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Profitability or Longevity? Cross-Country Variations in Corporate Performance

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Abstract: The previous literature shows that firms' purposes and behaviors vary across countries, but few studies have empirically examined whether firm performance varies across countries. This study compares the performance of the world's largest corporations across 47 countries. Using the data for firms listed in the Fortune Global 500 from 1973 to 2020, we explore whether there are cross-country variations in two dimensions of corporate performance: *profitability* and *longevity*. We find significant variations in both profitability and longevity across countries. We also observe that firms in some countries are highly (less) profitable but less (more) likely to survive for a long time. We regress profitability and longevity on country-level institutional factors: financial systems, laws, and national cultures. We find that (i) a market-based (bank-based) financial system is positively (negatively) related to a firm's profitability, but negatively (positively) related to its longevity; (ii) common law (civil law) is positively (negatively) related to the profitability of a firm, but negatively (positively) related to its longevity; and (iii) high individualism, low uncertainty avoidance, and low long-term orientation are positively related to profitability, but negatively related to longevity. These results suggest that a country's formal and informal institutions significantly affect a firm's purpose, behavior, and performance.

Keywords: corporate performance; profitability; longevity; financial system; law; national culture; corporate governance; shareholder-oriented countries; stakeholder-oriented countries; cross-country study

1. Introduction

This work is a cross-country comparative study on corporate performance. Using company data from 47 countries around the world, we analyze two dimensions of a firm's performance, profitability and longevity, and examine whether and how they differ from country to country.

In recent years, there has been a lively debate about the purpose of a corporation in a capitalist economy [1–4]. The previous literature argues that there are several different types of corporations in the world, and that different types of corporations have different purposes [5–9]. The most representative view is that there are both shareholder-oriented and stakeholder-oriented companies in the world, and which of these types of company is dominant varies from country to country [10–14].

A shareholder-oriented company is one whose purpose is to maximize shareholder value and whose primary management goal is to make as much profit as possible. These shareholder-oriented companies are said to be dominant in Anglo-Saxon countries such as the U.S. and the U.K. On the other hand, a stakeholder-oriented company is one that aims to create value for various stakeholders (shareholders, employees, creditors, customers, suppliers, and local communities). These stakeholder-oriented companies are said to be most common in continental European countries, such as Germany and France, as well as in Asian countries such as Japan [15,16]. In fact, Yoshimori's [17] survey of managers

in the U.S., the U.K., Germany, France, and Japan and Witt and Redding's [18] interviews with managers in the U.S., Germany, Japan, Korea, and Hong Kong revealed that corporate purposes actually differ between Anglo-Saxon countries and European or Asian countries.

Corporate purposes should influence a firm's behavior. Thus, cross-country differences in corporate purposes should lead to cross-country differences in corporate behavior. Previous empirical studies have shown that there are cross-country differences in firm behavior, such as investment and R&D [19–22], capital structure [23–26], dividend policy [27,28], cash holdings [22,29,30], and M&A [31].

However, the question is, even if the corporate purposes and behavior differ from country to country, does the actual performance of companies also differ from country to country? For example, do companies in the U.S. and the U.K., which are said to aim at maximizing shareholder value, really generate more profits than companies in other countries? Meanwhile, do companies in France, Germany, and Japan, which are said to have relationships with their stakeholders, really create more value for their stakeholders?

To date, few studies have empirically examined whether firm performance differs across countries. The few exceptions are Espenlaub et al. [32], La Porta et al. [33], and Liang and Renneboog [34]. Using the data on firms across 27 countries worldwide in 1995–1996, La Porta et al. [33] found that firms in common law countries tend to have higher Tobin's Q than firms in civil law countries. Espenlaub et al. [32] examined the survival of IPO firms from 32 countries from 2000 to 2008 and showed that IPO firms survive longer in countries with better investor protection. Liang and Renneboog [34] compared the CSR of firms from 112 countries from 1999 to 2014 and found that firms in civil law countries have higher CSR scores than those in common law countries. Compared to the frequent discussion on cross-county differences in corporate purposes and behavior, there is still little empirical evidence regarding cross-country differences in corporate performance.

To fill this gap, this study examines whether corporate performance differs across countries, using data on companies from 47 countries around the world. Compared to Espenlaub et al. [32], La Porta et al. [33], and Liang and Renneboog [34], this study has three unique features.

The first is comparing two dimensions of corporate performance across countries: profitability and longevity. While profitability is a well-known measure of a company's performance, longevity has not received as much attention as profitability as a measure of a company's performance. However, if we take a stakeholder-oriented view of the firm, longevity can be considered as one essential corporate performance measure. Stakeholders not only engage in current transactions with the firm, but they also typically make specific investments in the relationship with the firm, expecting that they will obtain monetary/non-monetary value in the future. For example, employees usually invest their human capital as well as off-work related capital (e.g., housing, children's schools, and social relationships in local community) with the employment relationship [13] and, hence, they seek future job security for their companies. Customers may purchase a particular brand of products and require post-purchase services from the company. Suppliers may invest in specialized equipment to make the company's products and aim to establish a long-term partnership with the company. These relationships between a firm and its stakeholders are considered as implicit (incomplete) contracts, and they cannot be traded in the market, unlike the relationship between shareholders and the firm, which is embodied in the ownership of shares and tradable in the stock market [13,35]. Thus, the value stakeholders can obtain will depend on the firm's future circumstances. If the firm goes bankrupt or is acquired by another firm, stakeholders will not get the value they initially expected [6,36]. Therefore, the survival of a company is critically important to its stakeholders. Indeed, Witt and Redding [18] and Witt and Stahl [14] presented interview evidence that, in Germany and Japan (which are considered stakeholder-oriented societies), corporate managers' goals are to ensure corporate survival and the permanence of the firm. Mayer ([6], p. 155) stated that "longevity and survival are the indicators of corporate success" from the stakeholder-oriented view of the firm.

The second feature of this study is that we further explore how country-level institutional factors are related to these differences if we find cross-country differences in profitability and longevity. In particular, unlike Espenlaub et al. [32], La Porta et al. [33], and Liang and Renneboog [34], who focused only on laws as institutional factors in each country, we examine not only the effect of a country's laws, but also the effects of a country's financial system and national culture on corporate performance. This provides us with a broader perspective to understand why cross-country performance differences emerge.

The third feature is that we use the world's corporation data to cover a long period of time—48 years from 1973 to 2020. This allows us to examine whether or not there are cross-country differences in corporate performance over the long term, after removing the effects of each country's short-term economic fluctuations that may affect corporate performance.

A challenging task in our research is collecting data to measure corporate longevity. For a company's profitability, it is relatively easy to calculate profitability measures such as ROS (return on sales), ROA (return on assets), and ROE (return on equity) by collecting financial data figures from databases that include data on companies around the world. However, from such databases, it is not easy to obtain information on a company's longevity, because data regarding the survival or death of a company are not as easily available as financial data figures. Databases usually stop including a company's data when the company is delisted from the stock exchange. Thus, we may have the data on a company's delisted year from the database, but being delisted does not necessarily mean that the company ceased to exist in that year; it may be that the company went private in that year, and it was still running. (For example, in Datastream, a global database, the reason why a company's data are no longer included in the database is stated such as "company inactive delisted in Sep. 2011. Information will no longer be provided." However, it does not state the reason why the company was delisted). We thus face difficulty in obtaining information from databases regarding the survival or death of firms, which can be inferred as being one reason why there has been no systematic analysis of firm longevity around the world.

In this paper, we address this problem by restricting our sample to large-scale global companies. More specifically, we choose as our sample companies that appear in *Fortune* magazine's annual list of the world's 500 largest companies (*Fortune Global 500*). Since the Fortune Global 500 companies are the largest companies in the world, it is easier to collect information on their subsequent survival or death from various sources, including the Internet, than it is for regular public companies. In addition, The Fortune magazine provides a footnote if a company was on the Fortune Global 500 list in a given year and is no longer on the list in the subsequent year due to bankruptcy or acquisition by another company. That is, information on the survival and death of our sample firms can be gathered, in part, from the Fortune magazine itself. We manually collected the data on the survival or death of our sample firms from various sources and checked whether they were still alive 10, 20, or 30 years after the year in which they were on the Fortune Global 500 list.

Analyzing the data, we find significant variations in both a firm's profitability and longevity across countries. Interestingly, firms in some countries (e.g., the U.S. and the U.K.) are highly profitable, but less likely to survive for a long time, while firms in other countries (e.g., France and Japan) are less profitable, but more likely to survive for a long time. We also find that country-level institutional factors (financial system, law, and national culture) are significantly related to a firm's profitability and longevity. Some institutional factors (such as a market-based financial system, a common law origin, and individualism) have positive effects on a firm's profitability, but negative effects on a firm's longevity. Other factors (such as a bank-based financial system, a civil law origin, uncertainty avoidance, and long-term orientation) have negative effects on a firm's profitability, but positive effects on a firm's longevity. This suggests that institutions matter for corporate performance and that each institutional factor has a positive impact on one dimension of corporate performance, but a negative impact on the other.

The findings of this paper not only contribute to the literature in this field, but also have practical and policy implications. Since the late 1990s, there have been policy movements to introduce Anglo-Saxon shareholder-oriented corporate governance to stakeholder-oriented economies such as Germany and Japan. These movements were based on the assumption that U.S. and U.K. companies perform better than German and Japanese companies, and that shareholder-oriented governance enhances a firm's competitiveness [16,37]. However, to date, the validity of this assumption has not been adequately examined with data. Without empirical evidence on performance differences between the U.S./U.K. firms and German/Japanese firms, it is difficult to predict the effects of the introduction of Anglo-Saxon-style corporate governance to German and Japanese stakeholder-oriented economies. In addition, corporate governance reforms usually involve attempts to change national institutions, particularly laws (including soft laws such as codes) and financial systems. However, it should not be possible to discuss the effects of the pros and cons of changing such institutions without knowing whether and how a country's institutional environment is related to corporate performance. Therefore, the findings of this study on cross-country differences in a firm's profitability and longevity and the relationship between a country's institutional factors and corporate performance provide useful knowledge for these practical and policy issues on corporate governance.

This paper is organized as follows. First, Section 2 describes the data and research methodologies. Section 3 uses these data to examine whether there are variations in firm performance across countries from two performance dimensions: profitability and longevity. Section 4 examines the possibility that a country's institutional factors (financial system, law, and national culture) affect firm performance. Section 5 provides empirical analyses of the relationship between institutional factors and firm performance. Finally, Section 6 summarizes the results of this paper and discusses the implications.

2. Data and Research Methodology

2.1. Sample

Our original sample consists of firms around the world that were included in one of the three lists of the Fortune magazine—Fortune Global 500, Fortune 500, and Fortune International 500—from 1973 to 2020. The sample firms from 1989 to 2020 were firms listed in the Fortune Global 500 for each year. Since 1990, the Fortune magazine has annually announced the 500 largest companies all over the world ranked by sales (in USD) in the previous year as the Fortune Global 500 (the 1990–1993 period covered the manufacturing sector, and from 1994 onward, all industries). We looked at the Fortune magazine every year from 1990 to 2021 and chose the Fortune Global 500 firms as our sample firms for 1989–2020.

Before 1990, the Fortune annually announced the 500 largest manufacturing firms in the U.S. (Fortune 500) ranked by sales in the previous year, and the 500 largest manufacturing firms outside the U.S. (Fortune International 500) ranked by sales (in USD) in the previous year, separately. Therefore, we combined these two lists and chose the 500 largest manufacturing firms in the world ranked by sales (in USD) for each year, and created our list of the Fortune Global 500 as our sample for 1973–1988 (The Fortune magazine had announced the Fortune 500 and Fortune International 500 before 1973, but they had not included data on the industries of the firms. Therefore, we excluded pre-1973 from the sample).

If the same firm appeared on the list for more than one year, it is treated as a separate observation. Thus, our data are firm-year unbalanced panel data (To address within-firm residual correlations, we use standard errors clustered by the firm in the regression analyses in Section 5). The original sample for all years (1973–2020) was composed of 24,000 firm-year observations (500 firms per each year × 48 years). From this original sample, we excluded firms in the finance and insurance sectors (SIC code 60–63) and firms in current and former socialist countries (China, Hungary, Poland, and Russia) (Firms in the finance and insurance sectors were removed from the sample for three reasons. First, the operations

of finance and insurance firms differ in many aspects from those of general business firms, and their financial statements have different formats. Second, the finance and insurance sectors are regulated industries. Third, while the present study explores the impact of the financial system on firm performance, firms in the finance and insurance sectors are themselves members of the financial system. The percentage of finance and insurance firms in the Fortune Global 500 lists for 1994–2020 is 24.7%, and still accounts for 23.9% of the 2020 list). This left us with 19,498 firm-year observations (1384 firms) in 47 countries. The sample compositions by country, industry, and year are summarized in Table 1.

In the Fortune lists, the following data are available for each sample firm: company name, sales, net profits, total assets, stockholders' equity (these data are in USD). the number of employees, industrial classification, country, and information on M&A, spin-off, bankruptcy, and company name changes. We utilized these data for our analyses.

2.2. Performance Measures

As explained earlier, we focus on two dimensions of corporate performance: profitability and longevity. For profitability, we define three measures: ROS (return on sales; net profits/sales; %); ROA (return on assets; net profits/total assets; %); and ROE (return on equity; net profits/stockholders' equity; %). (When a company's fiscal year ends changed, it was dropped from the sample when calculating ROS, ROA, and ROE. We also dropped firms when calculating ROE if the firm's stockholder's equity was negative). The data for the calculation of these measures were taken from the Fortune magazine.

For longevity, we looked at a company's probability of survival for the subsequent 10, 20, and 30 years. To define the survival of a company, following the previous literature [32], we considered two cases of corporate death in this paper. The first case was when a firm went bankrupt, was liquidated, or was dissolved. This case was regarded as death because the firm no longer operates, and it ceases to have any relationship with its stakeholders. The other case was when a company was acquired by another company. This case can also be regarded as death because, when being taken over by another firm, the relationships with existing stakeholders are significantly disrupted [6,36]. We considered a firm to have survived until the year before one of the above two cases occurred. If a firm merged with another firm, we considered both pre-merger firms to have continued to exist for as long as the new firm survived.

We manually surveyed each of our sample firms to determine if they were alive or dead in the subsequent years. To obtain this information, we used four main sources of information. The first source was a company's information added to the Fortune 500 list, in which the Fortune magazine provides a footnote to the list, including information on any change during the year in the company's status due to mergers and acquisitions, bankruptcies, liquidations, etc. In addition, if a company was on the Fortune 500 list in a previous year but was not listed in that year, the Fortune magazine sometimes mentions the reason why they were delisted from the list (e.g., the company was acquired by another company, went bankrupt, etc.). We used these pieces of information to see if a company died in that year and the next.

Table 1. Sample Firms.

Country	No. of Firm-Year Observations N	(No. of Firm Observations)	Industry	No. of Firm-Year Observations N	(No. of Firm Observations)	Year	No. of Observations
Algeria	2	(1)	Mining, Crude-Oil Production (SIC10)	452	(38)	1973	479
Argentina	17	(1)	Engineering and Construction (SIC 15)	259	(28)	1974	492
Australia	207	(19)	Food and Beverages (SIC20)	1611	(127)	1975	495
Austria	52	(6)	Tobacco (SIC 21)	229	(18)	1976	495
Belgium	136	(11)	Texitiles (SIC 22)	172	(14)	1977	495
Brazil	101	(9)	Apparel (SIC 23)	89	(7)	1978	495
Canada	495	(48)	Forest and Paper Products (SIC 24)	526	(49)	1979	496
Chile	18	(3)	Furniture (SIC 25)	6	(1)	1980	496
Colombia	9	(2)	Publishing, Printing (SIC 27)	220	(16)	1981	497
Denmark	18	(1)	Chemicals and Phrmaceuticals (SIC 28)	2154	(126)	1982	496
Egypt	2	(1)	Petroleum Refining (SIC 29)	2180	(135)	1983	497
Finland	94	(10)	Rubber and Plastic Products (SIC 30)	213	(20)	1984	497
France	1323	(82)	Leather (SIC 31)	3	(1)	1985	496
Germany	1432	(82)	Building Materials, Glass (SIC 32)	365	(31)	1986	496
Iran	6	(1)	Metals (SIC 33)	1187	(88)	1987	496
India	188	(11)	Metal Products (SIC 34)	332	(29)	1988	496
Indonesia	15	(2)	Industrial and Commercial Machinery (SIC 35)	1277	(90)	1989	496
Ireland	26	(2)	Electronics, Electrical Equipment (SIC 36)	1512	(84)	1990	497
Israel	17	(3)	Transportation Equipment (SIC 37)	2326	(121)	1991	498
Italy	282	(25)	Scientific and Control Equipment (SIC 38)	174	(14)	1992	499
Japan	3469	(212)	Miscellaneous Manufacturintg Industries (SIC 39)	27	(5)	1993	496
Kuwait	13	(1)	Railroads (SIC 40)	125	(8)	1994	372
Luxembourg	33	(1)	Mail, Package, and Freight Delivery (SIC 43)	188	(10)	1995	364
Malaysia	32	(1)	Shipping (SIC 44)	41	(5)	1996	358
Mexico	98	(9)	Airlines (SIC 45)	182	(10)	1997	365
Netherlands	314	(25)	Communications (SIC 48)	753	(58)	1998	369
New Zealand	11	(1)	Utilities (SIC 49)	675	(70)	1999	362
Norway	77	(5)	Wholesale Trade (SIC 50)	596	(49)	2000	373
Panama	6	(1)	Retail Trade (SIC 52)	248	(28)	2001	369
Philippines	5	(1)	General Merchandisers (SIC 53)	246	(19)	2002	369
Portugal	14	(4)	Food and Drug Stores (SIC 54)	608	(43)	2003	366

Table 1. *Cont.*

Country	No. of Firm-Year Observations N	(No. of Firm Observations)	Industry	No. of Firm-Year Observations N	(No. of Firm Observations)	Year	No. of Observations
Saudi Arabia	19	(2)	Food Services (SIC 58)	65	(4)	2004	364
Singapore	40	(3)	Real Estate (SIC 65)	7	(1)	2005	364
South Africa	53	(6)	Hotels, Casinos, Resorts (SIC 70)	17	(4)	2006	359
South Korea	462	(35)	Business Services (SIC 73)	123	(8)	2007	347
Spain	231	(23)	Health Services (SIC 80)	210	(16)	2008	355
Sweden	313	(30)	Social Services (SIC 83)	43	(5)	2009	339
Switzerland	407	(22)	Miscellaneous	57	(4)	2010	332
Taiwan	122	(12)				2011	327
Thailand	21	(1)				2012	310
Turkey	73	(4)				2013	307
United Arab Emirates	8	(2)				2014	306
U.K.	1560	(122)				2015	301
U.S.	7624	(538)				2016	295
Venezuela	35	(1)				2017	291
Zaire	1	(1)				2018	285
Zambia	17	(1)				2019	277
						2020	272
Total	19,498	(1384)	Total	19,498	(1384)	Total	19,498

The second source of information was Capital IQ (S&P Global Market Intelligence), which has information on the current status of public and private companies around the world (including those that have already died). Capital IQ also provides the company's business description, which, for companies that have already died, usually includes information on when they were acquired by other companies, when they went bankrupt, and so on. The third source was OSIRIS (Bureau Van Dijk), which contains information on public companies and major privately held or delisted companies around the world. It provides information on the current status of a company (active or inactive) and, for inactive companies, when their last fiscal year ended. The fourth was Wikipedia, which has information on the history of the company, as well as when the defunct year was for those companies that no longer exist. If we could not clearly determine the subsequent survival or death of the company from these four information sources, we used other information on the Internet, such as company websites and newspaper articles. Consequently, for 1296 of the 1384 firms in our sample, we were able to determine whether they survived or died in the subsequent years (of 1296 firms, 798 continued to survive until 2021; 498 died before 2021. For 481 of the 498 dead firms, we could identify the reason for the deaths: 414 (86.1%) were due to acquisitions by other companies and 67 (13.9%) were due to bankruptcy/liquidation/dissolution).

After obtaining information on the survival or death of the sample firms, we observed whether they survived for the subsequent 10, 20, and 30 years. More specifically, for the 2001–2010 sample, we determined whether the firm survived over 10 years; for the 1991–2000 sample, whether the firm survived over 10 and 20 years; and for the 1973–1990 sample, whether the firm survived over 10, 20, and 30 years. For each survival period (10, 20, and 30 years), 1 was assigned to survivors and 0 was assigned to non-survivors, and the survival rate (the proportion of survivors) was calculated for each category.

2.3. Research Methodology

We conduct our empirical analysis using the following methodologies. First, we present country-by-country values of profitability (ROS, ROA, and ROE) and longevity (10-, 20-, and 30-year survival rates) and observe whether there are cross-country differences in corporate performance (Section 3). Second, we hypothesize that the cross-country differences are caused by country-level institutional factors, the financial system, law, and national culture (Section 4). We then test the hypotheses by using two methods. One is dividing the sample into two groups according to each country's institutional factors and conducting two-group comparison tests (Section 5.1). The other is conducting regression analyses and examining the effects of institutional factors on firm performance (Sections 5.2–5.4).

3. Cross-Country Variations in Corporate Performance

Table 2 shows the numbers for performance measures for our sample firms. The left half of the table shows three profitability measures (the medians of ROS, ROA, and ROE), and the right half of the table shows three longevity measures (10-year, 20-year, and 30-year survival rates). Panel A shows the numbers for the entire sample; Panel B shows the country-by-country numbers for countries with more than 100 firm-year observations and more than 10 firm observations.

Table 2. Profitability and Longevity: Cross-Country Comparison.

	Profitability						Longevity					
	ROS (Median)		ROA (Median)		ROE (Median)		10-Year Survival Rate		20-Year Survival Rate		30-Year Survival Rate	
	N	%	N	%	N	%	N	%	N	%	N	%
	Panel A: Full Sample											
	19,276	3.18	19,236	3.57	18,913	11.21	15,922	87.6	12,368	73.6	8346	59.8
	Panel B: Country											
Australia	205	4.20	205	5.05	204	11.90	165	87.3	121	75.2	63	73.0
Belgium	136	2.33	136	2.81	135	10.07	108	89.8	92	78.3	66	72.7
Canada	495	4.22	494	4.56	486	11.92	338	84.6	270	50.7	215	27.0
France	1305	2.39	1294	2.06	1274	9.54	1044	93.8	747	84.2	455	72.3
Germany	1406	1.68	1406	2.17	1403	9.12	1121	89.2	855	71.5	561	53.6
India	183	3.04	183	4.75	183	14.48	125	96.8	75	100.0	55	92.7
Italy	265	1.52	250	0.93	253	6.16	218	75.2	164	60.4	112	53.6
Japan	3467	1.62	3467	1.53	3448	6.72	3029	97.4	2417	94.7	1390	92.4
Netherlands	309	2.56	309	2.90	305	12.87	223	96.4	134	89.6	85	77.6
South Korea	454	1.50	454	1.74	451	7.15	322	90.7	216	80.6	114	77.2
Spain	231	3.96	231	2.88	231	12.50	173	79.2	112	60.7	79	26.6
Sweden	312	2.74	312	2.71	310	11.71	273	90.1	228	81.1	168	78.0
Switzerland	394	4.02	392	4.03	390	9.80	309	93.5	232	90.5	157	83.4
Taiwan	122	2.43	122	3.98	122	11.74	60	100.0	26	100.0	17	100.0
U.K.	1553	4.20	1549	4.56	1516	13.04	1335	84.6	1110	62.8	825	42.4
U.S.	7531	4.46	7529	5.69	7336	14.29	6393	81.2	5060	62.5	3629	47.2

ROS is the return on sales; ROA is the return on assets; ROE is the return on equity. The 10-year, 20-year, and 30-year survival rates are the proportions of firms that survive for the subsequent 10, 20, and 30 years, respectively.

Starting with profitability measures, in Panel A, we see that the medians of ROS, ROA, and ROE are 3.18%, 3.57%, and 11.21%, respectively, for the full sample. In Panel B, we observe significant cross-country variations in profitability measures. For example, U.S. firms' median ROS, ROA, and ROE are 4.46%, 5.69%, and 14.29%, respectively; for U.K. firms, they are 4.20%, 4.56%, and 13.04%, respectively; and for Canadian firms, they are 4.22%, 4.56%, and 11.92%, respectively. These U.S., U.K, and Canadian numbers are all higher than the medians for the full sample shown in Panel A. In contrast, the profitability measures of France, Germany, Italy, Japan, and South Korea are lower than the world's medians (for example, the median ROS, ROA, and ROE of Japanese firms are 1.62%, 1.53%, and 6.72%, respectively). We observe high profitability for U.S., U.K., and Canadian firms, and low profitability for French, German, Italian, Japanese, and Korean firms.

Next, we look at longevity measures: 10-year, 20-year, 30-year survival rates. Panel A shows these three rates for the full sample. We see that the 10-year survival rate is 87.6%, which means that 87.6% of firms listed in the Fortune Global 500 survive for at least another 10 years. The 20-year survival rate is 73.6%, and the 30-year survival rate is 59.8%. Panel B shows the survival rates by country. We observe significant cross-country variations in the survival rates. For example, the 10-year, 20-year, 30-year survival rates for the U.S. firms are 81.2%, 62.5%, and 47.2%, respectively, and these three survival rates are lower than those of the world as a whole shown in Panel A. The U.K. and Canadian survival rates are also lower than those for the full sample. In contrast, the French, Japanese, and South Korean survival rates are higher than those of the world as a whole. For, example, Japanese firms' survival rates are 97.4% over 10 years, 94.7% over 20 years, and 92.4% over 30 years; over 90% of Japanese firms survive for at least another 30 years.

The survival rates provide us with a very different picture of corporate performance than the profitability numbers. U.S., U.K., and Canadian firms are highly profitable, but they are less likely to survive; French, German, Japanese, and Korean firms are less profitable, but they are more likely to survive for a long period. This observation implies that two dimensions of corporate performance—profitability and longevity—are not necessar-

ily positively correlated with each other. This suggests that we should look at not only profitability, but also longevity when evaluating a company's performance.

If we compare the performance of U.S. and U.K. firms (which are considered to be shareholder-oriented) with that of French, German, and Japanese firms (which are considered to be stakeholder-oriented) in the two dimensions of profitability and longevity, we can obtain interesting findings. The U.S. and U.K. firms are more profitable than the French, German, and Japanese firms, but the French, German, and Japanese firms are more likely to survive for a long time than the U.S. and U.K. firms.

Observing cross-county differences in profitability and longevity, one may wonder if these performance differences stem not from the country differences, but from the differences in the industry composition of firms in each country. To address this issue, we regress ROA and the 10-year survival on industry dummies or country dummies (year dummies are also added), and observe how much variation in performance measures can be explained by a firm's industry classification and its country classification (industry classification of sample firms follows two-digit SIC codes). The ROA regression is conducted by means of OLS, and the 10-year survival regression (the dependent variable being 1 or 0) are conducted by means of probit estimation (we trim ROA at the upper and lower one-percent level for the sample of ROA regressions, to reduce the effect of outliers). Table 3 shows the results. We find that country dummies explain more of the variance in profitability and longevity than industry dummies. For example, for ROA regression, the adjusted R^2 of the OLS regression with industry dummies (Model 1) is 0.134, and with country dummies (Model 2) it is 0.192. For 10-year survival regression, the Pseudo R^2 of the probit regression with industry dummies (Model 3) is 0.046, and with country dummies (Model 4) it is 0.084. These results suggest that the country effect is more significant than the industry effect in explaining the profitability and longevity of the firm. We argue that the country matters even for the performance of the world's largest corporations.

Table 3. Industry Effect or Country Effect?

Dependent Variable	ROA		10-Year Survival (1 or 0)	
	Model 1	**Model 2**	**Model 3**	**Model 4**
Industry dummies	yes		yes	
Country Dummies		yes		yes
Year dummies	yes	yes	yes	yes
Adjusted R^2 /Pseudo R^2	0.134	0.192	0.046	0.084
N	18,850	18,850	15,693	15,476

ROA regressions (Models 1 and 2) are estimated by OLS, and 10-year survival regressions (Models 3 and 4) are estimated by the probit model (maximum likelihood method).

We can easily predict that a firm's profitability and longevity are influenced by a number of country characteristics. In particular, we posit that the country's institutional environment in which a firm operates shapes its purposes and behavior and, hence, affects two dimensions of corporate performance. We empirically explore this possibility in the following sections.

4. Country's Institutional Factors and Corporate Performance

Greif [38], North [39], and Williamson [40] state that formal and informal institutions of the economy and society significantly influence economic agents' decisions, actions and outcomes. We consider three country-level institutional factors that affect a firm's behavior and hence corporate performance: financial systems, laws, and national cultures.

4.1. Financial Systems

Observing the financial systems of countries around the world, we find various differences in terms of laws, institutions, and customs. Researchers classify the financial systems of countries into market-based systems and bank-based systems [41].

A market-based financial system is where financial transactions in a country are mainly conducted through capital markets, such as stock and bond markets. In capital markets, numerous participants engage in financial transactions at arm's length. The supplier and demander of funds enter into a one-time transaction on a spot basis, and there is no need for them to continue conducting transactions with the same partner. The suppliers of funds (investors) usually hold multiple assets to diversify their investment risk; the demanders of funds (such as a firm) issue standardized securities (e.g., stock and bond) to raise money from a large number of investors. Sometimes, even the ownership of a firm is traded in M&A market transactions.

A bank-based financial system is where financial transactions in a country are mainly conducted through financial intermediation by banks. Banks receive deposits and provide loans to firms, and lending is conducted through one-on-one negotiated transactions. A continual transactional relationship arises between the bank and firms. In the bank-based system, since capital markets are less developed, M&A transactions are less likely to occur compared to in the market-based system.

We expect that a firm's profitability tends to be higher in countries with a market-based financial system, than in countries with a bank-based financial system. In a market-based system, shareholders are one of the main suppliers of funds, and they seek higher returns and profitability. Additionally, since shareholders usually diversify their investment risk, they encourage each firm's risk taking, which is likely to realize a firm's higher (expected) profitability. In a bank-based system, banks expect a firm to realize stable returns rather than higher (but riskier) returns because the payoff of the loan is contractually fixed to interest and principal. Therefore, a firms' profitability in bank-based system will not be as high as that in market-based system.

In contrast, a firm's greater longevity is more likely to be observed in countries with a bank-based system than in countries with a market-based system. In a bank-based system, since banks expect firms to avoid risk, firms' earnings are expected to be stable [42]. Additionally, as banks have continual relationships with their client firms, they prefer a firm's long-term viability. These factors enable firms to be more likely to survive in a bank-based system compared to a market-based system. In addition, the M&A market is not as active as that in a market-based system, and the firm is less likely to be acquired. This also enhances a firm's longevity in countries with a bank-based system.

To summarize, we can establish the following hypotheses on the relationship between a country's financial system and a firm's profitability and longevity.

H1a: *A market-based financial system is positively related to a firm's profitability and negatively related to a firm's longevity.*

H1b: *A bank-based financial system is negatively related to a firm's profitability and positively related to a firm's longevity.*

4.2. Laws

The law and finance literature claims that common law provides better protection of shareholder rights than civil law [43]. Shareholders tend to seek higher returns, even at higher risk, because they can diversify the risk of their investments by holding shares in various companies [19]. This suggests that, in countries with a common law origin, shareholders have more power to encourage managers to implement riskier but value-enhancing investments. John et al. [19] reported that companies take more risk and show higher productivity in common law countries than in civil law countries. La Porta et al. [33] showed that Tobin's Q is higher in common law countries than in civil law countries.

Therefore, we predict that a common law origin is positively related to a firm's profitability. Common law, however, may inhibit firm longevity. With strong shareholder rights, firms take more risks and their outcomes become more volatile, and they are less likely to survive. In addition, strong shareholder rights increase the probability of a corporate takeover. Therefore, it is possible that a common law origin has a negative effect on firm longevity.

In contrast, civil law is usually less protective of shareholder rights [43]. Rather, the law is more protective of workers and consumers, and it is more stakeholder-friendly [34]. Companies are expected to maintain good relationships with their stakeholders for a longer period. Therefore, it is plausible that firms in countries with a civil law origin survive longer, although their profits are lower than those of firms in countries with a common law origin. Thus, we predict that a civil law origin has a negative effect on firm profitability, and that it has a positive effect on longevity.

To summarize, we can establish the following hypotheses on the relationship between a country's legal origin and a firm's profitability and longevity.

H2a: *A common law origin is positively related to a firm's profitability and negatively related to a firm's longevity.*

H2b: *A civil law origin is negatively related to a firm's profitability and positively related to a firm's longevity.*

4.3. National Cultures

Recent empirical studies show that national culture significantly affects corporate decision-making in finance, investment, and accounting [20–23,26,28,44–48]. Most of these studies used Hofstede's [49] four cultural dimensions—individualism, uncertainty avoidance, power distance, and masculinity—as proxies for national culture, and explored the relationship between these indexes of cultural dimensions at the national level and corporate behavior at the firm level. Following prior research, we use the indexes of two of Hofstede's [49] cultural dimensions (individualism and uncertainty avoidance). Additionally, we use an index of Hofstede et al.'s [50] new dimension, long-term orientation, which is likely to affect a firm's profitability and longevity.

Individualism is defined as "a society in which the ties between individuals are loose: Everyone is expected to look after him/herself and her/his immediate family only. Collectivism stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" ([49], p. 225). In highly individualistic societies, people are more likely to pursue their own success and be willing to take risks. These tendencies are observed even in corporate behavior. Li et al. [20] and Mihet [21] show that corporate risk-taking is higher in countries with high individualism. Therefore, we expect that, on average, firms are more profitable as compensation for high risks in highly individualistic countries. In contrast, firms are less likely to survive in those countries, since they incur higher risk. In contrast, regarding a firm's longevity, collectivistic countries have a superiority over individualistic countries, because people put more emphasis on the continuity of a firm that is the group they belong to.

Uncertainty avoidance is defined as "the extent to which the members of a culture feel threatened by uncertain or unknown situations" ([49], p. 161). Therefore, it is plausible that people in high-uncertainty-avoidance countries tend to avoid risk. Li et al. [20] and Mihet [21] provided evidence that firms in high-uncertainty-avoidance countries are less likely to take risks. Therefore, we predict that high uncertainty avoidance is negatively related to a firm's profitability but positively related to a firm's longevity.

Long-term orientation is defined as "[it] stands for the fostering of virtues oriented towards future rewards—in particular, perseverance and thrift" ([50], p. 239). Hofstede et al. [50] claim that in long-term-oriented countries (especially in Asia), companies invest in building up strong market positions at the expense of immediate results; in short-term-

orientated countries, companies are more concerned about the results of the past month, quarter, or year. This indicates that high long-term orientation is negatively related to a firm's profitability, but positively related to a firm's longevity.

To summarize, we can establish the following hypotheses on the relationship between a country's culture and a firm's profitability and longevity.

H3a: *High individualism is positively related to a firm's profitability and negatively related to a firm's longevity.*

H3b: *High uncertainty avoidance is negatively related to a firm's profitability and positively related to a firm's longevity.*

H3c: *High long-term orientation is negatively related to a firm's profitability and positively related to a firm's longevity.*

5. Empirical Analyses

5.1. Two-Group Comparison Tests

To test these hypotheses, we empirically explore the relationship between a firm's profitability and longevity measures and each country's institutional environments, such as the financial system, its laws, and culture. The institutional environments of the countries to which our sample firms belong are summarized in Table 4.

First, we compare profitability and longevity measures by dividing the sample into two groups according to each country's institutional factors (financial system, law, and national culture). To reduce the effect of outliers, we trim ROS and ROA (ROE) at the upper and lower one-percent (five-percent) level in the following analyses. (Initially, we trimmed ROE at the upper and lower one-percent level as well, but we found that ROE at the 1st percentile is −72.03% and ROE at the 99th percentile is 72.31%; both are large absolute values. This is likely due to the fact that some companies have extremely small stockholders' equity values. Therefore, we decided to trim ROE at the upper and lower five-percent level to reduce the effect of outliers). The results are summarized in Table 5.

Panel A presents the results of the comparison of profitability and longevity, dividing the sample into firms in countries with a market-based financial system, and firms in countries with a bank-based financial system [41]. The results show that firms in market-based system countries have a higher profitability (higher means of ROS, ROA, and ROE) than those in bank-based system countries. We conducted mean comparison tests and found that the differences in ROS, ROA, and ROE between the two groups are statistically significant. On the other hand, the survival rates over 10, 20, and 30 years, which represent the longevity of a firm, are higher for firms in a bank-based system than for firms in a market-based system. We conducted tests for the difference in proportions and found that the differences in the survival rates between the two groups are statistically significant. These results support H1a and H1b.

Panel B divides the sample into firms from common law countries and firms from civil law countries [43]. The results show that firms in common law countries have significantly higher ROS, ROA, and ROE than those in civil law countries. On the other hand, the 10-, 20-, and 30-year survival rates of firms are significantly higher for firms in civil law countries than for firms in common law countries. These results support H2a and H2b.

Table 4. Country's Institutional Environments.

Country	Financial System	Law	National Culture		
	Financial System	Legal Origin	Individualism	Uncertainty Avoidance	Long-Term Orientation
Algeria					
Argentina	Bank-based	Civil/French	46	86	20
Australia	Market-based	Common	90	51	21
Austria	Bank-based	Civil/German	55	70	60
Belgium	Bank-based	Civil/French	75	95	82
Brazil	Market-based	Civil/French	38	76	44
Canada	Market-based	Common	80	48	36
Chile	Market-based	Civil/French	23	86	31
Colombia	Bank-based	Civil/French	13	80	13
Denmark	Market-based	Civil/Scandinavian	74	23	35
Egypt	Bank-based	Civil/French	38	68	7
Finland	Bank-based	Civil/Scandinavian	63	59	38
France	Bank-based	Civil/French	71	86	63
Germany	Bank-based	Civil/German	67	65	83
Iran			41	59	14
India	Bank-based	Common	48	40	51
Indonesia	Bank-based	Civil/French	14	48	62
Ireland	Bank-based	Common	70	35	24
Israel	Bank-based	Common	54	81	38
Italy	Bank-based	Civil/French	76	75	61
Japan	Bank-based	Civil/German	46	92	88
Kuwait		Civil/French	38	68	
Luxembourg		Civil/French	60	70	64
Malaysia	Market-based	Common	26	36	41
Mexico	Market-based	Civil/French	30	82	24
Netherlands	Market-based	Civil/French	80	53	67
New Zealand	Bank-based	Common	79	49	33
Norway	Bank-based	Civil/Scandinavian	69	50	35
Panama	Bank-based	Civil/French	11	86	
Philippines	Market-based	Civil/French	32	44	27
Portugal	Bank-based	Civil/French	27	104	28

Table 4. *Cont.*

Country	Financial System	Law	National Culture		
	Financial System	Legal Origin	Individualism	Uncertainty Avoidance	Long-Term Orientation
Saudi Arabia		Common	38	68	36
Singapore	Market-based	Common	20	8	72
South Africa	Market-based	Common	65	49	34
South Korea	Market-based	Civil/German	18	85	100
Spain	Bank-based	Civil/French	51	86	48
Sweden	Market-based	Civil/Scandinavian	71	29	53
Switzerland	Market-based	Civil/German	66.5	64	74
Taiwan		Civil/German	17	69	93
Thailand	Market-based	Common	20	64	32
Turkey	Market-based	Civil/French	37	85	46
United Arab Emirates			38	68	
U.K.	Market-based	Common	89	35	51
U.S.	Market-based	Common	91	46	26
Venezuela	Bank-based	Civil/French	12	76	16
Zaire		Civil/French			
Zambia		Common	27	52	30

Whether the country has a market-based or bank-based financial system is determined according to Demirguc-Kunt and Levine [41]. Whether it is a common law or civil law country is determined according to La Porta et al. [43]. The Individualism, Uncertainty Avoidance, and Long-Term Orientation indices are from Hofstede [49] and Hofstede et al. [50].

Table 5. Profitability and Longevity: Comparison by Country-Level Institutional Factors.

	Profitability						Longevity					
	ROS (Mean)		ROA (Mean)		ROE (Mean)		10-Year Survival Rate		20-Year Survival Rate		30-Year Survival Rate	
	N	%	N	%	N	%	N	%	N	%	N	%
	Panel A: Financial System											
(A) Market-based	11,411	4.91	11,368	5.23	10,177	13.19	9678	83.6	7594	65.6	5412	50.3
(B) Bank-based	7281	2.39	7280	2.14	6644	8.89	6124	93.9	4702	86.6	2879	77.8
Difference (A)−(B)		2.52 *** (0.000)		3.09 *** (0.000)		4.30 *** (0.000)		−10.3 *** (0.000)		−21.0 *** (0.000)		−27.5 *** (0.000)
	Panel B: Law											
(A) Common law	9938	5.07	9901	5.51	10,177	13.67	8516	82.3	6749	62.9	4871	46.3
(B) Civil law	8943	2.66	8940	2.38	6644	9.12	7406	93.6	5619	86.5	3475	78.7
Difference (A)−(B)		2.41 *** (0.000)		3.13 *** (0.000)		4.55 *** (0.000)		−11.3 *** (0.000)		−23.6 *** (0.000)		−32.4 *** (0.000)
	Panel C1: Individualism (IDV)											
(A) IDV > 46	14,382	4.37	14,328	4.57	12,838	12.60	12,136	84.7	9440	67.5	6632	51.7
(B) IDV <= 46	4507	2.49	4521	2.30	4181	8.10	3785	96.6	2927	93.4	1713	91.1
Difference (A)−(B)		1.88 *** (0.000)		2.27 *** (0.000)		4.50 *** (0.000)		−11.9 *** (0.000)		−25.9 *** (0.000)		−39.4 *** (0.000)
	Panel C2: Uncertainty Avoidance (UA)											
(A) UA > 68	6340	2.48	6347	2.15	5758	8.53	5312	94.4	4049	89.2	2436	83.1
(B) UA <= 68	12,549	4.66	12,502	4.98	11,261	13.01	10,609	84.2	8318	66.0	5909	50.2
Difference (A)−(B)		−2.18 *** (0.000)		−2.83 *** (0.000)		−4.48 *** (0.000)		10.2 *** (0.000)		23.2 *** (0.000)		32.9 *** (0.000)
	Panel C3: Long-Term Orientation (LTO)											
(A) LTO > 38	10,307	2.97	10,310	2.78	9365	9.71	8567	92.1	6571	82.2	4204	71.0
(B) LTO <= 38	8556	5.08	8515	5.54	7631	13.69	7335	82.3	5777	63.7	4125	48.2
Difference (A)−(B)		−2.11 *** (0.000)		−2.76 *** (0.000)		−3.98 *** (0.000)		9.8 *** (0.000)		18.5 *** (0.000)		22.8 *** (0.000)

*** indicates that the difference is significant at the 1% level. Figures in parentheses are *p*-values. IDV, UA, LTO are the individualism, uncertainty avoidance, and long-term orientation indices, respectively (Hofstede [49]; Hofstede et al. [50]).

Panels C1–C3 compare firms' profitability and longevity according to the national culture of the firm's country. To achieve this, we first calculated the median values of the individualism index (IDV), uncertainty avoidance index (UA), and long-term orientation index (LTO) of Hofstede [49] and Hofstede et al. [50] across our sample countries. The medians of IDV, UA, and LTO are 46, 68, and 38, respectively. We then divided the countries into two groups for each of the three indexes: countries whose indexes are greater than the median and countries whose indexes are less than (or equal to) the median. We compare profitability and longevity measures between the two groups. The results in Panels C1, C2, and C3 show that: (1) firms in countries with a high IDV have higher profitability measures (ROS, ROA, and ROE), but lower survival rates (10-, 20-, and 30-year survival rates), than firms in countries with a low IDV; (2) firms in countries with a high UA have lower profitability measures, but higher survival rates, than firms in countries with a low UA; and (3) firms in countries with a high LTO have lower profitability measures, but higher survival rates, than firms in countries with a low LTO. These results indicate that H3a, H3b, and H3c are all supported.

However, we should note that, like many cross-country studies, the U.S. sample comprises a large part of our sample (see Table 1). Therefore, it may be possible that the above results are driven largely by the U.S. firms. To address this concern, we excluded U.S. firms and re-calculated each value in Table 5. We confirmed that the results did not change quantitatively; all the differences between the two groups remain significant at the 1% level. Additionally, Japan is the country with the second largest sample size. Thus, we recalculated the data by excluding Japanese firms, as well as U.S. firms, from the sample. Then, among the 30 pairs of comparisons in Table 5, although the differences became no longer significant in 3 pairs (ROE in Panel C1; 10-year and 20-year survival rates in Panel C3), the differences were still significant for the remaining 27 pairs. Given these results, we can say that the conclusions obtained in Table 5 do not change when the U.S. and Japan are removed from the sample.

5.2. Regression Analyses

Another concern regarding the results in Table 5 would be that these country-level institutional factors are correlated with the country's economic variables, such as economic conditions and growth rates and the size of the economy, and that the country's economic variables may cause differences in firm performance—that is, the correlation between the institutional factors and corporate performance may be spurious. To address this problem, we regress the profitability and longevity on country-level institutional factors, controlling for these countries' economic variables. In the regression analyses below, we use the ROS, ROA, and ROE, and 10-year, 20-year-, and 30-year survival (a dummy variable which takes a value of 1 if a firm survives and 0 if a firm does not survive) as dependent variables. The independent variables for the country's institutional factors are as follows.

[Variables for the financial system]

Market-based: dummy variable which takes a value of 1 if a country's financial system is classified as a market-based financial system and 0 if it is classified as a bank-based financial system by Demirguc-Kunt and Levine [41].

Market-cap/GDP: market capitalization of listed domestic companies as a percentage of GDP (%; source: World Development Indicators and Financial Structure Database of the World Bank).

Bank credit/GDP: domestic credit given to private sector by banks as a percentage of GDP (%; source: World Development Indicators and Financial Structure Database of the World Bank).

[Variables for law]

Common: dummy variable which takes a value of 1 for common law countries and 0 otherwise (source: La Porta et al. [43]).

French civil: dummy variable which takes a value of 1 for French civil law countries and 0 otherwise (source: La Porta et al. [43]).

German civil: dummy variable which takes a value of 1 for German civil law countries and 0 otherwise (source: La Porta et al. [43]).

Scandinavian civil: dummy variable which takes a value of 1 for Scandinavian civil law countries and 0 otherwise (source: La Porta et al. [43]).

[Variables for national culture]

Individualism: individualism index suggested by Hofstede [49].

Uncertainty avoidance: uncertainty avoidance index suggested by Hofstede [49].

Long-term orientation: long-term orientation index suggested by Hofstede et al. [50].

For the control variables of the ROS, ROA, and ROE regressions, we use the following variables: the country's annual GDP growth rate (*GDP growth*; %), the logarithm of GDP per capita (*ln GDP capita*; US dollars), the logarithm of a firm's total assets (*ln Size*; million US dollars), and the logarithm of [1 + firm age] (*ln Age*). In the 10-, 20-, and 30-year survival regressions, we use the same control variables, but replace the country's annual GDP growth rate with the country's GDP growth rate for the following 10, 20, and 30 years (calculated as the annual rate). We took the data of GDP growth and GDP per capita from World Development Indicators and Financial Structure Database, and the data of firm total assets from the Fortune magazine. The firm age is calculated as [year—founded year], where the data of founded year are obtained from Capital IQ, OSIRIS, Wikipedia, and other Internet sources. Industry and year dummies are added to each regression. The descriptive statics of dependent and independent variables are summarized in Table 6. (We do not include variables representing firms' decision-making as the control variables in the regression equations to prevent bias in the estimated coefficients. For example, debt ratios and cash holdings ratios are firms' decision-making variables. They may be affected by country-level institutional factors and, thus, can be the dependent (outcome) variables in the regression equation in which the institutional factors are independent variables [22,23,26,29,30]. It is known that including variables that can be dependent variables as the control variables gives rise to bias in the estimated coefficients [51]. Therefore, we do not include debt ratios and cash holdings, and other variables representing firms' decision-making as control variables in the regression equations).

Table 6. Summary Statistics of the Regression Variables.

	N	Mean	Std	Minimum	Maximum
Dependent variables					
ROS (%)	18,890	3.925	4.897	−13.542	24.931
ROA (%)	18,850	4.025	4.383	−12.871	18.896
ROE (%)	17,020	11.493	8.196	−12.811	33.953
10-Year Survival	15,922	0.876	0.330	0	1
20-Year Survival	12,368	0.736	0.441	0	1
30-Year Survival	8346	0.598	0.490	0	1
Country-level institutional variables					
Market-based	19,277	0.614	0.487	0	1
Market-cap/GDP (%)	17,713	72.579	45.059	0.023	345.353
Bank credit/GDP (%)	16,808	80.118	42.627	3.189	201.256
Common	19,482	0.529	0.499	0	1
French civil	19,482	0.140	0.347	0	1
German civil	19,482	0.305	0.460	0	1

Table 6. *Cont.*

	N	Mean	Std	Minimum	Maximum
Scandinavian civil	19,482	0.026	0.158	0	1
Individualism	19,495	72.756	21.121	11	91
Uncertainty avoidance	19,495	60.828	20.884	8	104
Long-term orientation	19,470	52.219	26.368	7	100
Country-level control variables					
GDP growth (annual; %)	18,928	2.538	2.524	−12.912	24.370
GDP growth (10-year; annual; %)	16,000	2.480	1.228	−4.311	10.369
GDP growth (20-year; annual; %)	12,476	2.488	1.015	−1.956	9.016
GDP growth (30-year; annual; %)	8473	2.491	0.818	−0.262	7.702
GDP capita (US dollars)	18,905	34,426	13,299	349	108,351
Firm-level control variables					
Size (total assets; million US dollars)	19,396	27,802	71,405	1	7,249,934
Firm age (years)	18,844	76.002	50.971	0	530

We should note that although our data are firm-year unbalanced panel data, the country-level institutional variables shown in Table 6 are time-invariant (constant over time), except for *Market-cap/GDP* and *Bank credit/GDP*. This suggests that we cannot estimate fixed effect regressions. Thus, we estimate the regressions by pooled OLS (ROS, ROE, and ROE regressions) and the pooled probit model (10-, 20-, and 30-year survival regressions) by the maximum likelihood method (De Jong et al. [24], Dodge et al. [52], and Kanagaretnam et al. [46,47] also estimate pooled regressions for their panel data set when using time-invariant country-level variables). To address within-firm residual correlations, we use standard errors clustered by the firm [53]. We also estimate the random effect model regressions for robustness checks.

5.3. Regression Results

Table 7 presents the regression results on the effect of a country's financial system on corporate performance. The left half of the table reports the OLS regression results of the profitability (ROS, ROA, ROE), and the right half reports the probit regression results of the longevity (10-, 20-, and 30-year survival). Looking at the left half, we find that *Market-based* (dummy variable for market-based system) has significant positive effects on ROS, ROA, and ROE. This suggests that firms in countries with a market-based financial system are more profitable than firms in countries with a bank-based financial system, after controlling for macroeconomic factors (*GDP growth*, *ln GDP capita*), firm size (*ln Size*), firm age (*ln Age*), and industry and year effects. For example, the ROA regression suggests that the ROA of firms in market-based systems is about 2.8 percentage points higher than that of firms in bank-based systems, all other things being equal. *Market-cap/GDP* also has significant positive effects on the three profitability measures. In contrast, *Bank credit/GDP*, the measure of bank dominance in financial system, has negative effects on the three profitability measures.

Table 7. Financial System and Corporate Performance.

Dependent Variable	Profitability						Longevity					
	ROS		ROA		ROE		10-Year Survival		20-Year Survival		30-Year Survival	
Market-based	2.576 *** (0.000)		2.830 *** (0.000)		4.196 *** (0.000)		−0.083 *** (0.000)		−0.168 *** (0.000)		−0.239 *** (0.000)	
Market-cap/GDP		0.021 *** (0.000)		0.018 *** (0.000)		0.025 *** (0.000)		−0.000 (0.156)		−0.001 (0.203)		−0.005 *** (0.000)
Bank credit/GDP		−0.017 *** (0.000)		−0.021 *** (0.000)		−0.047 *** (0.000)		0.001 *** (0.000)		0.002 *** (0.000)		0.005 *** (0.000)
GDP growth	0.146 *** (0.000)	0.109 *** (0.013)	0.116 *** (0.000)	0.088 ** (0.017)	0.352 *** (0.000)	0.319 *** (0.000)	0.006 (0.403)	0.005 *** (0.513)	0.008 (0.694)	−0.010 (0.681)	0.027 (0.418)	−0.023 (0.522)
ln GDP capita	−0.132 (0.600)	0.241 (0.427)	−0.114 (0.603)	0.436 * (0.068)	−0.007 (0.988)	1.022 ** (0.011)	−0.065 *** (0.002)	−0.076 *** (0.004)	−0.165 *** (0.000)	−0.216 *** (0.000)	−0.167 *** (0.002)	−0.247 *** (0.000)
ln Size	0.791 *** (0.000)	0.861 *** (0.000)	−0.206 ** (0.027)	−0.190 * (0.068)	−0.283 * (0.075)	−0.188 (0.285)	0.047 *** (0.000)	0.055 *** (0.000)	0.062 *** (0.000)	0.065 *** (0.000)	0.071 *** (0.001)	0.070 *** (0.004)
ln Age	0.194 (0.107)	0.124 (0.368)	0.306 *** (0.002)	0.190 * (0.100)	0.303 * (0.083)	0.177 (0.402)	0.034 *** (0.000)	0.031 *** (0.001)	0.071 *** (0.000)	0.063 *** (0.001)	0.101 *** (0.000)	0.082 *** (0.003)
Industry dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	17,696	14,382	17,703	14,374	15,967	12,988	15,076	11,982	11,714	8669	7868	5616
Adj.R^2/Psd R^2	0.258	0.253	0.241	0.217	0.159	0.176	0.112	0.129	0.127	0.145	0.139	0.181

The table reports OLS estimates for profitability regressions and probit (maximum likelihood) estimates (average marginal effects) for longevity regressions. ***, **, and * indicate that coefficients are significant at the 1, 5, and 10% levels, respectively. Figures in parentheses are *p*-values calculated using standard errors clustered by firm. *GDP growth* is the GDP growth rate for the year in the profitability regressions; it is the GDP growth rate per year for the subsequent 10, 20, and 30 years in the longevity regressions.

The right half of Table 7 shows the effect of the financial system on a firm's longevity. In the tables below, we report the average marginal effect of each variable in the probit estimations. We find that a market-based system has negative effects on firm longevity. The marginal effects of the *Market-based* dummy are significantly negative in 10-, 20- 30-year survival regressions; this suggests that firms in market-based systems are less likely to survive than firms in bank-based systems. For example, the results suggest that the 20-year survival probability is 16.8 percentage points lower for firms in market-based systems than for firms in bank-based systems, all other things being equal. We also observe that *Market-cap/GDP* has significant negative effects on the 30-year survival probability and *Bank credit/GDP* has significant positive effects on the 10-, 20-, and 30-year survival probabilities. These results suggest that firms in bank-based systems have a higher viability than firms in market-based systems.

Overall, the results of Table 7 confirm the results of Panel A in Table 5 and support Hypotheses H1a and H1b. Corporate profitability is higher in market-based financial systems; corporate longevity is higher in bank-based financial systems.

Regarding the effects of control variables, *GDP growth* has significantly positive effects on the three profitability measures. Both *ln Size* and *ln Age* have significantly positive effects on the three survival probabilities: larger firms and long-standing firms are more likely to survive over 10-, 20-, and 30 years.

Table 8 presents the effects of law on corporate performance. We find that *Common* (dummy variable for common-law-origin countries) has significantly positive effects on all three profitability measures. For example, the results suggest that the ROA of firms in common-law-origin countries is about 2.9 percentage points higher than that of firms in civil-law-origin countries, all other things being equal. We also observe that *Common* has significantly negative effects on 10-, 20-, and 30-year survival probabilities. This indicates that companies in common-law countries are less likely to survive. In contrast, firms in civil-law countries are less profitable but more likely to survive than firms in common-law countries. For the *French-civil, German-civil,* and *Scandinavian-civil* dummies, while the coefficients in ROS, ROA, and ROE regressions are all significantly negative, the marginal effects in survival regressions are all significantly positive. For example, the 20-year survival probabilities of French civil law firms, German civil law firms, and Scandinavian civil law firms are 14.5, 24.2, and 26.6 percentage points higher than those of common law firms, respectively. These results confirm the results of Panel B in Table 5 and support Hypotheses H2a and H2b: common-law firms are more profitable and civil-law firms are more viable.

Table 8. Law and Corporate Performance.

Dependent Variable	Profitability						Longevity					
	ROS		ROA		ROE		10-Year Survival		20-Year Survival		30-Year Survival	
Common	2.527 *** (0.000)		2.871 *** (0.000)		4.426 *** (0.000)		−0.096 *** (0.000)		−0.217 *** (0.000)		−0.305 *** (0.000)	
French-civil		−2.279 *** (0.000)		−2.685 *** (0.000)		−3.090 *** (0.000)		0.047 ** (0.045)		0.145 *** (0.001)		0.209 *** (0.000)
German-civil		−2.739 *** (0.000)		−3.048 *** (0.000)		−5.268 *** (0.000)		0.114 *** (0.000)		0.242 *** (0.000)		0.328 *** (0.000)
Scandinavian-civil		−1.502 *** (0.000)		−1.933 *** (0.000)		−1.461 ** (0.018)		0.133 *** (0.007)		0.266 *** (0.002)		0.412 *** (0.000)
GDP growth	0.188 *** (0.000)	0.196 *** (0.000)	0.154 *** (0.000)	0.160 *** (0.000)	0.412 *** (0.000)	0.441 *** (0.000)	0.007 (0.408)	0.006 (0.489)	0.018 (0.394)	0.020 (0.407)	0.045 (0.182)	0.043 (0.227)
ln GDP capita	0.045 (0.846)	0.025 (0.913)	0.065 (0.684)	0.045 (0.774)	0.315 (0.278)	0.275 (0.331)	−0.051 *** (0.001)	−0.056 *** (0.001)	−0.098 *** (0.001)	−0.103 *** (0.001)	−0.105 *** (0.006)	−0.114 *** (0.003)
ln Size	0.823 *** (0.000)	0.828 *** (0.000)	−0.168 * (0.066)	−0.164 * (0.077)	−0.217 (0.155)	−0.223 (0.144)	0.046 *** (0.000)	0.047 *** (0.000)	0.058 *** (0.000)	0.061 *** (0.000)	0.064 *** (0.002)	0.068 *** (0.001)
ln Age	0.169 (0.147)	0.183 (0.116)	0.285 *** (0.003)	0.297 *** (0.002)	0.289 * (0.094)	0.336 ** (0.046)	0.036 *** (0.000)	0.034 *** (0.000)	0.074 *** (0.000)	0.070 *** (0.000)	0.107 *** (0.000)	0.102 *** (0.000)
Industry dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	17,761	17,761	17,769	17,769	16,028	16,028	15,121	15,121	11,745	11,745	7891	7891
Adj.R^2/Psd R^2	0.262	0.264	0.251	0.253	0.171	0.181	0.118	0.122	0.137	0.141	0.157	0.162

The table reports OLS estimates for profitability regressions and probit (maximum likelihood) estimates (average marginal effects) for longevity regressions. ***, **, and * indicate that coefficients are significant at the 1, 5, and 10% levels, respectively. Figures in parentheses are *p*-values calculated using standard errors clustered by firm. *GDP growth* is the GDP growth rate for the year in the profitability regressions; it is the GDP growth rate per year for the subsequent 10, 20, and 30 years in the longevity regressions.

Tables 9 and 10 present the regression results for the effects of national culture on a firm's profitability and longevity, respectively. Table 9 shows that the *Individualism* index has significantly positive effects on the profitability (ROS, ROA, ROE); the *Uncertainty avoidance* and *Long-term orientation* indexes have significantly negative effects on the profitability. For example, the results indicate that a one-standard-deviation increase in a country's *Individualism* index raises ROA by 1.44 percentage points (=21.121 × 0.068: 21.121 is the standard deviation of *Individualism* shown in Table 6 and 0.068 is the estimated coefficient of *Individualism* in the ROA regression in Table 9). Contrarily, Table 10 shows that the *Individualism* index has significantly negative effects on the longevity. It also shows that the *Uncertainty avoidance* and *Long-term orientation* indexes have significantly positive effects on longevity. For example, the results indicate that a one-standard-deviation increase in a country's *Uncertainty avoidance* and *Long-term orientation* raise 20-year survival probabilities by 10.42 percentage points (=20.844 × 0.005 × 100) and 10.55 percentage points (=26.368 × 0.004 × 100), respectively. These results confirm the results of Panels C1, C2, and C3 in Table 5, and support Hypotheses H3a, H3b, and H3c. A firm's profitability is higher in individualistic countries and a firm's long-term viability is higher in uncertainty-avoiding countries and long-term-orientated countries.

Table 9. National Culture and Profitability.

	Profitability								
Dependent Variable	**ROS**			**ROA**			**ROE**		
Individualism	0.059 *** (0.000)			0.068 *** (0.000)			0.131 *** (0.000)		
Uncertainty avoidance		−0.052 *** (0.000)			−0.059 *** (0.000)			−0.104 *** (0.000)	
Long-term orientation			−0.047 *** (0.000)			−0.054 *** (0.000)			−0.092 *** (0.000)
GDP growth	0.291 *** (0.000)	0.236 *** (0.000)	0.215 *** (0.000)	0.271 *** (0.000)	0.207 *** (0.000)	0.185 *** (0.000)	0.600 *** (0.000)	0.479 *** (0.000)	0.440 *** (0.000)
ln GDP capita	−0.579 ** (0.026)	0.103 (0.651)	−0.049 (0.838)	−0.670 *** (0.000)	0.134 (0.392)	−0.045 (0.796)	−1.378 *** (0.000)	0.257 (0.341)	−0.127 (0.682)
ln Size	0.745 *** (0.000)	0.818 *** (0.000)	0.770 *** (0.000)	−0.256 *** (0.007)	−0.176 * (0.063)	−0.229 ** (0.014)	−0.317 ** (0.037)	−0.199 (0.203)	−0.278 * (0.065)
ln Age	0.053 (0.667)	0.106 (0.386)	0.186 (0.118)	0.153 (0.138)	0.214 ** (0.031)	0.305 *** (0.002)	0.061 (0.721)	0.202 (0.234)	0.325 * (0.054)
Industry dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	17,760	17,760	17,754	17,768	17,768	17,762	16,027	16,027	16,023
Adjusted R^2	0.247	0.251	0.260	0.223	0.233	0.249	0.180	0.173	0.182

The table reports OLS estimates. ***, **, and * indicate that coefficients are significant at the 1, 5, and 10% levels, respectively. Figures in parentheses are *p*-values calculated using standard errors clustered by firm. *GDP growth* is the GDP growth rate for the year.

Table 10. National Culture and Longevity.

Dependent Variable	Longevity								
	10-Year Survival			20-Year Survival			30-Year Survival		
Individualism	−0.003 *** (0.000)			−0.007 *** (0.000)			−0.010 *** (0.000)		
Uncertainty avoidance		0.002 *** (0.000)			0.005 *** (0.000)			0.007 *** (0.000)	
Long-term orientation			0.002 *** (0.000)			0.004 *** (0.000)			0005 *** (0.000)
GDP growth	0.001 (0.927)	−0.000 (0.977)	0.005 (0.557)	0.011 (0.695)	−0.000 (0.989)	0.012 (0.649)	0.031 (0.442)	0.004 (0.887)	0.025 (0.509)
ln GDP capita	−0.004 (0.826)	−0.055 *** (0.001)	−0.046 *** (0.004)	0.010 (0.800)	−0.106 *** (0.001)	−0.099 *** (0.003)	0.039 (0.460)	−0.128 *** (0.001)	−0.122 *** (0.006)
ln Size	0.047 *** (0.000)	0.045 *** (0.000)	0.047 *** (0.000)	0.061 *** (0.000)	0.057 *** (0.000)	0.062 *** (0.000)	0.069 *** (0.001)	0.062 *** (0.002)	0.069 *** (0.001)
ln Age	0.036 *** (0.000)	0.035 *** (0.000)	0.033 *** (0.000)	0.073 *** (0.000)	0.073 *** (0.000)	0.067 *** (0.000)	0.107 *** (0.000)	0.107 *** (0.000)	0.096 *** (0.000)
Industry dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	15,120	15,120	15,114	11,744	11,744	11,738	7890	7890	7887
Pseudo R^2	0.125	0.116	0.117	0.150	0.137	0.128	0.175	0.156	0.140

The table reports probit (maximum likelihood) estimates (average marginal effects). *** indicates that coefficients are significant at the 1% level. Figures in parentheses are *p*-values calculated using standard errors clustered by firm. *GDP growth* is the GDP growth rate per year for the subsequent 10, 20, and 30 years in the 10-, 20-, and 30-year survival regressions, respectively.

5.4. Robustness

We check the robustness of the regression results by using the random effect (RE) model, excluding US and Japanese firms from the sample, adding a country's corporate tax rate to control variables, and excluding firms whose data were obtained from Wikipedia and other Internet sources.

First, we examined how the RE model changes the regression results. Using the RE model estimation, of the 18 coefficients of the financial system variables, 3 became insignificant and 1 became significant, compared to the pooled OLS and probit regressions shown in Table 7. In Table 8, 2 of the 24 coefficients of the law variables became insignificant; in Tables 9 and 10, no changes in significance for the 18 coefficients of national culture variables are observed. Therefore, we can say that the RE model does not change the main conclusions of the results.

Second, we run the regressions by excluding firms from the U.S., the country with the largest sample. Without U.S. firms, 1 of the 18 coefficients of the financial system variables became insignificant in Table 7. In Table 8, 2 of the 24 coefficients of the law variables became insignificant; in Tables 9 and 10, no changes in significance for the 18 coefficients of national culture variables are observed. These results suggest that excluding U.S. firms does not change the results significantly. If we exclude Japanese firms (the second largest sample size), as well as U.S. firms, in Table 7, 7 of the 18 coefficients of the institutional factors became insignificant, but 1 became significant; in Table 8, 3 of the 24 coefficients became insignificant; in Tables 9 and 10, 4 of the 18 coefficients became insignificant. These results suggest that the main conclusions do not change when excluding both the U.S. and Japanese samples.

Third, we included the corporate tax rate of each country as a control variable in the profitability and longevity regressions. We used the data on the corporate tax rates in the spreadsheet, "1980–2022 Corporate-Tax-Rates-Around-the-World" on the website of Tax Foundation (https://taxfoundation.org/corporate-tax-rates-by-country-2022/ accessed on 18 February 2023). This spreadsheet provides the data on corporate tax rates for each year since 1980 for 251 countries around the world; for some countries, the data are only available later than 1980. Therefore, when conducting the analyses, the sample is limited to observations from 1980 onward and observations in the year and country for which the data on corporate tax rate are available. Therefore, using corporate tax rates reduced the sample size to 50–80% of the original size. The results of the regression including corporate tax rates were almost identical to the original results. For the financial system variables, all 18 coefficients are significant; for the law variables, only 2 of 24 coefficients became insignificant; for the national culture variables, all coefficients remained significant. Therefore, we argue that including the corporate tax rate in the regression does not change the conclusions. We also found that the corporate tax rate tends to have a negative effect on a firm's profitability and longevity. In the profitability regressions, the coefficient of the corporate tax rate is negative in 19 of the 21 equations, 15 of which are statistically significant. In the longevity regressions, the coefficient of the corporate tax rate is negative in 17 of the 21 equations, 6 of which are statistically significant.

Lastly, we run the regressions by excluding 3518 firm-year observations whose data on survival and founded years were obtained from Wikipedia and other Internet sources, considering that information available on the Internet may be less reliable than the information in databases supplied by data providers. The results were almost identical to the original results: 95 of the 96 institutional factor coefficients in Tables 7–10 did not change in sign and significance (the only exception was that the coefficient of *French-Civil* in the regression of 10-Year Survival in Table 8 was no longer significant).

5.5. Limitation

Our results should be interpreted with caution, due to the possibility of sample selection bias. Our analysis restricts our sample to the world's largest corporations (Fortune Global 500 companies), due to the availability of firm longevity data. If country-level institutional variables affect the probability of a firm becoming a global giant (being in the Fortune Global 500 list), then there could be biases in the estimated coefficients of the institutional variables in the profitability and longevity regressions. However, the directions of the biases are hard to be determined, because it is not easy to predict whether or not the institutional variables affect the probability of a firm being in the Fortune Global 500, and, if they do, whether they have a positive or negative effect. For example, it may be possible that firms in high-uncertainty-avoidance countries are less likely to enter the Fortune Global 500 list newly because they manage less aggressively and are slower to grow. However, it could also be that, once they join the Fortune Global 500, they are more likely to stay on the list because they are more operationally stable than firms in low-uncertainty-avoidance countries. Therefore, it is difficult to determine whether the coefficient estimates of the institutional variables suffer from sample selection bias and, if they do, in which direction. This is a limitation of our regression analyses.

6. Conclusions

Using the data of firms listed in the Fortune Global 500 from 1973 to 2020, this study compares the performance of the world's largest companies across 47 countries. We found significant cross-country differences in both a firm's profitability and longevity. For example, companies in the U.S. and the U.K., where shareholder-oriented companies are seen as dominant, have high profitability but low longevity. Conversely, French, German, and Japanese companies, which are considered to be dominated by stakeholder-oriented companies, have low profitability but high longevity. These findings are consistent with the previous literature arguing that the purpose of Anglo-Saxon companies is to maximize

shareholder value, and that of continental European and Asian companies is to create value for various stakeholders [10–18].

We also found that country-level institutional factors, such as financial systems, laws, and national cultures, are significantly related to a firm's profitability and longevity. First, a market-based (bank-based) financial system is positively (negatively) related to a firm's profitability, but negatively (positively) related to its longevity. Second, a common law (civil law) origin is positively (negatively) related to the profitability of a firm, but negatively (positively) related to its longevity. Third, high individualism, low uncertainty avoidance and low long-term orientation are positively related to profitability, but negatively related to longevity. These findings are consistent with empirical evidence provided by previous studies, indicating that financial systems, laws, and national cultures are related to a firm's risk-taking behavior [19–21,42,54,55]. The findings of these prior studies and this paper suggest that a country's formal and informal institutions affect a firm's purpose, behavior, and performance. The results also imply that each country-level institutional factor provides an advantage in one dimension of corporate success, but a disadvantage in the other.

From a different perspective, we could argue that countries have varying definitions of "corporate success." In shareholder-oriented countries, there is an expectation that high corporate profitability will lead to increased shareholder returns. Demanding high profitability from a company encourages high-risk management; it may reduce a firm's longevity and undermine the welfare of stakeholders. That being said, within shareholder-oriented countries, corporate profitability is considered more important than longevity, and high profitability is regarded as corporate success. On the other hand, in stakeholder-oriented countries, companies tend to survive for a long time to safeguard the welfare of various stakeholders. Several authors argue that corporate longevity may not be desirable from the standpoint of corporate profitability and economic efficiency, as it may result in the emergence of zombie companies [56–58]. However, in stakeholder-oriented countries, corporate longevity is considered more important than profitability and a company's greater longevity is deemed as corporate success [6]. The difference in the definition of corporate success between shareholder-oriented and stakeholder-oriented countries may reflect the differences in corporate purposes, which arise from differences in the institutional environments of each country, such as the financial systems, labor markets, laws, and national cultures.

Our findings add new insights to corporate governance reforms that have been pursued since the late 1990s in stakeholder-oriented economies such as Germany and Japan. The governance reforms are generally aimed at spreading a shareholder value orientation among firms through changes in laws and financial systems. (For example, Germany enacted three Financial Market Promotion Laws in the 1990s and the Corporate Governance Code in 2002 with the aim of making the stock market more attractive to investors. Japan also enacted the Corporate Governance Code in 2015). Based on the evidence of the institutional effects presented in this paper, we posit that the reform is expected to have both positive and negative impacts on stakeholder-oriented firms. One consequence is that it raises their profitability; the other is that it shortens their longevity. While the former may increase shareholders' returns, the latter may hinder long-term value creation for other stakeholders. We claim that we must also consider this latter negative impact when introducing shareholder-oriented corporate governance into stakeholder-oriented economies.

However, the evidence of significant correlations between national culture and corporate performance suggests that shareholder-oriented governance reforms may have a limited impact on firm performance. Hofstede [49] and Williamson [40] argue that national culture rarely changes in a few decades. Given their arguments, even if governance reforms change formal institutions—laws and financial systems—in a country, corporate performance will be determined, to some extent, by informal institutions—national

cultures—which are difficult to change. Then, we can predict that cross-country differences in corporate performance will persist even with corporate governance reforms.

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