NOVA SCHOOL OF BUSINESS & ECONOMICS

Applied Corporate Finance

Financial Distress

Rui Silva

Plan of Attack

- Financial distress
- Costs of financial distress
- Resolving financial distress
  - Debt restructuring
  - Bankruptcy
    - Reorganization
    - Liquidation

“How did you go bankrupt?” Bill asked.

“Two ways,” Mike said. “Gradually, and then suddenly.”

-Ernest Hemingway, *The Sun Also Rises*

How does a firm become distressed?

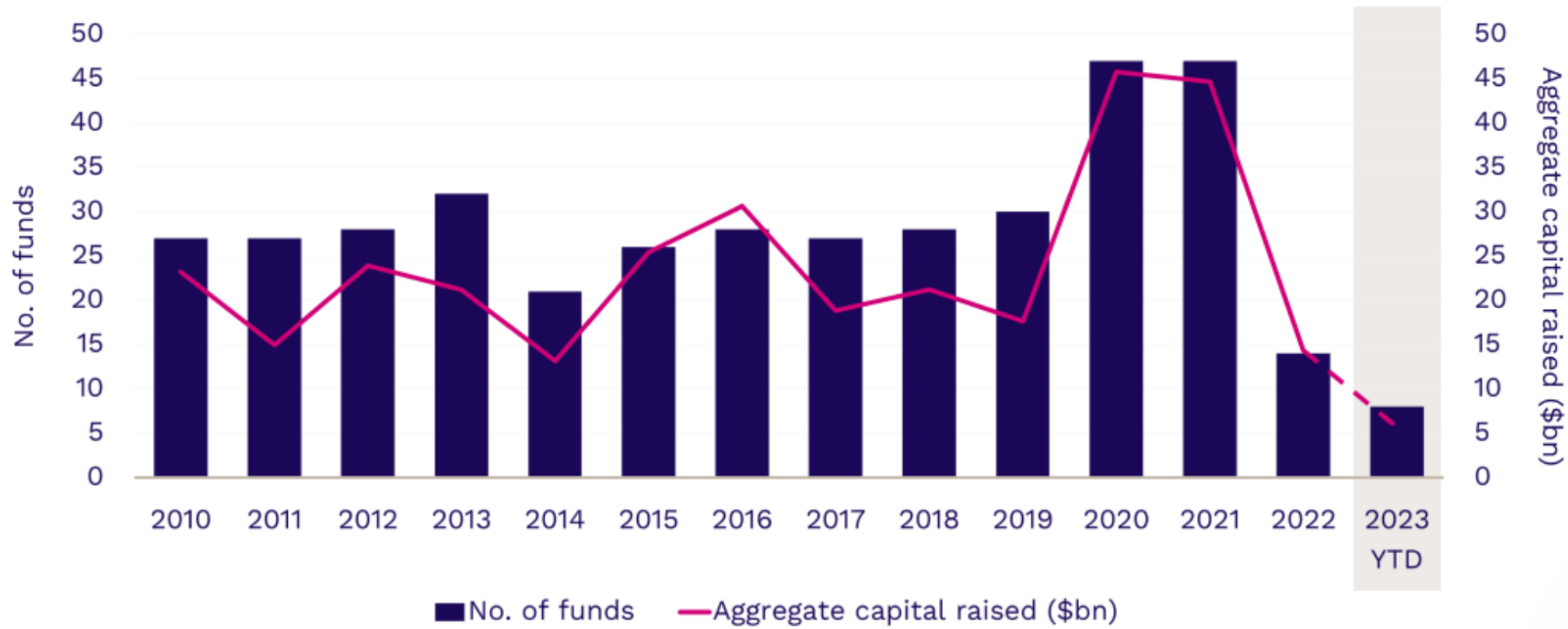
- Business deteriorates…
  - industry/economic/regulatory/litigation shock, bad management, etc.

- Until…
  - Covenant violations
  - Liquidity issues (can’t make payments)
  - Loss of suppliers, customers, partners
  - Solvency issues (BV liabilities > MV assets)

Distressed debt funds

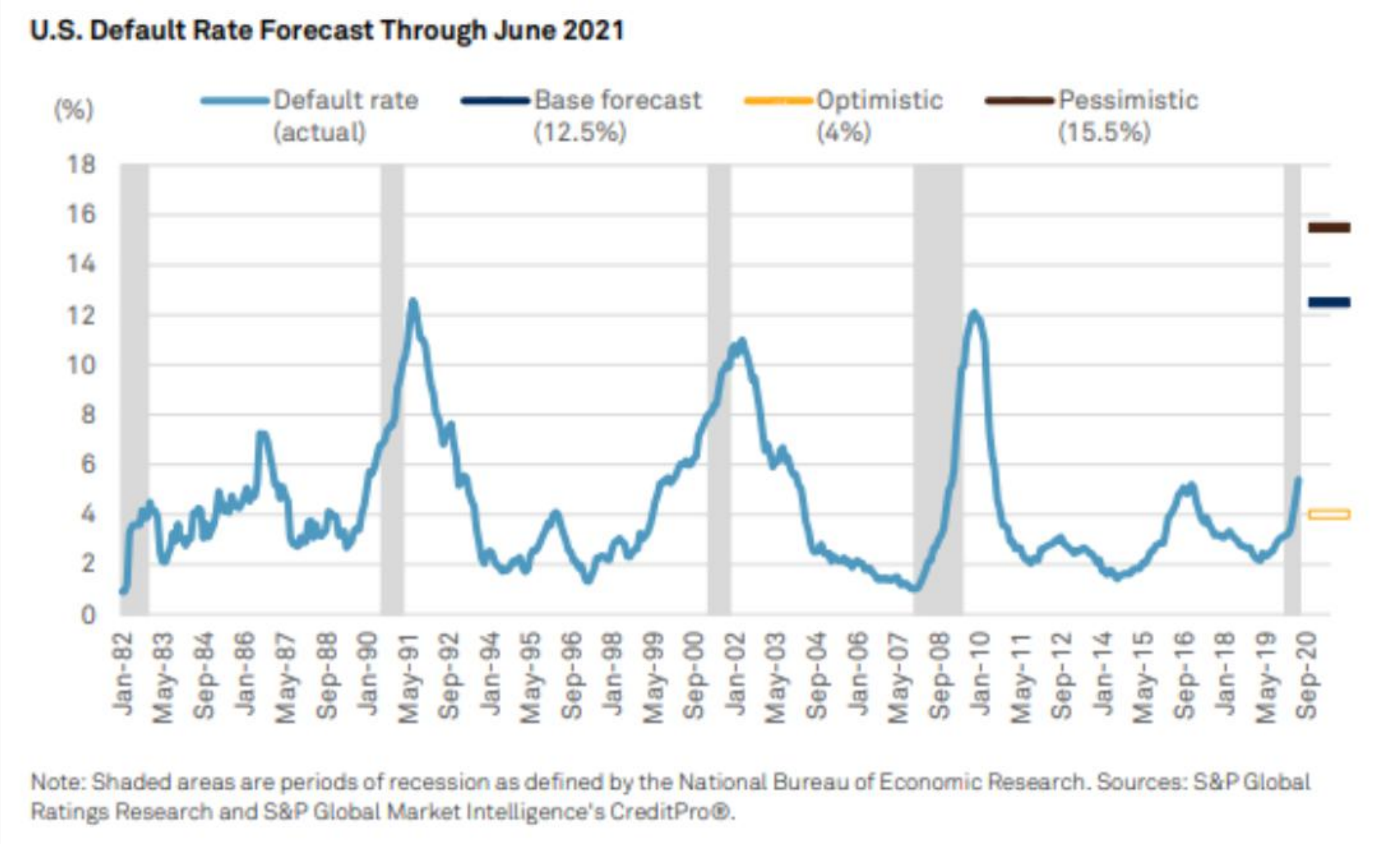
Distressed debt funds

Fig. 1: Global distressed debt fundraising, by year of final close, 2010 - 2023 YTD



Source: Preqin Pro. Data as of April 2023

Historical Corporate Defaults



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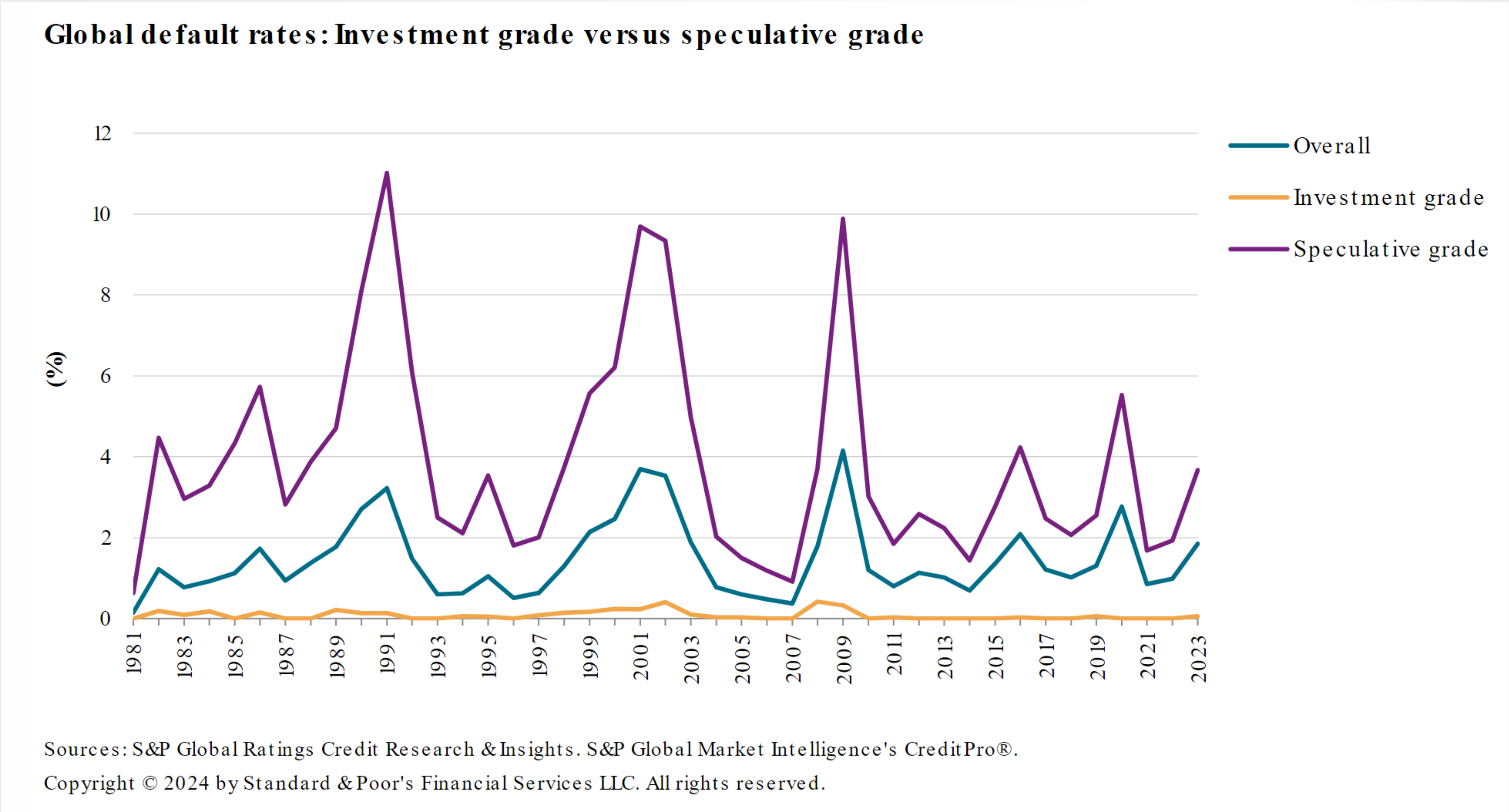
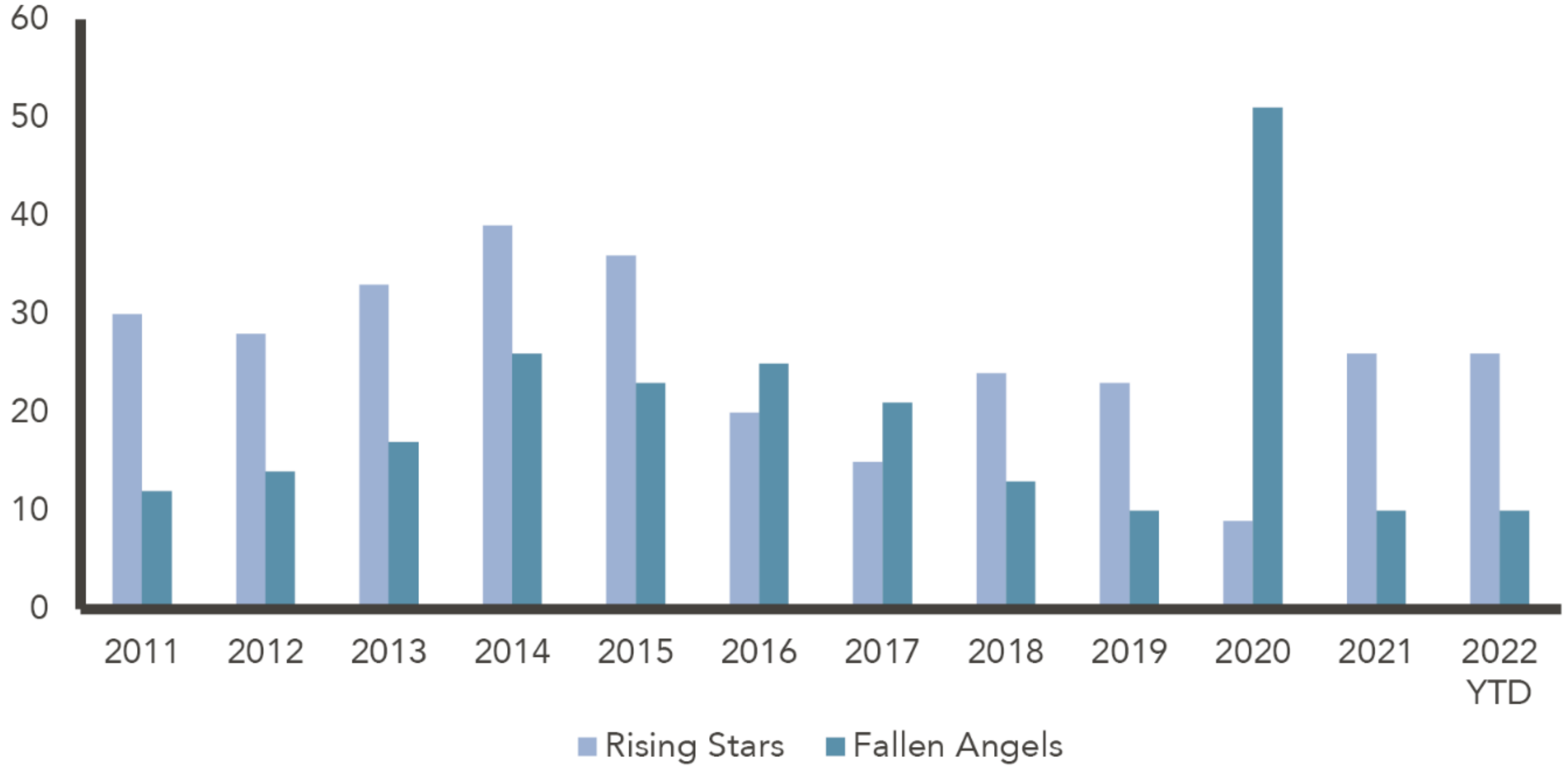


Fallen Angels and Rising Stars



Source: J.P. Morgan, Moody's Investors Service, S&P as of November 4, 2022

What are the costs of financial distress?

- Direct costs:
  - Legal fees, accounting experts, consultants, investment banks, etc…
  - Enron: $30 million per month on legal fees – total cost exceeded $750 million.
  - Estimates suggest direct costs of bankruptcy average about 3 to 4% of the pre-bankruptcy market value of total assets.
- Indirect costs
  - Loss of suppliers, loss of employees, loss of receivables, fire sales of assets, delayed liquidation, etc…
  - Andrade and Kaplan (1998) estimated that the potential loss of value due to financial distress is between 10% and 20% of firm value.

Distress Distorts Incentives

- Case 1: **Risk Shifting / Asset Substitution**
- Suppose debt=£50, equity=£1, cash=£10
- Firm is expected to file for bankruptcy soon
- New project: invest £10; receive £0 now w.p. 0.95 and £100 now w.p. 0.05
- Will the debtholders want the firm to invest?
- Will the stockholders want the firm to invest?

Distress Distorts Incentives

- What is the NPV of the project?
- What is the value of equity:
  - When project succeeds?
  - When project fails?
- What is the value of debt:
  - When project succeeds?
  - When project fails?
- Bottom line: equity holders gain at the expense of debt holders.
  - Equity is like a call on the assets of the firm

Case 2: Debt overhang

- Next year, firm's assets are worth either £100 w.p. 0.5 or £50 w.p. 0.5 (in present value terms)
- Debt with face value of £70 is due next period
- Firm value plus debt and equity prices today:

State	Probability	V	D	E = V - D
Good	1/2	$100	$70	$30
Bad	1/2	$50	$50	$0
Expected values:		$75	$60	$15

- **<u>New project</u>**: invest £15, sure to return £20

Would existing/new equity invest?

- With investment, firm value would be

  0.5 x (£100+£20) + 0.5 x (£50+£20) = £95

- Debt will be worth: 0.5 x £70 + 0.5 x £70 = £70
- Equity will be worth: 0.5 x (£30+£20) + 0.5 x £0 = £25
- Equity value has increased from £15 to £25
- However, investment costs £15! This is a bad deal for the shareholders who are putting up the money.
  - Why? **Part of the gains accrue to the existing debtholders.**

Predicting Distress

- Option pricing measures (distance to default)

- Altamn's Z-score

$$Z = 1.2\ X_1 + 1.4\ X_2 + 3.3\ X_3 + 0.6\ X_4 + 1.0\ X5$$

  – X_1 = Working capital / assets
  – X_2 = Retained earnings / assets
  – X_3 = EBIT / assets
  – X_4 = MV of equity / BV of liabilities
  – X_5 = Sales / assets

- Z> 2.67: distress unlikely
- Z<1.81: distress likely

Predicting Distress - Credit ratings

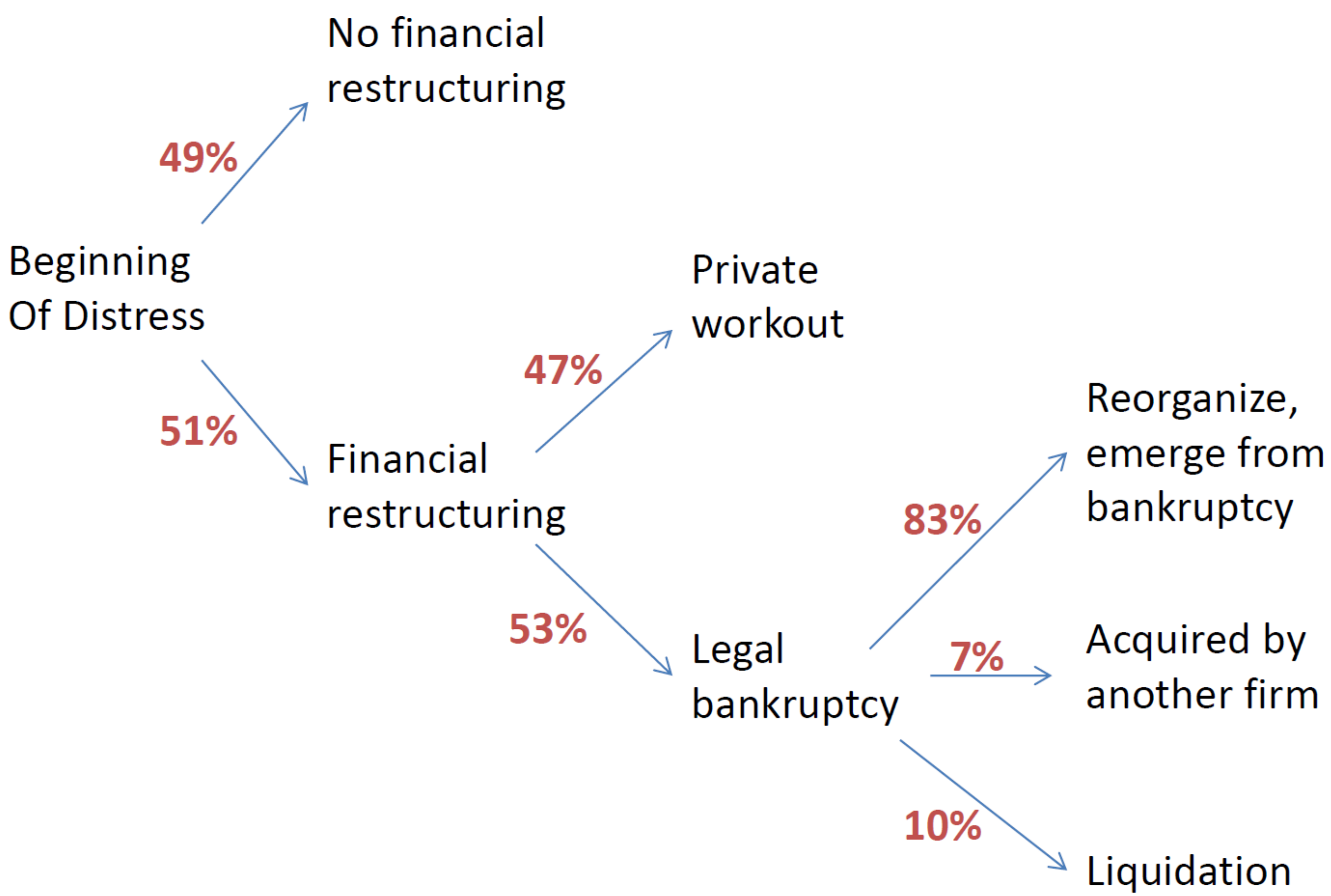
Credit Rating Scales by Agency, Long-Term

Moody's	S&P	Fitch	
Aaa	AAA	AAA	Prime
Aa1	AA+	AA+	High grade
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	Upper medium grade
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	Lower medium grade
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	
Ba1	BB+	BB+	Non-investment grade speculative
Ba2	BB	BB	
Ba3	BB-	BB-	
B1	B+	B+	Highly speculative
B2	B	B	
B3	B-	B-	
Caa1	CCC+	CCC	Substantial risk
Caa2	CCC		Extremely speculative
Caa3	CCC-		Default imminent with little prospect for recovery
Ca	CC	CC	
	C	C	
C	D	D	In default
/			
/			

"Junk"

WOLFSTREET.com

What happens to distressed firms



Source: Wruck (1990), Weiss (1990), others.

Private Workouts

- Lenders and firm agree to restructuring plan
  - For example, bondholders might agree to exchange their 5% coupon debt for 4% coupon debt and an extension in maturity
  - Debt-for-equity swaps
  - In some cases, outright debt forgiveness
- No court involvement
- Quicker and less costly than bankruptcy
- But, there is often a “hold-up” problem

When do workouts work?

- Economic environment
  - Are problems cyclical or structural?
- Firm-specific “legacy” issues
  - Can they be removed / restructured out of bankruptcy?
- Capital structure
  - Number of different creditor classes
  - Number of creditors per class
  - Extent of impairment of each class
  - Nature of the firm’s assets (tangible/assets in place vs. intangible/growth opportunities)

Types of concessions

- Lender concessions
  - Debt forgiveness
  - Debt-for-equity swaps
  - Extension of maturity
  - Changes to interest rate or payment frequency
  - New debt issuance
- Borrower concessions
  - Asset sales / accelerated debt repayment
  - New equity infusion

Why concede?

- Lenders
  - They want equity to invest, but are aware of debt overhang
  - Bankruptcy is time-consuming and costly

- Borrowers
  - If lenders also concede, can gain from new equity
  - Maintain control rights
  - Management wants to keep their jobs

Bankruptcy

- Economic environment
  - Are problems cyclical or structural?
- Firm-specific "legacy" issues
  - Can they be removed / restructured out of bankruptcy?
- Capital structure
  - Number of different creditor classes
  - Number of creditors per class
  - Extent of impairment of each class
  - Nature of the firm's assets (tangible/assets in place vs. intangible/growth opportunities)

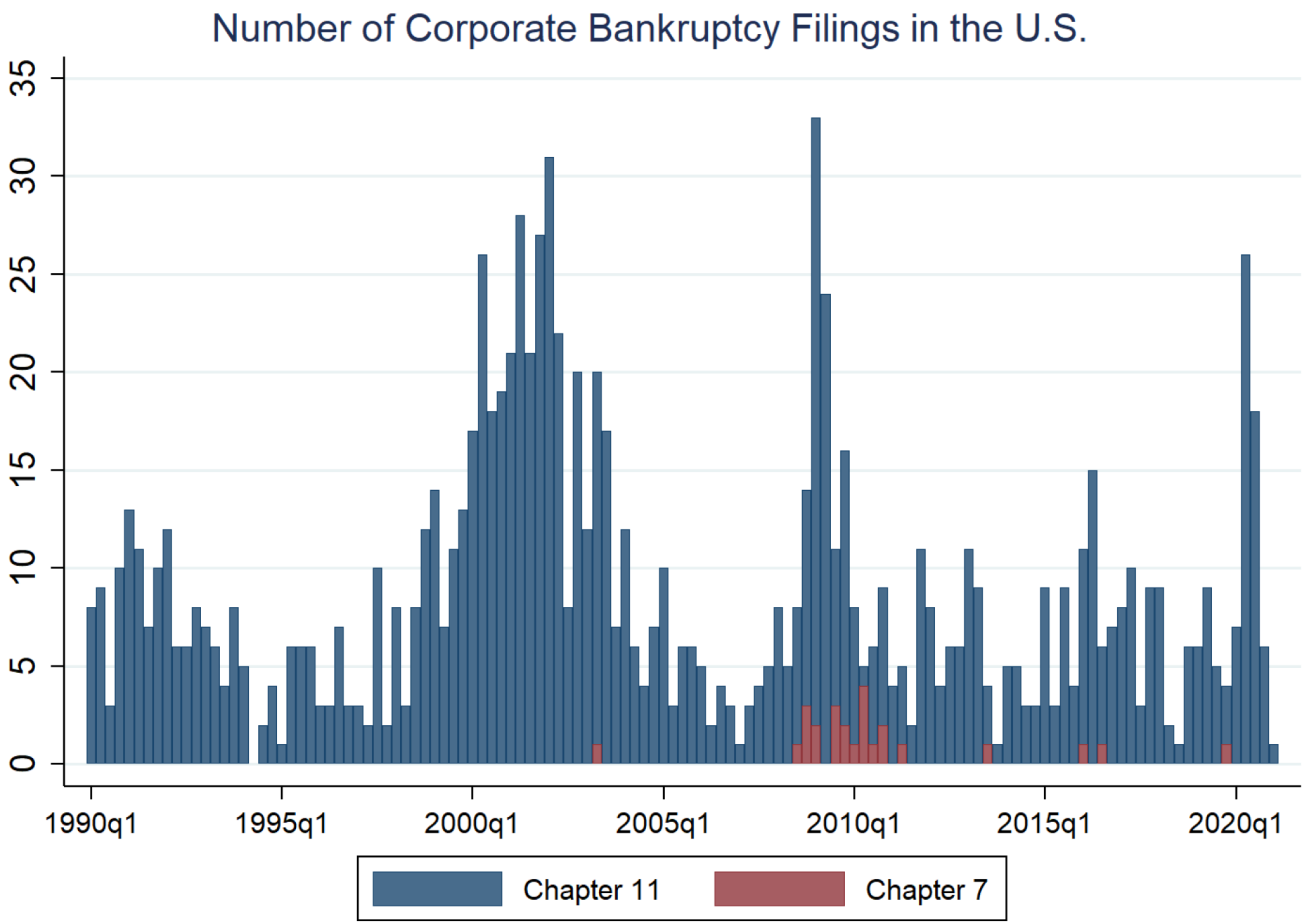
Different types of bankruptcy

- US
  - Chapter 11 – company remains a going concern
  - Chapter 7 – liquidation
- UK
  - Liquidation
  - Administration
- Europe – varies by country

Creditor protection in bankruptcy around the world

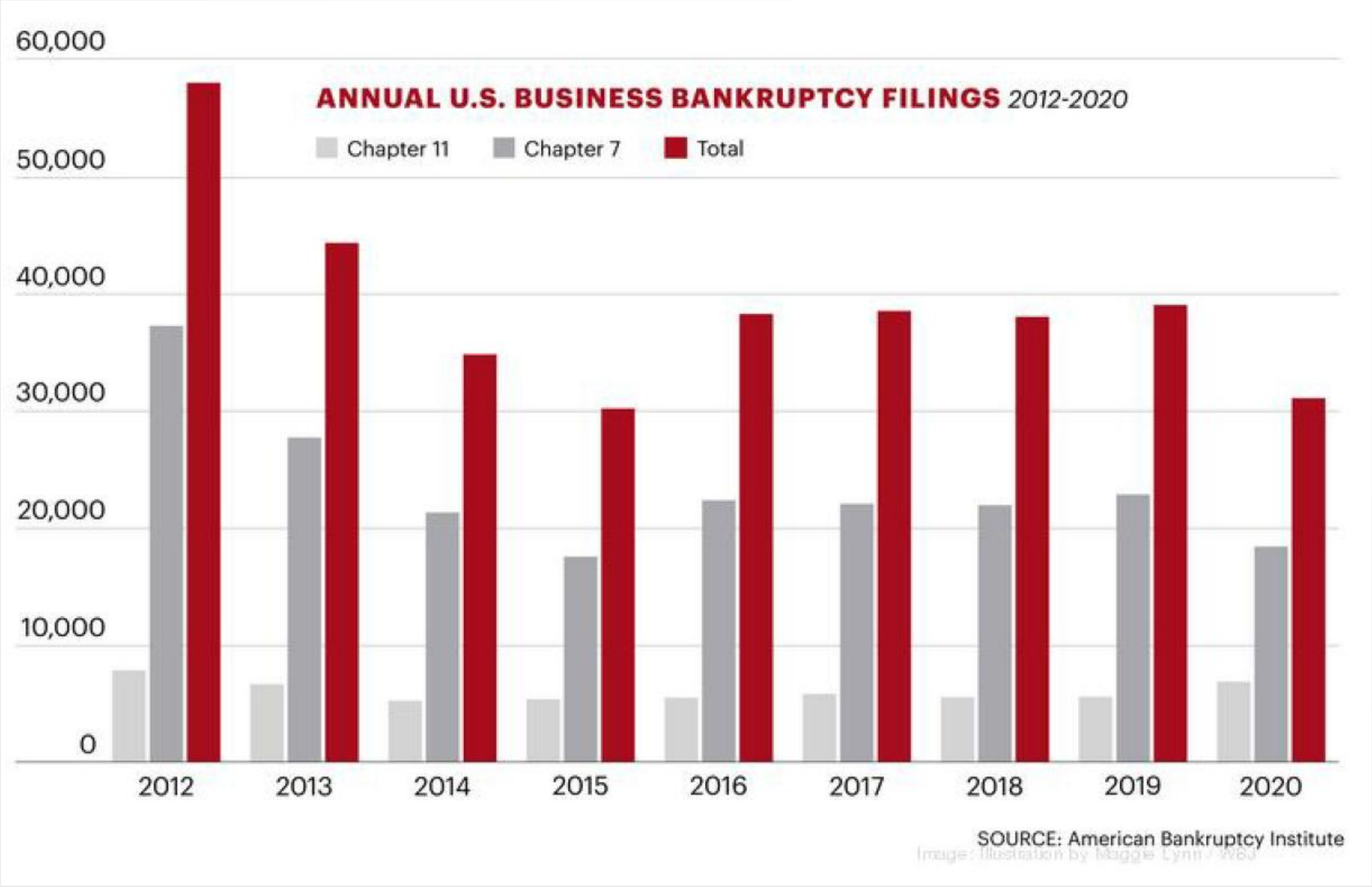
- Empirical facts:
  - There is large variation in the percentage of reorganized firms emerging from the bankruptcy process across countries
    - European bankruptcies are less likely to result in reorganization compared to their US counterparts
  - Typical exit methods also very across countries:
    - US: reorganization
    - UK: Acquisition
    - Sweden: Mandatory auction system
- Curious about your country's bankruptcy laws?
    - World Bank Insolvency Law Database

US Bankruptcy filings by type – Large firms



Source: BRD (includes all large - assets above $100 million - public company bankruptcies)

What about small enterprises?



Chapter 7

- Court appoints trustee to shut down the firm
- Asset are sold for cash
  - Typically in an auction
  - Entire business can be sold, or assets can be sold individually
- Problems with Chapter 7
  - “Fire sale” concerns
- Reduces seller’s bargaining power
- Natural buyers may be unable to finance purchase
  - If firm is liquidated in piecemeal fashion, value of intangible assets (e.g. employees) is lost

Chapter 11

- File bankruptcy petition
- Firm's exclusivity period: 120 days / 18 months
- Voting
  - For each impaired class, 2/3 in value and 50% in number of votes received must vote "yes"
  - Unimpaired/fully impaired classes cannot vote
  - "Cram down" rule: judge can approve plan even if one creditor class votes against the plan
- Process takes average of 20 months to complete
- Administrative fees normally 2-5% of firm assets

What can management do?

- Continue to operate the business
  – "First-day" motions typically allow firm to continue paying suppliers, keep customer programs in place, pay wages, KEIPs
- Obtain new financing
  – "Cash collateral" financing
  – Debtor-in-possession ("DIP") financing
- "Priming lien" places DIP lender first in line
- Break unprofitable contracts/leases
- Sell assets (Section 363 sales) – Lehman Brothers

Debtor-in-Possession (DIP) financing

- Designed to help solve debt overhang problems

- Example:
  - Firm X has senior debt on its books with a face value of $50. The firm has an investment opportunity that will increase firm's cash flows in both states of the world by $2 and costs $1 today. Firm X has no cash and needs to raise $1 externally.
  - Can the firm issue junior debt (or equity) to finance the project?

	Without the project		With the project	
	p=0.1	p=0.9	p=0.1	p=0.9
Value of assets	100	10	100	10
New project			2	2
Total			102	12

Solving the debt overhang problem with (DIP) financing

- The face value of newly issued junior debt solves:
  - (0.1) (F) + (0.9) (0) = 1, which yields F =10.

- Will equity holders issue the junior debt and invest?
  - Without investing, the value of equity is
    E = (0.1)(100 - 50) + (0.9)(0) = 5
  - Investing in project, the value of equity becomes
    E = (0.1)(102 - 60) + (0.9)(0) = 4.2

- Hence shareholders will not issue junior debt; they will pass up the project!

- Issuing equity (instead of junior debt) does not solve the problem either.

Solving the debt overhang problem with (DIP) financing

- DIP financing has super-priority status which reduces the corresponding face value to 1!
  - Investing in project, the value of equity becomes

    E = (0.1)(102 - 51) + (0.9)(0) = 5.1

- DIP financing allows the shareholders to enjoy the upside potential of the project by reducing the face value of debt.

- Then, why not allow equity holders to always issue senior debt (even outside of bankruptcy)?

Automatic stay

- All lawsuits and pre-petition claims against company are halted for at least 180 days
  - For example, if firm has defaulted, bondholders cannot just seize control of the firm
  - Typically, interest/principal payments are halted
- Stay applies worldwide; not restricted to US
- But exceptions exist
  - Repo, derivatives
  - New lawsuits from pre-petition creditors

Absolute priority rule (APR)

- (1) Secured, (2) Administrative, (3) Employee, (4) Trade, (5) Tax, (6) Unsecured, (7) Equity

- But, deviations are common
  – Creditors may waive their priority rights

- Why?
  – Bankruptcies are expensive
  – Differing incentives
  – Exit plan is subject to judicial, not market, constraints

Plan valuation and incentives

- Senior creditors want V to be low
  - Suppose face value of senior claim is £100
  - If V = £100, sr. gets 100%; if V = £500, sr. gets 20%

- Junior creditors want V to be high
  - Suppose face value of jr., sr. claims is £100 each
  - If V = £100, jr. gets 0%; if V = £500, jr. gets 100%+

- Junior creditors have incentives to delay
  - BK is very costly. Can get seniors to give concessions.

Deviations from Strict APR

Class	UK workouts	US Chapter 11	US workouts
Secured	-12%	-4%	-7%
Unsecured	6%	1%	-1%
Equity	6%	3%	8%

- Trends
  - Deviations from APR have been declining worldwide
  - In US, APR deviations fell from 75% prior to 1990 to 22% thereafter

Trump Casinos, 2004

- Trump Hotels & Casino Resorts, Inc. filed for bankruptcy protection in November 2004
- Trump's leverage was too high; company couldn't invest to keep up with competitors → Debt overhang
- Trump agreed to give up 20% of equity in return for debt forgiveness, rate decline
- But, hold-up problem occurred – small % of creditors did not agree to new terms
- Trump and most bondholders agreed to file for bankruptcy → cram-down of minority class

Trump Casinos, 2009

- Trump Hotels & Casino Resorts, Inc. filed for bankruptcy protection in February 2009
- Firm simply had too much debt to withstand the financial crisis and decline in business
- The “battle of the billionaires:” Lasry vs. Beal/Icahn
- Trump first reached agreement with Beal/sr. creditors that greatly impaired Lasry/jr. creditors (largest class by $)
- Then he changed his mind & turned against Beal and Icahn
- WSJ: “Mr. Trump wants the Chapter 11 process to end soon because his image is hurt when assets bearing his name are in bankruptcy. ‘I'm not a big fan of the 'B' word,’ he said.”
- Trump and Lasry won. Company emerged July 2010. Filed for bankruptcy again in 2014, this time over union disputes.