26087: Labor and Finance - Capital Structure and Bankruptcy

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November 2024

Recap

Overview

Key Takeaways

- **Focus on Firm-Level Technology Adoption:**
  - Capital investments, often in new technologies, is a **key corporate finance decision**
  - How do **labor market frictions** affects **corporate investment decisions**?
  - How do **financial and governance frictions** affect **corporate investment in new technologies?**
- **Workforce Impact:**
  - Alters employment patterns, skill requirements, and career progression
  - Shifts job composition, increasing demand for high-skill roles and reducing routine jobs and middle management jobs
  - **Key question**: is the technology a substitute or a complement to my job tasks?
- Policy can **guide the direction of tech change** such that it complements rather than displaces labor

Objectives for Today

- Understand the basics of Capital Structure Theory and bankruptcy processes
- Learn about how leverage interacts with human capital inside firms
- Learn about how bankruptcy affects the careers of workers
- Get an overview of how firms share risks with workers

Outline for Today

- Introduction to Capital Structure and Bankruptcy
  - Modigliani Miller
  - Bankruptcy and Restructuring
- Capital Structure and Labor Markets
  - Strategic Leverage and Labor Unions
  - Operating Leverage Crowds Out Financial Leverage
  - Compensating Wage Differentials
  - Firm-Specific Human Capital and Talent
  - The Human Costs of bankruptcy
- Risk Sharing Within the Firm
- Takeaways

Introduction to Capital Structure and Bankruptcy

Overview

Introduction to Capital Structure and Bankruptcy

Modigliani Miller

Modigliani Miller

- **Modigliani-Miller:**
  - **Key insight:** Capital structure is irrelevant under perfect market conditions (no taxes, bankruptcy costs, or information asymmetries)
  - **Intuition:** Does not affect cash flow, so how cash flow is split between equity and debt holders is irrelevant
  - **Practice:** Taxes, bankruptcy costs, informational frictions, and **labor frictions** matter → trade-off theory: firms balance tax benefits against real bankruptcy costs

- **Observations:**
  - Financial policy (including dividends) only matters if it affects **operating cash flows**
  - **Tax shields of debt** matter because the debt tax shield is essentially **the government** paying part of the interest expenses → value of the firm is cash flow + debt tax shield
  - Both **corporate and personal taxation** matter

Other Capital Structure Theories

- **Pecking Order Theory:**
  - Firms prefer internal financing, then debt, and issue equity as a last resort due to information asymmetries
  - External financing is more information sensitive, so subject to informational frictions
  - If external financing is needed, firms prefer debt over equity because issuing equity may signal to the market that the firm is overvalued
- **Agency Cost Theory:**
  - Capital structure is influenced by agency costs since debt can mitigate agency problems by disciplining managers (forcing free cash flow to be paid out)
- Theories related to **market timing, signaling, and labor markets**

Introduction to Capital Structure and Bankruptcy

Bankruptcy and Restructuring

Bankruptcy and Restructuring Processes

- **Types of bankruptcy:**
  - **Chapter 7:** Liquidation to pay creditors, typically leading to dissolution
  - **Chapter 11:** Reorganization of the firm's debts, allowing the firm to continue operations while restructuring its financial obligations
- **Restructuring processes:**
  - **Debt Restructuring:** Negotiating new terms with creditors to reduce the debt burden
  - **Operational Restructuring:** Changes to the firm's operations to improve efficiency and profitability, often involving layoffs or divestitures
- In principle, bankruptcy by itself does not matter since it only transfers ownership of firm assets between stakeholders. But **real bankruptcy costs that reduce cash flow** matter

Seniority in Bankruptcy

- **Legal Dynamics in Bankruptcy:**
  - Workers and creditors often have conflicting interests in bankruptcy proceedings, particularly regarding the priority of claims on the firm's assets
- **Priority of Claims:**
  - In most legal frameworks, creditors have priority over workers in bankruptcy, potentially leaving employees with unpaid wages and lost benefits
  - Thus, the legal structure of bankruptcy can significantly affect worker outcomes, with many employees receiving only a fraction of their owed compensation.
- **Example:** Case studies of U.S. firms where workers lost significant portions of their pensions and wages due to creditor priority in bankruptcy proceedings

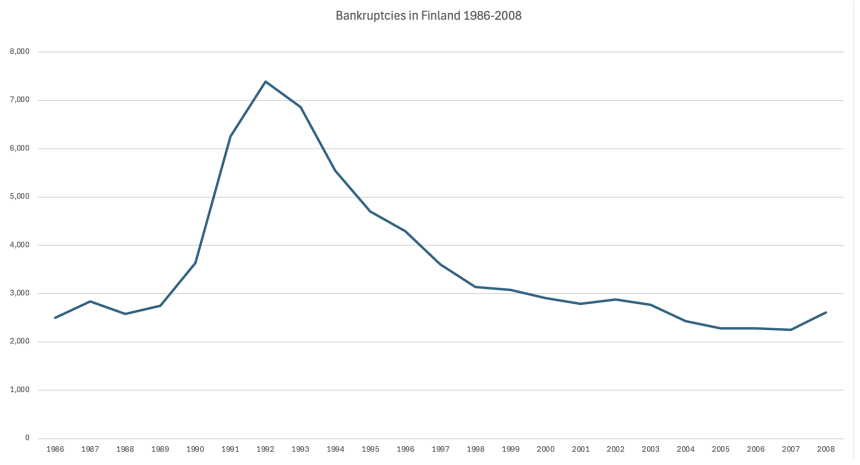
Bankruptcy Costs in Modigliani Miller

- **Real direct bankruptcy costs:**
  - Administrative and court costs
  - Legal and advisory fees
  - Time and resources spent by management and creditors
  - Mismanagement by judges (blocking/delaying)
  - Usually small (about 2-5% of firm value for large companies and 20-25% for small)
- **Real in-direct bankruptcy costs:**
  - Loss of intangible assets (brand name and reputation)
  - Loss of customer confidence
  - Loss of key employees and suppliers
  - Fire sales of assets
  - These are usually substantial

Predictors of Corporate Bankruptcy

1. **Financial Ratios:** Liquidity (e.g., current ratio),Leverage (debt-to-equity), Profitability (net income, ROE)
2. **Altman Z-Score:**Combines liquidity, earnings, and equity market value
3. **Operational Performance:**Sales decline, inefficient cost control
4. **Macroeconomic & Industry Factors**
5. **Management Quality**
6. **Legal & Regulatory Risks**
7. **Leniency of Bankruptcy Judges**

Descriptive Statistics on Bankruptcies in Finland



Capital Structure and Labor Markets

Overview

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- **Neoclassical firm:** $Y = F(K, L)$
  - Firms needs to fund K and $L \rightarrow$ capital structure choice
  - Most of corporate finance focuses on funding K
  - Assume that L is supplied in frictionless spot market
  - Wages equals the marginal product of labor in each period
- **Key characteristics of L compared to K**
  - Labor can solve unstructured problems, produce new information, produce creative solutions to problems, network, and use inter-personal skills
  - Labor comes with **labor market frictions**: people cannot be owned, can quit (wages and **job security**), can organize, can act strategically, and can incur costs from being laid off
- These frictions, some of which we cover next, can affect capital structure choice

Capital Structure and Labor Markets

Strategic Leverage and Labor Unions

Labor Negotiations with Unions

- **Leverage as a commitment device:**
  - Since worker can **organize**, firms are sometimes in situations in which they need to bargain about wage increases and layoffs with **labor unions**
  - Demands on realized excess liquidity (operating cash flow net of debt payments)
  - Debt allows firms to **use debt strategically** to **commit to financial policies**
  - The firm cannot yield to worker wage demands if all future cash flows are promised to debt holders
  - Leverage also seems to be effective in **deterring strikes** and **enabling layoffs**
  - **Note:** similar to how **debt disciplines management** by removing free cash flow

- **Example:**
  - Airlines often use high leverage as part of their financial strategy, which can result in significant employment risks during economic downturns.

Matsa 2010: Capital Structure as a Strategic Variable

More debt for Eastern meant greater pressure to cut costs... . [The company] is embarked on a confrontation between labor and interest costs. It's not labor and management. It's labor and interest cost.

Farrell Kupersmith, Pilots' Union Representative

Matsa 2018: Leverage and Unions

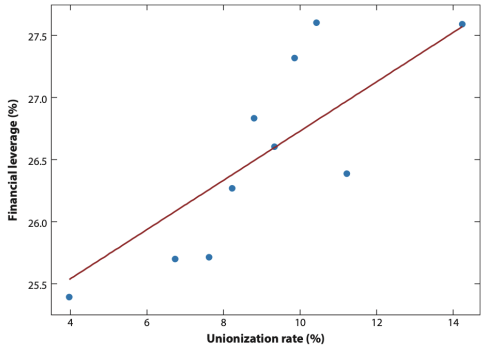

Figure 2

Unionization and leverage, 1990–2016. The binned scatter plot displays the average recentered residuals of regressions of firm market leverage and industry union coverage rate on industry and year fixed effects. The observations are grouped into 10 equal-sized union coverage bins (*blue circles*), and the regression line (*red*) is shown. Leverage data, which are winsorized at 1% tails, are from Compustat for all publicly traded firms incorporated in the United States and whose financial reports are denominated in US dollars; union coverage rates are from the Current Population Survey (Hirsch & Macpherson 2003). Industry is defined using Census Industry Codes.

OVB: Unions organize in established, profitable, and thus leveraged, firms

Matsa 2010: Capital Structure as a Strategic Variable

- **Research Question**
  - Does debt improve a firm's bargaining position by reducing union wage demands?
- **Data and Identification**
  - Firm-level data on collective bargaining coverage and leverage from U.S. manufacturing firms (1970s–1990s)
  - Exogenous variation from state labor laws: right-to-work laws and repeal of work stoppage provisions changes union bargaining power
  - Profit variability used to capture exposure to union rent-seeking
- **Key Findings**
  - Labor law changes reducing union power result in significant reductions in leverage, but only in industries with high union presence
  - Impact of unions on leverage is stronger in firms with higher profit variability (more excess liquidity)

Capital Structure and Labor Markets

Operating Leverage Crowds Out Financial Leverage

Employment Legislation and Operating Leverage

- **Operating leverage:**
  - The degree to which a firm's cost structure consists of fixed costs
  - Higher fixed costs mean small changes in revenue lead to larger changes in operating income
- **Employment Protection Legislations:**
  - Stricter laws (e.g., minimum wages, severance packages, restrictions on layoffs) reduces labor flexibility and raises **fixed** labor costs
  - As labor becomes a larger fixed expense, operating leverage increases
- **Crowding out:**
  - Firms with high operating leverage may avoid financial leverage to limit total risk
  - Thus, EPLs (or union contracts, downwards wage rigidity, etc) may reduce leverage
  - Industry-level collective bargaining $\rightarrow$ less strategic debt, but more crowding out

Matsa 2018: Leverage and EPLs

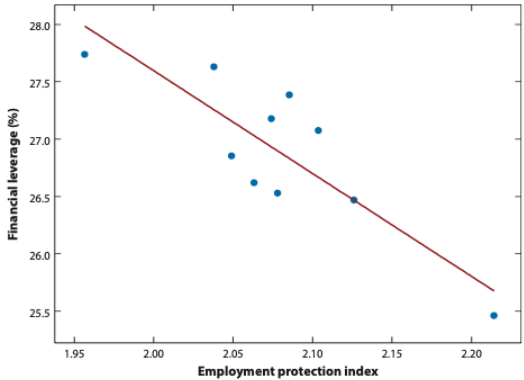

Figure 3

Employment protection and leverage, 2006–2014. The binned scatter plot displays the average recentered residuals of regressions of firm market leverage and an employment protection index on country and year fixed effects. The observations are grouped into 10 equal-sized employment protection bins (*blue circles*), and the regression line (*red*) is shown. Leverage, which is winsorized at 1% tails, is calculated from consolidated financial statements obtained from Amadeus for all publicly traded firms with operating revenue ≥€1 million, total assets ≥€2 million, or employees ≥15; the employment protection index is from the OECD and measures the strictness of employment protection for individual dismissals of employees on regular contracts.

Siminitzi et al 2015: Labor Protection and Leverage

- **Research question:**
  - Does increasing labor protections crowd out financial leverage by raising fixed labor costs?
- **Data and identification:**
  - Firm-level data from 21 OECD countries (1985–2007)
  - DiD approach to exploit intertemporal variations in EPL reforms
- **Key findings:**
  - Stronger EPLs result in a significant reduction in leverage
  - The effect is stronger in industries with higher labor turnover

Capital Structure and Labor Markets

Compensating Wage Differentials

Compensating Wage Differentials

The wages of labor in different occupations vary with the constancy or inconstancy of employment .. . . What he earns, therefore, while he is employed, must not only maintain him while he is idle, but make him some compensation for those anxious and desponding moments which the thought of so precarious a situation must sometimes occasion .. . . The high wages of those workmen, therefore, are not so much the recompense of their skill, as the compensation for the inconstancy of their employment.

Adam Smith (1976, p. 120)

Compensating Wage Differentials

- **Compensating Wage Differentials**
  - **Generally:** Workers must be **compensated in wages** for **downsides of a job**
  - **Here:** Higher wages must compensate for increased **human costs of bankruptcy**
  - Makes it **costly for firms to take on too much leverage**
- **Trade-off Theory (Berk et al 2010):**
  - NPV[Debt issue]= NPV[TS] - NPV[Real BC] +Δ Labor Expenses (CWD)
- **Observations:**
  - **Difficult to estimate** since leverage also affects wages through channels such as reducing agency costs or reducing labor bargaining power $\rightarrow$ research on correlating leverage and wages is mixed

Matsa 2018: Leverage and Layoffs

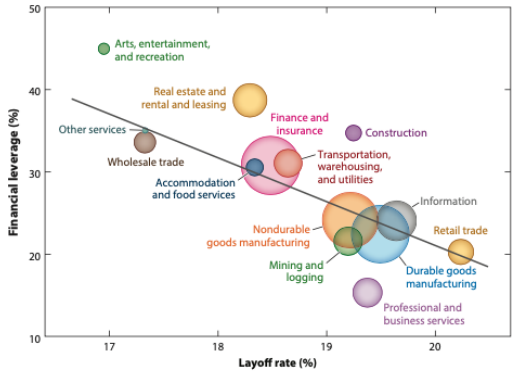

Figure 1

Layoff risk and leverage, 2016. This figure displays the recentered residuals from weighted regressions of industry average market leverage in 2016 and the industry average annual rate of layoffs and discharges in 2001–2015 on hiring, quit, and other separation rates. The regression line (*gray*) is weighted by the underlying number of firm observations, which is also represented by the size of the circles. The educational services, health care, and social assistance industries, which have lower layoff rates, are not displayed, but they do contribute to the regression line. Leverage data, which are winsorized at 1% tails, are from Compustat for all publicly traded firms incorporated in the United States and whose financial reports are denominated in US dollars; workforce turnover rates are from the Job Openings and Labor Turnover Survey.

Agrawal and Matsa 2013: Unemployment Risk and Leverage

- **Research Question**
  - How do unemployment risk and UI benefits influence firms' capital structure?
- **Data and Identification**
  - Firm-level data from U.S. companies (1950–2008)
  - Variation in state UI laws used to assess impact on corporate leverage
- **Key Findings**
  - Higher UI benefits increase firm leverage by reducing workers' demand for wage compensation
  - Labor-intensive firms and financially constrained firms are more affected by UI benefits

Kim 2020: Local Labor Market Size and Leverage

- **Research question**
  - Does an increase in local labor market size impact the capital structure of existing firms?
- **Data and identification**
  - Analysis of large plant openings across U.S. counties from 1980–1995
  - Winner counties (where plants opened) compared with runner-up counties (finalists that did not win)
- **Key findings**
  - Plant openings lead to an increase in leverage for firms in the winner county
  - Impact is stronger for firms employing workers with similar skills to the new plant

Chemmanur et al 2013: Pay and Leverage

- **Research question**
  - How does a firm's leverage affect employee pay, including CEO compensation and average wages?
- **Data and identification**
  - Analysis of firm-level data from U.S. companies (1992–2006)
  - IV approach using marginal tax rates to address endogeneity in leverage decisions
- **Key findings**
  - Higher leverage increases both CEO compensation and average employee pay
  - Incremental labor costs associated with increased leverage offset the tax benefits of debt

Capital Structure and Labor Markets

Firm-Specific Human Capital and Talent

Firm-Specific Human Capital and Talent

To succeed a corporation requires a co-investment of financial capital from the outside and human capital that is built up inside the business .. . . When you ask people to make an investment of human capital in your firm, you do not then do things—like raising the leverage ratio too high—that would needlessly put that investment at risk.

Stewart Myers (Myers et al. 1998, pp. 18–19)

Firm-Specific Human Capital and Talent

- **Firm Specific Human Capital:**
  - Skills, knowledge, and abilities that are valuable primarily within a specific firm
  - Acquired through on-the-job experience, internal training, and unique processes
  - Workers with high firm-specific human capital are more productive in the current firm
  - Raises the **the human costs of bankruptcy** → leverage lower in firms that rely more on firm specific human capital

- **Talent:**
  - Highly skilled labor (“talent”) may contribute disproportionately to the firms fortunes
  - Talent may have **lower human costs of bankruptcy**...
  - ... but **implicit labor costs** may be high
  - Thus, losing this talent may be particularly costly for the firm

Baghai et al. 2021: Talent and Bankruptcy (SP)

- **Research Question**
  - How do financial distress and high leverage affect a firm's ability to retain top talent?
- **Data and Identification**
  - Matched employer-employee data from Swedish firms and military enlistment records (1990–2011)
  - Uses exchange rate shocks to identify the causal effect of financial distress on talent departures.
  - Talent is measured through cognitive and noncognitive skills from military tests
- **Key Findings**
  - Firms approaching financial distress lose their most talented workers at a higher rate
  - Firms with a higher reliance on talent adopt more conservative capital structures to mitigate financial distress risks

Capital Structure and Labor Markets

The Human Costs of bankruptcy

Bankruptcy and Careers

- Getting laid off can be **costly** for workers. Thus layoffs involve **externalities** that motivate regulatory policy
  - Wage cuts (e.g. lost firm specific capital)
  - Reductions in consumption
  - Long delays before reemployment (search is costly)
  - Health costs (mental and physical)
  - Family spillovers (divorce, fertility)
- Layoffs can come from **financial** or **economic** distress
- Capital structure impacts **financial** distress of firms
- Both **entering restructuring** and **liquidation** matters

Graham et al. 2023: Employee Costs of Bankruptcy (SP)

- **Research Question**
  - How does bankruptcy affect earnings and labor market outcomes?
  - What is the magnitude of wage premia as a compensation for bankruptcy risk?
- **Data and Identification**
  - Matched employer-employee data from the U.S. Census Bureau's LEHD program, with 130 bankruptcy filings by public firms (1992–2005).
  - Difference-in-differences analysis
- **Key Findings**
  - Employee earnings decline by 13% in the first year after bankruptcy; cumulative earnings losses over six years amount to 87% of pre-bankruptcy annual earnings
  - Wage premia up to 2% of firm value, comparable to the TS of debt
  - Employees in smaller firms and thinner labor markets suffer greater earnings losses

Salvanes et al. 2024: Labor Market Shocks Across the Life Cycle

- **Research Question**
  - How do labor market shocks impact life decisions and long-term career outcomes across different stages of life?
- **Data and Identification**
  - Matched employer-employee records from Norway (1986–2018)
  - DiD design using mass layoffs and establishment closures
  - Key life decisions: education, fertility, marriage, labor force exit, disability pension
- **Key Findings**
  - Long-term earnings effects: Positive for young workers, negative and persistent for mid-career workers, minimal for older workers nearing retirement
  - Younger workers invest in human capital and relocate; mid-career workers reduce fertility and marital stability; older workers retire or take up disability pension

Takeaways on Capital Structure and Labor Markets

- **Leverage as Strategic Tool:** Firms use debt strategically in labor negotiations
- **Operating vs. Financial Leverage:** High operating leverage, often due to fixed labor costs and employment protections, may reduce crowd out financial leverage
- **Compensating Wage Differentials:** Firms need to compensate workers for job-related risks
- **Human Capital Considerations:** Firm-specific skills and high-value talent can create substantial costs in bankruptcy scenarios
- **Bankruptcy's Broader Impact on Workers:** Financial distress and layoffs lead to significant worker costs

Risk Sharing Within the Firm

Overview

Risk Sharing Within the Firm

- **Labor income risk** matters for most people
  - At the start of the career, almost all wealth is in human capital
  - At age 55, human capital still accounts for 60-80% of total wealth
  - Risk stems from variability of wages and layoff risk
- Typically **not insured through financial markets**, but rather through:
  - **Public institutions:** unemployment insurance, collective agreements, EPLs...
  - **Within the firm:** firms (shareholders/bondholders) absorbs shocks (demand/technology) to performance rather than passing them on to workers through layoffs or lower wages

Risk Sharing Within the Firm

- **Empirical research shows:**
  - Considerable variability **across firms** in insurance provision (e.g. family firms provide more)
  - Firms tend to absorb **short-term** shocks more than **long-term** shocks
  - Considerable **decline** globally in insurance provision **across time**
  - Public provision of insurance is a **substitute** to private provision of insurance
- Risk sharing motivations **interact with leverage** inside firms (as we have seen):
  - Rather than a wage discount for more insurance, firms may pay a **wage premium** for workers to take on a higher bankruptcy risk (compensating wage differential)
  - Firms may provide insurance to **attract and retain** talent

Ellul et al. 2018: Employment and Wage Insurance within Firms

- **Research Question**
  - Do firms provide insurance to employees against unemployment risk in substitution for public unemployment benefits?
  - Is this insurance provision affected by the ownership (family versus non-family)?
- **Data and Identification**
  - International panel data of 7,822 firms across 41 countries (1988–2013)
  - DiD using variations in national unemployment insurance and family ownership
- **Key Findings**
  - Family firms offer greater employment stability in countries with less generous public unemployment benefits
  - Public and firm-provided insurance are substitutes, with family firms reducing employment insurance as public benefits increase

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- **Human Capital Considerations:** Firm-specific skills and high-value talent can create substantial costs in bankruptcy scenarios
- **Bankruptcy's Broader Impact on Workers:** Significant worker costs
- **Risk sharing within the firm:** Firms tend to share wage and employment risks with workers