**Appendix: Additional Details on Data Cleaning and Robustness**

Balance Sheet Item Translations and Key Ratios

The financial data reported in the Ministry of Finance Yearbooks presents a summary of balance sheet and income statement information originally reported in the *Vestnik Finansov*. We present our translations of the reported financial categories in Table A1 Panel A. For the most part, the translations themselves are straightforward, e.g. *имущество* is translation as “property” and *товары и материалы* as “goods and materials.” However, a few column headings have been translated according to context clues rather than the literal wordings. For example, given its function in the balance sheet, we translate *дебиторы* as “accounts receivable” and *кредиторы* as “accounts payable” (though that column encompasses perhaps more than “accounts payable” on Western balance sheets, since it includes loans and mortgage debt). Finally, note the columns *счет прибылей* and *общая прибыль*, which denote “revenue” (the total revenue received in a year) and “profit” (a measure of revenue minus expenses from which dividends can be disbursed).

Overall, the published balance sheet data are divided into “active” and “passive” sections, which roughly correspond to modern definitions of assets and liabilities.[[1]](#footnote-1) The active columns included property, materials, debits, other items, and loss; the passive columns included share capital, reserves, amortization, other capital, and credit. Until the 1909 cross-section of data, the balance sheets also reported total annual revenue and total expenditure by the firm. When the difference between revenues and expenditures was positive, it was reported as Net Profit, because this account could then be used for paying dividends. When the difference was negative, it was reported on the active side of the balance sheet as a loss, which we use to define negative profits in our variable “Profit or Loss.” After 1909, the published balance sheet information ceased to include annual revenues and expenditures and instead only reported direct measures of profit, either the difference between assets and liabilities (“balance profit” – 1910 onwards) or a measure of net profits for use as dividends (“profits for distribution” – 1911 onwards). We believe that profits for distribution mostly closely resembles the previous definition of net profit, so our preferred measure over the whole panel uses balance profits in 1910 and profits for distribution from 1911 onwards. We summarize this variable across time, industries, and corporation type in Table A5. In part because this definition changes slightly, we carefully control for the accounting year in our empirical work.

On average the largest items (scaled by total assets) on the active side included total property, materials, and debits, while the passive side’s largest items were share capital and credit. The balance sheets in the Ministry’s Yearbooks almost always indicates a corporation’s age. In cases in which this source does not list age, but we have information about that corporation from previous years, we extrapolate the corporation’s age. A corporation that appears for the first time is considered “newborn,” and is given an age of 1. We define “age” in this way, rather than based on the date of charter, as corporations often began operation well after their date of charter. We control for the region that the corporation was headquartered throughout our work below. The vast majority of observations were from the central, northern, and southern regions of European Russia, or from the Polish and Baltic provinces of the Empire. Slightly more than 20% of all balance sheet observations could not be matched to RUSCORP, which means they are missing information on headquarters, founder, and corporation type.

Figure A1 shows that Martens and Daab had 63,853 rubles in the “credits” column of their profit statement in the Vestnik, which is the number reported in the “Profits” column of the compiled Ministry of Finance balance sheet data in the Yearbook. In the “Passive” section of the Yearbook date, entries for mortgage debt, credit (including trade credit), and acceptances add up to 368,847.64, which (rounded up) is the credit entry in Vestnik.

Throughout the paper, we draw on these variables as classified in the yearbooks to construct other standard financial accounting ratios. For example, a standard measure of Asset Tangibility is Property divided by Total Assets, since this ratio intends to capture the ratio of fixed assets to total assets. In that ratio, Total Assets is the sum of all entries on the Active (Assets) side of the Russian balance sheets. In some cases, the data do not permit us to exactly compose a given ratio, so we approximate it as well as possible. We do not, for example, know how many shares a corporation has outstanding at any given time, so our measure of Market Valuation is the Market Share Price times the number of shares issued at the corporation’s founding, which we know from information in the RUSCORP Database.

Thus, starting with definitions given in Deloof and van Overfelt (2008), we generate measures of Total Book Leverage, Total Market Leverage, Book-Based Bond Ratio, the Book-Based Debt Ratio, and the Market-Based Debt Ratio, with some alterations given that we do not have a measure of the market valuation of debt or an exact measure of current market valuation. Again, Table A1 reports how we categorized and defined these variables.

Duplicate Observations and the Structure of the Dataset

Matching corporations over time yielded a small number of duplicate observations, which we reconcile as follows. First, we noted several instances of separate balance sheet entries for subdivisions of a company’s activities; for example, balance sheet information for the company’s factory in Moscow. Such observations begin with the words “Same for…” (*Tozhe)*. We dropped these subsidiary observations, because it appears that their information is included in the total balance for the whole company. Second, some companies’ data for a given accounting year are reported in two or more different published volumes. Usually, the entries across volumes are identical, but in some cases, there are small differences, and in others, only one published volume includes certain entries. We believe that repeated reporting of balance sheets for the same accounting year represent revisions and corrections. Thus, we take the latest observation. Third, some companies are reported several times within the same published volume across multiple industries, with identical balance sheet numbers reported in each repeated entry. In such cases, we consolidate the information into one single entry for what appears to be the primary industry and drop the other observations. For companies reported in different industries with totally different balance sheet entries that have been assigned the same firm identifier, we generate a new unique firm id for each one. There are few corporations (less than 1% of the sample) that fit this category.

We provide a breakdown of the accounting years in each Ministry of Finance yearbook in Table A4. Most of the accounting years before 1899 appear in the 1900 Ministry of Finance yearbook. In each subsequent yearbook, most observations cover the preceding accounting year, though a small number report two or more previous accounting years. Other than 1905, practically no corporations with missing balance sheets in a given year provide data in following years. Therefore, we view non-1905 missing data as largely indicative of corporate dissolution or exit. We control for year effects in our regression work to (partly) address these yearly fluctuations, although we are aware that this does not fully address the selection issues that might arise in reporting (or not reporting) financial data in a given year.

Descriptive Information on the Dataset

As noted in the main text, we present summary statistics of the balance sheet data in Table A3. Table A8 provides summary information on dividends across industries, years, and corporation types. The notes below the tables, the text, and our discussion above provides further particulars on these variables.

Additional Analyses: Profit/Capital Ratios

In the main text, Table 6 breaks down the dividend/profit ratio by industry, year, and corporation type to show which kinds of corporations paid greatest payouts to investors for a given level of profitability. We can also consider the profitability corporations in each industry, year, and corporation type for a given size, here measured by share capital. Table A5 presents summary statistics for profit/capital ratios by industry, year, and type. We find that, for a given size as measured by share capital, the most profitable industries were foods (perhaps because average size was so small), paper, textiles, and transportation, while agriculture had by far the lowest average profit/capital ratio. Furthermore, Panel B shows that profit/capital ratios roughly followed the Russian business cycle, with a large dip surrounding the 1905 revolution. Finally, as demonstrated elsewhere in the text, Panel C shows that share partnerships were much more profitable on average per unit share capital than A-corporations.

Additional Analyses: Correlates of Changes in Equity

Russian corporations could finance operations and expansion in at least three ways: plowing back profits, obtaining loans or other sources of credit, and issuing new equity. We examined the first two channels throughout the paper, and Table A6 presents a rudimentary analysis of the correlates of the par value of equity and changes in the par value of equity (share capital). In particular, we are interested in whether corporation type, corporation size (measured by total assets), whether the corporation is listed, and any restrictions on the corporation’s activities in its charter are correlated with the company’s tendency to change its equity. The regressions we present have many limitations, particularly by focusing on year-to-year changes rather than changes over a longer period of time.

We first examine the correlates of share capital. Column 1 confirms that, overall, A-corporations had more share capital than share partnerships, even controlling for industry, year, and region. The estimates presented in Columns 2 through 5 examine correlates of changes in share capital, beginning with Column 2, which includes corporation fixed effects. Thus, Column 2 shows that corporations that switched from unlisted to listed experienced an increase in share capital. Column 3 through 5 estimate random effects models, where the left-hand-side variable is the year-to-year change in share capital. These models permit the inclusion of fixed corporation characteristics. Here, we learn that A-corporations are not more likely to increase share capital, but larger corporations in terms of total assets are. Other fixed characteristics such as whether the corporation tends to be listed or whether the charter includes special restrictions like named shares or prohibitions on bond issuance were not strongly related to changes in share capital.

Robustness Checks: Split Samples, Alternative Definitions of Leverage, and Additional Covariates

In Table 5 of the main text, we examine the correlates of Russian corporate debt. Table A7 considers whether the relationships we examined in Table 5 might be heterogeneous by industry, corporation type, and headquarters location. We also examine several additional definitions of corporate leverage and additional covariates.

Table A7 Panel A considers whether the leverage relationships we discuss in the main text differ by broad industrial category. For the most part, we find similar relationships across each industry to those we found in the main text for corporations overall (though some coefficients are noisier due to small sample sizes). Property and profits as a proportion of assets are largely negatively correlated with log credit over assets, while firm size (log assets) is positively correlated with log credit over assets. However, we notice several important differences across industries. For example, the relationship between age and the credit/asset ratio varies greatly across industries: in industries like agriculture, animals, mining, and trade, older firms financed a greater proportion of operations using credit, while in the foods industry, younger firms were more likely to use credit. There are also quite large differences across industries in whether a corporation’s composition of founders is related to log credit over assets. For example, in the agriculture and paper industries, corporations with noble founders had a higher proportion of credit.

Panels B and C present additional split-sample regressions for corporation type and headquarters location (Moscow vs. St. Petersburg). Both split-sample exercises present a fundamentally similar set of relationships to those we discuss in the main text. One difference of note is that the relationship between property and credit is much more negative for corporations headquartered St. Petersburg than those in Moscow, perhaps because Moscow corporations had access to tighter credit networks, or though in Petersburg could more easily find equity investors.

Finally, in Panel D, we examine several additional variations of the outcome variable (leverage, broadly construed). We focus on three variations: book leverage, market leverage, and the market-based debt ratio, broadly following the variables specified in Deloof and van Overfelt (2008), which adapts common accounting ratios to a similar historical context for their study of Belgian corporations.

Book leverage is the book value of debt (accounts payable, “other items” from the liabilities side, and bonds) divided by the book value of total assets. Columns 1 and 2 of Table A7 Panel D consider correlates of the book value of leverage. We see similar relationships to those presented in the main text, particularly the negative correlation between property and leverage and between listing and leverage.

Next, we consider total market leverage, which ideally is the market value of debt divided by the corporation’s market value plus total assets (an approximation of the company’s total market value). However, because the market value of debt is not available for Russian corporations, our measure of the market value of leverage is the book value of total debt (credit, “other items” from the liabilities side, and bonds) divided by valuation plus total assets, where our measure of market valuation is the company’s share price on the St. Petersburg Stock Exchange times its number of shares specified in its charter. Thus, we only calculate the market value of leverage for those corporations listed on the St. Petersburg Stock Exchange. Despite these caveats, once again, the relationships shown in column 3 are quite similar to those presented in the main text, though the coefficient on asset tangibility has lost statistical significance.

Finally, in Column 4, we consider as our outcome the market-based debt ratio, which divides a company’s market value of debt (excluding bonds) by valuation plus total debt (which includes bonds). Once again, given our data limitations, we made a few adjustments: we divide the company’s accounts payable (credit) plus other items divided by the valuation, calculated from the St. Petersburg share price times the number of shares in the charter, plus our measure of total debt. The relationships we estimate in column 4 are broadly similar to those discussed in the main text.

Panel E presents regressions that examine the association of corporate credit ratios with three additional covariates: the volatility of share prices, an indicator for whether the corporation’s headquarters were located in St. Petersburg, and the ratio of amortization to total assets. The volatility of share prices, here measured as the coefficient of variation in monthly share prices for each corporation-year observation, may indicate the “riskiness” of a listed corporation. Corporations that are perceived as riskier may face higher prices for loans. In Column 2, we indeed see that riskier corporations have less credit, but the coefficient is measured quite noisily, given the small number of observations for listed corporations. Next, in Column 2, we examine whether corporations located in St. Petersburg, closer to the stock market, may have been able to depend less on credit. However, this coefficient is again small and lacks statistical significance. Finally, we examine whether corporations with higher levels of amortization (a kind of precautionary “sinking fund”) had more or less credit, and we do not see a strong association, though the coefficient is negative, indicating a weak tradeoff for corporations between saving for future capital purchases and paying down existing debt.

Robustness Checks: Performance Regressions

Tables A9 and A10 present additional robustness exercises verifying results relating corporate characteristics to measures of performance.

Table A9 considers additional specifications of our results demonstrating correlates of ROA and corporate characteristics. The first column presents a baseline, uncontrolled regression of ROA on corporation type, age, and listing, confirming that these relationships are not driven by the controls included in the results shown in the main text.

Column 2, which also uses return on equity, replicates a specification from our previous study (Gregg and Nafziger, 2019) by only including observations in our new panel dataset from the 1914 accounting year. Column 2 finds very different results; in particular, the coefficient on the indicator for widely-held has lost statistical significance. Broadly, we interpret these differences as arising from the small sample size included in this regression and the possibility that 1914 was an unusual year. In our view, the panel evidence provides a more consistent estimate of the role of agency issues in Imperial corporate returns. Finally, Column 3 estimates a regression where the left-hand-side variable is the inverse hyperbolic sine of profit or loss and finds broadly similar patterns to those shown in Columns 1 and 2.[[2]](#footnote-2)

In Table A10, similarly, we present additional specifications confirming the relationships with the log market-to-book ratio we explore in the main text. Columns 1 through 3 confirm using several configurations of controls that the market-to-book ratio is positively correlated with the dividend/profit ratio. Columns 4, 5, and 6 present estimates using different versions of the dependent variable. Column 5 measures the market-to-book ratio using the alternative measure of the market-to-book ratio of (total assets minus share capital + the market share price x the number of shares) / total assets. Columns 6 and 7 calculate the market-to-book ratio as the market share price over the par value of shares. These columns show similar results to the main specifications. Finally, we find little difference in market valuations by founder identity across specifications.

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Table A1: The Russian Balance Sheets and the Ratios We Use

Panel A: Items on the Russian Balance Sheet, with Translations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Left Hand Page** | |  | **Right Hand Page** | |
| **Счет:** | Account (Total) |  | **Пассив** | Passive (Liabilities) |
| Прибылей | Revenue |  | Основной капитал | Share Capital |
| Убытков | Expenditures |  | Запасный капитал | Capital Reserves |
|  |  |  | Аммортизация (sic) | Amortization (and Depreciation) |
| **Актив** | Active (Assets) |  | Прочие капиталы | Other Capital |
| Имущество | Property |  |  | (Including Bonds) |
| Товары и | Goods and Materials |  | Облигации | Bonds |
| материалы |  |  | Кредиторы | Accounts Payable |
| Дебиторы | Accounts Receivable |  | Прочие статьи | Other Items |
| Прочие статьи | Other Items |  |  |  |
| Убыток | Loss |  | **Прибыль** | Profit |
| Наличность и | Cash and |  | Общая | Net Profit |
| ценные бумаги | Commercial Paper |  | Дивиденд: Сумма | Dividend Sum |
|  |  |  | Дивиденд: % | Dividend Percentage |

Panel B: Definitions of Accounting Terms Used in the Paper

|  |  |  |
| --- | --- | --- |
| **Standard Term** |  | **Our Definition Using the Russian Data** |
| Total Assets |  | Property + Goods and Materials + Accounts Receivable + Loss (Active) + Other Items (Active) + Commercial Paper (when listed) |
| Valuation |  | Market Share Price \* Number of Shares (at founding) |
| Total Debt |  | Accounts Payable + Other Items (Passive) + Bonds |
| Total Book Leverage |  | Total Debt / Total Assets |
| Total Market Leverage |  | Total Debt / (Valuation + Total Assets) |
| Book-Based Bond Ratio |  | Bonds / Total Assets |
| Market-Based Bond Ratio |  | Bonds / (Valuation + Total Debt) |
| Book-Based Debt Ratio |  | (Accounts Payable + Other Items) / Total Assets |
| Market-Based Debt Ratio |  | (Accounts Payable + Other Items) / (Valuation + Total Debt) |
| Market-to-Book Ratio |  | Valuation / Share Capital |
| Asset Tangibility |  | Property / Total Assets |
| Log Size |  | Log (Total Assets) |
| Net Profit Margin |  | Log Net Profit / Revenue |
| Asset Turnover |  | Revenue / Total Assets |
| Financial Leverage |  | Total Assets / Share Capital |
|  |  |  |

Table A2: Imperial Russian Corporations by Accounting Year and Industry

Panel A: Number of Observations and Unique Firms

|  |  |
| --- | --- |
|  | Number |
| Total Observations | 19,817 |
| Unique Firms | 2,874 |

Panel B: Number of Corporate Observations by Industry, 1896-1914

|  |  |  |  |
| --- | --- | --- | --- |
| Industry | Number | Percentage | Percentage of Total Share Capital |
| Agriculture | 95 | 0.48 | 0.15 |
| Animals | 297 | 1.5 | 1.02 |
| Ceramics | 886 | 4.47 | 2.56 |
| Chemicals | 979 | 4.94 | 4.39 |
| Food | 3,549 | 17.91 | 9.14 |
| Metals | 2,411 | 12.17 | 17.00 |
| Mining | 2,280 | 11.51 | 19.88 |
| Miscellaneous | 917 | 4.63 | 4.42 |
| Municipal Serv. | 1,496 | 7.55 | 6.37 |
| Paper | 730 | 3.68 | 1.83 |
| Textiles | 3,511 | 17.72 | 21.24 |
| Trade | 1,386 | 6.99 | 5.17 |
| Transportation | 821 | 4.14 | 5.68 |
| Wood | 459 | 2.32 | 1.15 |
| Total | 19,817 | 100 | 100 |

Panel C: Number of Corporate Observations by Accounting Year, 1896-1914

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Accounting | Number | Percentage |  | Accounting | Number | Percentage |
| Year |  |  |  | Year |  |  |
| 1896 | 1 | 0.01 |  | 1906 | 1,260 | 6.36 |
| 1897 | 7 | 0.04 |  | 1907 | 1,280 | 6.46 |
| 1898 | 215 | 1.08 |  | 1908 | 1,370 | 6.91 |
| 1899 | 947 | 4.78 |  | 1909 | 1,154 | 5.82 |
| 1900 | 1,101 | 5.56 |  | 1910 | 1,454 | 7.34 |
| 1901 | 1,190 | 6 |  | 1911 | 1,480 | 7.47 |
| 1902 | 1,248 | 6.3 |  | 1912 | 1,603 | 8.09 |
| 1903 | 1,273 | 6.42 |  | 1913 | 1,717 | 8.66 |
| 1904 | 1,126 | 5.68 |  | 1914 | 1,113 | 5.62 |
| 1905 | 278 | 1.4 |  |  |  |  |
|  |  |  |  | Total | 19,817 | 100 |

Source: Russia, Ministry of Finance (1900-1915). Industries are coded according to the headings in the Ministry of Finance Yearbooks. Accounting years are indicated for each row of corporate balance sheet data reported in the Yearbook. This table excludes observations with 0 values for Total Assets.

Table A3: Descriptive Statistics: Share Capital, Total Assets, and Balance Sheet Entries

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Obs | Mean | Std. Dev | Median | Min | Max |
| **Balance Sheet Entries** | |  |  |  |  |  |
| Share Capital | 19,817 | 1,678,302 | 2,586,618 | 800,000 | 1,123 | 74,800,000 |
| Total Assets | 19,817 | 4,823,360 | 14,600,000 | 1,974,842 | 11,360 | 507,000,000 |
| Share Capital / Assets | 19,817 | 0.4850 | 0.2637 | 0.4536 | 0.0019 | 15.7606 |
| Total Property / Assets | 19,817 | 0.4859 | 0.2452 | 0.4867 | 0.0000 | 1.0000 |
| Materials / Assets | 19,817 | 0.1850 | 0.1526 | 0.1657 | 0.0000 | 0.9845 |
| Debits / Assets | 19,817 | 0.1977 | 0.1645 | 0.1644 | 0.0000 | 0.9991 |
| Other / Assets | 19,817 | 0.0816 | 0.1155 | 0.0375 | 0.0000 | 1.0000 |
| Loss / Assets | 19,817 | 0.0215 | 0.0667 | 0.0000 | 0.0000 | 1.0000 |
| Reserves / Assets | 19,817 | 0.0357 | 0.0617 | 0.0120 | 0.0000 | 1.9854 |
| Amortization / Assets | 19,817 | 0.0852 | 0.1257 | 0.0344 | 0.0000 | 8.8795 |
| Other Capital / Assets | 19,817 | 0.0299 | 0.0894 | 0.0000 | 0.0000 | 2.2499 |
| Credit / Assets | 19,817 | 0.2960 | 0.2010 | 0.2795 | 0.0000 | 2.1042 |
| Other Passive / Assets | 19,817 | 0.0263 | 0.0651 | 0.0015 | 0.0000 | 0.9200 |
| Profit / Assets | 18,284 | 0.0476 | 0.0648 | 0.0385 | 0.0000 | 5.4336 |
| Profit or Loss / Assets | 19,173 | 0.0291 | 0.0962 | 0.0361 | -1.0000 | 5.4336 |
| Dividend Amt/ Assets | 19,817 | 0.0200 | 0.0286 | 0.0137 | 0.0000 | 1.0224 |
| Total Balance / Assets | 17,401 | 1.0084 | 0.2972 | 1.0000 | 0.0000 | 17.8648 |
| Issues Dividend | 19,817 | 0.5705 | 0.4950 | 1.0000 | 0.0000 | 1.0000 |
|  |  |  |  |  |  |  |
| **Fixed Characteristics** |  |  |  |  |  |  |
| Widely-Held | 17,102 | 0.5163 | 0.4997 | 1.0000 | 0.0000 | 1.0000 |
| Has Noble Founder | 17,133 | 0.1040 | 0.3052 | 0.0000 | 0.0000 | 1.0000 |
| Has Gov’t Founder | 17,133 | 0.1918 | 0.3937 | 0.0000 | 0.0000 | 1.0000 |
| Has Gentry Founder | 17,133 | 0.1802 | 0.3844 | 0.0000 | 0.0000 | 1.0000 |
|  |  |  |  |  |  |  |
| **Market and Par Values** | |  |  |  |  |  |
| Listed | 19,817 | 0.0335 | 0.1798 | 0.0000 | 0.0000 | 1.0000 |
| Market Price | 681 | 335.9084 | 391.9828 | 212.7500 | 15.0000 | 2,931.9580 |
| Volatility | 484 | 0.0845 | 0.0840 | 0.0649 | 0.0000 | 0.6905 |
| Par Price | 17,147 | 1,317.29 | 2,154.63 | 500.00 | 0.00 | 25,000.00 |
| Num. Shares | 17,028 | 3,162.87 | 7,548.78 | 1,000.00 | 0.00 | 300,000.00 |
| Market Valuation | 663 | 3,064,091 | 4,896,750 | 1,292,000 | 8,328 | 59,900,000 |
| Market-to-Book | 663 | 1.0360 | 1.8885 | 0.7143 | 0.0043 | 24.7893 |
| Market-to-Book (alt) | 663 | 1.0238 | 0.9948 | 0.8654 | 0.1320 | 18.1120 |
| Price over Par | 663 | 1.1811 | 0.8222 | 1.0500 | 0.0250 | 6.6667 |

Source: Russia, Ministry of Finance (1900-1915). Profit in 1910 is “Balance Profit”, and Profit after 1911 is “Profits for Distribution.” Russian balance sheets were divided into “active” and “passive” sections, which roughly correspond to assets and liabilities. Active columns included property, materials, debits, other items, and loss; passive columns included share capital, reserves, amortization (used as a “sinking fund”), other capital, and credit. Profit or Loss reports the corporation’s profit if revenues exceeded expenditures and losses if expenditures exceeded revenues. Total Balance is not reported in 1907. A corporation is “widely-held” if it uses the term “Aktsiia” for share. Identities and statuses of corporate founders are identified from matching to the RUSCORP Database (Owe,n 1992), which provides demographic information on corporate founders. Corporation-Year observations are “Listed” if a corporation’s shares appear on the St. Petersburg Stock Exchange that year. Market prices are annual averages of shares traded on the St. Petersburg Stock Exchange. Share price volatility is the annual coefficient of variation of monthly stock prices. The reported par value of shares is Owen’s (1992) standardized measure. Number of shares appear on corporate charters and are provided by RUSCORP. The Market-to-Book ratio is the number of shares times the market share price divided by share capital. The Alternative Market-to-Book ratio is Total Assets minus Share Capital plus the market share price times number of shares divided by Total Assets. Price over par is the market share price divided by the par share price listed in the corporation’s charter (RUSCORP). Observations with values of 0 for Total Assets are omitted.

Table A4: Accounting Years by Ministry of Finance Yearbook Publication Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Accounting Year | | | | | | | | | | | | | | | | | | |
| Pub Year | 1896 | 1897 | 1898 | 1899 | 1900 | 1901 | 1902 | 1903 | 1904 | 1905 | 1906 | 1907 | 1908 | 1909 | 1910 | 1911 | 1912 | 1913 | 1914 |
| 1900 | 1 | 7 | 213 | 757 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1901 | 0 | 0 | 0 | 186 | 892 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1902 | 0 | 0 | 1 | 3 | 206 | 997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1903 | 0 | 0 | 0 | 0 | 0 | 186 | 1,035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1904 | 0 | 0 | 0 | 0 | 0 | 1 | 205 | 1,056 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 202 | 1,104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1906 | 0 | 0 | 0 | 1 | 3 | 4 | 5 | 10 | 12 | 253 | 1,017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1907 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 13 | 227 | 1,037 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1909 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 4 | 8 | 8 | 226 | 847 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1910 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 11 | 508 | 837 | 0 | 0 | 0 | 0 | 0 |
| 1911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 8 | 298 | 879 | 0 | 0 | 0 | 0 |
| 1912 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 2 | 5 | 17 | 564 | 885 | 0 | 0 | 0 |
| 1913 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 9 | 585 | 950 | 0 | 0 |
| 1914 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 636 | 1,024 | 0 |
| 1915 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 2 | 17 | 693 | 1,113 |

Source: Russia, Ministry of Finance (1900-1915).

Table A5: Profit/Capital Ratios by Industry, Accounting Year, and Corporation Type

Panel A: By Industry

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Industry | Number | Mean | Std. Dev | Median | Min | Max |
| Agriculture | 89 | -0.042 | 0.257 | 0.032 | -1.415 | 0.235 |
| Animals | 290 | 0.047 | 0.325 | 0.071 | -3.674 | 0.877 |
| Ceramics | 842 | 0.023 | 0.275 | 0.050 | -3.888 | 0.802 |
| Chemicals | 956 | 0.094 | 0.200 | 0.086 | -1.325 | 1.359 |
| Food | 3,485 | 0.120 | 0.280 | 0.113 | -7.236 | 3.202 |
| Metals | 2,341 | 0.052 | 0.335 | 0.078 | -7.607 | 2.932 |
| Mining | 2,135 | 0.044 | 0.612 | 0.033 | -2.469 | 26.022 |
| Miscellaneous | 890 | 0.064 | 0.228 | 0.069 | -0.909 | 4.716 |
| Mun. Services | 1,417 | 0.095 | 0.519 | 0.064 | -2.146 | 12.870 |
| Paper | 716 | 0.108 | 0.693 | 0.074 | -1.068 | 13.262 |
| Textiles | 3,445 | 0.119 | 0.180 | 0.110 | -1.512 | 2.668 |
| Trade | 1,356 | 0.085 | 0.175 | 0.085 | -1.339 | 1.910 |
| Transportation | 777 | 0.090 | 0.344 | 0.083 | -3.132 | 2.042 |
| Wood | 434 | 0.056 | 0.176 | 0.071 | -1.385 | 0.996 |
| **Total** | 19,173 | 0.086 | 0.363 | 0.083 | -7.607 | 26.022 |

Panel B: By Accounting Year

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Accounting Year | Number | Mean | Std. Dev | Median | Min | Max |
| 1899 | 911 | 0.113 | 0.184 | 0.096 | -1.486 | 1.711 |
| 1900 | 1,057 | 0.132 | 0.821 | 0.088 | -1.512 | 26.022 |
| 1901 | 1,153 | 0.084 | 0.206 | 0.074 | -0.989 | 2.812 |
| 1902 | 1,227 | 0.071 | 0.226 | 0.066 | -2.469 | 2.985 |
| 1903 | 1,247 | 0.063 | 0.203 | 0.067 | -1.385 | 1.538 |
| 1904 | 1,087 | 0.063 | 0.207 | 0.067 | -1.000 | 1.912 |
| 1905 | 256 | 0.032 | 0.230 | 0.056 | -1.155 | 0.833 |
| 1906 | 1,191 | 0.046 | 0.310 | 0.059 | -5.508 | 3.202 |
| 1907 | 1,232 | 0.060 | 0.195 | 0.066 | -2.083 | 1.418 |
| 1908 | 1,280 | 0.035 | 0.208 | 0.058 | -1.771 | 1.726 |
| 1909 | 1,101 | 0.056 | 0.313 | 0.063 | -2.526 | 4.716 |
| 1910 | 1,422 | 0.105 | 0.287 | 0.107 | -3.132 | 2.932 |
| 1911 | 1,447 | 0.140 | 0.620 | 0.119 | -5.632 | 12.870 |
| 1912 | 1,567 | 0.111 | 0.437 | 0.109 | -7.236 | 13.262 |
| 1913 | 1,678 | 0.099 | 0.333 | 0.111 | -7.607 | 1.926 |
| 1914 | 1,101 | 0.104 | 0.220 | 0.098 | -3.888 | 1.846 |

Panel C: By Corporation Type

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type | Number | Mean | Std. Dev | Median | Min | Max |
| Share Part. | 8,119 | 0.115 | 0.306 | 0.105 | -7.236 | 13.262 |
| A-Corp. | 8,547 | 0.060 | 0.265 | 0.069 | -7.607 | 4.716 |
| **Total** | 16,666 | 0.087 | 0.287 | 0.086 | -7.607 | 13.262 |

Source: Russia, Ministry of Finance (1900-1915). Profits here are really “profits or losses,” i.e., profits are reported when revenues exceed expenditures and losses are reported when expenditures exceed revenues. Profit in 1910 is “Balance Profit”, and Profit after 1911 is “Profits for Distribution.”

Table A6: Correlates of Changes in Equity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dep. Variable: | Share Capital | Share Capital | Share Capital | Share Capital | Share  Capital |
| Model: | OLS | FE | RE | RE | RE |
|  | (1) | (2) | (3) | (4) | (5) |
| Widely-Held | 0.102\*\*\* |  | -0.00184 | -0.00183 | -7.46e-05 |
|  | (0.0314) |  | (0.00572) | (0.00437) | (0.00518) |
| Log Total Assets |  |  |  | 0.0258\*\*\* | 0.0267\*\*\* |
|  |  |  |  | (0.00376) | (0.00411) |
| Listed |  | 0.152\*\*\* |  |  | 0.000178 |
|  |  | (0.0366) |  |  | (0.00947) |
| Named Shares |  |  |  |  | 0.00818 |
|  |  |  |  |  | (0.00716) |
| Bonds Allowed |  |  |  |  | -0.0140 |
|  |  |  |  |  | (0.00979) |
| Constant | 12.30\*\*\* | 13.92\*\*\* | 0.0295\*\*\* | -0.301\*\*\* | -0.320\*\*\* |
|  | (0.131) | (0.0742) | (0.00345) | (0.0529) | (0.0559) |
|  |  |  |  |  |  |
| Observations | 17,071 | 17,104 | 13,281 | 13,261 | 13,251 |
| R2 | 0.152 | 0.0297 | 1.23e-05 | 0.0166 | 0.0169 |
| Industry Controls | YES | YES | YES | YES | YES |
| Year Controls | YES | YES | YES | YES | YES |
| Region Controls | YES | YES | YES | YES | YES |
| Unique Firms | 2,313 | 2,317 | 1,848 | 1,844 | 1,842 |
| \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 | |  |  |  |  |

Standard errors clustered by industry and year in parentheses in column 1 and by industry in remaining columns. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Log() denotes the natural logarithm.

Table A7: The Underpinnings of Imperial Russian Corporate Credit: Additional Split-Sample Regressions and Covariates

Panel A: Split-Sample Regressions by Industry

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Dep Var: Log Credit / Assets | | | | | | |
| Industry | Services | Agriculture | Animals | Ceramics | Chemicals | Food | Metals |
| Model: | RE | RE | RE | RE | RE | RE | RE |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|  |  |  |  |  |  |  |  |
| Log (Assets) | 0.227\*\* | 0.273\*\* | -0.0231 | 0.143 | 0.139 | 0.380\*\*\* | 0.134\*\*\* |
|  | (0.114) | (0.127) | (0.0994) | (0.103) | (0.0974) | (0.0621) | (0.0486) |
| Profit or Loss/ | -2.502\*\* | -0.324 | -0.0377 | -2.619\*\*\* | -0.677 | -1.716\*\*\* | -0.275 |
| Assets | (1.222) | (0.748) | (0.466) | (0.587) | (0.540) | (0.239) | (0.595) |
| Log Age | -0.168\*\* | 0.0955 | 0.181\*\*\* | 0.0294 | 0.0572 | -0.106\*\*\* | 0.00712 |
|  | (0.0829) | (0.164) | (0.0619) | (0.0968) | (0.0768) | (0.0262) | (0.0416) |
| Listed | -0.570\* |  | -0.236\* | -0.00360 | -0.225 | -0.0294 | -0.122 |
|  | (0.333) |  | (0.124) | (0.159) | (0.144) | (0.0927) | (0.0922) |
| Property / | 0.0271 | 0.165 | -0.952\*\* | 0.457 | 0.287 | -0.259\* | -0.419 |
| Assets | (0.411) | (0.870) | (0.402) | (0.395) | (0.289) | (0.142) | (0.256) |
| Widely-Held | -0.436 | -0.249 | -0.0320 | -0.613\*\* | -0.341 | -0.00560 | 0.0608 |
|  | (0.345) | (0.258) | (0.215) | (0.291) | (0.215) | (0.0821) | (0.154) |
| Corporation | 0.0956 | 1.212\* | -1.069\*\* | -0.174 | -0.0526 | -0.0556 | -0.0594 |
| Has noble | (0.295) | (0.695) | (0.521) | (0.260) | (0.335) | (0.0931) | (0.198) |
| Corporation | -0.176 | 0.208 | -0.688\*\*\* | -0.242 | -0.0471 | 0.0428 | -0.288\*\* |
| Has Gov’t | (0.233) | (0.326) | (0.207) | (0.266) | (0.246) | (0.0846) | (0.132) |
| Corporation | 0.762\*\*\* | 0.334 | 0.302 | -0.0828 | -0.548 | 0.215\*\*\* | -0.0672 |
| Has gentry | (0.216) | (0.225) | (0.269) | (0.263) | (0.424) | (0.0618) | (0.122) |
| Constant | -4.607\*\* |  | -0.164 | -3.924\*\* | -3.186\*\* | -6.426\*\*\* | -3.183\*\*\* |
|  | (1.799) |  | (1.575) | (1.736) | (1.371) | (0.897) | (0.750) |
|  |  |  |  |  |  |  |  |
| Observations | 898 | 77 | 250 | 665 | 840 | 3,306 | 1,871 |
| R2 | 0.202 | 0.693 | 0.322 | 0.142 | 0.119 | 0.198 | 0.0544 |
| Unique Firms | 155 | 12 | 47 | 103 | 143 | 406 | 307 |
| Year Controls | YES | YES | YES | YES | YES | YES | YES |
| Region Controls | 0.227\*\* | 0.273\*\* | -0.0231 | 0.143 | 0.139 | 0.380\*\*\* | 0.134\*\*\* |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Standard errors clustered by firm ID in parentheses. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen, 1992), which includes demographic information for corporate founders. Log() denotes the natural logarithm.

Panel A: Split-Sample Regressions by Industry (cont…)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Dep Var: Log Credit / Assets | | | | | | |
| Industry | Mining | Miscellaneous | Paper | Textiles | Trade | Transportation | Wood |
| Model: | RE | RE | RE | RE | RE | RE | RE |
|  | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
|  |  |  |  |  |  |  |  |
| Log (Assets) | 0.362\*\*\* | 0.0386 | 0.134\* | 0.195\*\* | 0.337\*\*\* | 0.398\*\*\* | 0.223\*\* |
|  | (0.0701) | (0.0849) | (0.0690) | (0.0802) | (0.104) | (0.0908) | (0.0877) |
| Profit or Loss/ | -0.164 | 0.0398 | -2.151\*\*\* | -1.536\*\*\* | -0.949 | -0.701 | -1.684\*\*\* |
| Assets | (0.373) | (1.228) | (0.545) | (0.346) | (0.751) | (0.762) | (0.494) |
| Log Age | 0.0757 | -0.0205 | 0.0645 | -0.0618\* | 0.0360 | 0.0569 | -0.0391 |
|  | (0.0619) | (0.0738) | (0.0482) | (0.0338) | (0.0455) | (0.117) | (0.0707) |
| Listed | -0.192 | -0.00336 | -0.133 | -0.0227 | -0.147 | 0.167 | 0.157 |
|  | (0.120) | (0.111) | (0.122) | (0.0778) | (0.258) | (0.157) | (0.113) |
| Property / | -0.0141 | -0.714\*\* | 0.696\*\*\* | -0.345 | -1.094\*\*\* | 0.583 | 0.121 |
| Assets | (0.269) | (0.339) | (0.214) | (0.377) | (0.375) | (0.419) | (0.480) |
| Widely-Held | 0.141 | -0.533\*\* | -0.300\*\* | -0.0809 | -0.219 | -0.249 | 0.0589 |
|  | (0.275) | (0.210) | (0.117) | (0.187) | (0.175) | (0.396) | (0.174) |
| Corporation | -0.372 | 0.868\*\*\* | 0.330\*\*\* | -0.496\*\* | -0.141 | 0.123 | 0.384 |
| Has noble | (0.285) | (0.245) | (0.121) | (0.216) | (0.488) | (0.431) | (0.355) |
| Corporation | -0.0892 | -0.343 | -0.0947 | 0.0259 | -0.312 | -0.296 | -0.541 |
| Has Gov’t | (0.197) | (0.288) | (0.142) | (0.101) | (0.267) | (0.370) | (0.417) |
| Corporation | -0.0745 | 0.236 | 0.192 | 0.0814 | -0.0904 | 0.0256 | -0.153 |
| Has gentry | (0.218) | (0.237) | (0.138) | (0.110) | (0.341) | (0.436) | (0.210) |
| Constant | -8.236\*\*\* | -1.647 | -3.707\*\*\* | -4.045\*\*\* | -6.767\*\*\* | -7.821\*\*\* | -4.383\*\*\* |
|  | (1.065) | (1.256) | (1.023) | (1.385) | (1.502) | (1.476) | (1.337) |
|  |  |  |  |  |  |  |  |
| Observations | 1,576 | 821 | 701 | 3,207 | 1,262 | 624 | 361 |
| R2 | 0.100 | 0.182 | 0.241 | 0.0965 | 0.207 | 0.153 | 0.234 |
| Unique Firms | 261 | 165 | 103 | 368 | 241 | 109 | 72 |
| Year Controls | YES | YES | YES | YES | YES | YES | YES |
| Region Controls | 0.362\*\*\* | 0.0386 | 0.134\* | 0.195\*\* | 0.337\*\*\* | 0.398\*\*\* | 0.223\*\* |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Standard errors clustered by firm ID in parentheses. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen, 1992), which includes demographic information for corporate founders. Log() denotes the natural logarithm.

Panel B: Split-Sample Regressions by Corporation Type

|  |  |  |
| --- | --- | --- |
|  | Dep Var: Log Credit / Assets | |
| Corporation Type: | A-Corp | Share Part |
| Model | RE | RE |
|  | (1) | (2) |
|  |  |  |
| Log (Assets) | 0.247\*\*\* | 0.265\*\*\* |
|  | (0.0321) | (0.0434) |
| Profit or Loss/ | -1.070\*\*\* | -0.830\*\*\* |
| Assets | (0.211) | (0.316) |
| Log Age | -0.0192 | -0.0680\*\*\* |
|  | (0.0245) | (0.0201) |
| Listed | -0.173\*\* | -0.167 |
|  | (0.0718) | (0.115) |
| Property / | -0.182 | -0.388\*\* |
| Assets | (0.126) | (0.157) |
| Corporation | -0.0604 | -0.117 |
| Has noble | (0.0922) | (0.145) |
| Corporation | -0.151\* | -0.181\*\* |
| Has Gov’t | (0.0806) | (0.0910) |
| Corporation | 0.124\* | 0.0925 |
| Has gentry | (0.0722) | (0.0825) |
| Constant | -4.993\*\*\* | -4.443\*\*\* |
|  | (0.592) | (0.665) |
|  |  |  |
| Observations | 8,410 | 8,049 |
| R2 | 0.110 | 0.169 |
| Unique Firms | 1,325 | 950 |
| Industry Controls | YES | YES |
| Year Controls | YES | YES |
| Region Controls | YES | YES |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Standard errors clustered by firm ID in parentheses. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen, 1992), which includes demographic information for corporate founders. Log() denotes the natural logarithm.

Panel C: Split-Sample Regressions by Moscow vs. St. Petersburg

|  |  |  |
| --- | --- | --- |
|  | Dep Var: Log Credit / Assets | |
| Headquarters Location | Moscow | St Petersburg |
| Model | RE | RE |
|  | (1) | (2) |
|  |  |  |
| Log (Assets) | 0.185\*\*\* | 0.237\*\*\* |
|  | (0.0553) | (0.0566) |
| Profit or Loss/ | -0.521 | -1.219\*\*\* |
| Assets | (0.457) | (0.373) |
| Log Age | -0.0357 | 0.00536 |
|  | (0.0297) | (0.0359) |
| Listed | 0.00257 | -0.0313 |
|  | (0.107) | (0.0667) |
| Property / | -0.479\*\*\* | -0.0979 |
| Assets | (0.163) | (0.243) |
| Widely-Held | -0.108 | -0.271\*\* |
|  | (0.143) | (0.122) |
| Corporation | -0.565\* | -0.137 |
| Has noble | (0.305) | (0.155) |
| Corporation | -0.194 | -0.177 |
| Has Gov’t | (0.133) | (0.108) |
| Corporation | -0.0596 | 0.111 |
| Has gentry | (0.150) | (0.156) |
| Constant | -4.147\*\*\* | -4.694\*\*\* |
|  | (0.880) | (0.938) |
|  |  |  |
| Observations | 4,051 | 3,640 |
| R2 | 0.117 | 0.130 |
| Unique Firms | 552 | 583 |
| Industry Controls | YES | YES |
| Year Controls | YES | YES |
| Region Controls | NO | NO |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Standard errors clustered by firm ID in parentheses. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen, 1992), which includes demographic information for corporate founders. Log() denotes the natural logarithm.

Panel D: Base Regressions with Additional Definitions of Leverage

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | RE | RE | RE | RE |
| Dep. Variable | Book | Book | Market | Market-Based |
|  | Leverage | Leverage | Leverage | Debt Ratio |
|  | (1) | (2) | (3) | (4) |
| Log (Assets) | 0.059\*\*\* | 0.062\*\*\* | 0.147\*\*\* | 0.106\*\*\* |
|  | (0.011) | (0.018) | (0.018) | (0.023) |
| Profit or Loss/ | -0.263\*\*\* | -0.350\*\* | -0.679\*\*\* | -0.799\*\*\* |
| Assets | (0.047) | (0.155) | (0.145) | (0.169) |
| Log Age | -0.005 | -0.020\* | -0.038\* | -0.050\*\*\* |
|  | (0.007) | (0.012) | (0.020) | (0.018) |
| Listed | -0.039\*\*\* |  |  |  |
|  | (0.014) |  |  |  |
| Property / | -0.160\*\*\* | -0.221\*\*\* | -0.113\* | -0.215\*\*\* |
| Assets | (0.029) | (0.070) | (0.065) | (0.056) |
| Widely-Held | -0.013 | -0.075 | -0.215\*\*\* | -0.231\*\*\* |
|  | (0.018) | (0.049) | (0.081) | (0.071) |
| MB Ratio |  | 0.004 |  |  |
|  |  | (0.005) |  |  |
| Constant | -0.371\*\* | -0.079 | -0.751\*\*\* | -0.110 |
|  | (0.181) | (0.245) | (0.283) | (0.341) |
|  |  |  |  |  |
| Observations | 12,802 | 450 | 450 | 450 |
| R2 | 0.0549 | 0.386 | 0.442 | 0.490 |
| No. Firms | 2,189 | 123 | 123 | 123 |
| Ind.Controls | YES | YES | YES | YES |
| Year Controls | YES | YES | YES | YES |
| Reg. Controls | YES | YES | YES | YES |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered by firm ID in parentheses. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen, 1992), which includes demographic information for corporate founders. The market-to-book ratio is the calculated as the market share price times the number of shares at the corporation’s founding divided by total share capital. Log() denotes the natural logarithm.

Panel E: Additional Covariates: Share Volatility, Headquarters in St. Petersburg, Amortization

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Dep Var: Log Credit / Assets | | | |
| Model | RE | RE | RE | RE |
|  | (1) | (2) | (3) | (4) |
|  |  |  |  |  |
| Log (Assets) | 0.253\*\*\* | 0.117 | 0.253\*\*\* | 0.256\*\*\* |
|  | (0.0263) | (0.105) | (0.0264) | (0.0263) |
| Profit or Loss/ | -0.954\*\*\* | -2.072\*\* | -0.954\*\*\* | -0.896\*\*\* |
| Assets | (0.177) | (0.986) | (0.177) | (0.180) |
| Log Age | -0.0385\*\* | -0.118 | -0.0385\*\* | -0.0169 |
|  | (0.0159) | (0.0768) | (0.0159) | (0.0205) |
| Listed | -0.177\*\*\* |  | -0.177\*\*\* | -0.177\*\*\* |
|  | (0.0630) |  | (0.0630) | (0.0633) |
| Property / | -0.281\*\*\* | -0.657\* | -0.281\*\*\* | -0.229\*\* |
| Assets | (0.0992) | (0.393) | (0.0992) | (0.104) |
| Widely-Held | -0.249\*\*\* | -0.337 | -0.249\*\*\* | -0.263\*\*\* |
|  | (0.0565) | (0.268) | (0.0569) | (0.0568) |
| Corporation | -0.0825 | 0.125 | -0.0825 | -0.0735 |
| Has noble | (0.0782) | (0.263) | (0.0782) | (0.0778) |
| Corporation | -0.168\*\*\* | 0.0559 | -0.168\*\*\* | -0.170\*\*\* |
| Has Gov’t | (0.0615) | (0.204) | (0.0615) | (0.0610) |
| Corporation | 0.115\*\* | 0.256 | 0.115\*\* | 0.111\*\* |
| Has gentry | (0.0542) | (0.211) | (0.0543) | (0.0540) |
| Market to Book |  | 0.00307 |  |  |
|  |  | (0.0215) |  |  |
| Volatility |  | -0.544 |  |  |
|  |  | (0.458) |  |  |
| St. Petersburg |  |  | -0.0116 |  |
|  |  |  | (0.174) |  |
| Amortization / |  |  |  | -0.759 |
| Assets |  |  |  | (0.483) |
| Constant | -4.607\*\*\* | -0.588 | -4.608\*\*\* | -4.644\*\*\* |
|  | (0.456) | (1.522) | (0.457) | (0.450) |
|  |  |  |  |  |
| Observations | 16,459 | 456 | 16,459 | 16,459 |
| R2 | 0.166 | 0.383 | 0.166 | 0.183 |
| Unique Firms | 2,275 | 129 | 2,275 | 2,275 |
| Industry Controls | YES | YES | YES | YES |
| Year Controls | YES | YES | YES | YES |
| Region Controls | YES | YES | YES | YES |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Standard errors clustered by firm ID in parentheses. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen, 1992), which includes demographic information for corporate founders. Log() denotes the natural logarithm.

Table A8: Payout Ratios by Industry, Year, and Corporation Type

Panel A: Payout Ratios by Industry

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Industry | Number | Mean | Std. Dev | Median | Min | Max |
| Agriculture | 62 | 0.361 | 0.377 | 0.221 | 0.000 | 1.000 |
| Animals | 236 | 0.441 | 0.295 | 0.479 | 0.000 | 1.000 |
| Ceramics | 618 | 0.330 | 0.310 | 0.351 | 0.000 | 1.000 |
| Chemicals | 835 | 0.363 | 0.307 | 0.391 | 0.000 | 1.000 |
| Food | 3,019 | 0.458 | 0.320 | 0.492 | 0.000 | 1.000 |
| Metals | 1,856 | 0.366 | 0.301 | 0.398 | 0.000 | 1.000 |
| Mining | 1,409 | 0.317 | 0.329 | 0.283 | 0.000 | 1.000 |
| Miscellaneous | 729 | 0.413 | 0.326 | 0.453 | 0.000 | 1.000 |
| Municipal Serv. | 1,192 | 0.426 | 0.344 | 0.492 | 0.000 | 1.000 |
| Paper | 588 | 0.350 | 0.296 | 0.364 | 0.000 | 0.999 |
| Textiles | 3,081 | 0.403 | 0.303 | 0.409 | 0.000 | 1.000 |
| Trade | 1,202 | 0.505 | 0.304 | 0.589 | 0.000 | 0.998 |
| Transportation | 623 | 0.330 | 0.301 | 0.328 | 0.000 | 1.000 |
| Wood | 349 | 0.456 | 0.330 | 0.516 | 0.000 | 1.000 |
| **Total** | 15,799 | 0.403 | 0.318 | 0.433 | 0.000 | 1.000 |

Panel B: Payout Ratios by Accounting Year

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Accounting Year | Number | Mean | Std. Dev | Median | Min | Max |
| 1899 | 806 | 0.516 | 0.336 | 0.601 | 0.000 | 1.000 |
| 1900 | 897 | 0.436 | 0.330 | 0.496 | 0.000 | 1.000 |
| 1901 | 935 | 0.420 | 0.332 | 0.469 | 0.000 | 1.000 |
| 1902 | 926 | 0.369 | 0.325 | 0.369 | 0.000 | 1.000 |
| 1903 | 974 | 0.379 | 0.334 | 0.394 | 0.000 | 1.000 |
| 1904 | 860 | 0.419 | 0.340 | 0.437 | 0.000 | 1.000 |
| 1905 | 184 | 0.459 | 0.349 | 0.458 | 0.000 | 1.000 |
| 1906 | 916 | 0.447 | 0.353 | 0.482 | 0.000 | 1.000 |
| 1907 | 994 | 0.479 | 0.354 | 0.563 | 0.000 | 1.000 |
| 1908 | 991 | 0.467 | 0.358 | 0.545 | 0.000 | 1.000 |
| 1909 | 846 | 0.416 | 0.334 | 0.460 | 0.000 | 1.000 |
| 1910 | 1,220 | 0.349 | 0.275 | 0.379 | 0.000 | 1.000 |
| 1911 | 1,258 | 0.352 | 0.257 | 0.394 | 0.000 | 1.000 |
| 1912 | 1,376 | 0.345 | 0.265 | 0.389 | 0.000 | 1.000 |
| 1913 | 1,474 | 0.360 | 0.268 | 0.400 | 0.000 | 1.000 |
| 1914 | 963 | 0.360 | 0.277 | 0.389 | 0.000 | 1.000 |

Panel C: Payout Ratios By Corporation Type

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type | Number | Mean | Std. Dev | Median | Min | Max |
| Share Part. | 7,118 | 0.442 | 0.309 | 0.473 | 0.000 | 1.000 |
| A-Corp. | 6,818 | 0.387 | 0.320 | 0.417 | 0.000 | 1.000 |
| **Total** | 13,936 | 0.415 | 0.315 | 0.446 | 0.000 | 1.000 |

Source: Russia, Ministry of Finance (1900-1915). Payout ratios are dividends divided by profits, trimmed to remove the bottom and top 1% of values. Profits are reported when revenues exceed expenditures. Profit in 1910 is “Balance Profit”, and Profit after 1911 is “Profits for Distribution.” This table excludes corporations reporting 0 values for Total Assets.

Table A9: Robustness Checks for Performance Regressions (ROA / ROE)

|  |  |  |  |
| --- | --- | --- | --- |
|  | (1) | (2) | (3) |
|  | ROA | ROE 1914 | IHS of ROA |
| VARIABLES | RE | RE | RE |
| Listed | 0.0276\*\*\* | 0.0256 | 0.0240\*\*\* |
|  | (0.00495) | (0.0215) | (0.00474) |
| Log Firm Age | -0.00437\*\*\* | 0.0329\*\*\* | -0.00213\*\* |
|  | (0.00107) | (0.00789) | (0.00104) |
| Widely-Held | -0.0179\*\*\* | 0.000496 | -0.0191\*\*\* |
|  | (0.00316) | (0.0159) | (0.00392) |
| Constant | 0.0388\*\*\* | 0.134\*\* | 0.0544\*\* |
|  | (0.00289) | (0.0607) | (0.0258) |
| Observations | 16,666 | 997 | 16,637 |
| R2 | 0.00202 | 0.069 | 0.0358 |
| Number of Firms | 2,288 | 997 | 2,282 |
| Industry Controls | NO | YES | YES |
| Year Controls | NO | NO | YES |
| Region Controls | NO | YES | YES |
| Mean of Outcome | 0.0302 | 0.105 | 0.0303 |

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Standard errors clustered by firm ID in all columns except Column 2, where standard errors are clustered by industry and year. Return on assets (ROA) is defined as the profit or loss divided by total assets, and return on equity (ROE) is defined as the profit or loss divided by return on equity. In Column 2, return on equity in 1914 is measured as net profit divided by share capital, for comparison to Gregg and Nafziger (2019). A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen 1992), which includes demographic information for corporate founders. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. IHS of ROA denotes the inverse hyperbolic sine transformation of our ROA variable. Log() denotes the natural logarithm.

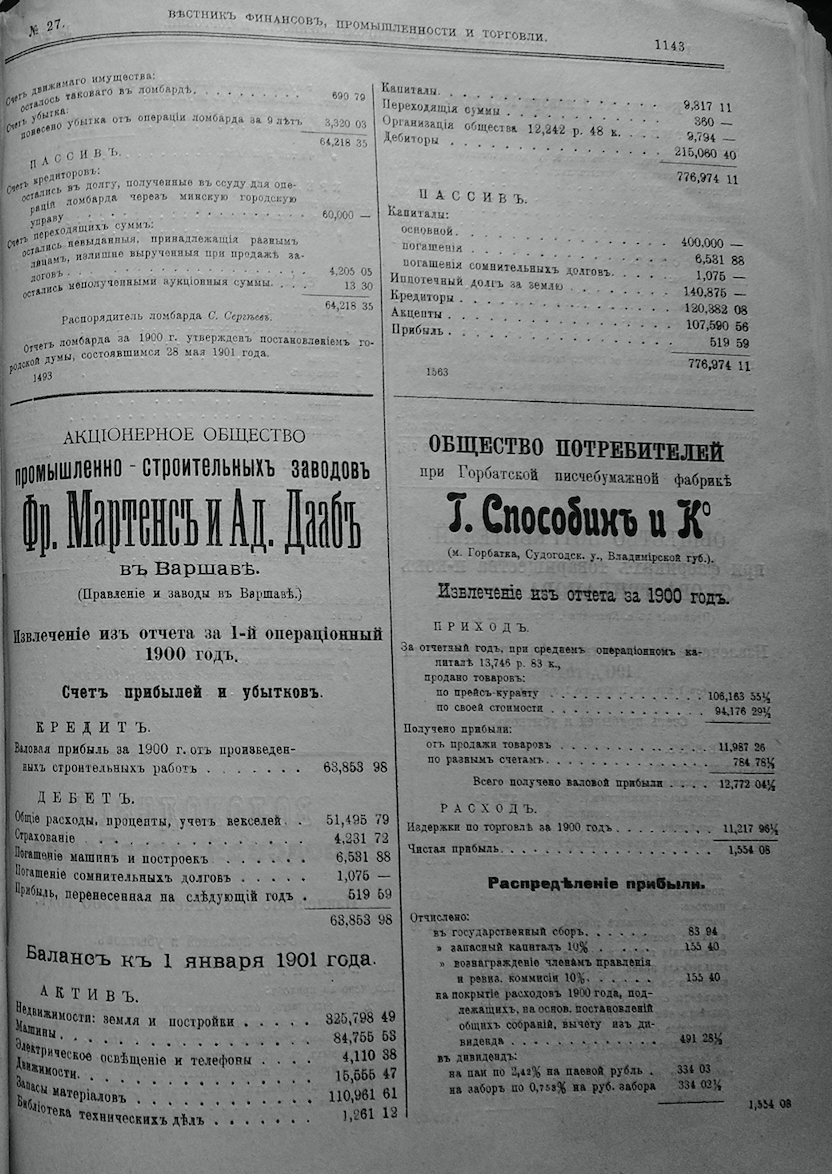
Table A10: Additional Robustness Checks: Market-to-Book Ratio

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | Log(MB) | Log(MB) | Log(MB) | Log(MB) (Alt) | Log (p / par) | Log (p / par) |
| VARIABLES | RE | RE | RE | RE | RE | RE |
| Div/Prof Ratio, | 0.509\*\*\* | 0.512\*\*\* | 0.512\*\*\* | 0.211\*\*\* | 0.556\*\*\* | 0.550\*\*\* |
| trimmed | (0.135) | (0.135) | (0.135) | (0.0663) | (0.111) | (0.139) |
| Log Firm Age | -0.0796 | -0.0518 | -0.0829 | -0.0281 | 0.0265 | -0.0151 |
|  | (0.0884) | (0.0854) | (0.0925) | (0.0368) | (0.0705) | (0.0678) |
| Widely-Held |  | 1.096\*\*\* | 1.109\*\*\* | 0.101 | 0.776\*\*\* | 0.783\*\*\* |
|  |  | (0.353) | (0.343) | (0.0875) | (0.244) | (0.258) |
| Share Price Volatility |  |  |  | 0.118 |  | 0.320 |
|  |  |  |  | (0.167) |  | (0.303) |
| Corp. has noble |  |  | 0.370 | 0.00125 | 0.364\* | 0.235 |
| founder |  |  | (0.263) | (0.0875) | (0.202) | (0.202) |
| Corp. has gov’t official |  |  | 0.146 | 0.119 | 0.179 | 0.304\*\* |
| founder |  |  | (0.224) | (0.0948) | (0.143) | (0.128) |
| Corp. has gentry |  |  | -0.0947 | -0.0727 | -0.0427 | -0.114 |
| founder |  |  | (0.340) | (0.113) | (0.261) | (0.307) |
| Constant | -0.911\*\*\* | -2.073\*\*\* | -2.011\*\*\* | -0.408\*\* | -1.782\*\*\* | -1.707\*\*\* |
|  | (0.284) | (0.442) | (0.447) | (0.181) | (0.328) | (0.306) |
|  |  |  |  |  |  |  |
| Observations | 592 | 592 | 592 | 419 | 592 | 419 |
| R2 | 0.179 | 0.297 | 0.321 | 0.115 | 0.281 | 0.353 |
| Number of Firms | 134 | 134 | 134 | 119 | 134 | 119 |
| Industry Controls | YES | YES | YES | YES | YES | YES |
| Year Controls | YES | YES | YES | YES | YES | YES |
| Region Controls | NO | NO | NO | NO | NO | NO |

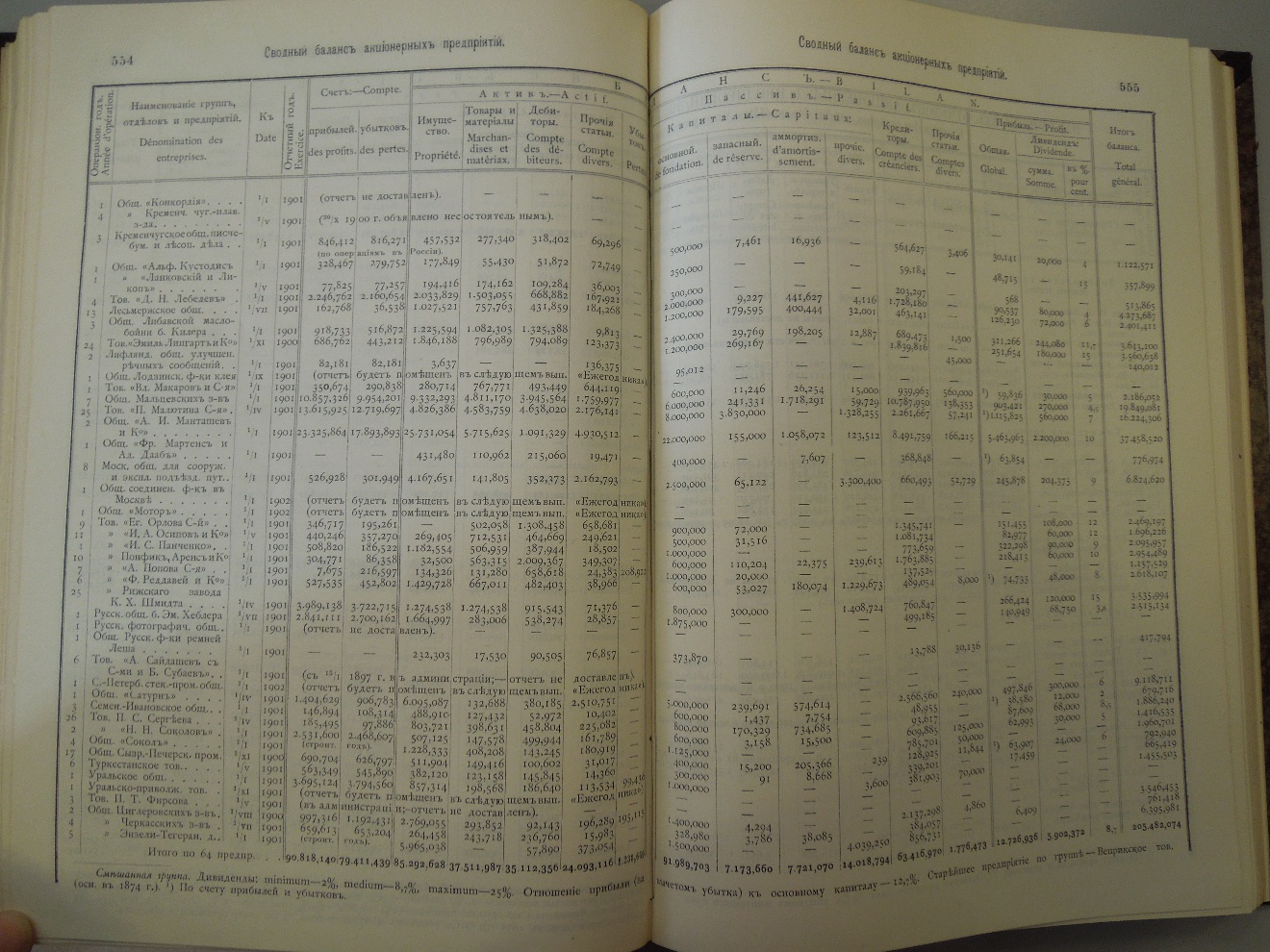
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered by Firm ID in parentheses. The market-to-book ratio is the calculated as the market share price times the number of shares at the corporation’s founding divided by total share capital. The alternative market-to-book ratio in column 4 is equal to Total Assets minus Share Capital plus the market share price times number of shares divided by Total Assets. A corporation is “Listed” if its shares appear on the St. Petersburg Stock Exchange that year. A corporation is “widely-held” if it uses the term “aktsiia” for “share.” Founder connections (“Corporation has noble,” etc.) are coded by matching to RUSCORP (Owen 1992), which includes demographic information for corporate founders. Share price volatility is the annual coefficient of variation of monthly share prices. Log() denotes the natural logarithm.

Figure A1: Excerpts from Vestnik Finansov financial reports and Ministry of Finance Yearbook for Partnership of Martens and Daab, 1902.

Panel A: *Vestnik finansov i torgovli: Otchety.* (1902). p. 1143.



Panel B: Russia, Ministry of Finance (1902)



Panel C: Zoomed in row for Martens and Daab

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Figure A2: Russian GDP, Profits, and Dividends over Time

Panel A: GDP per Capita and Annual Percentage Changes (Three-Year Moving Averages)

|  |  |  |
| --- | --- | --- |
|  |  | |
|  |  |

Panel B: Profit or Loss / Total Assets and the Payout Ratio



Sources: Bolt et al. (2018) and Russia, Ministry of Finance (1900-1915). Profit or Loss using Profits for Distribution after 1911 is our preferred measure of net profits in the paper, since its definition and role on the balance sheet is most similar to the measure of net profit reported in previous volumes. The payout ratio is the ratio of dividends to profits, where, similarly to Profit or Loss, our preferred measure uses profits for distribution after 1911. Payout ratio values in Panel B are trimmed below the bottom 1% and above the top 99%.

1. See Appendix Table A1 for the original Russian terms, our translations, and our definitions of key financial ratios. These balance sheets appear to mix concepts related to stocks (assets and liabilities) with flows (of cash), which are typically kept separate in modern accounting practices. [↑](#footnote-ref-1)
2. We use the inverse hyperbolic sine to provide some smoothing of this variable. The transformation for a variable *x* is equal to [↑](#footnote-ref-2)