

Capital Structure & International Data

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Background

- Empirical work has unearthed some stylized facts on capital structure choice, but this evidence is largely based on firms in the United States, and it is not at all clear how these facts relate to different theoretical models.
- The use of international data provides a unique opportunity for this analysis.
- The cost of using an international sample is that some time has to be spent in analyzing the differences between the countries, ranging from accounting practices to legal and institutional environments.
- Thus, we start by presenting the typical balance sheet in each of the G-7 countries (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada). This analysis highlights the effects of different accounting rules, and also points to the corrections that need to be made so that measures of leverage are comparable across countries.

Background (2)

- White (1993) and Kaiser (1994)) argue that in Germany the bankruptcy code is not conducive to reorganizing firms, and firms entering bankruptcy are usually liquidated. Since liquidation values are generally lower than going concern values, bankruptcy is potentially more costly in Germany. So we might expect a stronger positive correlation between size and leverage in Germany.

Hypothesis

- First, the sample selection criterion used by Global Vantage biases the sample towards the largest listed companies in each country. Given the figures on coverage, this suggests that while the sample may do well in capturing aggregate leverage in a country, it probably is not representative of the average firm. Another selection bias arises from the fact that only listed companies are reported. The fraction of listed firms differs widely across different countries, and so does the average size of companies listed.

Purposes

- The existing theories on the capital structure of the country US market against the G7 whether the remains can be used empirically, and the approach of financial studies empirical now want to give an critical point of the structure of capital and the data through a comparison of the data in the US and G7 countries in order to an idea further based on data from existing data

Data



Table I**Distribution of Firms Followed by Global Vantage by Size**

All consolidated firms in all G-7 countries are pooled and they are placed in size deciles according to the 1991 market value of their assets in U.S. dollars.



Decile	Country (Percentage of Consolidated Firms ^a)						
	United States	Japan	Germany	France	Italy	United Kingdom	Canada
Smallest	15	0	1	9	3	4	8
2	12	0	5	2	7	11	13
3	11	0	5	8	8	17	10
4	11	0	13	4	14	13	13
5	10	3	11	11	14	12	12
6	10	5	14	13	11	12	12
7	8	16	13	17	15	10	11
8	8	22	13	13	14	8	9
9	8	25	13	13	10	7	9
Largest	8	30	11	9	4	7	3
Total number of firms	2583	514	191	225	118	608	318

^a Columns may not sum to 100 because of rounding errors.

Grand theory



$$\text{Leverage}[\text{Firm } i] = \alpha + \beta_1 \text{Tangible Assets}_i + \beta_2 \text{Market to Book Ratio}_i \\ + \beta_3 \text{Log Sales}_i + \beta_4 \text{Return on Assets}_i + \varepsilon_i$$

Previous Studies



Balance Sheets

- First, not all countries require firms to report consolidated balance sheets
- Second, the valuation of assets (at historical cost or current value) may differ substantially across countries. For instance, it is generally believed (Nobes and Parker, 1991, p. 25) that German accounting places greater emphasis on "conservatism" and less on "true and fair" considerations. Asset values of German companies may therefore be understated relative to asset values in many other countries. Conversely, the Finance Acts of 1978 and 1979 made revaluation compulsory for French companies (Nobes and Parker, p. 17). There is no easy way to correct for this, and our results on book values must be interpreted with the appropriate caution.
- The third difference relates to what is included and what is excluded from a balance sheet in different countries.

Measures of Leverage

- Given the observed differences in the composition of liabilities, before undertaking any investigation of leverage it is appropriate to define what we mean by this term. Clearly, the extent of leverage and the most relevant measure depends on the objective of the analysis. For instance, the agency problems associated with debt (Jensen and Meckling (1976), Myers (1977))

Adjusting Leverage for Differences in Accounting

- First, consider cash balances. Although we do not know how much cash and short term investments are really needed to run a business, it is interesting to explore the implications of treating these as excess liquidity, offsetting them by an equivalent amount of debt, and removing both from the balance sheet.
- Second, the value of U.S. assets may be exaggerated with respect to those of the other countries by the wave of acquisitions of the 1980s.
- There are a number of additional checks that can be performed. To check that our results on leverage are not special to the year chosen, we look at the interest coverage ratio and the debt to capitalization ratio in 1986, a year that for many countries represented the peak of the economic expansion.

Comparison with Results in the Prior Literature

- Borio (1990) classifies the former countries as "high leverage" and the latter as "low leverage". Rutherford (1988) summarizes previous studies and present additional evidence from the Organization for Economic Cooperation and Development (OECD) data suggesting that firms in France, Germany, and Japan are more highly levered than firms in the United States and the United Kingdom. While she acknowledges that adjustments for accounting differences, and the move to market values, could narrow the perceived difference in leverage, she concludes that it probably would not alter the main finding. Economists have explained these perceived aggregate differences as due to differences in the extent and nature of financial intermediation (see Borio (1990)), differences in institutional structures governing bankruptcy and debt renegotiation (see Frankel and Montgomery (1991)), and differences in the market for corporate control (see, for example, Berglof (1990))
- Both Rutherford (1988) and Borio (1990) use OECD data in arriving at aggregate measures of leverage. Unfortunately, the OECD figures for Germany do not report the stock of debt separately

Institutional Differences and Leverage

- Institutions have a similar amount of leverage, and why firms in countries such as the United Kingdom and the United States with similar capital markets and financial institutions have such different levels of debt.

The Effect of Taxes on Aggregate Leverage



- Mayer (1990)) claims that taxes have no explanatory power. However, as we argue below, this conclusion may be unwarranted if personal taxes are also considered in addition to corporate taxes
- A precise computation of the effective tax rates, taking into account the income and wealth levels of the population, and the marginal corporate tax rate for firms, would require an entire study like the one undertaken by King and Fullerton (1984) for the 1970s.

Table VI

The Allocation of the Pre-Tax Dollar to Various Routes and Changes in the Allocation Over Time

The aggregate interest expense, dividends, and earnings for an economy are computed by summing the individual firm values across firms. The share of a pre-tax dollar paid to debt in the economy is the interest paid (all variables are aggregates) divided by income before interest and taxes. The share of a pre-tax dollar paid through dividends is the dividends paid grossed up to a pre-tax value divided by income before interest and taxes. The dividends are grossed up to a pre-tax value by multiplying by earnings after interest and before taxes and dividing by earnings after interest and after taxes. The share of a pre-tax dollar retained is one minus the share paid to debt minus the share paid in dividends.

	United States		Japan		Germany		France		Italy		United Kingdom		Canada	
	1982–1984	1989–1991	1982–1984	1989–1991	1982–1984	1989–1991	1982–1984	1989–1991	1982–1984	1989–1991	1982–1984	1989–1991	1982–1984	1989–1991
Share of a pre-tax dollar paid through the route														
Debt	0.26	0.40	0.46	0.43	0.33	0.25	0.57	0.39	0.68	0.62	0.21	0.23	0.42	0.52
Dividends	0.39	0.38	0.16	0.18	0.37	0.32	0.32	0.21	0.18	0.27	0.26	0.38	0.35	0.50
Capital Gains	0.35	0.21	0.38	0.39	0.30	0.42	0.11	0.40	0.14	0.11	0.53	0.40	0.23	-0.02
Route most tax advantaged by tax reforms between 1983 and 1990 ^a														
	Debt		Debt		Retained earnings		Dividends		Dividends		Dividends		Debt	
Route least tax advantaged by tax reforms between 1983 and 1990 ^a														
	Retained earnings		Dividends		Debt		Debt		Debt		Retained earnings		Dividends	
Change in share of pre-tax dollar flow between 1982–1984 and 1989–1991 allocated by companies consolidated and reporting throughout to route most tax advantaged														
	0.14		-0.03		0.12		-0.11		0.09		0.12		0.10	
Change in share of pre-tax dollar flow between 1982–1984 and 1989–1991 allocated by companies consolidated and reporting throughout to route least tax advantaged														
	-0.14		0.02		-0.07		-0.18		-0.06		-0.13		0.15	

^a From Table V under the assumption that capital gains tax is paid at the statutory rate.

What Do We Know about Capital Structure?

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Bankruptcy Law

- As Harris and Raviv (1992) suggest, bankruptcy law should be regarded as an integral aspect of a debt contract. The G-7 countries vary considerably in their bankruptcy procedures, especially the extent to which liquidation is emphasized over renegotiation of claims, and the extent to which management has control during the bankruptcy process. Table VII outlines the salient features in each country (see White (1993) and Kaiser (1994) for details). Bankruptcy law has a number of important effects: Strict enforcement of creditor rights enhances ex ante contractibility. Furthermore, it commits creditors to penalizing management (and equity holders) if the firm gets into financial distress, thus giving management strong incentives to stay clear of it. Finally, strict enforcement reduces the costly, and long drawn out, haggling between claimholders that ensues when there is a possibility that the original contracts may be violated. By contrast, it may be easier to keep profitable enterprises as going concerns, or provide managers the right incentives postbankruptcy, if creditor rights are violated in bankruptcy. Countries differ in the extent to which they manage this trade-off in enforcing creditor rights.

Bankruptcy Law (2)

- Kaiser (1994) argues, leads to the little reorganization that takes place being conducted privately under the supervision of the banks. Similarly, Franks and Torous (1993) compare the U.K. bankruptcy code with that in the United States, and conclude that "the U.S. code appears to have strong incentives to keep the firm as a going concern even when it is worth more in liquidation [while] the U.K. code, by emphasizing the rights of creditors-and in some cases giving priority to one creditor-is likely to lead to too many premature liquidations." The other countries appear to fall in between the extremes of the United States and Germany or United Kingdom in the extent to which they support creditor rights.

Bank Versus Market Based Countries

- (Berglof (1990) and the references in it) we do not seem to find any systematic difference between the level of leverage in the so-called bank-oriented countries (Japan, Germany, France, and Italy) and in the so-called market-oriented countries (United States, United Kingdom, and Canada). This raises the questions of whether "bank orientation" is a meaningful distinction and whether differences in the importance of the banking sector have any effect on a firm's financing decisions.

Bank Versus Market Based Countries (2)



- it would appear that the difference between bank oriented countries and market oriented countries is reflected more in the choice between public (stocks and bonds) and private financing (bank loans) than in the amount of leverage. This is not surprising even from a theoretical point of view. While it might appear that the closer monitoring and control of firm management provided by banks should make more debt financing available in bank oriented countries, recent work (Diamond (1991), Rajan (1992), and Sharpe (1990)) has emphasized the costs of excessive bank debt.

Ownership and Control

- Another major institutional difference across the G-7 countries is the level of ownership concentration and the working of the market for corporate control (Berglof (1990) and Franks and Mayer (1994))

The Factors Correlated with Leverage

- According to Harris and Raviv (1991), the consensus is that "leverage *increases* with fixed assets, nondebt tax shields, investment opportunities, and firm size and *decreases* with volatility, advertising expenditure, the probability of bankruptcy, profitability and uniqueness of the product."

Analysis

- The factors identified by previous cross-sectional studies in the United States to be related to leverage seem similarly related in other countries as well.

Factor Correlations in the United States

$$\begin{aligned} \text{Leverage}[\text{Firm } i] = & \alpha + \beta_1 \text{Tangible Assets}_i + \beta_2 \text{Market to Book Ratio}_i \\ & + \beta_3 \text{Log Sales}_i + \beta_4 \text{Return on Assets}_i + \varepsilon_i \end{aligned}$$

Critical point

- the development and progress of the views of the capital structure of developed countries, the weighting of tangible assets would be optimized by combining intangible assets for example, facebook is a company that has a product intangible assets, and innitial public offering (IPO) became more optimal capital structure facebook to give ownership to the public in the form of tangible assets

Conclusion



Conclusion



$$\begin{aligned} \text{Leverage}[\text{Firm } i] = & \alpha + \beta_1 \text{Tangible Assets}_i + \beta_2 \text{Market to Book Ratio}_i \\ & + \beta_3 \text{Log Sales}_i + \beta_4 \text{Return on Assets}_i + \varepsilon_i + \beta_5 \text{Intangible Assets} \end{aligned}$$

Facebook (FB.US) Growth 190% since IPO (US market)

The social networking company Facebook held its initial public offering (IPO) on Friday, May 18, 2012. The IPO was the biggest in technology and one of the biggest in Internet history, with a peak market capitalization of over \$104 billion.



Thank You

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