

Dependent Variable	Performance		Value	
	Number of Firms	Firm-year Observation	Number of Firms	Firm-year Observation
ALL	1417	12481	1321	11737
Developed	1090	9844	1017	9210
Developing	327	2637	304	2527
Brazil	111	885	110	942
France	198	1990	196	1981
Germany	188	2088	186	2006
Italy	120	1065	119	1068
South Korea	584	4701	516	4155
Mexico	22	173	21	163
Russia	73	489	68	490
Türkiye	121	1090	105	932

Source: Created by the Author

3.2. METHODOLOGY

This study investigates the effect of debt heterogeneity on firm performance and value using a panel data methodology employing the Driscoll-Kraay estimator.

Accordingly, this section introduces the methodology, research model, independent and dependent variables.

3.2.1. Diagnostic Tests

Prior to conducting panel data regressions, the data were assessed for normality with the joint normality test based on skewness and kurtosis, following Alejo et al. (2016). The null hypothesis of normality was rejected for almost all variables, reported in the descriptive statistics tables. As the central limit theorem states that the samples with more than 30 observations approximating a normal distribution, all variables in the analysis conducted within this dissertation are assumed to be normally distributed (Anderson et al., 2014:316; Hair et al., 2014:70).

In addition to normality tests, before performing a panel data analysis, the Hausman (1978) test is conducted to determine whether the fixed effects or random effects model is fit for the related data set. The null hypothesis of the Hausman test suggest there is no systematic difference between estimators and random effect estimator provides consistent estimates. The rejection of the null hypothesis is concluded that the fixed effect model estimates are consistent. The assumption of constant variance of residuals (homoscedasticity) is an essential linear regression assumption for obtaining valid statistical results (Hair et al., 2014:72).

After conducting the Hausman test, the Modified Wald test is utilized to check whether the variance of the residuals is constant (Holgerson and Shukur, 2004; Laskar and King, 1997). The null hypothesis of the Modified Wald test is absence of heteroskedasticity. The rejection of the null hypothesis of Modified Wald test suggests that the homoscedasticity assumption is violated meaning the variance of the residuals differs across groups. In addition, Breusch and Pagan Lagrangian multiplier test utilized to check homoscedasticity for the random effect models (Yerdelen Tatoğlu, 2020a: 98).

Moreover, linear regression models assume independent error terms, implying that the error terms associated with one observation is unaffected by the error associated with another observation. Violation of this assumption leads to autocorrelation problem. In order to detect autocorrelation in panel data, Modified

Bhargava et al. (1982) Durbin-Watson and Baltagi-Wu LBI (Baltagi and Wu, 1999) and tests should be conducted. If the result of Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI are less than 2, it is concluded that there is autocorrelation (Baltagi, 2008; Yerdelen Tatoğlu, 2020:241). In order to test cross-section dependency, Pesaran (2015, 2021) and Pesaran Xie (2021) tests are used. The null hypothesis of these tests is that there is cross-sectional dependence, and the rejection of the null hypothesis implies that there is cross-sectional dependency.

Another condition of the panel data analysis method is that the variables used in the model should not contain unit roots, that is, the variable series used should be stationary (Gujarati, 2003:814). In order to detect stationarity in variable series Dickey-Fuller and Phillips-Perron unit root tests have been employed. In addition, to investigate the presence of multicollinearity, correlation matrix analysis and variance inflation factor (VIF) calculations has been employed. Through correlation matrix analysis, the pairwise relations between variables have been examined and checked if the for the values of 0.90 and higher to determine multicollinearity (Hair et al., 2014: 196). Additionally, VIF values higher than 5 implies the presence of multicollinearity (James et al., 2013:101 ; Kim, 2019:559).

All tests mentioned above have been conducted for each sample and the results are presented in empirical findings tables of the relevant sample and the Appendices. The results of unit root tests, as presented in the Appendix, imply that all variables are stationary due to the rejection of the null hypothesis. The correlation coefficients are less than 0.90, and VIF values are less than 5 for each variable, suggesting no multicollinearity problem in any of the models, as outlined in the Appendices (Appendix 23 - 66).

Furthermore, according to the diagnostic test results as exhibited in the empirical findings tables of the relevant samples and subsamples (Table 55 – 77), presented in Chapter 4, almost all the regression models exhibit heteroskedasticity, cross-section dependency, and autocorrelation. Therefore, in this dissertation, a panel data regression analysis has been conducted employing the Driscoll-Kraay estimator since the data violate linear regression assumptions. The Driscoll-Kraay estimator provides robust estimates even in cases with heteroskedasticity, cross-section

dependency, and autocorrelation by correcting standard errors (Hoechle, 2006; Yerdelen Tatoğlu, 2020:335-336).

3.2.2. Research Model and Variables

According to the theoretical framework and the literature review, in order to analyze the effect of debt heterogeneity on firm performance and value following models are developed:

Model 1:

$$ROE_{i,t} = a_0 + a_1 HHI + a_2 SIZE_{i,t} + a_3 LIQ_{i,t} + a_4 TANG_{i,t} + a_5 LEV_{i,t} + a_6 ICR_{i,t} + a_7 AC_{i,t} + a_8 FDI_{i,t} + a_9 Crisis_{i,t} + \varepsilon_{it}$$

Model 2:

$$ROA_{i,t} = a_0 + a_1 HHI + a_2 SIZE_{i,t} + a_3 LIQ_{i,t} + a_4 TANG_{i,t} + a_5 LEV_{i,t} + a_6 ICR_{i,t} + a_7 AC_{i,t} + a_8 FDI_{i,t} + a_9 Crisis_{i,t} + \varepsilon_{it}$$

Model 3:

$$TobinsQ_{i,t} = a_0 + a_1 HHI + a_2 SIZE_{i,t} + a_3 LIQ_{i,t} + a_4 TANG_{i,t} + a_5 LEV_{i,t} + a_6 ICR_{i,t} + a_7 AC_{i,t} + a_8 FDI_{i,t} + a_9 Crisis_{i,t} + \varepsilon_{it}$$

Model 4:

$$LnMCap_{i,t} = a_0 + a_1 HHI + a_2 SIZE_{i,t} + a_3 LIQ_{i,t} + a_4 TANG_{i,t} + a_5 LEV_{i,t} + a_6 ICR_{i,t} + a_7 AC_{i,t} + a_8 FDI_{i,t} + a_9 Crisis_{i,t} + \varepsilon_{it}$$

In the models the subscript i denotes firm i, and subscript t denotes time.

Table 9 presents the definitions of the variables in the above models. The dependent variables are firm performance measured by profitability (ROE and ROA) and firm value measured by Tobin's Q and market capitalization. Firm size (SIZE), tangibility (TANG), liquidity (LIQ), solvency ratio (ICR), leverage (LEV), agency cost (AC), crisis dummy (Crisis), and financial development index (FDI) as a macroeconomic variable are included as control variables in the econometric models. Since the corporate governance data related to different mechanisms is not available for the full sample, agency cost is used as a proxy for corporate governance mechanisms. In order to examine the effect of global or local economic crisis, a dummy is created and included in the analysis following Bastos and Pindado (2013), Demirhan and Anwar (2014). In addition to firm-specific variables, Financial

Development Index (FDI) is also included in the analysis as firm performance and value can be affected by the development of the financial system as Cotei et al. (2011) argues.

Table 9: Variable Definitions

PERF (Firm Performance)	$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Total Assets}}$ $\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Total Equity}}$
VALUE (Firm Value)	$\text{Tobin's Q} = \frac{\text{Market Value of Assets}}{\text{Replacement Cost of Assets}}$ Natural logarithm of Market Capitalization (LnMCap)
SIZE (Firm Size)	Natural logarithm of Sales
TANG (Tangibility)	$\frac{\text{Tangible Fixed Assets}}{\text{Total Assets}}$
LIQ (Liquidity)	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$
ICR (Solvency Ratio)	$\text{Interest Coverage Ratio} = \frac{\text{Earnings before Interest and Taxes}}{\text{Interest Expense}}$
LEV (Leverage)	$\frac{\text{Total Debt}}{\text{Total Equity}}$
HHI (Debt Heterogeneity)	Herfindahl-Hirschman Index
AC (Agency Costs)	Selling, General and Administrative Expenses / Sales
FDI (Country Specific Variable)	Financial Development Index
Crisis	Financial Crisis Dummy

Source: Created by Author

Debt heterogeneity, the independent variable, is measured by Herfindahl-Hirschman Index (HHI) following Colla et al. (2013), Giannetti (2019), Jادیappa et al. (2020), Lou and Otto (2020), and Santos Póvoa and Nakamura (2014).

In this dissertation, three different calculations of HHI, consisting varying groupings of debt types, have been included in the analysis as a proxy of debt heterogeneity as presented in Table 10. The six different debt types, including trade credit to related parties, trade credit to third parties, short-term bank loans, long-term bank loans, issued debt instruments, and other debt (the sum of the current portion of

long-term debt and other long-term interest-bearing debt), are included in the calculation of HHI_1.

HHI is calculated first by summing the squares of the ratio of each debt type to the total debt as follows:

$$SS_{i,t} = \left(\frac{TCRP_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{TCTP_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{STBL_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{LTBL_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{IDI_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{OTHER_{i,t}}{TD_{i,t}}\right)^2$$

TCRP denotes Trade Credit to Related Parties, TCTP denotes Trade Credit to Third Parties, STBL denotes Short-Term Bank Loans, LTBL denotes Long-Term Bank Loans, IDI denotes Issued Debt Instrument, and OTHER denotes the sum of the Current portion of Long-Term debt and Other Long-Term Interest-Bearing Debt as exhibited in Table 10.

To find HHI_1, the following calculation is performed:

$$HHI_1 = \frac{SS_{i,t} - \frac{1}{6}}{1 - \frac{1}{6}}$$

Five different debt types, trade credit (the sum of trade credit to related parties and trade credit to third parties), short-term bank loan, long-term bank loan, issued debt instruments, and other debt (the sum of the current portion of long-term debt and other interest-bearing debt), are included in HHI_2 calculation. HHI_2 is calculated by first multiplying the sum of the squares of each debt type by the total debt as follows:

$$SS_{i,t} = \left(\frac{TC_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{STBL_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{LTBL_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{IDI_{i,t}}{TD_{i,t}}\right)^2 + \left(\frac{OTHER_{i,t}}{TD_{i,t}}\right)^2$$

TC denotes sum of Trade Credit to Related Parties and Trade Credit to Third Parties, STBL denotes Short-Term Bank Loan, LTBL denotes Long-Term Bank Loan, IDI denotes Issued Debt Instrument, and Other indicates the sum of the Current portion of Long-Term debt and Other Interest-Bearing Debt.

The following calculation is performed to determine HHI_2:

$$HHI_2 = \frac{SS_{i,t} - \frac{1}{5}}{1 - \frac{1}{5}}$$

HHI_3 includes four groups of debt types , including trade credit (sum of trade credit to related parties and trade credit to third parties), bank loan (the sum of short-term bank and long-term bank loan), issued debt instruments, and other debt (the sum of the current portion of long-term debt and other interest-bearing debt). HHI_3 calculation starts first by multiplying the sum of the squares of each debt type by the total debt as follows:

$$SS_{i,t} = \left(\frac{TC_{i,t}}{TD_{i,t}} \right)^2 + \left(\frac{BL_{i,t}}{TD_{i,t}} \right)^2 + \left(\frac{IDI_{i,t}}{TD_{i,t}} \right)^2 + \left(\frac{OTHER_{i,t}}{TD_{i,t}} \right)^2$$

The following calculation is performed to find HHI_3:

$$HHI_3 = \frac{SS_{i,t} - \frac{1}{4}}{1 - \frac{1}{4}}$$

TC denotes sum of Trade Credit to Related Parties and Trade Credit to Third Parties, BL denotes sum of Short-Term Bank Loan and Long-Term Bank Loan, IDI denotes Issued Debt Instrument, and Other indicates the sum of the Current portion of Long-Term debt and Other Interest-Bearing Debt.

HHI values greater than 0.7 mean a homogeneous debt structure, while HHI equals 1 means the firm has only one type of debt. If HHI is 0, the firm has different types of debt in equal proportions. Firms with HHI values below 0.4 are considered strongly heterogeneous, and firms with HHI values between 0.4 and 0.7 are considered weakly heterogeneous in terms of debt structure (Colla et al. (2013), Giannetti (2019), Jادیappa et al. (2020), Lou and Otto (2020), and Santos Póvoa and Nakamura (2014). In conclusion, an increase in the HHI value means that the debt heterogeneity decreases and the debt structure becomes more homogeneous.

Table 10: Debt Types Used in HHI Calculations

		HHI_1	HHI_2	HHI_3
Trade Credit (TCRP)	Trade Credit to Related Parties	✓		
Other Creditors (TCTP)	Trade Credit to Third Parties	✓		
Trade Credit (TC)	Trade Credit to Related Parties + Trade Credit to Third Parties		✓	✓
Short-Term Bank Loans (STBL)	Short-Term Bank Loans	✓	✓	
Long-Term Bank Loans (LTBL)	Long-Term Bank Loans	✓	✓	
Bank Loans (BL)	Short-Term Bank Loans and Overdrafts + Long-Term Bank Loans			✓
Issued Debt Instruments (IDI)	Debentures and Convertible debt	✓	✓	✓
Other Debt (OTHER)	Current portion of LT debt + Other Interest-Bearing Debt	✓	✓	✓

Source: Created by Author

3.2.3. Descriptive Statistics

Section 3.2.2 presents the descriptive statistics for the whole sample and subsamples. For the sample and subsamples where the dependent variable is firm performance, the descriptive statistics are presented in Section 3.2.3.1. In addition, Section 3.2.3.2 presents the descriptive statistics of the sample and subsamples where the dependent variable is firm value.

3.2.3.1. Descriptive Statistics: Performance

Table 11 exhibits the descriptive statistics for the whole sample consisting of eight countries where the dependent variables are ROE and ROA. The mean values of HHI_1 and HHI_2 are 0.324 and 0.366 (<0.40), which mean strong debt heterogeneity

based on Colla et al. (2013). However, the mean of HHI_3 is 0.408 (>0.40), which implies weak debt heterogeneity in the debt structure.

Table 11: Descriptive Statistics: Whole Sample (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
ROE	0.186	0.0939	0.476	-0.012	9.858	0.000	0.000	0.000
ROA	0.063	0.0411	0.08	-0.012	0.992	0.000	0.000	0.000
SIZE	12.605	12.5551	2.239	0.122	19.464	0.000	0.000	0.000
TANG	0.297	0.2801	0.189	0	0.994	0.000	0.054	0.000
LIQ	2.09	1.54	2.414	0.02	50.66	0.000	0.000	0.000
ICR	23.074	5.057	74.678	-0.739	987.198	0.000	0.000	0.000
LEV	2.296	1.1792	19.37	0.006	2004	0.000	0.000	0.000
AC	1.614	0.1963	106.527	0.001	11792.071	0.000	0.000	0.000
FDI	0.739	0.794	0.121	0.377	0.853	0.000	0.000	0.000
HHI_1	0.324	0.2717	0.209	0.007	1	0.000	0.000	0.000
HHI_2	0.366	0.3003	0.252	0.001	1	0.000	0.000	0.000
HHI_3	0.408	0.3525	0.251	0.001	1	0.000	0.0250	0.000
Total Debt	1722183.9	112715.2	8900903.9	8.02	2.21E+08	0.000	0.000	0.000
Creditors	351736.17	26335.22	1379073.6	0	27826931	0.000	0.000	0.000
Other creditors	134709.46	4308.84	868377.75	0	30438198	0.000	0.000	0.000
LT Bank Loans	244167.51	6913.4	1153712.7	0	29338878	0.000	0.000	0.000
Issued Debt Instruments	367381.72	0	2972029.2	0	86436658	0.000	0.000	0.000
ST Interest Bearing Debt	236944.05	17930.86	1801054.2	0	60018654	0.000	0.000	0.000
Current portion of LT	164439.5	770.55	1550319.2	0	53817053	0.000	0.000	0.000
Other long-term int bearing	222890.13	0	1884942.3	0	57042845	0.000	0.000	0.000
OTHER	387322.24	2875.91	2944443.6	0	76864940	0.000	0.000	0.000
Trade Credit	486445.62	35599.19	2000482.8	0	46500890	0.000	0.000	0.000
Bank Debt	481111.55	38839.47	2620836.2	0	66949311	0.000	0.000	0.000

Note: The number of observations for all variables is 12481. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 12 exhibits the descriptive statistics for the subsample consisting of developed countries where the dependent variables are ROE and ROA. The mean values of HHI_1, HHI_2, and HHI_3 is 0.302 and 0.349, and 0.382 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013).

Table 12: Descriptive Statistics: Developed Countries (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
ROE	0.174	0.087495	0.468	-0.012	9.858	0.000	0.000	0.000
ROA	0.06	0.03827	0.08	-0.012	0.992	0.000	0.000	0.000
SIZE	12.734	12.64389	2.204	0.122	19.464	0.000	0.000	0.000
TANG	0.291	0.2741341	0.185	0	0.96	0.000	0.003	0.000
LIQ	2.04	1.52	2.248	0.02	50.66	0.000	0.000	0.000
ICR	25.194	5.695	77.747	-0.739	985.516	0.000	0.000	0.000
LEV	2.142	1.171387	20.687	0.011	2004	0.000	0.000	0.000
AC	0.753	0.2123033	16.189	0.006	1382.559	0.000	0.000	0.000
FDI	0.795	0.814	0.051	0.669	0.853	0.000	0.000	0.000
HHI_1	0.302	0.255364	0.193	0.008	1	0.000	0.000	0.000
HHI_2	0.349	0.2900685	0.243	0.001	1	0.000	0.000	0.000
HHI_3	0.382	0.340541	0.24	0.001	1	0.000	0.000	0.000
Total Debt	1864609.6	126058.4	9674140.6	8.02	2.21E+08	0.000	0.000	0.000
Creditors	395416.04	29455.37	1510212.4	0	27826931	0.000	0.000	0.000
Other creditors	152799.72	5594.965	915234.6	0	30438198	0.000	0.000	0.000
LT Bank Loans	205185.21	7446.5	1080347.3	0	29338878	0.000	0.000	0.000
Issued Debt Instruments	438173.43	0	3328535.5	0	86436658	0.000	0.000	0.000
ST Interest Bearing Debt	267390.65	19258.66	2017520.2	0	60018654	0.000	0.000	0.000
Current portion of LT	195569.42	2355.045	1721510.8	0	53817053	0.000	0.000	0.000
Other long-term int bearing	210085.76	0	1545948.3	0	31536452	0.000	0.000	0.000
OTHER	405645.8	5258.695	2842301.9	0	76864940	0.000	0.000	0.000
Trade Credit	548215.76	40568.89	2157123.6	0	46500890	0.000	0.000	0.000
Bank Debt	472575.86	41667.11	2827021	0	66949311	0.000	0.000	0.000

Note: The number of observations for all variables is 9844. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 13 exhibits the descriptive statistics for the subsample consisting of developing countries where the dependent variables are ROE and ROA. The mean values of HHI_1, HHI_2, and HHI_3 is 0.406, 0.428, and 0.503 (>0.40), which means weak debt heterogeneity based on Colla et al. (2013).

Table 13: Descriptive Statistics: Developing Countries (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
ROE	0.23	0.12633	0.499	0	7.842	0.000	0.000	0.000
ROA	0.076	0.05557	0.078	0	0.885	0.000	0.000	0.000
SIZE	12.127	12.16575	2.303	2.688	18.893	0.000	0.000	0.000
TANG	0.32	0.3015672	0.202	0	0.994	0.000	0.547	0.000
LIQ	2.278	1.61	2.947	0.05	49.82	0.000	0.000	0.000
ICR	15.163	2.733	61.258	0.001	987.198	0.000	0.000	0.000
LEV	2.867	1.219175	13.338	0.006	477.625	0.000	0.000	0.000
AC	4.826	0.1603637	229.641	0.001	11792.071	0.000	0.000	0.000
FDI	0.532	0.499	0.08	0.377	0.667	0.000	0.000	0.000
HHI_1	0.406	0.3378345	0.241	0.007	1	0.000	0.121	0.000
HHI_2	0.428	0.342712	0.276	0.005	1	0.000	0.001	0.000
HHI_3	0.503	0.4310443	0.266	0.017	1	0.000	0.000	0.000
Total Debt	1190504.7	70914.11	5026485.2	9.53	9090759.9	0.000	0.000	0.000
Creditors	188677.91	18500.59	673805.28	0	14987643	0.000	0.000	0.000
Other creditors	67177.958	688.14	660688.33	0	14279054	0.000	0.000	0.000
LT Bank Loans	389689.58	4671.15	1384457.3	0	14302069	0.000	0.000	0.000
Issued Debt Instruments	103114.16	0	600251.67	0	9260219.1	0.000	0.000	0.000
ST Interest Bearing Debt	123285.96	13425.28	376954.64	0	5569685	0.000	0.000	0.000
Current portion of LT	48230.608	0	543861.59	0	13691341	0.000	0.000	0.000
Other long-term int bearing	270689.22	0	2809692	0	57042845	0.000	0.000	0.000
OTHER	318919.83	0	3297603.7	0	64811950	0.000	0.000	0.000

Trade Credit	255855.87	22401.65	1226456. 2	0	2517155 1	0.000	0.000	0.000
Bank Debt	512975.54	28475.78	1635772. 8	0	1726574 1	0.000	0.000	0.000

Note: The number of observations for all variables is 2637. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 14 exhibits the descriptive statistics for the Brazilian sample, where the dependent variables are ROE and ROA. The mean values of HHI_1 and HHI_2 is 0.351 and 0.357 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013). However, the mean of HHI_3 is 0.521 (>0.40), which implies weak debt heterogeneity in debt structure.

Table 14: Descriptive Statistics: Brazil (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr (Skewness)	Pr (Kurtosis)	Joint normality
ROE	0.25	0.12215	0.674	0.0009	7.842	0.000	0.000	0.000
ROA	0.065	0.04831	0.064	0.0002	0.617	0.000	0.000	0.000
SIZE	13.061	13.0263	1.969	4.99	17.956	0.000	0.010	0.001
TANG	0.302	0.2824745	0.193	0	0.972	0.000	0.014	0.000
LIQ	2.409	1.75	3.626	0.23	49.82	0.000	0.000	0.000
ICR	4.633	2.04	9.105	0.001	121.194	0.000	0.000	0.000
LEV	3.338	1.278607	14.893	0.032	367.007	0.000	0.000	0.000
AC	0.323	0.2200121	0.792	0.009	16.526	0.000	0.000	0.000
FDI	0.636	0.627	0.020	0.604	.667	0.000	0.000	0.000
HHI_1	0.351	0.2977305	0.202	0.007	1	0.000	0.000	0.000
HHI_2	0.357	0.2894732	0.226	0.005	1	0.000	0.000	0.000
HHI_3	0.521	0.4932387	0.234	0.017	1	0.000	0.000	0.000
Total Debt	1563819.7	220589.5	3238679.5	66.71	21887811	0.000	0.000	0.000
Creditors	267020.92	36982.7	668187.12	0	5897090.6	0.000	0.000	0.000
Other creditors	29168.121	2810.78	96001.986	0	1445996.9	0.000	0.000	0.000
LT Bank Loans	751479.19	56976.39	1886065.4	0	13739841	0.000	0.000	0.000
Issued Debt Instruments	246583.77	0	965040.42	0	9260219.1	0.000	0.000	0.000
ST Interest Bearing Debt	208323.46	52240.54	505060.42	0	5569685	0.000	0.000	0.000
Current portion of LT	19547.221	0	279304.63	0	7007779.3	0.000	0.000	0.000
Other long- term int bearing	42771.904	0	474401.89	0	10429623	0.000	0.000	0.000
OTHER	62319.125	0	553118.91	0	10429623	0.000	0.000	0.000
Trade Credit	296189.04	47242.91	701397.17	10.67	5903755.1	0.000	0.000	0.000
Bank Debt	959802.65	122843.9	2266880.6	0	17265741	0.000	0.000	0.000

Note: The number of observations for all variables is 885. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 15 exhibits the descriptive statistics for the French subsample, where the dependent variables are ROE and ROA. The mean values of HHI_1, HHI_2, and HHI_3 are 0.321 and 0.375, 0.358 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013).

Table 15: Descriptive Statistics: France (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr (Skewness)	Pr (Kurtosis)	Joint Normality
ROE	0.215	0.105705	0.58	-0.012	9.678	0.000	0.000	0.000
ROA	0.071	0.04289	0.098	-0.012	0.95	0.000	0.000	0.000
SIZE	12.589	12.57627	2.893	0.122	18.19	0.000	0.000	0.000
TANG	0.189	0.1457357	0.167	0	0.946	0.000	0.566	0.000
LIQ	2.069	1.58	2.4	0.11	36.94	0.000	0.000	0.000
ICR	23.012	6.854	68.077	-0.739	976.714	0.000	0.000	0.000
LEV	3.164	1.260975	45.207	0.011	2004	0.000	0.000	0.000
AC	1.612	0.3149732	14.565	0.006	328.752	0.000	0.000	0.000
FDI	0.799	0.803	0.021	0.755	0.828	0.000	0.000	0.000
HHI_1	0.321	0.2693102	0.194	0.046	1	0.000	0.000	0.000
HHI_2	0.375	0.3181734	0.231	0.025	1	0.000	0.000	0.000
HHI_3	0.358	0.3096737	0.233	0.006	1	0.000	0.000	0.000
Total Debt	2848506.8	128226.7	8006304.2	32.01	94999574	0.000	0.000	0.000
Creditors	764634.55	41526.85	1936037.6	0	18591374	0.000	0.000	0.000
Other creditors	331179.99	3963.74	1586377.7	0	30438198	0.000	0.000	0.000
LT Bank Loans	162573.4	1305.64	563943.4	0	6930656.8	0.000	0.000	0.000
Issued Debt Instruments	512622.77	0	1775399.1	0	19092905	0.000	0.000	0.000
ST Interest Bearing Debt	349308.28	1661.795	3218498.1	0	60018654	0.000	0.000	0.000
Current portion of LT	258426.05	7517.04	947031.34	0	15758211	0.000	0.000	0.000
Other long- term int bearing	469808.55	2034.305	2103152	0	25198028	0.000	0.000	0.000
OTHER	728188.62	18375.89	2517128.9	0	27272282	0.000	0.000	0.000
Trade Credit	1095814.5	52371.31	3069535.3	0	46500890	0.000	0.000	0.000
Bank Debt	511881.69	12338.86	3431581	0	66949311	0.000	0.000	0.000

Note: The number of observations for all variables is 1990. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 16 exhibits the descriptive statistics for the German subsample, where the dependent variables are ROE and ROA. The mean of HHI_1 is 0.353 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013). However, the mean values of HHI_2 and HHI_3 are 0.436 and 0.478 (>0.40), which implies weak debt heterogeneity in debt structure.

Table 16: Descriptive Statistics: Germany (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr (Skewness)	Pr (Kurtosis)	Joint Normality
ROE	0.193	0.11155	0.446	0	9.2	0.000	0.000	0.000
ROA	0.07	0.04677	0.087	0	0.951	0.000	0.000	0.000
SIZE	12.816	12.57832	2.447	0.293	19.464	0.392	0.000	0.000
TANG	0.269	0.2350705	0.185	0	0.904	0.000	0.005	0.000
LIQ	2.616	1.84	2.956	0.02	50.66	0.000	0.000	0.000
ICR	20.002	6.387	53.103	0.008	825	0.000	0.000	0.000
LEV	1.978	1.220869	5.275	0.019	159.298	0.000	0.000	0.000
AC	0.738	0.3595983	10.793	0.032	444.97	0.000	0.000	0.000
FDI	.714	.717	0.024	0.670	0.753	0.000	0.000	0.000
HHI_1	0.353	0.2984815	0.209	0.038	1	0.000	0.000	0.000
HHI_2	0.436	0.3622183	0.269	0.012	1	0.000	0.104	0.000
HHI_3	0.478	0.4048095	0.262	0.001	1	0.000	0.000	0.000
Total Debt	3430176.5	86892.74	18112093	8.02	2.21E+08	0.000	0.000	0.000
Creditors	585486.3	19148.42	2345433.7	0	27826931	0.000	0.000	0.000
Other creditors	179855.43	5989.855	863996.75	0	11438377	0.000	0.000	0.000
LT Bank Loans	335204.77	5384.545	2003034.6	0	29338878	0.000	0.000	0.000
Issued Debt Instruments	1018463.6	0	6454482.5	0	86436658	0.000	0.000	0.000
ST Interest Bearing Debt	415013.44	6703.525	2780318	0	38452384	0.000	0.000	0.000
Current portion of LT	382971.75	0	3481974.8	0	53817053	0.000	0.000	0.000
Other long- term int bearing	513186.46	0	2578891.6	0	31536452	0.000	0.000	0.000
OTHER	896157.82	0	5512741.4	0	76864940	0.000	0.000	0.000
Trade Credit	765341.73	30698.83	2952705.6	8.02	30910747	0.000	0.000	0.000
Bank Debt	750218.21	23057.01	4679668.1	0	61455589	0.000	0.000	0.000

Note: The number of observations for all variables is 2088. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 17 exhibits the descriptive statistics for the Italian subsample, where the dependent variables are ROE and ROA. The mean values of HHI_1, HHI_2, and HHI_3 is 0.323, 0.333 and 0.393 (<0.40) which means strong debt heterogeneity based on Colla et al. (2013).

Table 17: Descriptive Statistics: Italy (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr (Skewness)	Pr (Kurtosis)	Joint Normality
ROE	0.18	0.09818	0.533	0	9.858	0.000	0.000	0.000
ROA	0.056	0.03832	0.065	0	0.838	0.000	0.000	0.000
SIZE	12.634	12.69236	1.888	4.261	17.081	0.000	0.002	0.000
TANG	0.223	0.1860622	0.16	0	0.94	0.000	0.000	0.000
LIQ	1.758	1.5	1.224	0.09	20.72	0.000	0.000	0.000
ICR	18.431	5.223	49.809	0.021	772.657	0.000	0.000	0.000
LEV	2.313	1.416695	5.574	0.08	112.532	0.000	0.000	0.000
AC	0.434	0.3727892	0.566	0.01	10.32	0.000	0.000	0.000
FDI	0.767	0.767	0.015	0.767	0.767	0.072	0.000	0.000
HHI_1	0.323	0.2736772	0.174	0.056	1	0.000	0.000	0.000
HHI_2	0.333	0.2756588	0.198	0.016	1	0.000	0.000	0.000
HHI_3	0.393	0.3575006	0.191	0.011	1	0.000	0.000	0.000
Total Debt	953462.59	198150.7	2507854.7	152.29	20998176	0.000	0.000	0.000
Creditors	259801.43	56654.93	676293.75	0	6854282.8	0.000	0.000	0.000
Other creditors	51829.889	985.85	335301.84	0	9419836.8	0.000	0.000	0.000
LT Bank Loans	246128.93	24646.52	709697.88	0	8798519.3	0.000	0.000	0.000
Issued Debt Instruments	184056.06	0	1025399.5	0	11941627	0.000	0.000	0.000
ST Interest Bearing Debt	123866	27708.62	320258.35	0	3606099	0.000	0.000	0.000
Current portion of LT	29910.641	0	148685.53	0	2085766.6	0.000	0.000	0.000
Other long- term int bearing	57870.319	0	520539.26	0	10784335	0.000	0.000	0.000
OTHER	87780.96	97.92	593325.78	0	12102484	0.000	0.000	0.000
Trade Credit	311631.31	64423.8	853000.19	152.29	12845953	0.000	0.000	0.000
Bank Debt	369994.92	80057.49	955419.68	0	12404618	0.000	0.000	0.000

Note: The number of observations for all variables is 1065. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 18 exhibits the descriptive statistics for the Mexican subsample, where the dependent variables are ROE and ROA. The mean values of HHI_1, HHI_2 and HHI_3 are 0.448, 0.489, and 0.518 (>0.40), which means weak debt heterogeneity based on Colla et al. (2013).

Table 18: Descriptive Statistics: Mexico (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr (Skewness)	Pr (Kurtosis)	Joint Normality
ROE	0.186	0.11066	0.301	0	2.768	0.000	0.000	0.000
ROA	0.069	0.05041	0.071	0	0.361	0.000	0.000	0.000
SIZE	13.596	13.5811	2.239	5.789	17.112	0.000	0.000	0.000
TANG	0.347	0.3598066	0.218	0	0.814	0.371	0.013	0.031
LIQ	1.977	1.52	1.407	0.13	9.72	0.000	0.000	0.000
ICR	29.446	3.614	93.969	0.002	582.473	0.000	0.000	0.000
LEV	2.272	1.04072	5.346	0.136	59.599	0.000	0.000	0.000
AC	0.303	0.1820644	0.336	0.013	2.142	0.000	0.000	0.000
FDI	0.394	0.395	0.090	0.377	0.409	0.054	0.158	0.058
FME	0.302	0.300686	0.043	0.253	0.384	0.054	0.158	0.000
HHI_1	0.448	0.359992	0.255	0.066	1	0.002	0.000	0.000
HHI_2	0.489	0.3884916	0.282	0.082	1	0.009	0.000	0.000
HHI_3	0.518	0.4223815	0.288	0.114	1	0.037	0.000	0.000
Total Debt	2345823.3	693060.2	4062332.9	447.5	19329638	0.000	0.000	0.000
Creditors	485673.31	68245.28	860812.4	0	3298345.2	0.000	0.000	0.000
Other creditors	129560.59	25417.19	302226.04	0	2244656.5	0.000	0.000	0.000
LT Bank Loans	1007019.3	218485.9	2229485.9	0	14302069	0.000	0.000	0.000
Issued Debt Instruments	23369.819	0	131391.54	0	1043200.2	0.000	0.000	0.000
ST Interest Bearing Debt	81140.25	11477.52	170269.64	0	985663.79	0.000	0.000	0.000
Current portion of LT	52102.906	0	157199.88	0	1145182.7	0.000	0.000	0.000
Other long-term int bearing	566957.11	0	1575818.7	0	11398541	0.000	0.000	0.000
OTHER	619060.02	2568.58	1627659	0	11930724	0.000	0.000	0.000
Trade Credit	615233.9	97534.95	1115093.9	398.43	5278744.8	0.000	0.000	0.000
Bank Debt	1088159.5	226099.3	2331235.6	0	14960273	0.000	0.000	0.000

Note: The number of observations for all variables is 173. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 19 exhibits the descriptive statistics for the Russian subsample where the dependent variables are ROE and ROA. The mean values of HHI_1 is 0.389 (<0.40) which means strong debt heterogeneity based on Colla et al. (2013). However, the mean of HHI_2 and HHI_3 are 0.410 and 0.445 (>0.40), which implies weak debt heterogeneity in debt structure.

Table 19: Descriptive Statistics: Russia (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
ROE	0.288	0.1466	0.569	0	6.386	0.000	0.000	0.000
ROA	0.077	0.05153	0.089	0	0.747	0.000	0.000	0.000
SIZE	12.988	13.01358	2.141	3.09	18.893	0.202	0.023	0.034
TANG	0.353	0.3280739	0.221	0	0.937	0.049	0.000	0.000
LIQ	1.857	1.3	2.283	0.14	24.16	0.000	0.000	0.000
ICR	20.534	3.068	80.235	0.01	987.198	0.000	0.000	0.000
LEV	4.964	1.700825	22.942	0.05	477.625	0.000	0.000	0.000
AC	24.398	0.1426406	533.244	0.001	11792.071	0.000	0.000	0.000
FDI	0.492	0.484	0.024	0.463	0.533	0.000	0.000	0.000
HHI_1	0.389	0.3437548	0.213	0.041	1	0.000	0.012	0.000
HHI_2	0.410	0.3553225	0.244	0.012	1	0.000	0.082	0.000
HHI_3	0.445	0.3865832	0.249	0.025	1	0.000	0.323	0.000
Total Debt	2585444.3	156500	10301725	993.29	90907599	0.000	0.000	0.000
Creditors	299558.05	34805.69	1120575.8	0	14987643	0.000	0.000	0.000
Other creditors	258096.32	3616.42	1502936.8	0	14279054	0.000	0.000	0.000
LT Bank Loans	338860.64	0	1211524.9	0	8712000	0.000	0.000	0.000
Issued Debt Instruments	99232.623	0	434830.72	0	4508230	0.000	0.000	0.000
ST Interest Bearing Debt	221000.85	29788.97	492498.25	0	3488484.6	0.000	0.000	0.000
Current portion of LT	189121.97	0	1192178.6	0	13691341	0.000	0.000	0.000
Other long-term int bearing	1179573.9	1920.27	6343811	0	57042845	0.000	0.000	0.000
OTHER	1368695.9	5152.32	7468484.8	0	64811950	0.000	0.000	0.000
Trade Credit	557654.37	43042.85	2554500.3	90.13	25171551	0.000	0.000	0.000
Bank Debt	559861.49	48180.44	1490066.8	0	9890000	0.000	0.000	0.000

Note: The number of observations for all variables is 489. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 20 exhibits the descriptive statistics for the South Korean subsample, where the dependent variables are ROE and ROA. The mean values of HHI_1, HHI_2, and HHI_3 are 0.266, 0.304, and 0.347 (<0.40) which means strong debt heterogeneity based on Colla et al. (2013).

Table 20: Descriptive Statistics: South Korea (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
ROE	0.146	0.07084	0.403	0	8.394	0.000	0.000	0.000
ROA	0.052	0.0331	0.069	0	0.992	0.000	0.000	0.000
SIZE	12.781	12.68054	1.775	1.147	19.278	0.234	0.000	0.000
TANG	0.36	0.3583693	0.17	0	0.96	0.000	0.000	0.000
LIQ	1.835	1.35	1.928	0.03	37.65	0.000	0.000	0.000
ICR	29.955	5.046	94.004	0.002	985.516	0.000	0.000	0.000
LEV	1.744	1.046837	3.371	0.025	90.387	0.000	0.000	0.000
AC	0.469	0.1051426	20.171	0.012	1382.559	0.000	0.000	0.000
FDI	.835	.837	.012	0.813	0.853	0.000	0.000	0.000
HHI_1	0.266	0.2223656	0.182	0.008	1	0.000	0.000	0.000
HHI_2	0.304	0.2428888	0.233	0.001	1	0.000	0.000	0.000
HHI_3	0.347	0.3212552	0.231	0.001	1	0.000	0.000	0.000
Total Debt	959166.53	127637.2	4390261.6	119.75	1.04E+08	0.000	0.000	0.000
Creditors	185421.99	26142.51	722455.43	0	11337730	0.000	0.000	0.000
Other creditors	88146.203	7205.88	558611.6	0	13134052	0.000	0.000	0.000
LT Bank Loans	156198.1	9270.18	634882.71	0	11697357	0.000	0.000	0.000
Issued Debt Instruments	206485.47	0	1706278.6	0	53479528	0.000	0.000	0.000
ST Interest Bearing Debt	199660.65	37407.25	814360.55	0	15214549	0.000	0.000	0.000
Current portion of LT	123254.13	7497.43	640016.13	0	17483708	0.000	0.000	0.000
Other long-term int bearing	0	0	0	0	0	N/A	N/A	N/A
OTHER	123254.13	7497.43	640016.13	0	17483708	0.000	0.000	0.000
Trade Credit	273568.19	36762.26	1218808.1	0	24471782	0.000	0.000	0.000
Bank Debt	355858.75	59080.2	1331245.8	0	24363414	0.000	0.000	0.000

Note: The number of observations for all variables is 4701. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 21 exhibits the descriptive statistics for the Turkish subsample, where the dependent variables are ROE and ROA. The mean values of HHI_1, HHI_2, and HHI_3 are 0.482, 0.485 and 0.513 (>0.40) which means weak debt heterogeneity based on Colla et al. (2013).

Table 21: Descriptive Statistics: Türkiye (Performance)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
ROE	0.194	0.126745	0.268	0.001	4.319	0.000	0.000	0.000
ROA	0.085	0.066055	0.082	0.001	0.885	0.000	0.000	0.000
SIZE	10.748	10.95393	1.887	2.688	15.722	0.000	0.029	0.000
TANG	0.317	0.301841	0.195	0	0.994	0.000	0.000	0.000
LIQ	2.407	1.63	2.753	0.05	40.14	0.000	0.000	0.000
ICE	19.035	3.4415	67.721	0.004	945.667	0.000	0.000	0.000
LEV	1.639	0.9101722	2.539	0.006	40.773	0.000	0.000	0.000
AC	0.419	0.1208337	3.92	0.01	110.471	0.000	0.000	0.000
FDI	0.488	0.498	0.018	0.434	0.511	0.000	0.000	0.000
HHI_1	0.452	0.3821331	0.268	0.045	1	0.000	0.012	0.000
HHI_2	0.485	0.3833596	0.309	0.038	1	0.000	0.082	0.000
HHI_3	0.513	0.4114175	0.289	0.019	1	0.000	0.323	0.000
Total Debt	78229.955	20869.83	204883.43	9.53	2338334.8	0.000	0.000	0.000
Creditors	28187.861	8213.08	80685.61	0	1011032	0.000	0.000	0.000
Other creditors	2487.527	48.63	11301.709	0	165113.79	0.000	0.000	0.000
LT Bank Loans	20766.191	124.335	69524.856	0	827564.83	0.000	0.000	0.000
Issued Debt Instruments	1025.385	0	22698.058	0	715407.73	0.000	0.000	0.000
ST Interest Bearing Debt	17093.706	2153.565	43332.346	0	435487.53	0.000	0.000	0.000
Current portion of LT	7697.594	24.29	24626.261	0	287423.71	0.000	0.000	0.000
Other long-term int bearing	971.691	0	6957.09	0	102623.53	0.000	0.000	0.000
OTHER	8669.285	42.3	26732.872	0	287423.71	0.000	0.000	0.000
Trade Credit	30675.388	9483.09	87163.046	0	1059212.9	0.000	0.000	0.000
Bank Debt	37859.898	5747.56	101903.68	0	1171956.7	0.000	0.000	0.000

Note: The number of observations for all variables is 1090. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

3.2.3.2. Descriptive Statistics: Firm Value

Table 22 exhibits the descriptive statistics for the whole sample consisting of eight countries where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1 and HHI_2 are 0.326 and 0.369 (<0.40), which mean strong debt heterogeneity based on Colla et al. (2013). However, the mean of HHI_3 is 0.409 (>0.40), which implies weak debt heterogeneity in the debt structure.

Table 22: Descriptive Statistics: Whole Sample (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	0.880785	0.493	1.795	0.001	86.786	0.000	0.000	0.000
LnMCAP	5.412626	5.122475	2.182	-4.60517	13.00457	0.000	0.000	0.000
SIZE	12.69904	12.63775	2.227	0.2926696	19.4638	0.000	0.000	0.000
TANG	0.292484	0.274968	0.187	0	0.94713	0.000	0.052	0.000
LIQ	2.052541	1.52	2.417	0.01	50.66	0.000	0.000	0.000
ICR	22.88668	5.005	74.496	-0.739	987.198	0.000	0.000	0.000
LEV	3.881402	1.214262	72.639	0.0064811	6731.71	0.000	0.000	0.000
AC	1.636602	0.20633	109.3	0.0056113	11792.07	0.000	0.000	0.000
FDI	0.738	0.782	0.120	0.377	0.853	0.000	0.000	0.000
HHI_1	0.32617	0.272198	0.211	0.0072	1	0.000	0.000	0.000
HHI_2	0.369487	0.303154	0.254	0.0009439	1	0.000	0.000	0.000
HHI_3	0.409327	0.353144	0.252	0.0006409	1	0.000	0.086	0.000
Total Debt	1818984	126564.1	9169117.1	5.66	2.21E+08	0.000	0.000	0.000
Creditors	371599.6	29499.62	1419330.4	0	2.78E+07	0.000	0.000	0.000
Other creditors	144052.7	4797.2	896348.87	0	3.04E+07	0.000	0.000	0.000
LT Bank Loans	245951.9	7518.38	1168173.6	0	2.93E+07	0.000	0.000	0.000
Issued Debt Instruments	387030.6	0	3061152.2	0	8.64E+07	0.000	0.000	0.000
ST Interest Bearing Debt	251933.4	19915.45	1858209	0	6.00E+07	0.000	0.000	0.000
Current portion of LT	178166.8	715.74	1606236	0	5.38E+07	0.000	0.000	0.000
Other long-term int bearing	240468.6	0	1947659.4	0	5.70E+07	0.000	0.000	0.000
OTHER	418627.6	3222.38	3042197.5	0	7.69E+07	0.000	0.000	0.000
Trade Credit	515652.4	39126.71	2060329.6	0	4.65E+07	0.000	0.000	0.000
Bank Debt	497885.3	43980.8	2690866.5	0	6.69E+07	0.000	0.000	0.000

Note: The number of observations for all variables is 11737. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 23 exhibits the descriptive statistics for the subsample consisting of developed countries where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1, HHI_2, and HHI_3 is 0.302 and 0.351, and 0.382 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013).

Table 23: Descriptive Statistics: Developed Countries (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	0.851	0.499	1.574	0.006	86.786	0.000	0.000	0.000
LnMCAP	5.581	5.240662	2.088	-0.58	13.005	0.000	0.000	0.000
SIZE	12.848	12.76332	2.176	0.293	19.464	0.000	0.000	0.000
TANG	0.287	0.2697354	0.183	0	0.947	0.000	0.298	0.000
LIQ	2.038	1.52	2.246	0.08	50.66	0.000	0.000	0.000
ICR	25.205	5.759	77.548	-0.739	985.516	0.000	0.000	0.000
LEV	3.43	1.178428	77.282	0.011	6731.71	0.000	0.000	0.000
AC	0.614	0.2176683	7.919	0.006	444.97	0.000	0.000	0.000
FDI	0.793	0.812	0.051	0.669	0.853	0.000	0.000	0.000
HHI_1	0.302	0.2566792	0.193	0.01	1	0.000	0.000	0.000
HHI_2	0.351	0.2920383	0.243	0.001	1	0.000	0.000	0.000
HHI_3	0.382	0.3406994	0.24	0.001	1	0.000	0.000	0.000
Total Debt	1980627.9	139272.5	9990370.8	5.66	2.21E+08	0.000	0.000	0.000
Creditors	419467.42	32636.06	1557683.2	0	27826931	0.000	0.000	0.000
Other creditors	162435.14	6142.225	945255.01	0	30438198	0.000	0.000	0.000
LT Bank Loans	213910.75	8354.735	1111181.1	0	29338878	0.000	0.000	0.000
Issued Debt Instruments	467266.64	0	3439313.4	0	86436658	0.000	0.000	0.000
ST Interest Bearing Debt	283332.98	21325.76	2084725.3	0	60018654	0.000	0.000	0.000
Current portion of LT	207287.35	2534.23	1779116.6	0	53817053	0.000	0.000	0.000
Other long-term int bearing	226939.01	0	1602692.3	0	31536452	0.000	0.000	0.000
OTHER	434216.34	6158.08	2940001.7	0	76864940	0.000	0.000	0.000
Trade Credit	581902.56	44265.53	2225258.6	0	46500890	0.000	0.000	0.000
Bank Debt	497243.73	45677.93	2918339.6	0	66949311	0.000	0.000	0.000

Note: The number of observations for all variables is 9210. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 24 exhibits the descriptive statistics for the subsample consisting of developing countries where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1, HHI_2, and HHI_3 is 0.412 and 0.437, and 0.509 (>0.40), which means weak debt heterogeneity based on Colla et al. (2013).

Table 24: Descriptive Statistics: Developing Countries (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	0.989	0.465	2.434	0.001	61.209	0.000	0.000	0.000
LnMCAP	4.798	4.566429	2.396	-4.605	11.655	0.004	0.001	0.000
SIZE	12.157	12.21405	2.325	2.359	18.893	0.000	0.000	0.000
TANG	0.312	0.2942177	0.197	0	0.947	0.000	0.005	0.000
LIQ	2.105	1.49	2.959	0.01	49.82	0.000	0.000	0.000
ICR	14.437	2.451	61.397	0.001	987.198	0.000	0.000	0.000
LEV	5.525	1.378373	52.321	0.006	2082.463	0.000	0.000	0.000
AC	5.362	0.1750252	235.071	0.008	11792.071	0.000	0.000	0.000
FDI	0.538	0.502	0.082	0.377	0.667	0.000	0.000	0.000
HHI_1	0.412	0.339088	0.249	0.007	1	0.000	0.618	0.000
HHI_2	0.437	0.3478169	0.281	0.005	1	0.000	0.000	0.000
HHI_3	0.509	0.4357455	0.269	0.017	1	0.000	0.000	0.000
Total Debt	1229850.5	80166.17	5128292.6	9.53	90907599	0.000	0.000	0.000
Creditors	197138.97	19978.4	689141.02	0	14987643	0.000	0.000	0.000
Other creditors	77055.371	967.28	685336.11	0	14279054	0.000	0.000	0.000
LT Bank Loans	362730.2	4906.27	1349585.3	0	14302069	0.000	0.000	0.000
Issued Debt Instruments	94599.376	0	550845.07	0	9260219.1	0.000	0.000	0.000
ST Interest Bearing Debt	137493.34	15097.5	426038.84	0	5569685	0.000	0.000	0.000
Current portion of LT	72032.993	0	658007.52	0	13691341	0.000	0.000	0.000
Other long-term int bearing	289779.17	0	2873473.1	0	57042845	0.000	0.000	0.000
OTHER	361812.16	0	3388705.3	0	64811950	0.000	0.000	0.000
Trade Credit	274194.34	24600.44	1263121.4	0	25171551	0.000	0.000	0.000
Bank Debt	500223.54	35437.4	1609948.7	0	17265741	0.000	0.000	0.000

Note: The number of observations for all variables is 2527. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 25 exhibits the descriptive statistics for the Brazilian sample, where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1 and HHI_2 is 0.364 and 0.376 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013). However, the mean of HHI_3 is 0.524 (>0.40), which implies weak debt heterogeneity in debt structure.

Table 25: Descriptive Statistics: Brazil (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	0.599	0.3205	0.802	.001	7.976	0.000	0.000	0.000
LnMCAP	4.895	4.896496	2.742	-4.605	11.655	0.029	0.000	0.000
SIZE	12.667	12.66473	2.203	2.359	17.956	0.000	0.000	0.000
TANG	0.293	0.2762694	0.180	0	0.88	0.000	0.446	0.000
LIQ	2.091	1.54	3.569	.01	49.82	0.000	0.000	0.000
ICR	4.089	1.6505	11.53	.001	254.681	0.000	0.000	0.000
LEV	5.049	1.547991	22.645	.064	367.007	0.000	0.000	0.000
AC	1.395	0.250797	25.212	.026	769.112	0.000	0.000	0.000
FDI	0.637	0.627	0.020	0.604	0.667	0.000	0.000	0.000
HHI_1	0.364	0.3037062	0.222	0.007	1	0.000	0.000	0.000
HHI_2	0.376	0.2998059	0.243	0.005	1	0.000	0.000	0.000
HHI_3	0.524	0.487504	0.241	0.017	1	0.000	0.000	0.000
Total Debt	1315921.5	162823.5	3086807.4	49.1	21887811	0.000	0.000	0.000
Creditors	242321.93	26772.93	649526	0	5897090.6	0.000	0.000	0.000
Other creditors	27936.827	2291.035	97259.946	0	1445996.9	0.000	0.000	0.000
LT Bank Loans	603113.34	38977.85	1764293.2	0	13739841	0.000	0.000	0.000
Issued Debt Instruments	200159.04	0	835925.67	0	9260219.1	0.000	0.000	0.000
ST Interest Bearing Debt	182383.39	41349.15	483678	0	5569685	0.000	0.000	0.000
Current portion of LT	24745.121	0	366297.34	0	7777600.8	0.000	0.000	0.000
Other long-term int bearing	37887.876	0	452158.45	0	10429623	0.000	0.000	0.000
OTHER	62632.997	0	586498.79	0	10429623	0.000	0.000	0.000
Trade Credit	270258.75	35243.51	681201.75	10.76	5903755.1	0.000	0.000	0.000
Bank Debt	785496.73	96951.64	2134264.5	0	17265741	0.000	0.000	0.000

Note: The number of observations for all variables is 942. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 26 exhibits the descriptive statistics for the French subsample, where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1, HHI_2, and HHI_3 are 0.323 and 0.376, 0.358 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013).

Table 26: Descriptive Statistics: France (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	1.018	0.591	1.835	0.019	37.444	0.000	0.000	0.000
LnMCAP	5.67	5.1433	2.688	-0.105	12.938	0.000	0.000	0.000
SIZE	12.566	12.55532	2.923	1.281	18.19	0.000	0.004	0.000
TANG	0.188	0.1450755	0.166	0	0.946	0.000	0.000	0.000
LIQ	2.052	1.57	2.412	0.12	36.94	0.000	0.000	0.000
ICR	22.628	6.831	65.261	-0.739	976.714	0.000	0.000	0.000
LEV	7.047	1.29755	157.943	0.011	6731.71	0.000	0.000	0.000
AC	1.542	0.3231081	12.941	0.006	282.503	0.000	0.000	0.000
FDI	0.800	0.803	0.021	0.755	0.828	0.000	0.000	0.000
HHI_1	0.323	0.2716158	0.194	0.046	1	0.000	0.000	0.000
HHI_2	0.376	0.3200586	0.228	0.025	1	0.000	0.000	0.000
HHI_3	0.358	0.3101099	0.232	0.006	1	0.000	0.000	0.000
Total Debt	2879273.4	127162.5	8028034.9	32.01	94999574	0.000	0.000	0.000
Creditors	770237.38	39214.58	1940001.4	0	18591374	0.000	0.000	0.000
Other creditors	332851.36	3890.53	1589489.9	0	30438198	0.000	0.000	0.000
LT Bank Loans	161560.55	1109.92	559054.29	0	6930656.8	0.000	0.000	0.000
Issued Debt Instruments	517914.7	0	1780123.9	0	19092905	0.000	0.000	0.000
ST Interest Bearing Debt	351787.63	1365.31	3225755	0	60018654	0.000	0.000	0.000
Current portion of LT	264015.53	7263.3	956028.75	0	15758211	0.000	0.000	0.000
Other long-term int bearing	480953.27	2477.78	2125389.6	0	25198028	0.000	0.000	0.000
OTHER	744922.61	19303.26	2540959.8	0	27272282	0.000	0.000	0.000
Trade Credit	1103088.7	50743.01	3075122.3	0	46500890	0.000	0.000	0.000
Bank Debt	513348.18	11439.7	3438272	0	66949311	0.000	0.000	0.000

Note: The number of observations for all variables is 1981. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 27 exhibits the descriptive statistics for the German subsample, where the dependent variables are Tobin's Q and market capitalization. The mean of HHI_1 is 0.352 (<0.40), which means strong debt heterogeneity based on Colla et al. (2013). However, the mean values of HHI_2 and HHI_3 are 0.436 and 0.478 (>0.40), which implies weak debt heterogeneity in debt structure.

Table 27: Descriptive Statistics: Germany (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	1.101	0.6315	2.4	0.01	86.786	0.000	0.000	0.000
LnMCAP	5.709	5.468016	2.384	-0.58	11.665	0.000	0.000	0.000
SIZE	12.882	12.63202	2.453	0.293	19.464	0.202	0.000	0.000
TANG	0.272	0.2376706	0.185	0	0.904	0.000	0.006	0.000
LIQ	2.587	1.81	2.979	0.17	50.66	0.000	0.000	0.000
ICR	19.861	6.3505	53.498	0.008	825	0.000	0.000	0.000
LEV	3.839	1.263277	51.977	0.033	1826	0.000	0.000	0.000
AC	0.742	0.3590302	11.001	0.032	444.97	0.000	0.000	0.000
FDI	0.714	0.717	0.024	0.670	0.753	0.000	0.000	0.000
HHI_1	0.352	0.2957783	0.209	0.038	1	0.000	0.000	0.000
HHI_2	0.436	0.3610216	0.269	0.012	1	0.000	0.052	0.000
HHI_3	0.478	0.4056293	0.262	0.001	1	0.000	0.000	0.000
Total Debt	3568936.2	92844.63	18465526	5.66	2.21E+08	0.000	0.000	0.000
Creditors	608590.2	21111.92	2390055.5	0	27826931	0.000	0.000	0.000
Other creditors	186336.11	6386.12	880807.06	0	11438377	0.000	0.000	0.000
LT Bank Loans	346553.42	5458.175	2042563	0	29338878	0.000	0.000	0.000
Issued Debt Instruments	1060720.4	0	6581705.8	0	86436658	0.000	0.000	0.000
ST Interest Bearing Debt	431963.14	7418.545	2835321.7	0	38452384	0.000	0.000	0.000
Current portion of LT	398579.54	0	3551593.6	0	53817053	0.000	0.000	0.000
Other long-term int bearing	536198.88	0	2628986.6	0	31536452	0.000	0.000	0.000
OTHER	934778.01	0	5621202.5	0	76864940	0.000	0.000	0.000
Trade Credit	794926.32	32465.76	3008740.6	5.66	30910747	0.000	0.000	0.000
Bank Debt	778516.57	24086.92	4772170.1	0	61455589	0.000	0.000	0.000

Note: The number of observations for all variables is 2006. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 28 exhibits the descriptive statistics for the Italian subsample, where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1, HHI_2, and HHI_3 is 0.325, 0.334 and 0.394 (<0.40) which means strong debt heterogeneity based on Colla et al. (2013).

Table 28: Descriptive Statistics: Italy (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	0.855	0.522	1.015	0.027	10.23	0.000	0.000	0.000
LnMCAP	5.484	5.289827	1.861	0.476	9.912	0.001	0.000	0.000
SIZE	12.582	12.64497	1.881	4.261	17.081	0.000	0.000	0.000
TANG	0.224	0.189361 1	0.16	0	0.94	0.000	0.000	0.000
LIQ	1.732	1.5	1.224	0.08	20.72	0.000	0.000	0.000
ICR	18.37	5.352	49.689	0.021	772.657	0.000	0.000	0.000
LEV	2.612	1.431244	6.349	0.08	112.532	0.000	0.000	0.000
AC	0.444	0.374336 2	0.599	0.01	10.32	0.000	0.000	0.000
FDI	0.767	0.767	0.015	0.737	0.795	0.086	0.000	0.000
HHI_1	0.325	0.275686 4	0.175	0.056	1	0.000	0.000	0.000
HHI_2	0.334	0.277781 2	0.198	0.016	1	0.000	0.000	0.000
HHI_3	0.394	0.357147 7	0.191	0.011	1	0.000	0.000	0.000
Total Debt	904133.8 5	190036.9	2465943. 6	152.2 9	20998176	0.000	0.000	0.000
Creditors	244376.7 6	52783.88	662674.5 8	0	6854282. 8	0.000	0.000	0.000
Other creditors	48906.34 4	935.395	333539.2 2	0	9419836. 8	0.000	0.000	0.000
LT Bank Loans	227391.9 7	23523.49	671014.3 1	0	8798519. 3	0.000	0.000	0.000
Issued Debt Instruments	177063.1 5	0	1022110. 8	0	11941627	0.000	0.000	0.000
ST Interest Bearing Debt	118774.1 5	27641.64	316278.7 7	0	3606099	0.000	0.000	0.000
Current portion of LT	29827.27	0	148456.5 4	0	2085766. 6	0.000	0.000	0.000
Other long-term int bearing	57794.87 6	0	519812.5 6	0	10784335	0.000	0.000	0.000
OTHER	87622.14 6	91.585	592494.0 8	0	12102484	0.000	0.000	0.000
Trade Credit	293283.1	60519.85	837777.1 7	152.2 9	12845953	0.000	0.000	0.000
Bank Debt	346166.1 2	77661.61	916320.3	0	12404618	0.000	0.000	0.000

Note: The number of observations for all variables is 1068. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 29 exhibits the descriptive statistics for the Mexican subsample, where the dependent variables are Tobin's Q and market capitalization. The mean values of

HHI_1, HHI_2 and HHI_3 are 0.439, 0.472, and 0.503 (>0.40), which means weak debt heterogeneity based on Colla et al. (2013).

Table 29: Descriptive Statistics: Mexico (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	1.032	0.529	1.177	0.019	7.28	0.000	0.000	0.000
LnMCAP	7.088	7.827464	2.002	0.637	9.947	0.000	0.047	0.000
SIZE	13.919	13.66587	1.661	9.565	17.112	0.960	0.949	0.997
TANG	0.345	0.3627448	0.221	0	0.814	0.409	0.008	0.020
LIQ	1.975	1.52	1.4	0.14	9.72	0.000	0.000	0.000
ICR	29.747	3.345	96.556	0.002	582.473	0.000	0.000	0.000
LEV	2.402	1.190386	5.489	0.136	59.599	0.000	0.057	0.000
AC	0.267	0.1793304	0.254	0.013	1.275	0.000	0.000	0.000
FDI	0.395	0.395	0.009	0.377	.409	0.039	0.227	0.057
HHI_1	0.439	0.3564861	0.259	0.066	1	0.001	0.000	0.000
HHI_2	0.472	0.3761772	0.283	0.082	1	0.001	0.000	0.000
HHI_3	0.503	0.3831568	0.292	0.114	1	0.010	0.000	0.000
Total Debt	2512762.1	813616	4141113.3	9065.23	19329638	0.000	0.000	0.000
Creditors	523226.04	82394.03	878478.96	0	3298345.2	0.000	0.001	0.000
Other creditors	144849.87	28525.76	321598.85	0	2244656.5	0.000	0.000	0.000
LT Bank Loans	1065751.5	230446.9	2283874.9	0	14302069	0.000	0.000	0.000
Issued Debt Instruments	21783.075	0	130149.64	0	1043200.2	0.000	0.000	0.000
ST Interest Bearing Debt	100128.27	14697.01	210952.87	0	1319525.5	0.000	0.000	0.000
Current portion of LT	55283.677	0	161434.44	0	1145182.7	0.000	0.000	0.000
Other long-term int bearing	601739.76	0	1617229	0	11398541	0.000	0.000	0.000
OTHER	657023.43	13570.16	1669647.4	0	11930724	0.000	0.000	0.000
Trade Credit	668075.91	110727.9	1142047.1	1827.16	5278744.8	0.000	0.000	0.000
Bank Debt	1165879.7	232922.7	2385505.6	0	14960273	0.000	0.000	0.000

Note: The number of observations for all variables is 163. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 30 exhibits the descriptive statistics for the Russian subsample where the dependent variables are Tobin's Q and market capitalization. The mean values of

HHI_1, HHI_2, and HHI_3 are 0.403, 0.421 and 0.453 (>0.40), which implies weak debt heterogeneity based on Colla et al. (2013).

Table 30: Descriptive Statistics: Russia (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	0.448	0.281	0.495	0.026	3.793	0.000	0.000	0.000
LnMCAP	5.283	4.821003	2.353	0.952	11.603	0.000	0.000	0.000
SIZE	13.228	13.27674	2.074	3.09	18.893	0.006	0.002	0.000
TANG	0.345	0.3181831	0.226	0	0.876	0.054	0.000	0.000
LIQ	1.763	1.24	2.297	0.1	24.16	0.000	0.000	0.000
ICR	20.023	2.834	80.165	0.002	987.198	0.000	0.000	0.000
LEV	14.049	2.025928	113.934	0.05	2082.463	0.000	0.000	0.000
AC	24.374	0.1581554	532.698	0.008	11792.071	0.000	0.000	0.000
FDI	0.493	0.484	0.024	0.463	0.533	0.000	0.000	0.000
HHI_1	0.403	0.3472703	0.225	0.041	1	0.000	0.321	0.000
HHI_2	0.421	0.3608649	0.251	0.012	1	0.000	0.723	0.000
HHI_3	0.453	0.3941929	0.25	0.025	1	0.000	0.108	0.000
Total Debt	2818639.7	283315	10302768	993.29	90907599	0.000	0.000	0.000
Creditors	319185.24	44940.07	1124338.1	0	14987643	0.000	0.000	0.000
Other creditors	290102.09	6866.12	1520300.1	0	14279054	0.000	0.000	0.000
LT Bank Loans	314599.9	0	1086859.8	0	8651000	0.000	0.000	0.000
Issued Debt Instruments	93641.138	0	419649.42	0	4508230	0.000	0.000	0.000
ST Interest Bearing Debt	291489.81	45024.71	642815.64	0	5486147.8	0.000	0.000	0.000
Current portion of LT	290074.55	0	1381558.2	0	13691341	0.000	0.000	0.000
Other long-term int bearing	1219547	1425.505	6341300.5	0	57042845	0.000	0.000	0.000
OTHER	1509621.5	7583.59	7481517	0	64811950	0.000	0.000	0.000
Trade Credit	609287.34	57511.25	2573896.1	90.13	25171551	0.000	0.000	0.000
Bank Debt	606089.7	74246.61	1413025.3	0	9890000	0.000	0.000	0.000

Note: The number of observations for all variables is 490. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 31 exhibits the descriptive statistics for the South Korean subsample, where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1, HHI_2, and HHI_3 are 0.263, 0.303, and 0.344 (<0.40) which means strong debt heterogeneity based on Colla et al. (2013).

Table 31: Descriptive Statistics: South Korea (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	0.65	0.404	0.873	0.006	14.873	0.000	0.000	0.000
LnMCAP	5.502	5.174397	1.602	1.072	13.005	0.000	0.000	0.000
SIZE	13.034	12.88803	1.587	8.487	19.278	0.000	0.000	0.000
TANG	0.358	0.3583525	0.165	0.001	0.947	0.000	0.027	0.000
LIQ	1.845	1.36	1.88	0.18	37.65	0.000	0.000	0.000
ICR	30.771	5.132	96.052	0.002	985.516	0.000	0.000	0.000
LEV	1.719	1.017559	5.113	0.025	238.462	0.000	0.000	0.000
AC	0.154	0.1040182	0.283	0.012	11.152	0.000	0.000	0.000
FDI	0.836	0.837	0.012	0.813	0.853	0.000	0.000	0.000
FME	1	1	0	1	1	0.000	0.000	0.000
HHI_1	0.263	0.2197518	0.181	0.01	0.964	0.000	0.000	0.000
HHI_2	0.303	0.242107	0.234	0.001	1	0.000	0.000	0.000
HHI_3	0.344	0.3204518	0.231	0.001	1	0.000	0.000	0.000
Total Debt	1062055.6	152730.9	4653865.1	450.78	1.04E+08	0.000	0.000	0.000
Creditors	205927.39	31301.52	765313.59	0	11337730	0.000	0.000	0.000
Other creditors	98827.168	8374.9	593335.37	0	13134052	0.000	0.000	0.000
LT Bank Loans	171366	11917.94	668768.8	0	11697357	0.000	0.000	0.000
Issued Debt Instruments	231198.09	0	1813111.5	0	53479528	0.000	0.000	0.000
ST Interest Bearing Debt	221236.24	44294.97	863394	0	15214549	0.000	0.000	0.000
Current portion of LT	133500.75	9341.43	674325.48	0	17483708	0.000	0.000	0.000
Other long-term int bearing	0	0	0	0	0	N/A	N/A	N/A
OTHER	133500.75	9341.43	674325.48	0	17483708	0.000	0.000	0.000
Trade Credit	304754.56	43738.53	1292624.2	0	24471782	0.000	0.000	0.000
Bank Debt	392602.24	69537.19	1408181.3	0	24363414	0.000	0.000	0.000

Note: The number of observations for all variables is 4155. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

Table 32 exhibits the descriptive statistics for the Turkish subsample, where the dependent variables are Tobin's Q and market capitalization. The mean values of HHI_1, HHI_2, and HHI_3 are 0.488, 0.462 and 0.500 (>0.40) which means weak debt heterogeneity based on Colla et al. (2013).

Table 32: Descriptive Statistics: Türkiye (Value)

Variable	Mean	Median	Std. Dev.	Min	Max	Pr(Skewness)	Pr(Kurtosis)	Joint Normality
Tobin's Q	1.661	0.8185	3.78	0.023	61.209	0.000	0.000	0.000
LnMCAP	4.045	3.903184	1.659	-0.799	9.273	0.019	0.857	0.064
SIZE	10.771	10.98849	1.921	2.688	15.722	0.000	0.000	0.000
TANG	0.307	0.2944073	0.19	0	0.947	0.000	0.108	0.000
LIQ	2.323	1.595	2.768	0.03	40.14	0.000	0.000	0.000
ICR	19.281	3.4945	70.047	0.004	945.667	0.000	0.000	0.000
LEV	2.07	0.9448627	5.799	0.006	113.712	0.000	0.000	0.000
AC	0.267	0.1223353	1.216	0.01	24.38	0.000	0.000	0.000
FDI	0.488	0.498	0.018	0.434	0.511	0.000	0.000	0.000
HHI_1	0.462	0.3907738	0.275	0.045	1	0.000	0.000	0.000
HHI_2	0.500	0.3910817	0.316	0.038	1	0.000	0.000	0.000
HHI_3	0.525	0.4186441	0.296	0.019	1	0.000	0.000	0.000
Total Debt	83176.496	21685.74	218488.3	9.53	2338334.8	0.000	0.000	0.000
Creditors	30275.008	8944.45	86443.963	0	1011032	0.000	0.000	0.000
Other creditors	2834.631	67.255	12310.807	0	165113.79	0.000	0.000	0.000
LT Bank Loans	22119.101	36.695	72014.134	0	827564.83	0.000	0.000	0.000
Issued Debt Instruments	1145.935	0	24525.941	0	715407.73	0.000	0.000	0.000
ST Interest Bearing Debt	17692.72	2068.77	45860.939	0	435487.53	0.000	0.000	0.000
Current portion of LT	8121.997	5.8	25433.73	0	287423.71	0.000	0.000	0.000
Other long-term int bearing	987.104	0	7266.38	0	102623.53	0.000	0.000	0.000
OTHER	9109.1	11.415	27686.041	0	287423.71	0.000	0.000	0.000
Trade Credit	33109.64	10207.05	93462.371	0	1059212.9	0.000	0.000	0.000
Bank Debt	39811.821	5460.26	107255.6	0	1171956.7	0.000	0.000	0.000

Note: The number of observations for all variables is 932. Since the minimum values of some debt types are 0, the balance sheets of the relevant firms have been checked, and it has been seen that the firms do not have the relevant debt types.

Source: Created by Author

3.2.4. Debt Type Distribution

Section 3.2.4. exhibits the proportional allocations of debt types in total debt, allowing the examination of differences in debt structures in the analyzed countries.

3.2.4.1. Debt Types Distributions: Firm Performance

Table 33 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for the whole sample. As seen from the table, in the HHI_1 calculation, the other debt, which includes the current portion of long-term debt and other interest-bearing debt, has the largest proportion of total debt, followed by issued debt instruments and trade credit to related parties. However, the trade credit, including trade credit to related parties and trade credit to third parties, has the largest proportion in HHI_2 and HHI_3. In the HHI_2, total trade credit is followed by other debt and issued debt instruments. However, in the HHI_3, which classifies debt sources instead of maturity and types of debt, total trade credit is followed by total bank debt consisting of short-term and long-term bank debt; however, issued debt instruments has the lowest proportion of the total debt.

Table 33: Debt Types Distributions: Whole Sample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	20.42%		
Other creditors	7.82%		
Trade Credit		28.25%	28.25%
ST Interest Bearing Debt	13.76%	13.76%	
LT Bank Loans	14.18%	14.18%	
Bank Debt			27.94%
Issued Debt Instruments	21.33%	21.33%	21.33%
OTHER	22.49%	22.49%	22.49%

Source: Created by the Author

Table 34 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index, which measures debt heterogeneity for developed countries. The issued debt instruments have the largest proportion of total debt in the HHI_1, followed by other debt, and trade credits to related parties. On the other hand, total trade credit, including trade credit to related parties and trade credit to third parties, has the largest proportion in HHI_2 and HHI_3. Total trade credit is followed by issued debt instruments and other debt in HHI_2, while long-term bank

debt has the lowest proportion. However, in the HHI_3, total trade credit is followed by total bank debt and issued debt instrument, and other debt has the lowest proportion.

Table 34: Debt Types Distributions: Developed Countries (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	21.21%		
Other creditors	8.19%		
Trade Credit		29.40%	29.40%
ST Interest Bearing Debt	14.34%	14.34%	
LT Bank Loans	11.00%	11.00%	
Bank Debt			25.34%
Issued Debt Instruments	23.50%	23.50%	23.50%
OTHER	21.75%	21.75%	21.75%

Source: Created by the Author

Table 35 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for developing countries. Unlike the whole sample and developed countries, long-term bank loans have the largest proportion of total debt in the HHI_1. Other debt and trade credits to related parties are the second and third largest proportions. In the HHI_2, long-term debt has the largest proportion and followed by other debt and total trade credit. Total bank debt has the largest proportion in HHI_3, with other debt and total trade credit coming next. While the issued debt instrument has the lowest proportions in the HHI_2 and HHI_3.

The varying proportions of different debt types in total debt for developed and developing countries lead to the conclusion that these countries have different debt structures. Within the analyzed countries in this dissertation, the developed countries have strongly heterogeneous debt structures, while the developing countries have weakly heterogeneous debt structures. This may result from distinct financing source preferences, limitations or eases of access to different finance sources, or country-specific factors such as economic, political, or regulatory.

Table 35: Debt Types Distributions: Developing Countries (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	15.85%		
Other creditors	5.64%		
Trade Credit		21.49%	21.49%
ST Interest Bearing Debt	10.36%	10.36%	
LT Bank Loans	32.73%	32.73%	
Bank Debt			43.09%
Issued Debt Instruments	8.66%	8.66%	8.66%
OTHER	26.79%	26.79%	26.79%

Source: Created by the Author

Table 36 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Brazil. Long-term bank loans have the largest proportion of total debt, in the HHI_1 and HHI_2. Long-term bank loan is followed by trade credit to related parties and issued debt instruments in HHI_1, and total trade credit and issued debt instruments in HHI_2. Total bank debt has the largest proportion in HHI_3, with total trade credit and issued debt instruments coming next. In addition, other debt has the lowest proportions in the HHI_1, HHI_2 and HHI_3.

Table 36: Debt Types Distributions: Brazil Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	17.07%		
Other creditors	1.87%		
Trade Credit		18.94%	18.94%
ST Interest Bearing Debt	13.32%	13.32%	
LT Bank Loans	48.05%	48.05%	
Bank Debt			61.38%
Issued Debt Instruments	15.77%	15.77%	15.77%
OTHER	3.99%	3.99%	3.99%

Source: Created by the Author

Table 37 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for France. In the HHI_1, trade credit to related parties holds the highest proportion, other

debt and issued debt instruments comes next. Total trade credit has the highest proportion of total debt followed by other debt and issued debt instruments in the HHI_2 and HHI_3 calculations. While long-term bank debt has the lowest proportion in total debt.

Table 37: Debt Types Distributions: France Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	26.84%		
Other creditors	11.63%		
Trade Credit		38.47%	38.47%
ST Interest Bearing Debt	12.26%	12.26%	
LT Bank Loans	5.71%	5.71%	
Bank Debt			17.97%
Issued Debt Instruments	18.00%	18.00%	18.00%
OTHER	25.56%	25.56%	25.56%

Source: Created by the Author

Table 38 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Germany. Issued debt instruments have the largest proportions of total debt in all HHI measures, followed by other debt. In HHI_1, trade credit to related parties has the third highest proportion, while the trade credit to third parties has the lowest proportion. Total trade credit is third largest debt type in total debt in HHI_2 and HHI_3.

Table 38: Debt Types Distributions: Germany Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	17.07%		
Other creditors	5.24%		
Trade Credit		22.31%	22.31%
ST Interest Bearing Debt	12.10%	12.10%	
LT Bank Loans	9.77%	9.77%	
Bank Debt			21.87%
Issued Debt Instruments	29.69%	29.69%	29.69%
OTHER	26.13%	26.13%	26.13%

Source: Created by the Author

Table 39 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Italy. In Italy, trade credit to related parties has the largest proportion of total debt in

HHI_1, and long-term bank debt and issued debt instruments come next. In the HHI_2, total trade credit has the largest proportion followed by long-term bank debt and issued debt instruments. Total bank debt has the largest proportion in HHI_3, and total trade credit and issued debt instruments have the second and third largest proportions, respectively.

Table 39: Debt Types Distributions: Italy Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	27.25%		
Other creditors	5.44%		
Trade Credit		32.68%	32.68%
ST Interest Bearing Debt	12.99%	12.99%	
LT Bank Loans	25.81%	25.81%	
Bank Debt			38.81%
Issued Debt Instruments	19.30%	19.30%	19.30%
OTHER	9.21%	9.21%	9.21%

Source: Created by the Author

Table 40 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Mexico. The long-term bank loans have the largest proportion of total debt in HHI_1 and HHI_2, and total bank debt in HHI_3. Long-term bank loans are followed by other debt and trade credit to related parties in HHI_1, and other debt and total trade credit in HHI_2. In addition, other debt is the second, and total trade credit is the third largest debt type in total debt in HHI_3. Issued debt instruments only account for 1% of total debt.

Table 40: Debt Types Distributions: Mexico Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	20.70%		
Other creditors	5.52%		
Trade Credit		26.23%	26.23%
ST Interest Bearing Debt	3.46%	3.46%	
LT Bank Loans	42.93%	42.93%	
Bank Debt			46.39%
Issued Debt Instruments	1.00%	1.00%	1.00%
OTHER	26.39%	26.39%	26.39%

Source: Created by Author

Table 41 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Russia. More than half of total debt consists of the other debt for the Russian sample. In HHI_1, other debt is followed by long-term bank loans and trade credit to related parties. Total trade credit and long-term bank loans come next after other debt in HHI_2. In the HHI_3, total bank debt and total trade credit are the second and third largest debt types in total debt.

Table 41: Debt Types Distributions: Russia Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	11.59%		
Other creditors	9.98%		
Trade Credit		21.57%	21.57%
ST Interest Bearing Debt	8.55%	8.55%	
LT Bank Loans	13.11%	13.11%	
Bank Debt			21.65%
Issued Debt Instruments	3.84%	3.84%	3.84%
OTHER	52.94%	52.94%	52.94%

Source: Created by Author

Table 42 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for South Korean sample. In HHI_1, issued debt instruments have the largest proportion of total debt, followed by short-term interest-bearing debt and trade credit to related

parties. Total trade credit has the largest proportion of total debt in HHI_2, and issued debt instruments, and short-term interest-bearing debt comes next. According to the classification based on the debt sources, in HHI_3, bank loans have the largest proportion of total debt, followed by total trade credit and issued debt instruments.

Table 42: Debt Types Distributions: South Korea Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	19.33%		
Other creditors	9.19%		
Trade Credit		28.52%	28.52%
ST Interest Bearing Debt	20.82%	20.82%	
LT Bank Loans	16.28%	16.28%	
Bank Debt			37.10%
Issued Debt Instruments	21.53%	21.53%	21.53%
OTHER	12.85%	12.85%	12.85%

Source: Created by the Author

Table 43 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Turkish sample. Trade credit to related parties is the first largest debt type in total debt in the HHI_1, with long-term bank loans and short-term interest-bearing debt coming next. In HHI_2, total trade credit has the largest proportion of total debt followed by long-term bank loans and short-term interest-bearing debt. Almost half of the total debt consists of bank debt and total trade credit is the second largest debt type, while other debt is the third one, in HHI_3. The ratio of issued debt instruments to total debt is only 1%.

Table 43: Debt Types Distributions: Türkiye Subsample (Performance)

	HHI_1	HHI_2	HHI_3
Creditors	36.03%		
Other creditors	3.18%		
Trade Credit		39.21%	39.21%
ST Interest Bearing Debt	21.85%	21.85%	
LT Bank Loans	26.55%	26.55%	
Bank Debt			48.40%
Issued Debt Instruments	1.31%	1.31%	1.31%
OTHER	11.08%	11.08%	11.08%

Source: Created by Author

3.2.4.2. Debt Types Distribution: Firm Value

Table 44 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for the whole sample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 44: Debt Types Distributions: Whole Sample (Value)

	HHI_1	HHI_2	HHI_3
Creditors	20.43%		
Other creditors	7.92%		
Trade Credit		28.35%	28.35%
ST Interest Bearing Debt	13.85%	13.85%	
LT Bank Loans	13.52%	13.52%	
Bank Debt			27.37%
Issued Debt Instruments	21.28%	21.28%	21.28%
OTHER	23.01%	23.01%	23.01%

Source: Created by Author

Table 45 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for developed countries. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 45: Debt Types Distributions: Developed Countries (Value)

	HHI_1	HHI_2	HHI_3
Creditors	21.18%		
Other creditors	8.20%		
Trade Credit		29.38%	29.38%
ST Interest Bearing Debt	14.31%	14.31%	
LT Bank Loans	10.80%	10.80%	
Bank Debt			25.11%
Issued Debt Instruments	23.59%	23.59%	23.59%
OTHER	21.92%	21.92%	21.92%

Source: Created by Author

Table 46 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for developing countries. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 46: Debt Types Distributions: Developing Countries (Value)

	HHI_1	HHI_2	HHI_3
Creditors	16.03%		
Other creditors	6.27%		
Trade Credit		22.29%	22.29%
ST Interest Bearing Debt	11.18%	11.18%	
LT Bank Loans	29.49%	29.49%	
Bank Debt			40.67%
Issued Debt Instruments	7.69%	7.69%	7.69%
OTHER	29.42%	29.42%	29.42%

Source: Created by Author

Table 47 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Brazilian subsample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 47: Debt Types Distributions: Brazil (Value)

	HHI_1	HHI_2	HHI_3
Creditors	18.41%		
Other creditors	2.12%		
Trade Credit		20.54%	20.54%
ST Interest Bearing Debt	13.86%	13.86%	
LT Bank Loans	45.83%	45.83%	
Bank Debt			59.69%
Issued Debt Instruments	15.21%	15.21%	15.21%
OTHER	4.76%	4.76%	4.76%

Source: Created by Author

Table 48 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for French subsample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 48: Debt Types Distributions: France (Value)

	HHI_1	HHI_2	HHI_3
Creditors	26.75%		
Other creditors	11.56%		
Trade Credit		38.31%	38.31%
ST Interest Bearing Debt	12.22%	12.22%	
LT Bank Loans	5.61%	5.61%	
Bank Debt			17.83%
Issued Debt Instruments	17.99%	17.99%	17.99%
OTHER	25.87%	25.87%	25.87%

Source: Created by Author

Table 49 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for German subsample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 49: Debt Types Distributions: Germany (Value)

	HHI_1	HHI_2	HHI_3
Creditors	17.05%		
Other creditors	5.22%		
Trade Credit		22.27%	22.27%
ST Interest Bearing Debt	12.10%	12.10%	
LT Bank Loans	9.71%	9.71%	
Bank Debt			21.81%
Issued Debt Instruments	29.72%	29.72%	29.72%
OTHER	26.19%	26.19%	26.19%

Source: Created by Author

Table 50 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for Italian subsample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 50: Debt Types Distributions: Italy (Value)

	HHI_1	HHI_2	HHI_3
Creditors	27.03%		
Other creditors	5.41%		
Trade Credit		32.44%	32.44%
ST Interest Bearing Debt	13.14%	13.14%	
LT Bank Loans	25.15%	25.15%	
Bank Debt			38.29%
Issued Debt Instruments	19.58%	19.58%	19.58%
OTHER	9.69%	9.69%	9.69%

Source: Created by Author

Table 51 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for the Mexican subsample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 51: Debt Types Distributions: Mexico (Value)

	HHI_1	HHI_2	HHI_3
Creditors	20.82%		
Other creditors	5.76%		
Trade Credit		26.59%	26.59%
ST Interest Bearing Debt	3.98%	3.98%	
LT Bank Loans	42.41%	42.41%	
Bank Debt			46.40%
Issued Debt Instruments	0.87%	0.87%	0.87%
OTHER	26.15%	26.15%	26.15%

Source: Created by Author

Table 52 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for the Russian subsample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance. More than half of total debt consists of the other debt for the Russian sample. In HHI_1, other debt is followed by trade credit to related parties and long-term bank loans. Total trade credit and long-term bank loans come next after other debt in HHI_2. In the HHI_3, total trade credit and total bank debt are the second and third largest debt types in total debt.

Table 52: Debt Types Distributions: Russia (Value)

	HHI_1	HHI_2	HHI_3
Creditors	11.32%		
Other creditors	10.29%		
Trade Credit		21.62%	21.62%
ST Interest Bearing Debt	10.34%	10.34%	
LT Bank Loans	11.16%	11.16%	
Bank Debt			21.50%
Issued Debt Instruments	3.32%	3.32%	3.32%
OTHER	53.56%	53.56%	53.56%

Source: Created by Author

Table 53 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for the South Korean subsample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 53: Debt Types Distributions: South Korea (Value)

	HHI_1	HHI_2	HHI_3
Creditors	19.39%		
Other creditors	9.31%		
Trade Credit		28.69%	28.69%
ST Interest Bearing Debt	20.83%	20.83%	
LT Bank Loans	16.14%	16.14%	
Bank Debt			36.97%
Issued Debt Instruments	21.77%	21.77%	21.77%
OTHER	12.57%	12.57%	12.57%

Source: Created by Author

Table 54 shows the proportional allocation of debt types in total debt utilized in computing the Herfindahl-Hirschman Index which measures debt heterogeneity for the Turkish sample. The ranking of the proportions of each debt type in total debt is the same as in the sample where the dependent variable is performance.

Table 54: Debt Types Distributions: Türkiye (Value)

	HHI_1	HHI_2	HHI_3
Creditors	36.40%		
Other creditors	3.41%		
Trade Credit		39.81%	39.81%
ST Interest Bearing Debt	21.27%	21.27%	
LT Bank Loans	26.59%	26.59%	
Bank Debt			47.86%
Issued Debt Instruments	1.38%	1.38%	1.38%
OTHER	10.95%	10.95%	10.95%

Source: Created by Author

CHAPTER FOUR

EMPIRICAL FINDINGS

The empirical analyses investigate the effect of debt heterogeneity on firm performance and value for Brazilian, French, German, Italian, Mexican, Russian, South Korean, and Turkish non-financial listed firms for the years between 2008 and 2022. Additionally, control variables such as firm size, liquidity, solvency, tangibility, capital structure, corporate governance practices, financial development index, and the economic crisis dummy are included in the analyses. The expected relations for each variable are presented alongside the empirical results.

Within this dissertation, a positive relation is hypothesized between debt heterogeneity and firm performance and value, in line with the efficient monitoring hypothesis. However, in interpreting the results, it should be remembered that the expected signs of HHI measures are negative. Since an increase in HHI means the debt structure becomes more homogeneous, namely, it decreases the debt heterogeneity. Hence, this diminishes the monitoring efficiency that would be provided by multiple creditors, leading to lower performance and value.

Chapter 4 presents the empirical findings from the panel data regressions estimated by Driscoll-Kraay Estimators. Section 4.1 presents the regression results where the dependent variable is firm performance proxied by ROE and ROA. In addition, Section 4.2 presents the regression results where the dependent variable is firm value proxied by Tobin's Q and market capitalization.

4.1. EMPIRICAL FINDINGS: FIRM PERFORMANCE

As presented in Table 55, according to F statistics of the six models, all models are statistically significant at 1% level. According to Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models where the dependent variable is performance. According to the results of Modified-Wald and CD Pesaran tests presented in Table 55, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. Baltagi-Wu LBI tests results are slightly higher than 2 in Models 1a, 1b, and 1c, while less than 2 in Models

2a, 2b, and 2c. Therefore for the sample consisting of all eight countries, six models where dependent variable is performance are estimated using Driscoll-Kraay estimator which is robust to heteroscedasticity, cross-section dependence and autocorrelation. The empirical results are reported in Table 55.

As shown in Table 55, HHI has a statistically significant negative relation with ROE at 1% level in Model 1a and 1c, while at 5% level in Model 1b supporting the efficient monitoring hypothesis in compliance with the expected relation. Four of the firm specific factors (SIZE, ICR, LEV, and AC) have statistically significant relations with ROE at the 5%, 1%, 10%, and 1% levels, respectively, in Models 1a, 1b, and 1c. As expected, ICR is positively related to firm performance. However, all other relations are contrary to the expected relations. For instance, SIZE is negatively related, and the ICR, LEV, and AC are positively related to firm performance. The crisis dummy has a statistically significant positive coefficient, in Models 1a, 1b, and 1c. Although TANG and LIQ have negative signs and FDI a positive sign, their effect on firm performance is statistically insignificant in Model 1a, 1b and 1c.

HHI has a statistically significant negative relation with ROA at 1% level in Model 2a supporting efficient monitoring hypothesis, in line with the expected relation. In model 2b the positive and in model 2c the negative relation between HHI and ROA is statistically insignificant. Five of the firm specific factors (SIZE, TANG, LIQ, ICR and AC) have statistically significant relation with ROA in Model 2a, 2b and 2c. Consistent with the expected relations, tangibility is negatively, and the interest coverage ratio is positively related to ROA. However, contrary to the expectation, SIZE, and LIQ are negatively related, and AC is positively related to ROA. In addition, as exhibited in Table 55, FDI and firm performance measured by ROA are statistically significantly positively related. Although crisis dummy has a negative sign and leverage have a positive sign, they are statistically insignificant in Model 2a, 2b and 2c.

Table 55: Driscoll-Kraay Estimator Results: Whole Sample (Performance)

Dependent Variable	ROE			ROA			
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	Expected Relation
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.055** (0.020)	-0.056** (0.020)	-0.056** (0.020)	-0.009*** (0.002)	-0.008*** (0.002)	-0.009*** (0.002)	+
TANG	-0.028 (0.035)	-0.033 (0.034)	-0.025 (0.035)	-0.048*** (0.009)	-0.047*** (0.009)	-0.047*** (0.009)	-
LIQ	-0.007 (0.004)	-0.007 (0.004)	-0.007 (0.004)	-0.001** (0.001)	-0.001** (0.001)	-0.001** (0.001)	+
ICR	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.004* (0.002)	0.004* (0.002)	0.004* (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-
AC	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-
FDI	0.182 (0.171)	0.177 (0.170)	0.166 (0.166)	0.088** (0.030)	0.091** (0.030)	0.089** (0.030)	+
HHI_1	-0.074*** (0.021)			-0.008* (0.004)			-
HHI_2		-0.074** (0.026)			0.001 (0.004)		-
HHI_3			-0.078*** (0.023)			-0.004 (0.004)	-
Crisis	0.014* (0.008)	0.014* (0.008)	0.015* (0.008)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	
_cons	0.773** (0.314)	0.792** (0.310)	0.803** (0.314)	0.124*** (0.039)	0.115** (0.041)	0.121** (0.040)	
Modified Wald Test	2.0e+39 (0.0000)	8.6e+39 (0.0000)	1.1e+41 (0.0000)	6.8e+35 (0.000)	3.2e+37 (0.000)	9.2e+35 (0.000)	
Modified Bhargava et al. Durbin-Watson	1.5914	1.5911	1.5912	1.5105	1.5111	1.5105	

Baltagi-Wu LBI	2.0341	2.0340	2.0341	1.8915	1.8922	1.8917	
CD Pesaran (2015, 2021)	61.950 (0.000)	61.990 (0.000)	60.580 (0.000)	16.770 (0.000)	17.110 (0.000)	16.930 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	4.810 (0.000)	13.940 (0.000)	13.300 (0.000)	13.190 (0.000)	12.380 (0.000)	11.820 (0.000)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0288	0.0289	0.0291	0.0257	0.0254	0.0255	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 12481 observations across 1417 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

The empirical findings based on the Driscoll-Kraay estimator for the six models where dependent variable is performance are reported in Table 56, for the subsample consisting of developed countries. According to the F statistics of the six models, all models are statistically significant at 1% level. According to Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models where the dependent variable is performance. According to the results of Modified-Wald and CD Pesaran tests presented in Table 56, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. Baltagi-Wu LBI tests results are slightly higher than 2 in Models 1a, 1b, and 1c, while less than 2 in Models 2a, 2b, and 2c.

According to empirical findings presented in Table 56, For the developed countries subsample, HHI has a statistically significant negative relation with ROE at 1% level in Model 1a, 1b and 1c supporting efficient monitoring hypothesis, as anticipated. Four of the firm specific factors (SIZE, LIQ, ICR, and AC) have

statistically significant relation with ROE in Model 1a, 1b and 1c. While size and current ratio is negatively related, interest coverage, and agency cost are positively related to firm performance. Only the relation between ICR and performance is consistent with the expected relation, the other relations contradict the expected relation. Crisis dummy has a positive impact on firm performance at 10% significance level in Model 1a, 1b and 1c. Although TANG, LEV, and FDI have positive signs, they are statistically insignificant in Model 1a, 1b and 1c.

Consistent with the expected relation, HHI has a statistically significant negative relation with ROA at 1% level in Model 2a supporting efficient monitoring hypothesis. The negative relation between HHI and ROA in Models 2b and 2c is statistically insignificant. Five of the firm specific factors (SIZE, TANG, LIQ, ICR and AC) and FDI have statistically significant relations with ROA in Model 2a, 2b and 2c. Contrary to expectations, SIZE and LIQ are negatively related, while TANG, consistent with the expectation, is negatively related to ROE. The positive relation between AC and ROA is also contradictory to expectations, while ICR and FDI are positively related to ROA in line with the expected relation. Although leverage and crisis dummy have positive signs, they are statistically insignificant in Model 2a, 2b and 2c.

Table 56: Driscoll-Kraay Estimator Results: Developed Countries (Performance)

Dependent Variable	ROE			ROA			Expected Relation
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.047*** (0.014)	-0.048*** (0.014)	-0.047*** (0.014)	-0.012*** (0.003)	-0.012*** (0.003)	-0.012*** (0.003)	+
TANG	0.034 (0.060)	0.028 (0.058)	0.040 (0.061)	-0.045*** (0.011)	-0.044*** (0.011)	-0.044*** (0.011)	-
LIQ	-0.014*** (0.003)	-0.013*** (0.003)	-0.013*** (0.003)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	+
ICR	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-
AC	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-
FDI	0.206 (0.233)	0.178 (0.232)	0.197 (0.230)	0.070** (0.031)	0.070* (0.033)	0.070** (0.032)	+
HHI_1	-0.108*** (0.028)			-0.014*** (0.003)			-
HHI_2		-0.109*** (0.025)			-0.003 (0.005)		-
HHI_3			-0.093*** (0.024)			-0.007 (0.006)	-
Crisis	0.018* (0.010)	0.018* (0.010)	0.018* (0.010)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	
_cons	0.635*** (0.110)	0.672*** (0.121)	0.644*** (0.111)	0.176*** (0.044)	0.170*** (0.046)	0.173*** (0.047)	
Modified Wald Test	9.8e+37 (0.0000)	1.1e+38 (0.0000)	1.1e+41 (0.0000)	2.5e+36 (0.000)	3.4e+36 (0.000)	2.3e+36 (0.000)	
Modified Bhargava et al. Durbin-Watson	1.5896	1.5890	1.5893	1.5223	1.5227	1.5224	

Baltagi-Wu LBI	2.0087	2.0082	2.0085	1.8888	1.8897	1.8893	
CD Pesaran (2015, 2021)	52.050 (0.000)	50.500 (0.000)	51.160 (0.000)	12.910 (0.000)	12.890 (0.000)	12.870 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	10.480 (0.000)	13.850 (0.000)	15.100 (0.000)	11.060 (0.000)	9.840 (0.000)	9.460 (0.000)	
Hausman Test	0.001	0.001	0.001	0.004	0.007	0.005	
Max. Lag	2						
WithinR square	0.0194	0.0197	0.0195	0.0279	0.0272	0.0275	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 9844 observations across 1090 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of developing countries six models, where dependent variable is performance, are estimated by employing Driscoll-Kraay estimator and the empirical results are reported in Table 57. According to the F statistics of the six models, all models are statistically significant at 1% level. According to Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models where the dependent variable is performance. According to results of Modified-Wald and CD Pesaran tests presented in Table 57, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. Baltagi-Wu LBI tests results are slightly higher than 2 in Models 1a, 1b, and 1c, while less than 2 in Models 2a, 2b, and 2c.

According to the empirical findings exhibited in Table 57, HHI has a statistically insignificant negative relation with ROE in Model 1a and 1c, and a statistically insignificant positive one in Model 1b. Two of the firm specific factors (ICR and LEV) have statistically significant positive relation with ROE in Model 1a, 1b and 1c. While the relation of ICR with performance is in line with the expected relation, that of LEV is in the opposite direction. However, SIZE and crisis dummy

have a statistically insignificant negative effect and TANG, LIQ, and AC have a statistically insignificant positive effect on ROE in Model 1a, 1b and 1c. FDI is negatively related to ROE in Model 1a and 1c, and positively related in Model 1b.

HHI has a statistically insignificant positive relation with ROA in Models 2a, 2b, and 2c. Three of the firm specific factors (TANG, ICR, and LEV) have statistically significant relation with ROA in Models 2a, 2b and 2c. In line with the expected relations, TANG is negatively related and ICR is positively related to ROA. However, the positive effect of LEV on ROA is contradictory to the expected relation. SIZE, LIQ, AC, and FDI have positive signs in Models 2a, 2b and 2c, however the effects on ROA are statistically insignificant. Moreover, crisis dummy has a negative but statistically insignificant effect on ROA in Models 2a, 2b and 2c.

Table 57: Driscoll-Kraay Estimator Results: Developing Countries (Performance)

Dependent Variable	ROE			ROA			Expected Relation
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.073 (0.063)	-0.072 (0.062)	-0.075 (0.063)	0.000 (0.004)	0.000 (0.004)	0.000 (0.004)	+
TANG	0.005 (0.103)	0.007 (0.104)	0.003 (0.103)	-0.053** (0.021)	-0.051** (0.020)	-0.053** (0.021)	-
LIQ	0.006 (0.007)	0.005 (0.007)	0.006 (0.007)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	+
ICR	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.020*** (0.004)	0.020*** (0.004)	0.020*** (0.004)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	-
AC	0.000 (0.004)	0.000 (0.004)	0.000 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-
FDI	-0.018 (0.800)	0.000 (0.787)	-0.068 (0.790)	0.137 (0.135)	0.142 (0.135)	0.144 (0.137)	+

HHI_1	-0.006 (0.033)			0.002 (0.010)			-
HHI_2		0.017 (0.030)			0.012 (0.011)		-
HHI_3			-0.035 (0.030)			0.006 (0.008)	-
Crisis	-0.009 (0.022)	-0.008 (0.022)	-0.008 (0.022)	-0.006 (0.008)	-0.006 (0.008)	-0.006 (0.008)	
_cons	1.058 (1.102)	1.027 (1.082)	1.122 (1.095)	0.026 (0.059)	0.011 (0.061)	0.017 (0.061)	
Modified Wald Test	4.6e+35 (0.0000)	4.3e+35 (0.0000)	4.0e+35 (0.0000)	3.4e+35 (0.000)	1.7e+34 (0.000)	1.6e+34 (0.000)	
Modified Bhargava et al. Durbin- Watson	1.5510	1.5512	1.5508	1.4676	1.469595	1.4687	
Baltagi-Wu LBI	2.0927	2.0928	2.0927	1.8988	1.8998	1.8995	
CD Pesaran (2015, 2021)	15.810 (0.000)	15.920 (0.000)	15.540 (0.000)	12.530 (0.000)	12.240 (0.000)	12.590 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	10.110 (0.000)	5.870 (0.000)	10.570 (0.000)	5.670 (0.000)	5.960 (0.000)	6.070 (0.000)	
Hausman Test	0.000	0.000	0.000	0.002	0.003	0.001	
Max. Lag	2						
WithinR square	0.2173	0.2173	0.2175	0.0312	0.0322	0.0315	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 2637 observations across 327 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

Empirical results based on Driscoll-Kraay estimator for the Brazilian subsample models, where dependent variable is performance, are reported in Table 58. According to the F statistics of the six models, all models are statistically significant at 1% level. According to Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models where the dependent variable is performance. According to results of Modified-Wald and CD Pesaran tests presented in Table 58, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. Baltagi-Wu LBI tests results are slightly higher than 2 in Models 1a, 1b, and 1c, while less than 2 in Models 2a, 2b, and 2c.

Table 21 demonstrates that HHI has a statistically insignificant positive relation with ROE in Model 1a and 1b, and a statistically insignificant negative one in Model 1c. Three of the firm specific factors (ICR, LEV, and AC) have statistically significant positive relation with ROE in Model 1a, 1b and 1c. Only the positive sign of ICR is in line with the expectation; the positive signs of LEV and AC are contrary to the expectation of a negative relation. SIZE, LIQ, and crisis dummy have a statistically insignificant negative effect and TANG has a statistically insignificant positive effect on ROE in Model 1a, 1b and 1c. FDI is positively related to ROE in Models 1a and 1b, and negatively related in Model 1c; however, the relations are statistically insignificant.

Complying with the expected relation, HHI has a statistically significant negative relation with ROA in Model 2a, supporting the efficient monitoring hypothesis. However, the positive effect of HHI on ROA in Model 2b, and the negative one in Model 2c are statistically insignificant. ICR and FDI are statistically significantly positively related to ROA in Models 2a, 2b and 2c, as expected. On the contrary to the expected relation, AC is positively related to ROA. Crisis dummy has a negative effect on ROA in all models. While SIZE, LIQ, and LEV are positively but statistically insignificantly related to ROA, TANG has a statistically insignificant negative relation with ROA in all models.

Table 58: Driscoll-Kraay Estimator Results: Brazil (Performance)

Dependent Variable	ROE			ROA			
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	Expected Relation
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.055 (0.097)	-0.049 (0.094)	-0.060 (0.095)	0.008 (0.007)	0.009 (0.007)	0.009 (0.007)	+
TANG	0.260 (0.331)	0.281 (0.337)	0.248 (0.339)	-0.009 (0.034)	-0.006 (0.034)	-0.007 (0.034)	-
LIQ	-0.017 (0.010)	-0.018 (0.011)	-0.016 (0.009)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	+
ICR	0.005** (0.002)	0.005** (0.002)	0.005** (0.002)	0.002*** (0.001)	0.002*** (0.001)	0.002*** (0.001)	+
LEV	0.050*** (0.007)	0.050*** (0.007)	0.050*** (0.007)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-
AC	0.200* (0.090)	0.201** (0.088)	0.200* (0.091)	0.011* (0.005)	0.011* (0.005)	0.011* (0.005)	-
FDI	0.221 (0.971)	0.326 (0.961)	-0.008 (0.981)	0.216* (0.118)	0.252* (0.120)	0.221* (0.117)	+
HHI_1	0.064 (0.083)			-0.022* (0.010)			-
HHI_2		0.170 (0.112)			0.000 (0.009)		-
HHI_3			-0.036 (0.061)			-0.008 (0.005)	-
Crisis	-0.027 (0.032)	-0.027 (0.032)	-0.026 (0.031)	-0.007* (0.004)	-0.007* (0.004)	-0.007* (0.004)	
_cons	0.530 (1.790)	0.345 (1.728)	0.785 (1.765)	-0.181 (0.146)	-0.223 (0.144)	-0.191 (0.139)	
Modified Wald Test	3.3e+35 (0.0000)	2.9e+35 (0.0000)	4.0e+35 (0.0000)	7.1e+35 (0.000)	2.9e+34 (0.000)	7.8e+34 (0.000)	
Modified Bhargava et	1.5239	1.5207	1.5256	1.3971	1.3930	1.3937	

al. Durbin- Watson							
Baltagi-Wu LBI	2.0806	2.0770	2.0823	1.9048	1.9017	1.9030	
CD Pesaran (2015, 2021)	5.360 (0.000)	4.420 (0.000)	6.610 (0.000)	5.860 (0.000)	5.780 (0.000)	5.680 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	3.720 (0.000)	3.080 (0.000)	3.490 (0.000)	1.380 (0.000)	3.430 (0.000)	3.140 (0.000)	
Hausman Test	0.000	0.000	0.000	0.028	0.022	0.026	
Max. Lag	2						
WithinR square	0.4477	0.4490	0.4477	0.1032	0.1008	0.1014	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 885 observations across 111 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

Empirical results based on Driscoll-Kraay estimator for the French subsample models, where dependent variable is performance, are reported in Table 59. According to Hausman test results, models 1a, 1b, and 1c are estimated by random effect estimator and models 2a, 2b, and 2c are estimated by the Fixed-Effects estimator. According to the χ^2 test values and F statistics of the six models, all models are statistically significant at 1% level. According to results of Breusch and Pagan Lagrangian multiplier test for random effects, Modified-Wald and CD Pesaran tests presented in Table 59, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. However, Baltagi-Wu LBI tests results are slightly higher than 2 in all six Models.

As presented in Table 14, HHI has a statistically significant negative relation with ROE in Model 1c, supporting efficient monitoring hypothesis as expected, and a statistically insignificant negative one in Model 1a and 1b. Two of the firm specific factors (SIZE and LIQ), contrary to expectations, have statistically significant negative relations with ROE in Models 1a, 1b, and 1c. Another two firm-specific factors, ICR, in line with the expectation, and LEV, contrary to the expected sign, are statistically significantly positively related to ROE. TANG and AC have a statistically insignificant negative effect and crisis dummy and FDI have a statistically insignificant positive effect on ROE in all models.

HHI has a negative effect on ROA in Model 2a, and positive effects in Models 2b and 2c; however, the effects are statistically insignificant. SIZE and AC have statistically significant negative relations, and ICR and LEV have statistically significant positive relations with ROA in Model 2a, 2b and 2c. However, the presented signs of SIZE and LEV are contrary to the expected signs, while the ones of ICR and AC are consistent with expected relation. Although TANG, FDI and crisis dummy have positive signs, and LIQ have a negative sign, their effect on ROA is statistically insignificant.

Table 59: Driscoll-Kraay Estimator Results: France (Performance)

Dependent Variable	ROE			ROA			
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	Expected Relation
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.048*** (0.010)	-0.048*** (0.010)	-0.048*** (0.010)	-0.015** (0.006)	-0.014** (0.006)	-0.014** (0.006)	+
TANG	-0.142 (0.148)	-0.152 (0.149)	-0.147 (0.151)	0.022 (0.067)	0.026 (0.067)	0.027 (0.066)	-
LIQ	-0.017*** (0.004)	-0.018*** (0.004)	-0.018*** (0.004)	-0.003 (0.002)	-0.004 (0.002)	-0.004 (0.002)	+
ICR	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)	0.000* (0.000)	0.000* (0.000)	0.000* (0.000)	-
AC	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-
FDI	0.734 (0.768)	0.701 (0.771)	0.690 (0.771)	0.155 (0.094)	0.153 (0.095)	0.155 (0.096)	+
HHI_1	-0.125 (0.071)			-0.004 (0.013)			-
HHI_2		-0.121 (0.069)			0.011 (0.013)		-
HHI_3			-0.096* (0.053)			0.013 (0.012)	-
Crisis	0.055 (0.034)	0.054 (0.034)	0.054 (0.034)	0.005 (0.004)	0.005 (0.004)	0.005 (0.004)	
_cons	0.318 (0.578)	0.351 (0.588)	0.345 (0.583)	0.133 (0.080)	0.122 (0.082)	0.119 (0.081)	
Modified Wald Test				2.1e+32 (0.000)	1.2e+33 (0.000)	2.2e+32 (0.000)	
Breusch and Pagan	53.36 (0.0000)	55.31 (0.0000)	54.72 (0.0000)				

Lagrangian multiplier test							
Modified Bhargava et al. Durbin-Watson	1.7253	1.7247	1.7254	1.5550	1.5579	1.5588	
Baltagi-Wu LBI	2.0170	2.0162	2.0171	1.9988	2.0019	2.0027	
CD Pesaran (2015, 2021)	23.980 (0.000)	23.510 (0.000)	24.230 (0.000)	4.250 (0.000)	4.310 (0.000)	4.270 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	3.660 (0.000)	2.710 (0.007)	2.020 (0.044)	-0.340 (0.732)	1.790 (0.073)	1.370 (0.171)	
Hausman Test	0.367	0.457	0.363	0.0148	0.0119	0.0097	
Max. Lag	2						
WithinR square	0.0418	0.0417	0.0412	0.0296	0.0301	0.0304	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 1990 observations across 198 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

Empirical results based on Driscoll-Kraay estimator for the German subsample models, where dependent variable is performance, are reported in Table 60. According to Hausman test results, models 1a and 1b are estimated by fixed effects estimator and models 1c, 2a, 2b, and 2c are estimated by the random effects estimator. According to the F statistics and χ^2 test values of the six models, all models are statistically significant at 1% level. According to results of Modified-Wald, Breusch and Pagan Lagrangian multiplier test for random effects and CD Pesaran tests presented in Table 60, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying

autocorrelation existence. Baltagi-Wu LBI tests results are slightly higher than 2 in Models 1a, 1b, and 1c, while less than 2 in Models 2a, 2b, and 2c.

As shown in Table 60, HHI has a statistically insignificant negative relation with ROE in Model 1a, 1b, and 1c. Five of the firm specific factors (SIZE, LIQ, TANG, ICR, and LEV) have statistically significant relation with ROE in Model 1a, 1b and 1c.

In contrast with the expected relation, SIZE and LIQ have a negative impact on ROE, while the negative impact of TANG is consistent with its expected sign. ICR, as expected, is positively related to ROE, but LEV exhibits a positive relation contrary to the expectation. Crisis dummy has a positive sign in all three models, but the effects are statistically significant in Models 1a and 1c. The positive coefficients of AC and FDI are statistically insignificant.

As shown in Table 60, HHI has a statistically insignificant positive relation with ROA in Model 2a, 2b and 2c. Five of the firm specific factors (SIZE, TANG, ICR, LEV, and AC) and FDI have statistically significant relation with ROA in Model 2a, 2b and 2c. SIZE, contrary to the expected sign, and TANG, as expected, are negatively related to ROA. ICR, LEV, AC, and FDI are positively related to ROA, while the signs of ICR and FDI are consistent with the expectations, and AC and LEV have opposite signs to the expectations. Current ratio and crisis dummy have a statistically insignificant relation with ROA.

Table 60: Driscoll-Kraay Estimator Results: Germany (Performance)

Dependent Variable	ROE			ROA			
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	Expected Relation
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.039** (0.016)	-0.039** (0.016)	-0.035*** (0.011)	-0.010*** (0.003)	-0.010*** (0.002)	-0.010*** (0.002)	+
TANG	-0.232*** (0.054)	-0.233*** (0.053)	-0.269** (0.100)	-0.054** (0.020)	-0.053** (0.020)	-0.054** (0.021)	-
LIQ	-0.009* (0.005)	-0.009* (0.004)	-0.009* (0.004)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	+
ICR	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.060*** (0.003)	0.060*** (0.003)	0.060*** (0.004)	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)	-
AC	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)	0.000** (0.000)	0.000* (0.000)	0.000** (0.000)	-
FDI	0.230 (0.141)	0.200 (0.154)	0.253 (0.147)	0.158** (0.068)	0.166** (0.073)	0.158** (0.071)	+
HHI_1	-0.034 (0.048)			0.005 (0.014)			-
HHI_2		-0.055 (0.069)			0.012 (0.017)		-
HHI_3			-0.061 (0.067)			0.002 (0.017)	-
Crisis	0.017* (0.009)	0.016 (0.009)	0.018* (0.010)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	
_cons	0.480* (0.238)	0.512* (0.267)	0.455* (0.221)	0.100** (0.038)	0.088* (0.042)	0.101** (0.042)	
Modified Wald Test	9.0e+34 (0.0000)	8.9e+34 (0.0000)					
Breusch and Pagan			166.41 (0.0000)	692.52 (0.0000)	705.53 (0.0000)	698.69 (0.0000)	

Lagrangian multiplier test							
Modified Bhargava et al. Durbin-Watson	1.7532	1.7527	1.7515	1.3736	1.3749	1.3735	
Baltagi-Wu LBI	2.0151	2.0154	2.0147	1.7118	1.7130	1.7118	
CD Pesaran (2015, 2021)	5.560 (0.000)	5.150 (0.000)	5.860 (0.000)	7.860 (0.000)	8.180 (0.000)	7.870 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	8.160 (0.000)	10.230 (0.000)	3.320 (0.001)	5.080 (0.000)	5.230 (0.000)	4.960 (0.000)	
Hausman Test	0.0428	0.0731	0.109	0.522	0.519	0.6447	
Max. Lag	2						
WithinR square	0.4462	0.4465	0.4023	0.1482	0.1498	0.1474	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 2088 observations across 188 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

Empirical results based on Driscoll-Kraay estimator for the Italian subsample models, where dependent variable is performance, are reported in Table 61. Due to rejection of null hypothesis of Hausman test, all models are estimated by fixed-effects estimator and all models are statistically significant at 1% level based on the F statistics. According to results of, Modified-Wald and CD Pesaran tests presented in Table 61, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. Baltagi-Wu LBI tests results are less than 2 in Models 1a, 1b, and 1c, while slightly higher than 2 in Models 2a, 2b, and 2c.

Table 61 presents that, in line with the anticipated relation, HHI has a statistically significant negative relation with ROE in Model 1a, supporting the efficient monitoring hypothesis. However, it demonstrates a statistically insignificant negative relation with ROE in Models 1b and 1c. ICR and FDI, as expected; however, LEV, contrary to the expectation, demonstrate statistically significant positive relations with ROE in Models 1a, 1b, and 1c. SIZE, TANG, and LIQ have negative coefficients, while AC and Crisis dummy have positive coefficients; but their impacts on ROE is statistically insignificant.

In Model 2a, HHI shows a statistically significant negative relation with ROA supporting the efficient monitoring hypothesis, as anticipated. However, in Models 2b and 2c the negative coefficients of HHI are statistically insignificant. In the models where the dependent variable is ROA, only ICR is statistically significantly positively related to ROA, in accordance with the expected relation. Although SIZE and TANG have negative coefficients, the effects on ROA are statistically insignificant. In addition, the LIQ, LEV, AC, FDI and crisis dummy have a positive but statistically insignificant effects on ROA.

Table 61: Driscoll-Kraay Estimator Results: Italy (Performance)

Dependent Variable	ROE			ROA			
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	Expected Relation
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.032 (0.036)	-0.031 (0.036)	-0.028 (0.036)	-0.006 (0.004)	-0.005 (0.004)	-0.005 (0.004)	+
TANG	-0.147 (0.390)	-0.156 (0.388)	-0.166 (0.387)	-0.046 (0.047)	-0.051 (0.047)	-0.050 (0.047)	-
LIQ	-0.001 (0.006)	-0.001 (0.006)	-0.003 (0.006)	0.001 (0.002)	0.000 (0.001)	0.001 (0.002)	+
ICR	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.065** (0.024)	0.064** (0.024)	0.064** (0.024)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-
AC	0.070 (0.060)	0.071 (0.060)	0.071 (0.059)	0.017 (0.014)	0.017 (0.013)	0.017 (0.013)	-
FDI	1.694** (0.586)	1.739** (0.573)	1.769*** (0.570)	0.026 (0.078)	0.041 (0.079)	0.046 (0.079)	+
HHI_1	-0.192** (0.079)			-0.046*** (0.013)			-
HHI_2		-0.126 (0.072)			-0.005 (0.018)		-
HHI_3			-0.039 (0.061)			-0.019 (0.013)	-
Crisis	0.007 (0.014)	0.007 (0.013)	0.008 (0.012)	0.002 (0.004)	0.002 (0.003)	0.002 (0.003)	
_cons	-0.813 (0.563)	-0.880 (0.546)	-0.963* (0.525)	0.114 (0.086)	0.079 (0.086)	0.081 (0.085)	
Modified Wald Test	3.0e+36 (0.0000)	4.0e+36 (0.0000)	3.8e+36 (0.0000)	3.5e+34 (0.000)	1.3e+34 (0.000)	1.9e+35 (0.000)	
Modified Bhargava et	1.5347	1.5358	1.5362	1.6300	1.6304	1.6295	

al. Durbin-Watson							
Baltagi-Wu LBI	1.8955	1.8979	1.8985	2.0113	2.0139	2.0141	
CD Pesaran (2015, 2021)	15.980 (0.000)	17.520 (0.000)	17.940 (0.000)	3.170 (0.002)	3.060 (0.000)	3.270 (0.001)	
CD* Pesaran, Xie (2021) with 4 PC(s)	-0.370 (0.714)	-1.050 (0.292)	0.650 (0.516)	3.230 (0.001)	2.770 (0.006)	3.050 (0.002)	
Hausman Test	0.0014	0.0016	0.0016	0.0898	0.076	0.021	
Max. Lag	2						
WithinR square	0.3625	0.3615	0.3605	0.0954	0.0847	0.0870	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 1065 observations across 120 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

Empirical results based on Driscoll-Kraay estimator for the Mexican subsample models, where dependent variable is performance, are reported in Table 62. As the null hypothesis of Hausman Test has been rejected, all six models where the dependent variable is performance are estimated by Fixed-Effects estimator and all models are statistically significant at 1% level based on the F statistics. According to results of Modified-Wald and CD Pesaran tests presented in Table 62, the dataset exhibits heteroskedasticity and cross-section dependency. Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are higher than 2 in Models 1a, 1b, and 1c; however, less than 2 implying autocorrelation existence in Models 2a, 2b, and 2c.

As presented in Table 62, HHI has a statistically insignificant positive relation with ROE in Models 1a and 1b, and a negative relation in Model 1c. Among the firm-

specific factors, in line with the expected relation, SIZE and ICR have statistically significant positive relations with ROE. However, the statistically significant positive impact of LEV on ROE is opposite to expected relation. Moreover, crisis dummy has a negative effect on ROE in Models 1a, 1b, and 1c. The positive coefficient of TANG and the negative coefficients of LIQ, AC and FDI are statistically insignificant.

HHI has a statistically insignificant positive relation with ROA in Model 2a, 2b and 2c. Three of the firm-specific factors, SIZE, ICR, and LEV have statistically significant relations with ROA in Model 2a, 2b and 2c. In accordance with the expected relations, SIZE and ICR have a positive, and LEV has a negative impact on ROA. The crisis dummy has a statistically significant negative effect on ROA in Models 2a, 2b, and 2c. The negative coefficients of TANG, LIQ, AC and FDI are statistically insignificant.

Table 62: Driscoll-Kraay Estimator Results: Mexico (Performance)

Dependent Variable	ROE			ROA			Expected Relation
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	0.041** (0.014)	0.040** (0.013)	0.039** (0.013)	0.016* (0.008)	0.017* (0.008)	0.017* (0.008)	+
TANG	0.038 (0.303)	0.068 (0.287)	0.086 (0.316)	-0.044 (0.103)	-0.042 (0.104)	-0.047 (0.107)	-
LIQ	-0.004 (0.006)	-0.003 (0.006)	-0.001 (0.007)	-0.001 (0.004)	-0.002 (0.004)	-0.002 (0.005)	+
ICR	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.046*** (0.003)	0.046*** (0.004)	0.046*** (0.004)	-0.001* (0.001)	-0.001* (0.001)	-0.001* (0.001)	-
AC	-0.014 (0.054)	-0.018 (0.054)	-0.021 (0.055)	-0.005 (0.026)	-0.006 (0.024)	-0.005 (0.025)	-
FDI	-0.301 (0.760)	-0.345 (0.752)	-0.382 (0.754)	-0.252 (0.338)	-0.250 (0.341)	-0.245 (0.369)	+

HHI_1	0.046 (0.060)			0.009 (0.017)			-
HHI_2		0.023 (0.056)			0.013 (0.030)		-
HHI_3			-0.006 (0.073)			0.015 (0.028)	-
Crisis	-0.030** (0.011)	-0.030** (0.010)	-0.030*** (0.009)	-0.011*** (0.003)	-0.011*** (0.003)	-0.011*** (0.003)	
_cons	-0.351 (0.287)	-0.333 (0.285)	-0.298 (0.298)	-0.023 (0.196)	-0.029 (0.181)	-0.033 (0.198)	
Modified Wald Test	5.9e+31 (0.0000)	2.8e+32 (0.0000)	2.7e+32 (0.0000)	8.7e+30 (0.000)	1.4e+31 (0.000)	6.8e+30 (0.000)	
Modified Bhargava et al. Durbin-Watson	2.2581	2.2460	2.2341	1.5884	1.5932	1.6066	
Baltagi-Wu LBI	2.4333	2.4219	2.4125	1.8735	1.8733	1.8841	
CD Pesaran (2015, 2021)	1.070 (0.287)	0.970 (0.331)	0.840 (0.400)	0.610 (0.540)	0.580 (0.560)	0.620 (0.535)	
CD* Pesaran, Xie (2021) with 4 PC(s)	3.370 (0.170)	0.990 (0.321)	-0.150 (0.879)	-1.060 (0.288)	-1.130 (0.260)	-0.920 (0.356)	
Hausman Test	0.013	0.007	0.028	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.8010	0.8006	0.8004	0.0822	0.0835	0.0837	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 173 observations across 22 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

Empirical results based on Driscoll-Kraay estimator for the Russian subsample models, where dependent variable is performance, are reported in Table 63. According to Hausman test results, due to the rejection of the null hypothesis, all models are estimated by Fixed-Effects estimator and the F statistics demonstrate that all models

are statistically significant at 1% level. According to results of Modified-Wald and CD Pesaran tests presented in Table 63, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence; however, Baltagi-Wu LBI tests results are higher than 2 in all Models.

As presented in Table 63, in line with the expectation, HHI has a statistically significant negative relation with ROE in Model 1b and 1c supporting efficient monitoring hypothesis. However, HHI has a statistically insignificant negative effect on ROE in Model 1a. Contrary to the expected signs, SIZE and LIQ have statistically significant negative coefficients. While ICR, as expected, and LEV, contrary to expectation, have statistically significant positive coefficients in all models where the dependent variable is ROE. The negative coefficients of TANG and AC, and the positive coefficients of FDI are statistically insignificant.

As shown in Table 63, HHI has a statistically significant negative relation with ROA in Models 2a, 2b, and 2c, supporting the efficient monitoring hypothesis, as expected. Among the firm-specific determinants only ICR and LEV have statistically significant positive relations with ROA in Model 2a, 2b and 2c. The positive sign of ICR is consistent with the expectation; however, the one of LEV contradicts the expected relation. The positive effects of SIZE, TANG, LIQ, FDI and the negative effects of AC and crisis dummy on ROA are statistically insignificant.

Table 63: Driscoll-Kraay Estimator Results: Russia (Performance)

Dependent Variable	ROE			ROA			Expected Relation
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.240** (0.085)	-0.240** (0.083)	-0.247** (0.087)	0.004 (0.016)	0.003 (0.016)	0.003 (0.016)	+
TANG	-0.122 (0.130)	-0.113 (0.135)	-0.118 (0.129)	0.000 (0.029)	0.002 (0.030)	0.000 (0.028)	-
LIQ	-0.020** (0.008)	-0.019** (0.007)	-0.020** (0.008)	0.001 (0.002)	0.002 (0.002)	0.001 (0.002)	+
ICR	0.000** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	+
LEV	0.012*** (0.001)	0.012*** (0.001)	0.012*** (0.001)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	-
AC	-0.008 (0.041)	-0.009 (0.040)	-0.009 (0.040)	-0.002 (0.009)	-0.002 (0.009)	-0.002 (0.009)	-
FDI	0.632 (0.707)	0.653 (0.697)	0.672 (0.697)	0.296 (0.218)	0.301 (0.217)	0.305 (0.218)	+
HHI_1	-0.157 (0.097)			-0.034** (0.014)			-
HHI_2		-0.164* (0.083)			-0.039** (0.014)		-
HHI_3			-0.180** (0.064)			-0.032*** (0.008)	-
Crisis	-0.082** (0.032)	-0.083** (0.032)	-0.082** (0.032)	-0.006 (0.011)	-0.006 (0.011)	-0.006 (0.011)	
_cons	3.411* (1.622)	3.440* (1.584)	3.518* (1.628)	-0.062 (0.354)	-0.053 (0.351)	-0.048 (0.358)	
Modified Wald Test	1.4e+31 (0.0000)	1.4e+31 (0.0000)	1.3e+31 (0.0000)	9.7e+30 (0.0000)	1.8e+31 (0.0000)	2.8e+31 (0.0000)	
Modified Bhargava et al. Durbin-Watson	1.8829	1.8827	1.8825	1.7355	1.7320	1.7371	

Baltagi-Wu LBI	2.2401	2.2404	2.2383	2.2544	2.2546	2.2553	
CD Pesaran (2015, 2021)	4.090 (0.000)	4.220 (0.000)	4.270 (0.000)	6.920 (0.000)	6.850 (0.000)	7.110 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	1.230 (0.218)	0.470 (0.637)	2.120 (0.034)	-0.060 (0.950)	0.040 (0.968)	-0.430 (0.669)	
Hausman Test	0.000	0.001	0.003	0.0831	0.0801	0.098	
Max. Lag	2						
WithinR square	0.2713	0.2720	0.2730	0.0398	0.0428	0.0411	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 489 observations across 73 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

Empirical results based on Driscoll-Kraay estimator for the South Korean subsample models, where dependent variable is performance, are reported in Table 64. According to Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models where the dependent variable is performance. According to the F statistics of the six models, all models are statistically significant at 1% level. Modified-Wald and CD Pesaran tests results presented in Table 64 demonstrates that the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. Baltagi-Wu LBI tests results are slightly higher than 2 in Models 1a, 1b, and 1c, while less than 2 in Models 2a, 2b, and 2c.

Consistent with the expected relation, HHI has a statistically significant negative relation with ROE in Models 1a, 1b, and 1c, as presented in Table 64, and it can be concluded that the results support efficient monitoring hypothesis. All firm-specific factors, SIZE, TANG, LIQ, ICR, LEV, and AC, have statistically significant relation with ROE. SIZE, TANG, and LIQ are negatively related to ROE, while ICR, LEV, and AC have positive relations with ROE. Only the signs of TANG and ICR are

consistent with the expected relations, while the signs of other variables contradict the expected relation. FDI has a positive and crisis dummy has a negative but statistically insignificant effect on ROE in Model 1a, 1b and 1c.

As shown in Table 64, as anticipated, HHI has a statistically significant negative relation with ROA in Models 2a, 2b and 2c, supporting efficient monitoring hypothesis. All the firm specific factors, SIZE, TANG, LIQ, ICR, LEV and AC, have statistically significant relation with ROA in Model 2a, 2b and 2c. SIZE, TANG, and LIQ have negative effects on ROA; however, ICR, LEV and AC have positive effects. Only the impacts of TANG and ICR on ROA are consistent with the expectations, while the impacts of other variables contradict the expected relations. In addition, FDI has a statistically insignificant negative effect on ROA, while crisis dummy has a statistically insignificant positive one in Models 2a, 2b, and 2c.

Table 64: Driscoll-Kraay Estimator Results: South Korea (Performance)

Dependent Variable	ROE			ROA			Expected Relation
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.088*** (0.006)	-0.087*** (0.006)	-0.087*** (0.006)	-0.021*** (0.004)	-0.021*** (0.004)	-0.021*** (0.004)	+
TANG	-0.152** (0.059)	-0.152** (0.058)	-0.142** (0.058)	-0.074*** (0.015)	-0.074*** (0.015)	-0.073*** (0.015)	-
LIQ	-0.007** (0.002)	-0.006** (0.002)	-0.006** (0.002)	-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	+
ICR	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.082*** (0.014)	0.082*** (0.014)	0.082*** (0.014)	0.002* (0.001)	0.002* (0.001)	0.002* (0.001)	-
AC	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-
FDI	0.353 (0.291)	0.346 (0.286)	0.376 (0.280)	-0.064 (0.065)	-0.065 (0.066)	-0.060 (0.063)	+
HHI_1	-0.119*** (0.033)			-0.019** (0.007)			-

HHI_2		-0.085*** (0.023)			-0.014** (0.006)		-
HHI_3			-0.084*** (0.025)			-0.015* (0.007)	-
Crisis	-0.003 (0.008)	-0.003 (0.008)	-0.002 (0.008)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	
_cons	0.931*** (0.282)	0.919*** (0.269)	0.885** (0.274)	0.405*** (0.067)	0.403*** (0.066)	0.398*** (0.064)	
Modified Wald Test	1.9e+37 (0.0000)	1.5e+37 (0.0000)	1.7e+37 (0.0000)	1.3e+38 (0.000)	3.7e+37 (0.000)	2.4e+37 (0.000)	
Modified Bhargava et al. Durbin-Watson	1.7771	1.7757	1.7769	1.6018	1.6011	1.6018	
Baltagi-Wu LBI	2.1259	2.1248	2.1253	1.9247	1.9242	1.9246	
CD Pesaran (2015, 2021)	10.800 (0.000)	10.610 (0.000)	9.970 (0.000)	8.270 (0.000)	8.820 (0.000)	7.800 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	-0.710 (0.480)	0.690 (0.491)	2.820 (0.005)	2.230 (0.025)	2.200 (0.028)	2.530 (0.011)	
Hausman Test	0.000	0.000	0.000	0.009	0.020	0.012	
Max. Lag	2						
WithinR square	0.2793	0.2790	0.2791	0.0475	0.0472	0.0474	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 4701 observations across 584 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the Turkish subsample six models, where dependent variable is performance, are estimated by employing Driscoll-Kraay estimator and the empirical results are reported in Table 65. Based on the Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models where the dependent variable is performane. The F statistics of the six models exhibits that all models are statistically significant at 1% level. According to results of Modified-Wald

and CD Pesaran tests presented in Table 65, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson test results are less than 2 implying autocorrelation existence. Baltagi-Wu LBI tests results are slightly higher than 2 in Models 1a, 1b, and 1c, while less than 2 in Models 2a, 2b, and 2c.

Table 65 shows the empirical findings for Turkish sample. In contrast to expected relation, HHI has a statistically significant positive relations in Models 1b, and 1c supporting free-rider hypothesis. However, the positive relation is statistically insignificant in Model 1a. Four of the firm-specific factors (TANG, LIQ, ICR and LEV) have statistically significant relation with ROE in all models where the dependent variable is ROE. TANG, in line with the expected sign, and LIQ, contrary to the expected relation, have negative impacts on ROE. In line with the expected relation ICR have a positive impact on ROE, while the positive impact of LEV on ROE contradicts to the expected relation. However, SIZE, AC and FDI have a statistically insignificant negative effect, while crisis dummy has a statistically insignificant positive effect on ROE.

As presented in Table 65, not in accordance with the expectations, HHI has a statistically significant positive relation with ROE in Models 2b and 2c, supporting the free-rider hypothesis. However, the positive relation is statistically insignificant in Model 2a. Among the firm-specific factors only TANG and ICR have statistically significant relation with ROA in Model 2a, 2b and 2c. While TANG is negatively related, ICR is positively related to firm performance proxied by ROA, the direction of the relations is consistent with the expected relations. The negative coefficients of SIZE, LIQ, LEV, FDI and crisis dummy, and the positive coefficient of AC are statistically insignificant.

Table 65: Driscoll-Kraay Estimator Results: Türkiye (Performance)

Dependent Variable	ROE			ROA			Expected Relation
	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 2c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.009 (0.015)	-0.007 (0.015)	-0.006 (0.015)	-0.004 (0.009)	-0.003 (0.008)	-0.003 (0.008)	+
TANG	-0.192** (0.063)	-0.182** (0.062)	-0.182** (0.061)	-0.078*** (0.015)	-0.073*** (0.014)	-0.076*** (0.015)	-
LIQ	-0.004*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	+
ICR	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+
LEV	0.062*** (0.020)	0.063*** (0.020)	0.063*** (0.020)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.001)	-
AC	-0.001 (0.001)	-0.001 (0.001)	0.000 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-
FDI	-0.974 (0.995)	-0.972 (0.998)	-0.919 (0.968)	-0.044 (0.213)	-0.058 (0.212)	-0.044 (0.206)	+
HHI_1	0.011 (0.030)			0.016 (0.010)			-
HHI_2		0.042** (0.017)			0.026** (0.010)		-
HHI_3			0.067** (0.024)			0.024** (0.010)	-
Crisis	0.002 (0.026)	0.002 (0.025)	0.002 (0.025)	-0.004 (0.011)	-0.004 (0.011)	-0.004 (0.011)	
_cons	0.726 (0.484)	0.686 (0.481)	0.633 (0.450)	0.177 (0.137)	0.166 (0.135)	0.161 (0.132)	
Modified Wald Test	7.8e+34 (0.0000)	5.6e+34 (0.0000)	6.7e+34 (0.0000)	4.2e+33 (0.000)	2.8e+34 (0.000)	3.2e+34 (0.000)	
Modified Bhargava et al. Durbin-Watson	1.6651	1.6664	1.6684	1.4360	1.4348	1.4377	

Baltagi-Wu LBI	2.0604	2.0615	2.0622	1.7770	1.7770	1.7793	
CD Pesaran (2015, 2021)	7.000 (0.000)	6.920 (0.000)	6.980 (0.000)	8.230 (0.000)	8.050 (0.000)	8.160 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	3.580 (0.000)	4.000 (0.000)	2.540 (0.011)	0.720 (0.472)	0.360 (0.722)	1.130 (0.258)	
Hausman Test	0.001	0.001	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.2581	0.2590	0.2604	0.0491	0.0524	0.0520	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 1090 observations across 121 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

As shown in Table 66, the empirical findings, where the dependent variable is firm performance, present that HHI is negatively related to ROE and ROA for the whole sample, consistent with the expected relations. The subsamples consisting of developed countries, Italian, South Korean, and Russian firms yield a statistically significant negative relation between HHI and firm performance. On the other side, the relations between HHI and firm performance are mixed for the subsamples of developing countries, Brazilian, French, and German demonstrating both positive and negative relations. However, there is a statistically significant negative relation between HHI_1 and ROA for the Brazilian subsample and between HHI_3 and ROE for the French subsample. The subsamples of developing countries and Germany do not yield statistically significant relations between HHI measures and firm performance proxies. Furthermore, positive relations have been presented for the Mexican and Turkish subsamples, however, the relation is statistically insignificant for the Mexican subsample.

Table 66: Summary of Findings Dependent Variable: Performance

	ROE			ROA		
	HHI_1	HHI_2	HHI_3	HHI_1	HHI_2	HHI_3
Whole Sample	_***	_**	_***	_*	-	-
Developed	_***	_***	_***	_***	-	-
Developing	-	+	-	+	+	+
Brazil	+	+	-	_**	+	-
France	-	-	_*	-	+	+
Germany	-	-	-	+	+	+
Italy	_**	-	-	_***	-	-
Mexico	+	+	-	+	+	+
Russia	-	_*	_**	_**	_**	_***
South Korea	- ***	_-***	_-**	_-**	_-**	_-*
Türkiye	+	+**	+**	+	+**	+**

Note: *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively.

Source: Created by Author

4.2. EMPIRICAL FINDINGS: FIRM VALUE

For the sample consisting of all eight countries, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 67. Rejection of the null hypothesis of Hausman Test is concluded that the Fixed-Effects model is fit for all six models where the dependent variable is value and the F statistics of the six models exhibits that all models are statistically significant at 1% level. According to results of Modified-Wald and CD Pesaran tests presented in Table 67, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Table 67 shows the empirical findings for the whole sample where the dependent variable is firm value. Contrary to expected relation, HHI has a statistically significant positive relation with Tobin's Q in Model 3a, 3b and 3c supporting the free-rider hypothesis. SIZE has a statistically significant negative coefficient in Model 1a and statistically insignificant negative coefficients in Models 1b and 1c, in line with the negative relation expectation. Consistent with the expected relations, TANG has statistically significant negative and ICR has statistically significant positive relation

with Tobin's Q in Models 3a and 3c. The negative coefficient of TANG and the positive coefficient of ICR in Model 3b are statistically insignificant. Moreover, LIQ, LEV and FDI have positive; however, AC and Crisis dummy have negative effects on Tobin's Q in Models 3a, 3b and 3c, but the effects are statistically insignificant.

As shown in Table 67, contradicting the expected relation, HHI has a statistically significant positive relation with LnMCap in Models 4a, 4b, and 4c, supporting the free-rider hypothesis. All the firm specific factors, and crisis dummy have statistically significant relation with LnMCap in Models 4a, 4b and 4c. Aligning with the positive relation expectations, SIZE, LIQ, ICR and LEV are positively related to LnMCap. Similarly, TANG follows the expected relation and is found to be negatively related to firm value proxied by LnMCap. However, the positive coefficient of AC contradicts to negative relation expectation. Crisis dummy is negatively related to firm value proxied by LnMCap, while FDI have a statistically insignificant positive effect on LnMCap in Models 4a, 4b and 4c.

Table 67: Driscoll-Kraay Estimator Results: Whole Sample (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.065* (0.036)	-0.053 (0.035)	-0.060 (0.035)	0.446*** (0.028)	0.449*** (0.028)	0.447*** (0.028)	+/-
TANG	-0.261** (0.091)	-0.183 (0.107)	-0.276** (0.092)	-0.369*** (0.077)	-0.346*** (0.075)	-0.372*** (0.075)	-
LIQ	0.003 (0.007)	0.000 (0.008)	0.003 (0.007)	0.036*** (0.004)	0.035*** (0.004)	0.036*** (0.004)	+
ICR	0.000** (0.000)	0.000 (0.000)	0.000* (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	+
LEV	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+/-
AC	-0.005 (0.004)	-0.005 (0.004)	-0.005 (0.004)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	-
FDI	1.172 (1.896)	1.287 (1.906)	1.256 (1.921)	0.451 (1.626)	0.490 (1.633)	0.473 (1.633)	+
HHI_1	0.492** (0.217)			0.107** (0.039)			-

HHI_2		0.736** (0.255)			0.199*** (0.041)		-
HHI_3			0.506** (0.208)			0.118*** (0.022)	-
CrisisDummy	-0.048 (0.045)	-0.046 (0.044)	-0.052 (0.044)	-0.119** (0.051)	-0.118** (0.051)	-0.120** (0.051)	
_cons	0.781 (1.306)	0.415 (1.371)	0.619 (1.363)	-0.530 (1.064)	-0.650 (1.086)	-0.574 (1.082)	
Modified Wald Test	1.7e+37 (0.0000)	1.2e+37 (0.0000)	2.1e+37 (0.0000)	2.5e+32 (0.000)	3.4e+32 (0.000)	3.2e+32 (0.000)	
Modified Bhargava et al. Durbin- Watson	1.1619	1.1677	1.1634	0.7759	0.7770	0.7764	
Baltagi-Wu LBI	1.4560	1.4621	1.4576	1.1885	1.1196	1.1192	
CD Pesaran (2015, 2021)	48.060 (0.000)	45.690 (0.000)	49.180 (0.000)	129.200 (0.000)	129.240 (0.000)	129.320 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	50.410 (0.000)	60.160 (0.000)	48.100 (0.000)	89.520 (0.000)	37.410 (0.000)	84.680 (0.000)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0067	0.0120	0.0081	0.1321	0.1339	0.1324	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 11737 observations across 1321 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of developed countries, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 68. Based on the Hausman test results, the null hypothesis has been rejected and the Fixed-Effects model is fit for all six models. In addition, the F statistics demonstrate that these six models are statistically significant at 1% level. According to results of Modified-Wald and CD Pesaran tests presented in Table 68, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

According to the findings presented in Table 68, on the contrary to negative relation expectation, HHI has a statistically significant positive relation with Tobin's Q in Models 3b and 3c, supporting the free-rider hypothesis. However, HHI has a statistically insignificant positive relation in Model 3a. As expected, ICR is positively related to Tobin's Q, and, contrary to the expected relation, FDI has a statistically significant negative impact in all models. However, SIZE, LIQ, and LEV have positive; TANG, AC and Crisis dummy have negative statistically insignificant effects on Tobin's Q.

As shown in Table 68, contradicting the expected relation, HHI has a statistically significant positive relation with LnMCap in all models, supporting the free-rider hypothesis. All the firm specific factors and crisis dummy have statistically significant relation with LnMCap in Models 4a, 4b and 4c. Following the positive relation expectation, SIZE, LIQ, ICR, and LEV are positively related to LnMCap, while the positive coefficient of AC contradicts the expected relation. Besides, TANG is negatively related to the firm value proxied by LnMCap, as expected. Crisis dummy has a statistically significant negative effect, and FDI has a statistically insignificant one on LnMCap in all models.

Table 68: Driscoll-Kraay Estimator Results: Developed Countries (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	0.014 (0.059)	0.021 (0.059)	0.016 (0.059)	0.484*** (0.056)	0.486*** (0.056)	0.483*** (0.056)	+/-
TANG	-0.140 (0.089)	-0.105 (0.096)	-0.147 (0.094)	-0.516*** (0.071)	-0.501*** (0.068)	-0.528*** (0.069)	-
LIQ	0.008 (0.005)	0.006 (0.005)	0.007 (0.005)	0.043*** (0.007)	0.042*** (0.007)	0.043*** (0.007)	+
ICR	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	+
LEV	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+/-
AC	-0.012 (0.015)	-0.012 (0.015)	-0.012 (0.015)	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	-
FDI	-1.635* (0.820)	-1.530* (0.828)	-1.609* (0.824)	-1.510 (1.179)	-1.447 (1.173)	-1.495 (1.183)	+
HHI_1	0.167 (0.144)			0.192** (0.072)			-
HHI_2		0.386** (0.141)			0.248*** (0.060)		-
HHI_3			0.225* (0.118)			0.156*** (0.039)	-
CrisisDummy	-0.051 (0.031)	-0.050 (0.031)	-0.052 (0.031)	-0.113* (0.057)	-0.112* (0.057)	-0.114* (0.057)	
_cons	1.958 (1.121)	1.701 (1.157)	1.880 (1.129)	0.615 (1.023)	0.502 (1.033)	0.609 (1.038)	
Modified Wald Test	1.5e+35 (0.0000)	1.6e+35 (0.0000)	2.1e+35 (0.0000)	2.4e+32 (0.000)	2.6e+32 (0.000)	1.8e+32 (0.000)	
Modified Bhargava et al. Durbin-Watson	0.8788	0.8812	0.8791	0.7478	0.7478	0.7471	
Baltagi-Wu LBI	1.4566	1.4617	1.4580	1.0737	1.0745	1.0742	

CD Pesaran (2015, 2021)	105.140 (0.000)	98.430 (0.000)	103.620 (0.000)	128.980 (0.000)	128.890 (0.000)	129.500 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	38.630 (0.000)	33.980 (0.000)	83.200 (0.000)	75.100 (0.000)	33.250 (0.000)	13.120 (0.000)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0176	0.0220	0.0187	0.1582	0.1602	0.1582	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 9210 observations across 1017 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of developing countries, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 69. The six models are estimated by Fixed-Effects estimator due to the rejection of the null hypothesis of Hausman tests and all are statistically significant at 1% level based on the F statistics. According to results of Modified-Wald and CD Pesaran tests presented in Table 69, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Table 69 demonstrates the empirical findings for the developing countries. Supporting the free rider hypothesis, HHI has a statistically significant positive relation with Tobin's Q in all models, in contrast to negative relation expectation. In line with the negative relation expectations, SIZE and AC have a statistically significant negative effect on Tobin's Q in Models 3a, 3b, and 3c. However, ICR demonstrates a negative relation with firm value, contradicting the expected relation. The statistically significant positive coefficient of FDI confirms the expected relation. However, the negative sign of LIQ and the positive signs of TANG, LEV, and crisis dummy are statistically insignificant.

Contradicting the expected relation, HHI has a positive relation with LnMCap, but the relation is only statistically significant in Model 4c. In conformity with the positive relation expectations, SIZE, LIQ, and FDI have statistically significant positive effects on LnMCap in Models 4a, 4b, and 4c. However, the positive coefficient of AC is not in accordance with the expected relation. Furthermore, TANG, ICR, and LEV have positive, and crisis dummy has negative but statistically insignificant impacts on LnMCap.

Table 69: Driscoll-Kraay Estimator Results: Developing Countries (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.267* (0.129)	-0.233* (0.120)	-0.239* (0.114)	0.397*** (0.087)	0.400*** (0.087)	0.401*** (0.086)	+/-
TANG	0.000 (0.245)	0.208 (0.329)	0.010 (0.233)	0.195 (0.154)	0.212 (0.161)	0.204 (0.155)	-
LIQ	-0.016 (0.018)	-0.018 (0.018)	-0.013 (0.017)	0.025*** (0.005)	0.025*** (0.005)	0.025*** (0.005)	+
ICR	-0.003** (0.001)	-0.003** (0.001)	-0.002** (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	+
LEV	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	+/-
AC	-0.003* (0.001)	-0.002* (0.001)	-0.002* (0.001)	0.002** (0.001)	0.002** (0.001)	0.002** (0.001)	-
FDI	11.053** (4.425)	10.485** (4.132)	11.361** (4.543)	6.938** (2.904)	6.928** (2.900)	7.052** (2.922)	+
HHI_1	1.393** (0.598)			0.072 (0.078)			-
HHI_2		1.594** (0.618)			0.110 (0.074)		-

HHI_3			1.283** (0.533)			0.129* (0.069)	-
CrisisDummy	0.026 (0.119)	0.026 (0.119)	0.003 (0.114)	-0.105 (0.091)	-0.105 (0.092)	-0.106 (0.091)	
_cons	-2.218 (1.794)	-2.512 (1.766)	-2.808 (1.976)	-3.861*** (0.985)	-3.913*** (0.989)	-4.010*** (1.010)	
Modified Wald Test	6.1e+39 (0.0000)	3.9e+35 (0.0000)	4.1e+35 (0.0000)	1.4e+05 (0.000)	1.2e+05 (0.000)	1.1e+05 (0.000)	
Modified Bhargava et al. Durbin- Watson	1.3132	1.3217	1.3147	0.8939	0.8953	0.8961	
Baltagi-Wu LBI	1.4725	1.4798	1.4732	1.2691	1.2699	1.2699	
CD Pesaran (2015, 2021)	21.070 (0.000)	18.880 (0.000)	17.670 (0.000)	40.080 (0.000)	40.180 (0.000)	40.100 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	20.940 (0.000)	24.140 (0.000)	32.390 (0.000)	65.180 (0.000)	61.780 (0.000)	63.760 (0.000)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0289	0.0343	0.0298	0.1291	0.1296	0.1300	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 2527 observations across 304 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of Brazilian firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 70. As the null hypothesis of the Hausman test is rejected, the Fixed-Effects model is fit for all six models and all models are statistically significant at 1% level based on the F statistics. According to results of Modified-Wald and CD Pesaran tests presented in Table 70, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Table 70 presents the empirical results for the Brazilian subsample. In line with the expected relation, HHI has a statistically significant negative relation with Tobin's Q in Models 3a supporting efficient monitoring hypothesis. However, the positive impact in Model 3b and the negative one in Model 3c are statistically insignificant. As expected, SIZE, LIQ, and FDI have a statistically significant positive impact on Tobin's Q in all models. Additionally, the statistically significant negative coefficient of LEV confirms the negative relation expectation. The positive signs of TANG, ICR, and AC and the negative sign of Crisis dummy are statistically insignificant.

As shown in Table 70, supporting efficient monitoring hypothesis, HHI has a statistically significant negative effect in Models 4a and 4b, as expected. On the other hand, a statistically insignificant negative relation between HHI and LnMCap is presented in Model 4c. SIZE, TANG, LIQ, ICR, and AC are statistically significantly positively related to LnMCap. SIZE, LIQ, and ICR follow the positive relation expectations, while the positive coefficients of TANG and AC contradict the expected relation. On the other hand, LEV and crisis dummy are negatively, FDI is positively related to LnMCap but the relations are statistically insignificant.

Table 70: Driscoll-Kraay Estimator Results: Brazil (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	0.084** (0.033)	0.092** (0.033)	0.087** (0.034)	0.691*** (0.079)	0.696*** (0.082)	0.701*** (0.082)	+/-
TANG	0.009 (0.062)	0.078 (0.057)	0.028 (0.061)	0.596** (0.243)	0.540* (0.243)	0.657** (0.246)	-
LIQ	0.018*** (0.005)	0.016*** (0.005)	0.017*** (0.005)	0.053*** (0.014)	0.054*** (0.015)	0.051*** (0.013)	+
ICR	0.005 (0.004)	0.004 (0.004)	0.004 (0.004)	0.011*** (0.002)	0.011*** (0.002)	0.010*** (0.002)	+
LEV	-0.001** (0.000)	-0.001** (0.000)	-0.001** (0.000)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	+/-
AC	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	-
FDI	2.567** (1.069)	2.946** (1.061)	2.654** (1.023)	5.633 (3.713)	5.946 (3.619)	5.957 (3.835)	+
HHL_1	-0.198** (0.074)			-0.555** (0.192)			-
HHL_2		0.060 (0.102)			-0.405** (0.179)		-
HHL_3			-0.070 (0.063)			-0.170 (0.107)	-
CrisisDummy	-0.044 (0.055)	-0.045 (0.057)	-0.044 (0.056)	-0.111 (0.161)	-0.114 (0.163)	-0.109 (0.163)	
_cons	-2.053* (0.983)	-2.508** (0.949)	-2.189** (0.959)	-7.513*** (1.748)	-7.808*** (1.653)	-7.974*** (1.830)	
Modified Wald Test	1.2e+32 (0.0000)	3.2e+32 (0.0000)	1.2e+32 (0.0000)	9993.18 (0.000)	23200.39 (0.000)	25991.60 (0.000)	
Modified Bhargava et al. Durbin-Watson	0.8557	0.8470	0.8515	0.8470	0.8403	0.8328	

Baltagi-Wu LBI	1.1422	1.1351	1.1395	1.2417	1.2354	1.2290	
CD Pesaran (2015, 2021)	9.740 (0.000)	11.020 (0.000)	10.520 (0.000)	26.240 (0.000)	26.500 (0.000)	26.360 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	3.940 (0.000)	11.330 (0.000)	3.950 (0.000)	-1.520 (0.130)	-1.000 (0.318)	-1.090 (0.275)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0452	0.0419	0.0422	0.2472	0.2438	0.2388	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 942 observations across 110 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of French firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 71. According to Hausman test results, the Fixed-Effects model is fit for all six models, due to the rejection of the null hypothesis and all models are statistically significant at 1% level based on the F statistics. According to results of Modified-Wald and CD Pesaran tests presented in Table 71, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

According to the empirical findings presented in Table 71, HHI has a negative effect in Model 3a, and the positive effects in Model 3b and 3c, but all the effects on Tobin's Q are statistically insignificant. In line with the expected relations, TANG has a negative and ICR has a positive statistically significant effect on Tobin's Q in all models. SIZE, LIQ, AC, FDI and crisis dummy have negative; LEV has positive coefficient, but the effects are statistically insignificant.

HHI has a statistically insignificant positive effect on LnMCap in Models 4a and 4b, and a statistically insignificant negative effect in Model 4c. SIZE, LIQ, ICR,

and LEV are statistically significantly positively related to LnMCap in all models aligning with the expected relations, while the positive coefficient of AC contradicts its expected relation. However, the negative coefficients of TANG and crisis dummy and the positive coefficient of FDI are statistically insignificant in Models 4a, 4b and 4c.

Table 71: Driscoll-Kraay Estimator Results: France (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.247 (0.210)	-0.244 (0.213)	-0.244 (0.213)	0.471*** (0.088)	0.471*** (0.089)	0.468*** (0.089)	+/-
TANG	-1.133** (0.498)	-1.095** (0.495)	-1.104** (0.490)	-1.060 (0.610)	-1.063 (0.625)	-1.093 (0.623)	-
LIQ	-0.027 (0.017)	-0.029 (0.017)	-0.028 (0.017)	0.048*** (0.008)	0.048*** (0.008)	0.049*** (0.008)	+
ICR	0.001** (0.000)	0.000* (0.000)	0.000* (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	+
LEV	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	+/-
AC	-0.019 (0.019)	-0.019 (0.019)	-0.019 (0.019)	0.008*** (0.002)	0.008*** (0.002)	0.008*** (0.002)	-
FDI	-0.574 (1.391)	-0.603 (1.456)	-0.596 (1.488)	2.090 (2.924)	2.112 (2.927)	2.115 (2.934)	+
HHI_1	-0.069 (0.327)			0.078 (0.073)			-
HHI_2		0.064 (0.330)			0.041 (0.072)		-
HHI_3			0.044 (0.318)			-0.047 (0.072)	-
CrisisDummy	-0.109 (0.078)	-0.110 (0.079)	-0.109 (0.079)	-0.128 (0.110)	-0.128 (0.110)	-0.128 (0.110)	
_cons	4.961 (3.761)	4.899 (3.883)	4.909 (3.901)	-1.772 (3.160)	-1.778 (3.196)	-1.715 (3.208)	
Modified Wald Test	7.4e+32 (0.0000)	1.7e+35 (0.0000)	9.6e+35 (0.0000)	1.7e+30 (0.000)	1.1e+31 (0.000)	1.6e+30 (0.000)	

Modified Bhargava et al. Durbin-Watson	0.7016	0.7007	0.7009	0.7081	0.7079	0.7100	
Baltagi-Wu LBI	1.5586	1.5590	1.5590	1.0628	1.0627	1.0645	
CD Pesaran (2015, 2021)	27.380 (0.000)	27.040 (0.000)	27.010 (0.000)	50.240 (0.000)	50.440 (0.000)	50.510 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	-0.460 (0.644)	24.890 (0.000)	23.030 (0.000)	15.490 (0.000)	15.200 (0.000)	12.110 (0.000)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0337	0.0337	0.0337	0.1879	0.1878	0.1878	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 1981 observations across 196 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of German firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 72. All six models are estimated by the Fixed-Effects estimator as a result of the rejection of the null hypothesis of Hausman Test and all models are statistically significant at 1% level according to the F statistics. The results of Modified-Wald and CD Pesaran tests exhibit that the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Table 72 demonstrates the empirical results for the German subsample. In contradiction to the expected relation, HHI has a statistically significant positive relation with Tobin's Q in Models 3a, 3b and 3c, supporting the free-rider hypothesis. Confirming the positive relation expectations, SIZE and LEV have statistically significant positive effects on Tobin's Q, while FDI, contradicting the positive relation

expectations, has a statistically significant negative effect in all models. TANG has a statistically significant negative effect, as expected, in Models 3b and 3c, but the negative coefficient in Model 3a is insignificant. The negative coefficients of LIQ, AC, and Crisis dummy and the positive coefficient of ICR are statistically insignificant.

As presented in Table 72, supporting free-rider hypothesis HHI has a statistically significant positive effect on LnMCap in Models 4a, 4b, and 4c. In line with the positive relation expectations, SIZE and LIQ are statistically significantly positively related to LnMCap. However, the positive and statistically significant coefficient of AC contradicts the negative relation expectation. Besides, contrary to the expected relation, FDI is negatively related to LnMCap in all models. Confirming the positive relation expectation, ICR has a statistically significant positive effect in Model 4a, and the positive coefficients in Models 4b and 4c are statistically insignificant. Moreover, the negative signs of TANG and crisis dummy and the positive sign of LEV are statistically insignificant.

Table 72: Driscoll-Kraay Estimator Results: Germany (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	0.363*** (0.058)	0.360*** (0.057)	0.368*** (0.057)	0.771*** (0.041)	0.768*** (0.041)	0.776*** (0.042)	+/-
TANG	-0.381 (0.222)	-0.387* (0.213)	-0.454* (0.232)	-0.027 (0.255)	-0.033 (0.255)	-0.087 (0.259)	-
LIQ	-0.006 (0.011)	-0.007 (0.011)	-0.004 (0.011)	0.032** (0.012)	0.032** (0.012)	0.034** (0.012)	+
ICR	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001* (0.000)	0.001 (0.000)	0.001 (0.000)	+
LEV	0.002** (0.001)	0.002** (0.001)	0.002** (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	+/-
AC	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	-
FDI	-3.827*** (1.150)	-3.495*** (1.133)	-3.727*** (1.168)	-5.351*** (1.484)	-5.119*** (1.456)	-5.265*** (1.498)	+
HHI_1	0.685** (0.287)			0.555*** (0.105)			-
HHI_2		0.742** (0.248)			0.547*** (0.103)		-
HHI_3			0.540** (0.247)			0.448*** (0.102)	-
CrisisDummy	-0.071 (0.071)	-0.064 (0.065)	-0.069 (0.070)	-0.101 (0.104)	-0.096 (0.100)	-0.099 (0.103)	
_cons	-0.944 (1.035)	-1.217 (1.015)	-1.086 (1.032)	-0.623 (1.209)	-0.792 (1.179)	-0.748 (1.198)	
Modified Wald Test	3.3e+31 (0.0000)	8.9e+32 (0.0000)	3.7e+31 (0.0000)	1.5e+31 (0.000)	2.4e+31 (0.000)	1.2e+31 (0.000)	
Modified Bhargava et al. Durbin-Watson	1.0554	1.0560	1.0443	0.7552	0.7528	0.7522	

Baltagi-Wu LBI	1.4364	1.4388	1.4270	1.0950	1.0971	1.0988	
CD Pesaran (2015, 2021)	38.080 (0.000)	36.500 (0.000)	17.670 (0.000)	51.910 (0.000)	51.270 (0.000)	51.890 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	11.310 (0.000)	12.540 (0.000)	32.390 (0.000)	3.900 (0.000)	17.790 (0.000)	7.490 (0.000)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.1093	0.1182	0.1079	0.2983	0.3026	0.2976	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 2006 observations across 186 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of Italian firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 73. According to the F statistics of the six models, all models are statistically significant at 1% level. According to Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models where the dependent variable is value. According to results of Modified-Wald and CD Pesaran tests presented in Table 73, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

As shown in Table 73, contradicting to the expected relation, HHI has a statistically significant positive relation with Tobin's Q, supporting the free-rider hypothesis, in Models 3b and 3c. However, the positive effect of HHI in Model 3a is statistically insignificant. In line with the expected relations, LIQ and ICR have statistically significant positive relations with Tobin's Q, and the negative relation between LEV and Tobin's Q confirms the negative relation expectation between leverage and firm value. In addition, crisis dummy has a statistically significant negative effect in Models 3a, 3b and 3c. TANG has a positive coefficient in all models,

but the effect is statistically significant in only Model 3c. SIZE, AC and FDI have positive coefficients, but the positive effects on Tobin's Q are statistically insignificant.

In contrast to negative relation expectation, HHI has a statistically significant positive effect on LnMCap in all models, supporting the free-rider hypothesis as presented in Table 73. SIZE, LIQ, ICR, and FDI are statistically significantly positively related, as expected. AC has a statistically significant positive coefficient, but it is not following the expected relation. Moreover, the statistically significant negative coefficient of LEV confirms the negative relation expectation. Crisis dummy is negatively related to LnMCap, while the negative sign of TANG is statistically insignificant in Models 4a, 4b, and 4c.

Table 73: Driscoll-Kraay Estimator Results: Italy (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	0.065 (0.054)	0.081 (0.050)	0.064 (0.049)	0.449*** (0.062)	0.453*** (0.061)	0.444*** (0.060)	+/-
TANG	0.299 (0.170)	0.242 (0.159)	0.279* (0.157)	-0.484 (0.338)	-0.491 (0.334)	-0.482 (0.322)	-
LIQ	0.052*** (0.016)	0.044** (0.015)	0.050*** (0.015)	0.083*** (0.016)	0.081*** (0.016)	0.084*** (0.016)	+
ICR	0.004*** (0.001)	0.004** (0.001)	0.004** (0.001)	0.002*** (0.000)	0.001** (0.000)	0.002** (0.001)	+
LEV	-0.006*** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.011*** (0.003)	-0.011*** (0.003)	-0.011*** (0.003)	+/-
AC	0.025 (0.017)	0.019 (0.021)	0.016 (0.018)	0.114*** (0.030)	0.109*** (0.031)	0.105*** (0.029)	-
FDI	2.084 (1.789)	2.138 (1.719)	1.979 (1.837)	7.173*** (2.187)	7.137*** (2.194)	7.021*** (2.254)	+

HHI_1	0.125 (0.164)			0.266** (0.090)			-
HHI_2		0.616*** (0.098)			0.365*** (0.082)		-
HHI_3			0.342*** (0.104)			0.325*** (0.072)	-
CrisisDummy	-0.120*** (0.037)	-0.120*** (0.039)	-0.127*** (0.038)	-0.149* (0.084)	-0.149* (0.084)	-0.156* (0.084)	
_cons	-1.767 (1.898)	-2.138 (1.778)	-1.754 (1.868)	-5.769** (2.150)	-5.818** (2.157)	-5.626** (2.191)	
Modified Wald Test	1.0e+34 (0.0000)	1.3e+34 (0.0000)	1.9e+34 (0.0000)	21503.01 (0.000)	15896.36 (0.000)	14787.83 (0.000)	
Modified Bhargava et al. Durbin- Watson	0.9596	0.9704	0.9649	0.7724	0.7768	0.7799	
Baltagi-Wu LBI	1.4208	1.4310	1.4269	1.0970	1.1041	1.1082	
CD Pesaran (2015, 2021)	14.200 (0.000)	13.070 (0.000)	14.870 (0.000)	17.550 (0.000)	17.350 (0.000)	17.320 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	4.280 (0.000)	2.630 (0.008)	9.770 (0.000)	6.640 (0.000)	2.600 (0.009)	5.650 (0.000)	
Hausman Test	0.004	0.015	0.015	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.1047	0.1270	0.1119	0.2497	0.2539	0.2531	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 1068 observations across 119 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of Mexican firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 74. Due to the rejection of Hausman test null hypothesis all models are estimated by Fixed-Effects estimator and according to the F statistics all

models are statistically significant at 1% level. The results of Modified-Wald and CD Pesaran tests shows that the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Contradicting the negative relation expectations, HHI has a statistically significant positive effect on Tobin's Q in Models 3a, supporting the free-rider hypothesis as exhibited in Table 74. But the positive coefficients of HHI in Models 3b and 3c are statistically insignificant. SIZE have statistically significant negative relations with Tobin's Q in all models confirming the negative relation expectation. While the negative relation between ICR and Tobin's Q, in all models, does not follow the expected relation. Contrary to expected relation, TANG has a statistically significant positive coefficients in Models 3b and 3c, and a statistically insignificant positive in Model 3a. In addition, LIQ, AC, and crisis dummy have negative but statistically insignificant coefficients and LEV and FDI have positive but statistically insignificant coefficients.

As shown in Table 74, HHI has a statistically insignificant positive effect on LnMCap in Models 4a and 4b and a statistically insignificant negative one in Model 4c. Contrary to expectations, TANG is statistically significantly positively related to LnMCap. However, LEV, AC, and FDI are statistically significantly negatively related to LnMCap in all models. The negative coefficients of LEV and AC confirm the negative relation expectations, but the coefficient of FDI contradicts the positive relation expectation. Additionally, LIQ has a statistically significant negative effect on LnMCap only in Model 4a. The positive signs of SIZE, ICR and crisis dummy are statistically insignificant in Models 4a, 4b, and 4c.

Table 74: Driscoll-Kraay Estimator Results: Mexico (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-1.061** (0.429)	-1.060** (0.432)	-1.063** (0.433)	0.238 (0.137)	0.239 (0.140)	0.236 (0.139)	+/-
TANG	0.947 (0.535)	1.060* (0.507)	1.125** (0.420)	2.546** (0.877)	2.633** (0.854)	2.696** (0.885)	-
LIQ	-0.038 (0.073)	-0.029 (0.073)	-0.013 (0.074)	-0.038* (0.019)	-0.029 (0.018)	-0.017 (0.027)	+
ICR	-0.003*** (0.001)	-0.002*** (0.001)	-0.003*** (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	+
LEV	0.005 (0.007)	0.007 (0.007)	0.008 (0.006)	-0.019** (0.006)	-0.018** (0.005)	-0.017*** (0.005)	+/-
AC	-1.064 (0.699)	-1.057 (0.689)	-1.078 (0.682)	-0.236* (0.104)	-0.234* (0.105)	-0.251** (0.098)	-
FDI	1.668 (1.888)	1.160 (1.761)	1.076 (1.813)	-4.399* (2.188)	-4.749* (2.334)	-4.824* (2.535)	+
HHI_1	0.425* (0.190)			0.281 (0.276)			-
HHI_2		0.310 (0.205)			0.171 (0.268)		-
HHI_3			0.080 (0.180)			-0.005 (0.234)	-
CrisisDummy	-0.037 (0.061)	-0.036 (0.057)	-0.039 (0.061)	0.031 (0.045)	0.030 (0.049)	0.028 (0.049)	
_cons	15.080** (6.130)	15.230** (6.143)	15.362** (6.136)	4.680** (1.463)	4.800*** (1.412)	4.911*** (1.303)	
Modified Wald Test	4.0e+30 (0.0000)	4.0e+30 (0.0000)	4.8e+30 (0.0000)	1.2e+27 (0.000)	1.5e+28 (0.000)	8213.13 (0.000)	
Modified Bhargava et al. Durbin-Watson	1.4406	1.4270	1.4040	1.1089	1.1071	1.1086	

Baltagi-Wu LBI	1.8279	1.8121	1.7921	1.5891	1.5852	1.5642	
CD Pesaran (2015, 2021)	1.380 (0.169)	1.160 (0.248)	1.610 (0.108)	0.220 (0.825)	0.350 (0.726)	0.710 (0.481)	
CD* Pesaran, Xie (2021) with 4 PC(s)	0.880 (0.378)	0.280 (0.779)	-0.460 (0.648)	0.870 (0.387)	0.520 (0.604)	0.530 (0.597)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.4016	0.3985	0.3932	0.3219	0.3173	0.3136	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 163 observations across 21 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of Russian firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 75. According to Hausman test results, the Random-Effects model is fit for the Models 3a, 3b, and 3c; however, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for models 4a, 4b, and 4c. Based on the χ^2 test values and F statistics, all models are statistically significant at 1% level. According to results of Modified-Wald and CD Pesaran tests presented in Table 75, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Empirical results presented in Table 75 demonstrates that HHI has a statistically insignificant positive effect on Tobin's Q in Models 3a and 3b, and statistically insignificant negative effect in Model 3c. Among the firm-specific factors, ICR, LEV, and FDI have statistically significant positive relations with Tobin's Q in all models aligned with the positive relation expectation. SIZE, TANG, LIQ, and AC have a statistically insignificant positive coefficients, Crisis has a negative one in Models 3a, 3b and 3c.

HHI has a statistically insignificant positive effect on LnMCap in Models 4a and 4b, 4c. In accordance with the expectation, SIZE, ICR, and FDI are statistically significantly positively related. However, Crisis dummy is statistically significantly negatively related to LnMCap in all models. The positive coefficients of LIQ, LEV, and AC, and the negative coefficient of TANG are statistically insignificant in Models 4a, 4b and 4c.

Table 75: Driscoll-Kraay Estimator Results: Russia (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	0.011 (0.059)	0.011 (0.059)	0.010 (0.059)	0.557*** (0.041)	0.552*** (0.043)	0.552*** (0.042)	+/-
TANG	0.181 (0.238)	0.180 (0.237)	0.183 (0.239)	-0.271 (0.457)	-0.272 (0.457)	-0.267 (0.456)	-
LIQ	0.001 (0.009)	0.001 (0.009)	0.002 (0.009)	0.012 (0.016)	0.012 (0.016)	0.012 (0.017)	+
ICR	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	+
LEV	0.000** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	+/-
AC	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.027 (0.040)	0.027 (0.041)	0.027 (0.042)	-
FDI	2.074*** (0.346)	2.061*** (0.342)	2.044*** (0.332)	5.204*** (0.937)	5.164*** (0.921)	5.141*** (0.923)	+
HHI_1	0.028 (0.092)			0.149 (0.102)			-
HHI_2		0.002 (0.084)			0.072 (0.091)		-
HHI_3			-0.034 (0.084)			0.015 (0.103)	-

CrisisDum my	-0.019 (0.016)	-0.019 (0.016)	-0.019 (0.016)	-0.136* (0.062)	-0.136* (0.062)	-0.137* (0.063)	
_cons	-0.809 (0.891)	-0.786 (0.886)	-0.747 (0.873)	-5.223*** (1.038)	-5.120*** (1.041)	-5.081*** (1.050)	
Modified Wald Test				3054.08 (0.000)	3542.86 (0.000)	4127.90 (0.000)	
Breusch and Pagan Lagrangian multiplier test	836.86 (0.000)	862.85 (0.000)	851.51 (0.000)				
Modified Bhargava et al. Durbin- Watson	0.9078	0.9082	0.9157	1.0441	1.0481	1.0449	
Baltagi-Wu LBI	1.3278	1.3284	1.3351	1.3990	1.4046	1.4060	
CD Pesaran (2015, 2021)	7.740 (0.000)	7.690 (0.000)	7.610 (0.000)	10.510 (0.000)	10.420 (0.000)	10.350 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	0.380 (0.707)	0.360 (0.721)	0.470 (0.639)	4.000 (0.000)	3.960 (0.009)	3.890 (0.000)	
Hausman Test	0.433	0.662	0.382	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0474	0.0427	0.0371	0.2670	0.2657	0.2652	
Prob > F				0.0000	0.0000	0.0000	
Prob > chi2	0.0000	0.0000	0.0000				

Note: Analysis includes 490 observations across 68 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of South Korean firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 76. According to Hausman test results, the Fixed-Effects model is fit, due to the rejection of the null hypothesis for all six models. Based on the F statistics, all models are statistically significant at 1% level. According to results of Modified-Wald and CD Pesaran tests presented in Table 76, the dataset

exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Table 76 demonstrates the empirical findings for the South Korean subsample. HHI has a negative effect in Models 3a, and the positive effects in Model 3b and 3c, but all the coefficients are statistically insignificant. Among the firm-specific factors, LIQ and ICR have statistically significant positive relations with Tobin's Q, conforming to the expected relations. LEV and AC have a statistically significant negative one in all models, in line with the negative relation expectations. SIZE, TANG, and crisis dummy have positive but statistically insignificant coefficients and FDI has a negative statistically insignificant coefficient.

As shown in Table 76, HHI has a statistically insignificant negative effect on LnMCap in Models 4a, 4b, and 4c. SIZE, LIQ, and ICR are statistically significantly positively related, in conformity with the positive relation expectation. While the positive coefficient of AC in contradiction to expected relation. Following the negative relation expectation, TANG and LEV are negatively related to LnMCap in all models. The negative effects of FDI and crisis dummy are statistically insignificant.

Table 76: Driscoll-Kraay Estimator Results: South Korea (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	0.023 (0.070)	0.033 (0.070)	0.027 (0.070)	0.356*** (0.064)	0.360*** (0.064)	0.359*** (0.064)	+/-
TANG	0.114 (0.119)	0.149 (0.122)	0.125 (0.113)	-0.568** (0.181)	-0.558** (0.183)	-0.556** (0.174)	-
LIQ	0.036* (0.019)	0.034* (0.019)	0.036* (0.019)	0.039*** (0.009)	0.039*** (0.009)	0.040*** (0.009)	+
ICR	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	+

LEV	-0.007* (0.003)	-0.007* (0.003)	-0.007* (0.003)	-0.007* (0.004)	-0.007 (0.004)	-0.007 (0.004)	+/-
AC	-0.136** (0.052)	-0.131** (0.052)	-0.133** (0.054)	0.090*** (0.022)	0.094*** (0.023)	0.094*** (0.023)	-
FDI	-0.730 (2.043)	-0.719 (2.040)	-0.733 (2.057)	-3.663 (4.246)	-3.660 (4.258)	-3.650 (4.253)	+
HHI_1	-0.077 (0.130)			-0.116 (0.098)			-
HHI_2		0.154 (0.104)			-0.020 (0.084)		-
HHI_3			0.029 (0.089)			-0.041 (0.088)	-
CrisisDummy	0.005 (0.044)	0.006 (0.043)	0.005 (0.043)	-0.032 (0.058)	-0.032 (0.058)	-0.032 (0.058)	
_cons	0.884 (1.095)	0.664 (1.088)	0.798 (1.127)	4.082 (2.998)	3.999 (3.014)	4.006 (3.034)	
Modified Wald Test	3.3e+36 (0.0000)	3.6e+36 (0.0000)	9.5e+39 (0.0000)	6.0e+31 (0.000)	3.2e+31 (0.000)	5.7e+31 (0.000)	
Modified Bhargava et al. Durbin- Watson	1.1572	1.1624	1.1592	0.9269	0.9272	0.9272	
Baltagi-Wu LBI	1.3610	1.3665	1.3630	1.2199	1.2197	1.2196	
CD Pesaran (2015, 2021)	55.760 (0.000)	55.810 (0.000)	56.550 (0.000)	72.590 (0.000)	72.920 (0.000)	72.710 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	6.400 (0.000)	15.270 (0.008)	10.060 (0.000)	35.540 (0.000)	35.530 (0.009)	35.820 (0.000)	
Hausman Test	0.000	0.000	0.000	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0217	0.0227	0.0216	0.1130	0.1123	0.1124	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 4155 observations across 516 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

For the subsample consisting of Turkish firms, six models where dependent variable is value are estimated using Driscoll-Kraay estimator and the empirical results are reported in Table 77. As the null hypothesis of Hausman test has been rejected, the Fixed-Effects estimator are employed for all six models and all models are statistically significant at 1% level based on the F statistics. According to results of Modified-Wald and CD Pesaran tests presented in Table 77, the dataset exhibits heteroskedasticity and cross-section dependency. In all six models Modified Bhargava et al. Durbin-Watson and Baltagi-Wu LBI tests results are less than 2 implying autocorrelation existence.

Table 77 presents the empirical findings for the Turkish sample. Contrary to negative relation expectation, HHI has a statistically significant positive effect on Tobin's Q in all models, supporting the free-rider hypothesis. Following the negative relation expectation, SIZE has a statistically significant negative relation with Tobin's Q in Models 3a, 3b, and 3c. However, the statistically significant negative coefficient of ICR contradicts the expected relation. As expected, FDI has a positive coefficient, but it is statistically significant only in Model 3c. In addition, LIQ has a negative coefficient in Model 3a and positive coefficients in Model 3b and 3c, but all the coefficients are statistically insignificant. TANG, LEV, and Crisis dummy have positive, AC has negative but statistically insignificant coefficients in all models.

According to the empirical findings in Table 77, contrary to the expected relation, HHI has a statistically significant positive effect on LnMCap in Models 4a, 4b, and 4c, supporting the free-rider hypothesis. As expected, SIZE, LIQ, and FDI have statistically significant positive relations with LnMCap in all models. However, AC demonstrates a statistically significant positive relation in contradiction to the expectation. TANG and LEV have statistically insignificant positive effect, while crisis dummy has a statistically insignificant negative one in Models 4a, 4b and 4c. In addition, ICR has a statistically insignificant negative effect in Model 4a and statistically insignificant positive effects in Model 4b and 4c.

Table 77: Driscoll-Kraay Estimator Results: Türkiye (Value)

Dependent Variable	Tobin's Q			LnMCap			Expected Relation
	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c	
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	
SIZE	-0.561* (0.260)	-0.436* (0.229)	-0.426* (0.212)	0.193** (0.073)	0.205** (0.069)	0.208*** (0.066)	+/-
TANG	0.301 (0.389)	0.664 (0.594)	0.287 (0.427)	0.217 (0.198)	0.243 (0.197)	0.206 (0.196)	-
LIQ	-0.005 (0.024)	0.004 (0.022)	0.007 (0.025)	0.026** (0.011)	0.028** (0.012)	0.028** (0.012)	+
ICR	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	+
LEV	0.038 (0.024)	0.040 (0.024)	0.038 (0.025)	0.001 (0.001)	0.001 (0.001)	0.001 (0.002)	+/-
AC	-0.109 (0.065)	-0.111 (0.074)	-0.109 (0.070)	0.020** (0.009)	0.020** (0.008)	0.020** (0.009)	-
FDI	32.237 (18.398)	28.508 (16.158)	30.620* (16.405)	12.256* (5.907)	11.706* (5.853)	11.967* (5.914)	+
HHI_1	3.209* (1.484)			0.437** (0.155)			-
HHI_2		3.444** (1.490)			0.378** (0.154)		-
HHI_3			3.199** (1.451)			0.376** (0.147)	-
CrisisDummy	0.323 (0.368)	0.264 (0.362)	0.263 (0.355)	-0.056 (0.138)	-0.066 (0.138)	-0.066 (0.138)	
_cons	-9.757 (9.680)	-9.630 (9.034)	-10.616 (8.992)	-4.309 (2.520)	-4.166 (2.506)	-4.320 (2.580)	
Modified Wald Test	1.5e+35 (0.0000)	1.2e+35 (0.0000)	1.8e+35 (0.0000)	970.19 (0.000)	973.33 (0.000)	991.46 (0.000)	
Modified Bhargava et al. Durbin-Watson	1.3398	1.3542	1.3431	0.9775	0.9882	0.9890	

Baltagi-Wu LBI	1.4937	1.5055	1.4947	1.2800	1.2873	1.2874	
CD Pesaran (2015, 2021)	29.180 (0.000)	26.960 (0.000)	25.670 (0.000)	51.020 (0.000)	50.970 (0.000)	50.290 (0.000)	
CD* Pesaran, Xie (2021) with 4 PC(s)	1.240 (0.215)	2.450 (0.014)	1.870 (0.062)	-1.140 (0.254)	-0.750 (0.456)	1.060 (0.289)	
Hausman Test	0.001	0.001	0.002	0.000	0.000	0.000	
Max. Lag	2						
WithinR square	0.0716	0.0776	0.0727	0.1239	0.1210	0.1209	
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: Analysis includes 932 observations across 105 groups. *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively. Numbers in parentheses are standard errors of coefficients.

Source: Created by Author

As exhibited in Table 78, the empirical findings where the dependent variable is firm value present that HHI is positively related to Tobin's Q and market capitalization for the whole sample, inconsistent with the expected relation. In addition, the subsamples of developed countries, developing countries, Germany, Italy, and Türkiye present positive relations between HHI and firm value. For the Mexican subsample, only HHI_1 has been found to be positively related to Tobin's Q. The relations between HHI and firm value are statistically insignificant for the French, Russian, and South Korean subsample, even if the coefficients of HHI measures are mostly positive. On the contrary, HHI_1 is statistically significantly negatively related to Tobin's Q and market capitalization, and HHI_2 has a statistically significant negative effect on market capitalization within the context of the Brazilian subsample.

Table 78: Summary of Findings Dependent Variable: Value

	Tobin's Q			LnMCap		
	HHI_1	HHI_2	HHI_3	HHI_1	HHI_2	HHI_3
Whole Sample	***	***	***	***	***	***
Developed	+	***	+	***	***	***
Developing	***	***	***	+	+	+
Brazil	***	+	-	***	***	-
France	-	+	+	+	+	-
Germany	***	***	***	***	***	***
Italy	+	***	***	***	***	***
Mexico	+	+	+	+	+	-
Russia	+	+	-	+	+	+
South Korea	-	+	+	-	-	-
Türkiye	+	***	***	***	***	***

Note: *, **, and *** indicates statistical significance at 10%, 5% and 1% level, respectively.

Source: Created by Author

CONCLUSION

The importance of firm performance and firm value has been emphasized by finance researchers and there are numerous studies investigating their determinants within different contexts. Besides firm size, liquidity, tangibility, solvency, agency costs, and macroeconomic factors, capital structure has been considered as one of the most essential factors affecting firm performance and value (Avcı, 2016; Da Silva and Leal, 2005; Davydov, 2016; De Massis et al., 2013; Di Miceli Da Silveira and Barros, 2007; Gleason et al., 2000; Harris and Raviv, 1990; Kijkasiwat et al., 2022; Li et al., 2019; McConnell and Servaes, 1995; Morck et al., 1988; Myers, 1984; Uyar, 2009). In this vein, capital structure decisions have drawn attention, and their effect on firm performance and value has been widely investigated (Abdullah and Tursoy, 2021; Akpınar, 2016; Chen, 2002; Gleason et al., 2000; Harris and Raviv, 1990; McConnell and Servaes, 1995; Modigliani and Miller, 1958,1963; Myers, 1984, 2001; Yılmaz, 2017; Zeitun and Tian, 2007). The effect of debt maturity on firm performance and value has also been investigated, even though there are relatively few studies on it (Akpınar, 2016; Cho, 1998; Mardones and Cuneo, 2020; Toraman et al., 2013; Zeitun and Tian, 2007). Nevertheless, these studies mostly disregard the heterogeneity in the debt structure which implies having various types of debt simultaneously. Correspondingly, there are a limited number of studies that examine how debt heterogeneity affects firm performance and value.

In this vein, this dissertation contributes to the finance literature on firm performance and firm value determinants in several ways. It investigates the debt heterogeneity and its relation with firm performance and firm value with a comprehensive sample consisting of developed and developing countries which have bank-based financial systems. The analyses include 1417 non-financial listed firms from Brazil, France, Germany, South Korea, Italy, Mexico, Russia, and Türkiye for the firm performance sample and 1321 non-financial listed firms for the firm value sample, covering the period from 2008 to 2022. To the best of our knowledge, no previous research has been conducted on this topic, investigating such a broad sample. The second contribution is analyzing the civil-law countries due to the importance of creditor monitoring as a corporate governance mechanism in civil-law countries where the main source of funding is debt financing.

The third contribution is to discuss debt heterogeneity from a corporate governance perspective by emphasizing the variety of monitoring activities carried out provided by different types of debtholders due to their unique characteristics. In this regard, the validity of two hypotheses presenting two opposing views on the effect of debt heterogeneity on financial performance and firm value has been investigated. The efficient monitoring hypothesis posits that multiple creditors improve efficiency in monitoring activities, resulting in an increase in firm performance and value. However, the free-rider hypothesis argues that the efficiency of monitoring diminishes due to the loss of motivation to monitor arising from the existence of multiple creditors.

Furthermore, contrary to previous research that only considered financial debts, this dissertation contributes to the finance literature by considering trade credit as one of the main sources of debt financing, emphasizing its importance in terms of providing funds and its different monitoring implications. Since, besides being an important financing source for firms, trade credit has a significant impact on the firm performance and firm value, and it acts as a corporate governance mechanism, decreasing information asymmetry between suppliers and firms through their close relationship.

In order to investigate the effect of debt heterogeneity on firm performance and value, panel data regression analysis was conducted by employing Driscoll-Kraay Standard Errors. According to the analysis where the dependent variable is performance and the whole sample is analyzed, three measures of debt heterogeneity are negatively and statistically significantly related to ROE, supporting the efficient monitoring hypothesis. However, the results are mixed when ROA is used as a firm performance measure. Only HHI_1 has a statistically significant negative effect on ROA. HHI_2 has a positive and HHI_3 has a negative but statistically insignificant effect. In the analysis conducted on the subsample of developed countries, three measures of HHI have a statistically significant negative impact on ROE, while HHI_1 has a positive one on ROA. These results show that the efficient monitoring hypothesis is supported for developed countries. The negative effects of HHI_2 and HHI_3 on ROA is statistically insignificant. According to the analysis conducted on developing countries, HHI_1 and HHI_3 have a negative effect on ROE, while HHI_2 has a positive one. In addition, three measures of debt heterogeneity have positive effects on

ROA. However, the relations between debt heterogeneity and firm performance measures are statistically insignificant within developing countries context. This requires further analyses to examine if other corporate governance mechanisms such as concentrated ownership structures are in place to void creditor monitoring in developing countries.

The analysis conducted separately on the countries yields mixed results. For the French subsample, a statistically significant negative relation between HHI_3 and ROE has been found, supporting efficient monitoring hypothesis. The other measures of debt heterogeneity do not yield statistically significant relations within French context. Nonetheless, within the German subsample, no statistically significant relation between debt heterogeneity and firm performance measures presented. The negative impact of HHI measures on ROE, as well as the positive impact on ROA are statistically insignificant. Based on the analysis conducted on Italy, only HHI_1 has a statistically significant negative effect on ROE and ROA supporting the efficient monitoring hypothesis. The other measures of debt heterogeneity have negative but statistically insignificant effects on ROE and ROA. For the South Korean subsample all measures of debt heterogeneity have statistically significant negative effects on ROE and ROA. These results suggest that the efficient monitoring hypothesis is valid in the South Korean context.

For the Brazilian subsample, only HHI_1 has a statistically significant negative effect on ROA supporting the efficient monitoring hypothesis. However, the effects of other measures of debt heterogeneity on ROE and ROA are statistically insignificant. Within the Mexican context, all measures of debt heterogeneity yield a statistically insignificant positive impact on ROE and ROA except for HHI_3 which has a negative one on ROE. The empirical findings of the Russian subsample support the efficient monitoring hypothesis presenting statistically significant negative relations between all HHI measures and firm performance except for HHI_1, which has a statistically insignificant negative effect on ROE. On the contrary to other countries, the empirical findings of the Turkish sample support the free-rider hypothesis presenting a positive relation between debt heterogeneity measures and firm performance. HHI_2 and HHI_3 are statistically significantly related to ROE and ROA, however, the impact of HHI_1 is statistically insignificant.

According to the analysis where the dependent variable is firm value and the whole sample is examined, all three measures of debt heterogeneity have a statistically significant positive effect on Tobin's Q and Market Capitalization. In contrast to analysis where the dependent variable is performance and supports the efficient monitoring hypothesis, the positive relation between debt heterogeneity and firm value supports the free-rider hypothesis. Similarly, the statistically significant positive relation between debt heterogeneity and firm value, for the subsample of developed countries, supports the free-rider hypothesis. Except for the HHI_1 which has a statistically insignificant positive effect on Tobin's Q, the relation between firm value and all debt heterogeneity measures are positive and statistically significant. Likewise, the developing countries subsample supports the free-rider hypothesis presenting a positive relation between all three measures of debt heterogeneity and Tobin's Q. In addition, the effect of debt heterogeneity has a positive impact on market capitalization, but only HHI_3 has a statistically significant one.

When the French subsample is examined, no statistically significant relation has been found between debt heterogeneity measures and firm value. The negative effect of HHI_1 and the positive effects of HHI_2 and HHI_3 on Tobin's Q, the positive effects of HHI_1 and HHI_2, and the negative effect of HHI_3 on market capitalization are statistically insignificant. Similarly, for the South Korean sample, there is no statistically significant relation between all three debt heterogeneity measures and firm value proxies. The negative effect of HHI_1, and the positive effects of HHI_2 and HHI_3 on Tobin's Q; and the negative effects of all debt heterogeneity measures on the market capitalization are statistically insignificant. Moreover, within the Russian sample, the analysis shows statistically insignificant relation between debt heterogeneity and firm value. The positive relation between the debt heterogeneity measures on Tobin's Q and market capitalization, as well as the negative effect of HHI_3 on Tobin's Q, are all statistically insignificant.

The analysis conducted on the German subsample put forth a statistically significant positive relation between all the measures of debt heterogeneity and firm value proxies supporting the free-rider hypothesis. In a similar manner, the Italian subsample provides supporting results for the free-rider hypothesis yielding a statistically significant positive relation between HHI measures and firm value proxies.

Only HHI_1 has a statistically insignificant impact on Tobin's Q within the Italian context. In the same way, within the Turkish subsample, all three measures of HHI are statistically significantly positively related to firm value proxies, supporting the free-rider hypothesis. Conversely, the Brazilian subsample is the only one presenting a negative relation between debt heterogeneity measures and firm value, supporting the efficient monitoring hypothesis. HHI_1 has a statistically significant negative effect on Tobin's Q and market capitalization and HHI_2 has one only on market capitalization. The other relations between debt heterogeneity and firm value are statistically insignificant within the Brazilian context.

These mixed findings highlight the variability of the effect of debt heterogeneity on firm performance and firm value within different contexts. In the case where the dependent variable is firm performance, the efficient monitoring hypothesis is valid for the whole sample, and the subsamples of the developed countries, Brazil, France, Italy, Russia, and South Korea, all of which have strongly heterogeneous debt structures. These countries can benefit from the efficient monitoring hypothesis provided by multiple creditors. However, the free-rider hypothesis is valid for the Turkish subsample, which presents a weakly heterogeneous debt structure. This can be interpreted as the fact that firms that have weakly heterogeneous debt structures cannot benefit from efficient monitoring because their debt structures are not heterogeneous enough to increase the efficiency of monitoring activities. The reasons for not being heterogeneous enough may be due to the underdeveloped debt markets, alternative monitoring activities being in place or the difficulty of accessing different types of debt.

On the other hand, it is not possible to make such an inference for the case where the dependent variable is firm value. The whole sample, and the subsamples of the developed countries, Germany, and Italy have strongly heterogeneous debt structures, while the subsamples of the developing countries, Mexico, and Türkiye have weakly heterogeneous debt structures, and all of these supports the free-rider hypothesis. However, Brazilian subsample which has a strongly heterogeneous debt structure supports the efficient monitoring hypothesis.

In conclusion, the empirical findings yield different results regarding the relation between debt heterogeneity and firm performance and firm value,

demonstrating the contradictory effects on performance and value. HHI has been found to be statistically significantly negatively related to firm performance, supporting the efficient monitoring hypothesis. Nevertheless, the relation between firm value and debt heterogeneity is in the opposite direction and supports the free-rider hypothesis.

According to empirical findings, the subsamples consisting of developed countries, Brazilian, French, Italian, Korean, and Russian firms yield a statistically significant negative relation between HHI and firm performance. The results imply that as the debt structure becomes less heterogeneous, firm performance decreases. This relation can be explained by the fact that efficient monitoring activities that yield an increase in firm performance, which would arise from having a heterogeneous debt structure and monitoring by multiple creditors, are not provided by homogeneous debt structures. On the other hand, HHI is positively related to firm performance for the Turkish subsample. In the Turkish subsample, less heterogeneous debt structures lead to higher firm performance, supporting the free-rider hypothesis, which argues that the existence of multiple creditors reduces the efficiency of monitoring activities. This may be explained by the different financing preferences of firms or the weakly heterogeneous debt structure, which may be tied to the difficulty of accessing different types of debt in Türkiye or concentrated ownership structures. However, this issue requires further analysis.

Nevertheless, the relation between firm value and debt heterogeneity is in the opposite direction and supports the free-rider hypothesis. The empirical results exhibit a positive relation between HHI and firm value. The positive relation suggests that less heterogeneous debt structures have a positive impact on firm value. In addition to subsamples consisting of developed and developing countries, for the German, Italian, Mexican, and Turkish subsamples, positive relations between HHI and firm value have been found. The findings suggest that less heterogeneous debt structures lead to higher firm value. On the contrary, HHI is negatively related to firm value, supporting the efficient monitoring hypothesis, within the context of the Brazilian subsample. The reason why the Brazilian subsample yields different results than the other subsamples may be the increased need and motivation of creditors to monitor creditors more closely due to country-specific factors such as the high inflation and volatility in the local currency. In this context, the existence of different monitoring skills of different

creditors, acting as a corporate governance mechanism, is perceived positively by the market, leading to an increase in firm value.

There may be several reasons why debt heterogeneity has different effects on firm performance and firm value. Unlike the decrease in firm performance as the debt structure becomes less heterogenous, the increase in firm value as the debt structure becomes less heterogenous can be attributed to the negative perception of the market about borrowing from multiple sources. The market may perceive that the monitoring activities conducted by multiple creditors as a result of heterogeneous debt structures is less efficient, in line with the free-rider hypothesis. If a firm has debt financing from various sources since all creditors will assume that the firm is already being monitored by another creditor, they will leave the monitoring task to each other and as a result, no one will be monitoring the firm efficiently. It may also be taken as a negative signal that the firm is borrowing from different sources because it cannot raise sufficient debt from a single source, leading to lower firm value. Another explanation can be that the agency problem between the creditors and the shareholders may impact the firm value negatively.

Within this dissertation, in addition to debt heterogeneity, the main determinants of firm performance and firm value, such as firm size, tangibility, liquidity, interest coverage ratio, leverage, agency cost, and financial development index, have been analyzed as control variables. According to the empirical results, firm size and liquidity are negatively related to ROE and ROA, contrary to positive relation expectations. The interest coverage ratio has a positive impact on both the firm performance measures for all subsamples as well as the whole sample. Opposite to the expected relation anticipated based on the previous research, leverage and agency cost demonstrate a positive relation with ROE and ROA. Besides, in line with expectations, tangibility has a negative impact, and the financial development index has a positive impact on firm performance.

Furthermore, the findings on the impact of firm size on Tobin's Q are mixed, similar to the previous research presenting both positive and negative relations. However, the relation between firm size and market capitalization supports the strand of literature that provides evidence regarding a positive relation for the whole sample and all the subsamples except Mexico. The results show controversial results regarding

the relation between tangibility and firm value (both measures). Nevertheless, for the whole sample and all the subsamples except Mexico, as most previous studies have shown liquidity has a positive impact on both firm value measures, but this effect is only statistically significant on market capitalization. The interest coverage ratio has a positive impact on market capitalization for all the subsamples except for Mexico and Türkiye, while the evidence on the relation between the interest coverage ratio and Tobin's Q is mixed. The results indicate that leverage has different impacts on different samples, in line with the previous research. The relation between agency costs and firm value also exhibits mixed results, showing both positive and negative relations. However, agency costs are positively related to market capitalization, contradicting the expected relation. The unexpected relation may suggest that higher agency costs can still be perceived positively by the market due to various factors such as strong financial performance and growth prospects, which might diminish the negative effect of agency costs.

The findings have several implications for managers, investors, and policymakers, especially in civil-law countries where the legal and governance systems provide stronger protection to creditors than common law countries. This characteristic of civil-law countries should be taken into consideration by all parties in their decision-making processes. First, managers can create well-designed debt structures considering the different effects of debt heterogeneity on firm performance and firm value in a legal environment with the strong creditor protection. Firms can benefit from debt financing as a governance tool through the various monitoring activities provided by different type of creditors. For instance, in developed civil-law countries, creating more heterogeneous debt structures helps to increase efficiency in creditor monitoring and hence, increases the firm performance. Additionally, having different types of debt in the debt structure provides financial flexibility. However, it is also crucial to consider the market perception, as heterogeneous debt structures might be perceived negatively, potentially decreasing firm value. Managers should design debt structures considering the local market conditions as well as their financial performance goals.

Second, since debt heterogeneity can affect firm performance and firm value, investors take into account a firm's debt structure in their investment decisions. A

heterogeneous debt structure may offer financial flexibility, but it may also cause an increase or a decrease in creditor monitoring efficiency. Investors should understand the different effects of debt structure on firm performance and value to develop better strategies in their portfolios accordingly. Moreover, well-designed debt structures that support effective corporate governance practices can increase investor confidence and support long-term returns.

Third, policymakers can create regulatory frameworks that facilitate creditors' access to firms' financial information to increase monitoring efficiency which may enhance firm performance and firm value for both heterogeneous and homogeneous debt structures. In civil-law countries, which already prioritize creditor protection, there is potential to further strengthen creditor protections and improve the effectiveness of creditor monitoring in order to maximize the governance benefits of debt financing. It is essential to promote awareness about the about the pros and cons of debt heterogeneity, since it can both increase and decrease of the firm performance and value within different contexts. Additionally, conflicts between creditors and shareholders can also influence firm performance and value. To help reduce these issues, policymakers may establish regulations that protect both shareholders and creditors, ensuring that the interests of all parties are balanced. This would provide greater transparency and trust, leading to a stronger market confidence and firm value. For countries where debt heterogeneity positively impacts firm performance (e.g., subsamples of developed countries, Brazil, France, Italy, Russia, South Korea), governments may focus on promoting the development of various debt instruments and easy access to them. In developing countries, such as Türkiye, where weakly heterogeneous debt structures exist, promoting financial market reforms to enhance access to diverse forms of debt can improve firm performance.

Policymakers should avoid one-size-fits-all perspective, considering the differences of debt heterogeneity effect across countries (for instance, free-rider hypothesis in Türkiye and efficient monitoring hypothesis in Brazil). When designing the policies they should take into consideration the economic, financial, and legal environments of each country. For instance, the countries which have weaker creditor monitoring may need a focus on improving alternative governance mechanisms. In such contexts where debt heterogeneity cannot enhance firm performance (such as

Türkiye), policymakers may look for alternative governance mechanisms such as improving creditor rights or implementing more strict financial reporting standards. On the other hand, countries which have relatively stronger creditor rights can benefit from regulations encouraging debt heterogeneity.

While this study shed light on the relation between debt heterogeneity and firm performance and value, it is important to acknowledge certain limitations. First, this dissertation did not include a comprehensive corporate governance index, that aggregates various corporate governance practices into a single score. Future studies should consider using corporate governance indices indicating the efficiency of corporate governance practices. Second, this dissertation only analyzes civil law countries. In order to compare the effect of different governance systems and its applications within this context, common law countries should be analyzed. Third, this dissertation only considers the financial development index as a macroeconomic variable. Investigating the different country-specific factors that can affect firm performance and value such as inflation, exchange rates, and other financial market-related indices could enhance the robustness of the analyses by providing more comprehensive results. By addressing these limitations, future research can improve the robustness and applicability of findings.

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APPENDICES

Appendix 1: Whole Sample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	7886.3539 (0.0000)	7886.3539 (0.0000)	5583.6005 (0.0000)	8190.9156 (0.0000)
ROA	8325.6022 (0.0000)	8325.6022 (0.0000)	5506.4948 (0.0000)	8320.9612 (0.0000)
SIZE	4549.6134 (0.0000)	4549.6134 (0.0000)	3520.9347 (0.0000)	5068.8370 (0.0000)
LnTA	4023.5539 (0.0000)	4023.5539 (0.0000)	2633.0205 (0.0000)	4636.2008 (0.0000)
TANG	4160.5751 (0.0000)	4160.5751 (0.0000)	3998.6145 (0.0000)	4668.0999 (0.0000)
LIQ	5914.2020 (0.0000)	5914.2020 (0.0000)	3812.5537 (0.0000)	6501.2299 (0.0000)
LR	5376.1649 (0.0000)	5376.1649 (0.0000)	3763.7469 (0.0000)	5898.2518 (0.0000)
ICR	6560.4609 (0.0000)	6560.4609 (0.0000)	5197.4816 (0.0000)	6779.1061 (0.0000)
LEV	5417.7753 (0.0000)	5417.7753 (0.0000)	3876.7055 (0.0000)	5694.0487 (0.0000)
AC1	5128.0567 (0.0000)	5128.0567 (0.0000)	5558.1882 (0.0000)	5805.5085 (0.0000)
AC2	6187.1061 (0.0000)	6187.1061 (0.0000)	3747.3527 (0.0000)	6902.5226 (0.0000)
HHI_1	6557.7612 (0.0000)	6557.7612 (0.0000)	4368.7350 (0.0000)	6816.9126 (0.0000)
HHI_2	6431.4348 (0.0000)	6431.4348 (0.0000)	4438.1741 (0.0000)	6700.3898 (0.0000)
HHI_3	6072.9042 (0.0000)	6072.9042 (0.0000)	4167.9080 (0.0000)	6577.3096 (0.0000)

Appendix 2: Developed Countries Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips- Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	6399.4457 (0.0000)	6399.4457 (0.0000)	4788.3729 (0.0000)	6560.7954 (0.0000)
ROA	6827.8257 (0.0000)	6827.8257 (0.0000)	4363.6981 (0.0000)	6686.2289 (0.0000)
SIZE	3557.6173 (0.0000)	3557.6173 (0.0000)	2712.9857 (0.0000)	3993.4716 (0.0000)
LnTA	2869.6323 (0.0000)	2869.6323 (0.0000)	1743.4936 (0.9424)	3294.2380 (0.0000)
TANG	3307.5964 (0.0000)	3307.5964 (0.0000)	3117.9740 (0.0000)	3690.5158 (0.0000)
LIQ	4580.5610 (0.0000)	4580.5610 (0.0000)	2936.4976 (0.0000)	5104.8446 (0.0000)
LR	4334.8192 (0.0000)	4334.8192 (0.0000)	2847.3012 (0.0000)	4779.2278 (0.0000)
ICR	5398.1970 (0.0000)	5398.1970 (0.0000)	3518.5776 (0.0000)	5480.2385 (0.0000)
LEV	4288.2886 (0.0000)	4288.2886 (0.0000)	3204.1876 (0.0000)	4373.6680 (0.0000)
AC1	4054.1723 (0.0000)	4054.1723 (0.0000)	4231.0446 (0.0000)	4565.6563 (0.0000)
AC2	4905.1105 (0.0000)	4905.1105 (0.0000)	2881.2158 (0.0000)	5638.9694 (0.0000)
HHI_1	5279.9539 (0.0000)	5279.9539 (0.0000)	3263.3427 (0.0000)	5357.1090 (0.0000)
HHI_2	5286.9156 (0.0000)	5286.9156 (0.0000)	3472.5898 (0.0000)	5449.4114 (0.0000)
HHI_3	4947.1555 (0.0000)	4947.1555 (0.0000)	3233.5638 (0.0000)	5318.0331 (0.0000)

Appendix 3: Developing Countries Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	1486.9082 (0.0000)	1486.9082 (0.0000)	795.2276 (0.0000)	1630.1201 (0.0000)
ROA	1497.7764 (0.0000)	1497.7764 (0.0000)	1142.7967 (0.0000)	1634.7323 (0.0000)
SIZE	991.9961 (0.0000)	991.9961 (0.0000)	807.9491 (0.0000)	1075.3654 (0.0000)
LnTA	1153.9216 (0.0000)	1153.9216 (0.0000)	889.5270 (0.0000)	1341.9628 (0.0000)
TANG	852.9787 (0.0000)	852.9787 (0.0000)	880.6405 (0.0000)	977.5841 (0.0000)
LIQ	1333.6410 (0.0000)	1333.6410 (0.0000)	876.0561 (0.0000)	1396.3853 (0.0000)
LR	1041.3458 (0.0000)	1041.3458 (0.0000)	916.4457 (0.0000)	1119.0240 (0.0000)
ICR	1162.2639 (0.0000)	1162.2639 (0.0000)	1678.9040 (0.0000)	1298.8677 (0.0000)
LEV	1129.4867 (0.0000)	1129.4867 (0.0000)	672.5179 (0.0000)	1320.3807 (0.0000)
AC1	1073.8844 (0.0000)	1073.8844 (0.0000)	1327.1436 (0.0000)	1239.8522 (0.0000)
AC2	1281.9957 (0.0000)	1281.9957 (0.0000)	866.1369 (0.0000)	1263.5532 (0.0000)
HHI_1	1277.8072 (0.0000)	1277.8072 (0.0000)	1105.3923 (0.0000)	1459.8036 (0.0000)
HHI_2	1144.5192 (0.0000)	1144.5192 (0.0000)	965.5843 (0.0000)	1250.9784 (0.0000)
HHI_3	1125.7487 (0.0000)	1125.7487 (0.0000)	934.3443 (0.0000)	1259.2765 (0.0000)

Appendix 4: Brazil Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	373.9956 (0.0000)	373.9956 (0.0000)	204.4539 0.0175	408.5087 (0.0000)
ROA	492.0862 (0.0000)	492.0862 (0.0000)	242.3760 (0.0001)	539.0536 (0.0000)
SIZE	329.2503 (0.0000)	329.2503 (0.0000)	181.1894 (0.1699)	354.5401 (0.0000)
LnTA	504.3995 (0.0000)	504.3995 (0.0000)	186.4696 (0.1104)	498.4713 (0.0000)
TANG	267.9722 (0.0000)	267.9722 (0.0000)	320.5515 (0.0000)	301.2940 (0.0000)
LIQ	354.3599 (0.0000)	354.3599 (0.0000)	216.9223 (0.0000)	366.2931 (0.0000)
LR	242.4444 (0.0018)	242.4444 (0.0018)	316.1774 (0.0000)	250.2787 (0.0006)
ICR	382.5721 (0.0000)	382.5721 (0.0000)	355.4153 (0.0000)	429.6153 (0.0000)
LEV	349.4468 (0.0000)	349.4468 (0.0000)	175.5001 (0.2555)	345.7161 (0.0000)
AC1	284.3318 (0.0000)	284.3318 (0.0000)	218.2913 (0.0029)	294.9492 (0.0000)
AC2	311.8353 (0.0000)	311.8353 (0.0000)	119.7779 (0.9962)	336.2706 (0.0000)
HHI_1	410.0968 (0.0000)	410.0968 (0.0000)	298.8756 (0.0000)	463.4426 (0.0000)
HHI_2	309.6733 (0.0000)	309.6733 (0.0000)	295.7367 (0.0000)	308.4525 (0.0000)
HHI_3	218.2378 (0.0343)	218.2378 (0.0343)	281.1625 (0.0000)	238.0569 (0.0033)

Appendix 5: France Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	1249.5565 (0.0000)	1249.5565 (0.0000)	1075.1311 (0.0000)	1330.4819 (0.0000)
ROA	1303.7560 (0.0000)	1303.7560 (0.0000)	867.6524 (0.0000)	1326.2944 (0.0000)
SIZE	386.4738 (0.0658)	386.4738 (0.0658)	501.2468 (0.0000)	464.4950 (0.0000)
LnTA	668.4834 (0.0000)	668.4834 (0.0000)	222.5307 (1.0000)	800.1706 (0.0000)
TANG	770.8179 (0.0000)	770.8179 (0.0000)	589.2404 (0.0000)	785.6702 (0.0000)
LIQ	889.2121 (0.0000)	889.2121 (0.0000)	654.2803 (0.0000)	1013.9162 (0.0000)
LR	915.7003 (0.0000)	915.7003 (0.0000)	518.3256 (0.0000)	976.2671 (0.0000)
ICR	1147.4024 (0.0000)	1147.4024 (0.0000)	843.0529 (0.0000)	1267.7799 (0.0000)
LEV	870.7233 (0.0000)	870.7233 (0.0000)	590.9296 (0.0000)	889.7252 (0.0000)
AC1	778.4724 (0.0000)	778.4724 (0.0000)	722.2719 (0.0000)	878.2928 (0.0000)
AC2	720.9062 (0.0000)	720.9062 (0.0000)	625.8694 (0.0000)	854.6677 (0.0000)
HHI_1	1205.2939 (0.0000)	1205.2939 (0.0000)	445.7942 (0.0000)	1295.2321 (0.0000)
HHI_2	1032.2424 (0.0000)	1032.2424 (0.0000)	412.5446 (0.0010)	1124.3280 (0.0000)
HHI_3	1052.9629 (0.0000)	1052.9629 (0.0000)	458.7475 (0.0000)	967.7031 (0.0000)

Appendix 6: Germany Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	1299.6184 (0.0000)	1299.6184 (0.0000)	1095.5503 (0.0000)	1224.9109 (0.0000)
ROA	1474.2972 (0.0000)	1474.2972 (0.0000)	1010.9714 (0.0000)	1307.7160 (0.0000)
SIZE	539.7794 (0.0000)	539.7794 (0.0000)	507.3287 (0.0000)	410.0178 (0.0067)
LnTA	348.6820 (0.3900)	348.6820 (0.3900)	257.6865 (0.9965)	374.6151 (0.1085)
TANG	516.3164 (0.0000)	516.3164 (0.0000)	531.3952 (0.0000)	456.6830 (0.0000)
LIQ	1037.7354 (0.0000)	1037.7354 (0.0000)	551.7648 (0.0000)	1210.8694 (0.0000)
LR	918.0295 (0.0000)	918.0295 (0.0000)	602.7700 (0.0000)	912.0135 (0.0000)
ICR	1077.0340 (0.0000)	1077.0340 (0.0000)	592.4338 (0.0000)	966.5042 (0.0000)
LEV	798.3361 (0.0000)	798.3361 (0.0000)	491.9781 (0.0000)	845.2205 (0.0000)
AC1	718.9621 (0.0000)	718.9621 (0.0000)	675.7354 (0.0000)	752.0410 (0.0000)
AC2	827.3706 (0.0000)	827.3706 (0.0000)	410.8222 (0.0006)	963.5578 (0.0000)
HHI_1	830.2973 (0.0000)	830.2973 (0.0000)	562.7890 (0.0000)	842.5397 (0.0000)
HHI_2	783.7663 (0.0000)	783.7663 (0.0000)	564.0422 (0.0000)	792.4024 (0.0000)
HHI_3	901.0646 (0.0000)	901.0646 (0.0000)	489.3319 (0.0000)	940.9681 (0.0000)

Appendix 7: Italy Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	779.8524 (0.0000)	779.8524 (0.0000)	353.3049 (0.0000)	874.1586 (0.0000)
ROA	761.4954 (0.0000)	761.4954 (0.0000)	387.1914 (0.0000)	800.8819 (0.0000)
SIZE	314.6804 (0.0000)	314.6804 (0.0000)	152.0301 (0.9676)	415.5598 (0.0000)
LnTA	313.3698 (0.0000)	313.3698 (0.0000)	96.1630 (1.0000)	356.6100 (0.0000)
TANG	243.0059 (0.1002)	243.0059 (0.1002)	165.1500 (0.8620)	312.1216 (0.0000)
LIQ	532.2641 (0.0000)	532.2641 (0.0000)	325.9302 (0.0000)	588.9255 (0.0000)
LR	515.9654 (0.0000)	515.9654 (0.0000)	221.8639 (0.0371)	578.0669 (0.0000)
ICR	529.0154 (0.0000)	529.0154 (0.0000)	380.2971 (0.0000)	590.8308 (0.0000)
LEV	488.2231 (0.0000)	488.2231 (0.0000)	167.8316 (0.8263)	515.1364 (0.0000)
AC1	365.7079 (0.0000)	365.7079 (0.0000)	515.8277 (0.0000)	427.1667 (0.0000)
AC2	440.0088 (0.0000)	440.0088 (0.0000)	305.4598 (0.0000)	587.5203 (0.0000)
HHI_1	716.7129 (0.0000)	716.7129 (0.0000)	281.9942 (0.0000)	771.6765 (0.0000)
HHI_2	661.5148 (0.0000)	661.5148 (0.0000)	375.6531 (0.0000)	576.5943 (0.0000)
HHI_3	423.5765 (0.0000)	423.5765 (0.0000)	398.9378 (0.0000)	533.8508 (0.0000)

Appendix 8: Mexico Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	58.9386 (0.0431)	58.9386 (0.0431)	52.5626 (0.0881)	57.7176 (0.0538)
ROA	78.6132 (0.0005)	78.6132 (0.0005)	235.4357 (0.0000)	80.6794 (0.0003)
SIZE	29.8824 (0.9195)	29.8824 (0.9195)	42.5597 (0.3615)	28.0317 (0.9516)
LnTA	35.0797 (0.7664)	35.0797 (0.7664)	42.1654 (0.3775)	51.9144 (0.1405)
TANG	14.3143 (1.0000)	14.3143 (1.0000)	28.4284 (0.9144)	14.1712 (1.0000)
LIQ	68.4624 (0.0061)	68.4624 (0.0061)	209.3850 (0.0000)	83.9981 (0.0001)
LR	95.5319 (0.0000)	95.5319 (0.0000)	106.0237 (0.0000)	104.7975 (0.0000)
ICR	95.8936 (0.0000)	95.8936 (0.0000)	118.6291 (0.0000)	118.6469 (0.0000)
LEV	108.9066 (0.0000)	108.9066 (0.0000)	57.6422 (0.0350)	112.9745 (0.0000)
AC1	70.9674 (0.0034)	70.9674 (0.0034)	83.0092 (0.0001)	80.5400 (0.0003)
AC2	63.5550 (0.0175)	63.5550 (0.0175)	46.8493 (0.2120)	81.1016 (0.0003)
HHI_1	57.1229 (0.0598)	57.1229 (0.0598)	52.3579 (0.0912)	64.6623 (0.0139)
HHI_2	64.2697 (0.0151)	64.2697 (0.0151)	55.4101 (0.0533)	81.0950 (0.0003)
HHI_3	91.7316 (0.0000)	91.7316 (0.0000)	21.3918 (0.9930)	77.4082 (0.0007)

Appendix 9: Russia Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	419.0389 (0.0000)	419.0389 (0.0000)	183.3351 (0.0001)	519.7502 (0.0000)
ROA	388.4536 (0.0000)	388.4536 (0.0000)	296.0414 (0.0000)	447.0963 (0.0000)
SIZE	313.8235 (0.0000)	313.8235 (0.0000)	284.1688 (0.0000)	377.8017 (0.0000)
LnTA	237.0903 (0.0000)	237.0903 (0.0000)	405.1093 (0.0000)	288.9212 (0.0000)
TANG	255.4855 (0.0000)	255.4855 (0.0000)	111.3867 (0.6536)	315.7278 (0.0000)
LIQ	389.7067 (0.0000)	389.7067 (0.0000)	98.2619 (0.9066)	397.7723 (0.0000)
LR	330.4673 (0.0000)	330.4673 (0.0000)	228.6806 (0.0000)	372.8119 (0.0000)
ICR	229.0585 (0.0000)	229.0585 (0.0000)	378.6955 (0.0000)	263.3961 (0.0000)
LEV	233.6297 (0.0000)	233.6297 (0.0000)	169.0588 (0.0014)	282.1206 (0.0000)
AC1	277.9358 (0.0000)	277.9358 (0.0000)	710.5800 (0.0000)	403.2378 (0.0000)
AC2	173.1056 (0.0024)	173.1056 (0.0024)	412.8188 (0.0000)	201.4627 (0.0000)
HHI_1	269.3445 (0.0000)	269.3445 (0.0000)	358.9925 (0.0000)	329.8435 (0.0000)
HHI_2	159.5957 (0.0172)	159.5957 (0.0172)	217.9162 (0.0000)	186.0097 (0.0000)
HHI_3	145.7256 (0.0888)	145.7256 (0.0888)	187.2291 (0.0001)	169.9582 (0.0039)

Appendix 10: South Korea Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	3070.4183 (0.0000)	3070.4183 (0.0000)	2264.3867 (0.0000)	3131.2441 (0.0000)
ROA	3288.2771 (0.0000)	3288.2771 (0.0000)	2097.8829 (0.0000)	3251.3365 (0.0000)
SIZE	2316.6836 (0.0000)	2316.6836 (0.0000)	1552.3801 (0.0000)	2703.3990 (0.0000)
LnTA	1539.0971 (0.0000)	1539.0971 (0.0000)	1167.1133 (0.0002)	1762.8423 (0.0000)
TANG	1777.4561 (0.0000)	1777.4561 (0.0000)	1832.1884 (0.0000)	2136.0409 (0.0000)
LIQ	2121.3494 (0.0000)	2121.3494 (0.0000)	1404.5223 (0.0000)	2291.1335 (0.0000)
LR	1985.1239 (0.0000)	1985.1239 (0.0000)	1504.3417 (0.0000)	2312.8803 (0.0000)
ICR	2644.7452 (0.0000)	2644.7452 (0.0000)	1702.7937 (0.0000)	2655.1235 (0.0000)
LEV	2131.0061 (0.0000)	2131.0061 (0.0000)	1953.4483 (0.0000)	2123.5859 (0.0000)
AC1	2191.0298 (0.0000)	2191.0298 (0.0000)	2317.2096 (0.0000)	2508.1558 (0.0000)
AC2	2916.8249 (0.0000)	2916.8249 (0.0000)	1539.0644 (0.0000)	3233.2236 (0.0000)
HHI_1	2527.6498 (0.0000)	2527.6498 (0.0000)	1972.7652 (0.0000)	2447.6608 (0.0000)
HHI_2	2809.3921 (0.0000)	2809.3921 (0.0000)	2120.3498 (0.0000)	2956.0867 (0.0000)
HHI_3	2569.5515 (0.0000)	2569.5515 (0.0000)	1886.5467 (0.0000)	2875.5110 (0.0000)

Appendix 11: Türkiye Subsample Unit Root Tests (Performance)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
ROE	634.9352 (0.0000)	634.9352 (0.0000)	354.8760 (0.0000)	644.1436 (0.0000)
ROA	538.6235 (0.0000)	538.6235 (0.0000)	368.9436 (0.0000)	567.9030 (0.0000)
SIZE	319.0399 (0.0000)	319.0399 (0.0000)	300.0313 (0.0000)	314.9919 (0.0000)
LnTA	377.3520 (0.0000)	377.3520 (0.0000)	255.7827 (0.0014)	502.6559 (0.0000)
TANG	315.2068 (0.0000)	315.2068 (0.0000)	420.2739 (0.0000)	346.3911 (0.0000)
LIQ	521.1120 (0.0000)	521.1120 (0.0000)	351.4869 (0.0000)	548.3219 (0.0000)
LR	372.9021 (0.0000)	372.9021 (0.0000)	265.5640 (0.0003)	391.1359 (0.0000)
ICR	454.7398 (0.0000)	454.7398 (0.0000)	826.1641 (0.0000)	487.2093 (0.0000)
LEV	437.5036 (0.0000)	437.5036 (0.0000)	270.3168 (0.0002)	579.5694 (0.0000)
AC1	440.6494 (0.0000)	440.6494 (0.0000)	315.2631 (0.0000)	461.1252 (0.0000)
AC2	733.4998 (0.0000)	733.4998 (0.0000)	286.6908 (0.0000)	644.7183 (0.0000)
HHI_1	541.2430 (0.0000)	541.2430 (0.0000)	395.1663 (0.0000)	601.8551 (0.0000)
HHI_2	610.9805 (0.0000)	610.9805 (0.0000)	396.5213 (0.0000)	675.4213 (0.0000)
HHI_3	670.0537 (0.0000)	670.0537 (0.0000)	444.5608 (0.0000)	773.8532 (0.0000)

Appendix 12: Whole Sample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	4169.9841 (0.0000)	4169.9841 (0.0000)	3930.0272 (0.0000)	4737.5415 (0.0000)
LnMCap	4281.9634 (0.0000)	4281.9634 (0.0000)	4209.6679 (0.0000)	4528.1695 (0.0000)
SIZE	4359.1600 (0.0000)	4359.1600 (0.0000)	3336.8532 (0.0000)	5161.5103 (0.0000)
LnTA	3380.0484 (0.0000)	3380.0484 (0.0000)	2539.2219 (0.0000)	3617.3642 (0.0000)
TANG	3392.7736 (0.0000)	3392.7736 (0.0000)	3806.5408 (0.0000)	4088.0356 (0.0000)
LIQ	5390.5860 (0.0000)	5390.5860 (0.0000)	3724.6595 (0.0000)	5976.4426 (0.0000)
LR	5496.9841 (0.0000)	5496.9841 (0.0000)	3710.9933 (0.0000)	5911.7365 (0.0000)
ICR	6503.4890 (0.0000)	6503.4890 (0.0000)	4526.2737 (0.0000)	6918.0299 (0.0000)
LEV	5405.3034 (0.0000)	5405.3034 (0.0000)	4184.9967 (0.0000)	5723.1359 (0.0000)
AC1	4460.8655 (0.0000)	4460.8655 (0.0000)	5030.6499 (0.0000)	5131.3370 (0.0000)
AC2	5900.7563 (0.0000)	5900.7563 (0.0000)	3524.9052 (0.0000)	6551.4107 (0.0000)
HHI_1	6129.3016 (0.0000)	6129.3016 (0.0000)	4001.0823 (0.0000)	6254.8691 (0.0000)
HHI_2	5833.7760 (0.0000)	5833.7760 (0.0000)	4582.5536 (0.0000)	6059.8801 (0.0000)
HHI_3	5750.4276 (0.0000)	5750.4276 (0.0000)	4402.2917 (0.0000)	6333.7724 (0.0000)

Appendix 13: Developed Countries Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	3183.7819 (0.0000)	3183.7819 (0.0000)	2919.3284 (0.0000)	3604.8316 (0.0000)
LnMCap	3114.1549 (0.0000)	3114.1549 (0.0000)	2993.6246 (0.0000)	3293.0510 (0.0000)
SIZE	3348.4114 (0.0000)	3348.4114 (0.0000)	2495.1841 (0.0000)	4006.1804 (0.0000)
LnTA	2491.1275 (0.0000)	2491.1275 (0.0000)	1787.5755 (0.0828)	2523.1037 (0.0000)
TANG	2598.2400 (0.0000)	2598.2400 (0.0000)	2862.0859 (0.0000)	3129.5176 (0.0000)
LIQ	4051.9666 (0.0000)	4051.9666 (0.0000)	2950.0597 (0.0000)	4591.7494 (0.0000)
LR	4303.4079 (0.0000)	4303.4079 (0.0000)	2906.8079 (0.0000)	4619.2845 (0.0000)
ICR	4969.5497 (0.0000)	4969.5497 (0.0000)	2931.3109 (0.0000)	5265.4729 (0.0000)
LEV	3942.4821 (0.0000)	3942.4821 (0.0000)	3179.6875 (0.0000)	4122.0176 (0.0000)
AC1	3439.7723 (0.0000)	3439.7723 (0.0000)	3991.7202 (0.0000)	4015.5429 (0.0000)
AC2	4642.5288 (0.0000)	4642.5288 (0.0000)	2478.6048 (0.0000)	5261.5174 (0.0000)
HHI_1	4856.4036 (0.0000)	4856.4036 (0.0000)	3010.5554 (0.0000)	4849.1861 (0.0000)
HHI_2	4691.4414 (0.0000)	4691.4414 (0.0000)	3658.9777 (0.0000)	4775.3136 (0.0000)
HHI_3	4515.3815 (0.0000)	4515.3815 (0.0000)	3316.2454 (0.0000)	4941.1798 (0.0000)

Appendix 14: Developing Countries Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	986.2021 (0.0000)	986.2021 (0.0000)	1010.6988 (0.0000)	1132.7100 (0.0000)
LnMCap	1167.8085 (0.0000)	1167.8085 (0.0000)	1216.0433 (0.0000)	1235.1185 (0.0000)
SIZE	1010.7486 (0.0000)	1010.7486 (0.0000)	841.6690 (0.0000)	1155.3299 (0.0000)
LnTA	888.9209 (0.0000)	888.9209 (0.0000)	751.6464 (0.0000)	1094.2605 (0.0000)
TANG	794.5337 (0.0000)	794.5337 (0.0000)	944.4549 (0.0000)	958.5180 (0.0000)
LIQ	1338.6194 (0.0000)	1338.6194 (0.0000)	774.5999 (0.0000)	1384.6932 (0.0000)
LR	1193.5763 (0.0000)	1193.5763 (0.0000)	804.1854 (0.0000)	1292.4520 (0.0000)
ICR	1533.9393 (0.0000)	1533.9393 (0.0000)	1594.9628 (0.0000)	1652.5570 (0.0000)
LEV	1462.8213 (0.0000)	1462.8213 (0.0000)	1005.3091 (0.0000)	1601.1183 (0.0000)
AC1	1021.0932 (0.0000)	1021.0932 (0.0000)	1038.9297 (0.0000)	1115.7941 (0.0000)
AC2	1258.2275 (0.0000)	1258.2275 (0.0000)	1046.3004 (0.0000)	1289.8933 (0.0000)
HHI_1	1272.8981 (0.0000)	1272.8981 (0.0000)	990.5269 (0.0000)	1405.6830 (0.0000)
HHI_2	1142.3345 (0.0000)	1142.3345 (0.0000)	923.5759 (0.0000)	1284.5665 (0.0000)
HHI_3	1235.0461 (0.0000)	1235.0461 (0.0000)	1086.0463 (0.0000)	1392.5925 (0.0000)

Appendix 15: Brazil Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips- Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	411.2898 (0.0000)	411.2898 (0.0000)	313.7027 (0.0000)	473.5055 (0.0000)
LnMCap	533.9269 (0.0000)	533.9269 (0.0000)	310.1160 (0.0000)	554.5024 (0.0000)
SIZE	276.6594 (0.0001)	276.6594 (0.0001)	228.7899 (0.0061)	301.4139 (0.0000)
LnTA	222.6800 (0.0639)	222.6800 (0.0639)	221.2326 (0.0153)	233.6324 (0.0216)
TANG	224.5856 (0.0536)	224.5856 (0.0536)	529.8788 (0.0000)	297.5709 (0.0000)
LIQ	303.5354 (0.0000)	303.5354 (0.0000)	295.3298 (0.0000)	310.3048 (0.0000)
LR	292.4075 (0.0000)	292.4075 (0.0000)	323.5618 (0.0000)	282.1941 (0.0000)
ICR	543.7081 (0.0000)	543.7081 (0.0000)	411.3291 (0.0000)	590.6341 (0.0000)
LEV	535.2283 (0.0000)	535.2283 (0.0000)	542.0775 (0.0000)	515.0542 (0.0000)
AC1	293.5043 (0.0000)	293.5043 (0.0000)	281.5815 (0.0000)	327.3729 (0.0000)
AC2	405.3835 (0.0000)	405.3835 (0.0000)	351.7193 (0.0000)	464.7651 (0.0000)
HHI_1	382.0970 (0.0000)	382.0970 (0.0000)	314.5507 (0.0000)	400.9265 (0.0000)
HHI_2	325.0747 (0.0000)	325.0747 (0.0000)	330.5973 (0.0000)	349.9443 (0.0000)
HHI_3	274.6976 (0.0000)	274.6976 (0.0000)	436.3074 (0.0000)	316.9768 (0.0000)

Appendix 16: France Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	586.8377 (0.0000)	586.8377 (0.0000)	595.3129 (0.0000)	675.1087 (0.0000)
LnMCap	648.4928 (0.0000)	648.4928 (0.0000)	468.2205 (0.0000)	719.4918 (0.0000)
SIZE	519.6086 (0.0000)	519.6086 (0.0000)	362.5548 (0.0797)	615.4361 (0.0000)
LnTA	393.8653 (0.0453)	393.8653 (0.0453)	199.3890 (1.0000)	434.9932 (0.0010)
TANG	651.7841 (0.0000)	651.7841 (0.0000)	519.8342 (0.0000)	806.3535 (0.0000)
LIQ	766.9581 (0.0000)	766.9581 (0.0000)	609.9138 (0.0000)	836.8552 (0.0000)
LR	904.9655 (0.0000)	904.9655 (0.0000)	655.7884 (0.0000)	992.3829 (0.0000)
ICR	1217.3819 (0.0000)	1217.3819 (0.0000)	732.8125 (0.0000)	1199.7154 (0.0000)
LEV	787.7538 (0.0000)	787.7538 (0.0000)	655.7074 (0.0000)	832.8276 (0.0000)
AC1	739.6146 (0.0000)	739.6146 (0.0000)	769.6953 (0.0000)	831.4473 (0.0000)
AC2	820.3059 (0.0000)	820.3059 (0.0000)	433.6226 (0.0000)	812.3037 (0.0000)
HHI_1	1107.9893 (0.0000)	1107.9893 (0.0000)	486.9785 (0.0000)	1194.9890 (0.0000)
HHI_2	1009.8690 (0.0000)	1009.8690 (0.0000)	624.2926 (0.0000)	1111.1686 (0.0000)
HHI_3	984.6087 (0.0000)	984.6087 (0.0000)	570.3979 (0.0000)	1050.0258 (0.0000)

Appendix 17: Germany Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	610.6457 (0.0000)	610.6457 (0.0000)	621.1265 (0.0000)	616.7015 (0.0000)
LnMCap	552.3032 (0.0000)	552.3032 (0.0000)	509.8197 (0.0000)	630.9371 (0.0000)
SIZE	435.2307 (0.0000)	435.2307 (0.0000)	559.7937 (0.0000)	516.1579 (0.0000)
LnTA	339.7883 (0.3434)	339.7883 (0.3434)	265.8148 (0.9775)	365.6911 (0.0857)
TANG	340.3210 (0.3360)	340.3210 (0.3360)	496.8199 (0.0000)	370.9929 (0.0594)
LIQ	1018.2310 (0.0000)	1018.2310 (0.0000)	579.8125 (0.0000)	1170.1638 (0.0000)
LR	1008.8944 (0.0000)	1008.8944 (0.0000)	601.7912 (0.0000)	979.7722 (0.0000)
ICR	1084.7363 (0.0000)	1084.7363 (0.0000)	508.1282 (0.0000)	1077.1090 (0.0000)
LEV	792.8591 (0.0000)	792.8591 (0.0000)	532.0810 (0.0000)	820.2262 (0.0000)
AC1	652.4239 (0.0000)	652.4239 (0.0000)	816.4834 (0.0000)	664.4602 (0.0000)
AC2	778.3294 (0.0000)	778.3294 (0.0000)	360.7636 (0.0354)	873.4468 (0.0000)
HHI_1	827.1640 (0.0000)	827.1640 (0.0000)	612.4027 (0.0000)	869.4121 (0.0000)
HHI_2	792.0228 (0.0000)	792.0228 (0.0000)	655.0341 (0.0000)	821.2827 (0.0000)
HHI_3	915.2341 (0.0000)	915.2341 (0.0000)	557.9107 (0.0000)	977.3699 (0.0000)

Appendix 18: Italy Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips- Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	364.6802 (0.0000)	364.6802 (0.0000)	206.2147 (0.0000)	431.8685 (0.0000)
LnMCap	328.2756 (0.0000)	328.2756 (0.0000)	303.9137 (0.0000)	362.2230 (0.0000)
SIZE	296.0453 (0.0001)	296.0453 (0.0001)	148.9741 (0.9726)	395.0658 (0.0000)
LnTA	271.1160 (0.0028)	271.1160 (0.0028)	113.1873 (0.0000)	323.8315 (0.0000)
TANG	250.3679 (0.0295)	250.3679 (0.0295)	162.7689 (0.8681)	319.7048 (0.0000)
LIQ	544.7296 (0.0000)	544.7296 (0.0000)	253.2552 (0.0005)	603.5393 (0.0000)
LR	491.0626 (0.0000)	491.0626 (0.0000)	231.9104 (0.0096)	539.3211 (0.0000)
ICR	563.8271 (0.0000)	563.8271 (0.0000)	380.8860 (0.0000)	650.1694 (0.0000)
LEV	417.1268 (0.0000)	417.1268 (0.0000)	314.8436 (0.0000)	481.2295 (0.0000)
AC1	404.0759 (0.0000)	404.0759 (0.0000)	461.2708 (0.0000)	530.6685 (0.0000)
AC2	471.0748 (0.0000)	471.0748 (0.0000)	189.9853 (0.3657)	582.7006 (0.0000)
HHI_1	499.4408 (0.0000)	499.4408 (0.0000)	273.7961 (0.0000)	544.8036 (0.0000)
HHI_2	546.1341 (0.0000)	546.1341 (0.0000)	536.7411 (0.0000)	453.7042 (0.0000)
HHI_3	400.3948 (0.0000)	400.3948 (0.0000)	500.1997 (0.0000)	489.9826 (0.0000)

Appendix 19: Mexico Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips- Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	74.3011 (0.0000)	74.3011 (0.0000)	120.8697 (0.0000)	100.6318 (0.0000)
LnMCap	58.7485 (0.0282)	58.7485 (0.0282)	46.8589 (0.1535)	67.6157 (0.0041)
SIZE	26.3488 (0.9524)	26.3488 (0.9524)	28.4126 (0.8709)	50.4923 (0.1237)
LnTA	23.1713 (0.9846)	23.1713 (0.9846)	28.1532 (0.8783)	35.4739 (0.6741)
TANG	113.4570 (0.0000)	113.4570 (0.0000)	21.5942 (0.9851)	109.7305 (0.0000)
LIQ	81.8069 (0.0001)	81.8069 (0.0001)	82.8574 (0.0000)	95.9113 (0.0000)
LR	82.3167 (0.0001)	82.3167 (0.0001)	39.0253 (0.4235)	102.1307 (0.0000)
ICR	201.0969 (0.0000)	201.0969 (0.0000)	112.2269 (0.0000)	240.1812 (0.0000)
LEV	94.4779 (0.0000)	94.4779 (0.0000)	25.6548 (0.0000)	95.9109 (0.0000)
AC1	68.7103 (0.0032)	68.7103 (0.0032)	51.8361 (0.0666)	79.1400 (0.0002)
AC2	68.4162 (0.0034)	68.4162 (0.0034)	40.8797 (0.3452)	115.7319 (0.0000)
HHI_1	99.3141 (0.0000)	99.3141 (0.0000)	51.2231 (0.0743)	104.7993 (0.0000)
HHI_2	98.4423 (0.0000)	98.4423 (0.0000)	53.5210 (0.0487)	114.8914 (0.0000)
HHI_3	83.9172 (0.0001)	83.9172 (0.0001)	19.1273 (0.9954)	70.9757 (0.0018)

Appendix 20: Russia Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips- Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	229.6059 (0.0000)	229.6059 (0.0000)	294.8449 (0.0000)	267.9281 (0.0000)
LnMCap	195.9907 (0.0000)	195.9907 (0.0000)	436.7233 (0.0000)	210.5708 (0.0000)
SIZE	403.9159 (0.0000)	403.9159 (0.0000)	303.7260 (0.0000)	481.2582 (0.0000)
LnTA	299.6513 (0.0000)	299.6513 (0.0000)	287.2668 (0.0000)	358.3008 (0.0000)
TANG	206.6109 (0.0000)	206.6109 (0.0000)	137.2740 (0.1084)	255.8827 (0.0000)
LIQ	453.2469 (0.0000)	453.2469 (0.0000)	113.5166 (0.5995)	441.1757 (0.0000)
LR	405.9950 (0.0000)	405.9950 (0.0000)	244.3531 (0.0000)	394.3425 (0.0000)
ICR	221.2927 (0.0000)	221.2927 (0.0000)	342.2036 (0.0000)	243.9473 (0.0000)
LEV	229.2440 (0.0000)	229.2440 (0.0000)	255.2617 (0.0000)	238.2204 (0.0000)
AC1	202.1095 (0.0000)	202.1095 (0.0000)	420.8172 (0.0000)	233.0189 (0.0000)
AC2	164.1328 (0.0066)	164.1328 (0.0066)	315.6317 (0.0000)	188.0898 (0.0000)
HHI_1	273.5955 (0.0000)	273.5955 (0.0000)	344.9023 (0.0000)	325.1437 (0.0000)
HHI_2	158.1530 (0.0154)	158.1530 (0.0154)	210.3695 (0.0000)	181.4873 (0.0000)
HHI_3	149.2814 (0.0000)	149.2814 (0.0000)	205.1983 (0.0000)	168.9964 (0.0000)

Appendix 21: South Korea Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips-Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	1621.6183 (0.0000)	1621.6183 (0.0000)	1496.6744 (0.0000)	1881.1529 (0.0000)
LnMCap	1585.0832 (0.0000)	1585.0832 (0.0000)	1711.6707 (0.0000)	1580.3991 (0.0000)
SIZE	2097.5269 (0.0000)	2097.5269 (0.0000)	1423.8616 (0.0000)	2479.5206 (0.0000)
LnTA	1486.3579 (0.0000)	1486.3579 (0.0000)	1209.1844 (0.0000)	1398.5878 (0.0000)
TANG	1355.7670 (0.0000)	1355.7670 (0.0000)	1682.6629 (0.0000)	1632.4663 (0.0000)
LIQ	1722.0480 (0.0000)	1722.0480 (0.0000)	1507.0782 (0.0000)	1981.1912 (0.0000)
LR	1898.4853 (0.0000)	1898.4853 (0.0000)	1417.3179 (0.0000)	2107.8083 (0.0000)
ICR	2103.6044 (0.0000)	2103.6044 (0.0000)	1309.4842 (0.0000)	2338.4792 (0.0000)
LEV	1944.7423 (0.0000)	1944.7423 (0.0000)	1677.0555 (0.0000)	1987.7343 (0.0000)
AC1	1643.6579 (0.0000)	1643.6579 (0.0000)	1944.2707 (0.0000)	1988.9668 (0.0000)
AC2	2572.8188 (0.0000)	2572.8188 (0.0000)	1494.2334 (0.0000)	2993.0663 (0.0000)
HHI_1	2421.8095 (0.0000)	2421.8095 (0.0000)	1637.3780 (0.0000)	2239.9814 (0.0000)
HHI_2	2343.4156 (0.0000)	2343.4156 (0.0000)	1842.9098 (0.0000)	2389.1581 (0.0000)
HHI_3	2215.1439 (0.0000)	2215.1439 (0.0000)	1687.7371 (0.0000)	2423.8016 (0.0000)

Appendix 22: Türkiye Subsample Unit Root Tests (Value)

Variable	Dickey-Fuller test (0 lags)	Phillips- Perron test (0 lags)	Dickey-Fuller test (1 lags)	Phillips-Perron test (1 lags)
Tobin's Q	271.0053 (0.0000)	271.0053 (0.0000)	281.2816 (0.0000)	290.6445 (0.0000)
LnMCap	379.1424 (0.0000)	379.1424 (0.0000)	422.3451 (0.0000)	402.4297 (0.0000)
SIZE	303.8245 (0.0000)	303.8245 (0.0000)	280.7406 (0.0000)	322.1654 (0.0000)
LnTA	343.4184 (0.0000)	343.4184 (0.0000)	214.9937 (0.0034)	466.8534 (0.0000)
TANG	249.8801 (0.0000)	249.8801 (0.0000)	255.7079 (0.0000)	295.3339 (0.0000)
LIQ	500.0302 (0.0000)	500.0302 (0.0000)	282.8961 (0.0000)	537.3014 (0.0000)
LR	412.8570 (0.0000)	412.8570 (0.0000)	197.2452 (0.0309)	513.7847 (0.0000)
ICR	567.8416 (0.0000)	567.8416 (0.0000)	729.2031 (0.0000)	577.7943 (0.0000)
LEV	603.8711 (0.0000)	603.8711 (0.0000)	182.3151 (0.1311)	751.9328 (0.0000)
AC1	456.7691 (0.0000)	456.7691 (0.0000)	284.6950 (0.0000)	476.2622 (0.0000)
AC2	620.2951 (0.0000)	620.2951 (0.0000)	338.0696 (0.0000)	521.3064 (0.0000)
HHI_1	517.8915 (0.0000)	517.8915 (0.0000)	279.8507 (0.0000)	574.8135 (0.0000)
HHI_2	560.6645 (0.0000)	560.6645 (0.0000)	329.0881 (0.0000)	638.2436 (0.0000)
HHI_3	727.1500 (0.0000)	727.1500 (0.0000)	425.4133 (0.0000)	835.6436 (0.0000)

Appendix 23: Whole Sample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.26	.793	1.343	.744	1.315	.761	1.26	.793	1.343	.744	1.315	.761
HHI_1	1.189	.841					1.189	.841				
HHI_2			1.202	.832					1.202	.832		
HHI_3					1.193	.838					1.193	.838
LIQ	1.137	.879	1.164	.859	1.15	.869	1.137	.879	1.164	.859	1.15	.869
FDI	1.097	.912	1.128	.886	1.139	.878	1.097	.912	1.128	.886	1.139	.878
AC	1.092	.916	1.068	.936	1.081	.925	1.092	.916	1.068	.936	1.081	.925
ICR	1.046	.956	1.056	.947	1.042	.959	1.046	.956	1.056	.947	1.042	.959
Crisis	1.005	.995	1.006	.994	1.006	.994	1.005	.995	1.006	.994	1.006	.994
TANG	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996
LEV	1.002	.998	1.002	.998	1.002	.998	1.002	.998	1.002	.998	1.002	.998
Mean VIF	1.093	.	1.108	.	1.104	.	1.093	.	1.108	.	1.104	.

Appendix 24: Developed Countries VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.223	.818	1.359	.736	1.339	.747	1.223	.818	1.359	.736	1.339	.747
HHI_1	1.219	.82					1.219	.82				
HHI_2			1.235	.81					1.235	.81		
HHI_3					1.225	.816					1.225	.816
LIQ	1.172	.854	1.197	.835	1.193	.838	1.172	.854	1.197	.835	1.193	.838
FDI	1.116	.896	1.15	.87	1.176	.85	1.116	.896	1.15	.87	1.176	.85
AC	1.115	.897	1.129	.886	1.14	.877	1.115	.897	1.129	.886	1.14	.877
ICR	1.079	.927	1.087	.92	1.074	.931	1.079	.927	1.087	.92	1.074	.931
Crisis	1.037	.964	1.037	.964	1.037	.964	1.037	.964	1.037	.964	1.037	.964
TANG	1.031	.97	1.032	.969	1.032	.969	1.031	.97	1.032	.969	1.032	.969
LEV	1.002	.998	1.002	.998	1.002	.998	1.002	.998	1.002	.998	1.002	.998
Mean VIF	1.11	.	1.136	.	1.135	.	1.11	.	1.136	.	1.135	.

Appendix 25: Developing Countries VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.202	.832	1.279	.782	1.178	.849	1.202	.832	1.279	.782	1.178	.849
HHI_1	1.189	.841					1.189	.841				
HHI_2			1.189	.841					1.189	.841		
HHI_3					1.173	.853					1.173	.853
LIQ	1.118	.895	1.14	.877	1.134	.882	1.118	.895	1.14	.877	1.134	.882
FDI	1.095	.914	1.121	.892	1.109	.901	1.095	.914	1.121	.892	1.109	.901
AC	1.093	.915	1.093	.915	1.074	.931	1.093	.915	1.093	.915	1.074	.931
ICR	1.063	.941	1.067	.937	1.062	.942	1.063	.941	1.067	.937	1.062	.942
Crisis	1.011	.989	1.011	.989	1.013	.987	1.011	.989	1.011	.989	1.013	.987
TANG	1.01	.99	1.01	.99	1.011	.989	1.01	.99	1.01	.99	1.011	.989
LEV	1.008	.992	1.009	.991	1.009	.991	1.008	.992	1.009	.991	1.009	.991
Mean VIF	1.088	.	1.102	.	1.085	.	1.088	.	1.102	.	1.085	.



Appendix 26: Brazil Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.464	.683	1.453	.688	1.403	.713	1.464	.683	1.453	.688	1.403	.713
HHI_1	1.291	.775					1.291	.775				
HHI_2			1.292	.774					1.292	.774		
HHI_3					1.291	.775					1.291	.775
LIQ	1.214	.824	1.215	.823	1.266	.79	1.214	.824	1.215	.823	1.266	.79
FDI	1.207	.828	1.214	.824	1.261	.793	1.207	.828	1.214	.824	1.261	.793
AC	1.187	.842	1.197	.835	1.215	.823	1.187	.842	1.197	.835	1.215	.823
ICR	1.156	.865	1.155	.865	1.158	.863	1.156	.865	1.155	.865	1.158	.863
Crisis	1.106	.904	1.122	.891	1.087	.92	1.106	.904	1.122	.891	1.087	.92
TANG	1.073	.932	1.078	.928	1.074	.931	1.073	.932	1.078	.928	1.074	.931
LEV	1.011	.989	1.011	.989	1.013	.987	1.011	.989	1.011	.989	1.013	.987
Mean VIF	1.19	.	1.193	.	1.196	.	1.19	.	1.193	.	1.196	.

Appendix 27: France Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.376	.727	1.376	.727	1.376	.727	1.376	.727	1.376	.727	1.376	.727
HHI_1	1.369	.73					1.369	.73				
HHI_2			1.369	.73					1.369	.73		
HHI_3					1.369	.73					1.369	.73
LIQ	1.299	.77	1.272	.786	1.288	.777	1.299	.77	1.272	.786	1.288	.777
FDI	1.164	.859	1.151	.869	1.146	.873	1.164	.859	1.151	.869	1.146	.873
AC	1.155	.865	1.144	.874	1.146	.873	1.155	.865	1.144	.874	1.146	.873
ICR	1.09	.917	1.091	.917	1.09	.917	1.09	.917	1.091	.917	1.09	.917
Crisis	1.066	.938	1.076	.929	1.072	.933	1.066	.938	1.076	.929	1.072	.933
TANG	1.045	.957	1.047	.955	1.045	.957	1.045	.957	1.047	.955	1.045	.957
LEV	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996
Mean VIF	1.174	.	1.17	.	1.171	.	1.174	.	1.17	.	1.171	.



Appendix 28: Germany Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.229	.813	1.22	.82	1.28	.781	1.229	.813	1.22	.82	1.28	.781
HHI_1	1.159	.863					1.159	.863				
HHI_2			1.212	.825					1.212	.825		
HHI_3					1.246	.803					1.246	.803
LIQ	1.134	.882	1.167	.857	1.21	.827	1.134	.882	1.167	.857	1.21	.827
FDI	1.1	.909	1.162	.861	1.152	.868	1.1	.909	1.162	.861	1.152	.868
AC	1.049	.953	1.055	.948	1.051	.952	1.049	.953	1.055	.948	1.051	.952
ICR	1.041	.96	1.038	.963	1.038	.964	1.041	.96	1.038	.963	1.038	.964
Crisis	1.035	.966	1.035	.966	1.038	.964	1.035	.966	1.035	.966	1.038	.964
TANG	1.019	.982	1.023	.977	1.021	.979	1.019	.982	1.023	.977	1.021	.979
LEV	1.018	.983	1.018	.983	1.018	.983	1.018	.983	1.018	.983	1.018	.983
Mean VIF	1.087	.	1.103	.	1.117	.	1.087	.	1.103	.	1.117	.

Appendix 29: Italy Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.347	.743	1.348	.742	1.364	.733	1.347	.743	1.348	.742	1.364	.733
HHI_1	1.284	.779					1.284	.779				
HHI_2			1.289	.776					1.289	.776		
HHI_3					1.261	.793					1.261	.793
LIQ	1.211	.826	1.265	.79	1.233	.811	1.211	.826	1.265	.79	1.233	.811
FDI	1.172	.853	1.175	.851	1.173	.853	1.172	.853	1.175	.851	1.173	.853
AC	1.112	.899	1.125	.889	1.114	.898	1.112	.899	1.125	.889	1.114	.898
ICR	1.106	.904	1.11	.901	1.105	.905	1.106	.904	1.11	.901	1.105	.905
Crisis	1.062	.942	1.06	.944	1.059	.944	1.062	.942	1.06	.944	1.059	.944
TANG	1.05	.953	1.05	.952	1.055	.948	1.05	.953	1.05	.952	1.055	.948
LEV	1.048	.955	1.045	.957	1.045	.957	1.048	.955	1.045	.957	1.045	.957
Mean VIF	1.155	.	1.163	.	1.157	.	1.155	.	1.163	.	1.157	.

Appendix 30: Mexico Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.658	.603	1.627	.615	1.623	.616	1.658	.603	1.627	.615	1.623	.616
HHI_1	1.631	.613					1.631	.613				
HHI_2			1.627	.615					1.627	.615		
HHI_3					1.621	.617					1.621	.617
LIQ	1.498	.668	1.589	.629	1.563	.64	1.498	.668	1.589	.629	1.563	.64
FDI	1.439	.695	1.52	.658	1.522	.657	1.439	.695	1.52	.658	1.522	.657
AC	1.385	.722	1.474	.678	1.465	.683	1.385	.722	1.474	.678	1.465	.683
ICR	1.374	.728	1.439	.695	1.444	.692	1.374	.728	1.439	.695	1.444	.692
Crisis	1.363	.734	1.382	.724	1.383	.723	1.363	.734	1.382	.724	1.383	.723
TANG	1.247	.802	1.374	.728	1.375	.727	1.247	.802	1.374	.728	1.375	.727
LEV	1.192	.839	1.164	.859	1.178	.849	1.192	.839	1.164	.859	1.178	.849
Mean VIF	1.421	.	1.466	.	1.464	.	1.421	.	1.466	.	1.464	.



Appendix 31: Russia Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.261	.793	1.289	.776	1.276	.784	1.261	.793	1.289	.776	1.276	.784
HHI_1	1.243	.804					1.243	.804				
HHI_2			1.283	.78					1.283	.78		
HHI_3					1.271	.787					1.271	.787
LIQ	1.227	.815	1.262	.792	1.265	.79	1.227	.815	1.262	.792	1.265	.79
FDI	1.187	.843	1.244	.804	1.224	.817	1.187	.843	1.244	.804	1.224	.817
AC	1.131	.885	1.19	.84	1.189	.841	1.131	.885	1.19	.84	1.189	.841
ICR	1.06	.943	1.064	.94	1.067	.937	1.06	.943	1.064	.94	1.067	.937
Crisis	1.034	.967	1.035	.966	1.034	.967	1.034	.967	1.035	.966	1.034	.967
TANG	1.016	.984	1.014	.986	1.014	.986	1.016	.984	1.014	.986	1.014	.986
LEV	1.012	.988	1.012	.988	1.013	.988	1.012	.988	1.012	.988	1.013	.988
Mean VIF	1.13	.	1.155	.	1.15	.	1.13	.	1.155	.	1.15	.



Appendix 32: South Korea Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.382	.724	1.566	.638	1.47	.68	1.382	.724	1.566	.638	1.47	.68
HHI_1	1.319	.758					1.319	.758				
HHI_2			1.43	.699					1.43	.699		
HHI_3					1.404	.712					1.404	.712
LIQ	1.231	.812	1.367	.732	1.329	.752	1.231	.812	1.367	.732	1.329	.752
FDI	1.23	.813	1.183	.846	1.227	.815	1.23	.813	1.183	.846	1.227	.815
AC	1.13	.885	1.13	.885	1.131	.884	1.13	.885	1.13	.885	1.131	.884
ICR	1.129	.886	1.128	.886	1.128	.886	1.129	.886	1.128	.886	1.128	.886
Crisis	1.099	.91	1.101	.908	1.084	.923	1.099	.91	1.101	.908	1.084	.923
TANG	1.069	.936	1.074	.931	1.07	.934	1.069	.936	1.074	.931	1.07	.934
LEV	1.048	.955	1.05	.952	1.049	.953	1.048	.955	1.05	.952	1.049	.953
Mean VIF	1.182	.	1.225	.	1.21	.	1.182	.	1.225	.	1.21	.

Appendix 33: Türkiye Subsample VIF Values (Performance)

	1a		1b		1c		2a		2b		2c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.255	.797	1.258	.795	1.254	.797	1.255	.797	1.258	.795	1.254	.797
HHI_1	1.221	.819					1.221	.819				
HHI_2			1.254	.797					1.254	.797		
HHI_3					1.237	.809					1.237	.809
LIQ	1.207	.828	1.234	.81	1.232	.811	1.207	.828	1.234	.81	1.232	.811
FDI	1.185	.844	1.16	.862	1.169	.856	1.185	.844	1.16	.862	1.169	.856
AC	1.113	.899	1.119	.893	1.114	.898	1.113	.899	1.119	.893	1.114	.898
ICR	1.113	.899	1.113	.899	1.113	.898	1.113	.899	1.113	.899	1.113	.898
Crisis	1.094	.914	1.097	.911	1.095	.914	1.094	.914	1.097	.911	1.095	.914
TANG	1.092	.915	1.092	.916	1.094	.914	1.092	.915	1.092	.916	1.094	.914
LEV	1.085	.921	1.08	.926	1.08	.926	1.085	.921	1.08	.926	1.08	.926
Mean VIF	1.152	.	1.156	.	1.154	.	1.152	.	1.156	.	1.154	.

Appendix 34: Whole Sample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.269	.788	1.353	.739	1.332	.751	1.269	.788	1.353	.739	1.332	.751
HHI_1	1.177	.85					1.177	.85				
HHI_2			1.189	.841					1.189	.841		
HHI_3					1.181	.847					1.181	.847
LIQ	1.152	.868	1.164	.859	1.168	.856	1.152	.868	1.164	.859	1.168	.856
FDI	1.097	.911	1.145	.873	1.14	.877	1.097	.911	1.145	.873	1.14	.877
AC	1.095	.913	1.073	.932	1.088	.919	1.095	.913	1.073	.932	1.088	.919
ICR	1.05	.953	1.058	.945	1.046	.956	1.05	.953	1.058	.945	1.046	.956
Crisis	1.004	.996	1.005	.995	1.005	.995	1.004	.996	1.005	.995	1.005	.995
TANG	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996
LEV	1.001	.999	1.001	.999	1.001	.999	1.001	.999	1.001	.999	1.001	.999
Mean VIF	1.094	.	1.11	.	1.107	.	1.094	.	1.11	.	1.107	.

Appendix 35: Developed Countries VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.226	.816	1.365	.733	1.346	.743	1.226	.816	1.365	.733	1.346	.743
HHI_1	1.207	.828					1.207	.828				
HHI_2			1.223	.818					1.223	.818		
HHI_3					1.226	.816					1.226	.816
LIQ	1.205	.83	1.199	.834	1.213	.825	1.205	.83	1.199	.834	1.213	.825
FDI	1.114	.898	1.185	.844	1.179	.848	1.114	.898	1.185	.844	1.179	.848
AC	1.11	.901	1.122	.891	1.135	.881	1.11	.901	1.122	.891	1.135	.881
ICR	1.078	.928	1.085	.922	1.074	.931	1.078	.928	1.085	.922	1.074	.931
Crisis	1.042	.959	1.042	.959	1.043	.959	1.042	.959	1.042	.959	1.043	.959
TANG	1.037	.964	1.037	.964	1.038	.964	1.037	.964	1.037	.964	1.038	.964
LEV	1.001	.999	1.001	.999	1.001	.999	1.001	.999	1.001	.999	1.001	.999
Mean VIF	1.113	.	1.14	.	1.139	.	1.113	.	1.14	.	1.139	.



Appendix 36: Developing Countries VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.197	.836	1.279	.782	1.193	.838	1.197	.836	1.279	.782	1.193	.838
HHI_1	1.148	.871					1.148	.871				
HHI_2			1.148	.871					1.148	.871		
HHI_3					1.143	.875					1.143	.875
LIQ	1.101	.908	1.134	.882	1.12	.893	1.101	.908	1.134	.882	1.12	.893
FDI	1.092	.916	1.116	.896	1.106	.904	1.092	.916	1.116	.896	1.106	.904
AC	1.074	.931	1.078	.928	1.072	.933	1.074	.931	1.078	.928	1.072	.933
ICR	1.061	.942	1.061	.943	1.046	.956	1.061	.942	1.061	.943	1.046	.956
Crisis	1.013	.987	1.014	.987	1.015	.986	1.013	.987	1.014	.987	1.015	.986
TANG	1.01	.99	1.01	.99	1.011	.989	1.01	.99	1.01	.99	1.011	.989
LEV	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996	1.004	.996
Mean VIF	1.078	.	1.094	.	1.079	.	1.078	.	1.094	.	1.079	.



Appendix 37: Brazil Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.199	.834	1.244	.804	1.229	.813	1.199	.834	1.244	.804	1.229	.813
HHI_1	1.188	.842					1.188	.842				
HHI_2			1.186	.844					1.186	.844		
HHI_3					1.227	.815					1.227	.815
LIQ	1.157	.864	1.177	.849	1.192	.839	1.157	.864	1.177	.849	1.192	.839
FDI	1.142	.876	1.142	.875	1.143	.875	1.142	.876	1.142	.875	1.143	.875
AC	1.132	.884	1.129	.886	1.117	.895	1.132	.884	1.129	.886	1.117	.895
ICR	1.099	.91	1.107	.903	1.095	.914	1.099	.91	1.107	.903	1.095	.914
Crisis	1.056	.947	1.061	.943	1.048	.954	1.056	.947	1.061	.943	1.048	.954
TANG	1.048	.954	1.045	.957	1.045	.957	1.048	.954	1.045	.957	1.045	.957
LEV	1.007	.993	1.008	.992	1.006	.994	1.007	.993	1.008	.992	1.006	.994
Mean VIF	1.114	.	1.122	.	1.123	.	1.114	.	1.122	.	1.123	.

Appendix 38: France Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.379	.725	1.378	.726	1.379	.725	1.379	.725	1.378	.726	1.379	.725
HHI_1	1.372	.729					1.372	.729				
HHI_2			1.372	.729					1.372	.729		
HHI_3					1.372	.729					1.372	.729
LIQ	1.28	.781	1.252	.799	1.266	.79	1.28	.781	1.252	.799	1.266	.79
FDI	1.152	.868	1.144	.874	1.139	.878	1.152	.868	1.144	.874	1.139	.878
AC	1.146	.873	1.137	.879	1.137	.879	1.146	.873	1.137	.879	1.137	.879
ICR	1.083	.923	1.083	.923	1.083	.923	1.083	.923	1.083	.923	1.083	.923
Crisis	1.061	.943	1.075	.93	1.071	.934	1.061	.943	1.075	.93	1.071	.934
TANG	1.047	.955	1.051	.952	1.049	.954	1.047	.955	1.051	.952	1.049	.954
LEV	1.002	.998	1.001	.999	1.002	.998	1.002	.998	1.001	.999	1.002	.998
Mean VIF	1.169	.	1.166	.	1.166	.	1.169	.	1.166	.	1.166	.

Appendix 39: Germany Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.227	.815	1.223	.818	1.284	.779	1.227	.815	1.223	.818	1.284	.779
HHI_1	1.172	.853					1.172	.853				
HHI_2			1.204	.83					1.204	.83		
HHI_3					1.266	.79					1.266	.79
LIQ	1.138	.879	1.182	.846	1.201	.832	1.138	.879	1.182	.846	1.201	.832
FDI	1.09	.918	1.154	.866	1.147	.872	1.09	.918	1.154	.866	1.147	.872
AC	1.043	.959	1.039	.963	1.039	.963	1.043	.959	1.039	.963	1.039	.963
ICR	1.031	.97	1.037	.964	1.032	.969	1.031	.97	1.037	.964	1.032	.969
Crisis	1.02	.98	1.024	.977	1.021	.979	1.02	.98	1.024	.977	1.021	.979
TANG	1.018	.982	1.018	.982	1.018	.982	1.018	.982	1.018	.982	1.018	.982
LEV	1.009	.991	1.011	.99	1.01	.99	1.009	.991	1.011	.99	1.01	.99
Mean VIF	1.083	.	1.099	.	1.113	.	1.083	.	1.099	.	1.113	.



Appendix 40: Italy Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.359	.736	1.36	.735	1.373	.728	1.359	.736	1.36	.735	1.373	.728
HHI_1	1.261	.793					1.261	.793				
HHI_2			1.269	.788					1.269	.788		
HHI_3					1.248	.801					1.248	.801
LIQ	1.204	.83	1.236	.809	1.205	.83	1.204	.83	1.236	.809	1.205	.83
FDI	1.181	.846	1.208	.828	1.203	.831	1.181	.846	1.208	.828	1.203	.831
AC	1.11	.901	1.121	.892	1.103	.906	1.11	.901	1.121	.892	1.103	.906
ICR	1.094	.914	1.095	.913	1.098	.911	1.094	.914	1.095	.913	1.098	.911
Crisis	1.058	.946	1.056	.947	1.056	.947	1.058	.946	1.056	.947	1.056	.947
TANG	1.054	.949	1.053	.95	1.055	.948	1.054	.949	1.053	.95	1.055	.948
LEV	1.052	.951	1.052	.951	1.053	.949	1.052	.951	1.052	.951	1.053	.949
Mean VIF	1.153	.	1.161	.	1.155	.	1.153	.	1.161	.	1.155	.

Appendix 41: Mexico Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.754	.57	1.739	.575	1.709	.585	1.754	.57	1.739	.575	1.709	.585
HHI_1	1.548	.646					1.548	.646				
HHI_2			1.595	.627					1.595	.627		
HHI_3					1.56	.641					1.56	.641
LIQ	1.396	.716	1.551	.645	1.547	.646	1.396	.716	1.551	.645	1.547	.646
FDI	1.395	.717	1.48	.676	1.446	.691	1.395	.717	1.48	.676	1.446	.691
AC	1.376	.727	1.392	.718	1.392	.718	1.376	.727	1.392	.718	1.392	.718
ICR	1.272	.786	1.376	.727	1.377	.726	1.272	.786	1.376	.727	1.377	.726
Crisis	1.262	.793	1.233	.811	1.235	.81	1.262	.793	1.233	.811	1.235	.81
TANG	1.209	.827	1.19	.841	1.187	.842	1.209	.827	1.19	.841	1.187	.842
LEV	1.14	.877	1.142	.876	1.171	.854	1.14	.877	1.142	.876	1.171	.854
Mean VIF	1.372	.	1.411	.	1.403	.	1.372	.	1.411	.	1.403	.



Appendix 42: Russia Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.253	.798	1.279	.782	1.269	.788	1.253	.798	1.279	.782	1.269	.788
HHI_1	1.242	.805					1.242	.805				
HHI_2			1.272	.786					1.272	.786		
HHI_3					1.268	.789					1.268	.789
LIQ	1.219	.82	1.228	.814	1.249	.801	1.219	.82	1.228	.814	1.249	.801
FDI	1.15	.869	1.213	.824	1.196	.836	1.15	.869	1.213	.824	1.196	.836
AC	1.106	.904	1.154	.867	1.152	.868	1.106	.904	1.154	.867	1.152	.868
ICR	1.065	.939	1.068	.936	1.071	.934	1.065	.939	1.068	.936	1.071	.934
Crisis	1.025	.976	1.022	.978	1.022	.978	1.025	.976	1.022	.978	1.022	.978
TANG	1.017	.984	1.017	.983	1.016	.984	1.017	.984	1.017	.983	1.016	.984
LEV	1.016	.984	1.016	.984	1.016	.984	1.016	.984	1.016	.984	1.016	.984
Mean VIF	1.121	.	1.141	.	1.14	.	1.121	.	1.141	.	1.14	.



Appendix 43: South Korea Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.372	.729	1.664	.601	1.545	.647	1.372	.729	1.664	.601	1.545	.647
HHI_1	1.336	.748					1.336	.748				
HHI_2			1.396	.716					1.396	.716		
HHI_3					1.361	.735					1.361	.735
LIQ	1.304	.767	1.387	.721	1.355	.738	1.304	.767	1.387	.721	1.355	.738
FDI	1.244	.804	1.26	.794	1.296	.772	1.244	.804	1.26	.794	1.296	.772
AC	1.129	.886	1.129	.886	1.13	.885	1.129	.886	1.129	.886	1.13	.885
ICR	1.124	.889	1.124	.889	1.124	.889	1.124	.889	1.124	.889	1.124	.889
Crisis	1.113	.899	1.112	.899	1.096	.913	1.113	.899	1.112	.899	1.096	.913
TANG	1.038	.963	1.036	.966	1.037	.964	1.038	.963	1.036	.966	1.037	.964
LEV	1.028	.972	1.03	.971	1.029	.972	1.028	.972	1.03	.971	1.029	.972
Mean VIF	1.188	.	1.237	.	1.219	.	1.188	.	1.237	.	1.219	.

Appendix 44: Türkiye Subsample VIF Values (Value)

	3a		3b		3c		4a		4b		4c	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
SIZE	1.243	.805	1.268	.789	1.267	.789	1.243	.805	1.268	.789	1.267	.789
HHI_1	1.233	.811					1.233	.811				
HHI_2			1.26	.794					1.26	.794		
HHI_3					1.252	.798					1.252	.798
LIQ	1.211	.825	1.213	.825	1.211	.826	1.211	.825	1.213	.825	1.211	.826
FDI	1.188	.841	1.161	.861	1.169	.855	1.188	.841	1.161	.861	1.169	.855
AC	1.117	.896	1.119	.894	1.119	.894	1.117	.896	1.119	.894	1.119	.894
ICR	1.111	.9	1.107	.904	1.106	.904	1.111	.9	1.107	.904	1.106	.904
Crisis	1.084	.922	1.088	.919	1.085	.922	1.084	.922	1.088	.919	1.085	.922
TANG	1.084	.922	1.078	.928	1.078	.928	1.084	.922	1.078	.928	1.078	.928
LEV	1.031	.97	1.03	.97	1.03	.971	1.031	.97	1.03	.97	1.03	.971
Mean VIF	1.145		1.147	.	1.146	.	1.145	.	1.147	.	1.146	.



Appendix 45: Correlation Matrix Whole Sample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.519 (0.000)	1.000											
(3) SIZE	-0.105 (0.000)	-0.244 (0.000)	1.000										
(4) TANG	-0.026 (0.003)	-0.123 (0.000)	0.086 (0.000)	1.000									
(5) LIQ	-0.036 (0.000)	0.110 (0.000)	-0.241 (0.000)	-0.190 (0.000)	1.000								
(6) ICR	-0.006 (0.532)	0.151 (0.000)	-0.044 (0.000)	-0.065 (0.000)	0.233 (0.000)	1.000							
(7) LEV	0.194 (0.000)	-0.015 (0.094)	0.000 (0.988)	-0.001 (0.904)	-0.039 (0.000)	-0.025 (0.006)	1.000						
(8) AC	0.007 (0.410)	0.019 (0.031)	-0.056 (0.000)	-0.017 (0.058)	0.022 (0.013)	-0.002 (0.856)	-0.001 (0.941)	1.000					
(9) FDI	-0.048 (0.000)	-0.102 (0.000)	0.120 (0.000)	-0.008 (0.398)	-0.066 (0.000)	0.051 (0.000)	-0.012 (0.181)	-0.014 (0.121)	1.000				
(10) HHI_1	0.015 (0.094)	0.133 (0.000)	-0.292 (0.000)	-0.118 (0.000)	0.275 (0.000)	0.201 (0.000)	-0.015 (0.103)	0.001 (0.922)	-0.259 (0.000)	1.000			
(11) HHI_2	0.004 (0.670)	0.164 (0.000)	-0.277 (0.000)	-0.170 (0.000)	0.323 (0.000)	0.322 (0.000)	-0.023 (0.010)	-0.002 (0.854)	-0.202 (0.000)	0.890 (0.000)	1.000		
(12) HHI_3	0.001 (0.929)	0.135 (0.000)	-0.308 (0.000)	-0.086 (0.000)	0.293 (0.000)	0.279 (0.000)	-0.020 (0.025)	-0.005 (0.575)	-0.236 (0.000)	0.827 (0.000)	0.902 (0.000)	1.000	
(13) Crisis	0.021 (0.020)	0.011 (0.207)	-0.003 (0.738)	-0.032 (0.000)	0.020 (0.025)	-0.016 (0.076)	0.013 (0.143)	-0.012 (0.168)	-0.053 (0.000)	0.028 (0.002)	0.040 (0.000)	0.046 (0.000)	1.000

Appendix 46: Correlation Matrix Developed Countries (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.547 (0.000)	1.000											
(3) SIZE	-0.127 (0.000)	-0.271 (0.000)	1.000										
(4) TANG	-0.029 (0.005)	-0.149 (0.000)	0.101 (0.000)	1.000									
(5) LIQ	-0.038 (0.000)	0.108 (0.000)	-0.256 (0.000)	-0.186 (0.000)	1.000								
(6) ICR	-0.006 (0.580)	0.136 (0.000)	-0.047 (0.000)	-0.068 (0.000)	0.256 (0.000)	1.000							
(7) LEV	0.153 (0.000)	-0.009 (0.371)	-0.008 (0.408)	0.003 (0.735)	-0.034 (0.001)	-0.022 (0.029)	1.000						
(8) AC	0.047 (0.000)	0.104 (0.000)	-0.145 (0.000)	-0.027 (0.007)	0.121 (0.000)	0.008 (0.435)	-0.001 (0.907)	1.000					
(9) FDI	-0.033 (0.001)	-0.070 (0.000)	-0.011 (0.290)	0.190 (0.000)	-0.116 (0.000)	0.047 (0.000)	-0.002 (0.876)	0.001 (0.957)	1.000				
(10) HHI_1	0.006 (0.523)	0.113 (0.000)	-0.297 (0.000)	-0.155 (0.000)	0.267 (0.000)	0.213 (0.000)	-0.016 (0.121)	0.025 (0.013)	-0.168 (0.000)	1.000			
(11) HHI_2	-0.006 (0.551)	0.143 (0.000)	-0.264 (0.000)	-0.201 (0.000)	0.329 (0.000)	0.345 (0.000)	-0.024 (0.016)	0.020 (0.046)	-0.196 (0.000)	0.876 (0.000)	1.000		
(12) HHI_3	-0.013 (0.182)	0.112 (0.000)	-0.316 (0.000)	-0.116 (0.000)	0.302 (0.000)	0.309 (0.000)	-0.021 (0.033)	0.021 (0.038)	-0.201 (0.000)	0.824 (0.000)	0.916 (0.000)	1.000	
(13) Crisis	0.026 (0.010)	0.025 (0.013)	0.009 (0.346)	-0.050 (0.000)	0.032 (0.002)	-0.019 (0.056)	0.012 (0.252)	-0.016 (0.118)	-0.186 (0.000)	0.039 (0.000)	0.051 (0.000)	0.051 (0.000)	1.000

Appendix 47: Correlation Matrix Developing Countries (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.411 (0.000)	1.000											
(3) SIZE	-0.009 (0.627)	-0.117 (0.000)	1.000										
(4) TANG	-0.032 (0.097)	-0.059 (0.002)	0.068 (0.001)	1.000									
(5) LIQ	-0.038 (0.054)	0.110 (0.000)	-0.195 (0.000)	-0.215 (0.000)	1.000								
(6) ICR	0.009 (0.662)	0.254 (0.000)	-0.068 (0.000)	-0.037 (0.059)	0.187 (0.000)	1.000							
(7) LEV	0.430 (0.000)	-0.060 (0.002)	0.057 (0.004)	-0.031 (0.107)	-0.071 (0.000)	-0.038 (0.053)	1.000						
(8) AC	0.002 (0.910)	0.012 (0.530)	-0.079 (0.000)	-0.030 (0.119)	0.015 (0.454)	-0.005 (0.810)	-0.002 (0.902)	1.000					
(9) FDI	0.034 (0.082)	-0.063 (0.001)	0.185 (0.000)	-0.088 (0.000)	0.029 (0.139)	-0.119 (0.000)	0.021 (0.275)	-0.001 (0.973)	1.000				
(10) HHI_1	0.002 (0.910)	0.144 (0.000)	-0.223 (0.000)	-0.076 (0.000)	0.284 (0.000)	0.253 (0.000)	-0.033 (0.091)	-0.010 (0.619)	-0.179 (0.000)	1.000			
(11) HHI_2	0.009 (0.644)	0.201 (0.000)	-0.274 (0.000)	-0.117 (0.000)	0.303 (0.000)	0.300 (0.000)	-0.034 (0.081)	-0.012 (0.539)	-0.186 (0.000)	0.927 (0.000)	1.000		
(12) HHI_3	0.006 (0.764)	0.155 (0.000)	-0.223 (0.000)	-0.054 (0.006)	0.267 (0.000)	0.257 (0.000)	-0.038 (0.053)	-0.022 (0.264)	0.007 (0.712)	0.812 (0.000)	0.859 (0.000)	1.000	
(13) Crisis	0.008 (0.685)	-0.033 (0.089)	-0.057 (0.003)	0.032 (0.096)	-0.009 (0.649)	-0.007 (0.721)	0.025 (0.193)	-0.022 (0.256)	-0.074 (0.000)	0.013 (0.502)	0.015 (0.452)	0.048 (0.013)	1.000

Appendix 48: Correlation Matrix Brazil Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.479 (0.000)	1.000											
(3) SIZE	-0.183 (0.000)	-0.100 (0.003)	1.000										
(4) TANG	-0.120 (0.000)	-0.051 (0.132)	0.038 (0.262)	1.000									
(5) LIQ	0.044 (0.187)	-0.003 (0.922)	-0.304 (0.000)	-0.202 (0.000)	1.000								
(6) ICR	0.311 (0.000)	0.000 (0.997)	-0.227 (0.000)	-0.029 (0.391)	0.171 (0.000)	1.000							
(7) LEV	-0.033 (0.322)	0.414 (0.000)	0.004 (0.914)	0.000 (0.992)	-0.057 (0.093)	-0.065 (0.054)	1.000						
(8) AC	0.100 (0.003)	0.238 (0.000)	-0.299 (0.000)	-0.076 (0.024)	0.429 (0.000)	0.014 (0.670)	0.012 (0.731)	1.000					
(9) FDI	0.107 (0.001)	0.011 (0.739)	-0.093 (0.006)	-0.161 (0.000)	0.021 (0.538)	0.028 (0.409)	-0.035 (0.295)	0.007 (0.829)	1.000				
(10) HHI_1	-0.018 (0.586)	-0.009 (0.788)	-0.180 (0.000)	-0.064 (0.055)	0.343 (0.000)	0.203 (0.000)	-0.019 (0.581)	0.151 (0.000)	-0.108 (0.001)	1.000			
(11) HHI_2	0.052 (0.126)	0.005 (0.891)	-0.200 (0.000)	-0.121 (0.000)	0.358 (0.000)	0.244 (0.000)	-0.033 (0.332)	0.183 (0.000)	-0.052 (0.120)	0.941 (0.000)	1.000		
(12) HHI_3	-0.014 (0.675)	-0.017 (0.606)	-0.251 (0.000)	0.032 (0.345)	0.246 (0.000)	0.134 (0.000)	-0.039 (0.249)	0.125 (0.000)	-0.248 (0.000)	0.739 (0.000)	0.736 (0.000)	1.000	
(13) Crisis	-0.076 (0.024)	0.032 (0.336)	0.011 (0.743)	0.070 (0.037)	-0.024 (0.481)	-0.019 (0.581)	0.054 (0.110)	-0.013 (0.703)	-0.363 (0.000)	0.049 (0.146)	0.023 (0.490)	0.135 (0.000)	1.000

Appendix 49: Correlation Matrix France Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.532 (0.000)	1.000											
(3) SIZE	-0.345 (0.000)	-0.146 (0.000)	1.000										
(4) TANG	-0.135 (0.000)	-0.055 (0.015)	0.190 (0.000)	1.000									
(5) LIQ	0.117 (0.000)	-0.020 (0.378)	-0.322 (0.000)	-0.118 (0.000)	1.000								
(6) ICR	0.133 (0.000)	0.008 (0.716)	-0.075 (0.001)	-0.059 (0.009)	0.107 (0.000)	1.000							
(7) LEV	-0.018 (0.434)	0.129 (0.000)	-0.030 (0.186)	0.003 (0.886)	-0.023 (0.298)	-0.016 (0.488)	1.000						
(8) AC	0.166 (0.000)	0.065 (0.004)	-0.282 (0.000)	-0.063 (0.005)	0.051 (0.024)	0.017 (0.448)	-0.004 (0.846)	1.000					
(9) FDI	0.051 (0.024)	0.023 (0.308)	-0.067 (0.003)	-0.049 (0.027)	0.039 (0.084)	-0.012 (0.579)	0.019 (0.408)	0.050 (0.026)	1.000				
(10) HHI_1	0.080 (0.000)	-0.029 (0.189)	-0.275 (0.000)	-0.055 (0.013)	0.231 (0.000)	0.237 (0.000)	-0.011 (0.636)	0.078 (0.000)	0.031 (0.169)	1.000			
(11) HHI_2	0.119 (0.000)	-0.031 (0.165)	-0.224 (0.000)	-0.104 (0.000)	0.206 (0.000)	0.258 (0.000)	-0.019 (0.408)	0.080 (0.000)	0.006 (0.806)	0.864 (0.000)	1.000		
(12) HHI_3	0.108 (0.000)	-0.024 (0.276)	-0.249 (0.000)	-0.088 (0.000)	0.196 (0.000)	0.250 (0.000)	-0.009 (0.704)	0.076 (0.001)	-0.006 (0.780)	0.844 (0.000)	0.975 (0.000)	1.000	
(13) Crisis	-0.002 (0.944)	0.022 (0.334)	0.034 (0.127)	0.027 (0.235)	-0.032 (0.158)	0.013 (0.547)	0.015 (0.518)	-0.029 (0.191)	-0.518 (0.000)	-0.004 (0.875)	-0.002 (0.932)	0.004 (0.854)	1.000

Appendix 50: Correlation Matrix Germany Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.531 (0.000)	1.000											
(3) SIZE	-0.240 (0.000)	-0.090 (0.000)	1.000										
(4) TANG	-0.194 (0.000)	-0.024 (0.263)	0.046 (0.034)	1.000									
(5) LIQ	0.123 (0.000)	-0.038 (0.080)	-0.300 (0.000)	-0.120 (0.000)	1.000								
(6) ICR	0.278 (0.000)	0.038 (0.082)	-0.065 (0.003)	-0.150 (0.000)	0.248 (0.000)	1.000							
(7) LEV	-0.034 (0.117)	0.610 (0.000)	0.053 (0.015)	0.144 (0.000)	-0.118 (0.000)	-0.074 (0.001)	1.000						
(8) AC	0.115 (0.000)	0.021 (0.343)	-0.167 (0.000)	-0.047 (0.030)	0.021 (0.336)	0.055 (0.012)	-0.010 (0.637)	1.000					
(9) FDI	0.027 (0.215)	0.018 (0.399)	0.004 (0.866)	0.008 (0.699)	-0.025 (0.259)	-0.045 (0.039)	0.011 (0.622)	0.016 (0.476)	1.000				
(10) HHI_1	0.138 (0.000)	0.019 (0.376)	-0.233 (0.000)	-0.049 (0.024)	0.277 (0.000)	0.163 (0.000)	-0.082 (0.000)	0.091 (0.000)	-0.059 (0.007)	1.000			
(11) HHI_2	0.185 (0.000)	0.008 (0.708)	-0.240 (0.000)	-0.138 (0.000)	0.277 (0.000)	0.310 (0.000)	-0.097 (0.000)	0.066 (0.003)	-0.093 (0.000)	0.826 (0.000)	1.000		
(12) HHI_3	0.157 (0.000)	-0.014 (0.535)	-0.357 (0.000)	-0.040 (0.070)	0.290 (0.000)	0.278 (0.000)	-0.104 (0.000)	0.062 (0.004)	-0.077 (0.000)	0.783 (0.000)	0.913 (0.000)	1.000	
(13) Crisis	0.003 (0.887)	0.018 (0.402)	-0.003 (0.892)	-0.003 (0.902)	0.006 (0.795)	-0.035 (0.109)	0.004 (0.844)	-0.053 (0.015)	0.114 (0.000)	-0.001 (0.951)	-0.015 (0.506)	-0.004 (0.868)	1.000

Appendix 51: Correlation Matrix Italy Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) ROE	1.000											
(2) ROA	-0.172 (0.000)	1.000										
(3) SIZE	-0.110 (0.000)	0.267 (0.000)	1.000									
(4) TANG	0.112 (0.000)	-0.252 (0.000)	-0.199 (0.000)	1.000								
(5) LIQ	0.317 (0.000)	-0.131 (0.000)	-0.023 (0.457)	0.240 (0.000)	1.000							
(6) ICR	-0.014 (0.649)	0.003 (0.918)	-0.006 (0.842)	-0.169 (0.000)	-0.091 (0.003)	1.000						
(7) LEV	0.218 (0.000)	-0.368 (0.000)	-0.126 (0.000)	0.003 (0.932)	0.051 (0.096)	0.010 (0.733)	1.000					
(8) AC	0.027 (0.378)	-0.112 (0.000)	-0.052 (0.087)	0.035 (0.258)	0.058 (0.057)	-0.084 (0.006)	0.046 (0.133)	1.000				
(9) FDI	0.073 (0.017)	-0.244 (0.000)	-0.103 (0.001)	0.347 (0.000)	0.241 (0.000)	-0.007 (0.829)	0.065 (0.033)	-0.011 (0.728)	1.000			
(10) HHI_1	0.157 (0.000)	-0.280 (0.000)	-0.157 (0.000)	0.368 (0.000)	0.273 (0.000)	-0.032 (0.295)	0.120 (0.000)	0.019 (0.536)	0.916 (0.000)	1.000		
(11) HHI_2	0.121 (0.000)	-0.302 (0.000)	-0.182 (0.000)	0.334 (0.000)	0.219 (0.000)	-0.027 (0.380)	0.110 (0.000)	0.035 (0.251)	0.792 (0.000)	0.849 (0.000)	1.000	
(12) HHI_3	-0.017 (0.582)	0.039 (0.200)	0.046 (0.137)	-0.024 (0.437)	-0.088 (0.004)	0.059 (0.054)	-0.029 (0.336)	-0.197 (0.000)	-0.014 (0.654)	-0.015 (0.623)	0.037 (0.224)	1.000

Appendix 52: Correlation Matrix Mexico Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.309 (0.000)	1.000											
(3) SIZE	-0.094 (0.221)	-0.072 (0.343)	1.000										
(4) TANG	0.271 (0.000)	0.076 (0.323)	-0.122 (0.110)	1.000									
(5) LIQ	-0.022 (0.771)	0.366 (0.000)	0.050 (0.515)	-0.379 (0.000)	1.000								
(6) ICR	0.105 (0.170)	0.667 (0.000)	-0.008 (0.913)	0.167 (0.028)	0.344 (0.000)	1.000							
(7) LEV	0.852 (0.000)	-0.112 (0.143)	-0.026 (0.733)	0.266 (0.000)	-0.181 (0.017)	-0.110 (0.149)	1.000						
(8) AC	0.084 (0.269)	-0.180 (0.018)	-0.540 (0.000)	0.135 (0.078)	-0.289 (0.000)	-0.163 (0.033)	0.177 (0.020)	1.000					
(9) FDI	-0.020 (0.796)	-0.051 (0.503)	-0.014 (0.856)	-0.055 (0.474)	-0.046 (0.545)	-0.038 (0.623)	-0.006 (0.939)	-0.020 (0.790)	1.000				
(10) HHI_1	0.323 (0.000)	0.342 (0.000)	-0.079 (0.303)	-0.032 (0.673)	0.339 (0.000)	0.274 (0.000)	0.125 (0.101)	-0.092 (0.229)	-0.069 (0.369)	1.000			
(11) HHI_2	0.296 (0.000)	0.481 (0.000)	-0.207 (0.006)	0.042 (0.583)	0.317 (0.000)	0.475 (0.000)	0.068 (0.373)	0.054 (0.480)	-0.033 (0.670)	0.909 (0.000)	1.000		
(12) HHI_3	0.333 (0.000)	0.468 (0.000)	-0.263 (0.000)	0.122 (0.109)	0.269 (0.000)	0.436 (0.000)	0.120 (0.116)	0.075 (0.326)	-0.067 (0.383)	0.878 (0.000)	0.944 (0.000)	1.000	
(13) Crisis	-0.009 (0.908)	-0.084 (0.270)	0.016 (0.835)	-0.026 (0.738)	-0.016 (0.835)	-0.050 (0.514)	0.043 (0.574)	-0.020 (0.791)	0.518 (0.000)	-0.033 (0.666)	-0.036 (0.636)	-0.061 (0.424)	1.000

Appendix 53: Correlation Matrix Russia Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.404 (0.000)	1.000											
(3) SIZE	0.018 (0.684)	-0.014 (0.751)	1.000										
(4) TANG	-0.040 (0.382)	0.064 (0.155)	0.343 (0.000)	1.000									
(5) LIQ	-0.072 (0.111)	0.192 (0.000)	-0.155 (0.001)	-0.187 (0.000)	1.000								
(6) ICR	-0.009 (0.850)	0.149 (0.001)	-0.036 (0.428)	-0.102 (0.024)	0.394 (0.000)	1.000							
(7) LEV	0.497 (0.000)	-0.084 (0.064)	0.053 (0.245)	-0.109 (0.016)	-0.080 (0.079)	-0.040 (0.376)	1.000						
(8) AC	-0.001 (0.984)	0.024 (0.593)	-0.210 (0.000)	-0.073 (0.109)	0.051 (0.263)	-0.012 (0.799)	-0.007 (0.871)	1.000					
(9) FDI	-0.006 (0.903)	0.102 (0.024)	-0.024 (0.596)	-0.015 (0.734)	-0.013 (0.778)	0.038 (0.405)	-0.037 (0.414)	0.072 (0.114)	1.000				
(10) HHI_1	0.085 (0.059)	0.152 (0.001)	-0.154 (0.001)	-0.088 (0.052)	0.240 (0.000)	0.271 (0.000)	-0.017 (0.707)	-0.022 (0.626)	-0.046 (0.306)	1.000			
(11) HHI_2	0.071 (0.117)	0.130 (0.004)	-0.211 (0.000)	-0.171 (0.000)	0.323 (0.000)	0.359 (0.000)	0.007 (0.884)	-0.029 (0.527)	-0.025 (0.587)	0.913 (0.000)	1.000		
(12) HHI_3	0.026 (0.572)	0.121 (0.007)	-0.223 (0.000)	-0.082 (0.068)	0.292 (0.000)	0.325 (0.000)	-0.027 (0.552)	-0.044 (0.337)	-0.019 (0.672)	0.809 (0.000)	0.868 (0.000)	1.000	
(13) Crisis	-0.047 (0.301)	-0.043 (0.347)	-0.047 (0.299)	0.011 (0.814)	-0.004 (0.928)	0.021 (0.649)	0.025 (0.576)	-0.051 (0.262)	0.053 (0.238)	0.020 (0.655)	0.001 (0.984)	0.042 (0.354)	1.000

Appendix 54: Correlation Matrix South Korea Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.619 (0.000)	1.000											
(3) SIZE	-0.137 (0.000)	-0.246 (0.000)	1.000										
(4) TANG	0.035 (0.017)	-0.085 (0.000)	0.033 (0.026)	1.000									
(5) LIQ	-0.064 (0.000)	0.062 (0.000)	-0.183 (0.000)	-0.269 (0.000)	1.000								
(6) ICR	-0.024 (0.105)	0.101 (0.000)	-0.027 (0.064)	-0.103 (0.000)	0.372 (0.000)	1.000							
(7) LEV	0.464 (0.000)	0.013 (0.385)	0.104 (0.000)	0.050 (0.001)	-0.184 (0.000)	-0.114 (0.000)	1.000						
(8) AC	0.054 (0.000)	0.090 (0.000)	-0.102 (0.000)	-0.003 (0.827)	0.209 (0.000)	0.000 (0.973)	0.002 (0.866)	1.000					
(9) FDI	-0.011 (0.471)	-0.026 (0.076)	0.025 (0.082)	0.015 (0.306)	-0.028 (0.054)	-0.008 (0.580)	-0.011 (0.443)	0.000 (0.985)	1.000				
(10) HHI_1	0.002 (0.888)	0.088 (0.000)	-0.392 (0.000)	-0.171 (0.000)	0.244 (0.000)	0.259 (0.000)	-0.112 (0.000)	-0.010 (0.475)	0.006 (0.696)	1.000			
(11) HHI_2	-0.027 (0.067)	0.086 (0.000)	-0.337 (0.000)	-0.209 (0.000)	0.394 (0.000)	0.446 (0.000)	-0.161 (0.000)	-0.013 (0.386)	0.001 (0.960)	0.900 (0.000)	1.000		
(12) HHI_3	-0.032 (0.028)	0.058 (0.000)	-0.381 (0.000)	-0.122 (0.000)	0.329 (0.000)	0.395 (0.000)	-0.144 (0.000)	-0.004 (0.766)	0.019 (0.188)	0.846 (0.000)	0.907 (0.000)	1.000	
(13) Crisis	0.006 (0.700)	-0.001 (0.927)	-0.004 (0.793)	0.002 (0.880)	0.011 (0.435)	-0.001 (0.928)	0.006 (0.662)	-0.014 (0.324)	0.336 (0.000)	0.002 (0.891)	0.005 (0.731)	0.015 (0.307)	1.000

Appendix 55: Correlation Matrix Türkiye Subsample (Performance)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ROE	1.000												
(2) ROA	0.544 (0.000)	1.000											
(3) SIZE	0.008 (0.797)	-0.042 (0.168)	1.000										
(4) TANG	-0.069 (0.022)	-0.119 (0.000)	-0.024 (0.427)	1.000									
(5) LIQ	-0.098 (0.001)	0.128 (0.000)	-0.157 (0.000)	-0.231 (0.000)	1.000								
(6) ICR	0.033 (0.274)	0.267 (0.000)	-0.071 (0.019)	-0.081 (0.007)	0.213 (0.000)	1.000							
(7) LEV	0.481 (0.000)	-0.135 (0.000)	0.062 (0.042)	-0.064 (0.036)	-0.242 (0.000)	-0.120 (0.000)	1.000						
(8) AC	-0.004 (0.896)	-0.005 (0.879)	-0.256 (0.000)	0.120 (0.000)	-0.017 (0.568)	0.015 (0.624)	-0.007 (0.827)	1.000					
(9) FDI	0.005 (0.882)	0.048 (0.115)	-0.184 (0.000)	-0.093 (0.002)	-0.078 (0.010)	0.026 (0.399)	0.067 (0.028)	0.001 (0.963)	1.000				
(10) HHI_1	-0.050 (0.098)	0.163 (0.000)	-0.198 (0.000)	-0.103 (0.001)	0.287 (0.000)	0.270 (0.000)	-0.151 (0.000)	-0.010 (0.740)	-0.113 (0.000)	1.000			
(11) HHI_2	-0.023 (0.453)	0.234 (0.000)	-0.264 (0.000)	-0.141 (0.000)	0.303 (0.000)	0.278 (0.000)	-0.162 (0.000)	0.005 (0.865)	-0.023 (0.454)	0.923 (0.000)	1.000		
(12) HHI_3	-0.005 (0.870)	0.224 (0.000)	-0.249 (0.000)	-0.111 (0.000)	0.290 (0.000)	0.273 (0.000)	-0.151 (0.000)	-0.009 (0.778)	-0.068 (0.025)	0.876 (0.000)	0.950 (0.000)	1.000	
(13) Crisis	0.031 (0.306)	-0.020 (0.518)	-0.009 (0.772)	0.028 (0.353)	-0.003 (0.913)	-0.020 (0.516)	0.012 (0.704)	0.038 (0.214)	-0.262 (0.000)	-0.031 (0.313)	-0.004 (0.890)	0.011 (0.717)	1.000

Appendix 56: Correlation Matrix Whole Sample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.135 (0.000)	1.000											
(3) SIZE	-0.157 (0.000)	0.817 (0.000)	1.000										
(4) TANG	-0.119 (0.000)	0.010 (0.282)	0.125 (0.000)	1.000									
(5) LIQ	0.107 (0.000)	-0.066 (0.000)	-0.237 (0.000)	-0.186 (0.000)	1.000								
(6) ICR	0.091 (0.000)	0.031 (0.001)	-0.046 (0.000)	-0.059 (0.000)	0.234 (0.000)	1.000							
(7) LEV	0.006 (0.534)	-0.023 (0.013)	-0.006 (0.529)	-0.017 (0.070)	-0.018 (0.055)	-0.011 (0.213)	1.000						
(8) AC	0.003 (0.782)	0.006 (0.530)	-0.054 (0.000)	-0.019 (0.042)	0.011 (0.253)	-0.002 (0.814)	0.000 (0.968)	1.000					
(9) FDI	-0.077 (0.000)	0.108 (0.000)	0.129 (0.000)	-0.004 (0.631)	-0.046 (0.000)	0.054 (0.000)	-0.013 (0.155)	-0.016 (0.084)	1.000				
(10) HHI_1	0.155 (0.000)	-0.169 (0.000)	-0.308 (0.000)	-0.122 (0.000)	0.264 (0.000)	0.196 (0.000)	0.014 (0.144)	0.001 (0.895)	-0.267 (0.000)	1.000			
(11) HHI_2	0.188 (0.000)	-0.146 (0.000)	-0.298 (0.000)	-0.170 (0.000)	0.314 (0.000)	0.319 (0.000)	0.010 (0.277)	-0.001 (0.906)	-0.209 (0.000)	0.891 (0.000)	1.000		
(12) HHI_3	0.154 (0.000)	-0.208 (0.000)	-0.325 (0.000)	-0.093 (0.000)	0.286 (0.000)	0.278 (0.000)	0.010 (0.280)	-0.005 (0.585)	-0.245 (0.000)	0.831 (0.000)	0.906 (0.000)	1.000	
(13) Crisis	0.002 (0.794)	-0.022 (0.017)	-0.008 (0.401)	-0.026 (0.004)	0.017 (0.070)	-0.016 (0.081)	0.017 (0.064)	-0.012 (0.191)	-0.050 (0.000)	0.025 (0.006)	0.036 (0.000)	0.044 (0.000)	1.000

Appendix 57: Correlation Matrix Developed Countries (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.150 (0.000)	1.000											
(3) SIZE	-0.155 (0.000)	0.828 (0.000)	1.000										
(4) TANG	-0.143 (0.000)	0.020 (0.051)	0.138 (0.000)	1.000									
(5) LIQ	0.123 (0.000)	-0.109 (0.000)	-0.265 (0.000)	-0.178 (0.000)	1.000								
(6) ICR	0.098 (0.000)	0.021 (0.048)	-0.051 (0.000)	-0.061 (0.000)	0.255 (0.000)	1.000							
(7) LEV	0.014 (0.190)	-0.021 (0.041)	-0.011 (0.294)	-0.016 (0.126)	-0.015 (0.157)	-0.009 (0.366)	1.000						
(8) AC	0.063 (0.000)	-0.047 (0.000)	-0.197 (0.000)	-0.060 (0.000)	0.035 (0.001)	0.012 (0.242)	0.000 (0.996)	1.000					
(9) FDI	-0.111 (0.000)	-0.046 (0.000)	0.017 (0.099)	0.178 (0.000)	-0.111 (0.000)	0.051 (0.000)	-0.006 (0.544)	-0.014 (0.171)	1.000				
(10) HHI_1	0.145 (0.000)	-0.163 (0.000)	-0.306 (0.000)	-0.155 (0.000)	0.271 (0.000)	0.211 (0.000)	0.018 (0.084)	0.065 (0.000)	-0.171 (0.000)	1.000			
(11) HHI_2	0.176 (0.000)	-0.131 (0.000)	-0.279 (0.000)	-0.198 (0.000)	0.332 (0.000)	0.347 (0.000)	0.014 (0.185)	0.052 (0.000)	-0.196 (0.000)	0.876 (0.000)	1.000		
(12) HHI_3	0.146 (0.000)	-0.199 (0.000)	-0.321 (0.000)	-0.116 (0.000)	0.306 (0.000)	0.312 (0.000)	0.014 (0.184)	0.043 (0.000)	-0.207 (0.000)	0.825 (0.000)	0.919 (0.000)	1.000	
(13) Crisis	0.002 (0.850)	-0.015 (0.152)	-0.002 (0.869)	-0.046 (0.000)	0.026 (0.013)	-0.021 (0.042)	0.016 (0.137)	-0.006 (0.544)	-0.187 (0.000)	0.041 (0.000)	0.052 (0.000)	0.055 (0.000)	1.000

Appendix 58: Correlation Matrix Developing Countries (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.127 (0.000)	1.000											
(3) SIZE	-0.161 (0.000)	0.773 (0.000)	1.000										
(4) TANG	-0.080 (0.000)	0.012 (0.551)	0.120 (0.000)	1.000									
(5) LIQ	0.080 (0.000)	0.042 (0.034)	-0.168 (0.000)	-0.213 (0.000)	1.000								
(6) ICR	0.094 (0.000)	0.030 (0.129)	-0.069 (0.001)	-0.036 (0.071)	0.186 (0.000)	1.000							
(7) LEV	-0.022 (0.268)	-0.024 (0.221)	0.029 (0.151)	-0.026 (0.186)	-0.034 (0.089)	-0.020 (0.308)	1.000						
(8) AC	-0.002 (0.927)	0.022 (0.277)	-0.085 (0.000)	-0.034 (0.091)	0.015 (0.450)	-0.005 (0.809)	-0.002 (0.930)	1.000					
(9) FDI	-0.087 (0.000)	-0.036 (0.068)	0.078 (0.000)	-0.097 (0.000)	-0.009 (0.638)	-0.127 (0.000)	-0.005 (0.792)	0.000 (0.994)	1.000				
(10) HHI_1	0.165 (0.000)	-0.094 (0.000)	-0.250 (0.000)	-0.092 (0.000)	0.261 (0.000)	0.242 (0.000)	-0.015 (0.445)	-0.011 (0.582)	-0.163 (0.000)	1.000			
(11) HHI_2	0.209 (0.000)	-0.120 (0.000)	-0.307 (0.000)	-0.128 (0.000)	0.278 (0.000)	0.287 (0.000)	-0.015 (0.445)	-0.012 (0.531)	-0.164 (0.000)	0.929 (0.000)	1.000		
(12) HHI_3	0.167 (0.000)	-0.136 (0.000)	-0.270 (0.000)	-0.079 (0.000)	0.253 (0.000)	0.249 (0.000)	-0.021 (0.287)	-0.022 (0.260)	0.010 (0.607)	0.823 (0.000)	0.869 (0.000)	1.000	
(13) Crisis	0.007 (0.737)	-0.063 (0.002)	-0.045 (0.025)	0.045 (0.025)	-0.006 (0.746)	-0.003 (0.882)	0.029 (0.145)	-0.024 (0.228)	-0.090 (0.000)	0.009 (0.654)	0.007 (0.733)	0.036 (0.069)	1.000

Appendix 59: Correlation Matrix Brazil Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.522 (0.000)	1.000											
(3) SIZE	0.186 (0.000)	0.787 (0.000)	1.000										
(4) TANG	-0.263 (0.000)	-0.090 (0.006)	0.087 (0.008)	1.000									
(5) LIQ	0.132 (0.000)	0.068 (0.036)	-0.151 (0.000)	-0.217 (0.000)	1.000								
(6) ICR	0.163 (0.000)	0.043 (0.182)	-0.128 (0.000)	-0.121 (0.000)	0.131 (0.000)	1.000							
(7) LEV	-0.083 (0.011)	-0.073 (0.024)	-0.014 (0.660)	-0.005 (0.869)	-0.051 (0.119)	-0.041 (0.214)	1.000						
(8) AC	-0.020 (0.548)	-0.062 (0.059)	-0.183 (0.000)	-0.047 (0.152)	-0.011 (0.732)	0.012 (0.711)	-0.006 (0.849)	1.000					
(9) FDI	0.107 (0.001)	0.028 (0.383)	-0.062 (0.056)	-0.161 (0.000)	0.011 (0.736)	0.000 (0.998)	-0.009 (0.782)	-0.022 (0.495)	1.000				
(10) HHI_1	-0.052 (0.113)	-0.155 (0.000)	-0.283 (0.000)	-0.124 (0.000)	0.266 (0.000)	0.179 (0.000)	-0.041 (0.209)	-0.017 (0.597)	-0.091 (0.005)	1.000			
(11) HHI_2	-0.003 (0.933)	-0.183 (0.000)	-0.331 (0.000)	-0.173 (0.000)	0.274 (0.000)	0.202 (0.000)	-0.054 (0.098)	0.012 (0.707)	-0.032 (0.326)	0.936 (0.000)	1.000		
(12) HHI_3	-0.072 (0.028)	-0.236 (0.000)	-0.309 (0.000)	-0.062 (0.057)	0.221 (0.000)	0.123 (0.000)	-0.030 (0.360)	-0.010 (0.770)	-0.200 (0.000)	0.761 (0.000)	0.769 (0.000)	1.000	
(13) Crisis	-0.070 (0.031)	-0.038 (0.239)	0.018 (0.582)	0.078 (0.017)	-0.015 (0.649)	0.009 (0.792)	0.021 (0.518)	-0.032 (0.331)	-0.349 (0.000)	0.030 (0.355)	-0.006 (0.858)	0.103 (0.002)	1.000

Appendix 60: Correlation Matrix France Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.113 (0.000)	1.000											
(3) SIZE	-0.192 (0.000)	0.840 (0.000)	1.000										
(4) TANG	-0.128 (0.000)	0.129 (0.000)	0.197 (0.000)	1.000									
(5) LIQ	0.054 (0.016)	-0.152 (0.000)	-0.312 (0.000)	-0.115 (0.000)	1.000								
(6) ICR	0.090 (0.000)	-0.011 (0.614)	-0.068 (0.003)	-0.054 (0.015)	0.111 (0.000)	1.000							
(7) LEV	-0.001 (0.970)	-0.020 (0.367)	-0.001 (0.974)	-0.009 (0.704)	-0.014 (0.541)	-0.012 (0.579)	1.000						
(8) AC	0.121 (0.000)	-0.056 (0.012)	-0.274 (0.000)	-0.063 (0.005)	0.054 (0.015)	0.010 (0.659)	-0.003 (0.906)	1.000					
(9) FDI	0.022 (0.321)	-0.010 (0.663)	-0.066 (0.003)	-0.052 (0.022)	0.034 (0.129)	-0.014 (0.524)	0.006 (0.804)	0.044 (0.052)	1.000				
(10) HHI_1	0.122 (0.000)	-0.130 (0.000)	-0.264 (0.000)	-0.062 (0.006)	0.226 (0.000)	0.226 (0.000)	0.026 (0.242)	0.070 (0.002)	0.029 (0.202)	1.000			
(11) HHI_2	0.155 (0.000)	-0.078 (0.000)	-0.206 (0.000)	-0.109 (0.000)	0.207 (0.000)	0.255 (0.000)	0.013 (0.564)	0.058 (0.010)	0.000 (0.989)	0.867 (0.000)	1.000		
(12) HHI_3	0.138 (0.000)	-0.126 (0.000)	-0.230 (0.000)	-0.091 (0.000)	0.198 (0.000)	0.246 (0.000)	0.019 (0.395)	0.052 (0.021)	-0.010 (0.666)	0.847 (0.000)	0.974 (0.000)	1.000	
(13) Crisis	-0.014 (0.528)	-0.016 (0.482)	0.029 (0.194)	0.019 (0.407)	-0.031 (0.166)	0.024 (0.286)	0.019 (0.404)	-0.014 (0.546)	-0.519 (0.000)	0.003 (0.895)	0.008 (0.736)	0.011 (0.609)	1.000

Appendix 61: Correlation Matrix Germany Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.070 (0.002)	1.000											
(3) SIZE	-0.150 (0.000)	0.882 (0.000)	1.000										
(4) TANG	-0.103 (0.000)	-0.006 (0.773)	0.045 (0.042)	1.000									
(5) LIQ	0.119 (0.000)	-0.194 (0.000)	-0.306 (0.000)	-0.114 (0.000)	1.000								
(6) ICR	0.142 (0.000)	0.024 (0.281)	-0.061 (0.006)	-0.145 (0.000)	0.235 (0.000)	1.000							
(7) LEV	0.063 (0.005)	-0.054 (0.016)	-0.063 (0.005)	-0.021 (0.358)	-0.029 (0.201)	-0.005 (0.823)	1.000						
(8) AC	0.013 (0.569)	-0.065 (0.003)	-0.169 (0.000)	-0.048 (0.033)	0.024 (0.289)	0.056 (0.012)	0.000 (0.989)	1.000					
(9) FDI	-0.089 (0.000)	-0.077 (0.001)	0.002 (0.932)	0.009 (0.690)	-0.028 (0.205)	-0.049 (0.029)	0.019 (0.407)	0.016 (0.469)	1.000				
(10) HHI_1	0.194 (0.000)	-0.055 (0.014)	-0.241 (0.000)	-0.040 (0.072)	0.282 (0.000)	0.154 (0.000)	0.036 (0.108)	0.094 (0.000)	-0.063 (0.005)	1.000			
(11) HHI_2	0.196 (0.000)	-0.080 (0.000)	-0.248 (0.000)	-0.137 (0.000)	0.274 (0.000)	0.307 (0.000)	0.053 (0.017)	0.066 (0.003)	-0.093 (0.000)	0.828 (0.000)	1.000		
(12) HHI_3	0.180 (0.000)	-0.202 (0.000)	-0.366 (0.000)	-0.035 (0.113)	0.286 (0.000)	0.278 (0.000)	0.050 (0.025)	0.062 (0.005)	-0.071 (0.001)	0.784 (0.000)	0.914 (0.000)	1.000	
(13) Crisis	-0.052 (0.020)	-0.034 (0.128)	-0.001 (0.975)	0.004 (0.872)	0.000 (0.985)	-0.038 (0.089)	0.018 (0.408)	-0.055 (0.013)	0.115 (0.000)	-0.002 (0.915)	-0.014 (0.528)	-0.002 (0.940)	1.000

Appendix 62: Correlation Matrix Italy Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.342 (0.000)	1.000											
(3) SIZE	-0.057 (0.063)	0.805 (0.000)	1.000										
(4) TANG	-0.194 (0.000)	0.132 (0.000)	0.243 (0.000)	1.000									
(5) LIQ	0.220 (0.000)	-0.020 (0.520)	-0.219 (0.000)	-0.200 (0.000)	1.000								
(6) ICR	0.372 (0.000)	0.019 (0.529)	-0.126 (0.000)	-0.019 (0.542)	0.237 (0.000)	1.000							
(7) LEV	-0.150 (0.000)	-0.175 (0.000)	-0.041 (0.178)	-0.008 (0.798)	-0.180 (0.000)	-0.089 (0.004)	1.000						
(8) AC	0.022 (0.471)	-0.208 (0.000)	-0.398 (0.000)	-0.098 (0.001)	-0.008 (0.800)	0.056 (0.066)	0.028 (0.356)	1.000					
(9) FDI	0.095 (0.002)	0.016 (0.609)	-0.101 (0.001)	-0.045 (0.144)	0.030 (0.334)	0.060 (0.050)	-0.070 (0.022)	0.055 (0.070)	1.000				
(10) HHI_1	0.071 (0.021)	-0.125 (0.000)	-0.233 (0.000)	-0.074 (0.016)	0.316 (0.000)	0.231 (0.000)	-0.018 (0.555)	0.076 (0.013)	-0.015 (0.624)	1.000			
(11) HHI_2	0.204 (0.000)	-0.112 (0.000)	-0.269 (0.000)	-0.126 (0.000)	0.343 (0.000)	0.265 (0.000)	-0.044 (0.147)	0.130 (0.000)	0.016 (0.598)	0.918 (0.000)	1.000		
(12) HHI_3	0.150 (0.000)	-0.156 (0.000)	-0.284 (0.000)	-0.153 (0.000)	0.310 (0.000)	0.211 (0.000)	-0.018 (0.552)	0.115 (0.000)	0.028 (0.363)	0.791 (0.000)	0.848 (0.000)	1.000	
(13) Crisis	-0.099 (0.001)	-0.040 (0.189)	0.048 (0.118)	0.043 (0.157)	-0.025 (0.416)	-0.092 (0.003)	0.063 (0.040)	-0.043 (0.158)	-0.197 (0.000)	-0.020 (0.519)	-0.025 (0.406)	0.032 (0.301)	1.000

Appendix 63: Correlation Matrix Mexico Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.320 (0.000)	1.000											
(3) SIZE	-0.180 (0.022)	0.762 (0.000)	1.000										
(4) TANG	-0.120 (0.126)	-0.430 (0.000)	-0.197 (0.012)	1.000									
(5) LIQ	0.524 (0.000)	0.230 (0.003)	-0.150 (0.055)	-0.367 (0.000)	1.000								
(6) ICR	0.623 (0.000)	0.130 (0.097)	-0.057 (0.468)	0.180 (0.021)	0.350 (0.000)	1.000							
(7) LEV	-0.213 (0.006)	-0.304 (0.000)	-0.094 (0.234)	0.269 (0.001)	-0.194 (0.013)	-0.113 (0.151)	1.000						
(8) AC	-0.274 (0.000)	-0.333 (0.000)	-0.105 (0.183)	0.156 (0.047)	-0.261 (0.001)	-0.191 (0.014)	0.304 (0.000)	1.000					
(9) FDI	0.048 (0.541)	0.021 (0.792)	0.012 (0.877)	-0.089 (0.258)	-0.045 (0.568)	-0.033 (0.678)	-0.011 (0.894)	0.006 (0.938)	1.000				
(10) HHI_1	0.320 (0.000)	0.230 (0.003)	-0.092 (0.245)	-0.007 (0.930)	0.351 (0.000)	0.276 (0.000)	0.134 (0.087)	-0.163 (0.037)	-0.079 (0.315)	1.000			
(11) HHI_2	0.448 (0.000)	0.183 (0.019)	-0.125 (0.112)	0.076 (0.337)	0.370 (0.000)	0.491 (0.000)	0.086 (0.273)	-0.123 (0.118)	-0.023 (0.770)	0.930 (0.000)	1.000		
(12) HHI_3	0.372 (0.000)	0.054 (0.493)	-0.239 (0.002)	0.153 (0.052)	0.312 (0.000)	0.446 (0.000)	0.135 (0.085)	-0.052 (0.511)	-0.059 (0.457)	0.893 (0.000)	0.942 (0.000)	1.000	
(13) Crisis	0.031 (0.694)	0.041 (0.607)	0.017 (0.825)	-0.032 (0.686)	0.005 (0.951)	-0.051 (0.516)	0.036 (0.650)	0.005 (0.952)	0.516 (0.000)	-0.034 (0.671)	-0.014 (0.857)	-0.043 (0.588)	1.000

Appendix 64: Correlation Matrix Russia Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.374 (0.000)	1.000											
(3) SIZE	0.057 (0.208)	0.811 (0.000)	1.000										
(4) TANG	0.155 (0.001)	0.292 (0.000)	0.327 (0.000)	1.000									
(5) LIQ	0.099 (0.029)	0.026 (0.573)	-0.179 (0.000)	-0.167 (0.000)	1.000								
(6) ICR	0.079 (0.079)	-0.021 (0.639)	-0.058 (0.200)	-0.089 (0.049)	0.401 (0.000)	1.000							
(7) LEV	-0.061 (0.177)	-0.043 (0.343)	0.014 (0.752)	-0.068 (0.132)	-0.039 (0.389)	-0.028 (0.544)	1.000						
(8) AC	0.035 (0.440)	0.048 (0.294)	-0.222 (0.000)	-0.069 (0.125)	0.052 (0.249)	-0.011 (0.804)	-0.005 (0.911)	1.000					
(9) FDI	0.089 (0.049)	0.039 (0.387)	-0.024 (0.592)	-0.054 (0.235)	-0.023 (0.616)	0.033 (0.464)	-0.043 (0.338)	0.069 (0.129)	1.000				
(10) HHI_1	0.159 (0.000)	-0.107 (0.017)	-0.160 (0.000)	-0.076 (0.091)	0.190 (0.000)	0.240 (0.000)	0.001 (0.979)	-0.024 (0.600)	-0.080 (0.078)	1.000			
(11) HHI_2	0.110 (0.015)	-0.149 (0.001)	-0.205 (0.000)	-0.149 (0.001)	0.288 (0.000)	0.330 (0.000)	0.009 (0.839)	-0.030 (0.509)	-0.059 (0.190)	0.929 (0.000)	1.000		
(12) HHI_3	0.134 (0.003)	-0.130 (0.004)	-0.217 (0.000)	-0.067 (0.139)	0.265 (0.000)	0.308 (0.000)	-0.014 (0.766)	-0.045 (0.321)	-0.063 (0.162)	0.833 (0.000)	0.883 (0.000)	1.000	
(13) Crisis	-0.027 (0.555)	-0.031 (0.489)	-0.025 (0.581)	0.032 (0.482)	-0.019 (0.679)	0.013 (0.766)	0.067 (0.136)	-0.052 (0.255)	0.055 (0.225)	0.011 (0.802)	-0.007 (0.885)	0.026 (0.572)	1.000

Appendix 65: Correlation Matrix South Korea Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.309 (0.000)	1.000											
(3) SIZE	-0.125 (0.000)	0.786 (0.000)	1.000										
(4) TANG	-0.128 (0.000)	-0.038 (0.015)	0.064 (0.000)	1.000									
(5) LIQ	0.161 (0.000)	-0.016 (0.301)	-0.203 (0.000)	-0.279 (0.000)	1.000								
(6) ICR	0.118 (0.000)	0.046 (0.003)	-0.051 (0.001)	-0.100 (0.000)	0.390 (0.000)	1.000							
(7) LEV	-0.090 (0.000)	-0.010 (0.513)	0.103 (0.000)	-0.018 (0.246)	-0.125 (0.000)	-0.074 (0.000)	1.000						
(8) AC	0.093 (0.000)	-0.002 (0.922)	-0.167 (0.000)	-0.081 (0.000)	0.065 (0.000)	0.002 (0.909)	-0.031 (0.048)	1.000					
(9) FDI	-0.034 (0.030)	-0.064 (0.000)	-0.035 (0.025)	0.023 (0.144)	-0.037 (0.018)	-0.004 (0.775)	-0.025 (0.113)	-0.017 (0.281)	1.000				
(10) HHI_1	0.071 (0.000)	-0.332 (0.000)	-0.432 (0.000)	-0.181 (0.000)	0.262 (0.000)	0.272 (0.000)	-0.087 (0.000)	0.039 (0.012)	0.017 (0.274)	1.000			
(11) HHI_2	0.121 (0.000)	-0.266 (0.000)	-0.394 (0.000)	-0.214 (0.000)	0.424 (0.000)	0.460 (0.000)	-0.117 (0.000)	0.065 (0.000)	0.009 (0.551)	0.898 (0.000)	1.000		
(12) HHI_3	0.072 (0.000)	-0.316 (0.000)	-0.420 (0.000)	-0.134 (0.000)	0.357 (0.000)	0.413 (0.000)	-0.108 (0.000)	0.041 (0.008)	0.029 (0.063)	0.849 (0.000)	0.915 (0.000)	1.000	
(13) Crisis	-0.008 (0.593)	-0.032 (0.040)	-0.016 (0.305)	0.007 (0.651)	0.005 (0.731)	-0.004 (0.801)	-0.001 (0.972)	-0.001 (0.925)	0.332 (0.000)	0.003 (0.851)	0.005 (0.742)	0.020 (0.194)	1.000

Appendix 66: Correlation Matrix Türkiye Subsample (Value)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Tobin's Q	1.000												
(2) LnMCAP	0.185 (0.000)	1.000											
(3) SIZE	-0.186 (0.000)	0.717 (0.000)	1.000										
(4) TANG	-0.090 (0.006)	-0.036 (0.267)	0.060 (0.069)	1.000									
(5) LIQ	0.069 (0.036)	0.056 (0.090)	-0.168 (0.000)	-0.235 (0.000)	1.000								
(6) ICR	0.064 (0.053)	0.047 (0.150)	-0.094 (0.004)	-0.083 (0.011)	0.204 (0.000)	1.000							
(7) LEV	0.025 (0.443)	-0.055 (0.092)	0.012 (0.705)	-0.006 (0.864)	-0.139 (0.000)	-0.070 (0.032)	1.000						
(8) AC	0.014 (0.662)	-0.073 (0.027)	-0.302 (0.000)	-0.118 (0.000)	0.078 (0.017)	0.023 (0.487)	-0.022 (0.501)	1.000					
(9) FDI	0.166 (0.000)	-0.012 (0.713)	-0.197 (0.000)	-0.058 (0.075)	-0.106 (0.001)	0.031 (0.352)	0.065 (0.049)	0.018 (0.575)	1.000				
(10) HHI_1	0.192 (0.000)	-0.031 (0.349)	-0.220 (0.000)	-0.111 (0.001)	0.292 (0.000)	0.276 (0.000)	-0.109 (0.001)	0.073 (0.027)	-0.118 (0.000)	1.000			
(11) HHI_2	0.238 (0.000)	-0.048 (0.145)	-0.298 (0.000)	-0.146 (0.000)	0.297 (0.000)	0.275 (0.000)	-0.103 (0.002)	0.141 (0.000)	-0.022 (0.501)	0.920 (0.000)	1.000		
(12) HHI_3	0.231 (0.000)	-0.038 (0.249)	-0.289 (0.000)	-0.125 (0.000)	0.292 (0.000)	0.271 (0.000)	-0.098 (0.003)	0.141 (0.000)	-0.061 (0.062)	0.882 (0.000)	0.958 (0.000)	1.000	
(13) Crisis	-0.005 (0.881)	-0.050 (0.126)	-0.003 (0.929)	0.039 (0.238)	-0.004 (0.906)	-0.018 (0.573)	-0.029 (0.372)	0.022 (0.497)	-0.257 (0.000)	-0.039 (0.239)	-0.014 (0.679)	-0.003 (0.920)	1.000