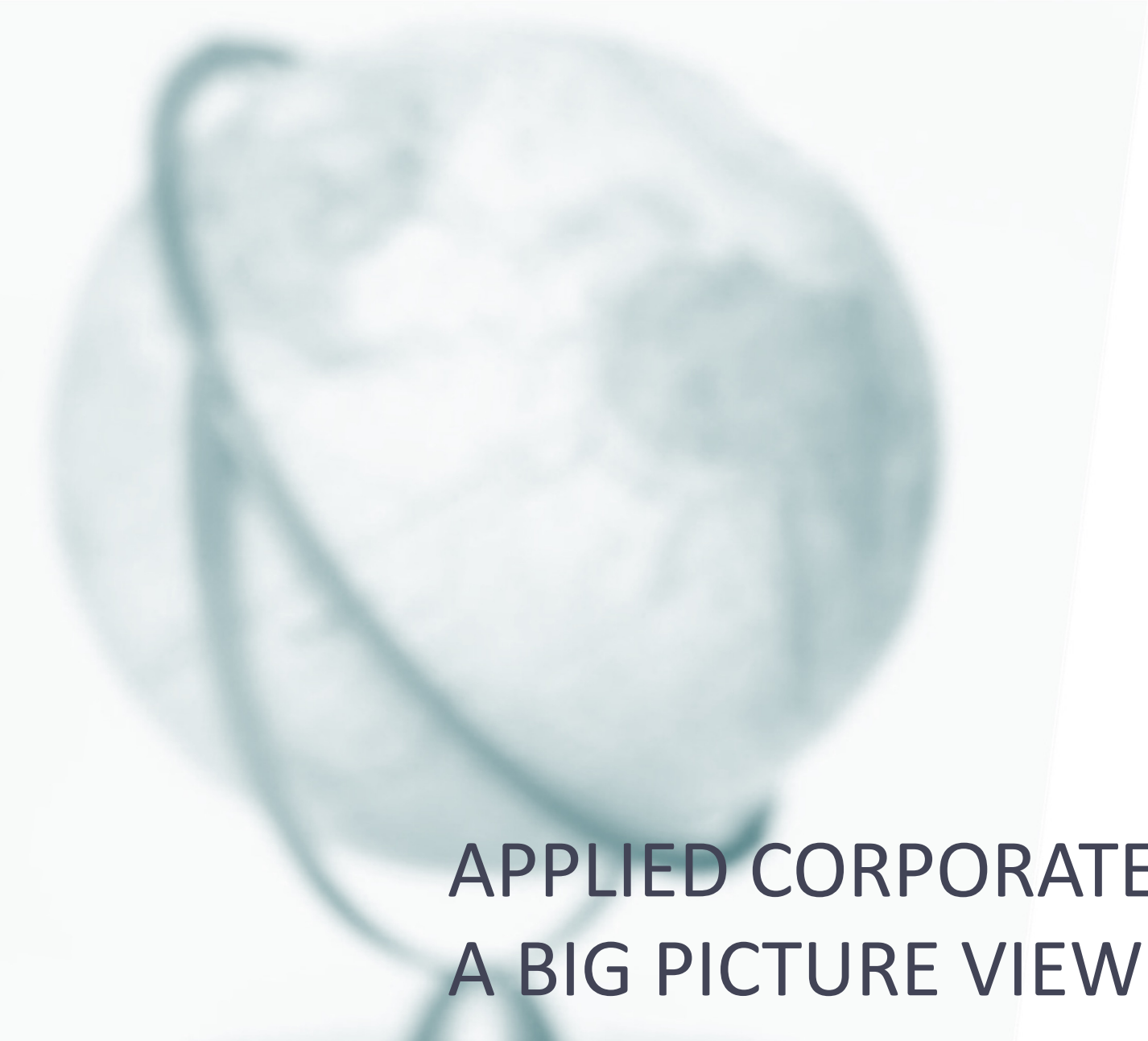




APPLIED CORPORATE FINANCE: A BIG PICTURE VIEW

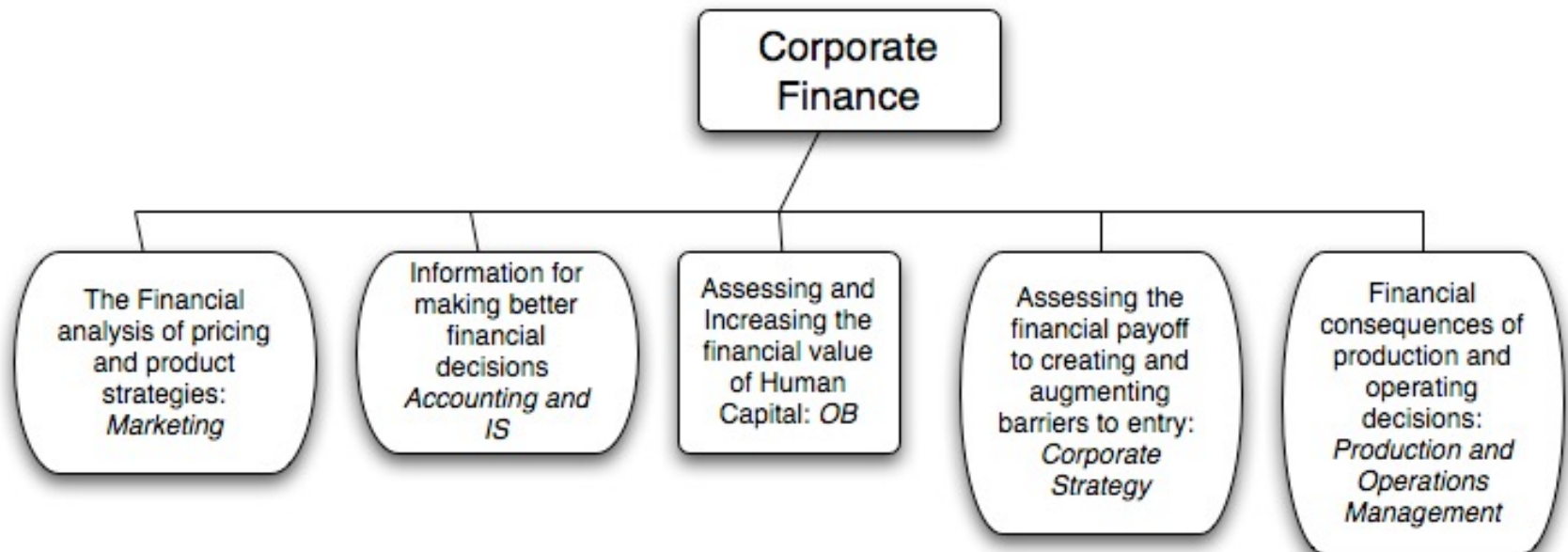
Aswath Damodaran

www.damodaran.com

What is corporate finance?

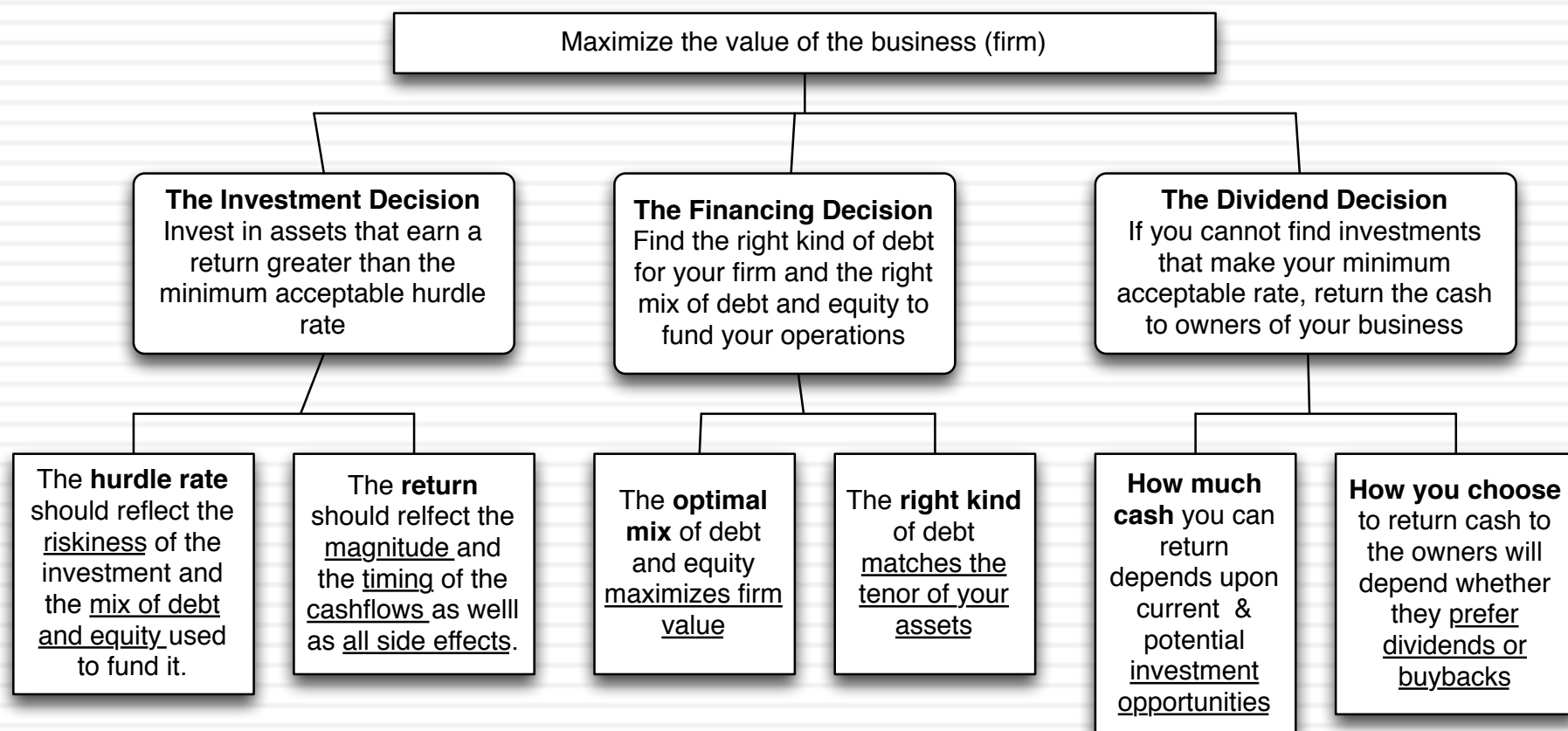
2

- Every decision that a business makes has financial implications, and any decision which affects the finances of a business is a corporate finance decision.
- Defined broadly, everything that a business does fits under the rubric of corporate finance.



First Principles & The Big Picture

3



Theme 1: Corporate finance is not accounting...

Accounting Balance Sheet			
Assets		Liabilities	
Recorded at cost	Non-Cash Current Assets	Current Liabilities	Recorded at cost
Recorded at current value	Cash & Marketable Securities (ST)	Interest-bearing Debt	Recorded as original proceeds
Recorded at original cost, net of depreciation	Property, Plant & Equipment	Accounting Liabilities	Recorded at estimated value
Recorded at original cost, updated cost or priced at current market levels	Financial Investments	Shareholder Equity	Summation of accounting history, book value + retained earnings
Mostly a plug variable (Goodwill)	Intangible Assets		

Financial Balance Sheet			
Assets		Liabilities	
Value of investments that you have already made over your lifetime as a business.	<i>Assets in Place</i>	<i>Debt</i>	Lenders have a contractual claim on the cash flows of the firm
Expected value of future growth investment	<i>Growth Assets</i>	<i>Equity</i>	Equity owners have a residual claim; they get cash flows left over

Theme 2: Corporate finance is “common sense”

5

- There is nothing earth shattering about any of the first principles that govern corporate finance.
 - Arguing that taking investments that make 9% with funds that cost 10% to raise seems to be stating the obvious (the investment decision)
 - So is noting that it is better to find a funding mix which costs 10% instead of 11% (the financing decision)
 - And positing that if most of your investment opportunities generate returns less than your cost of funding, it is best to return the cash to the owners of the business and shrink the business.
- Shrewd businesspeople, notwithstanding their lack of exposure to corporate finance theory, have always recognized these fundamentals and put them into practice.

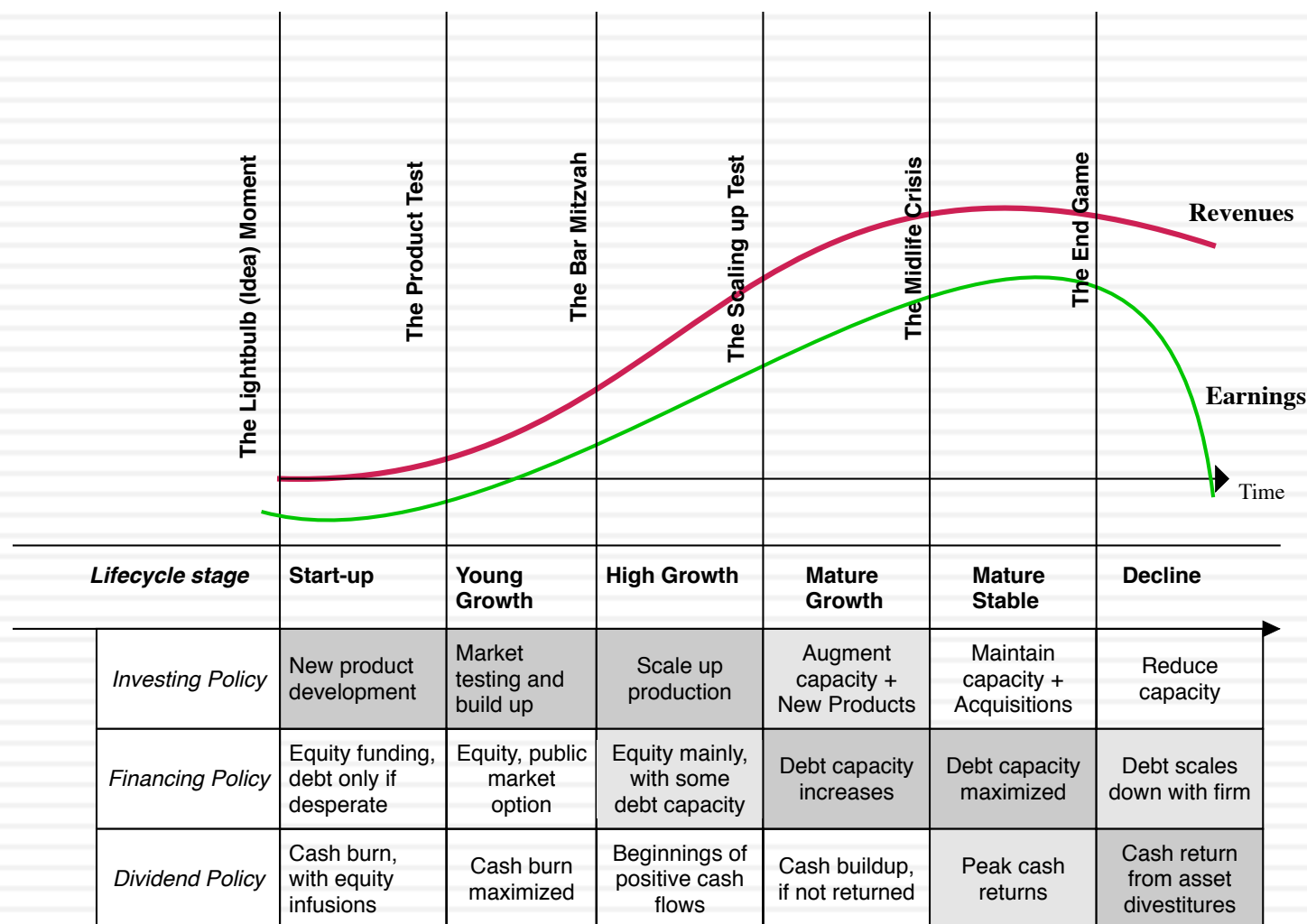
Theme 3: Corporate finance is focused...

6

- It is the focus on maximizing the value of the business that gives corporate finance its focus. As a result of this singular objective, we can
 - ▣ Choose the “right” investment decision rule to use, given a menu of such rules.
 - ▣ Determine the “right” mix of debt and equity for a specific business
 - ▣ Examine the “right” amount of cash that should be returned to the owners of a business and the “right” amount to hold back as a cash balance.
- This certitude does come at a cost. To the extent that you accept the objective of maximizing firm value, everything in corporate finance makes complete sense. If you do not, nothing will.

Theme 4: The focus in corporate finance changes across the life cycle...

7



Theme 5: Corporate finance is universal...

8

- Every business, small or large, public or private, US or emerging market, has to make investment, financing and dividend decisions.
- The objective in corporate finance for all of these businesses remains the same: maximizing value.
- While the constraints and challenges that firms face can vary dramatically across firms, the first principles do not change.
 - A publicly traded firm, with its greater access to capital markets and more diversified investor base, may have much lower costs of debt and equity than a private business, but they both should look for the financing mix that minimizes their costs of capital.
 - A firm in an emerging market may face greater uncertainty, when assessing new investments, than a firm in a developed market, but both firms should invest only if they believe they can generate higher returns on their investments than they face as their respective (and very different) hurdle rates.

Theme 6: If you violate first principles, you will pay a price, no matter who you are..

9

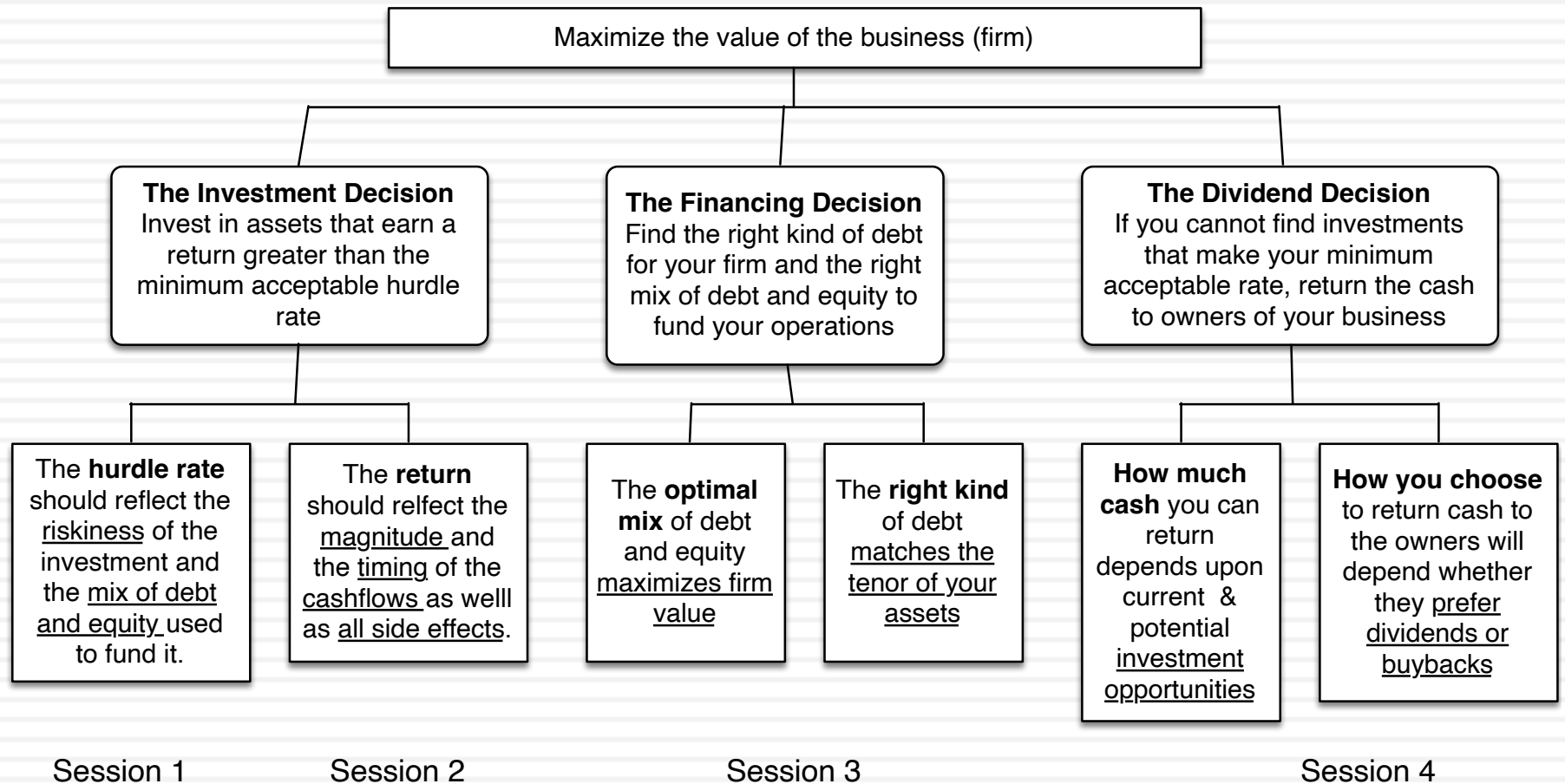
- There are some investors/analysts/managers who convince themselves that the first principles don't apply to them because of their superior education, standing or past successes, and then proceed to put into place strategies or schemes that violate first principles.
 - Sooner or later, these strategies will blow up and create huge costs.
 - Almost every corporate disaster or bubble has its origins in a violation of first principles.

Class Structure

10

Corporate Finance: The Big Picture

Session 1



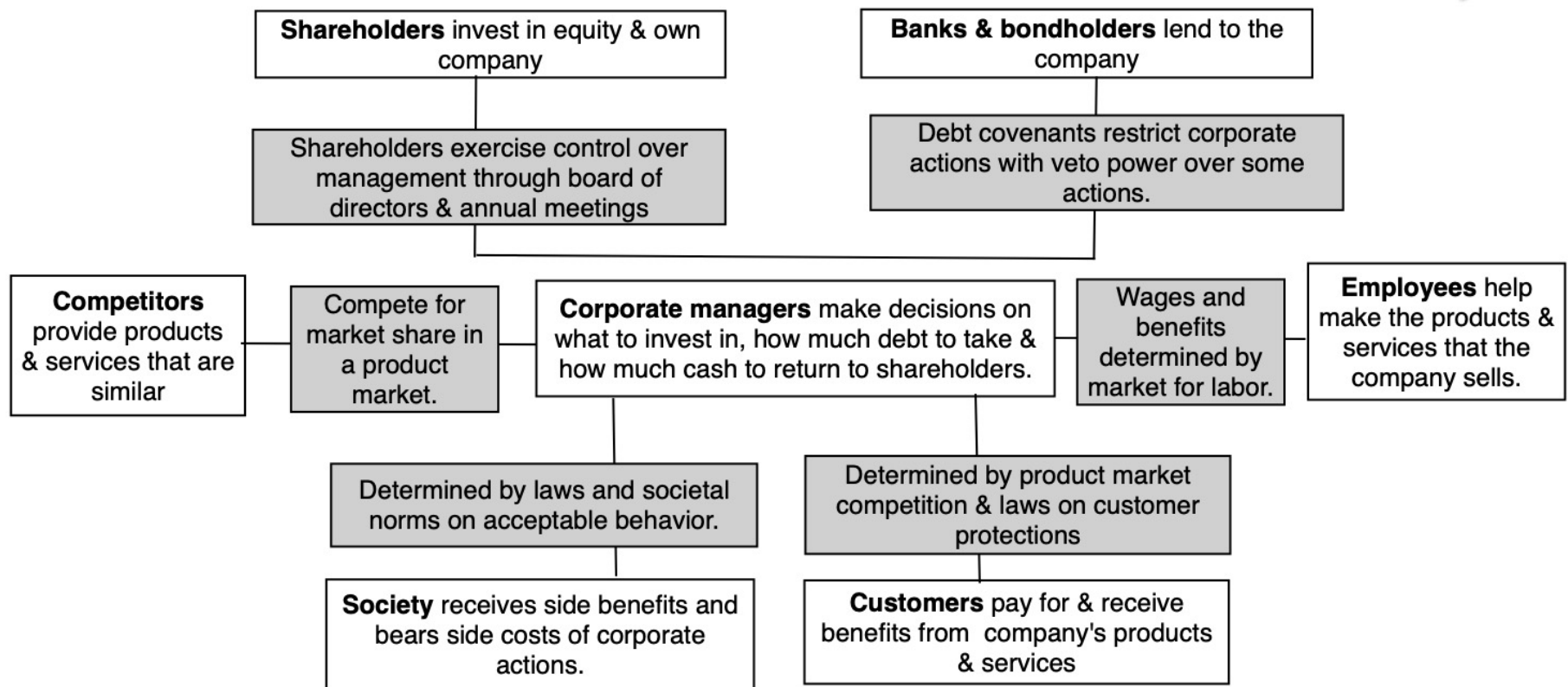


The End Game in Business

The End Game in Business?

- Businesses have always struggled with mission statements. Put simply, what should the end game of a business?
 - The simplest and most pragmatic answer is that it is to sell products and services that customers want, while generating the most they can in profits for their owners, over the long term.
 - The pushback, often from non-business critics, has been that businesses should also serve society, not just minimizing social costs but also providing social benefits.
- In recent years, that pushback has found backing within business, with movements to expand business missions:
 - To put business sustainability first
 - To maximize the value to all stakeholders, not just owners
 - To incorporate environmental, social and governance goals

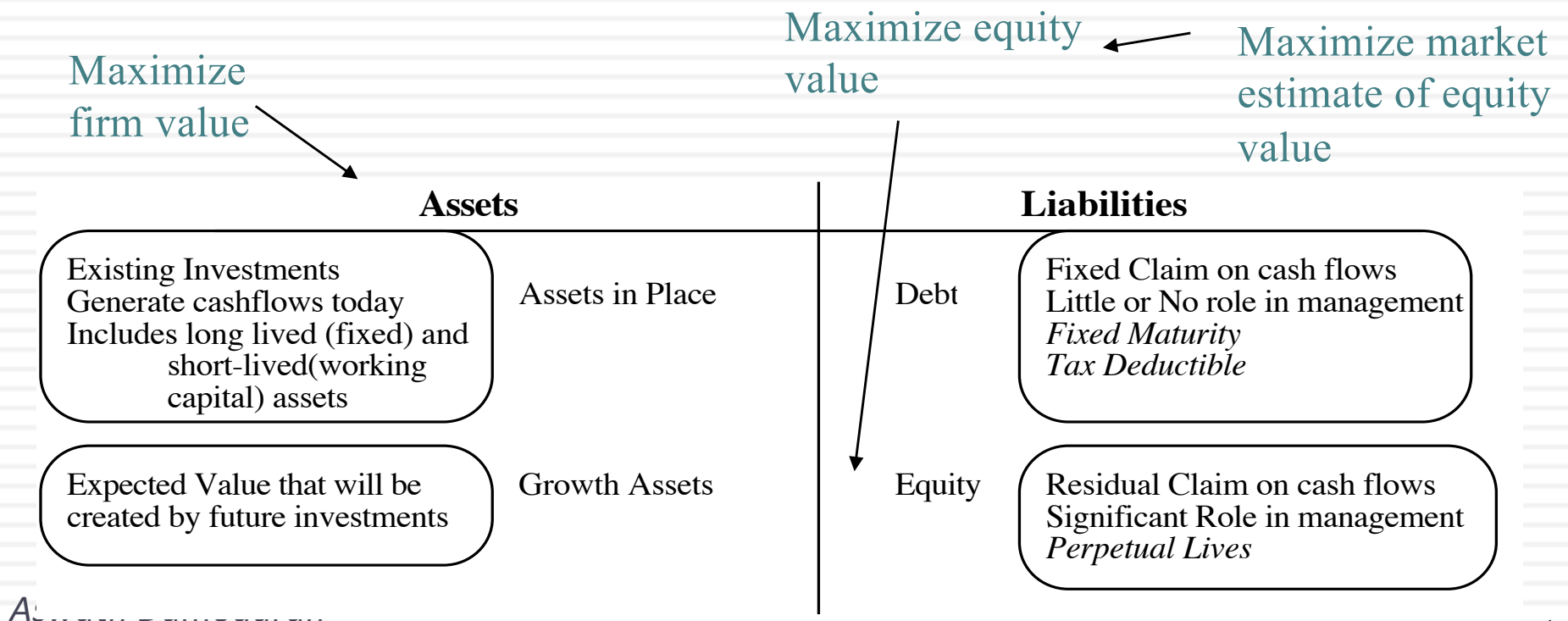
A business has many stakeholders...



In running a business, one of these stakeholders has to be given primacy...

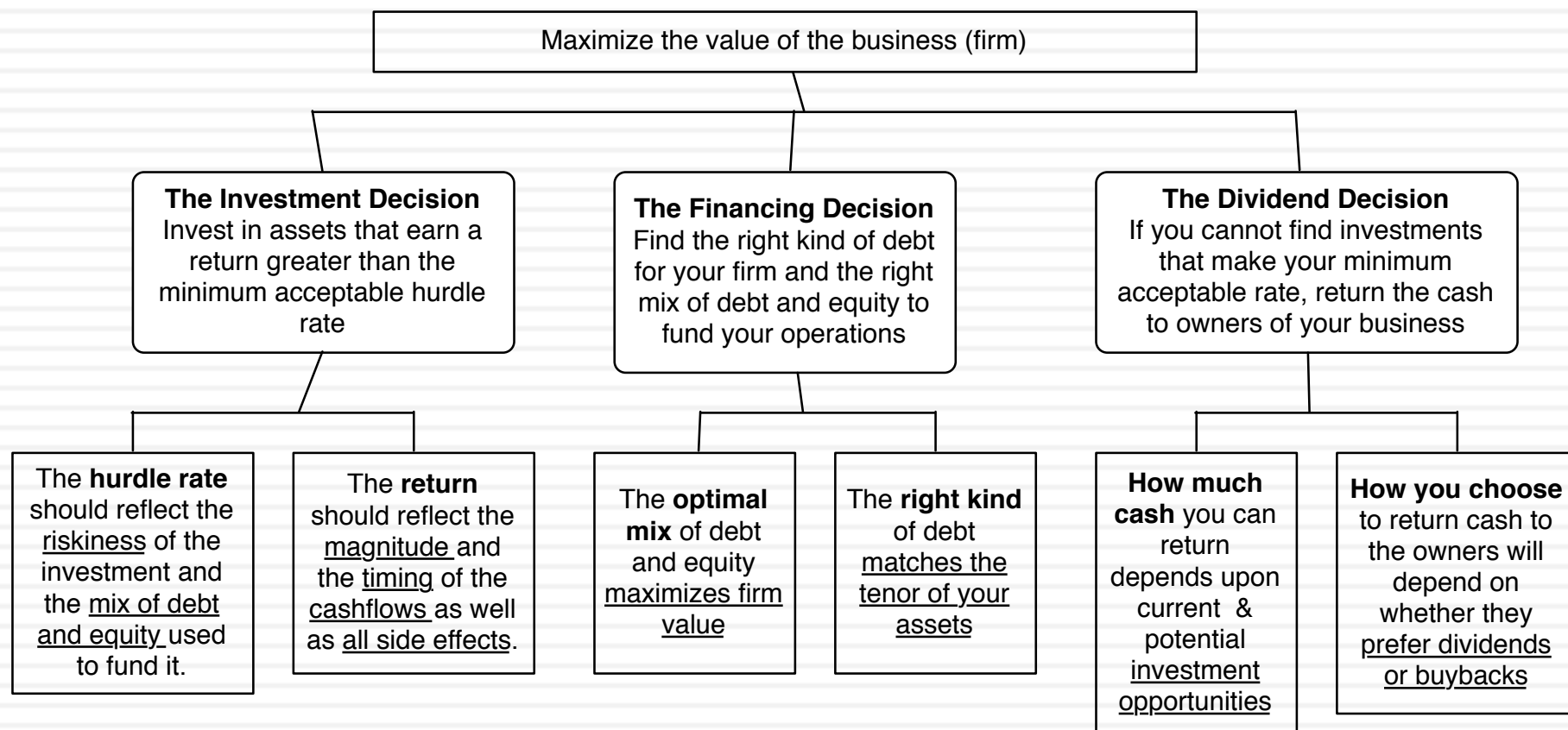
14

- In traditional corporate finance, the objective in decision making is to maximize the value of the firm.
- A narrower objective is to maximize stockholder wealth. When the stock is traded and markets are viewed to be efficient, the objective is to maximize the stock price.



Giving corporate finance its focus...

15



Why traditional corporate financial theory focuses on maximizing stockholder wealth.

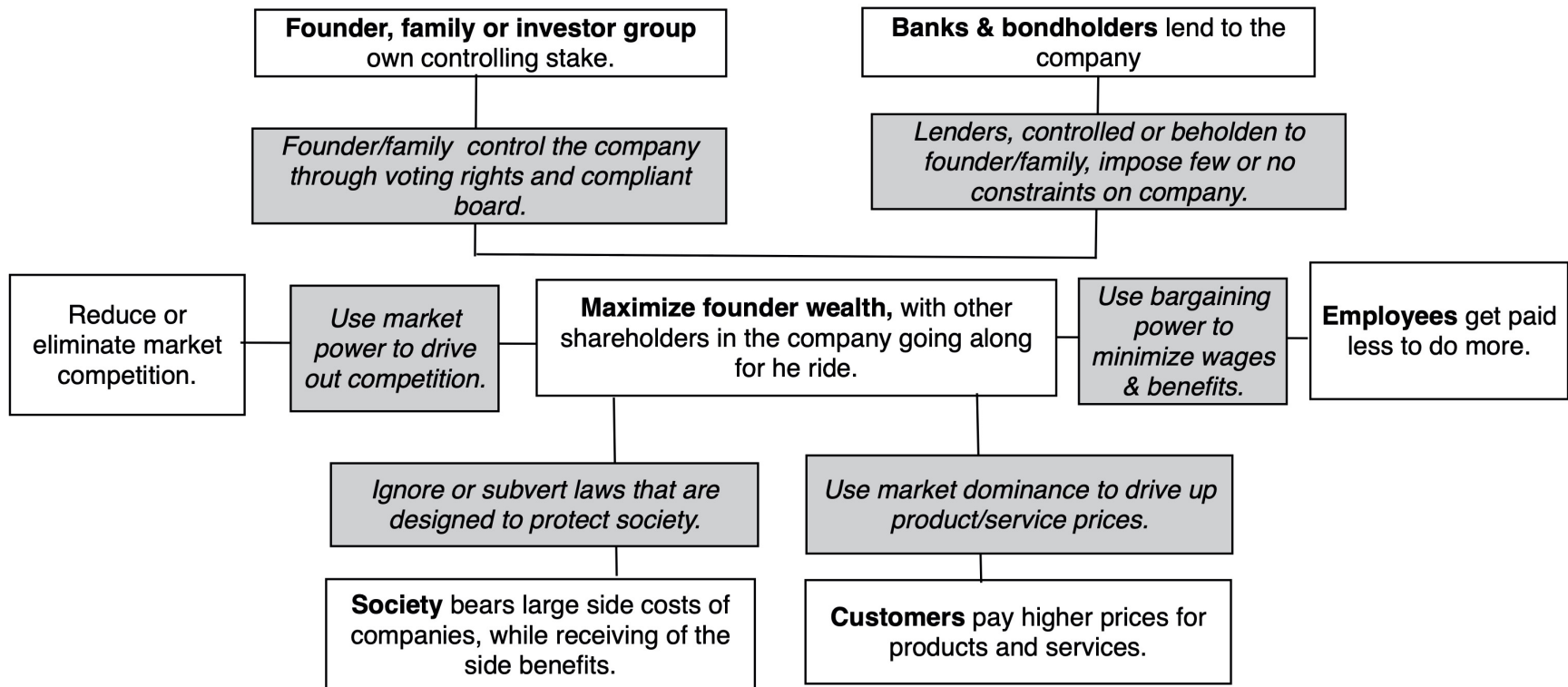
16

- You can have only one objective, i.e., one interest group, whose interests get placed first.
 - Corporate finance picks shareholders because they have a residual claim, whereas every other claimholder has a contractual claim that they can negotiate to protect their interests.
- If the company is traded, the stock price gets chosen as the optimizing metric because:
 - Stock price is easily observable and constantly updated
 - If investors are rational, stock prices reflect the wisdom of decisions, short term and long term, instantaneously.

The Strawman Version: Cutthroat Corporatism

17

Cutthroat Corporatism



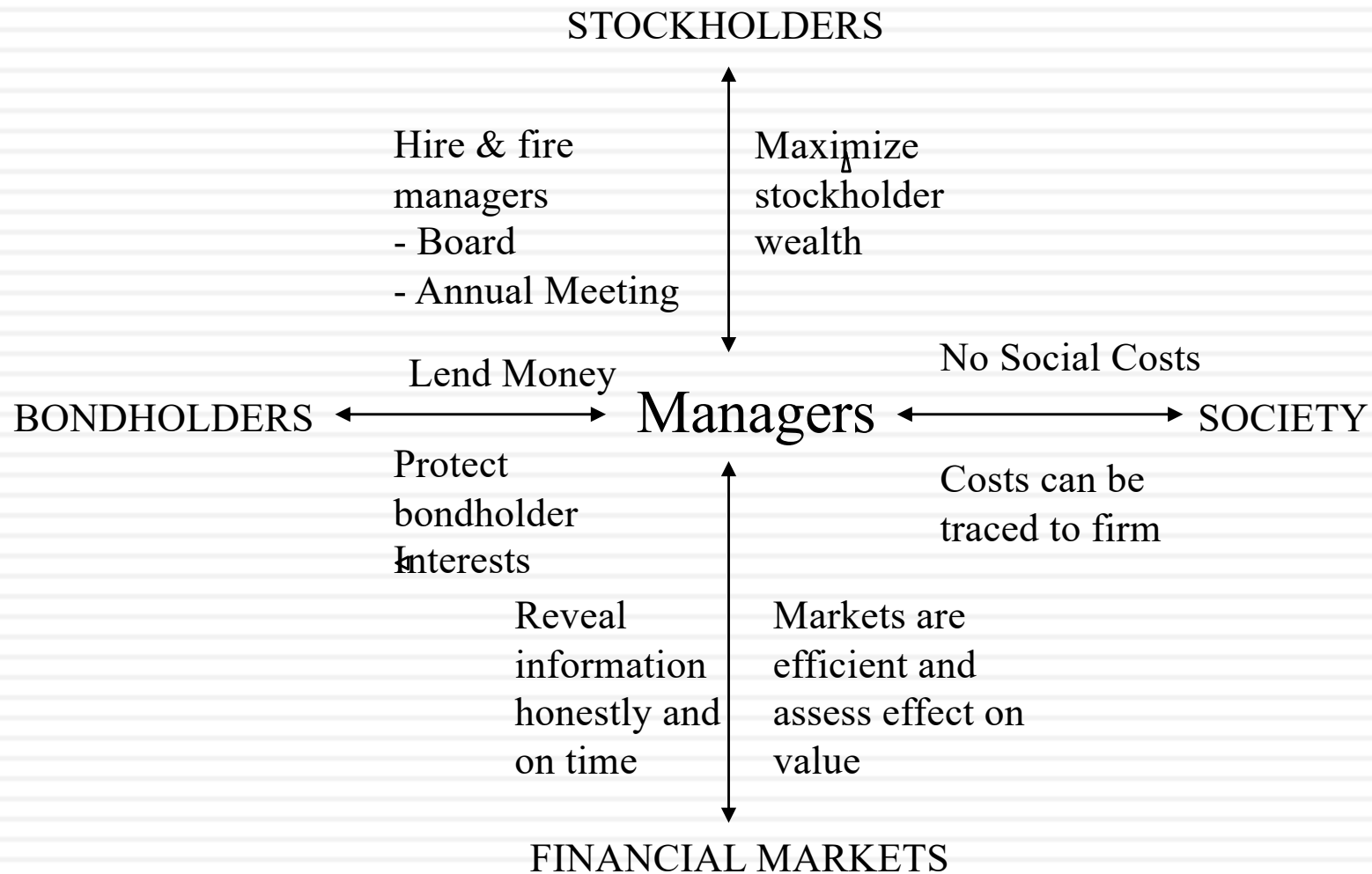
The Darwinian End Game: Winning companies dominate or monopolize their markets, exploiting customers, employees & society, while enriching their founders (and shareholders).

Real Choices or False Ones?

18

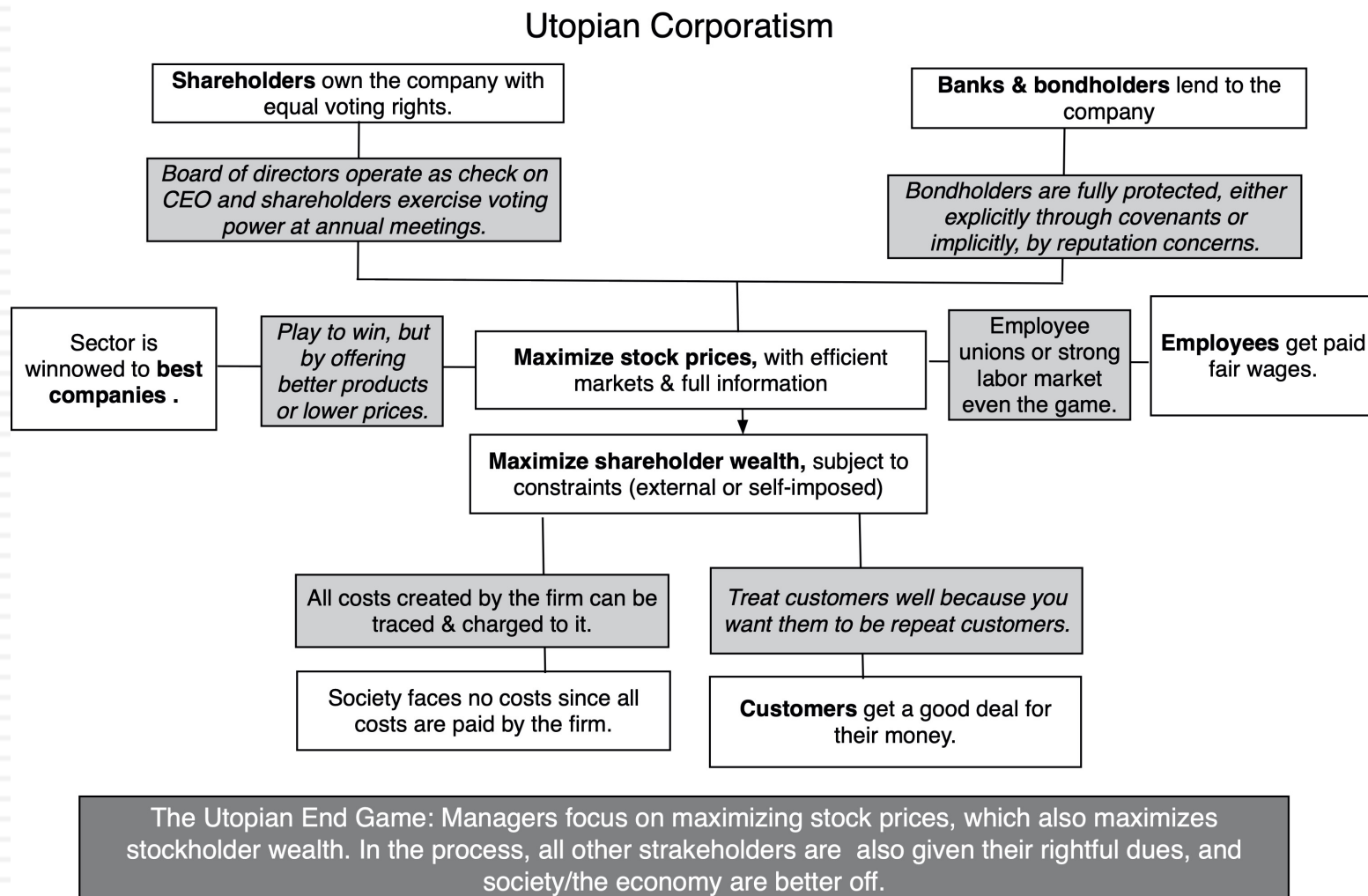
- Maximizing stock price is *not incompatible with meeting employee needs/objectives*. In particular:
 - ▣ Employees are often stockholders in many firms
 - ▣ Firms that maximize stock price generally are profitable firms that can afford to treat employees well.
- Maximizing stock price *does not mean that customers are not critical to success*. In most businesses, keeping customers happy is the route to stock price maximization.
- Maximizing stock price *does not imply that a company has to be a social outlaw*. Companies that consistently flout social norms will find themselves losing business and facing regulation/targeted taxes.

The Classical Objective Function



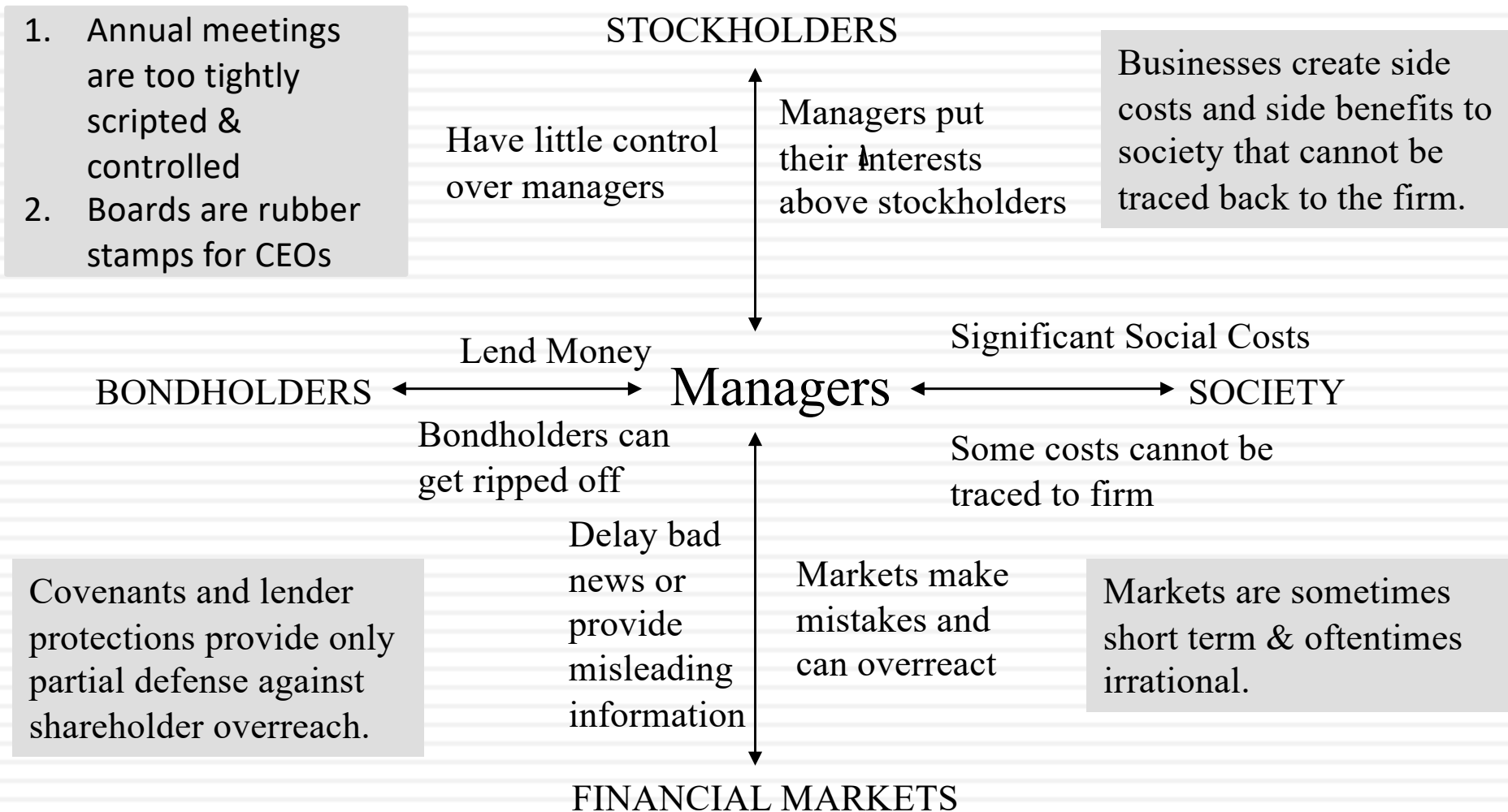
Utopian Corporatism

20



What can go wrong?

21



I. Stockholder Interests vs. Management Interests

22

- In theory: The stockholders have significant control over management. The two mechanisms for disciplining management are the annual meeting and the board of directors. Specifically, we assume that
 - ▣ Stockholders who are dissatisfied with managers can not only express their disapproval at the annual meeting, but can also use their voting power at the meeting to keep managers in check.
 - ▣ The board of directors plays its true role of representing stockholders and acting as a check on management.
- In Practice: Neither mechanism is as effective in disciplining management as theory posits.
 - A large percentage of shareholders do not go to annual meeting or exercise their proxies, and their votes become votes for incumbents.
 - The board of directors seems to be more focused on protecting top managers than shareholders.

The worst board ever? The Disney Experience - 1997

23

Reveta F. Bowers 1,5

Head of School
Center for Early Education

Roy E. Disney 3

Vice Chairman
The Walt Disney Company

Michael D. Eisner 3

Chairman and Chief Executive Officer
The Walt Disney Company

Stanley P. Gold 4,5

President and Chief Executive Officer
Shamrock Holdings, Inc.

Sanford M. Litvack

Senior Executive Vice President
and Chief of Corporate Operations
The Walt Disney Company

Ignacio E. Lozano, Jr. 1,2,4

Editor-in-Chief, LA OPINION

George J. Mitchell 5

Special Counsel
Verner, Liipfert, Bernard, McPherson
and Hand

Thomas S. Murphy

Former Chairman
Capital Cities/ABC, Inc.

Richard A. Nunis

Chairman
Walt Disney Attractions

Leo J. O'Donovan, S.J.

President
Georgetown University

Michael S. Ovitz 3

President
The Walt Disney Company

Sidney Poitier 2,4

Chief Executive Officer
Verdon-Cedric Productions

Irwin E. Russell 2,4

Attorney at Law

Robert A.M. Stern

Senior Partner Productions

E. Cardon Walker 1

Former Chairman and Chief Executive Officer
The Walt Disney Company

Raymond L. Watson 1,2,3

Vice Chairman
The Irvine Company

Gary L. Wilson 5

Co-Chairman
Northwest Airlines Corporation

1 Member of Audit Review Committee

2 Member of Compensation Committee

3 Member of Executive Committee

4 Member of Executive Performance Plan Committee

5 Member of Nominating Committee

Business Week piles on... The Worst Boards in 1997..

24

THE WORST BOARDS OF DIRECTORS											
BW RANK	OVERALL SCORE	SURVEY SCORE	ANALYSIS SCORE	DETAILS	BOARD PERFORMANCE POLL				GOVERNANCE GUIDELINE ANALYSIS		
					SHAREHOLDER ACCOUNTABILITY	BOARD QUALITY	BOARD INDEPENDENCE	CORPORATE PERFORMANCE	SHAREHOLDER ACCOUNTABILITY	BOARD QUALITY	BOARD INDEPENDENCE
1. DISNEY	10.3	1.8	8.5	Investors decry board for conflicts; many directors own little if any stock	3.3	4.3	2.0	5.8	-0.4	2.8	2.2
2. AT&T	10.9	-16.6	27.5	Investors scorn board for failing to control succession, not ousting CEO	3.0	4.2	3.5	2.8	2.0	5.2	7.4
3. H.J. HEINZ	15.4	-1.1	16.5	Longtime CEO dominates insider-filled board; resists investor calls for change	2.8	3.7	2.0	4.7	4.4	6.0	1.4
4. ARCHER DANIELS MIDLAND	16.8	-12.2	29.0	Board changes fail to satisfy investors, who say directors still lack independence	2.3	2.1	1.3	3.5	5.6	7.6	5.0
5. BOW JONES	21.1	1.6	19.5	Investors disenchanted with performance; weakest attendance record of any board	2.6	4.6	2.8	2.6	6.0	0.0	5.8
6. DILLARD'S	22.0	5.0	17.0	Board loaded with insiders; lacks an outsider with retail expertise or CEO	2.0	3.0	2.0	3.5	6.4	3.2	2.0
7. ROLLINS INTERNATIONAL	22.7	1.7	21.0	Board dominated by family members and insiders; lacks nominating panel	1.0	1.0	0.0	2.0	4.0	7.6	4.4
8. OCCIDENTAL PETROLEUM	24.0	-1.5	25.5	Investors outraged over \$95 million payout to CEO by cozy, aging board	1.3	2.0	1.1	2.0	2.8	6.0	5.8
9. OGDEN	27.2	4.2	23.0	Board has three consultants and a lawyer who do business with company	2.0	1.5	2.0	2.5	2.0	8.4	4.0
10. MAXXAM	28.3	4.3	24.5	Tiny board with little business experience dominated by CEO	1.5	2.0	1.0	3.5	3.6	2.0	6.0

Disney's Board of Directors in 2023



SUSAN E. ARNOLD
CHAIRMAN OF THE BOARD



MARY T. BARRA
DIRECTOR SINCE 2017



SAFRA A. CATZ
DIRECTOR SINCE 2018



AMY L. CHANG
DIRECTOR SINCE 2021



FRANCIS A. DESOUZA
DIRECTOR SINCE 2018



CAROLYN EVERSON
DIRECTOR SINCE 2022



**MICHAEL B.G.
FROMAN**
DIRECTOR SINCE 2018



ROBERT A. IGER
DIRECTOR SINCE 2022



**MARIA ELENA
LAGOMASINO**
DIRECTOR SINCE 2015



**CALVIN R.
MCDONALD**
DIRECTOR SINCE 2021



MARK G. PARKER
DIRECTOR SINCE 2016



DERICA W. RICE
DIRECTOR SINCE 2019

Application Test: Who's on board?

26

- Look at the board of directors for your firm.
 - How many of the directors are inside directors (Employees of the firm, ex-managers)?
 - Is there any information on how independent the directors in the firm are from the managers?
- Are there any external measures of the quality of corporate governance of your firm?
 - Yahoo! Finance now reports on a corporate governance score for firms, where it ranks firms against the rest of the market and against their sectors.
- Is there tangible evidence that your board acts independently of management?
 - Check news stories to see if there are actions that the CEO has wanted to take that the board has stopped him or her from taking or at least slowed him or her down.

So, what next? When the cat is idle, the mice will play

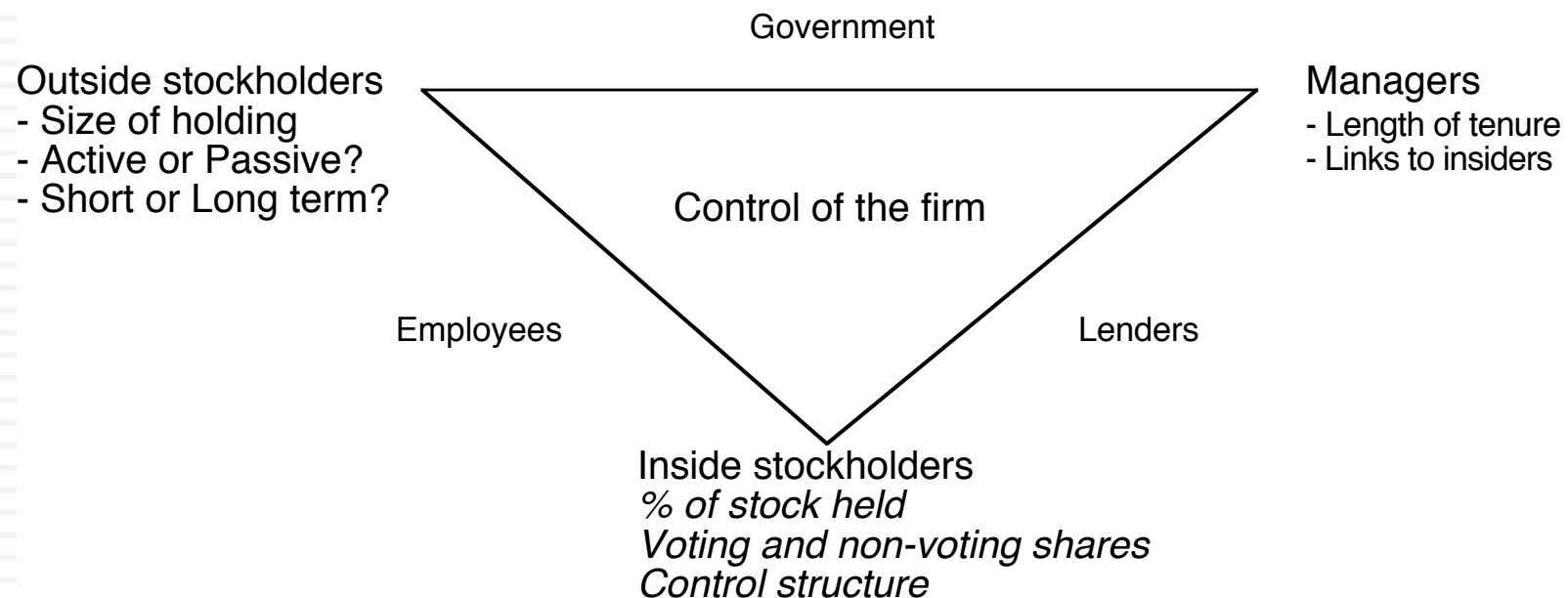
27

- When managers do not fear stockholders, they will often put their interests over stockholder interests
 - **Greenmail:** The (managers of) target of a hostile takeover buy out the potential acquirer's existing stake, at a price much greater than the price paid by the raider, in return for the signing of a 'standstill' agreement.
 - **Golden Parachutes:** Provisions in employment contracts, that allows for the payment of a lump-sum or cash flows over a period, if managers covered by these contracts lose their jobs in a takeover.
 - **Poison Pills:** A security, the rights or cashflows on which are triggered by an outside event, generally a hostile takeover, is called a poison pill.
 - **Shark Repellents:** Anti-takeover amendments are also aimed at dissuading hostile takeovers but differ on one very important count. They require the assent of stockholders to be instituted.
 - **Overpaying on takeovers:** Acquisitions often are driven by management interests rather than stockholder interests.

No stockholder approval needed..... Stockholder Approval needed

Application Test: Who owns/runs your firm?

- Who are the top stockholders in your firm?
- What are the potential conflicts of interests that you see emerging from this stockholding structure?



Case 1: Splintering of Stockholders

Disney's top stockholders in 2003

<HELP> for explanation.
Enter #<GO> to select aggregate portfolio and see detailed information

dgp Equity HDS

001189658224-000 **HOLDINGS SEARCH** CUSIP 25468710
DIS US DISNEY (WALT) CO Page 1 / 100

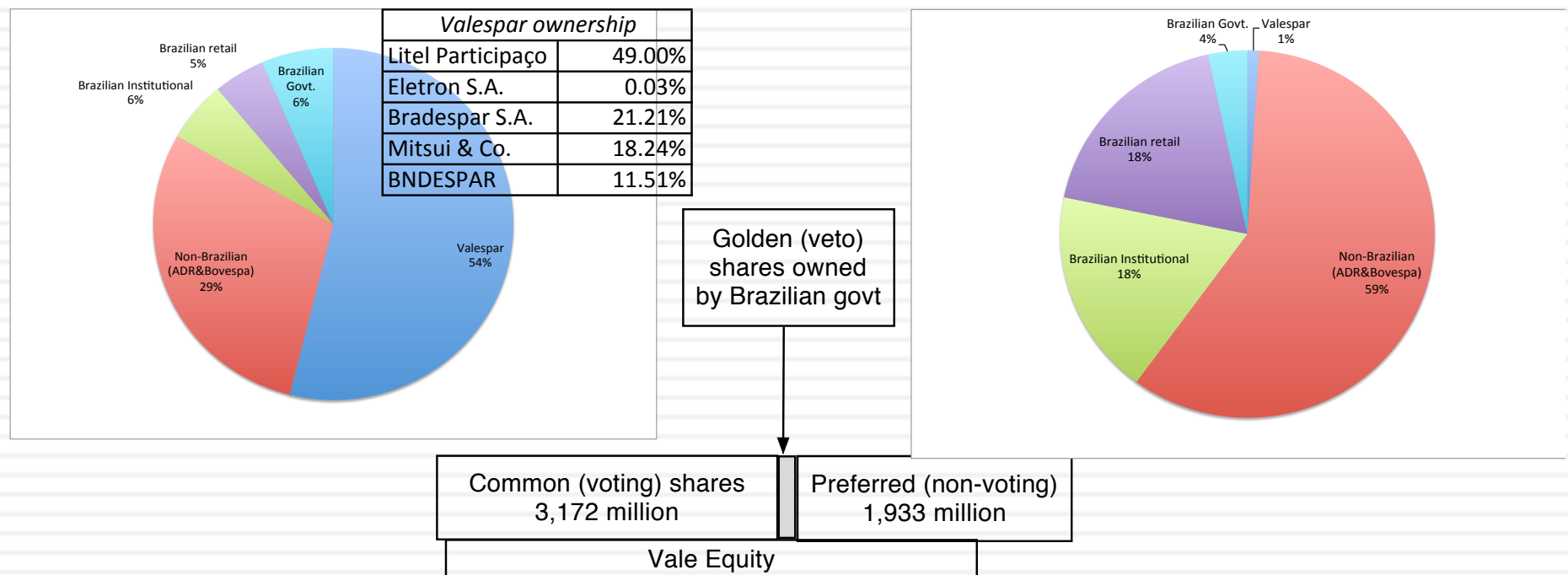
Holder name	Portfolio Name	Source	Held	Outstd	Percent	Latest Filing
1BARCLAYS GLOBAL	BARCLAYS BANK PLC	13F	83,630M	4.095	1,750M	09/02
2CITIGROUP INC	CITIGROUP INCORPORAT	13F	62,857M	3.078	4,811M	09/02
3FIDELITY MANAGEM	FIDELITY MANAGEMENT	13F	56,125M	2.748	5,992M	09/02
4STATE STREET	STATE STREET CORPORA	13F	54,635M	2.675	2,239M	09/02
5SOUTHEASTERN ASST	SOUTHEASTERN ASSET M	13F	47,333M	2.318	14,604M	09/02
6ST FARM MU AUTO	STATE FARM MUTUAL AU	13F	41,938M	2.054	120,599	09/02
7VANGUARD GROUP	VANGUARD GROUP INC	13F	34,721M	1.700	-83,839	09/02
8MELLON BANK N A	MELLON BANK CORP	13F	32,693M	1.601	957,489	09/02
9PUTNAM INVEST	PUTNAM INVESTMENT MA	13F	28,153M	1.379	-11,468M	09/02
10LORD ABBETT & CO	LORD ABBETT & CO	13F	24,541M	1.202	5,385M	09/02
11MONTAG CALDWELL	MONTAG & CALDWELL IN	13F	24,466M	1.198	-11,373M	09/02
12DEUTSCHE BANK AK	DEUTSCHE BANK AG	13F	23,239M	1.138	-5,002M	09/02
13MORGAN STANLEY	MORGAN STANLEY	13F	19,655M	0.962	3,482M	09/02
14PRICE T ROWE	T ROWE PRICE ASSOCIA	13F	19,133M	0.937	2,925M	09/02
15ROY EDWARD DISNE	n/a	PROXY	17,547M	0.859	-126,710	12/01
16AXA FINANCIAL	ALLIANCE CAPITAL MAN	13F	14,283M	0.699	69,353	09/02
17JP MORGAN CHASE	JP MORGAN CHASE & CO	13F	14,209M	0.696	-462,791	09/02
Sub-totals for current page:			599,159M	29.340		

* Honey market directory info available. Select portfolio, then hit IP<GO>.

Australia 61 2 8777 8400 Brazil 55 11 2048 4500 Europe 44 20 7339 7300 Germany 49 69 928410
 Hong Kong 852 2377 6900 Japan 81 3 3281 8900 Singapore 65 212 1800 U.S. 1 212 318 2000 Copyright 2002 Bloomberg L.P.
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Bloomberg
PROFESSIONAL

Case 2: Voting versus Non-voting Shares & Golden Shares: Vale



Vale has eleven members on its board of directors, ten of whom were nominated by Valespar and the board was chaired by Don Conrado, the CEO of Valepar.

Case 3: Cross and Pyramid Holdings

Tata Motor's top stockholders in 2013

TTMT IN Equity

25) Settings

99) Feedback

Holdings: Current

Tata Motors Ltd

ISIN INE155A01022

1) Current

2) Historical

3) Matrix

4) Ownership

5) Transactions

6) Options

Search Name --

21) Save

22) Delete

3) Saved Search

24) Refine Search

Text Search

Holder Group

All Holders

20) Export

Holder Name	Portfolio Name	Source	Opt	Amt Held	% Out	Latest Chg	File Dt
		All Sources	All				
1. TATA SONS LTD	n/a	Co File		702,333,345	26.07	0	09/30/13
2. CITIBANK NA	n/a	20F		446,246,135	16.56	0	06/30/12
3. LIFE INSURANCE CORP OF I	n/a	Co File		168,754,477	6.26	-119,728,333	09/30/13
4. TATA STEEL LTD	n/a	Co File		147,810,695	5.49	0	09/30/13
5. CAPITAL GROUP COMPANIES	n/a	ULT-AGG		97,689,911	3.63	-877,871	09/30/13
6. TATA INDUSTPIES LTD	n/a	Co File		68,436,485	2.54	0	09/30/13
7. VANGUARD GROUP INC	n/a	ULT-AGG		41,285,983	1.53	4,535,434	09/30/13
8. PRUDENTIAL PLC	n/a	ULT-AGG		34,080,063	1.26	147,814	09/30/13
9. GIC PRIVATE LIMITED	n/a	ULT-AGG		30,428,428	1.13	0	09/30/13
10. WILLIAM BLAIR & COMPANY	WILLIAM BLAIR & COMP	13F		30,093,943	1.12	3,997,149	06/30/13
11. JPMORGAN CHASE & CO	n/a	ULT-AGG		24,918,852	0.92	-2,157,750	08/31/13
12. SCHRODER INVESTMENT MGM	Multiple Portfolios	MF-AGG		19,136,665	0.71	2,578,904	06/30/13
13. BLACKROCK	n/a	ULT-AGG		14,100,725	0.52	-265,173	10/31/13
14. NORGES BANK	Multiple Portfolios	MF-AGG		10,762,579	0.40	0	12/31/12
15. T ROWE PRICE ASSOCIATES	Multiple Portfolios	MF-AGG		10,056,366	0.37	324,353	09/30/13
16. TATA INVESTMENT CORP LTD	n/a	Co File		10,025,000	0.37	0	09/30/13
17. SBI LIFE INSURANCE CO LTD	Multiple Portfolios	MF-AGG		9,256,170	0.34	-151,323	09/30/13
18. ALLIANZ ASSET MANAGEMENT	n/a	ULT-AGG		8,129,923	0.30	2,071,551	09/30/13

% Out 76.19

Zoom

100%

Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 9204 1210 Hong Kong 852 2977 6000

Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000

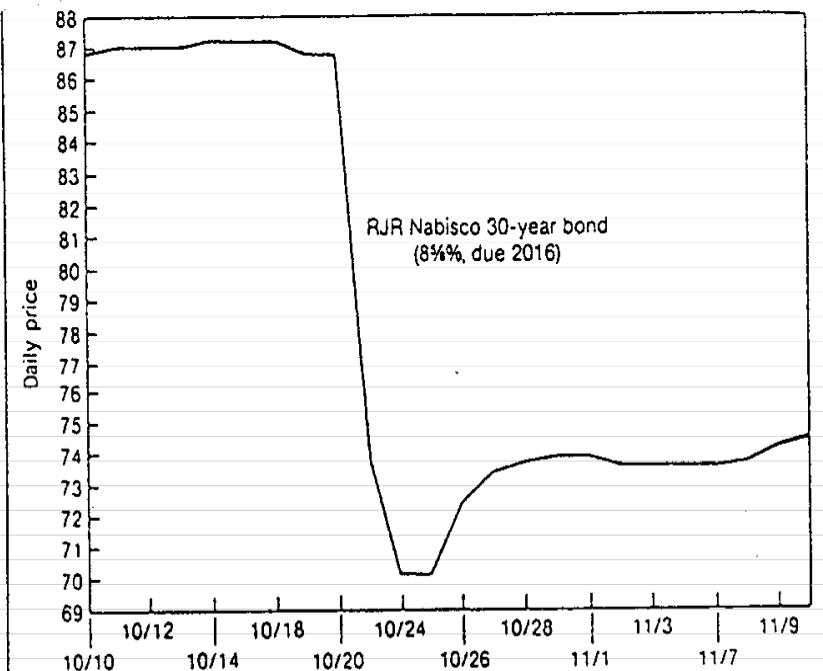
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II. Stockholders' objectives vs. Bondholders' objectives

- *In theory:* there is no conflict of interests between stockholders and bondholders.
- *In practice:* Stockholder and bondholders have different objectives, with the former focused on upside, and the latter on downside.

RJR Nabisco's Bonds Sink Following Announcement of the Leveraged Buyout



III. Firms and Financial Markets

33

- In theory: Financial markets are efficient. Managers convey information honestly and in a timely manner to financial markets, and financial markets make reasoned judgments of the effects of this information on 'true value'. As a consequence-
 - ▣ A company that invests in good long-term projects will be rewarded.
 - ▣ Short term accounting gimmicks will not lead to increases in market value.
 - ▣ Stock price performance is a good measure of company performance.
- In practice: There are some holes in the 'Efficient Markets' assumption.

Managers control the release of information to the general public

34

- Information management (timing and spin): Information (especially negative) is sometimes suppressed or delayed by managers seeking a better time to release it. When the information is released, firms find ways to “spin” or “frame” it to put themselves in the best possible light.
- Outright fraud: In some cases, firms release intentionally misleading information about their current conditions and future prospects to financial markets.

Some critiques of market efficiency..

35

- Investor irrationality: The base argument is that investors are irrational, and prices often move for no reason at all. Consequently, prices are much more volatile than justified by the underlying fundamentals. Earnings and dividends are much less volatile than stock prices.
- Manifestations of irrationality
 - Reaction to news: Some believe that investors overreact to news, both good and bad. Others believe that investors sometimes under react to big news stories.
 - An insider conspiracy: Financial markets are manipulated by insiders; Prices do not have any relationship to value.
 - Short termism: Investors are short-sighted, and do not consider the long-term implications of actions taken by the firm

IV. Firms and Society

36

- In theory: All costs and benefits associated with a firm's decisions can be traced back to the firm.
- In practice: Financial decisions can create social costs and benefits.
 - A social cost or benefit is a cost or benefit that accrues to society as a whole and not to the firm making the decision.
 - Environmental costs (pollution, health costs, etc..)
 - Quality of Life' costs (traffic, housing, safety, etc.)
 - Examples of social benefits include:
 - creating employment in areas with high unemployment
 - supporting development in inner cities
 - creating access to goods in areas where such access does not exist

When traditional corporate financial theory breaks down, the solution is:

37

- To choose a different mechanism for corporate governance, i.e, assign the responsibility for monitoring managers to someone other than stockholders.
- To choose a different objective for the firm.
- To maximize stock price, but reduce the potential for conflict and breakdown:
 - ▣ Making managers (decision makers) and employees into stockholders
 - ▣ Protect lenders from expropriation
 - ▣ By providing information honestly and promptly to financial markets
 - ▣ Minimize social costs

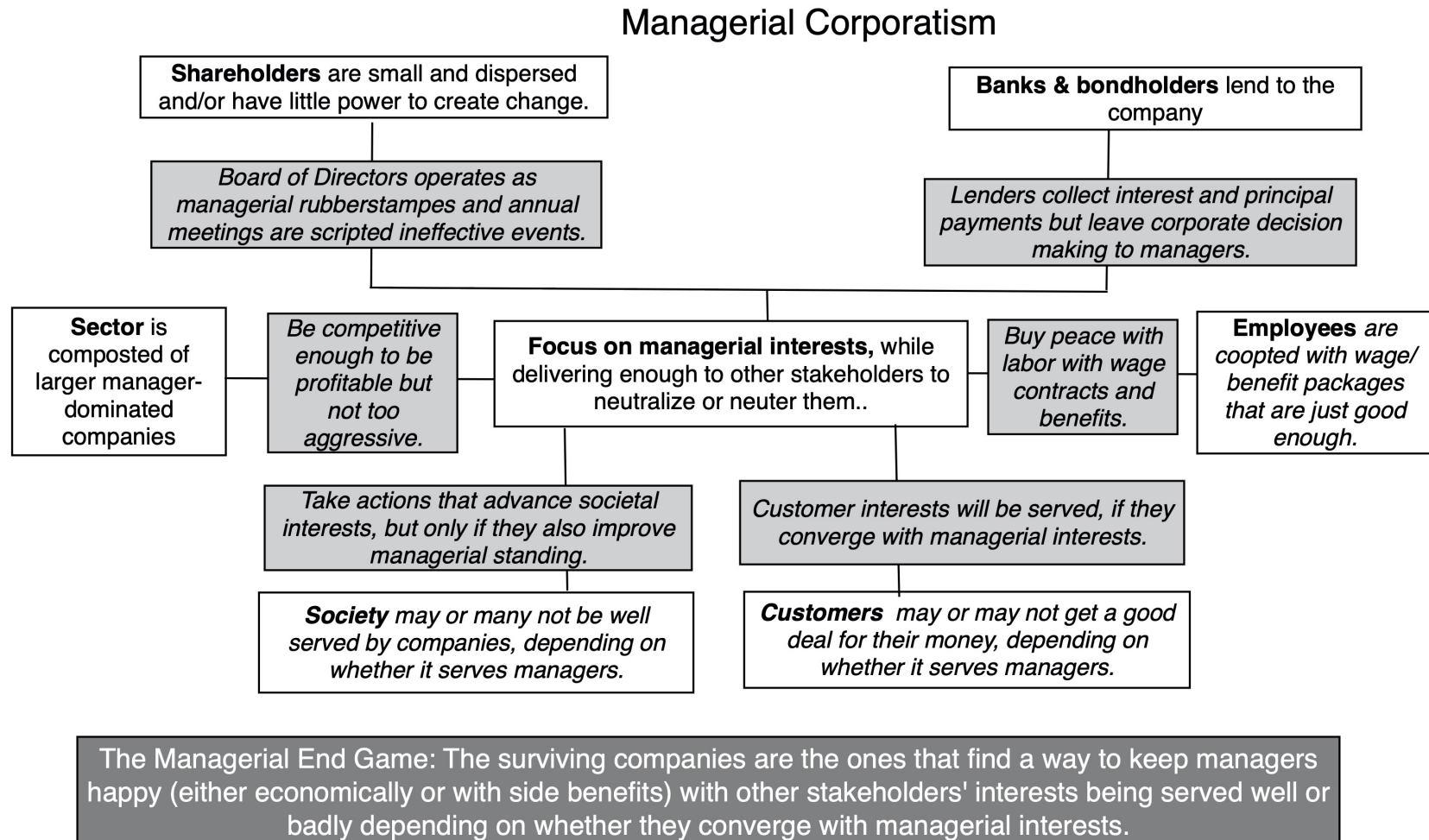
I. An Alternative Corporate Governance System

38

- Germany and Japan developed a different mechanism for corporate governance, based upon corporate cross holdings.
 - ▣ In Germany, the banks form the core of this system.
 - ▣ In Japan, it is the keiretsus
 - ▣ Other Asian countries have modeled their system after Japan, with family companies forming the core of the new corporate families
- At their best, the most efficient firms in the group work at bringing the less efficient firms up to par. They provide a corporate welfare system that makes for a more stable corporate structure
- At their worst, the least efficient and poorly run firms in the group pull down the most efficient and best run firms down. The nature of the cross holdings makes it very difficult for outsiders (including investors in these firms) to figure out how well or badly the group is doing.

One End game: Managerial Corporatism

39



Ila. Choose a Different Metric to Maximize

40

- Firms can always focus on a different objective function. Examples would include
 - ▣ maximizing earnings
 - ▣ maximizing revenues
 - ▣ maximizing firm size
 - ▣ maximizing market share
 - ▣ maximizing EVA
- The key thing to remember is that these are intermediate objective functions.
 - ▣ To the degree that they are correlated with the long-term health and value of the company, they work well.
 - ▣ To the degree that they do not, the firm can end up with a disaster

Iib. Maximize stakeholder wealth

41

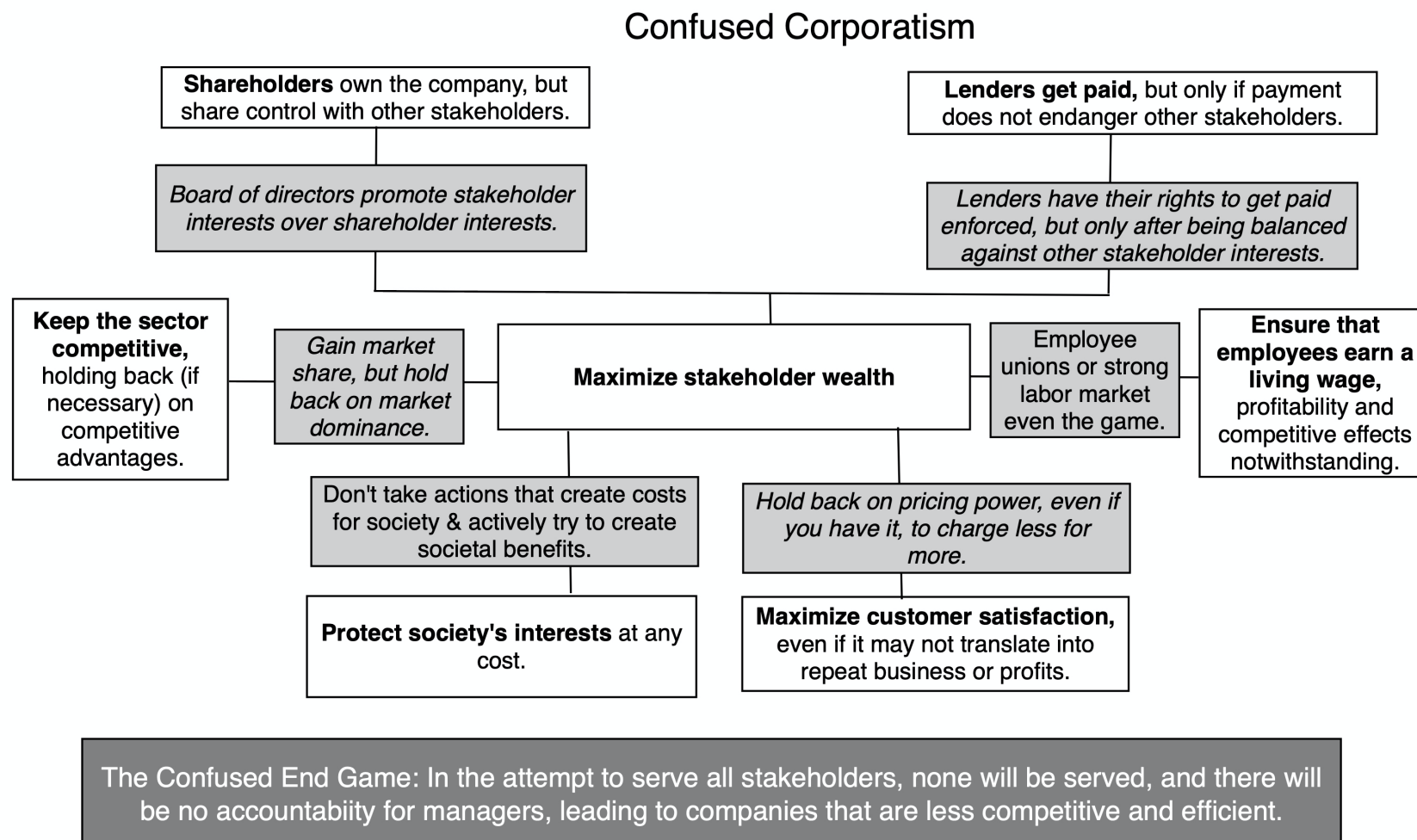
- A fairness argument: To the extent that shareholder wealth maximization seems to, at least at first sight, put all other stakeholders in the back seat, it seems unfair.
- An Easy Fix? The logical response seems to be stakeholder wealth maximization, where the collective wealth of all stakeholders is maximized. That is the promise of stakeholder wealth maximization.
- Protective response: As corporations have found themselves losing the battle for public opinions, many CEOs and even some institutional investors seem to have bought into this idea.

The Business Roundtable's Message..

- *While each of our individual companies serves its own corporate purpose, we share a **fundamental commitment to all of our stakeholders**. We commit to:*
 - ▣ ***Delivering value to our customers.** We will further the tradition of American companies leading the way in meeting or exceeding customer expectations.*
 - ▣ ***Investing in our employees.** This starts with compensating them fairly and providing important benefits. It also includes supporting them through training and education that help develop new skills for a rapidly changing world. We foster diversity and inclusion, dignity and respect.*
 - ▣ ***Dealing fairly and ethically with our suppliers.** We are dedicated to serving as good partners to the other companies, large and small, that help us meet our missions.*
 - ▣ ***Supporting the communities in which we work.** We respect the people in our communities and protect the environment by embracing sustainable practices across our businesses.*
 - ▣ ***Generating long-term value for shareholders,** who provide the capital that allows companies to invest, grow and innovate. We are committed to transparency and effective engagement with shareholders*

Confused Corporatism

43



IIc. The ESG Promises: Measurable and cake for all, with no calories!

- It is measurable: Much as ESG advocates try to claim it is not about scores, it is undeniable that its growth in use has come from the scoring.
- It is good for value: For companies, the promise is that being "good" will generate higher profits for the company, at least in the long term, with lower risk, and thus make them more valuable.
- It is good for investors: For investors in these companies, the promise is that investing in "good" companies will generate higher returns than investing in "bad" or middling companies.
- It is good for society: For society, the promise is that not only would good companies help fight problems directly related to ESG, like climate change and low wages, but also counter more general problems like income inequality and healthcare crises.

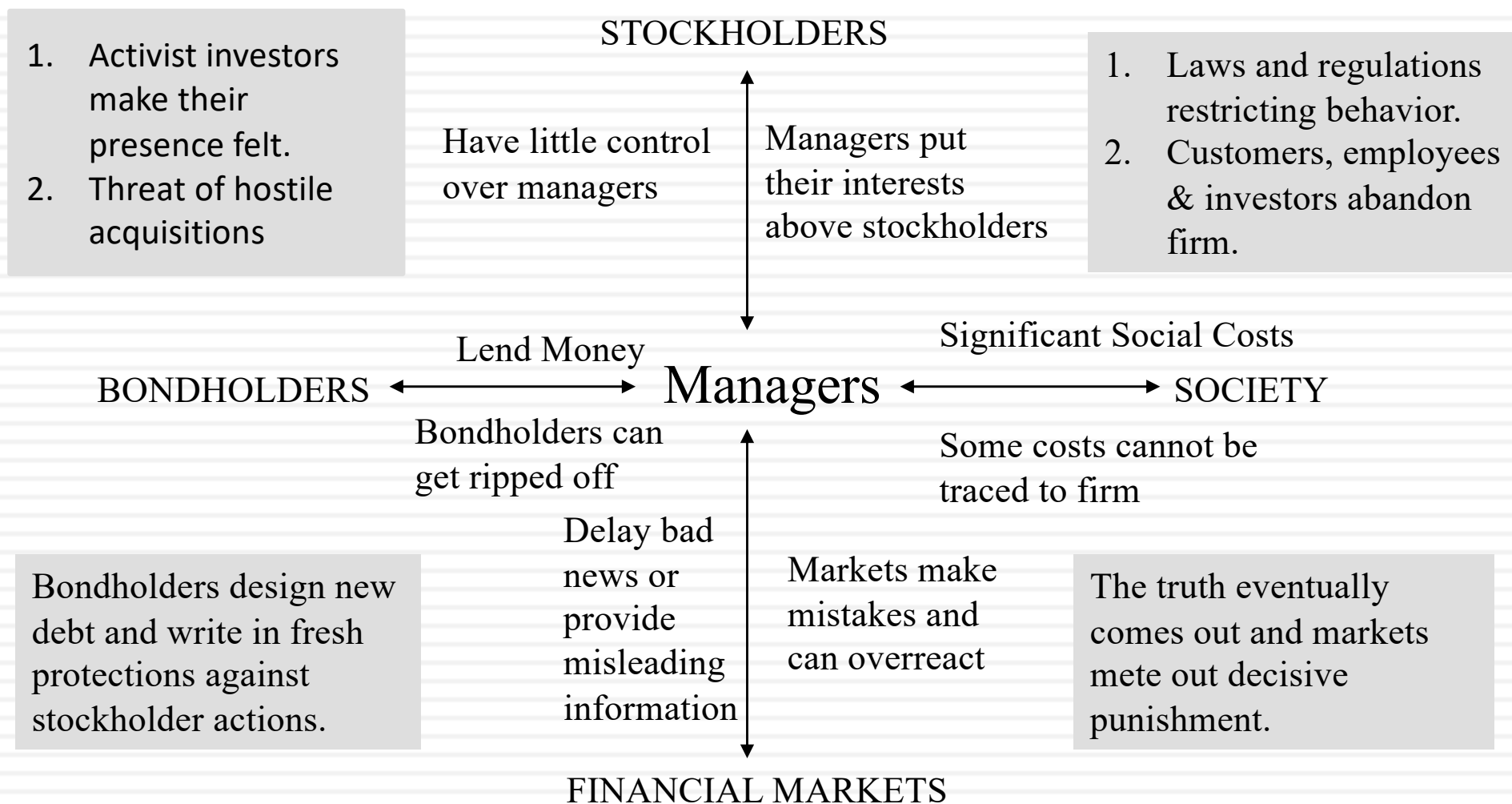
III. Maximize Stock Price, subject to ..

45

- The strength of the stock price maximization objective function is its internal self correction mechanism. Excesses on any of the linkages lead, if unregulated, to counter actions which reduce or eliminate these excesses
- In the context of our discussion,
 - managers taking advantage of stockholders can lead to a much more active market for corporate control.
 - stockholders taking advantage of bondholders can lead to bondholders and lenders protecting themselves better.
 - firms revealing incorrect or delayed information to markets can lead to markets becoming more “skeptical” and “punitive”
 - firms creating social costs can lead to more regulations, as well as investor and customer backlashes.

Market Discipline as Self-correction

46



Disney: Eisner's rise & fall from grace

- In his early years at Disney, Michael Eisner brought about long-delayed changes in the company and put it on the path to being an entertainment giant that it is today. His success allowed him to consolidate power and the boards that he created were increasingly captive ones.
- In 1996, Eisner spearheaded the push to buy ABC and the board rubberstamped his decision, as they had with other major decisions.
 - In the years following, the company ran into problems both on its ABC acquisition and on its other operations and stockholders started to get restive, especially as the stock price halved between 1998 and 2002.
 - In 2003, Roy Disney and Stanley Gold resigned from the Disney board, arguing against Eisner's autocratic style.
- In early 2004, Comcast made a hostile bid for Disney and later in the year, 43% of Disney shareholders withheld their votes for Eisner's reelection to the board of directors. Following that vote, the board of directors at Disney voted unanimously to elect George Mitchell as the Chair of the board, replacing Eisner, who vowed to stay on as CEO.

Eisner's exit... Iger's entry and a new age dawns?

48

A New CEO



A Better Board?

<i>Board Members</i>	<i>Occupation</i>
John E. Pepper, Jr. (Chairman)	Retired Chairman and CEO, Procter & Gamble Co.
Susan E. Arnold	President, Global Business Units, Procter & Gamble Co.
John E. Bryson	Retired Chairman and CEO, Edison International
John S. Chen	Chairman, CEO & President, Sybase, Inc.
Judith L. Estrin	CEO, JLab, LLC.
Robert A. Iger	CEO, Disney
Steven P. Jobs	CEO, Apple
Fred Langhammer	Chairman, Global Affairs, The Estee Lauder Companies
Aylwin B. Lewis	President and CEO, Potbelly Sandwich Works
Monica Lozano	Publisher and CEO, La Opinion
Robert W. Matschullat	Retired Vice Chairman and CFO, The Seagram Co.
Orin C. Smith	Retired President and CEO, Starbucks Corporation

And a plan for transition..

In 2011, Iger announced his intent to step down as CEO in 2015 to allow a successor to be groomed.

Iger's non-exit, the domino effect and a resolution?

49

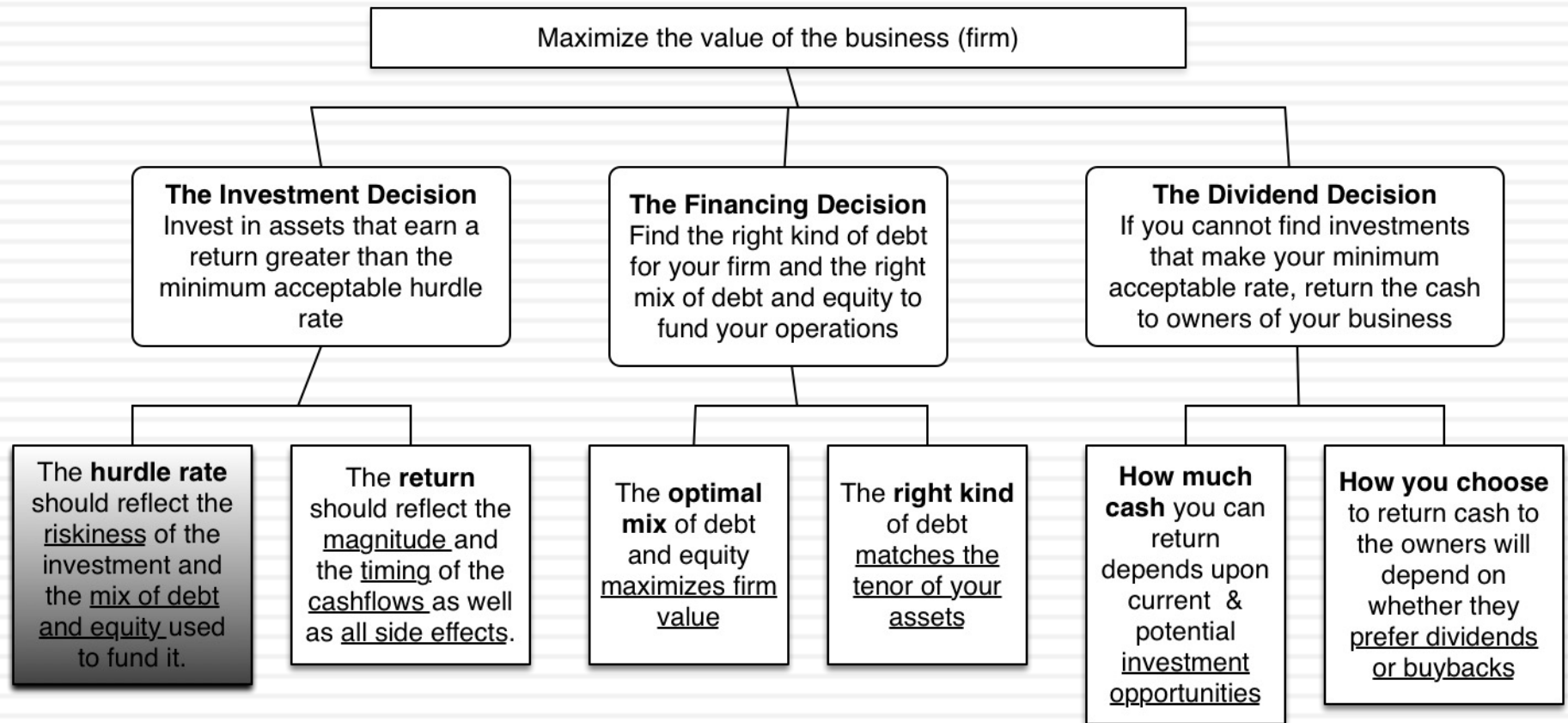
- In 2015 but Disney's board convinced Iger to stay on as CEO for an extra year, for the “the good of the company”.
 - In 2016, Thomas Staggs who was considered heir apparent to Iger left Disney. Others considered potential CEOs also left.
 - In 2017, Disney acquired Fox and announced that Iger's term would be extended to 2019 (and perhaps beyond) because his stewardship was essential for the merger to work.
- In February 2020, Iger stepped down as CEO (but stayed on as Exec Chair until Dec 2021), and Bob Chapek, head of Disney Theme Parks, took his place. Disney's stock price dropped about 8% in the immediate aftermath.
- In 2022, Iger returned as CEO, and Chapek left, with no clear indication of what happens next.



The Investment Principle I: Hurdle Rates

First Principles

51



What is Risk?

- Risk, in traditional terms, is viewed as a ‘negative’. Webster’s dictionary, for instance, defines risk as “exposing to danger or hazard”. The Chinese symbols for risk, reproduced below, give a much better description of risk:

危險

- The first symbol is the symbol for “danger”, while the second is the symbol for “opportunity”, making risk a mix of danger and opportunity. You cannot have one, without the other.

Risk, from many places..

- Estimation versus Economic uncertainty
 - ▣ Estimation uncertainty reflects the possibility that you could have the “wrong model” or estimated inputs incorrectly within this model.
 - ▣ Economic uncertainty comes from the fact that markets and economies can change over time and that even the best models will fail to capture these unexpected changes.
- Micro uncertainty versus Macro uncertainty
 - ▣ Micro uncertainty refers to uncertainty about the potential market for a firm’s products, the competition it will face and the quality of its management team.
 - ▣ Macro uncertainty reflects the reality that your firm’s fortunes can be affected by changes in the macro economic environment.
- Discrete versus continuous uncertainty
 - ▣ Discrete risk: Risks that lie dormant for periods but show up at points in time. (Examples: A drug working its way through the FDA pipeline may fail at some stage of the approval process or a company in Venezuela may be nationalized)
 - ▣ Continuous risk: Risks changes in interest rates or economic growth occur continuously and affect value as they happen.

A good risk and return model should...

54

1. It should come up with a measure of risk that applies to all assets and not be asset-specific.
2. It should clearly delineate what types of risk are rewarded and what are not, and provide a rationale for the delineation.
3. It should come up with standardized risk measures, i.e., an investor presented with a risk measure for an individual asset should be able to draw conclusions about whether the asset is above-average or below-average risk.
4. It should translate the measure of risk into a rate of return that the investor should demand as compensation for bearing the risk.
5. It should work well not only at explaining past returns, but also in predicting future expected returns.

The Capital Asset Pricing Model

55

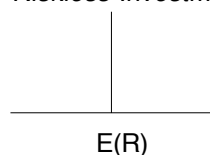
1. Uses variance of actual returns around an expected return as a measure of risk.
2. Specifies that a portion of variance can be diversified away, and that is only the non-diversifiable portion that is rewarded.
3. Measures the non-diversifiable risk with beta, which is standardized around one.
4. Translates beta into expected return -
$$\text{Expected Return} = \text{Riskfree rate} + \text{Beta} * \text{Risk Premium}$$
5. Works as well as the next best alternative in most cases.

Risk and Discount Rates: The Models

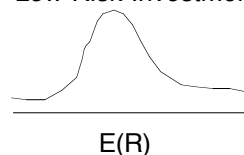
Step 1: Defining Risk

The risk in an investment can be measured by the variance in actual returns around an expected return

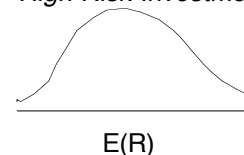
Riskless Investment



Low Risk Investment



High Risk Investment



Step 2: Differentiating between Rewarded and Unrewarded Risk

Risk that is specific to investment (Firm Specific)

- Can be diversified away in a diversified portfolio
- 1. each investment is a small proportion of portfolio
- 2. risk averages out across investments in portfolio

Risk that affects all investments (Market Risk)

- Cannot be diversified away since most assets are affected by it.

The marginal investor is assumed to hold a “diversified” portfolio. Thus, only market risk will be rewarded and priced.

Step 3: Measuring Market Risk

The CAPM	The APM	Multi-Factor Models	Proxy Models
If there is 1. no private information 2. no transactions cost the optimal diversified portfolio includes every traded asset. Everyone will hold this <u>market portfolio</u> Market Risk = Risk added by any investment to the market portfolio:	If there are no arbitrage opportunities then the market risk of any asset must be captured by betas relative to factors that affect all investments. Market Risk = Risk exposures of any asset to market factors	Since market risk affects most or all investments, it must come from macro economic factors. Market Risk = Risk exposures of any asset to macro economic factors.	In an efficient market, differences in returns across long periods must be due to market risk differences. Looking for variables correlated with returns should then give us proxies for this risk. Market Risk = Captured by the Proxy Variable(s)
Beta of asset relative to Market portfolio (from a regression)	Betas of asset relative to unspecified market factors (from a factor analysis)	Betas of assets relative to specified macro economic factors (from a regression)	Equation relating returns to proxy variables (from a regression)

Application Test: Who is the marginal investor in your firm?

57

- Looking at the breakdown of stockholders in your firm, consider whether the marginal investor is
 - ▣ An institutional investor
 - ▣ An individual investor
 - ▣ An insider
- Follow up by evaluating whether the marginal investor is likely to be diversified.
 - ▣ If yes, you are on safer ground using the risk and return models
 - ▣ If no, you will have to adapt your risk measure to bring in some or all of the company-specific risk that you were ignoring.

Gauging the marginal investor: Disney in 2013

DIS US Equity 25) Settings 99) Feedback Holdings: Current
Walt Disney Co/The CUSIP 25468710

1) Current 2) Historical 3) Matrix 4) Ownership 5) Transactions 6) Options
Search Name -- 21) Save 22) Delete 3) Saved Search 24) Refine Search
Text Search Holder Group All Holders 20) Export

Holder Name	Portfolio Name	Source	Opt	Amt Held	% Out	Latest Chg	File Dt
1. LAURENE POWELL JOBS TRU	n/a	PROXY	All Sources	130,844,544	7.32	0	01/07/13
2. BLACKROCK	n/a	ULT-AGG	All	93,837,994	5.25	-494,298	09/24/13
3. VANGUARD GROUP INC	n/a	ULT-AGG		80,163,479	4.49	1,183,628	06/30/13
4. STATE STREET CORP	n/a	ULT-AGG		77,799,514	4.35	2,893,171	09/24/13
5. CAPITAL GROUP COMPANIES	n/a	ULT-AGG		62,014,410	3.47	36,689,294	06/30/13
6. FMR LLC	n/a	ULT-AGG		59,453,225	3.33	-1,495,596	06/30/13
7. SUN LIFE FINANCIAL INC	n/a	ULT-AGG		55,699,112	3.12	-1,422,694	06/30/13
8. STATE FARM MUTUAL AUTO I	STATE FARM MUTUAL AU	13F		42,206,018	2.36	0	06/30/13
9. LUCAS JR GEORGE W	n/a	Co File		37,076,679	2.08	0	02/06/13
10. BANK OF NEW YORK MELLON	BANK OF NEW YORK MEL	13F		30,293,150	1.70	-127,337	06/30/13
11. NORTHERN TRUST CORPORAT	NORTHERN TRUST CORP	13F		28,465,082	1.59	224,418	06/30/13
12. T ROWE PRICE ASSOCIATES	T ROWE PRICE ASSOCIA	13F		25,834,722	1.45	-3,332,832	06/30/13
13. WELLINGTON MANAGEMENT C	WELLINGTON MANAGEME	13F		24,292,691	1.36	-4,191,722	06/30/13
14. JENNISON ASSOCIATES LLC	JENNISON ASSOCIATES	13F		16,644,863	0.93	2,408,938	06/30/13
15. JP MORGAN	n/a	ULT-AGG		15,073,679	0.84	1,496,290	06/30/13
16. NORGES BANK	NORGES BANK	13F		14,991,213	0.84	0	12/31/12
17. DAVIS SELECTED ADVISERS L	DAVIS SELECTED ADVISE	13F		12,938,299	0.72	-2,546,616	06/30/13
18. GEODE CAPITAL MANAGEMEN	GEODE CAPITAL MANAGE	13F		12,441,353	0.70	233,702	06/30/13

Loading % Out 79.75 Zoom 100%

Inputs required to use the CAPM -

- The capital asset pricing model yields the following expected return:
 - ▣ Expected Return = Riskfree Rate + Beta * (Expected Return on the Market Portfolio - Riskfree Rate)
- To use the model we need three inputs:
 - a. The current risk-free rate
 - b. The expected market risk premium (the premium expected for investing in risky assets (market portfolio) over the riskless asset)
 - c. The beta of the asset being analyzed.

I. A Riskfree Rate

60

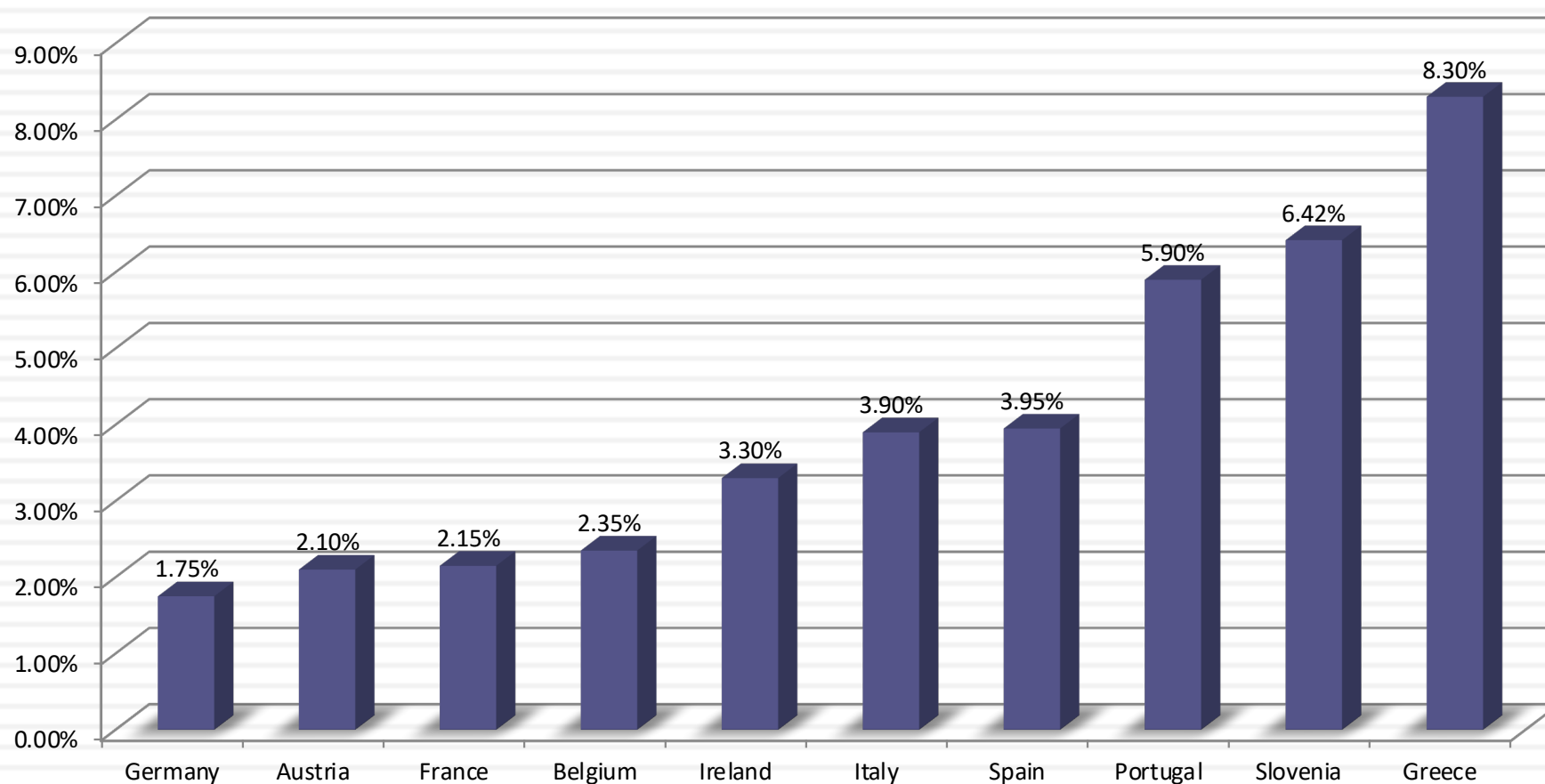
- On a riskfree asset, the actual return is equal to the expected return. Therefore, there is no variance around the expected return.
- For an investment to be riskfree, then, it has to have
 - ▣ No default risk
 - ▣ No reinvestment risk
- 1. Time horizon matters: Thus, the riskfree rates in valuation will depend upon when the cash flow is expected to occur and will vary across time.
- 2. Not all government securities are riskfree: Some governments face default risk and the rates on bonds issued by them will not be riskfree.

The Bottom Line on Riskfree Rates

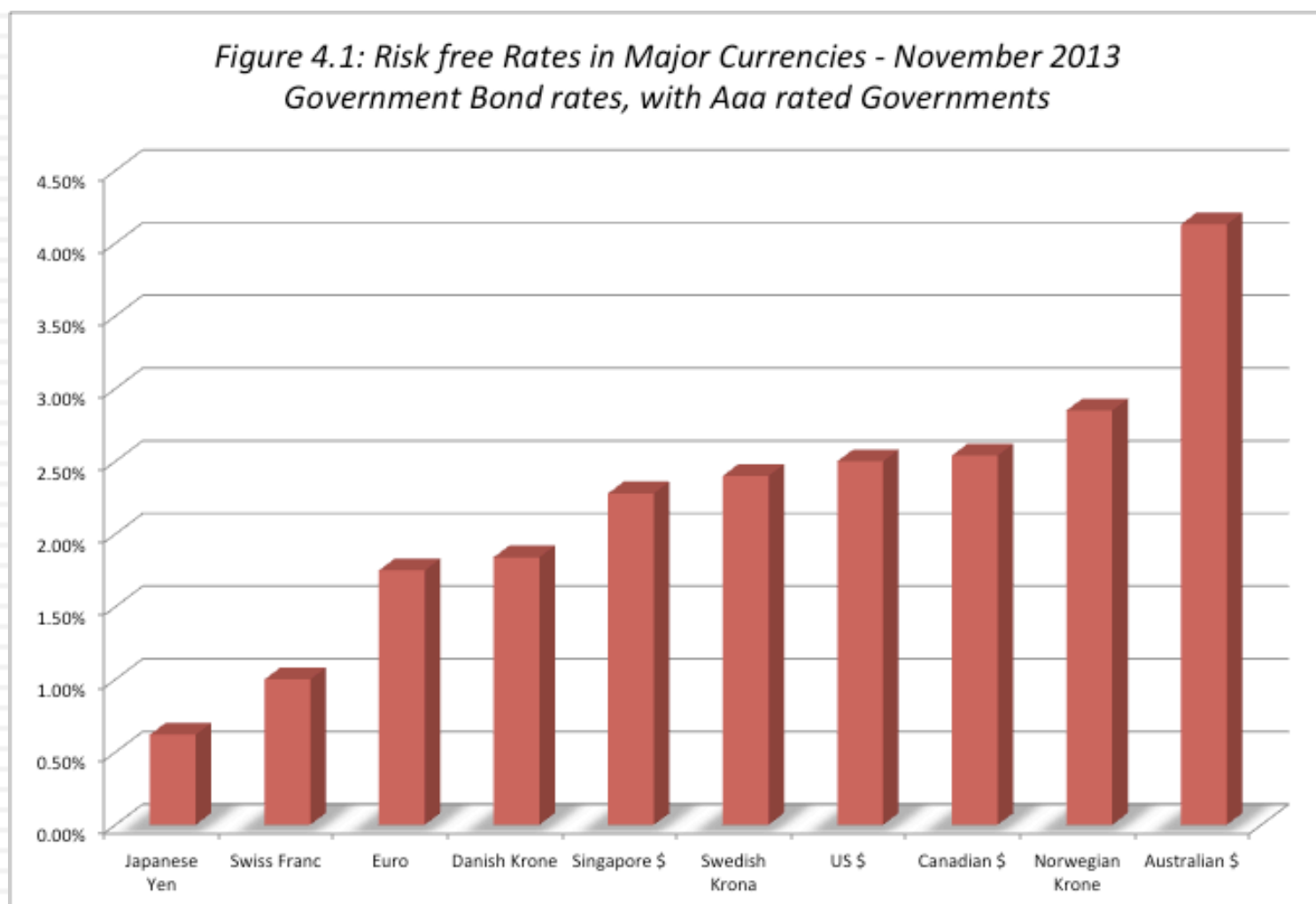
- **Currency Matching:** The riskfree rate that you use in an analysis should be in the same currency that your cashflows are estimated in.
 - ▣ In other words, if your cashflows are in U.S. dollars, your riskfree rate has to be in U.S. dollars as well.
 - ▣ If your cash flows are in Euros, your riskfree rate should be a Euro riskfree rate.
- **Just use the government bond rate?** The conventional practice of estimating riskfree rates is to use the government bond rate, with the government being the one that is in control of issuing that currency. **In November 2013**, for instance, the rate on a ten-year US treasury bond (2.75%) is used as the risk free rate in US dollars.
- **If the government is default-free**, using a long term government rate (even on a coupon bond) as the riskfree rate on all of the cash flows in a long-term analysis will yield a close approximation of the true value. For short term analysis, it is entirely appropriate to use a short-term government security rate as the riskfree rate.

What is the Euro riskfree rate? An exercise in November 2013

Rate on 10-year Euro Government Bonds: November 2013



When the government is default free: Risk free rates – in November 2013



What if there is no default-free entity?

Risk free rates in November 2013

- **Adjust the local currency government borrowing rate** for default risk to get a riskless local currency rate.
 - ▣ In November 2013, the Indian government rupee bond rate was 8.82%. the local currency rating from Moody's was Baa3 and the default spread for a Baa3 rated country bond was 2.25%.
Riskfree rate in Rupees = $8.82\% - 2.25\% = 6.57\%$
 - ▣ In November 2013, the Chinese Renmimbi government bond rate was 4.30% and the local currency rating was Aa3, with a default spread of 0.8%.
Riskfree rate in Chinese Renmimbi = $4.30\% - 0.80\% = 3.50\%$
- **Do the analysis in an alternate currency**, where getting the riskfree rate is easier. With Vale in 2013, we could choose to do the analysis in US dollars (rather than estimate a riskfree rate in R\$). The riskfree rate is then the US treasury bond rate.
- **Do your analysis in real terms**, in which case the riskfree rate has to be a real riskfree rate. The inflation-indexed treasury rate is a measure of a real riskfree rate.

Three paths to estimating sovereign default spreads

65

- Sovereign dollar or euro denominated bonds: The difference between the interest rate on a sovereign US \$ bond, issued by the country, and the US treasury bond rate can be used as the default spread. For example, in November 2013, the 10-year Brazil US \$ bond, denominated in US dollars had a yield of 4.25% and the US 10-year T.Bond rate traded at 2.75%.

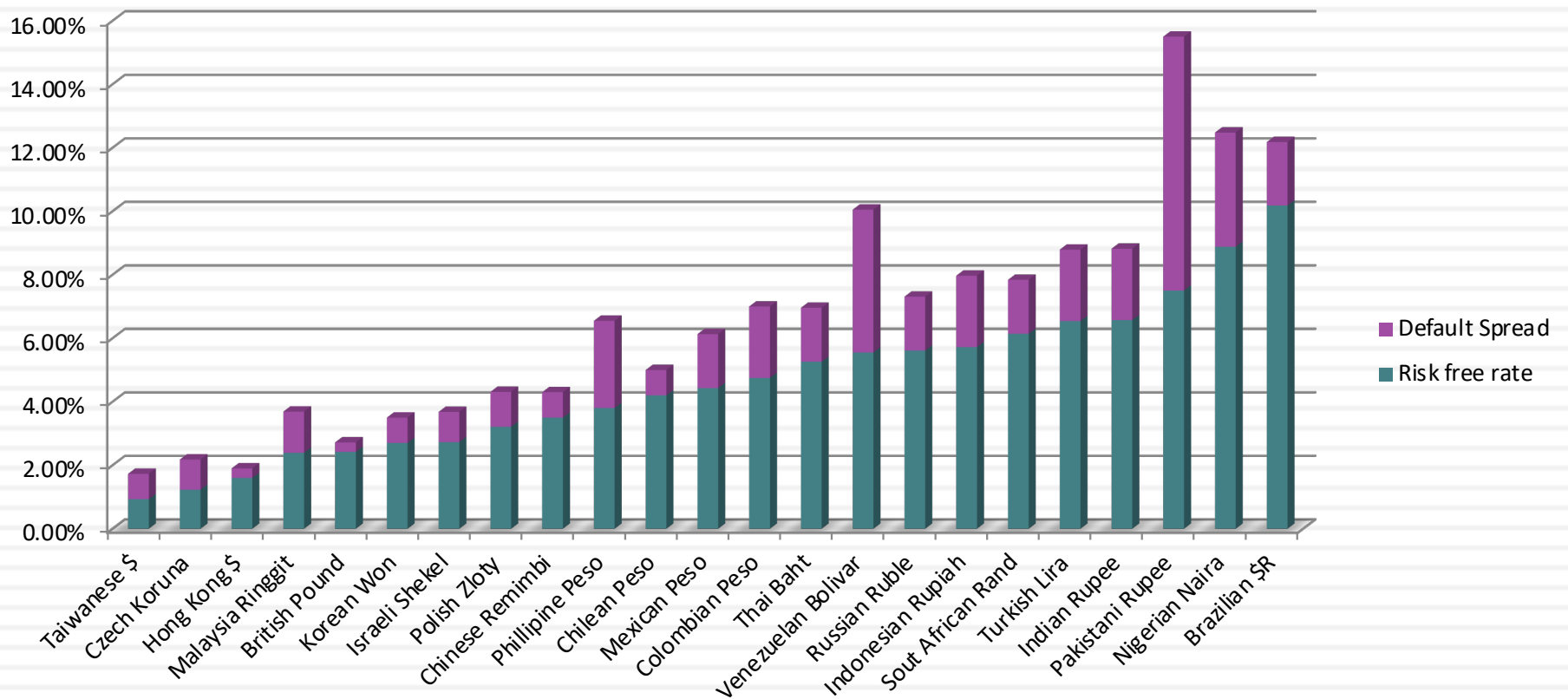
$$\text{Default spread} = 4.25\% - 2.75\% = 1.50\%$$

- CDS spreads: Obtain the default spreads for sovereigns in the CDS market. The CDS spread for Brazil in November 2013 was 2.50%.
- Average spread: If you know the sovereign rating for a country, you can estimate the default spread based on the rating. In November 2013, Brazil's rating was Baa2, yielding a default spread of 2%.

Risk free rates in currencies: Sovereigns with default risk in November 2013

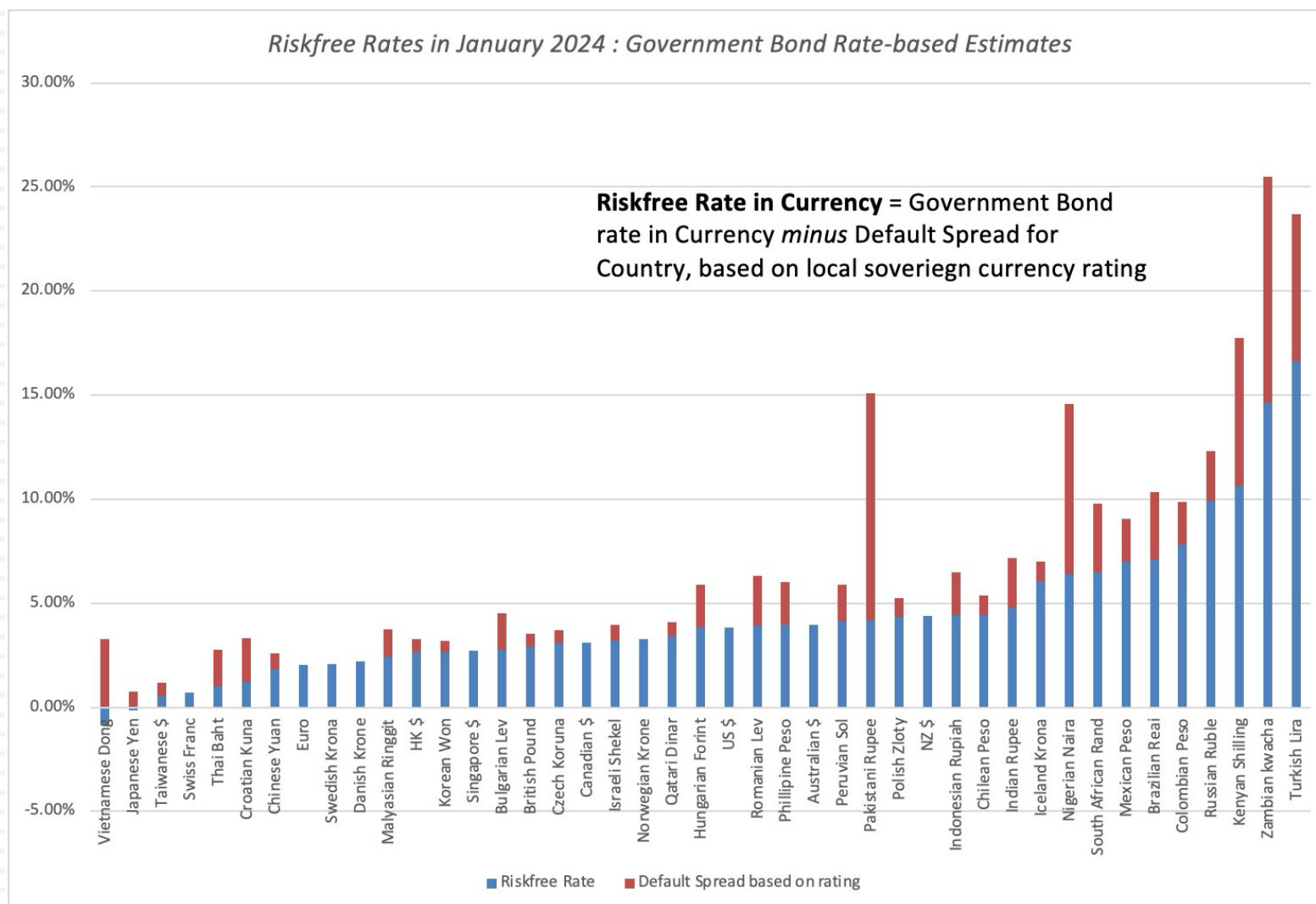
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Figure 4.2: Risk free rates in Currencies where Governments not Aaa rated



Risk free Rates in January 2024

67



II. Historical ERP: A Historical Snapshot

	<i>Arithmetic Average</i>		<i>Geometric Average</i>	
	Stocks - T. Bills	Stocks - T. Bonds	Stocks - T. Bills	Stocks - T. Bonds
1928-2023	8.32%	6.80%	6.50%	5.23%
Std Error	2.03%	2.14%		
1974-2023	8.18%	5.95%	6.79%	4.97%
Std Error	2.45%	2.73%		
2014-2023	11.70%	11.17%	10.63%	10.44%
Std Error	4.97%	3.86%		

Historical
premium for
the US

- If you are going to use a historical risk premium, make it
 - ▣ Long term (because of the standard error)
 - ▣ Consistent with your choice of riskfree rate
 - ▣ A “compounded” average
- No matter which estimate you use, recognize that it is backward looking, is noisy and may reflect selection bias.

Implied ERP in November 2013: Watch what I pay, not what I say..

- If you can observe what investors are willing to pay for stocks, you can back out an expected return from that price and an implied equity risk premium.

Base year cash flow (last 12 mths)

Dividends (TTM): 33.22
 + Buybacks (TTM): 49.02
 = Cash to investors (TTM): 82.35
 Earnings in TTM:

Expected growth in next 5 years

Top down analyst estimate of earnings growth for S&P 500 with stable payout: 5.59%

Beyond year 5

Expected growth rate =
 Riskfree rate = 2.55%
 Expected CF in year 6 =
 108.1(1.0255)

E(Cash to investors) 86.96 91.82 96.95 102.38 108.10

S&P 500 on 11/1/13= 1756.54

$$1756.54 = \frac{86.96}{(1+r)} + \frac{91.82}{(1+r)^2} + \frac{96.95}{(1+r)^3} + \frac{102.38}{(1+r)^4} + \frac{108.10}{(1+r)^5} + \frac{110.86}{(r - .0255)(1+r)^5}$$

r = Implied Expected Return on Stocks = 8.04%

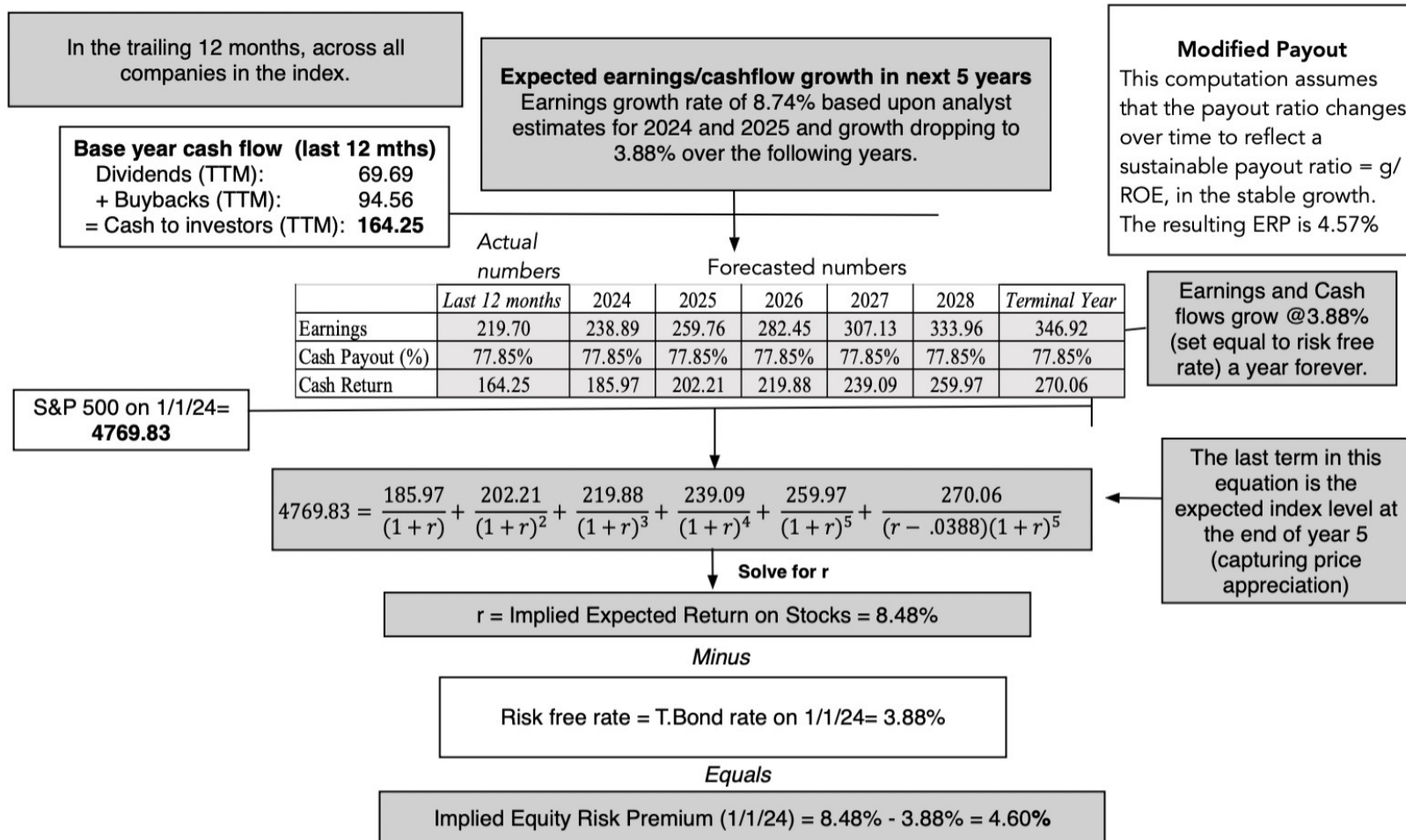
Minus

Risk free rate = T.Bond rate on 1/1/14=2.55%

Equals

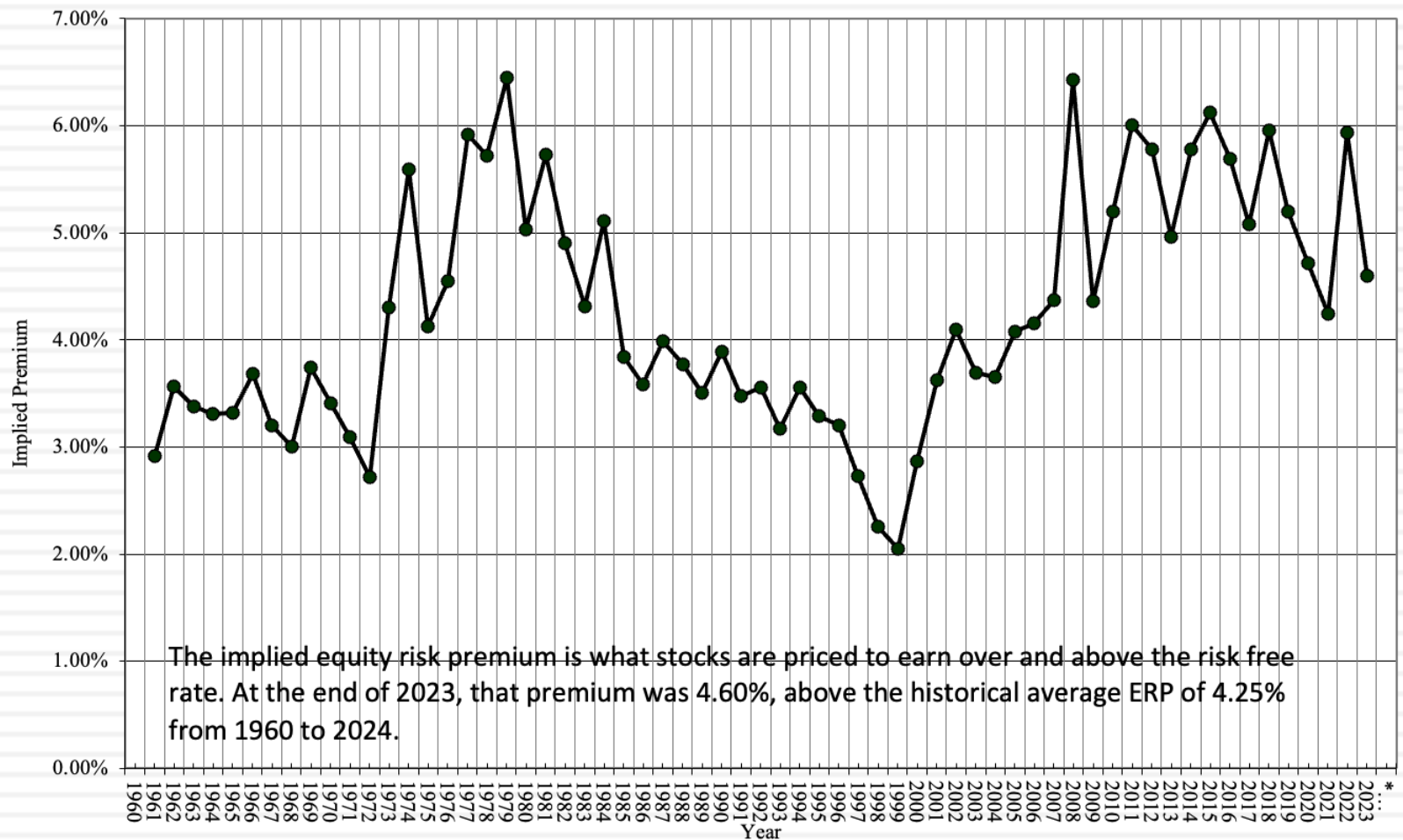
Implied Equity Risk Premium (1/1/14) = 8.04% - 2.55% = 5.49%

An Updated Implied ERP



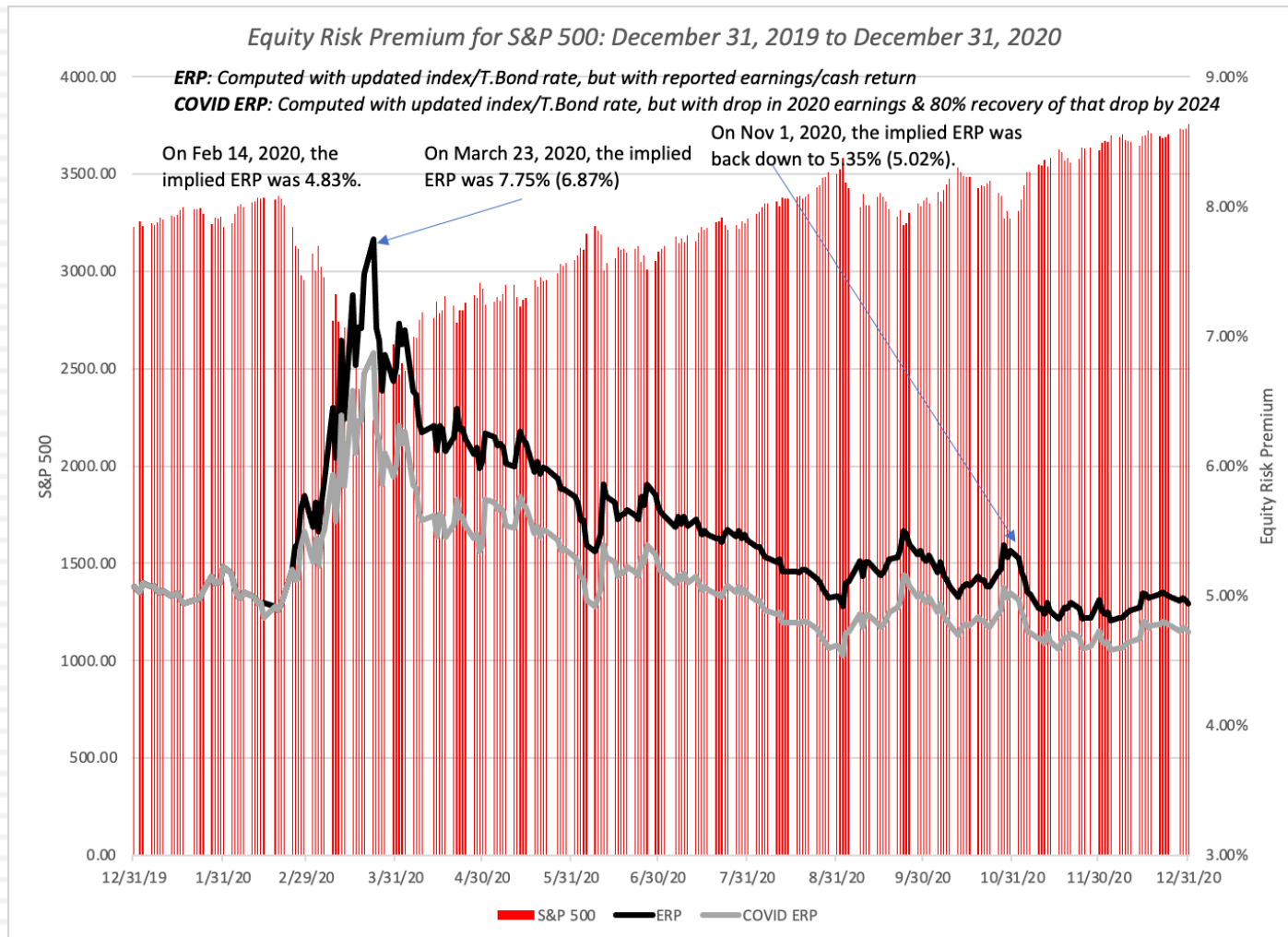
Implied Premiums in the US: 1960-2023

Implied Equity Risk Premium for US Equity Market: 1960-2023



And in 2020.. COVID effects

72



What about equity risk premiums for other markets?

73

- Historical data for markets outside the United States is available for much shorter time periods. The problem is even greater in emerging markets.
- The historical premiums that emerge from this data reflects this data problem and there is much greater error associated with the estimates of the premiums.
- You could try to compute implied equity risk premiums but getting the inputs, especially for long term growth are difficult to do.

Beyond the default spread? Equities are riskier than bonds

- While default risk spreads and equity risk premiums are highly correlated, one would expect equity spreads to be higher than debt spreads. One approach to scaling up the premium is to look at the relative volatility:

$$\text{Country Risk Premium} = \text{Country Default Spread} * \left(\frac{\sigma_{\text{Equity}}}{\sigma_{\text{Country Bond}}} \right)$$

- Brazil: The annualized standard deviation in the Brazilian equity index over the previous year is 21 percent, whereas the annualized standard deviation in the Brazilian C-bond is 14 percent.

$$\text{Brazil's Equity Risk Premium} = 5.50\% + 2.00\% (21\%/14\%) = 8.50\%$$

- Using the same approach for China and India:
 - China's Equity Risk Premium = 5.50% + 0.80% (18%/10%) = 6.94%
 - India's Equity Risk Premium = 5.50% + 2.25% (24%/17%) = 9.10%

Andorra	7.45%	1.95%	Liechtenstein	5.50%	0.00%
Austria	5.50%	0.00%	Luxembourg	5.50%	0.00%
Belgium	6.70%	1.20%	Malta	7.45%	1.95%
Cyprus	22.00%	16.50%	Netherlands	5.50%	0.00%
Denmark	5.50%	0.00%	Norway	5.50%	0.00%
Finland	5.50%	0.00%	Portugal	10.90%	5.40%
France	5.95%	0.45%	Spain	8.88%	3.38%
Germany	5.50%	0.00%	Sweden	5.50%	0.00%
Greece	15.63%	10.13%	Switzerland	5.50%	0.00%
Iceland	8.88%	3.38%	Turkey	8.88%	3.38%
Ireland	9.63%	4.13%	United Kingdom	5.95%	0.45%
Italy	8.50%	3.00%	Western Europe	6.72%	1.22%

Canada	5.50%	0.00%
United States of America	5.50%	0.00%
North America	5.50%	0.00%

Country	TRP	CRP
Angola	10.90%	5.40%
Benin	13.75%	8.25%
Botswana	7.15%	1.65%
Burkina Faso	13.75%	8.25%
Cameroon	13.75%	8.25%
Cape Verde	12.25%	6.75%
Egypt	17.50%	12.00%
Gabon	10.90%	5.40%
Ghana	12.25%	6.75%
Kenya	12.25%	6.75%
Morocco	9.63%	4.13%
Mozambique	12.25%	6.75%
Namibia	8.88%	3.38%
Nigeria	10.90%	5.40%
Rwanda	13.75%	8.25%
Senegal	12.25%	6.75%
South Africa	8.05%	2.55%
Tunisia	10.23%	4.73%
Uganda	12.25%	6.75%
Zambia	12.25%	6.75%
Africa	11.22%	5.82%

Albania	12.25%	6.75%
Armenia	10.23%	4.73%
Azerbaijan	8.88%	3.38%
Belarus	15.63%	10.13%
Bosnia	15.63%	10.13%
Bulgaria	8.50%	3.00%
Croatia	9.63%	4.13%
Czech Republic	6.93%	1.43%
Estonia	6.93%	1.43%
Georgia	10.90%	5.40%
Hungary	9.63%	4.13%
Kazakhstan	8.50%	3.00%
Latvia	8.50%	3.00%
Lithuania	8.05%	2.55%
Macedonia	10.90%	5.40%
Moldova	15.63%	10.13%
Montenegro	10.90%	5.40%
Poland	7.15%	1.65%
Romania	8.88%	3.38%
Russia	8.05%	2.55%
Serbia	10.90%	5.40%
Slovakia	7.15%	1.65%
Slovenia	9.63%	4.13%
Ukraine	15.63%	10.13%
E. Europe & Russia	8.60%	3.10%

Bahrain	8.05%	2.55%
Israel	6.93%	1.43%
Jordan	12.25%	6.75%
Kuwait	6.40%	0.90%
Lebanon	12.25%	6.75%
Oman	6.93%	1.43%
Qatar	6.40%	0.90%
Saudi Arabia	6.70%	1.20%
United Arab Emirates	6.40%	0.90%
Middle East	6.88%	1.38%

Bangladesh	10.90%	5.40%
Cambodia	13.75%	8.25%
China	6.94%	1.44%
Fiji	12.25%	6.75%
Hong Kong	5.95%	0.45%
India	9.10%	3.60%
Indonesia	8.88%	3.38%
Japan	6.70%	1.20%
Korea	6.70%	1.20%
Macao	6.70%	1.20%
Malaysia	7.45%	1.95%
Mauritius	8.05%	2.55%
Mongolia	12.25%	6.75%
Pakistan	17.50%	12.00%
Papua NG	12.25%	6.75%
Philippines	9.63%	4.13%
Singapore	5.50%	0.00%
Sri Lanka	12.25%	6.75%
Taiwan	6.70%	1.20%
Thailand	8.05%	2.55%
Vietnam	13.75%	8.25%
Asia	7.27%	1.77%

Australia	5.50%	0.00%
Cook Islands	12.25%	6.75%
New Zealand	5.50%	0.00%
Australia & NZ	5.50%	0.00%

Black #: Total ERP
Red #: Country risk premium
AVG: GDP weighted average

Estimating ERP for Disney: November 2013

- Incorporation: The conventional practice on equity risk premiums is to estimate an ERP based upon where a company is incorporated. Thus, the cost of equity for Disney would be computed based on the US equity risk premium, because it is a US company, and the Brazilian ERP would be used for Vale, because it is a Brazilian company.
- Operations: The more sensible practice on equity risk premium is to estimate an ERP based upon where a company operates. For Disney in 2013:

<i>Region/ Country</i>	<i>Proportion of Disney's Revenues</i>	<i>ERP</i>
US& Canada	82.01%	5.50%
Europe	11.64%	6.72%
Asia-Pacific	6.02%	7.27%
Latin America	0.33%	9.44%
Disney	100.00%	5.76%

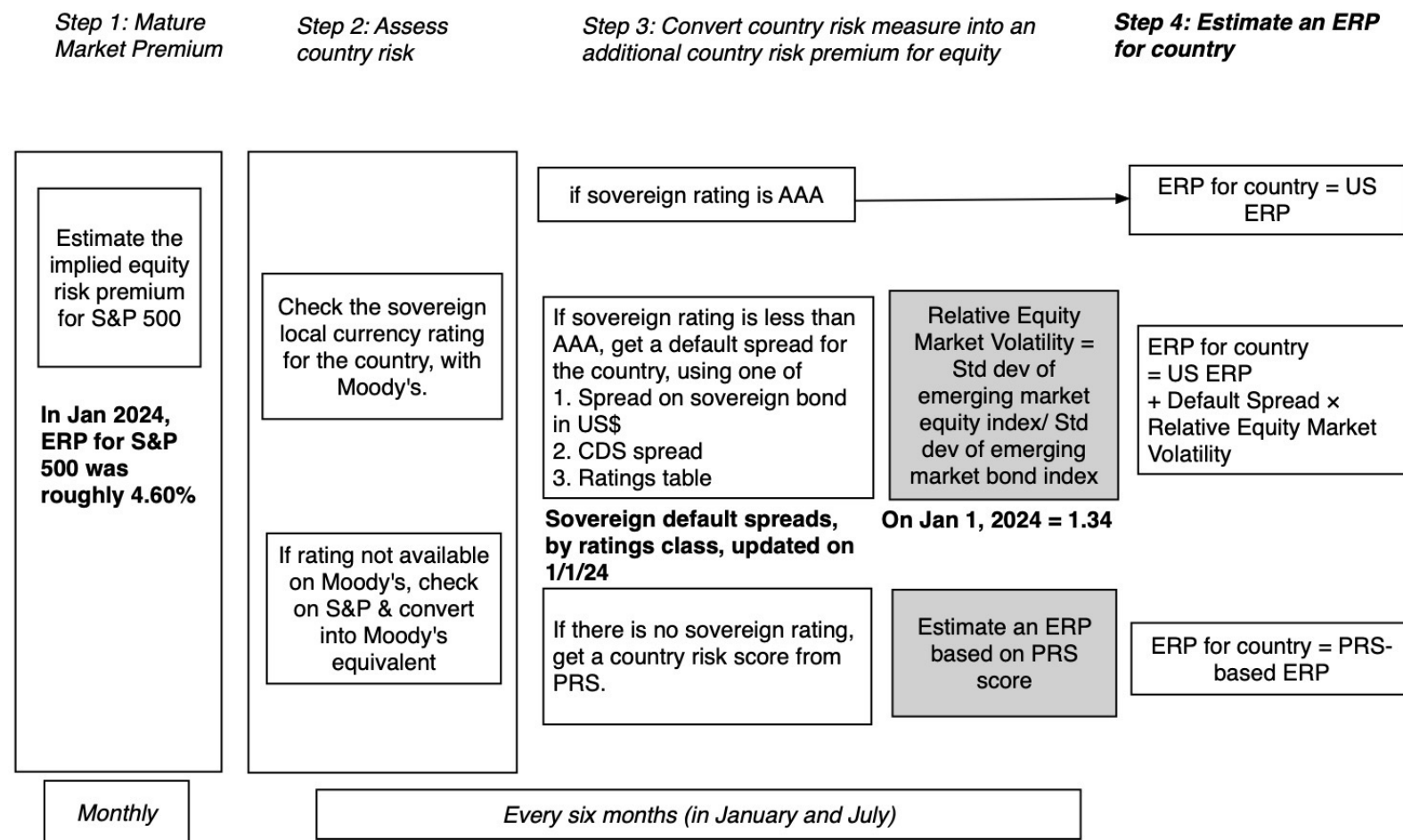
ERP for Companies: November 2013

In November 2013,
the mature market
premium used was
5.5%

<i>Company</i>	<i>Region/ Country</i>	<i>Weight</i>	<i>ERP</i>
Bookscape	United States	100%	5.50%
Vale	US & Canada	4.90%	5.50%
	Brazil	16.90%	8.50%
	Rest of Latin America	1.70%	10.09%
	China	37.00%	6.94%
	Japan	10.30%	6.70%
	Rest of Asia	8.50%	8.61%
	Europe	17.20%	6.72%
	Rest of World	3.50%	10.06%
	Company	100.00%	7.38%
Tata Motors	India	23.90%	9.10%
	China	23.60%	6.94%
	UK	11.90%	5.95%
	United States	10.00%	5.50%
	Mainland Europe	11.70%	6.85%
	Rest of World	18.90%	6.98%
	Company	100.00%	7.19%
Baidu	China	100%	6.94%
Deutsche Bank	Germany	35.93%	5.50%
	North America	24.72%	5.50%
	Rest of Europe	28.67%	7.02%
	Asia-Pacific	10.68%	7.27%
	South America	0.00%	9.44%
	Company	100.00%	6.12%

A Composite way of estimating ERP for countries

ERP Estimation Procedure



Andorra	Baa2	2.78%	7.38%	Italy	Baa3	3.21%	7.81%
Austria	Aa1	0.58%	5.18%	Jersey (States of)	Aa3	0.88%	5.48%
Belgium	Aa3	0.88%	5.48%	Liechtenstein	Aaa	0.00%	4.60%
Cyprus	Baa2	2.78%	7.38%	Luxembourg	Aaa	0.00%	4.60%
Denmark	Aaa	0.00%	4.60%	Malta	A2	1.24%	5.84%
Finland	Aa1	0.58%	5.18%	Netherlands	Aaa	0.00%	4.60%
France	Aa2	0.72%	5.32%	Norway	Aaa	0.00%	4.60%
Germany	Aaa	0.00%	4.60%	Portugal	A3	1.75%	6.35%
Greece	Ba1	3.66%	8.26%	Spain	Baa1	2.34%	6.94%
Guernsey (States of)	A1	1.03%	5.63%	Sweden	Aaa	0.00%	4.60%
Iceland	A2	1.24%	5.84%	Switzerland	Aaa	0.00%	4.60%
Ireland	Aa3	0.88%	5.48%	Turkey	B3	9.51%	14.11%
Isle of Man	Aa3	0.88%	5.48%	United Kingdom	Aa3	0.88%	5.48%
				EU & Environs		1.29%	5.89%

Canada	Aaa	0.00%	4.60%
United States	Aaa	0.00%	4.60%
North America		0.00%	4.60%

Caribbean		14.15%	18.75%
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Argentina	Ca	17.55%	22.15%
Belize	Caa2	13.17%	17.77%
Bolivia	Caa1	10.97%	15.57%
Brazil	Ba2	4.40%	9.00%
Chile	A2	1.24%	5.84%
Colombia	Baa2	2.78%	7.38%
Costa Rica	B1	6.58%	11.18%
Ecuador	Caa3	14.63%	19.23%
El Salvador	Caa3	14.63%	19.23%
Guatemala	Ba1	3.66%	8.26%
Honduras	B1	6.58%	11.18%
Mexico	Baa2	2.78%	7.38%
Nicaragua	B3	9.51%	14.11%
Panama	Baa2	2.78%	7.38%
Paraguay	Ba1	3.66%	8.26%
Peru	Baa1	2.34%	6.94%
Suriname	Caa3	14.63%	19.23%
Uruguay	Baa2	2.78%	7.38%
Venezuela	C	23.49%	28.09%
Latin America		5.76%	10.36%

Country	Rating	CRP	ERP
Angola	B3	9.51%	14.11%
Benin	B1	6.58%	11.18%
Botswana	A3	1.75%	6.35%
Burkina Faso	Caa1	10.97%	15.57%
Cameroon	Caa1	10.97%	15.57%
Cape Verde	B3	9.51%	14.11%
Congo (DR)	B3	9.51%	14.11%
Congo (Rep of)	Caa2	13.17%	17.77%
Côte d'Ivoire	Ba3	5.26%	9.86%
Egypt	Caa1	10.97%	15.57%
Ethiopia	Caa2	13.17%	17.77%
Gabon	Caa1	10.97%	15.57%
Ghana	Caa3	14.63%	19.23%
Kenya	B3	9.51%	14.11%
Mali	Caa2	13.17%	17.77%
Mauritius	Baa3	3.21%	7.81%
Morocco	Ba1	3.66%	8.26%
Mozambique	Caa2	13.17%	17.77%
Namibia	B1	6.58%	11.18%
Niger	Caa2	13.17%	17.77%
Nigeria	Caa1	10.97%	15.57%
Rwanda	B2	8.04%	12.64%
Senegal	Ba3	5.26%	9.86%
South Africa	Ba2	4.40%	9.00%
Swaziland	B3	9.51%	14.11%
Tanzania	B2	8.04%	12.64%
Togo	B3	9.51%	14.11%
Tunisia	Caa2	13.17%	17.77%
Uganda	B2	8.04%	12.64%
Zambia	Caa3	14.63%	19.23%
Africa		9.16%	13.76%

Albania	B1	6.58%	11.18%
Armenia	Ba3	5.26%	9.86%
Azerbaijan	Ba1	3.66%	8.26%
Belarus	C	23.49%	28.09%
Bosnia and Herzego	B3	9.51%	14.11%
Bulgaria	Baa1	2.34%	6.94%
Croatia	Baa2	2.78%	7.38%
Czech Republic	Aa3	0.88%	5.48%
Estonia	A1	1.03%	5.63%
Georgia	Ba2	4.40%	9.00%
Hungary	Baa2	2.78%	7.38%
Kazakhstan	Baa2	2.78%	7.38%
Kyrgyzstan	B3	9.51%	14.11%
Latvia	A3	1.75%	6.35%
Lithuania	A2	1.24%	5.84%
Macedonia	Ba3	5.26%	9.86%
Moldova	B3	9.51%	14.11%
Montenegro	B1	6.58%	11.18%
Poland	A2	1.24%	5.84%
Romania	Baa3	3.21%	7.81%
Russia	NA	6.58%	11.18%
Serbia	Ba2	4.40%	9.00%
Slovakia	A2	1.24%	5.84%
Slovenia	A3	1.75%	6.35%
Tajikistan	B3	9.51%	14.11%
Ukraine	Ca	17.55%	22.15%
Uzbekistan	Ba3	5.26%	9.86%
E. Europe & Russia		5.06%	9.66%

Abu Dhabi	Aa2	0.72%	5.32%
Bahrain	B2	8.04%	12.64%
Iraq	Caa1	10.97%	15.57%
Israel	A1	1.03%	5.63%
Jordan	B1	6.58%	11.18%
Kuwait	A1	1.03%	5.63%
Lebanon	C	23.49%	28.09%
Oman	Ba1	3.66%	8.26%
Qatar	Aa3	0.88%	5.48%
Ras Al Khaimah	A3	1.75%	6.35%
Saudi Arabia	A1	1.03%	5.63%
Sharjah	Ba1	3.66%	8.26%
United Arab Emirates	Aa2	0.72%	5.32%
Middle East		2.16%	6.76%

Country	PRS	CRP	ERP
Algeria	67.75	6.58%	11.18%
Brunei	81.5	0.88%	5.48%
Gambia	66.75	6.58%	11.18%
Guinea	60	13.17%	17.77%
Guinea-Bissau	65.25	8.04%	12.64%
Guyana	75.25	2.34%	6.94%
Haiti	56.5	14.63%	19.23%
Iran	63	9.51%	14.11%
Korea, D.P.R.	49.25	23.49%	28.09%
Liberia	55	17.55%	22.15%
Libya	73.75	2.78%	7.38%
Madagascar	62.75	9.51%	14.11%
Malawi	52.75	17.55%	22.15%
Myanmar	57	14.63%	19.23%
Russia	66.75	6.58%	11.18%
Sierra Leone	56.25	14.63%	19.23%
Somalia	51.75	17.55%	22.15%
Sudan	44.75	23.49%	28.09%
Syria	45	23.49%	28.09%
Yemen, Republic	55.75	14.63%	19.23%
Zimbabwe	57.5	13.17%	17.77%

Bangladesh	B1	6.58%	11.18%
Cambodia	B2	8.04%	12.64%
China	A1	1.03%	5.63%
Fiji	B1	6.58%	11.18%
Hong Kong	Aa3	0.88%	5.48%
India	Baa3	3.21%	7.81%
Indonesia	Baa2	2.78%	7.38%
Japan	A1	1.03%	5.63%
Korea	Aa2	0.72%	5.32%
Laos	Caa3	14.63%	19.23%
Macao	Aa3	0.88%	5.48%
Malaysia	A3	1.75%	6.35%
Maldives	Caa1	10.97%	15.57%
Mongolia	B3	9.51%	14.11%
Pakistan	Caa3	14.63%	19.23%
Papua New Guinea	B2	8.04%	12.64%
Philippines	Baa2	2.78%	7.38%
Singapore	Aaa	0.00%	4.60%
Solomon Islands	Caa1	10.97%	15.57%
Sri Lanka	Ca	17.55%	22.15%
Taiwan	Aa3	0.88%	5.48%
Thailand	Baa1	2.34%	6.94%
Vietnam	Ba2	4.40%	9.00%
Asia		1.68%	6.28%

Australia	Aaa	0.00%	4.60%
Cook Islands	B1	6.58%	11.18%
New Zealand	Aaa	0.00%	4.60%
Australia & NZ		0.00%	4.60%

Blue: Moody's Rating
Red: Added Country Risk
Green #: Total ERP

Application Test: Estimating an Equity Risk Premium for your company

80

- For your company, get the geographical breakdown of revenues in the most recent year.
 - Based upon this revenue breakdown and the most recent country risk premiums, estimate the equity risk premium that you would use for your company.
- This computation was based entirely on revenues. With your company, what concerns would you have about your estimate being too high or too low?
- What might cause your company's equity risk premium to change in the future?

III. Beta or Relative Risk

81

- The standard procedure for estimating betas is to regress stock returns (R_j) against market returns (R_m):

$$R_j = a + b R_m$$

where a is the intercept and b is the slope of the regression.

- The slope of the regression corresponds to the beta of the stock and measures the riskiness of the stock.
- The R squared (R^2) of the regression provides an estimate of the proportion of the risk (variance) of a firm that can be attributed to market risk. The balance ($1 - R^2$) can be attributed to firm specific risk.

Disney's Historical Beta

Beta = 1.25

Range

= 1.15 – 1.35 (67% confidence)

= 1.05 – 1.45 (95% confidence)

Jensen's Alpha

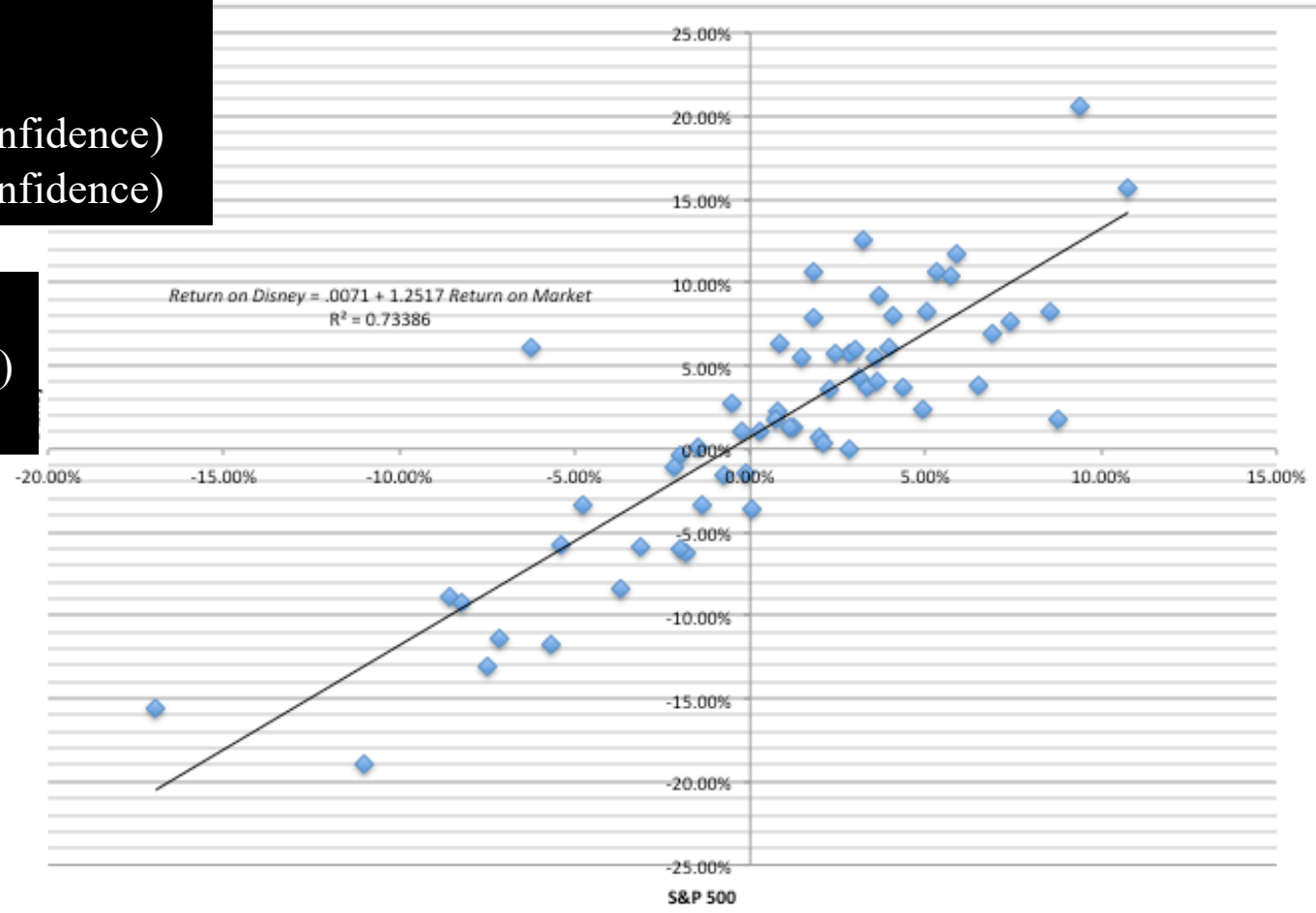
= 0.71% - .5% (1-1.25)

= 0.72%

Risk

From market= 73.4%

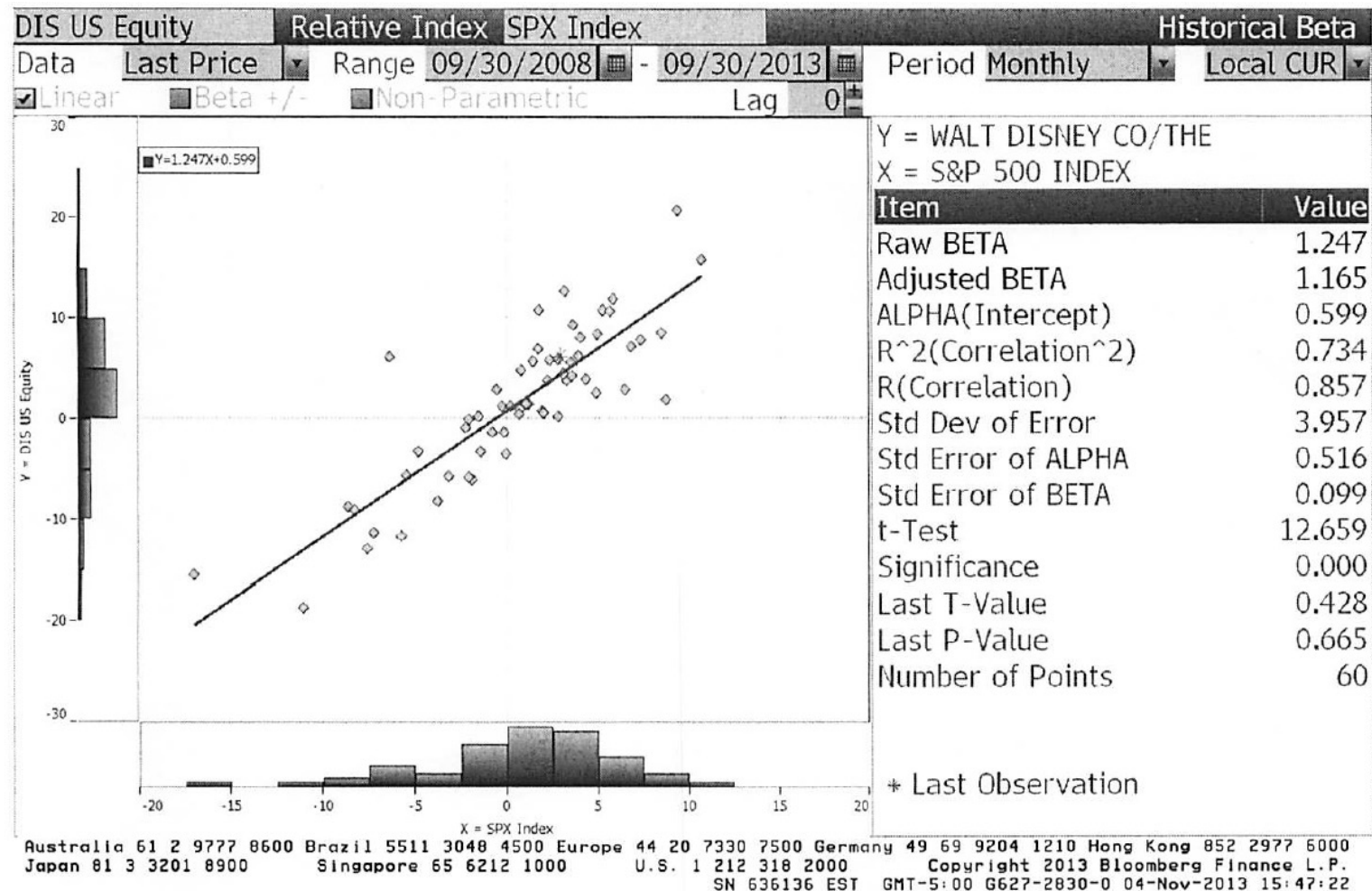
From firm= 26.6%



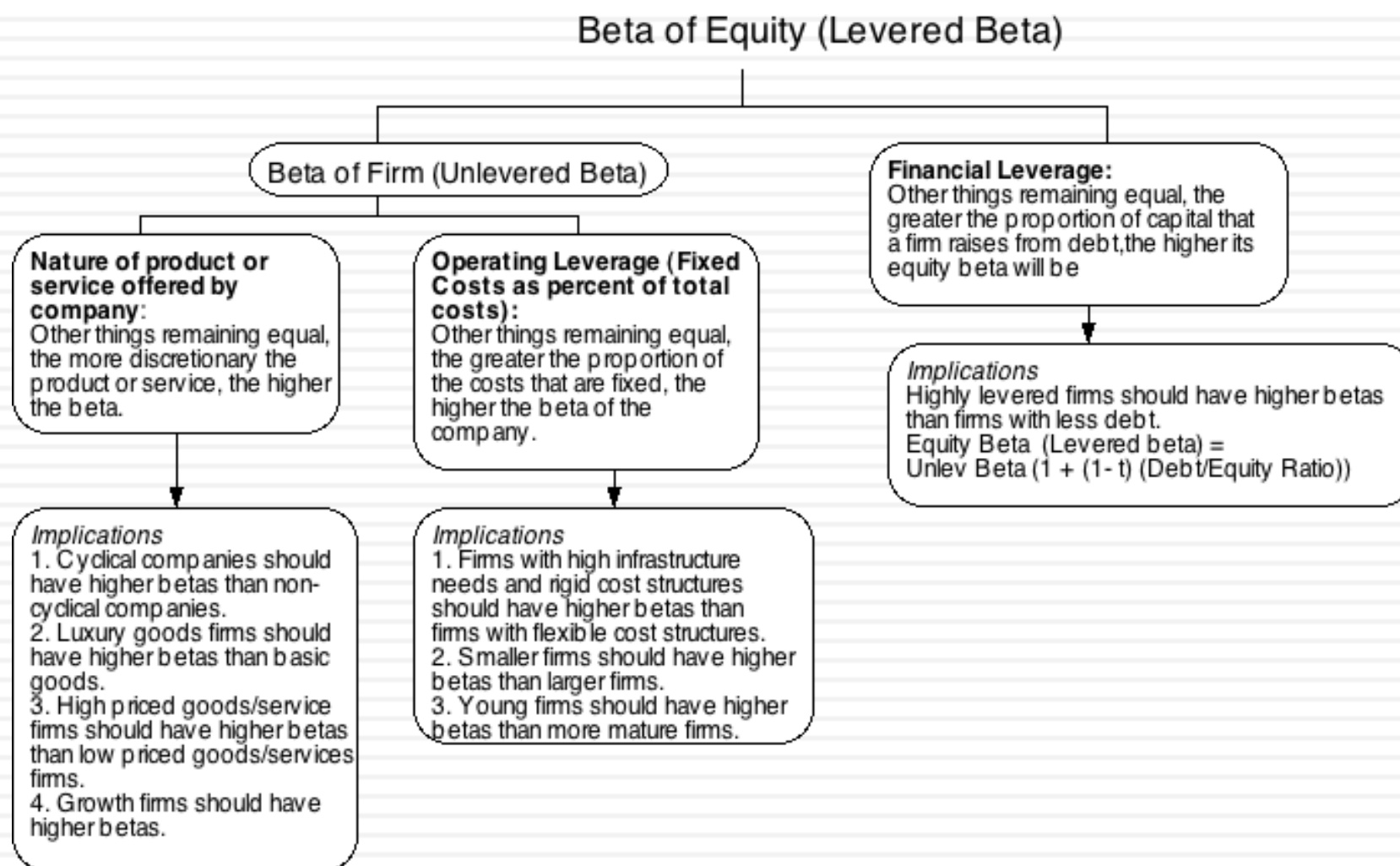
Return on Disney = .0071 + 1.2517 Return on Market
(.0053) (0.10)

$R^2 = 0.73386$

Beta Estimation: Using a Service (Bloomberg)



Determinants of Betas



Determinant 1: Product/ Service Type

85

- Betas measure a company's exposure to macroeconomic risks. Consequently, you would expect the beta to be a function of the sensitivity of the demand for its products and services to macroeconomic factors.
 - To the extent that cyclical companies are more likely to move with the macroeconomy, they are likely to have higher betas.
 - Firms which sell more discretionary products will have higher betas than firms that sell less discretionary product

Determinant 2: Operating Leverage Effects

86

- Operating leverage refers to the proportion of the total costs of the firm that are fixed.
- When a company has higher fixed costs, small changes in revenues will translate into larger changes in earnings, and by extension, into more variable earnings.
 - Other things remaining equal, sectors with higher operating leverage should have higher betas than sectors with less operating leverage.
 - Within sectors, companies with more flexible cost structures (where costs adjust more quickly to revenues) should have lower betas than companies with more rigid cost structures.

Disney's Operating Leverage: 1987- 2013

Year	Net Sales	% Change in Sales	EBIT	% Change in EBIT
1987	\$2,877		\$756	
1988	\$3,438	19.50%	\$848	12.17%
1989	\$4,594	33.62%	\$1,177	38.80%
1990	\$5,844	27.21%	\$1,368	16.23%
1991	\$6,182	5.78%	\$1,124	-17.84%
1992	\$7,504	21.38%	\$1,287	14.50%
1993	\$8,529	13.66%	\$1,560	21.21%
1994	\$10,055	17.89%	\$1,804	15.64%
1995	\$12,112	20.46%	\$2,262	25.39%
1996	\$18,739	54.71%	\$3,024	33.69%
1997	\$22,473	19.93%	\$3,945	30.46%
1998	\$22,976	2.24%	\$3,843	-2.59%
1999	\$23,435	2.00%	\$3,580	-6.84%
2000	\$25,418	8.46%	\$2,525	-29.47%
2001	\$25,172	-0.97%	\$2,832	12.16%
2002	\$25,329	0.62%	\$2,384	-15.82%
2003	\$27,061	6.84%	\$2,713	13.80%
2004	\$30,752	13.64%	\$4,048	49.21%
2005	\$31,944	3.88%	\$4,107	1.46%
2006	\$33,747	5.64%	\$5,355	30.39%
2007	\$35,510	5.22%	\$6,829	27.53%
2008	\$37,843	6.57%	\$7,404	8.42%
2009	\$36,149	-4.48%	\$5,697	-23.06%
2010	\$38,063	5.29%	\$6,726	18.06%
2011	\$40,893	7.44%	\$7,781	15.69%
2012	\$42,278	3.39%	\$8,863	13.91%
2013	\$45,041	6.54%	\$9,450	6.62%

The average for this statistic across entertainment companies is 1.15.



				Operating Leverage
Average: 87-13		11.79%	11.91%	11.91/11.79 = 1.01
Average: 96-13		8.16%	10.20%	10.20/8.16 = 1.25

Determinant 3: Financial Leverage

88

- As firms borrow, they create fixed costs (interest payments) that make their earnings to equity investors more volatile. This increased earnings volatility which increases the equity beta.
- The beta of equity alone can be written as a function of the unlevered beta and the debt-equity ratio

$$\beta_{\text{Levered}} = \beta_{\text{unlevered}} (1 + ((1-t)D/E))$$

where

- β_L = Levered or Equity Beta D/E = Market value Debt to equity ratio
- β_u = Unlevered or Asset Beta t = Marginal tax rate
- Earlier, we estimated the beta for Disney from a regression. Was that beta a levered or unlevered beta?
 - a. Levered
 - b. Unlevered

Effects of leverage on betas: Disney

- The regression beta for Disney is 1.25. This beta is a levered beta (because it is based on stock prices, which reflect leverage) and the leverage implicit in the beta estimate is the average market debt equity ratio during the period of the regression (2008 to 2013)
 - The average debt equity ratio during this period was 19.44%.
 - The unlevered beta for Disney can then be estimated (using a marginal tax rate of 36.1%)

Disney's Unlevered Beta

= Regression Beta / (1 + (1 - tax rate) (Average Debt/Equity))

= 1.25 / (1 + (1 - 0.361)(0.1944))= 1.11

Bottom-up versus Top-down Beta

90

- The top-down beta for a firm comes from a regression
- The bottom-up beta can be estimated by doing the following:
 - ▣ Find out the businesses that a firm operates in
 - ▣ Find the unlevered betas of other firms in these businesses
 - ▣ Take a weighted (by sales or operating income) average of these unlevered betas
 - ▣ Lever up using the firm's debt/equity ratio
- The bottom-up beta is a better estimate than the top down beta for the following reasons
 - ▣ The standard error of the beta estimate will be much lower
 - ▣ The betas can reflect the current (and even expected future) mix of businesses that the firm is in rather than the historical mix

Disney's businesses: The financial breakdown (from 2013 annual report)

<i>Business</i>	<i>Revenues</i>	<i>Operating Income</i>	<i>D&A</i>	<i>EBITDA</i>	<i>S, G & A Costs</i>	<i>Cap Ex</i>	<i>Identifiable Assets</i>
Media Networks	\$20,356	\$6,818	\$251	\$7,069	\$2,768	\$263	\$28,627
Parks & Resorts	\$14,087	\$2,220	\$1,370	\$3,590	\$1,960	\$2,110	\$22,056
Studio Entertainment	\$5,979	\$661	\$161	\$822	\$2,145	\$78	\$14,750
Consumer Products	\$3,555	\$1,112	\$146	\$1,258	\$731	\$45	\$7,506
Interactive	\$1,064	-\$87	\$44	-\$43	\$449	\$13	\$2,311

Disney's Unlevered Beta: Operations & Entire Company

Disney Operations: Unlevered Beta

<i>Business</i>	<i>Revenues</i>	<i>EV/Sales</i>	<i>Value of Business</i>	<i>Proportion of Disney</i>	<i>Unlevered beta</i>	<i>Value</i>	<i>Proportion</i>
Media Networks	\$20,356	3.27	\$66,580	49.27%	1.03	\$66,579.81	49.27%
Parks & Resorts	\$14,087	3.24	\$45,683	33.81%	0.70	\$45,682.80	33.81%
Studio Entertainment	\$5,979	3.05	\$18,234	13.49%	1.10	\$18,234.27	13.49%
Consumer Products	\$3,555	0.83	\$2,952	2.18%	0.68	\$2,951.50	2.18%
Interactive	\$1,064	1.58	\$1,684	1.25%	1.22	\$1,683.72	1.25%
Disney Operations	\$45,041		\$135,132	100.00%	0.9239	\$135,132.11	

Disney – The Company: Unlevered Beta

Disney has \$3.93 billion in cash, invested in close to riskless assets (with a beta of zero). You can compute an unlevered beta for Disney as a company (inclusive of cash):

$$\begin{aligned}
 \beta_{\text{Disney}} &= \beta_{\text{Operating Assets}} \frac{\text{Value}_{\text{Operating Assets}}}{(\text{Value}_{\text{Operating Assets}} + \text{Value}_{\text{Cash}})} + \beta_{\text{Cash}} \frac{\text{Value}_{\text{Cash}}}{(\text{Value}_{\text{Operating Assets}} + \text{Value}_{\text{Cash}})} \\
 &= 0.9239 \left(\frac{135,132}{(135,132 + 3,931)} \right) + 0.00 \left(\frac{3,931}{(135,132 + 3,931)} \right) = 0.8978
 \end{aligned}$$

The levered beta: Disney and its divisions

- To estimate the debt ratios for division, we allocate Disney's total debt (\$15,961 million) to its divisions based on identifiable assets.

<i>Business</i>	<i>Identifiable assets (2013)</i>	<i>Proportion of debt</i>	<i>Value of business</i>	<i>Allocated debt</i>	<i>Estimated equity</i>	<i>D/E ratio</i>
Media Networks	\$28,627	38.04%	\$66,580	\$6,072	\$60,508	10.03%
Parks & Resorts	\$22,056	29.31%	\$45,683	\$4,678	\$41,005	11.41%
Studio Entertainment	\$14,750	19.60%	\$18,234	\$3,129	\$15,106	20.71%
Consumer Products	\$7,506	9.97%	\$2,952	\$1,592	\$1,359	117.11%
Interactive	\$2,311	3.07%	\$1,684	\$490	\$1,194	41.07%
Disney	\$75,250	100.00%		\$15,961	\$121,878	13.10%

- We use the allocated debt to compute D/E ratios and levered betas.

<i>Business</i>	<i>Unlevered beta</i>	<i>Value of business</i>	<i>D/E ratio</i>	<i>Levered beta</i>	<i>Cost of Equity</i>
Media Networks	1.0313	\$66,580	10.03%	1.0975	9.07%
Parks & Resorts	0.7024	\$45,683	11.41%	0.7537	7.09%
Studio Entertainment	1.0993	\$18,234	20.71%	1.2448	9.92%
Consumer Products	0.6752	\$2,952	117.11%	1.1805	9.55%
Interactive	1.2187	\$1,684	41.07%	1.5385	11.61%
Disney Operations	0.9239	\$135,132	13.10%	1.0012	8.52%

Discussion Issue

94

- Assume now that you are the CFO of Disney. The head of the movie business has come to you with a new big budget movie that he would like you to fund. He claims that his analysis of the movie indicates that it will generate a return on equity of 9.5%. Would you fund it?
 - Yes. It is higher than the cost of equity for Disney as a company
 - No. It is lower than the cost of equity for the movie business.
- What are the broader implications of your choice?

Application Test: Estimating a Bottom-up Beta

95

- Based upon the business or businesses that your firm is in right now, and its current financial leverage, estimate the bottom-up unlevered beta for your firm.
- Data Source: You can get a listing of unlevered betas by industry on my web site by going to updated data.

Estimating the Cost of Debt

96

- If the firm has bonds outstanding, and the bonds are traded, the yield to maturity on a long-term, straight (no special features) bond can be used as the interest rate.
- If the firm is rated, use the rating and a typical default spread on bonds with that rating to estimate the cost of debt.
- If the firm is not rated,
 - ▣ and it has recently borrowed long term from a bank, use the interest rate on the borrowing or
 - ▣ estimate a synthetic rating for the company, and use the synthetic rating to arrive at a default spread and a cost of debt
- The cost of debt has to be estimated in the same currency as the cost of equity and the cash flows in the valuation.

The easy route: Outsourcing the measurement of default risk

- For those firms that have bond ratings from global ratings agencies, I used those ratings:

Company	S&P Rating	Risk-Free Rate	Default Spread	Cost of Debt
Disney	A	2.75% (US \$)	1.00%	3.75%
Deutsche Bank	A	1.75% (Euros)	1.00%	2.75%
Vale	A-	2.75% (US \$)	1.30%	4.05%

- If you want to estimate Vale's cost of debt in \$R terms, we can again use the differential inflation approach we used for the cost of equity:

$$\begin{aligned}\text{Cost of debt}_{\text{\$R}} &= (1 + \text{Cost of debt}_{\text{US \$}}) \frac{(1 + \text{Expected Inflation}_{\text{\$R}})}{(1 + \text{Expected Inflation}_{\text{US \$}})} - 1 \\ &= (1.0405) \frac{(1.09)}{(1.02)} - 1 = 11.19\%\end{aligned}$$

A more general route: Estimating Synthetic Ratings

- The rating for a firm can be estimated using the financial characteristics of the firm. In its simplest form, we can use just the interest coverage ratio:

$$\text{Interest Coverage Ratio} = \text{EBIT} / \text{Interest Expenses}$$

- For the non-financial service companies, we obtain the following:

Company	Operating income	Interest Expense	Interest coverage ratio
Disney	\$10.023	\$444	22.57
Vale	\$15,667	\$1,342	11.67
Tata Motors	Rs 166,605	Rs 36,972	4.51
Baidu	CY 11,193	CY 472	23.72
Bookscape	\$2,536	\$492	5.16

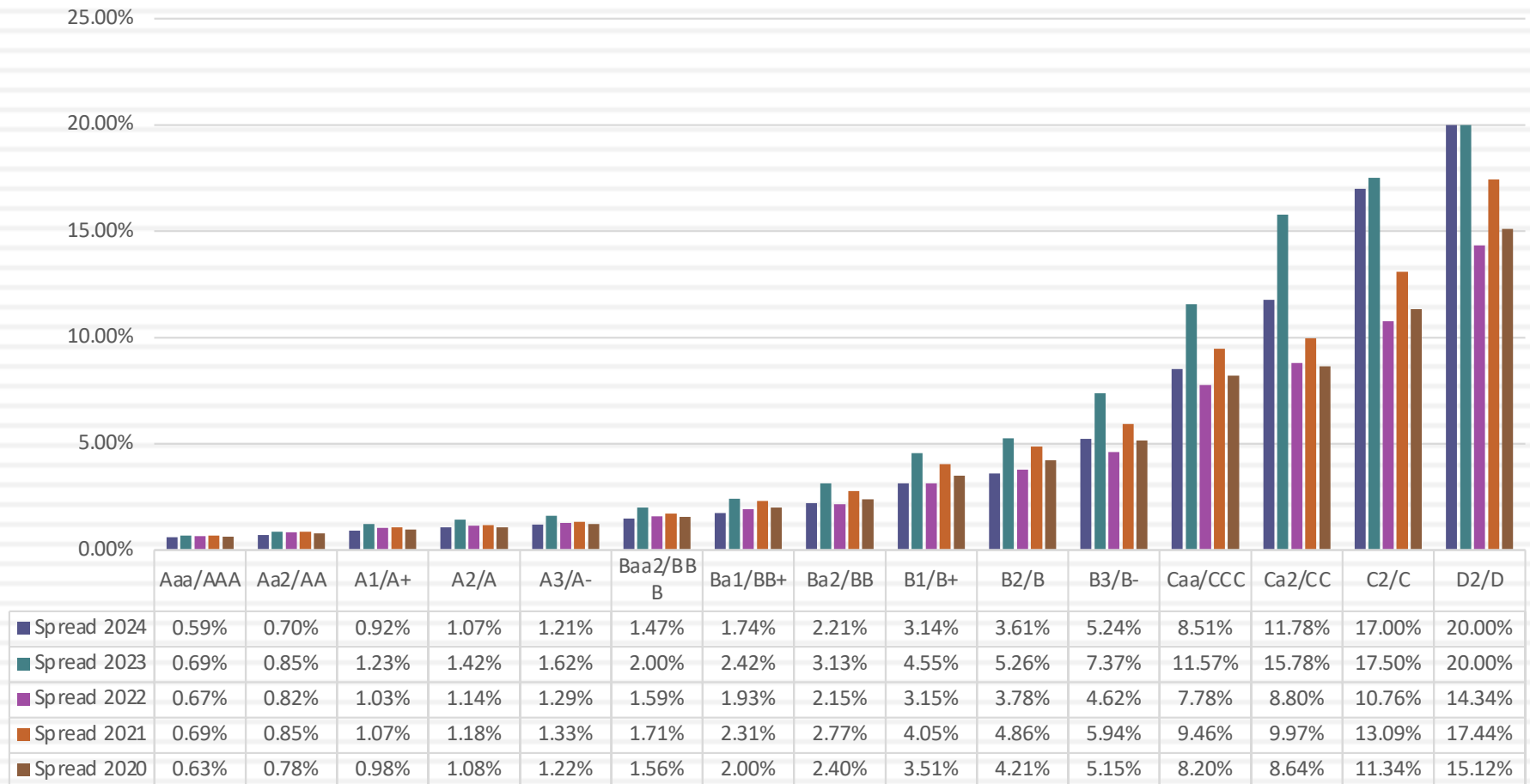
Interest Coverage Ratios, Ratings and Default Spreads- November 2013

<i>Large cap (>\$5 billion)</i>	<i>Small cap or risky (<\$5 billion)</i>	<i>Rating is (S&P/ Moody's)</i>	<i>Spread (11/13)</i>
>8.50	>12.5	Aaa/AAA	0.40%
6.5-8.5	9.5-12.5	Aa2/AA	0.70%
5.5-6.5	7.5-9.5	A1/A+	0.85%
4.25-5.5	6-7.5	A2/A	1.00%
3-4.25	4.5-6	A3/A-	1.30%
2.5-3	4-4.5	Baa2/BBB	2.00%
2.25-2.5	3.5-4	Ba1/BB+	3.00%
2-2.25	3-3.5	Ba2/BB	4.00%
1.75-2.25	2.5-3	B1/B+	5.50%
1.5-1.75	2-2.5	B2/B	6.50%
1.25-1.5	1.5-2	B3/B-	7.25%
0.8-1.25	1.25-1.5	Caa/CCC	8.75%
0.65-0.8	0.8-1.25	Ca2/CC	9.50%
0.2-0.65	0.5-0.8	C2/C	10.50%
<0.2	<0.5	D2/D	12.00%

Disney: Large cap, developed	22.57	→	AAA
Vale: Large cap, emerging	11.67	→	AA
Tata Motors: Large cap, Emerging	4.51	→	A-
Baidu: Small cap, Emerging	23.72	→	AAA
Bookscape: Small cap, private	5.16	→	A-

Default Spreads – January 2024

Corporate Bond Default Spreads



Weights for Cost of Capital Calculation

101

- The weights used in the cost of capital computation should be market values.
- There are three specious arguments used against market value
 - *Book value is more reliable than market value because it is not as volatile:* While it is true that book value does not change as much as market value, this is more a reflection of weakness than strength
 - *Using book value rather than market value is a more conservative approach to estimating debt ratios:* For most companies, using book values will yield a lower cost of capital than using market value weights.
 - *Since accounting returns are computed based upon book value, consistency requires the use of book value in computing cost of capital:* While it may seem consistent to use book values for both accounting return and cost of capital calculations, it does not make economic sense.

Operating Leases at Disney

- The “debt value” of operating leases is the present value of the lease payments, at a rate that reflects their risk, usually the pre-tax cost of debt.
- The pre-tax cost of debt at Disney is 3.75%.

Year	Commitment	Present Value @3.75%
1	\$507.00	\$488.67
2	\$422.00	\$392.05
3	\$342.00	\$306.24
4	\$272.00	\$234.76
5	\$217.00	\$180.52
6-10	\$356.80	\$1,330.69
Debt value of leases		\$2,932.93

Disney reported \$1,784 million in commitments after year 5. Given that their average commitment over the first 5 years, we assumed 5 years @ \$356.8 million each.

- Debt outstanding at Disney = \$13,028 + \$ 2,933= \$15,961 million

Accounting comes to its senses on operating leases

103

- In 2019, both IFRS and GAAP made a major shift on operating leases, requiring companies to capitalize leases and show the resulting debt (and counter asset) on the balance sheets.
- That said, the accounting rules for capitalizing leases are far more complex than the simple calculations that I have used, for two reasons:
 - Accounting has to balance its desire to do the right thing with maintaining some connection to its legacy rules.
 - Companies have lobbied to modify rules in their sectors to cushion the impact.

Application Test: Estimating a Cost of Debt

104

- Based upon your firm's current earnings before interest and taxes, its interest expenses, estimate
 - ▣ An interest coverage ratio for your firm
 - ▣ A synthetic rating for your firm (use the tables from prior pages)
 - ▣ A pre-tax cost of debt for your firm
 - ▣ An after-tax cost of debt for your firm

Current Cost of Capital: Disney

□ Equity

■ Cost of Equity = Riskfree rate + Beta * Risk Premium
= 2.75% + 1.0013 (5.76%) = **8.52%**

■ Market Value of Equity = \$121,878 million

■ Equity/(Debt+Equity) = **88.42%**

□ Debt

■ After-tax Cost of debt =(Riskfree rate + Default Spread) (1-t)
= (2.75%+1%) (1-.361) = **2.40%**

■ Market Value of Debt = \$13,028+ \$2933 = \$ 15,961 million

■ Debt/(Debt +Equity) = **11.58%**

□ Cost of Capital = 8.52%(.8842)+ 2.40%(.1158) = 7.81%

Divisional Costs of Capital: Disney and Vale

Disney

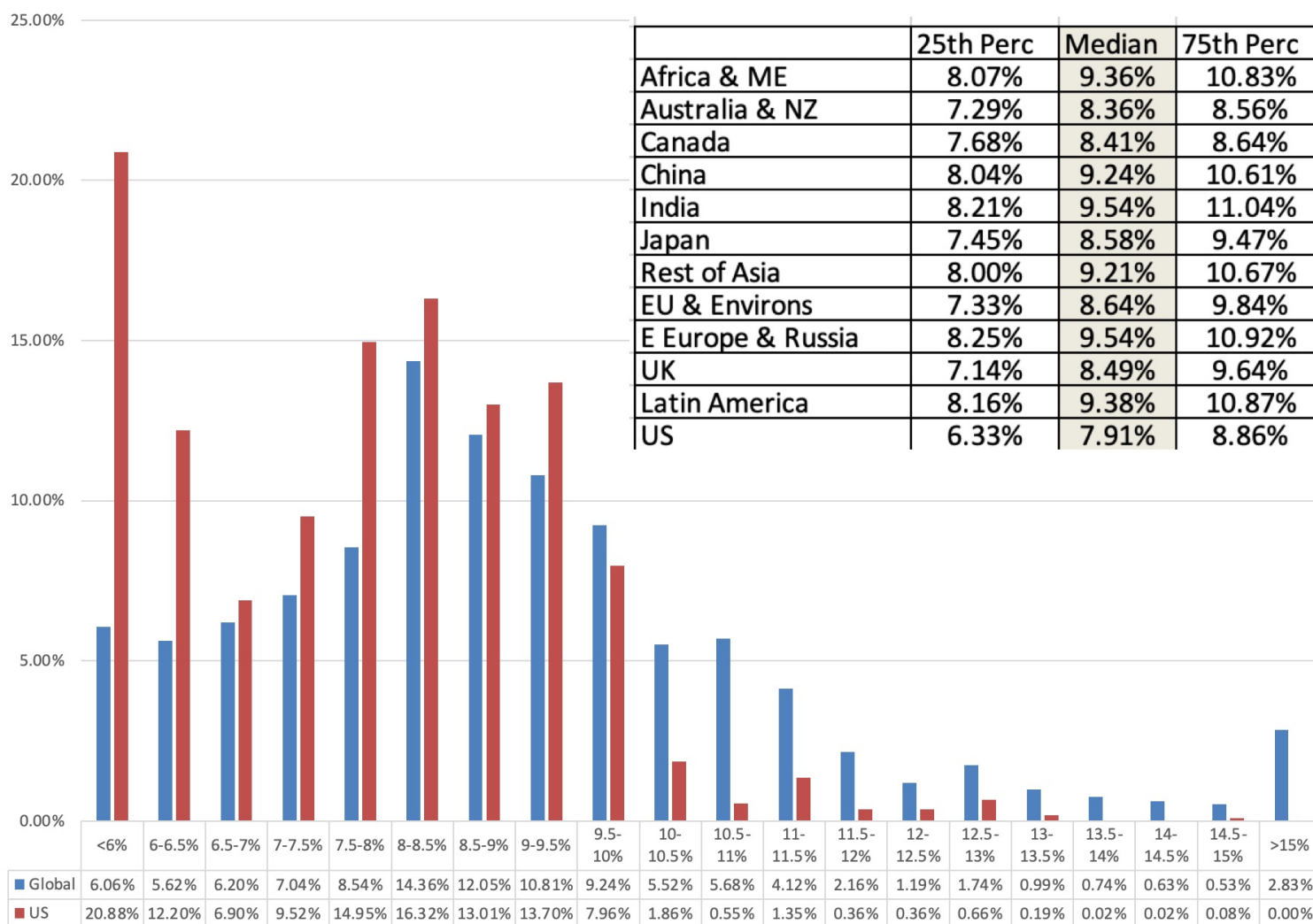
	Cost of equity	Cost of debt	Marginal tax rate	After-tax cost of debt	Debt ratio	Cost of capital
Media Networks	9.07%	3.75%	36.10%	2.40%	9.12%	8.46%
Parks & Resorts	7.09%	3.75%	36.10%	2.40%	10.24%	6.61%
Studio Entertainment	9.92%	3.75%	36.10%	2.40%	17.16%	8.63%
Consumer Products	9.55%	3.75%	36.10%	2.40%	53.94%	5.69%
Interactive	11.65%	3.75%	36.10%	2.40%	29.11%	8.96%
Disney Operations	8.52%	3.75%	36.10%	2.40%	11.58%	7.81%

Vale

<i>Business</i>	<i>Cost of equity</i>	<i>After-tax cost of debt</i>	<i>Debt ratio</i>	<i>Cost of capital (in US\$)</i>	<i>Cost of capital (in \$R)</i>
Metals & Mining	11.35%	2.67%	35.48%	8.27%	15.70%
Iron Ore	11.13%	2.67%	35.48%	8.13%	15.55%
Fertilizers	12.70%	2.67%	35.48%	9.14%	16.63%
Logistics	10.29%	2.67%	35.48%	7.59%	14.97%
Vale Operations	11.23%	2.67%	35.48%	8.20%	15.62%

Perspective on Cost of Capital

Cost of Capital in US \$: Start of 2024



Application Test: Estimating Cost of Capital

108

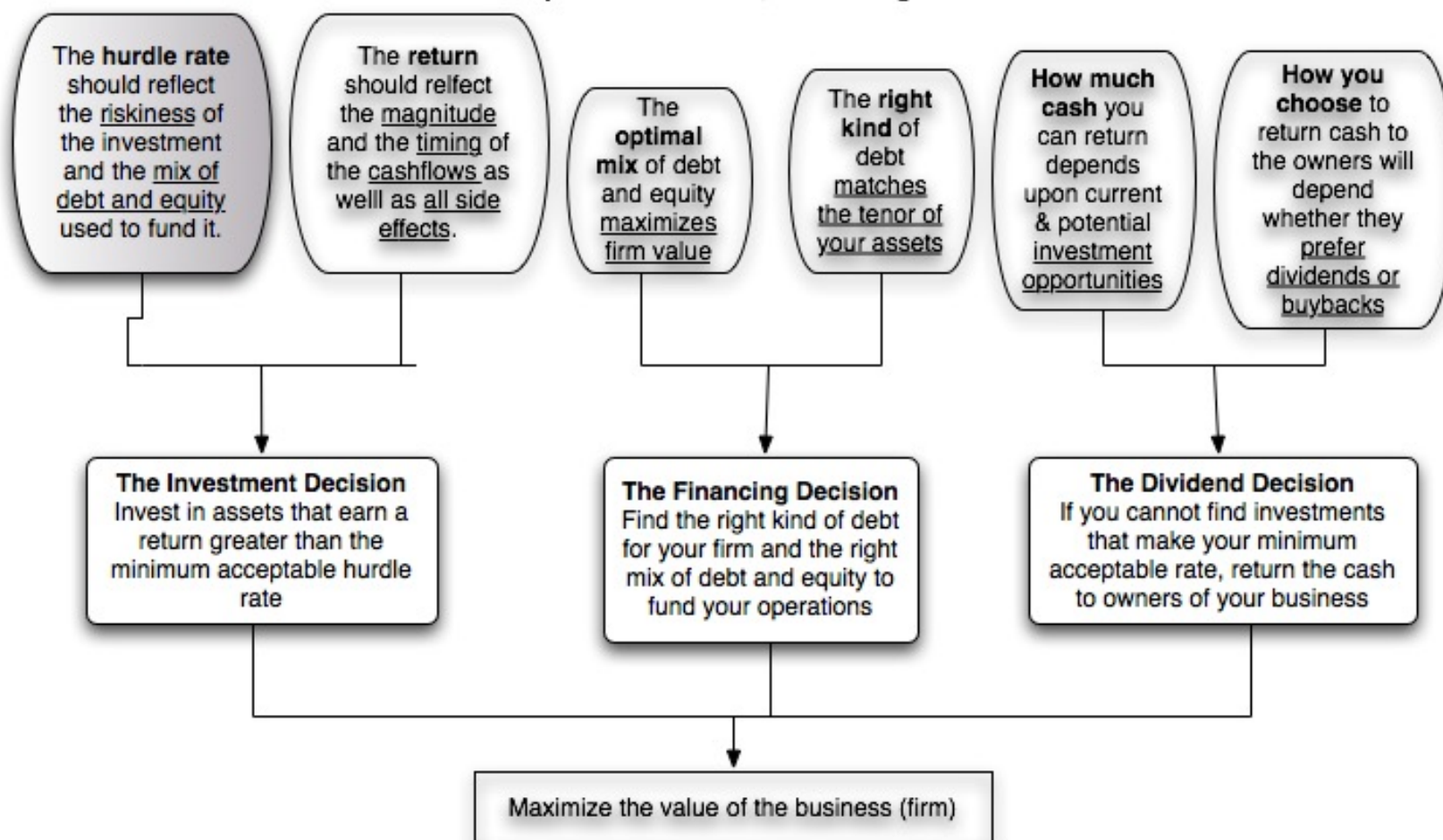
- Using the bottom-up unlevered beta that you computed for your firm, and the values of debt and equity you have estimated for your firm, estimate a bottom-up levered beta and cost of equity for your firm.
- Based upon the costs of equity and debt that you have estimated, and the weights for each, estimate the cost of capital for your firm.
- How different would your cost of capital have been, if you used book value weights?



The Investment Principle II: Measuring Returns

Back to First Principles

Chapters 3 & 4: Risk, Financing Mix and Hurdle Rates



Measures of return: earnings versus cash flows

111

- Principles Governing Accounting Earnings Measurement
 - Accrual Accounting: Show revenues when products and services are sold or provided, not when they are paid for. Show expenses associated with these revenues rather than cash expenses.
 - Operating versus Capital Expenditures: Only expenses associated with creating revenues in the current period should be treated as operating expenses. Expenses that create benefits over several periods are written off over multiple periods (as depreciation or amortization)
- To get from accounting earnings to cash flows, you have to:
 - add back non-cash expenses (like depreciation)
 - subtract out cash outflows which are not expensed (such as capital expenditures)
 - make accrual revenues and expenses into cash revenues and expenses (by considering changes in working capital).

Measuring Returns Right: The Basic Principles

- Use cash flows rather than earnings. You cannot spend earnings.
- Use “incremental” cash flows relating to the investment decision, i.e., cashflows that occur as a consequence of the decision, rather than total cash flows.
- Use “time weighted” returns, i.e., value cash flows that occur earlier more than cash flows that occur later.

The Return Mantra: “Time-weighted, Incremental Cash Flow Return”

Earnings versus Cash Flows: A Disney Theme Park

113

- The theme parks to be built near Rio, modeled on Euro Disney in Paris and Disney World in Orlando.
- The complex will include
 - A “Magic Kingdom” to be constructed, beginning immediately, and becoming operational at the beginning of the second year
 - A second theme park modeled on Epcot Center at Orlando to be constructed in the second and third year and becoming operational at the beginning of the fourth year.
- The earnings and cash flows are estimated in nominal U.S. Dollars.

Step 1: Estimate Accounting Earnings on Project

114

	0	1	2	3	4	5	6	7	8	9	10
Magic Kingdom - Revenues		\$0	\$1,000	\$1,400	\$1,700	\$2,000	\$2,200	\$2,420	\$2,662	\$2,928	\$2,987
Epcot Rio - Revenues		\$0	\$0	\$0	\$300	\$500	\$550	\$605	\$666	\$732	\$747
Resort & Properties - Revenues		\$0	\$250	\$350	\$500	\$625	\$688	\$756	\$832	\$915	\$933
Total Revenues			\$1,250	\$1,750	\$2,500	\$3,125	\$3,438	\$3,781	\$4,159	\$4,575	\$4,667
Magic Kingdom – Direct Expenses		\$0	\$600	\$840	\$1,020	\$1,200	\$1,320	\$1,452	\$1,597	\$1,757	\$1,792
Epcot Rio – Direct Expenses		\$0	\$0	\$0	\$180	\$300	\$330	\$363	\$399	\$439	\$448
Resort & Property – Direct Expenses		\$0	\$188	\$263	\$375	\$469	\$516	\$567	\$624	\$686	\$700
Total Direct Expenses			\$788	\$1,103	\$1,575	\$1,969	\$2,166	\$2,382	\$2,620	\$2,882	\$2,940
Depreciation & Amortization		\$50	\$425	\$469	\$444	\$372	\$367	\$364	\$364	\$366	\$368
Allocated G&A Costs		\$0	\$188	\$263	\$375	\$469	\$516	\$567	\$624	\$686	\$700
Operating Income		-\$50	-\$150	-\$84	\$106	\$315	\$389	\$467	\$551	\$641	\$658
Taxes		-\$18	-\$54	-\$30	\$38	\$114	\$141	\$169	\$199	\$231	\$238
Operating Income after Taxes		-\$32	-\$96	-\$54	\$68	\$202	\$249	\$299	\$352	\$410	\$421

And the Accounting View of Return

115

Year	After-tax Operating Income	BV of pre-project investment	BV of fixed assets	BV of Working capital	BV of Capital	Average BV of Capital	ROC(a)	ROC(b)
0		500	2000	0	\$2,500			
1	-\$32	\$450	\$3,000	\$0	\$3,450	\$2,975	-1.07%	-1.28%
2	-\$96	\$400	\$3,813	\$63	\$4,275	\$3,863	-2.48%	-2.78%
3	-\$54	\$350	\$4,145	\$88	\$4,582	\$4,429	-1.22%	-1.26%
4	\$68	\$300	\$4,027	\$125	\$4,452	\$4,517	1.50%	1.48%
5	\$202	\$250	\$3,962	\$156	\$4,368	\$4,410	4.57%	4.53%
6	\$249	\$200	\$3,931	\$172	\$4,302	\$4,335	5.74%	5.69%
7	\$299	\$150	\$3,931	\$189	\$4,270	\$4,286	6.97%	6.94%
8	\$352	\$100	\$3,946	\$208	\$4,254	\$4,262	8.26%	8.24%
9	\$410	\$50	\$3,978	\$229	\$4,257	\$4,255	9.62%	9.63%
10	\$421	\$0	\$4,010	\$233	\$4,243	\$4,250	9.90%	9.89%
Average							4.18%	4.11%

(a) Based upon average book capital over the year

(b) Based upon book capital at the start of each year

What should this return be compared to?

- The computed return on capital on this investment is about 4.18%. To make a judgment on whether this is a sufficient return, we need to compare this return to a “hurdle rate”. Which of the following is the right hurdle rate? Why or why not?
 - a. The riskfree rate of 2.75% (T. Bond rate)
 - b. The cost of equity for Disney as a company (8.52%)
 - c. The cost of equity for Disney theme parks (7.09%)
 - d. The cost of capital for Disney as a company (7.81%)
 - e. The cost of capital for Disney theme parks (6.61%)
 - f. None of the above

A Tangent: From New to Existing Investments: ROC for the entire firm

How “good” are the existing investments of the firm?

Assets		Liabilities	
Existing Investments Generate cashflows today Includes long lived (fixed) and short-lived (working capital) assets	Assets in Place	Debt	Fixed Claim on cash flows Little or No role in management <i>Fixed Maturity</i> <i>Tax Deductible</i>
Expected Value that will be created by future investments	Growth Assets	Equity	Residual Claim on cash flows Significant Role in management <i>Perpetual Lives</i>

Measuring ROC for existing investments..

Company	EBIT (1-t)	BV of Debt	BV of Equity	Cash	BV of Capital	Return on Capital	Cost of Capital	ROC - Cost of Capital
Disney	\$6,920	\$16,328	\$41,958	\$3,387	\$54,899	12.61%	7.81%	4.80%
Vale	\$12,432	\$49,246	\$75,974	\$5,818	\$119,402	10.41%	8.20%	2.22%
Baidu	¥9,111	¥13,561	¥27,215	¥10,456	¥30,320	30.05%	12.42%	17.63%
Tata Motors	120,905₹	471,489₹	330,056₹	225,562₹	575,983₹	20.99%	11.44%	9.55%
Bookscape	\$1,775	\$12,136	\$8,250	\$1,250	\$19,136	9.28%	10.30%	-1.02%

Estimating a hurdle rate for Rio Disney

- We estimated a cost of capital of 6.61% for the Disney theme park business, using a bottom-up levered beta of 0.7537 for the business.
 - ▣ This cost of equity may not adequately reflect the additional risk associated with the theme park being in an emerging market.
 - ▣ The concern we would have with using this cost of equity for this project is that it may not adequately reflect the additional risk associated with the theme park being in an emerging market (Brazil).
- We first computed the Brazil country risk premium (by multiplying the default spread for Brazil by the relative equity market volatility) and then re-estimated the cost of equity:
 - ▣ Country risk premium for Brazil = $5.5\% + 3\% = 8.5\%$
 - ▣ Cost of Equity in US\$ = $2.75\% + 0.7537 (8.5\%) = 9.16\%$
- Using this estimate of the cost of equity, Disney's theme park debt ratio of 10.24% and its after-tax cost of debt of 2.40% (see chapter 4), we can estimate the cost of capital for the project:
 - ▣ Cost of Capital in US\$ = $9.16\% (0.8976) + 2.40\% (0.1024) = 8.46\%$

Would lead us to conclude that...

- ❑ **Do not invest in this park.** The return on capital of 4.18% is lower than the cost of capital for theme parks of 8.46%; This would suggest that the project should not be taken.
- ❑ Given that we have computed the average over an arbitrary period of 10 years, while the theme park itself would have a life greater than 10 years, would you feel comfortable with this conclusion?
 - ▣ Yes
 - ▣ No

A Tangent: From New to Existing Investments: ROC for the entire firm

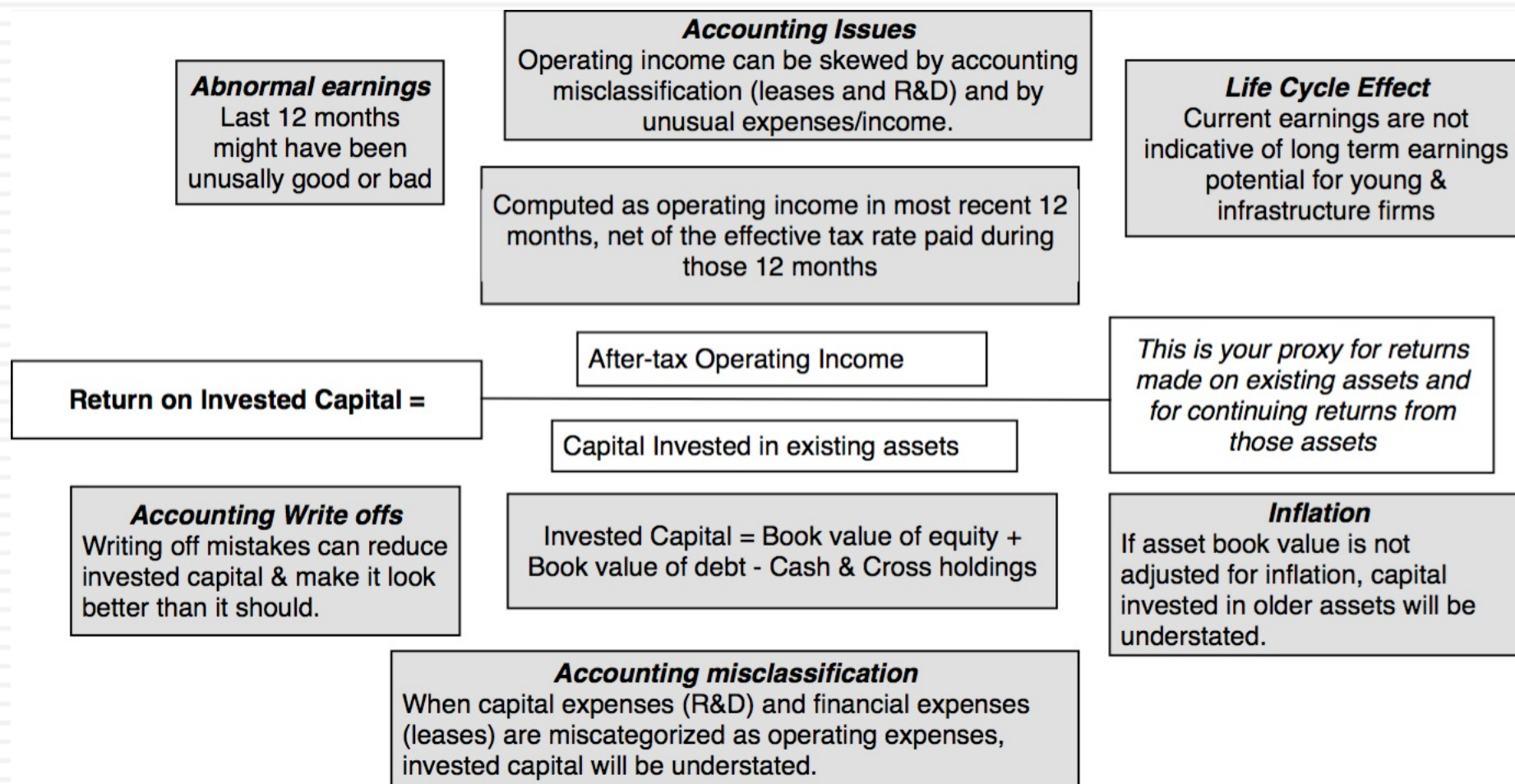
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Expected Value that will be created by future investments	Growth Assets	Equity	Residual Claim on cash flows Significant Role in management <i>Perpetual Lives</i>

Measuring ROC for existing investments..

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Tata Motors	120,905₹	471,489₹	330,056₹	225,562₹	575,983₹	20.99%	11.44%	9.55%
Bookscape	\$1,775	\$12,136	\$8,250	\$1,250	\$19,136	9.28%	10.30%	-1.02%

The return on capital is an accounting number, though, and that should scare you.



Return Spreads Globally....

122

<i>Region</i>	<i># firms</i>	<i>ROE</i>	<i>COE</i>	<i>% of firms with ROE>COE</i>	<i>ROIC</i>	<i>WACC</i>	<i>% of firms with ROIC>WACC</i>	<i>% of firms with ROIC-WACC>5%</i>	<i>% of firms with ROIC-WACC<5%</i>
Africa and Middle East	2,423	7.55%	10.98%	32.03%	4.77%	9.33%	25.05%	16.59%	83.41%
Australia & NZ	1,798	-12.08%	8.51%	18.19%	-11.59%	8.36%	19.24%	13.68%	86.32%
Canada	2,791	-20.66%	8.64%	11.64%	-18.59%	8.41%	12.54%	8.10%	91.90%
China	7,504	4.34%	10.07%	23.87%	3.36%	8.94%	25.49%	15.27%	84.73%
EU & Environs	5,925	6.73%	9.83%	33.96%	5.48%	8.59%	33.59%	24.76%	75.24%
Eastern Europe & Russia	325	10.17%	10.38%	34.46%	4.32%	9.17%	26.46%	16.31%	83.69%
India	4,446	8.32%	11.12%	34.14%	5.61%	9.90%	29.94%	19.50%	80.50%
Japan	4,020	7.14%	10.05%	33.23%	7.15%	8.62%	41.32%	26.87%	73.13%
Latin America & Caribbean	984	9.28%	12.30%	35.37%	7.37%	9.76%	35.98%	24.19%	75.81%
Small Asia	9,876	5.19%	10.86%	25.65%	3.81%	9.37%	23.78%	14.14%	85.86%
UK	1,125	1.47%	9.71%	29.16%	4.76%	8.74%	37.16%	28.80%	71.20%
United States	6,481	2.64%	8.80%	26.68%	0.05%	7.91%	23.59%	17.74%	82.26%
Global	47,698	4.93%	9.92%	27.54%	3.73%	8.68%	27.12%	18.02%	81.98%

Application Test: Assessing Investment Quality

- For the most recent period for which you have data, compute the after-tax return on capital earned by your firm, where after-tax return on capital is computed to be
 - $\text{After-tax ROC} = \text{EBIT} (1 - \text{tax rate}) / (\text{BV of debt} + \text{BV of Equity} - \text{Cash})_{\text{previous year}}$
- For the most recent period for which you have data, compute the return spread earned by your firm:
 - $\text{Return Spread} = \text{After-tax ROC} - \text{Cost of Capital}$
- Follow up by
 - Examining the reasons why your company earns the excess return (positive or negative) that it does
 - Evaluating whether the company will continue to earn similar excess returns in the future

The cash flow view of this project..

	0	1	2	3	4	5	6	7	8	9	10
After-tax Operating Income		-\$32	-\$96	-\$54	\$68	\$202	\$249	\$299	\$352	\$410	\$421
+ Depreciation & Amortization	\$0	\$50	\$425	\$469	\$444	\$372	\$367	\$364	\$364	\$366	\$368
- Capital Expenditures	\$2,500	\$1,000	\$1,188	\$752	\$276	\$258	\$285	\$314	\$330	\$347	\$350
- Change in Non-cash Working Capital		\$0	\$63	\$25	\$38	\$31	\$16	\$17	\$19	\$21	\$5
Cashflow to firm	(\$2,500)	(\$982)	(\$921)	(\$361)	\$198	\$285	\$314	\$332	\$367	\$407	\$434

To get from income to cash flow, we

- I. added back all non-cash charges such as depreciation. Tax benefits:
- II. subtracted out the capital expenditures
- III. subtracted out the change in non-cash working capital

The incremental cash flows on the project

	0	1	2	3	4	5	6	7	8	9	10
After-tax Operating Income		-\$32	-\$96	-\$54	\$68	\$202	\$249	\$299	\$352	\$410	\$421
+ Depreciation & Amortization	\$0	\$50	\$425	\$469	\$444	\$372	\$367	\$364	\$364	\$366	\$368
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- Change in non-cash Working Capital		\$0	\$63	\$25	\$38	\$31	\$16	\$17	\$19	\$21	\$5
Cashflow to firm	(\$2,500)	(\$982)	(\$921)	(\$361)	\$198	\$285	\$314	\$332	\$367	\$407	\$434
+ Pre-project investment (sunk)	\$500										
- Pre-project Depreciation * tax rate		\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18	\$18
+ Non-incremental Allocated Expense (1-t)		\$0	\$80	\$112	\$160	\$200	\$220	\$242	\$266	\$292	\$298
Incremental Cash flow to the firm	(\$2,000)	(\$1,000)	(\$860)	(\$267)	\$340	\$467	\$516	\$555	\$615	\$681	\$715

\$ 500 million has already been spent & \$ 50 million in depreciation will exist anyway

2/3rd of allocated G&A is fixed.
Add back this amount (1-t)
Tax rate = 36.1%

Sunk Costs

126

- What is a sunk cost? Any expenditure that has already been incurred and cannot be recovered (even if a project is rejected) is called a sunk cost.
 - A test market for a consumer product and R&D expenses for a drug (for a pharmaceutical company) would be good examples.
- The sunk cost rule: When analyzing a project, sunk costs should not be considered since they are not incremental.
- *A Behavioral Aside: It is a well-established finding in psychological and behavioral research that managers find it almost impossible to ignore sunk costs.*

Allocated Costs

127

- Firms allocate costs to individual projects from a centralized pool (such as general and administrative expenses) based upon some characteristic of the project (sales is a common choice, as is earnings)
- For large firms, these allocated costs can be significant and result in the rejection of projects
- To the degree that these costs are not incremental (and would exist anyway), this makes the firm worse off.
- Thus, it is only the incremental component of allocated costs that should show up in project analysis.

To Time-Weighted Cash Flows

128

- Incremental cash flows in the earlier years are worth more than incremental cash flows in later years.
- In fact, cash flows across time cannot be added up. They have to be brought to the same point in time before aggregation.
- This process of moving cash flows through time is
 - ▣ *discounting*, when future cash flows are brought to the present
 - ▣ *compounding*, when present cash flows are taken to the future

Present Value Mechanics

129

Cash Flow Type	Discounting Formula	Compounding Formula
1. Simple CF	$CF_n / (1+r)^n$	$CF_0 (1+r)^n$
2. Annuity	$A \left[\frac{1 - \frac{1}{(1+r)^n}}{r} \right]$	$A \left[\frac{(1+r)^n - 1}{r} \right]$
3. Growing Annuity	$A(1+g) \left[\frac{1 - \frac{(1+g)^n}{(1+r)^n}}{r-g} \right]$	
4. Perpetuity	A/r	
5. Growing Perpetuity	Expected Cashflow next year/(r-g)	

Discounted cash flow measures of return

130

- **Net Present Value (NPV):** The net present value is the sum of the present values of all cash flows from the project (including initial investment).
 - ▣ NPV = Sum of the present values of all cash flows on the project, including the initial investment, with the cash flows being discounted at the appropriate hurdle rate (cost of capital, if cash flow is cash flow to the firm, and cost of equity, if cash flow is to equity investors)
 - ▣ *Decision Rule: Accept if $NPV > 0$*
- **Internal Rate of Return (IRR):** The internal rate of return is the discount rate that makes the net present value equal zero.
 - ▣ It is the percentage rate of return, based upon incremental time-weighted cash flows.
 - ▣ *Decision Rule: Accept if $IRR > \text{hurdle rate}$*

Closure on Cash Flows

- Salvage Value: In a project with a finite and short life, you would need to compute a salvage value, which is the expected proceeds from selling all of the investment in the project at the end of the project life. It is often set equal to book value of fixed assets and working capital
- Terminal Value: In a project with an infinite or very long life, we compute cash flows for a reasonable period, and then compute a terminal value for this project, which is the present value of all cash flows that occur after the estimation period ends..
- Assuming the project lasts forever, and that cash flows after year 10 grow 2% (the inflation rate) forever, the present value at the end of year 10 of cash flows after that can be written as:
 - Terminal Value in year 10 = $CF \text{ in year } 11 / (\text{Cost of Capital} - \text{Growth Rate})$
 $= 715 (1.02) / (.0846 - .02) = \$ 11,275 \text{ million}$

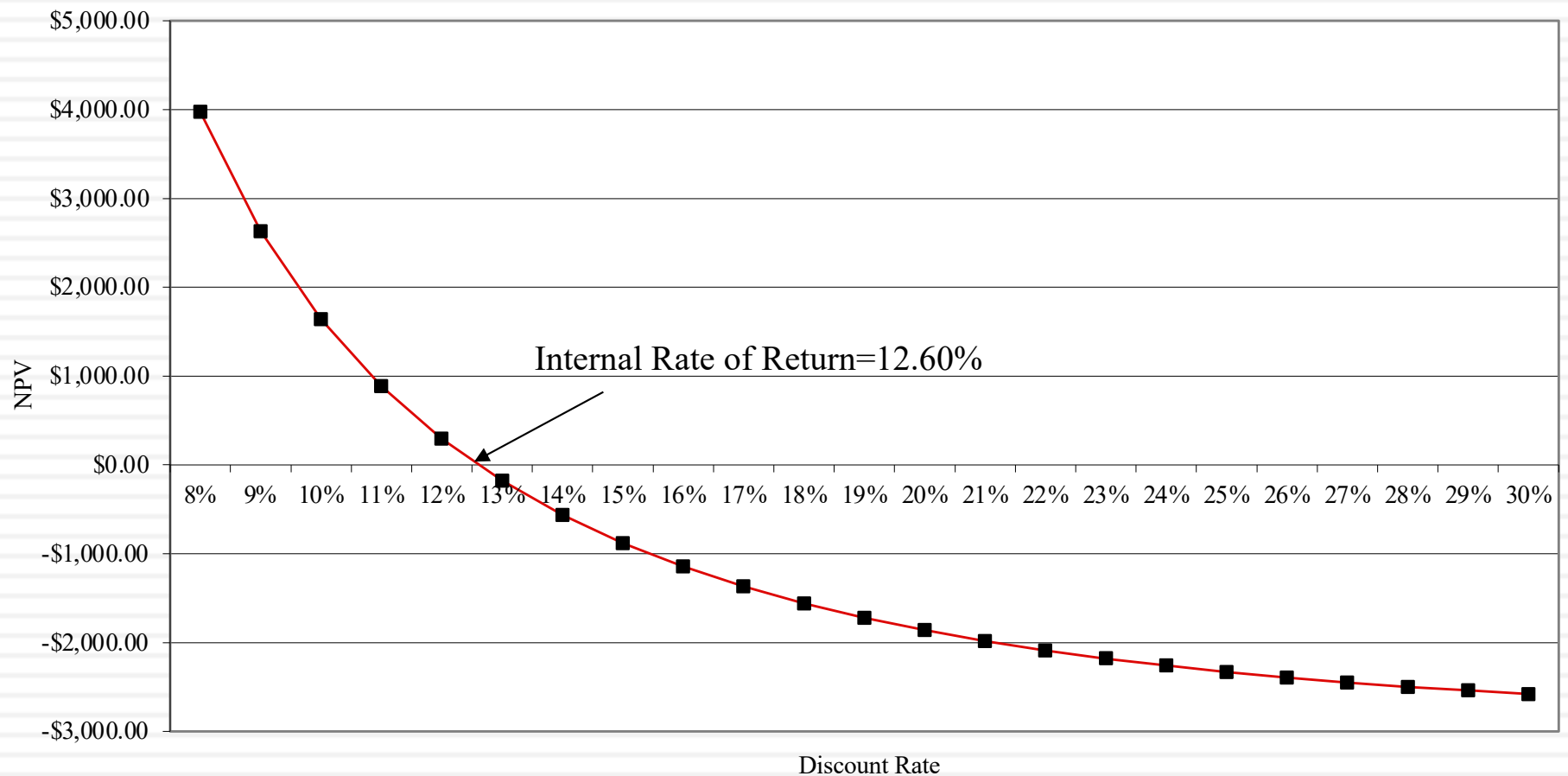
Which yields a NPV of..

Year	Annual Cashflow	Terminal Value	Present Value
0	-\$2,000		-\$2,000
1	-\$1,000		-\$922
2	-\$859		-\$730
3	-\$267		-\$210
4	\$340		\$246
5	\$466		\$311
6	\$516		\$317
7	\$555		\$314
8	\$615		\$321
9	\$681		\$328
10	\$715	\$11,275	\$5,321
			\$3,296

Which makes the argument that..

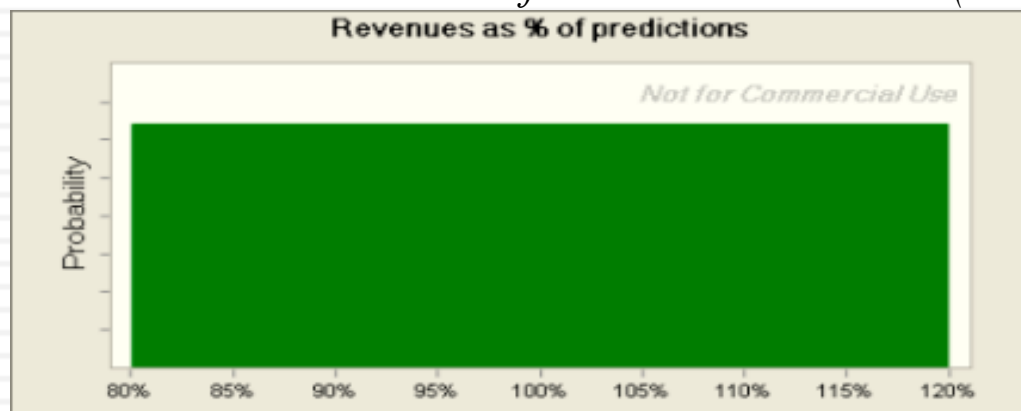
- The project should be accepted. The positive net present value suggests that the project will add value to the firm and earn a return in excess of the cost of capital.
 - By taking the project, Disney will increase its value as a firm by \$3,296 million.
 - Will the market price increase by the same amount? Why or why not?

The IRR of this project

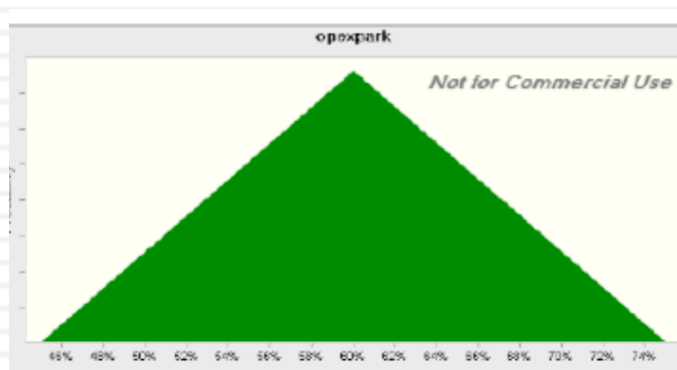


The final step up: Incorporate probabilistic estimates.. Rather than expected values..

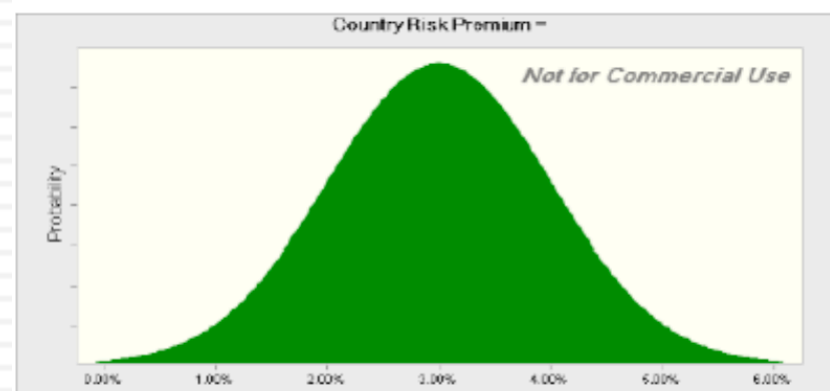
Actual Revenues as % of Forecasted Revenues (Base case = 100%)



Operating Expenses at Parks as % of Revenues (Base Case = 60%)



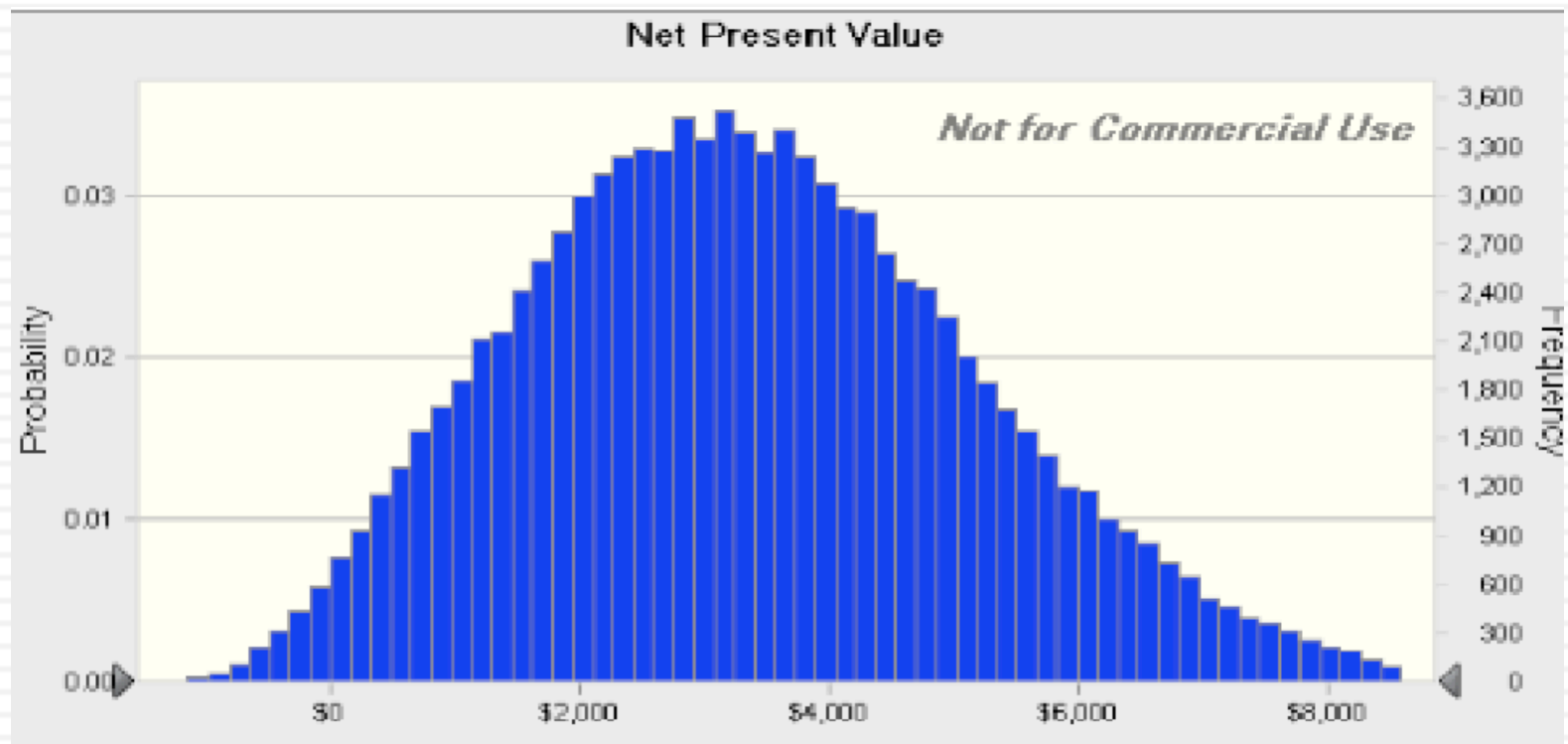
Country Risk Premium (Base Case = 3% (Brazil))



The resulting simulation...

Average = \$3.40 billion

Median = \$3.28 billion



NPV ranges from -\$1 billion to +\$8.5 billion. NPV is negative 12% of the time.

Disney Theme Park: Project Analysis in \$R

137

- The inflation rates were assumed to be 9% in Brazil and 2% in the United States. The \$R/dollar rate at the time of the analysis was 2.35 \$R/dollar.
- The expected exchange rate was derived assuming purchasing power parity.
 - Expected Exchange Rate_t = Exchange Rate today * (1.09/1.02)^t
- The expected growth rate after year 10 is still expected to be the inflation rate, but it is the 9% \$R inflation rate.
- The cost of capital in \$R was derived from the cost of capital in dollars and the differences in inflation rates:

$$\begin{aligned}\$R \text{ Cost of Capital} &= (1 + \text{US } \$ \text{ Cost of Capital}) \frac{(1 + \text{Exp Inflation}_{\text{Brazil}})}{(1 + \text{Exp Inflation}_{\text{US}})} - 1 \\ &= (1.0846) (1.09/1.02) - 1 = 15.91\%\end{aligned}$$

Disney Theme Park: \$R NPV

Expected Exchange Rate_t
= Exchange Rate today * (1.09/1.02)^t

Discount at \$R cost of capital
= (1.0846) (1.09/1.02) – 1 = 15.91%

Year	Cashflow (\$)	\$R/\$	Cashflow (\$R)	Present Value
0	-R\$ 2,000.00	R\$ 2.35	-R\$ 4,700.00	-R\$ 4,700.00
1	-R\$ 1,000.00	R\$ 2.51	-R\$ 2,511.27	-R\$ 2,166.62
2	-R\$ 859.03	R\$ 2.68	-R\$ 2,305.29	-R\$ 1,715.95
3	-R\$ 267.39	R\$ 2.87	-R\$ 766.82	-R\$ 492.45
4	R\$ 340.22	R\$ 3.06	R\$ 1,042.63	R\$ 577.68
5	R\$ 466.33	R\$ 3.27	R\$ 1,527.21	R\$ 730.03
6	R\$ 516.42	R\$ 3.50	R\$ 1,807.31	R\$ 745.36
7	R\$ 555.08	R\$ 3.74	R\$ 2,075.89	R\$ 738.63
8	R\$ 614.95	R\$ 4.00	R\$ 2,457.65	R\$ 754.45
9	R\$ 681.46	R\$ 4.27	R\$ 2,910.36	R\$ 770.81
10	R\$ 11,989.85	R\$ 4.56	R\$ 54,719.84	R\$ 12,503.50
				R\$ 7,745.43

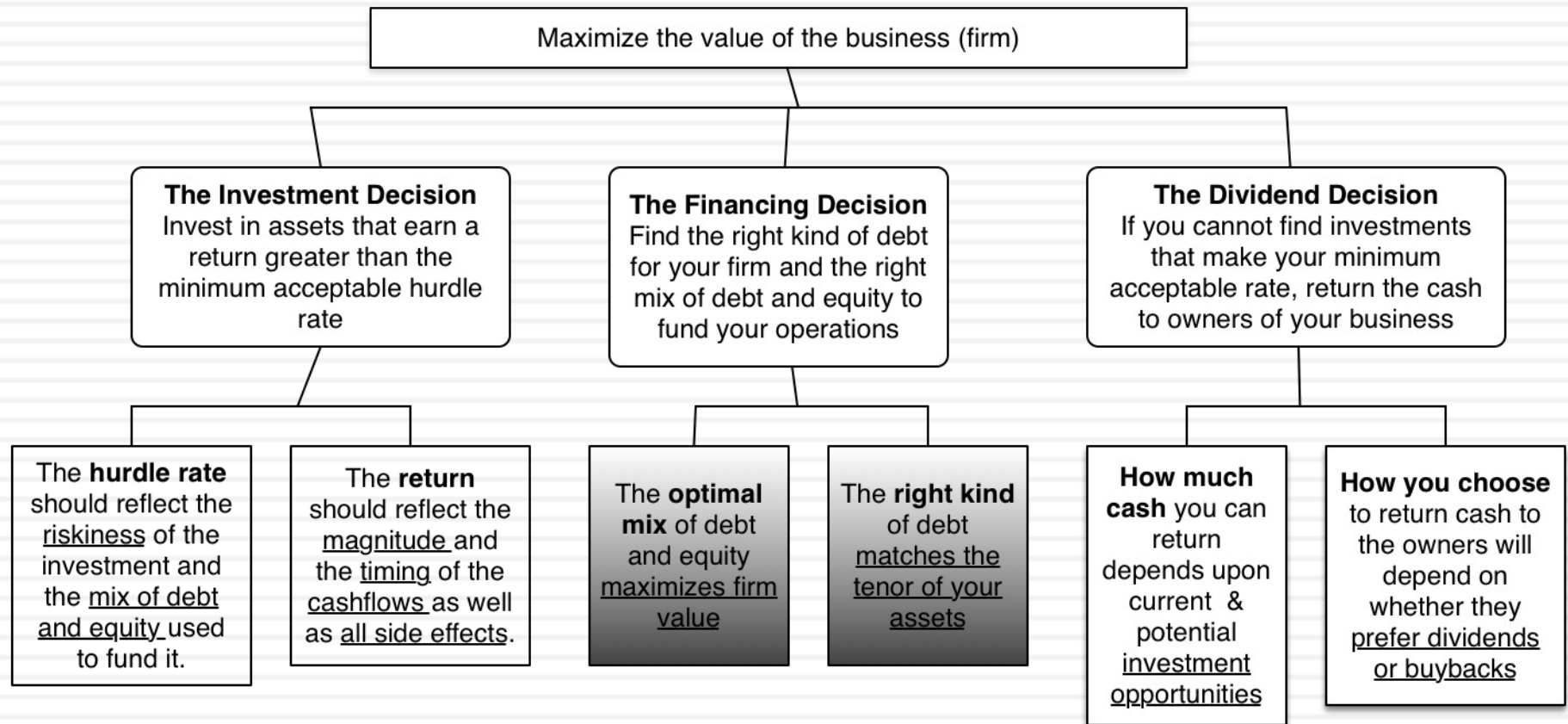
NPV = R\$ 7,745/2.35= \$ 3,296 Million
NPV is equal to NPV in dollar terms



The Financing Principle I: The Financing Mix

First principles

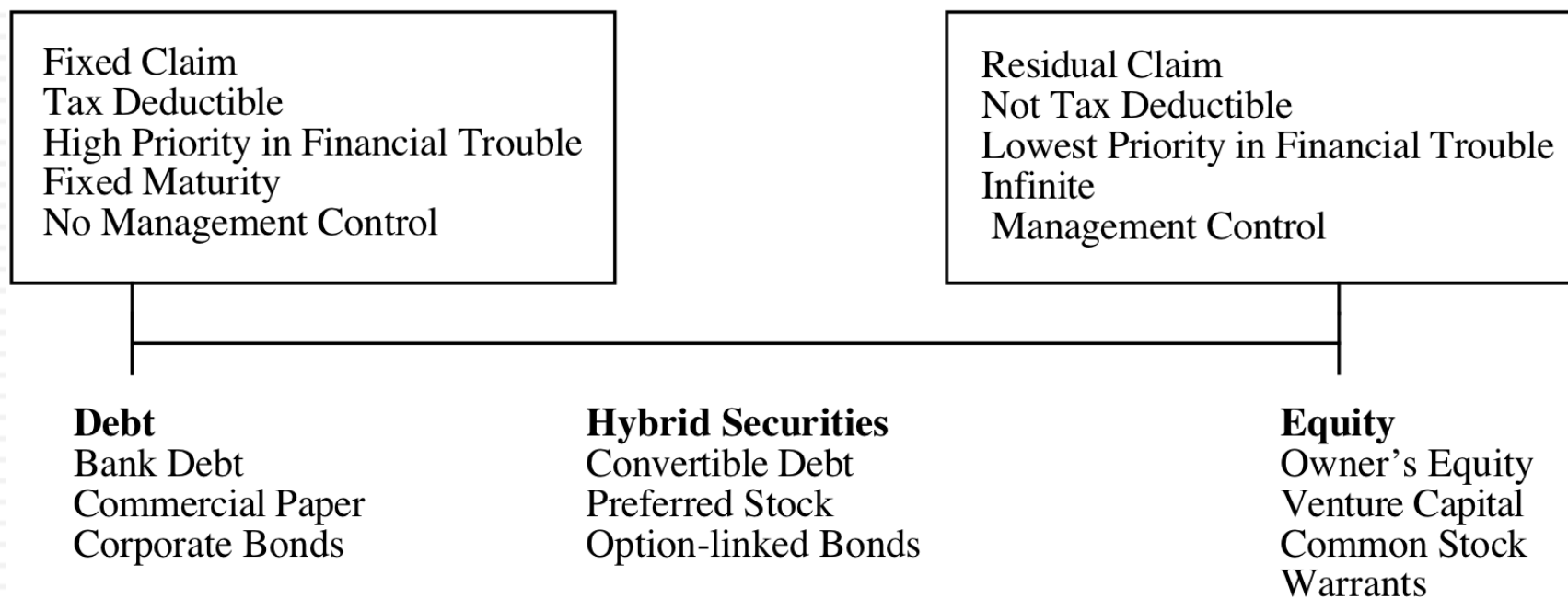
140



The Choices in Financing

141

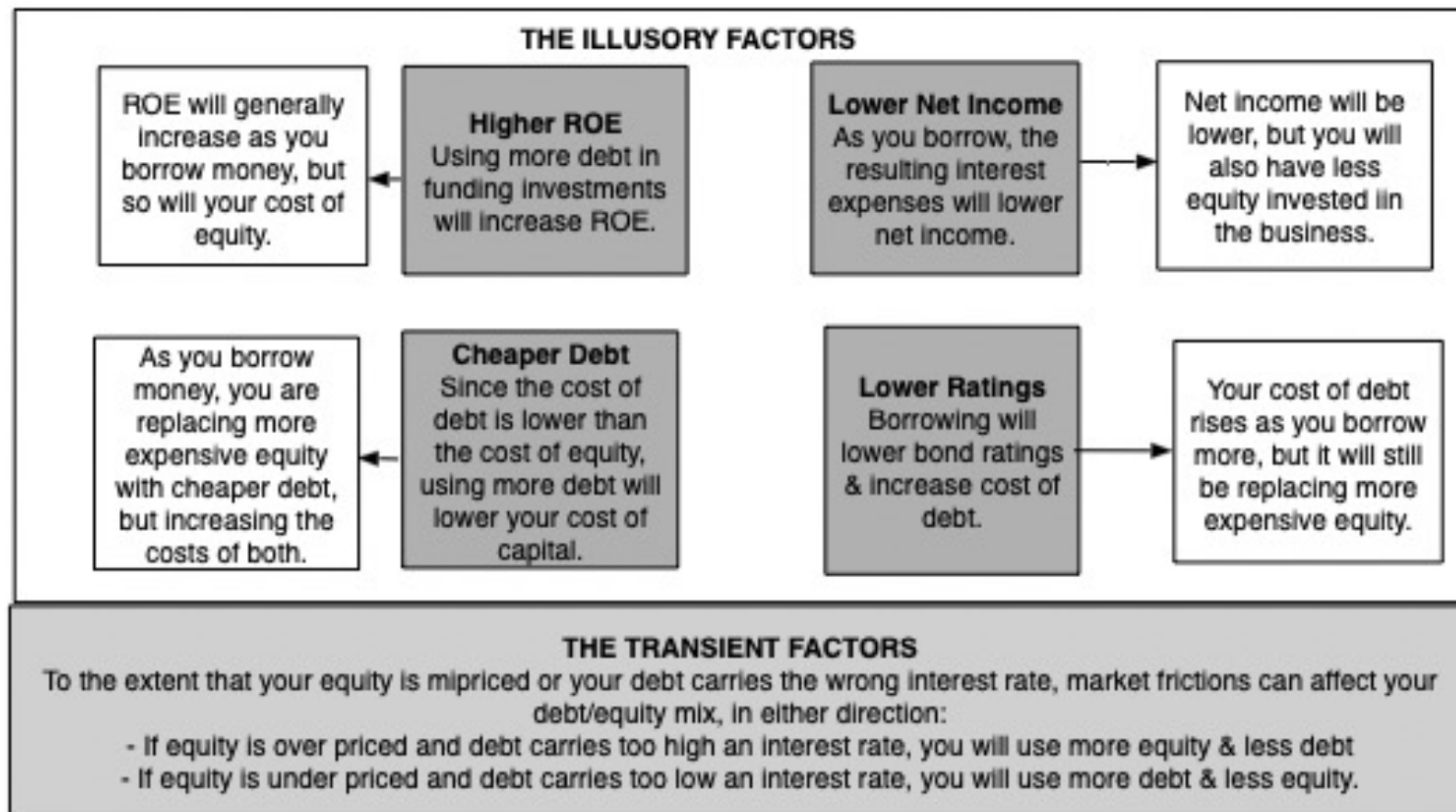
Figure 7.1: Debt versus Equity



The Illusory Benefits of Debt

142

Debt versus Equity: The Illusory Benefits



Debt: The Real Trade off

DEBT OR EQUITY: THE LIGHT AND DARK SIDES

The Light Side

The Dark Side

Shows up in value as

Debt Effect

Debt Effect

Shows up in value as

THE REAL FACTORS

Higher cash flows to equity from tax savings on interest expenses or a lower after-tax cost of debt.

Tax Benefits
Interest expenses are tax deductible, while cash flows to equity are not.

Bankruptcy Cost
As you borrow more, you increase your likelihood of distress.

Higher costs for both equity & debt + Higher risk of failure.

Fewer bad projects (earning less than the hurdle rate) will be taken.

Disciplinary Tool
Having to make interest expenses can make managers more disciplined in project picking

Agency Cost
Lenders & stockholders have different interests & they will clash.

Higher interest rates on debt and more restrictive covenants.

Application Test: Would you expect your firm to gain or lose from using a lot of debt?

144

- ☐ Consider, for your firm,
 - a. The potential tax benefits of borrowing
 - b. The benefits of using debt as a disciplinary mechanism
 - c. The potential for expected bankruptcy costs
 - d. The potential for agency costs
 - e. The need for financial flexibility
- ☐ Would you expect your firm to have a high debt ratio or a low debt ratio?
- ☐ Does the firm's current debt ratio meet your expectations?

I. The Cost of Capital Approach

145

- Value of a Firm = Present Value of Cash Flows to the Firm, discounted back at the cost of capital.
- If the cash flows to the firm are held constant, and the cost of capital is minimized, the value of the firm will be maximized.
- Cost of Capital = Cost of Equity ($E/(D+E)$) + Pre-tax Cost of Debt $(1 - \text{tax rate}) (D/(D+E))$
 - The question then becomes a simple one. As the debt ratio changes, how does the cost of capital change?

Applying Cost of Capital Approach: The Textbook Example

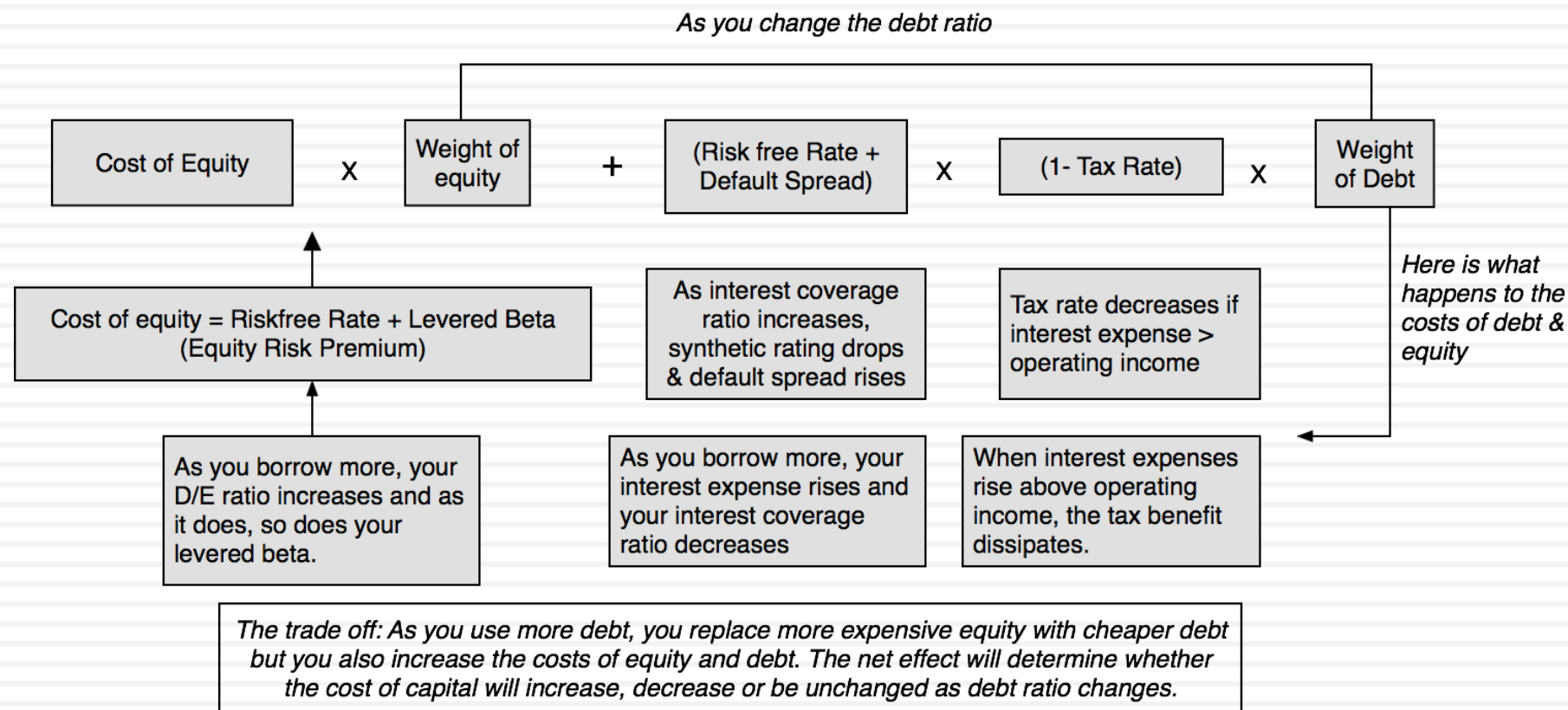
146

Assume the firm has \$200 million in cash flows, expected to grow 3% a year forever.

D/(D+E)	Cost of Equity	After-tax Cost of Debt	Cost of Capital	Firm Value
0	10.50%	4.80%	10.50%	\$2,747
10%	11.00%	5.10%	10.41%	\$2,780
20%	11.60%	5.40%	10.36%	\$2,799
30%	12.30%	5.52%	10.27%	\$2,835
40%	13.10%	5.70%	10.14%	\$2,885
50%	14.50%	6.10%	10.30%	\$2,822
60%	15.00%	7.20%	10.32%	\$2,814
70%	16.10%	8.10%	10.50%	\$2,747
80%	17.20%	9.00%	10.64%	\$2,696
90%	18.40%	10.20%	11.02%	\$2,569
100%	19.70%	11.40%	11.40%	\$2,452

$$\text{Value} = \frac{\text{Expected Cash flow to firm next year}}{(\text{Cost of capital} - g)} = \frac{200(1.03)}{(\text{Cost of capital} - g)}$$

Debt: The Cost of Capital Approach



Applied to Disney in November 2013: Cost of Equity

Debt to Capital Ratio	D/E Ratio	Levered Beta	Cost of Equity
0%	0.00%	0.9239	8.07%
10%	11.11%	0.9895	8.45%
20%	25.00%	1.0715	8.92%
30%	42.86%	1.1770	9.53%
40%	66.67%	1.3175	10.34%
50%	100.00%	1.5143	11.48%
60%	150.00%	1.8095	13.18%
70%	233.33%	2.3016	16.01%
80%	400.00%	3.2856	21.68%
90%	900.00%	6.2376	38.69%

Levered Beta = $0.9239 (1 + (1 - .361) (D/E))$

Cost of equity = $2.75\% + \text{Levered beta} * 5.76\%$

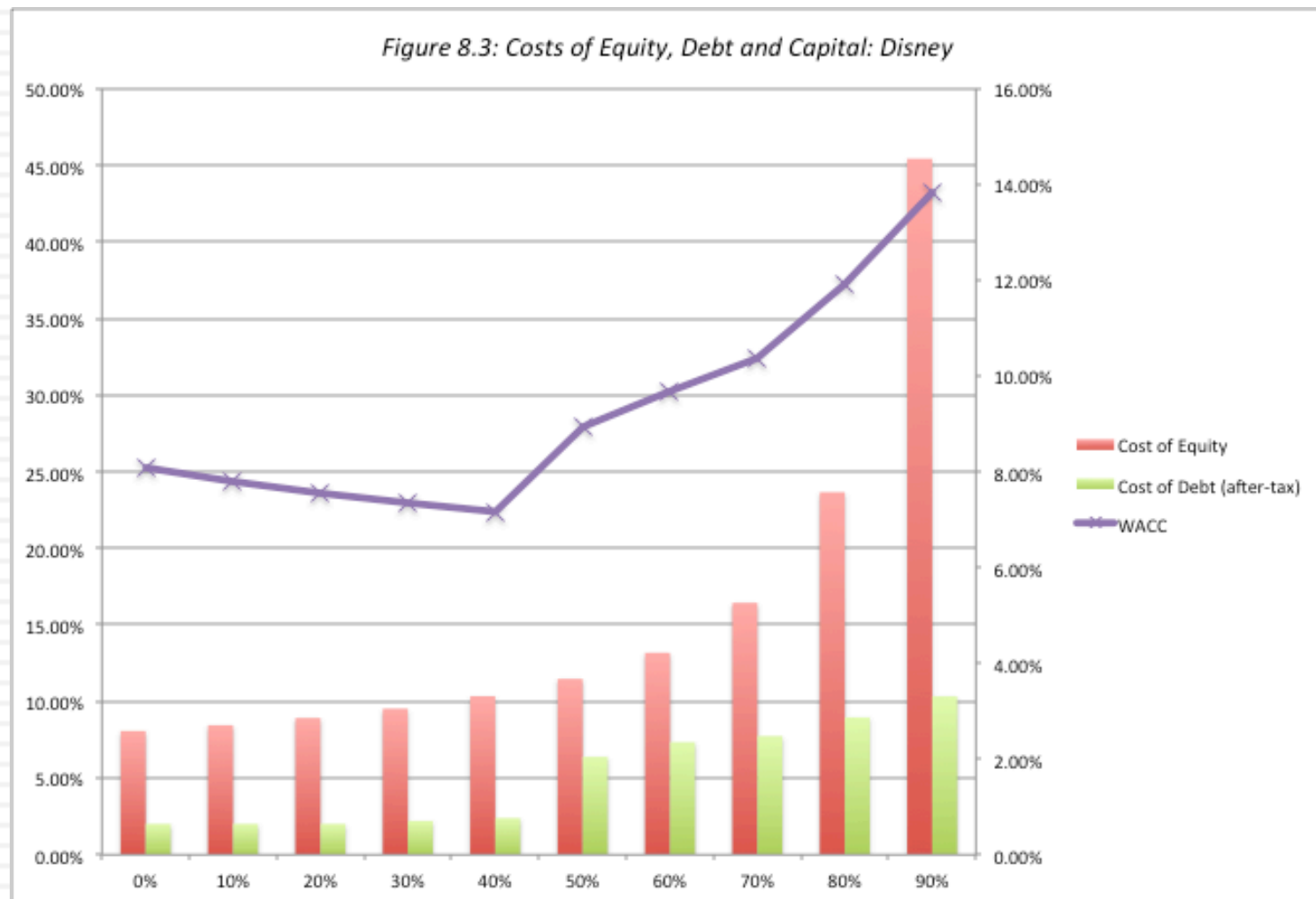
And cost of debt

Debt Ratio	\$ Debt	Interest Expense	Interest Coverage Ratio	Bond Rating	Pre-tax cost of debt	Tax rate	After-tax cost of debt
0%	\$0	\$0	∞	Aaa/AAA	3.15%	36.10%	2.01%
10%	\$13,784	\$434	23.10	Aaa/AAA	3.15%	36.10%	2.01%
20%	\$27,568	\$868	11.55	Aaa/AAA	3.15%	36.10%	2.01%
30%	\$41,352	\$1,427	7.03	Aa2/AA	3.45%	36.10%	2.20%
40%	\$55,136	\$2,068	4.85	A2/A	3.75%	36.10%	2.40%
50%	\$68,919	\$6,892	1.46	B3/B-	10.00%	36.10%	6.39%
60%	\$82,703	\$9,511	1.05	Caa/CCC	11.50%	36.10%	7.35%
70%	\$96,487	\$11,096	0.90	Caa/CCC	11.50%	32.64%	7.75%
80%	\$110,271	\$13,508	0.74	Ca2/CC	12.25%	26.81%	8.97%
90%	\$124,055	\$16,437	0.61	C2/C	13.25%	22.03%	10.33%

Disney's cost of capital in November 2013

Debt Ratio	Beta	Cost of Equity	Cost of Debt (after-tax)	WACC
0%	0.9239	8.07%	2.01%	8.07%
10%	0.9895	8.45%	2.01%	7.81%
20%	1.0715	8.92%	2.01%	7.54%
30%	1.1770	9.53%	2.20%	7.33%
40%	1.3175	10.34%	2.40%	7.16%
50%	1.5143	11.48%	6.39%	8.93%
60%	1.8095	13.18%	7.35%	9.68%
70%	2.3762	16.44%	7.75%	10.35%
80%	3.6289	23.66%	8.97%	11.90%
90%	7.4074	45.43%	10.33%	13.84%

Disney: Cost of Capital Chart



The cost of capital approach suggests that Disney should do the following...

- Disney currently has \$15.96 billion in debt. The optimal dollar debt (at 40%) is roughly \$55.1 billion. Disney has excess debt capacity of 39.14 billion.
- To move to its optimal and gain the increase in value, Disney should borrow \$ 39.14 billion and buy back stock.
- Given the magnitude of this decision, you should expect to answer three questions:
 - ▣ Why should we do it?
 - ▣ What if something goes wrong?
 - ▣ What if we don't want (or cannot) buy back stock and want to make investments with the additional debt capacity?

1. Why should we do it? The Effect on Value

- In this approach, we start with the current market value and isolate the effect of changing the capital structure on the cash flow and the resulting value.

Enterprise Value before the change = \$133,908 million

Cost of financing Disney at existing debt ratio = \$ 133,908 * 0.0781 = \$10,458 million

Cost of financing Disney at optimal debt ratio = \$ 133,908 * 0.0716 = \$ 9,592 million

Annual savings in cost of financing = \$10,458 million – \$9,592 million = \$866 million

$$\text{Increase in Value} = \frac{\text{Annual Savings next year}}{(\text{Cost of Capital} - g)} = \frac{\$866}{(0.0716 - 0.0275)} = \$19,623 \text{ million}$$

Enterprise value after recapitalization

= Existing enterprise value + PV of Savings = \$133,908 + \$19,623 = \$153,531 million

2. What is something goes wrong?

<i>Year</i>	<i>EBIT</i>	<i>% Change in EBIT</i>	<i>Year</i>	<i>EBIT</i>	<i>% Change in EBIT</i>
1987	\$756		2001	\$2,832	12.16%
1988	\$848	12.17%	2002	\$2,384	-15.82%
1989	\$1,177	38.80%	2003	\$2,713	13.80%
1990	\$1,368	16.23%	2004	\$4,048	49.21%
1991	\$1,124	-17.84%	2005	\$4,107	1.46%
1992	\$1,287	14.50%	2006	\$5,355	30.39%
1993	\$1,560	21.21%	2007	\$6,829	27.53%
1994	\$1,804	15.64%	2008	\$7,404	8.42%
1995	\$2,262	25.39%	2009	\$5,697	-23.06%
1996	\$3,024	33.69%	2010	\$6,726	18.06%
1997	\$3,945	30.46%	2011	\$7,781	15.69%
1998	\$3,843	-2.59%	2012	\$8,863	13.91%
1999	\$3,580	-6.84%	2013	\$9,450	6.62%
2000	\$2,525	-29.47%			

Standard deviation in %
change in EBIT = 19.17%

Recession Decline in Operating Income

2009 Drop of 23.06%
 2002 Drop of 15.82%
 1991 Drop of 22.00%
 1981-82 Increased by 12%
 Worst Year Drop of 29.47%

Disney: Safety Buffers?

EBIT drops by	EBIT	Optimal Debt ratio
0%	\$10,032	40%
10%	\$9,029	40%
20%	\$8,025	40%
30%	\$7,022	40%
40%	\$6,019	30%
50%	\$5,016	30%
60%	\$4,013	20%

3. What if you do not buy back stock..

156

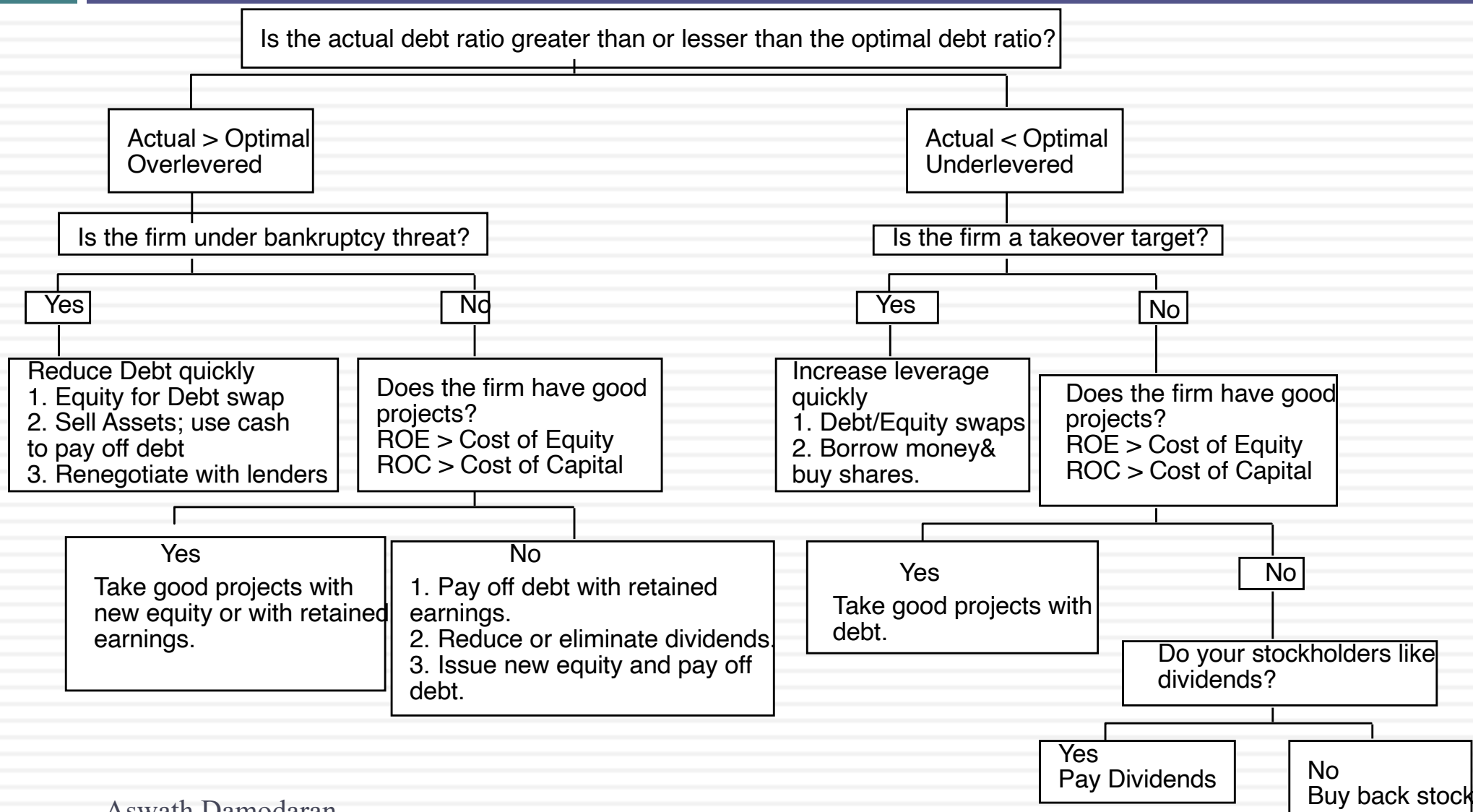
- The optimal debt ratio is ultimately a function of the underlying riskiness of the business in which you operate and your tax rate.
- Will the optimal be different if you invested in projects instead of buying back stock?
 - No. As long as the projects financed are in the same business mix that the company has always been in and your tax rate does not change significantly.
 - Yes, if the projects are in entirely different types of businesses or if the tax rate is significantly different.

Me-too debt policy: The peer group effect

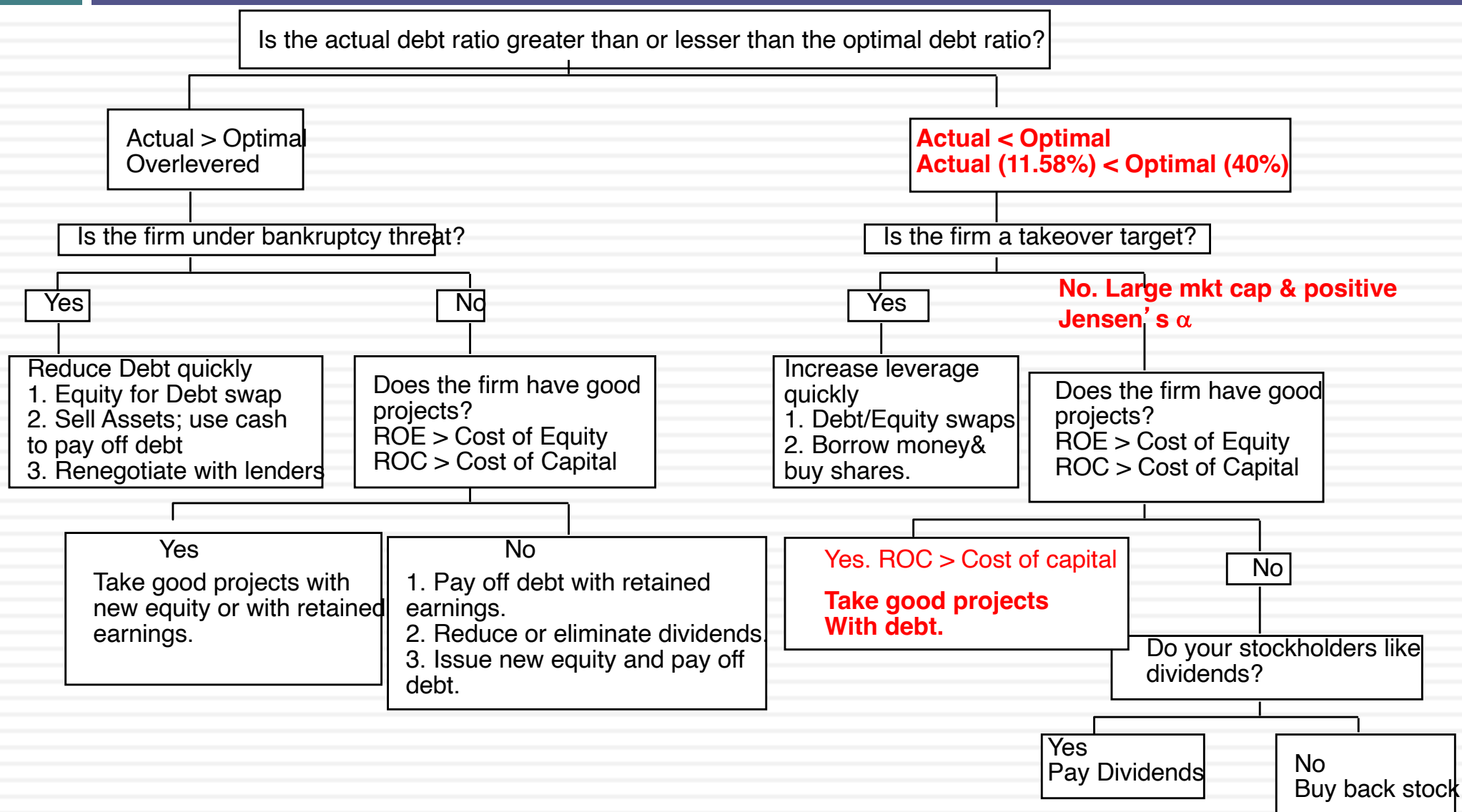
	<i>Debt to Capital Ratio</i>		<i>Net Debt to Capital Ratio</i>			<i>Debt to Capital Ratio</i>		<i>Net Debt to Capital Ratio</i>	
<i>Company</i>	<i>Book value</i>	<i>Market value</i>	<i>Book value</i>	<i>Market value</i>	<i>Comparable group</i>	<i>Book value</i>	<i>Market value</i>	<i>Book value</i>	<i>Market value</i>
Disney	22.88%	11.58%	17.70%	8.98%	US Entertainment	39.03%	15.44%	24.92%	9.93%
Vale	39.02%	35.48%	34.90%	31.38%	Global Diversified Mining & Iron Ore (Market cap> \$1 b)	34.43%	26.03%	26.01%	17.90%
Tata Motors	58.51%	29.28%	22.44%	19.25%	Global Autos (Market Cap> \$1 b)	35.96%	18.72%	3.53%	0.17%
Baidu	32.93%	5.23%	20.12%	2.32%	Global Online Advertising	6.37%	1.83%	-27.13%	-2.76%

A Framework for Getting to the Optimal

158



Disney: Applying the Framework



Application Test: Your firm's optimal financing mix

160

- Using the optimal capital structure spreadsheet provided:
 1. Estimate the optimal debt ratio for your firm
 2. Estimate the new cost of capital at the optimal
 3. Estimate the effect of the change in the cost of capital on firm value
 4. Estimate the effect on the stock price
- In terms of the mechanics, what would you need to do to get to the optimal immediately?
- Given what you know about the firm, should they move to the optimal quickly, gradually or not at all?

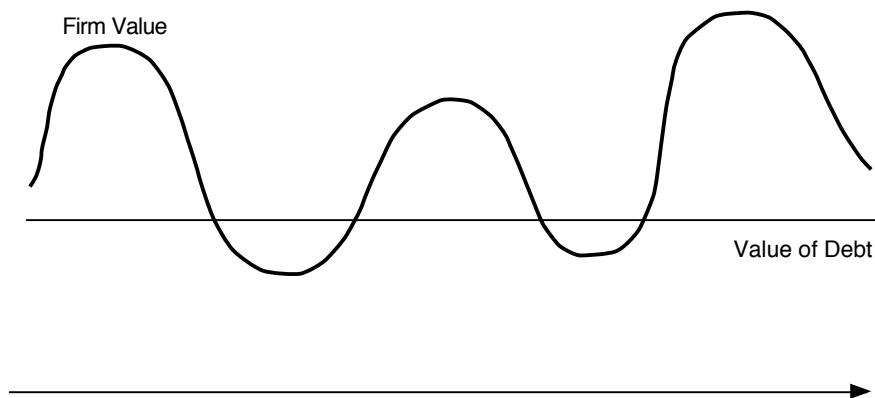


The Financing Principle II: The Right Financing

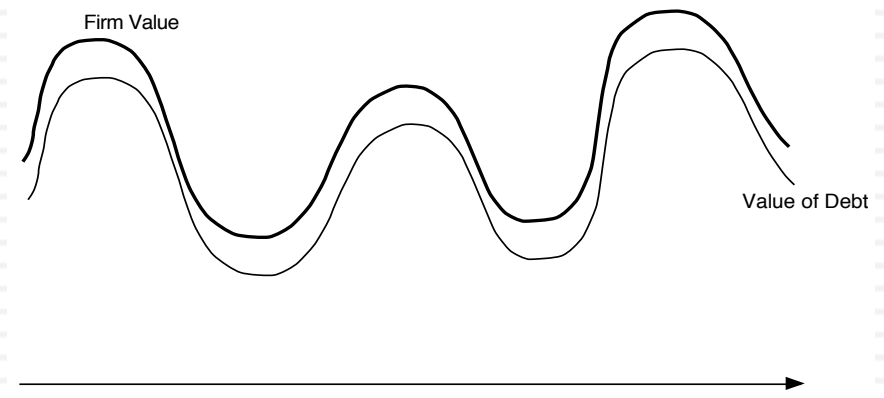
Designing Debt: The Fundamental Principle

- The objective in designing debt is to make the cash flows on debt match up as closely as possible with the cash flows that the firm makes on its assets.
- By doing so, we reduce our risk of default, increase debt capacity and increase firm value.

Unmatched Debt



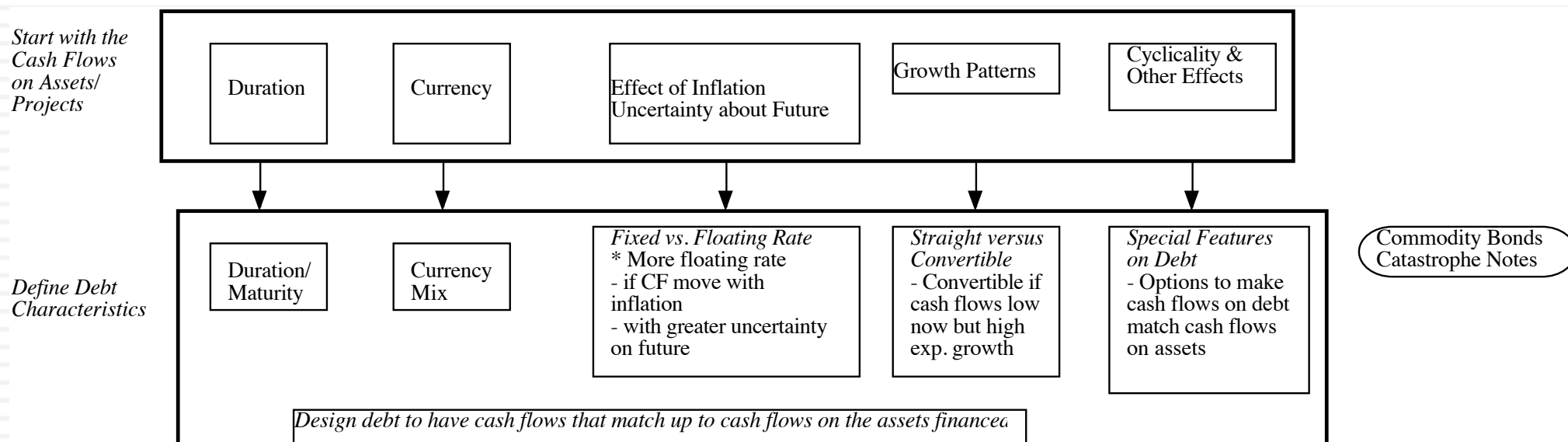
Matched Debt



1. Design the perfect financing instrument

163

- The perfect financing instrument will
 - ▣ Have all of the tax advantages of debt
 - ▣ While preserving the flexibility offered by equity

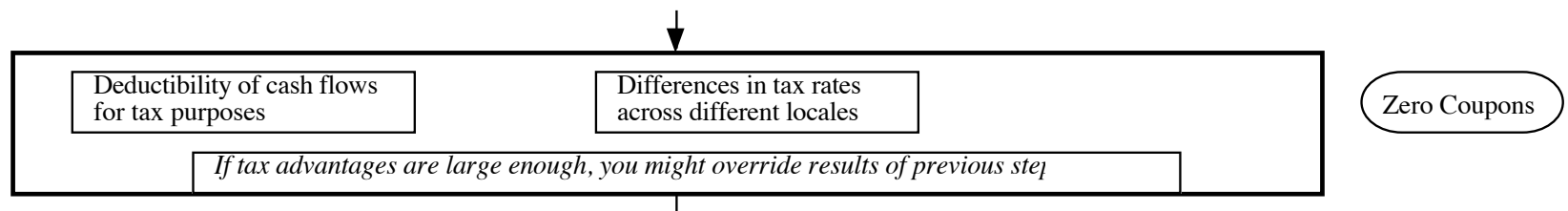


2. Ensuring that you have not crossed the line drawn by the tax code

164

- All of this design work is lost, however, if the security that you have designed does not deliver the tax benefits.
- In addition, there may be a trade off between mismatching debt and getting greater tax benefits.

Overlay tax preferences

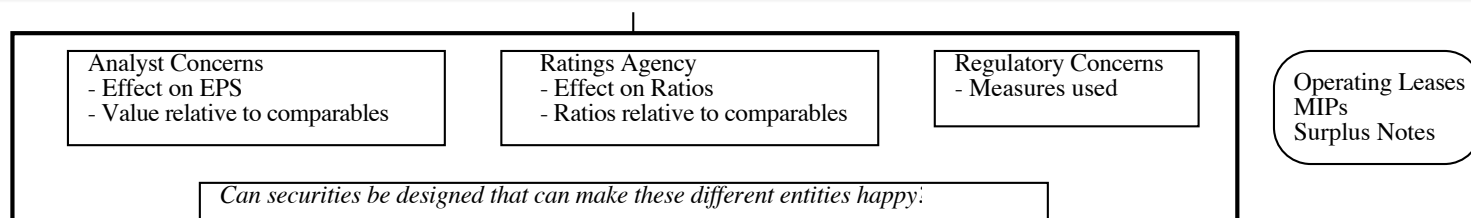


3. While keeping equity research analysts, ratings agencies and regulators applauding

165

- Ratings agencies want companies to issue equity, since it makes them safer.
- Equity research analysts want them not to issue equity because it dilutes earnings per share.
- Regulatory authorities want to ensure that you meet their requirements in terms of capital ratios (usually book value).
- Financing that leaves all three groups happy is nirvana.

*Consider
ratings agency
& analyst concerns*

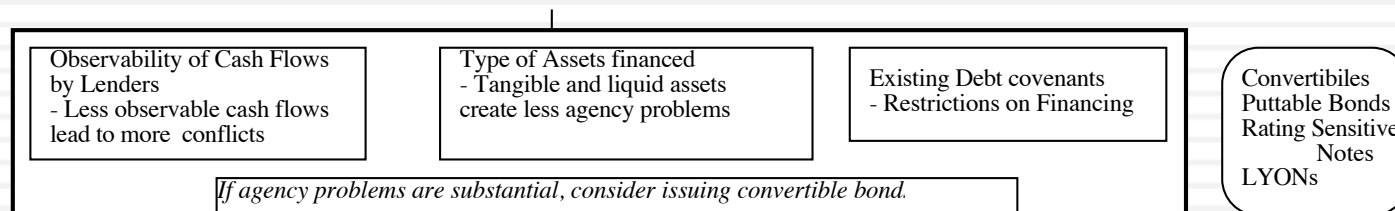


4. Soothe bondholder fears

166

- There are some firms that face skepticism from bondholders when they go out to raise debt, because
 - ▣ Of their past history of defaults or other actions
 - ▣ They are small firms without any borrowing history
- Bondholders tend to demand much higher interest rates from these firms to reflect these concerns.

Factor in agency conflicts between stock and bond holders



5. Do not lock in market mistakes that work against you

167

- Ratings agencies can sometimes under rate a firm, and markets can under price a firm's stock or bonds. If this occurs, firms should not lock in these mistakes by issuing securities for the long term. In particular,
 - ▣ Issuing equity or equity based products (including convertibles), when equity is under priced transfers wealth from existing stockholders to the new stockholders
 - ▣ Issuing long term debt when a firm is under rated locks in rates at levels that are far too high, given the firm's default risk.
- What is the solution
 - ▣ If you need to use equity?
 - ▣ If you need to use debt?

The Right Debt for Disney

168

<i>Business</i>	<i>Project Cash Flow Characteristics</i>	<i>Type of Financing</i>
Studio entertainment	Movie projects are likely to • Be short-term • Have cash outflows primarily in dollars (because Disney makes most of its movies in the U.S.), but cash inflows could have a substantial foreign currency component (because of overseas revenues) • Have net cash flows that are heavily driven by whether the movie is a hit, which is often difficult to predict	Debt should be 1. Short-term 2. Mixed currency debt, reflecting audience make-up. 3. If possible, tied to the success of movies.
Media networks	Projects are likely to be 1. Short-term 2. Primarily in dollars, though foreign component is growing, especially for ESPN. 3. Driven by advertising revenues and show success (Nielsen ratings)	Debt should be 1. Short-term 2. Primarily dollar debt 3. If possible, linked to network ratings
Park resorts	Projects are likely to be 1. Very long-term 2. Currency will be a function of the region (rather than country) where park is located. 3. Affected by success of studio entertainment and media networks divisions	Debt should be 1. Long-term 2. Mix of currencies, based on tourist makeup at the park.
Consumer products	Projects are likely to be short- to medium-term and linked to the success of the movie division; most of Disney's product offerings and licensing revenues are derived from their movie productions	Debt should be 1. Medium-term 2. Dollar debt
Interactive	Projects are likely to be short-term, with high growth potential and significant risk. While cash flows will initially be primarily in US dollars, the mix of currencies will shift as the business ages.	Debt should be short-term, convertible US dollar debt.

Analyzing Disney's Current Debt

169

- Disney has \$14.3 billion in interest-bearing debt with a face-value weighted average maturity of 7.92 years. Allowing for the fact that the maturity of debt is higher than the duration, this would indicate that Disney's debt may be a little longer than would be optimal, but not by much.
- Of the debt, about 5.49% of the debt is in non-US dollar currencies (Indian rupees and Hong Kong dollars), but the rest is in US dollars and the company has no Euro debt. Based on our analysis, we would suggest that Disney increase its proportion of Euro debt to about 12% and tie the choice of currency on future debt issues to its expansion plans.
- Disney has no convertible debt and about 5.67% of its debt is floating rate debt, which looks low, given the company's pricing power. While the mix of debt in 2013 may be reflective of a desire to lock in low long-term interest rates on debt, as rates rise, the company should consider expanding its use of foreign currency debt.

Application Test: Choosing your Financing Type

170

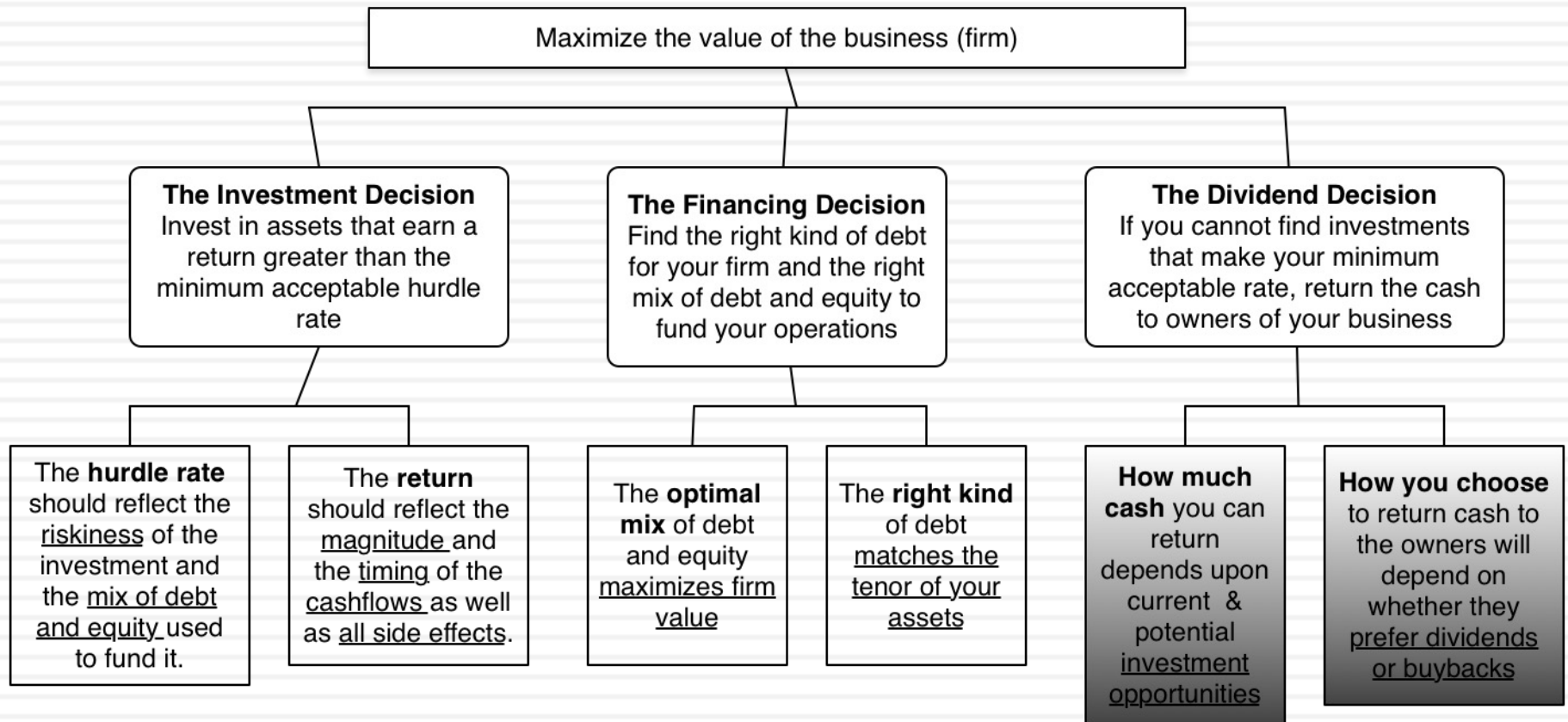
- Based upon the business that your firm is in, and the typical investments that it makes, what kind of financing would you expect your firm to use in terms of
 - a. Duration (long term or short term)
 - b. Currency
 - c. Fixed or Floating rate
 - d. Straight or Convertible



The Dividend Principle I: Potential Cash Return

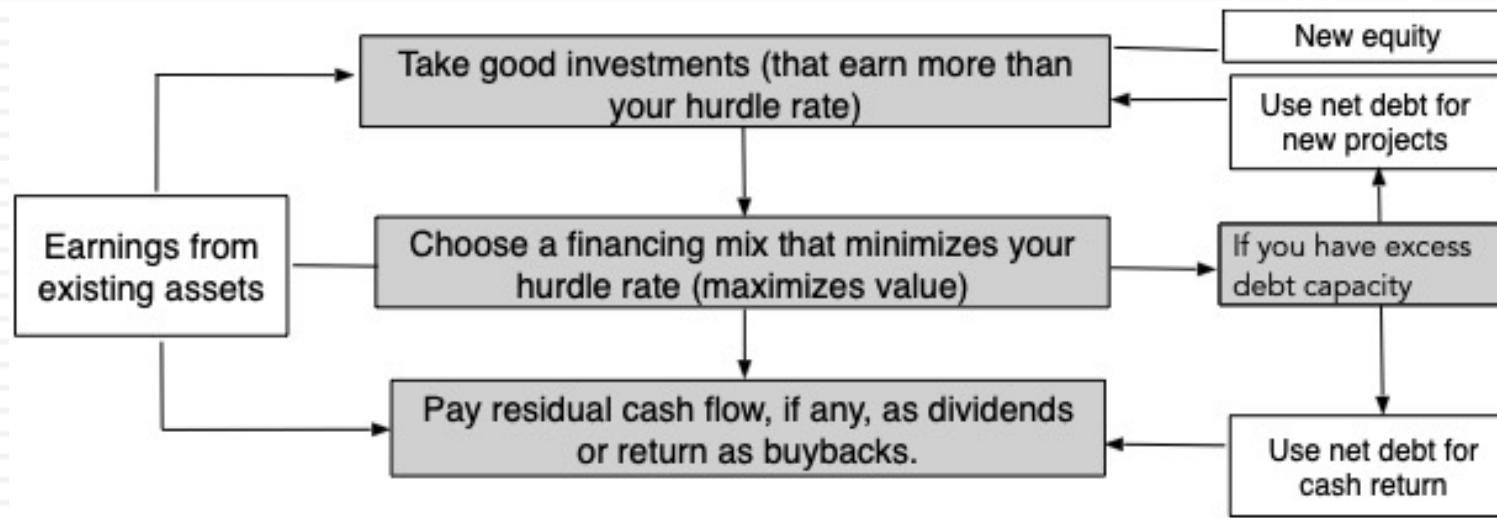
First Principles

172



Steps to the Dividend Decision... if it is treated as a residual claim

173



The Roots of Dividend Dysfunction

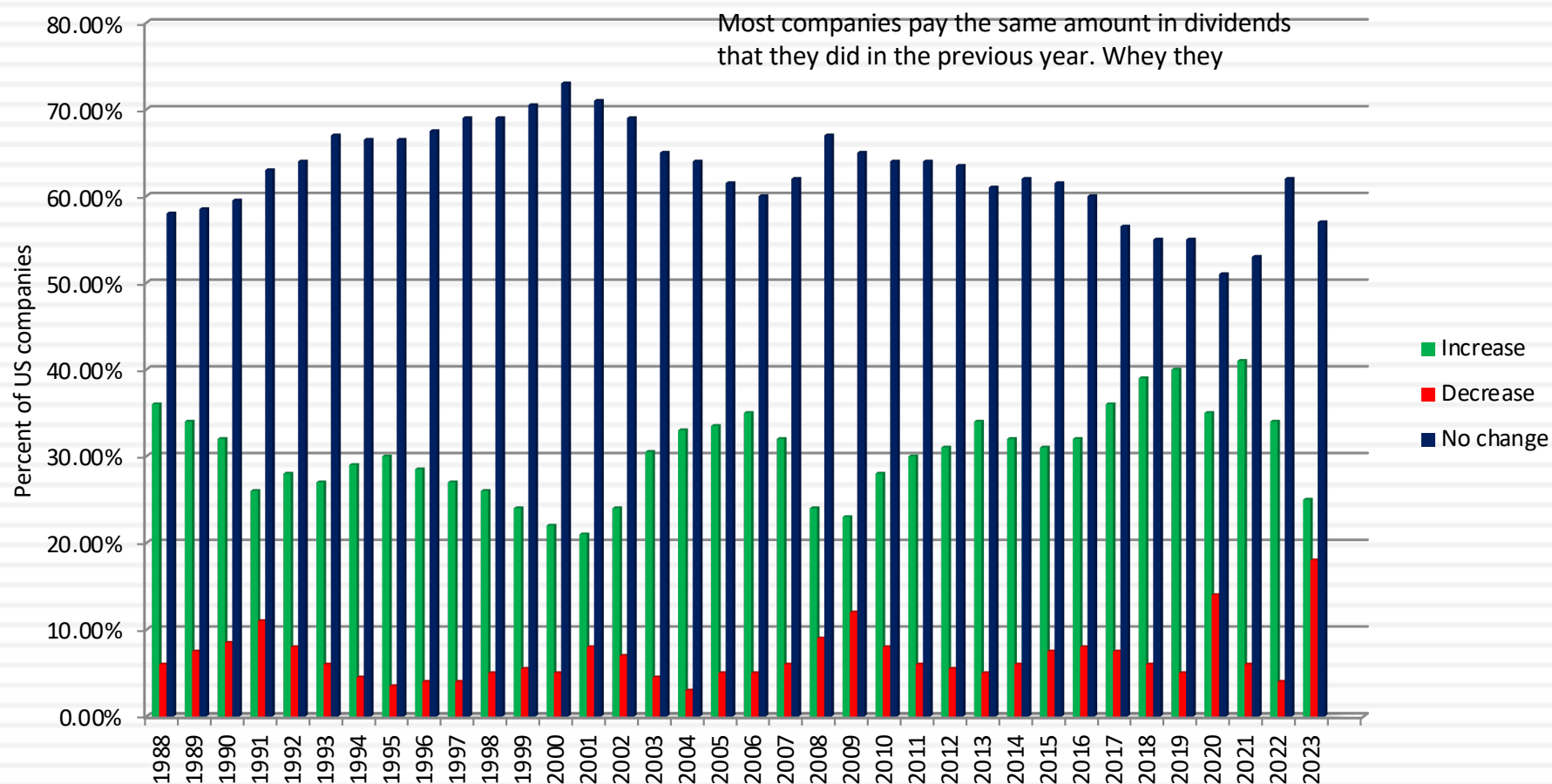
174

- In practice, dividend policy is dysfunctional and does not follow the logical process of starting with your investment opportunities and working your way down to residual cash.
- The two dominant factors driving dividend policy around the world are:
 - ▣ Inertia: Companies seem to hate to let of their past, when it comes to dividend policy.
 - ▣ Me-too-ism: Companies want to behave like their peer group.

I. Dividends are sticky

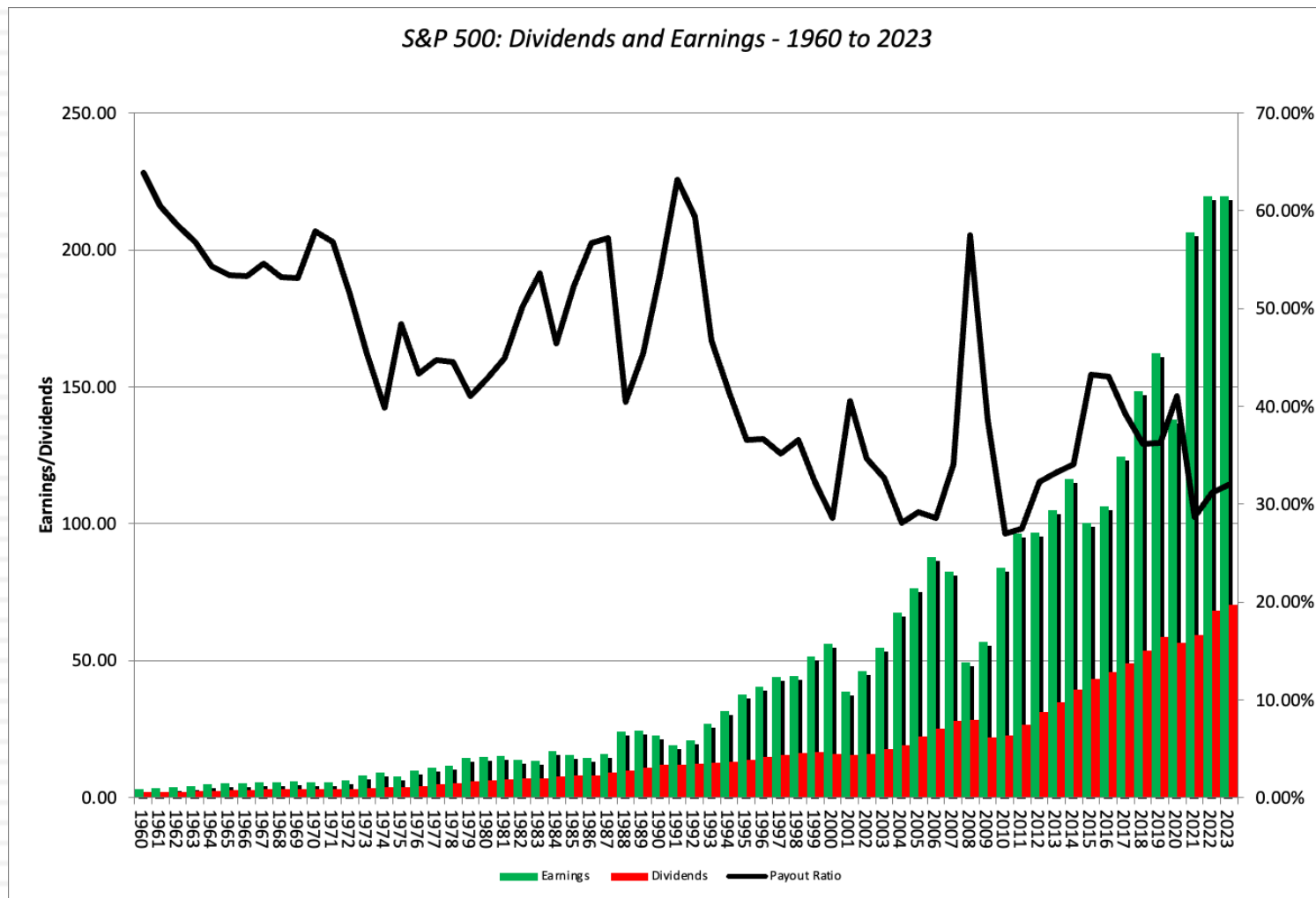
175

Dividend Changes at US companies



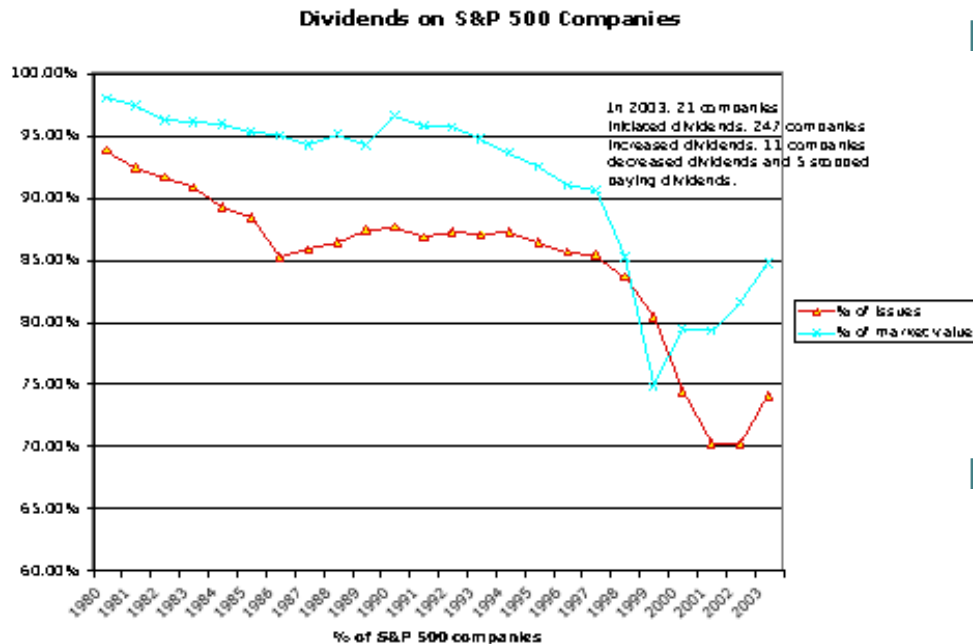
II. Dividends tend to follow earnings

176



III. Are affected by changes in tax laws...

In 2003



Tax rates on dividends brought down to the tax rate on capital gains in 2003

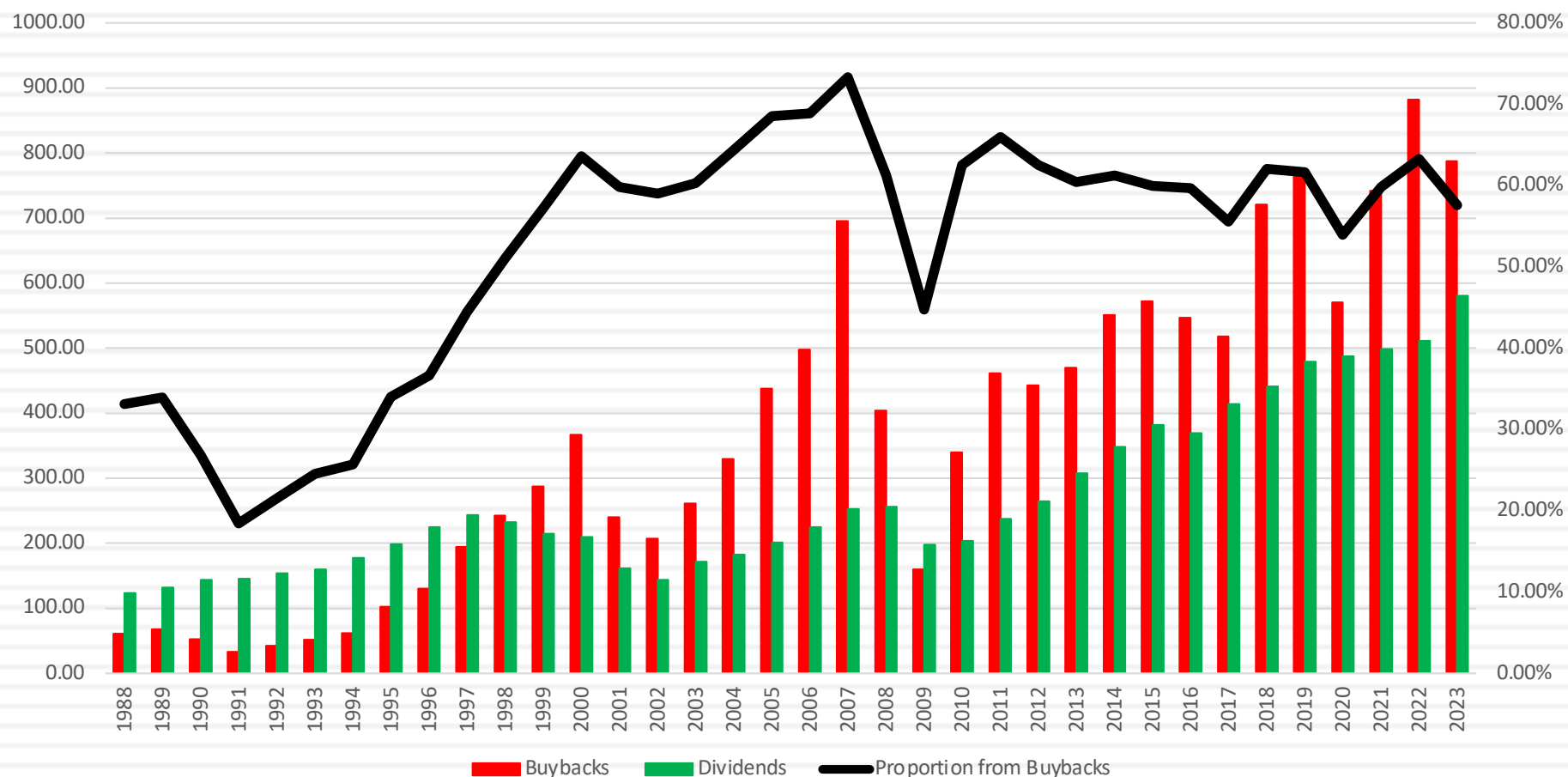
In the last quarter of 2012

- As the possibility of tax rates reverting back to pre-2003 levels rose, 233 companies paid out \$31 billion in dividends.
- Of these companies, 101 had insider holdings in excess of 20% of the outstanding stock.

IV. More and more US firms are buying back stock, rather than pay dividends...

178

Dividends and Buybacks on S&P 500: 1988- 2023



And its going global.. In 2023

179

Region	Number of firms	Dividends			Buybacks			Cash Yield
		% of Payers	\$ Dividends	Dividend Yield	# of firms buying back	\$ Buybacks	Buybacks as % of Cash Returned	
Africa and Middle East	2,423	2,423	\$178,944.84	3.42%	13.37%	\$13,131.01	6.84%	3.68%
Australia & NZ	1,798	1,798	\$65,050.11	3.74%	12.24%	\$9,703.77	12.98%	4.30%
Canada	2,791	2,791	\$74,629.37	2.67%	15.30%	\$47,476.06	38.88%	4.37%
China	7,504	7,504	\$504,086.74	3.54%	21.07%	\$72,049.24	12.51%	4.05%
EU & Environs	5,925	5,925	\$424,707.33	2.76%	21.22%	\$161,188.37	27.51%	3.81%
Eastern Europe & Russia	325	325	\$6,425.55	5.46%	10.15%	\$410.11	6.00%	5.81%
India	4,446	4,446	\$50,642.97	1.15%	3.15%	\$6,094.64	10.74%	1.29%
Japan	4,020	4,020	\$115,134.92	1.90%	28.68%	\$63,864.50	35.68%	2.95%
Latin America & Caribbean	984	984	\$67,144.79	3.57%	26.32%	\$16,117.33	19.36%	4.42%
Small Asia	9,876	9,876	\$188,287.21	2.84%	11.45%	\$15,484.36	7.60%	3.08%
UK	1,125	1,125	\$114,705.78	3.50%	31.73%	\$61,036.72	34.73%	5.36%
United States	6,481	6,481	\$700,711.38	1.43%	45.86%	\$928,104.26	56.98%	3.31%
Global	47,698	47,698	\$2,490,470.99	2.25%	20.66%	\$1,394,660.37	35.90%	3.50%

\$ values are all in millions of US \$

Measures of Dividend Policy

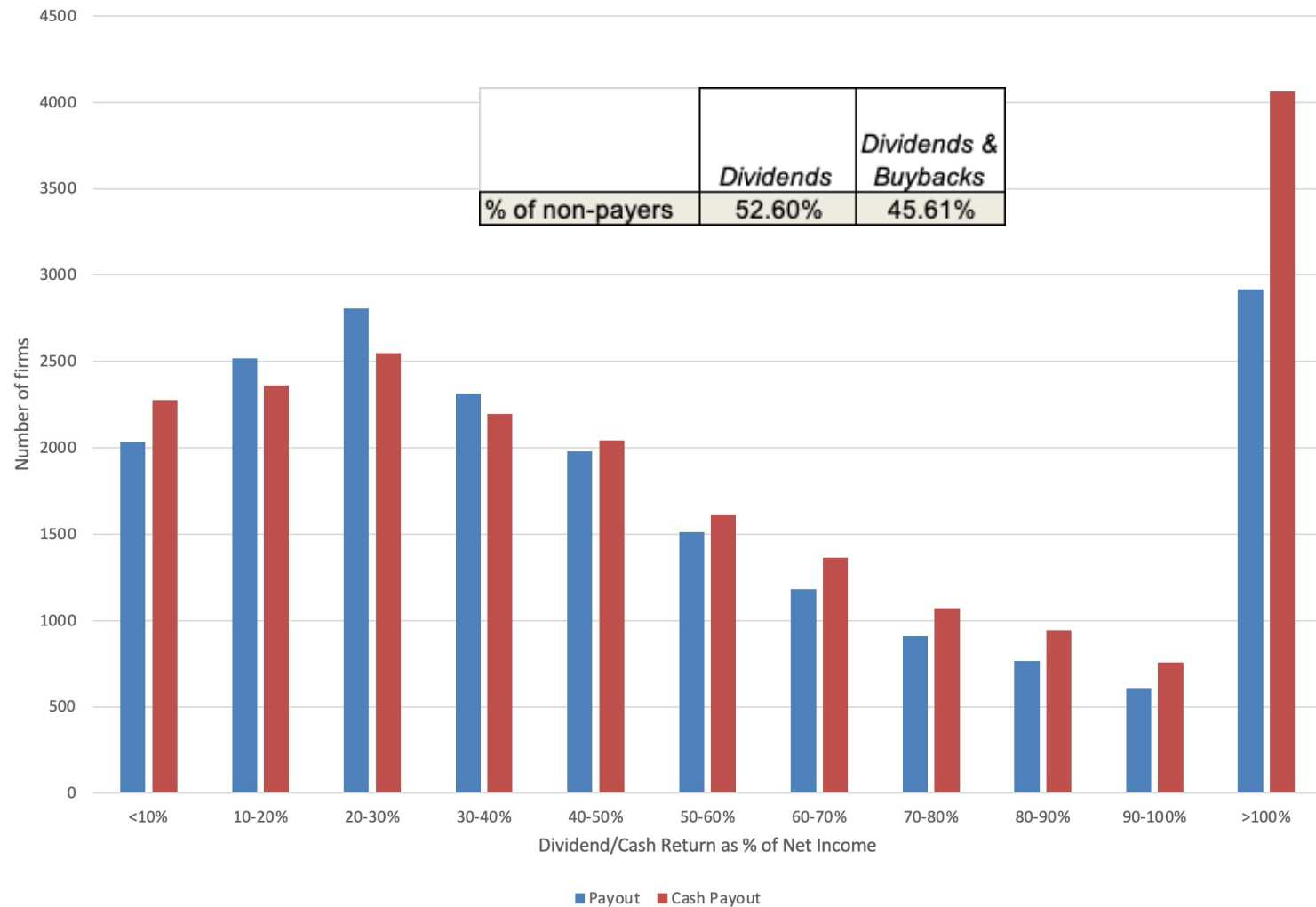
180

- $\text{Dividend Payout} = \text{Dividends} / \text{Net Income}$
 - ▣ Measures the percentage of earnings that the company pays in dividends
 - ▣ If the net income is negative, the payout ratio cannot be computed.
- $\text{Dividend Yield} = \text{Dividends per share} / \text{Stock price}$
 - ▣ Measures the return that an investor can make from dividends alone
 - ▣ Becomes part of the expected return on the investment.
- Both measures, though, focus on just dividends, even as companies increasingly turn to buybacks. An expanded version would replace dividends with cash returned = dividends + buybacks.

Global Payout Ratios: January 2024

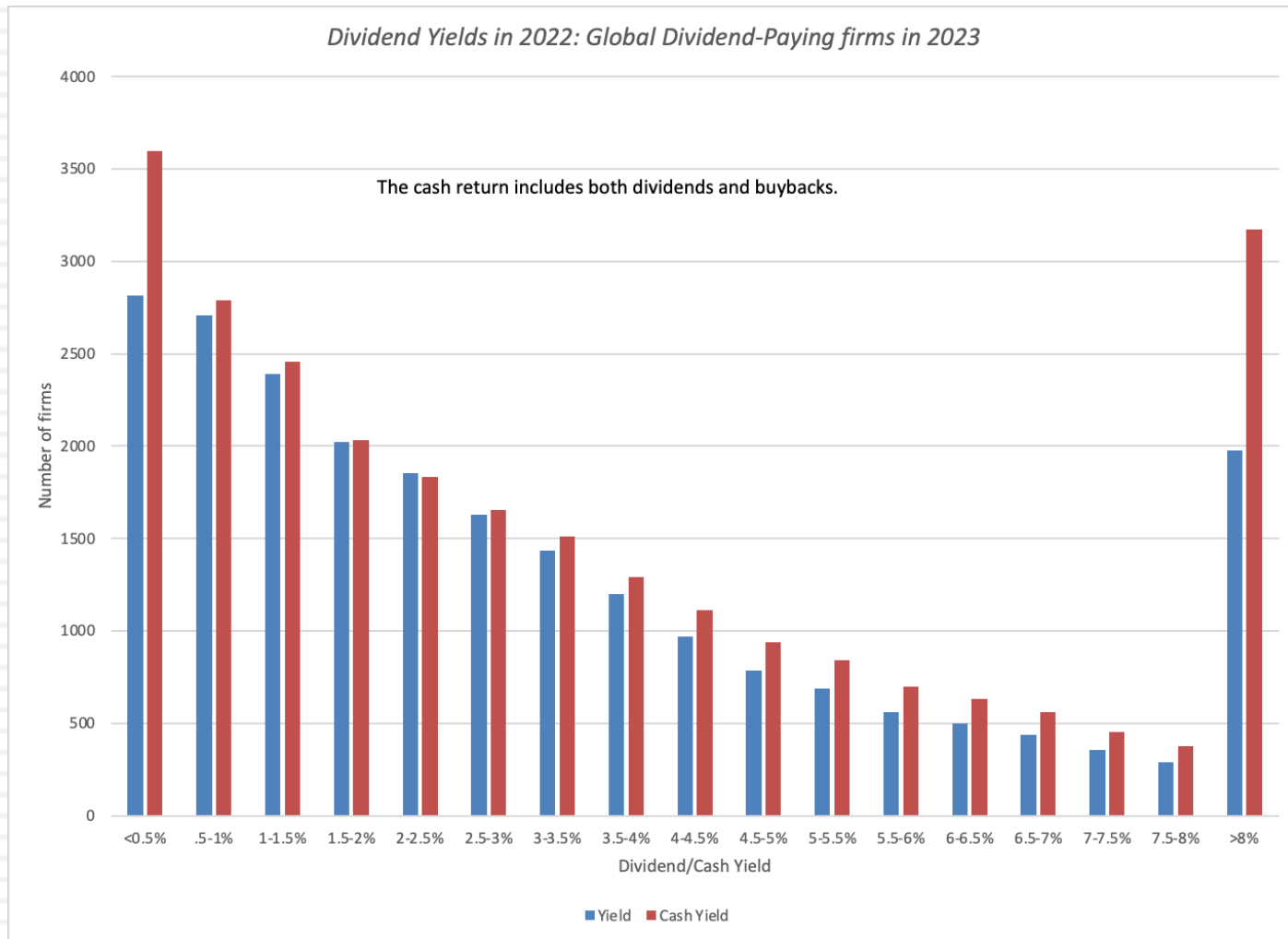
181

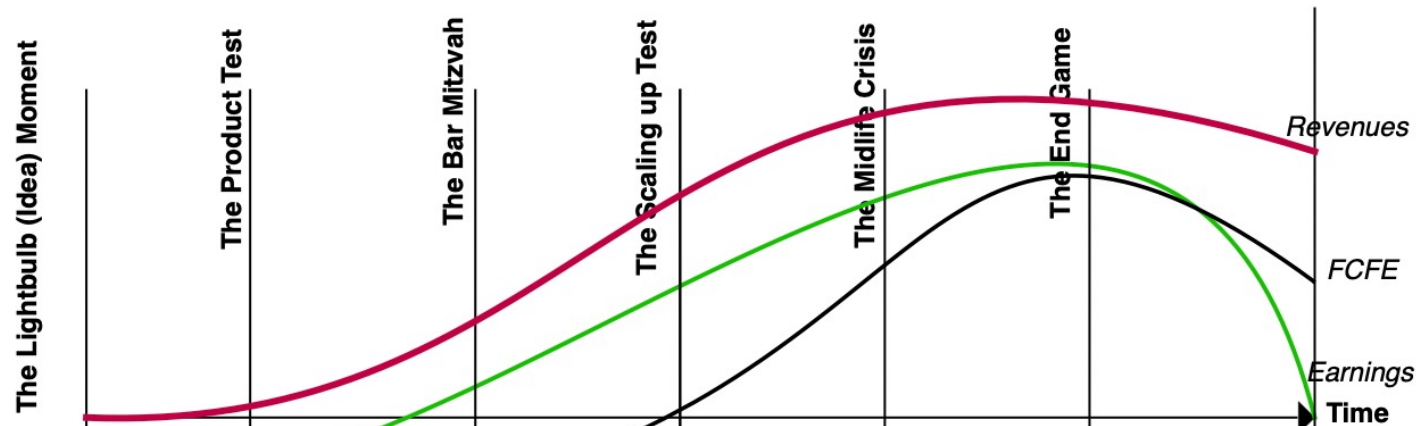
Dividend & Cash Payout Ratios: Global Cash-Returning firms in 2023



Global Yields: January 2024

182





Lifecycle Stage	Start-up	Young Growth	High Growth	Mature Growth	Mature Stable	Decline
<i>Earnings</i>	Large net losses	Net losses narrow	Net profits turn positive	Net profits grow quickly	Net profits level off, with debt as wild card.	Net profits decline
<i>Reinvestment needed for growth</i>	Very High	High	Remain large, but scale down in percent.	Continue to decrease on scaled basis.	Low	Divestment (creating positive cash flows)
<i>Debt cash flow (Debt issued - repaid)</i>	Usually none	Usually none	If debt exists, net positive, but small.	Net debt cash flow positive.	Net debt cash flow neutral.	Net debt cash flow negative.
<i>Free CF to Equity (Potential cash return)</i>	Negative	May get more negative, with growth	Turns positive as growth slows	Positive & growing (faster than earnings)	Positive & more stable	Positive & higher than earnings.
<i>Cash from/to Equity</i>	Equity Issuances		Self-funding	Equity Buybacks	Dividends + Buybacks	Liquidating Dividends

Assessing Dividend Policy

184

Step 1: How much did the the company actually pay out during the period in question?

Step 2: How much could the company have paid out during the period under question?

Step 3: How much do I trust the management of this company with excess cash?

- ▣ How well did they make investments during the period in question?
- ▣ How well has my stock performed during the period in question?

How much has the company returned to stockholders?

185

- As firms increasingly use stock buybacks, we have to measure cash returned to stockholders as not only dividends but also buybacks.
- For instance, for the five companies we are analyzing the cash returned looked as follows.

	<i>Disney</i>		<i>Vale</i>		<i>Tata Motors</i>		<i>Baidu</i>		<i>Deutsche Bank</i>	
Year	Dividends	Buybacks	Dividends	Buybacks	Dividends	Buybacks	Dividends	Buybacks	Dividends	Buybacks
2008	\$648	\$648	\$2,993	\$741	7,595₹	0₹	¥0	¥0	2,274 €	0 €
2009	\$653	\$2,669	\$2,771	\$9	3,496₹	0₹	¥0	¥0	309 €	0 €
2010	\$756	\$4,993	\$3,037	\$1,930	10,195₹	0₹	¥0	¥0	465 €	0 €
2011	\$1,076	\$3,015	\$9,062	\$3,051	15,031₹	0₹	¥0	¥0	691 €	0 €
2012	\$1,324	\$4,087	\$6,006	\$0	15,088₹	970₹	¥0	¥0	689 €	0 €
2008-12	\$4,457	\$15,412	\$23,869	\$5,731	51,405₹	970₹	¥0	¥0	¥4,428	¥0

A Measure of How Much a Company Could have Afforded to Pay out: FCFE

186

Standard Definition	Modified Version	Simplified (if debt ratio = constant)
Net Income	Net Income	Net Income
+ Depreciation	Reinvestment - (Cap Ex - Depreciation + Change in Working Capital)	Reinvestment from Equity - (Cap Ex - Depreciation + Change in Working Capital) (1 - Debt Ratio)
- Cap Ex		
- Change in WC		
<i>FCFE before debt cash flow</i>	<i>FCFE before debt cash flow</i>	
+ New Debt Issued	Net CF from Debt + (New Debt Issued - Debt Repaid)	
- Debt Repaid		
<i>FCFE</i>	<i>FCFE</i>	<i>FCFE</i>

Disney's FCFE and Cash Returned: 2008 – 2012

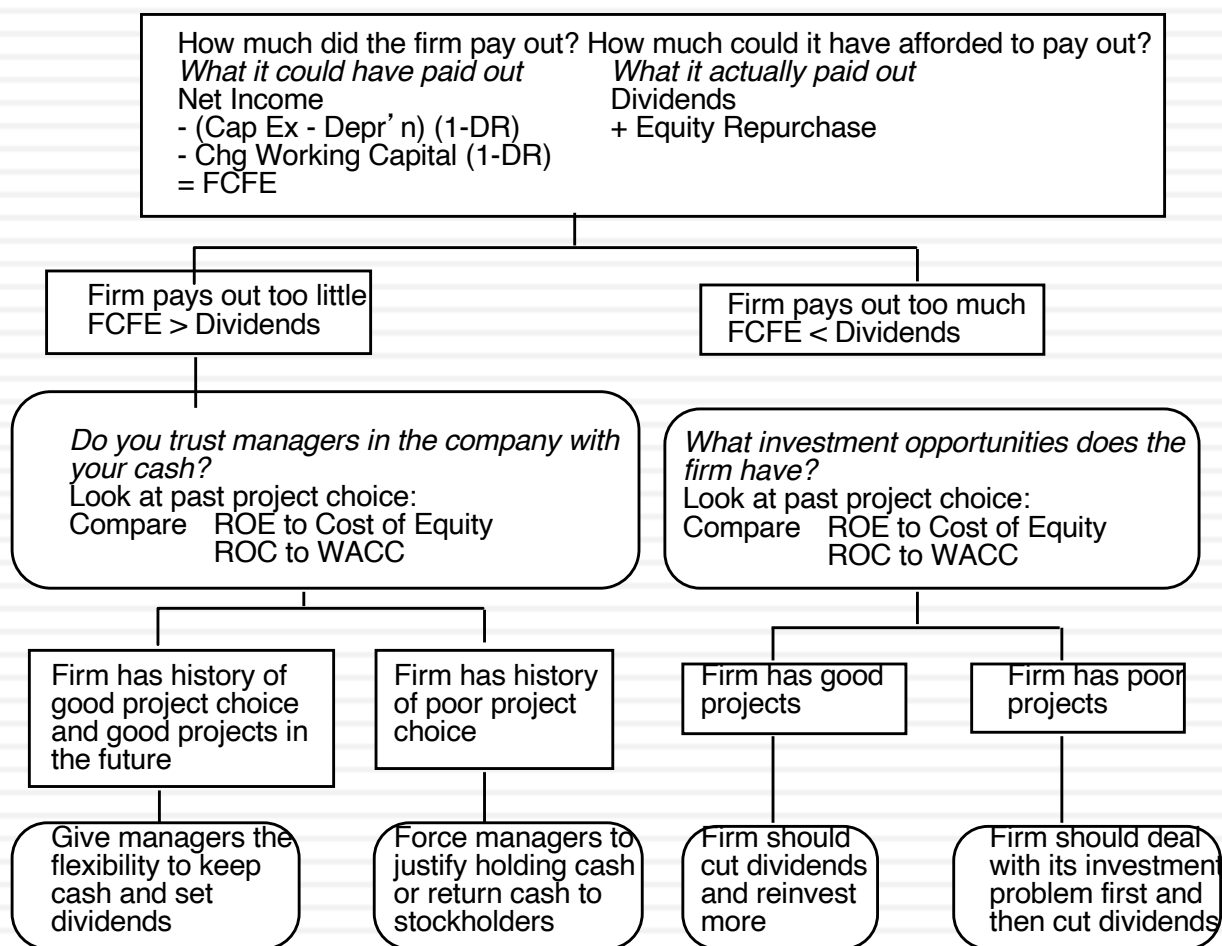
	2012	2011	2010	2009	2008	Aggregate
Net Income	\$6,136	\$5,682	\$4,807	\$3,963	\$3,307	\$23,895
- (Cap. Exp - Depr)	\$604	\$1,797	\$1,718	\$397	\$122	\$4,638
- Δ Working Capital	(\$133)	\$940	\$950	\$308	(\$109)	\$1,956
Free CF to Equity (pre-debt)	\$5,665	\$2,945	\$2,139	\$3,258	\$3,294	\$17,301
+ Net CF from Debt	\$1,881	\$4,246	\$2,743	\$1,190	(\$235)	\$9,825
= Free CF to Equity (actual debt)	\$7,546	\$7,191	\$4,882	\$4,448	\$3,059	\$27,126
Free CF to Equity (target debt ratio)	\$5,720	\$3,262	\$2,448	\$3,340	\$3,296	\$18,065
Dividends	\$1,324	\$1,076	\$756	\$653	\$648	\$4,457
Dividends + Buybacks	\$5,411	\$4,091	\$5,749	\$3,322	\$1,296	\$19,869

Disney returned about \$1.5 billion more than the \$18.1 billion it had available as FCFE with a normalized debt ratio of 11.58% (its current debt ratio).

Dividends versus FCFE: Across the globe

<i>Region</i>	<i>No Cash Returned, FCFE>0</i>	<i>Cash Returned, Cash Returned<FCFE</i>	<i>Cash Accumulators</i>	<i>No Cash Returned, FCFE<0</i>	<i>Cash Returned, Cash Returned>FCFE</i>	<i>Cash Burners</i>
Africa and Middle East	12.54%	27.99%	40.54%	26.10%	33.36%	59.46%
Australia & NZ	6.61%	11.42%	18.03%	63.26%	18.71%	81.97%
Canada	7.27%	6.81%	14.08%	70.20%	15.72%	85.92%
China	5.08%	19.68%	24.76%	15.45%	59.78%	75.24%
Eastern Europe & Russia	24.72%	30.71%	55.43%	18.73%	25.84%	44.57%
EU & Environs	16.27%	22.38%	38.65%	31.04%	30.31%	61.35%
India	30.98%	19.46%	50.44%	34.79%	14.77%	49.56%
Japan	15.76%	33.21%	48.97%	13.94%	37.10%	51.03%
Latin America & Caribbean	9.30%	30.92%	40.22%	17.41%	42.38%	59.78%
Small Asia	11.89%	23.81%	35.70%	26.14%	38.16%	64.30%
UK	7.15%	16.59%	23.74%	35.93%	40.33%	76.26%
United States	6.62%	21.30%	27.92%	30.55%	41.53%	72.08%
Global	12.29%	21.81%	34.10%	29.29%	36.61%	65.90%

A Practical Framework for Analyzing Dividend Policy



Application Test: Assessing your firm's dividend policy

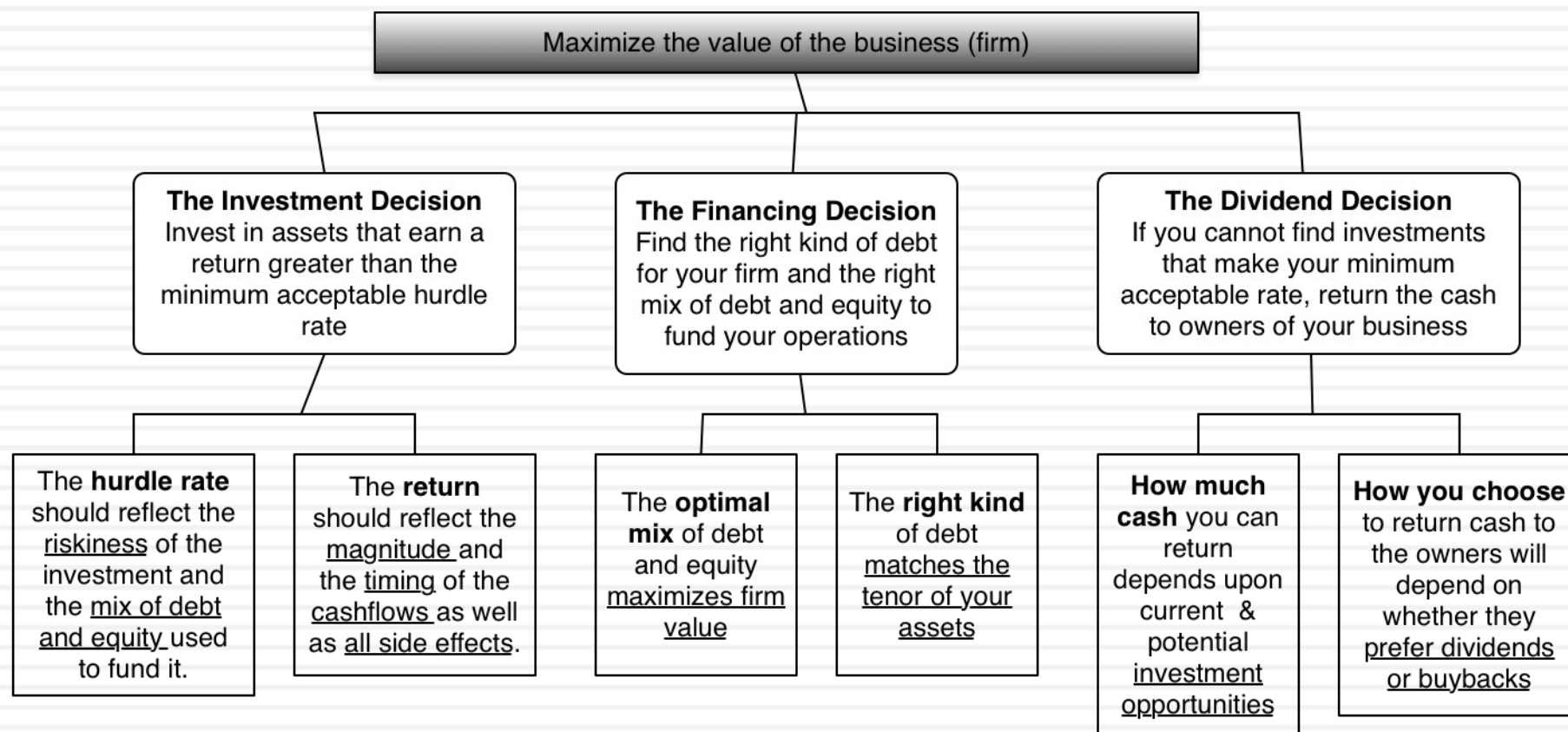
190

- ❑ Compare your firm's dividends & buybacks to its FCFE, looking at the last 5 years of information.
- ❑ Based upon your earlier analysis of your firm's project choices, would you encourage the firm to return more cash or less cash to its owners?
- ❑ If you would encourage it to return more cash, what form should it take (dividends versus stock buybacks)?

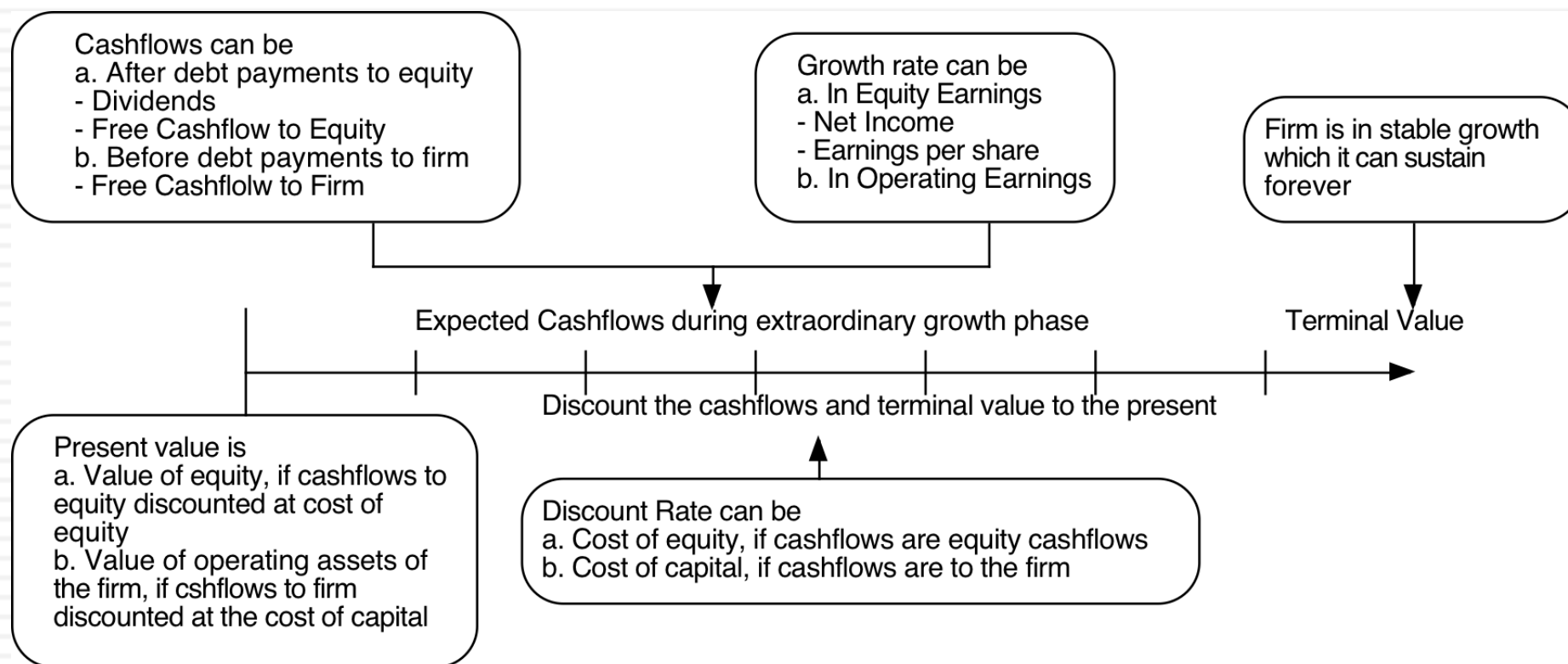


Back to the End Game

First Principles



The Ingredients that determine value.



Disney - November 2013

Current Cashflow to Firm

$EBIT(1-t) = 10,032(1-.31) = 6,920$
 - (Cap Ex - Deprecn) 3,629
 - Chg Working capital 103
 $= FCFF$ 3,188
 $Reinvestment Rate = 3,732/6920 = 53.93\%$
 $Return on capital = 12.61\%$

Reinvestment Rate
 53.93%

Return on Capital
 12.61%

Expected Growth
 $.5393 \times .1261 = .068$ or 6.8%

Stable Growth

$g = 2.75\%$; Beta = 1.00;
 Debt % = 20%; $k(\text{debt}) = 3.75$
 $Cost of capital = 7.29\%$
 Tax rate = 36.1%; ROC = 10%;
 $Reinvestment Rate = 2.5/10 = 25\%$

First 5 years

Growth declines gradually to 2.75%

Terminal Value₁₀ = $7,980 / (.0729 - .025) = 165,323$

	1	2	3	4	5	6	7	8	9	10
EBIT * (1 - tax rate)	\$7,391	\$7,893	\$8,430	\$9,003	\$9,615	\$10,187	\$10,704	\$11,156	\$11,531	\$11,819
- Reinvestment	\$3,985	\$4,256	\$4,546	\$4,855	\$5,185	\$4,904	\$4,534	\$4,080	\$3,550	\$2,955
FCFF	\$3,405	\$3,637	\$3,884	\$4,148	\$4,430	\$5,283	\$6,170	\$7,076	\$7,981	\$8,864

Term Yr
 10,639
 2,660
 7,980

Op. Assets 125,477
 + Cash: 3,931
 + Non op inv 2,849
 - Debt 15,961
 - Minority Int 2,721
 $= Equity$ 113,575
 - Options 972
Value/Share \$ 62.56

Cost of Capital (WACC) = $8.52\% (0.885) + 2.40\% (0.115) = 7.81\%$

Cost of capital declines gradually to 7.29%

Cost of Equity
 8.52%

Cost of Debt
 $(2.75\% + 1.00\%)(1 - .361)$
 $= 2.40\%$
 Based on actual A rating

Weights
 $E = 88.5\%$ $D = 11.5\%$

In November 2013,
 Disney was trading at
 \$67.71/share

Riskfree Rate:
 Riskfree rate = 2.75%

+

Beta
 1.0013

x

ERP for operations
 5.76%

Unlevered Beta for
 Sectors: 0.9239

D/E = 13.10%

Investment decision affects risk of assets being finance and financing decision affects hurdle rate

Strategic investments determine length of growth period

The Investment Decision
Invest in projects that earn a return greater than a minimum acceptable hurdle rate

The Dividend Decision
If you cannot find investments that earn more than the hurdle rate, return the cash to the owners of the business.

The Financing Decision
Choose a financing mix that minimizes the hurdle rate and match your financing to your assets.

Existing Investments
ROC = 12.61%

New Investments
Return on Capital
12.61%

Reinvestment Rate
53.93%

Current EBIT (1-t)
\$ 6,920

Expected Growth Rate = $12.61\% \times 53.93\% = 6.8\%$

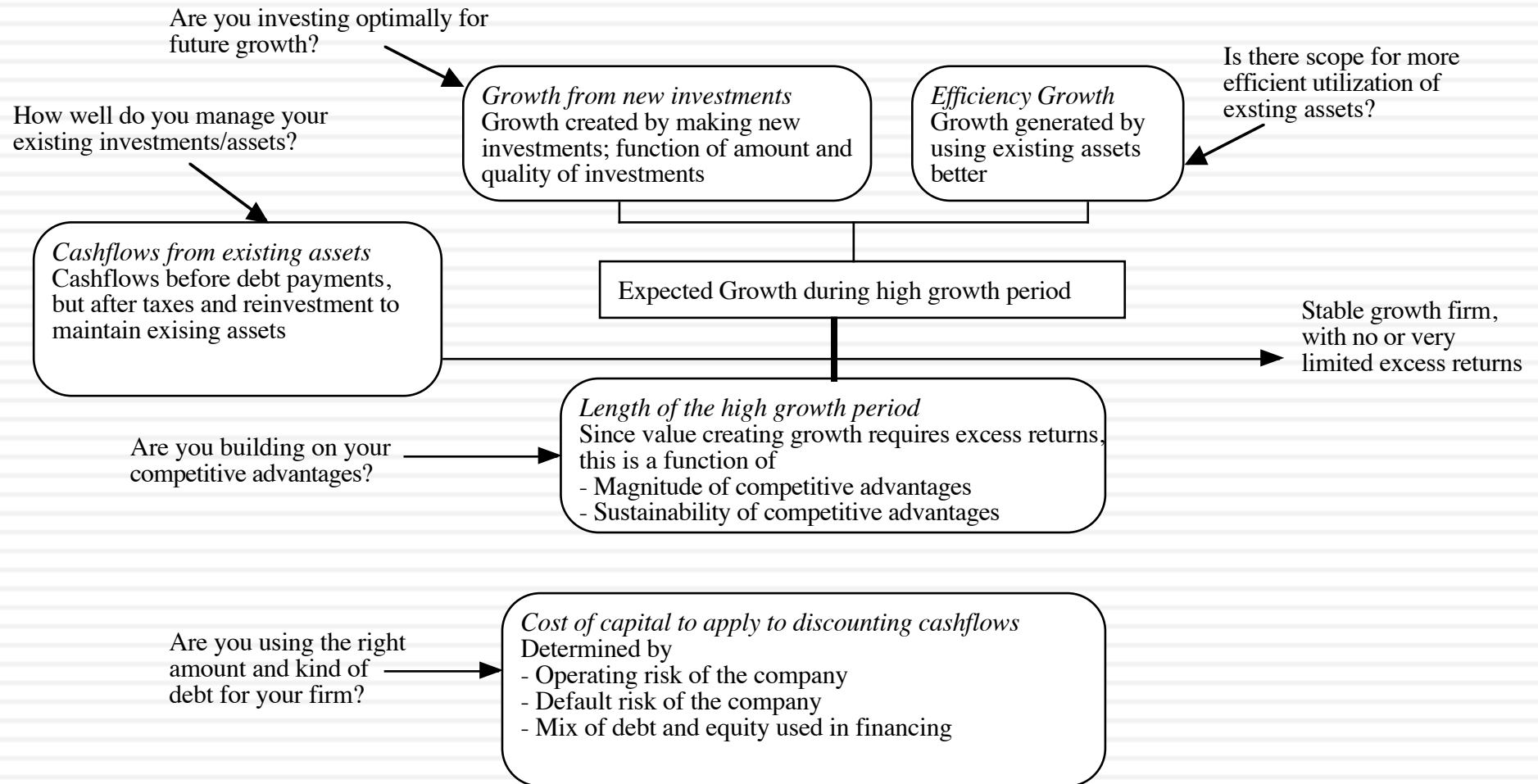
Financing Mix
D=11.5%; E=88.5%

Financing Choices
Mostly US \$ debt
with duration of 6
years

Cost of capital = $8.52\% (.885) + 2.4\% (.115) = 7.81\%$

Year	Expected Growth	EBIT (1-t)	Reinvestment	FCFF	Terminal Value	Cost of capital	PV
1	6.80%	\$7,391	\$3,985	\$3,405		7.81%	\$3,158
2	6.80%	\$7,893	\$4,256	\$3,637		7.81%	\$3,129
3	6.80%	\$8,430	\$4,546	\$3,884		7.81%	\$3,099
4	6.80%	\$9,003	\$4,855	\$4,148		7.81%	\$3,070
5	6.80%	\$9,615	\$5,185	\$4,430		7.81%	\$3,041
6	5.94%	\$10,187	\$4,904	\$5,283		7.71%	\$3,367
7	5.08%	\$10,704	\$4,534	\$6,170		7.60%	\$3,654
8	4.22%	\$11,156	\$4,080	\$7,076		7.50%	\$3,899
9	3.36%	\$11,531	\$3,550	\$7,981		7.39%	\$4,094
10	2.50%	\$11,819	\$2,955	\$8,864	\$189,738	7.29%	\$94,966
Value of operating assets of the firm =							\$125,477
Value of Cash & Non-operating assets =							\$6,780
Value of Firm =							\$132,257
Market Value of outstanding debt =							\$15,961
Minority Interests							\$2,721
Market Value of Equity =							\$113,575
Value of Equity in Options =							\$972
Value of Equity in Common Stock =							\$112,603
Market Value of Equity/share =							\$62.56

Ways of changing value...



Disney (Restructured)- November 2013

Current Cashflow to Firm

$EBIT(1-t) = 10,032(1-.31) = 6,920$
 - (Cap Ex - Deprecn) 3,629
 - Chg Working capital 103
 $= FCFF$ 3,188
 $Reinvestment Rate = 3,732/6920 = 53.93\%$
 $Return on capital = 12.61\%$

Reinvestment Rate
 50.00%

*More selective
acquisitions &
payoff from gaming*

Return on Capital
 14.00%

Expected Growth
 $.50 * .14 = .07$ or 7%

Stable Growth

$g = 2.75\%$; $Beta = 1.20$;
 $Debt \% = 40\%$; $k(debt) = 3.75\%$
 $Cost of capital = 6.76\%$
 $Tax rate = 36.1\%$; $ROC = 10\%$;
 $Reinvestment Rate = 2.5/10 = 25\%$

First 5 years

Growth declines gradually to 2.75%

Terminal Value₁₀ = $9,206 / (.0676 - .025) = 216,262$

	1	2	3	4	5	6	7	8	9	10
EBIT * (1 - tax rate)	\$7,404	\$7,923	\$8,477	\$9,071	\$9,706	\$10,298	\$10,833	\$11,299	\$11,683	\$11,975
- Reinvestment	\$3,702	\$3,961	\$4,239	\$4,535	\$4,853	\$4,634	\$4,333	\$3,955	\$3,505	\$2,994
Free Cashflow to Firm	\$3,702	\$3,961	\$4,239	\$4,535	\$4,853	\$5,664	\$6,500	\$7,344	\$8,178	\$8,981

Term Yr
 12,275
 3,069
 9,206

Op. Assets 147,704
 + Cash: 3,931
 + Non op inv 2,849
 - Debt 15,961
 - Minority Int 2,721
 $= Equity$ 135,802
 - Options 972
Value/Share \$ 74.91

Cost of Capital (WACC) = $8.52\% (0.60) + 2.40\% (0.40) = 7.16\%$

Cost of capital declines gradually to 6.76%

Cost of Equity
 10.34%

Cost of Debt
 $(2.75\% + 1.00\%)(1 - .361)$
 $= 2.40\%$
 Based on synthetic A rating

Weights
 $E = 60\%$ $D = 40\%$

In November 2013,
 Disney was trading at
 \$67.71/share

*Move to optimal
debt ratio, with
higher beta.*

Riskfree Rate:
 Riskfree rate = 2.75%

+

Beta
 1.3175

X

ERP for operations
 5.76%

Unlevered Beta for
 Sectors: 0.9239

$D/E = 66.67\%$

First Principles

