AcF302: Corporate Finance

Equity Financing

Week 14
Lent term

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TRIPLE-ACCREDITED, WORLD-RANKED

Practical Info

- All the practical and IMPORTANT information is in the Introductory Video.
- Please, check it because it contains information related to exam, term test, and delivery of the module.

- Lecturer: Dr. Patricia Boyallian
- Office: C39 LUMS / Teams
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- Office hours during term (on Teams or in person) book the appointment by email or using LibCal
- LibCal: https://lancaster-uk.libcal.com/appointments?u=36538
- Remember in person Drop-in sessions.
- Term test in Week 20: Tuesday 22nd of March at 9 AM

Roadmap for the rest of the term

- Long term financing: long term projects or investments (more than a year)
  - Equity (chapter 23)
  - Debt (chapter 24)
  - Leasing (chapter 25)
- Short term financing: financing options within a year.
  - Working capital management (Chapter 26)
  - Short term financing planning (Chapter 27)

Term test in week 20 includes All the material from weeks 1 to 8

- Advanced topics in Corporate Finance
  - Mergers and Acquisitions (Chapter 28)
  - Corporate Governance (Chapter 29 + additional material)

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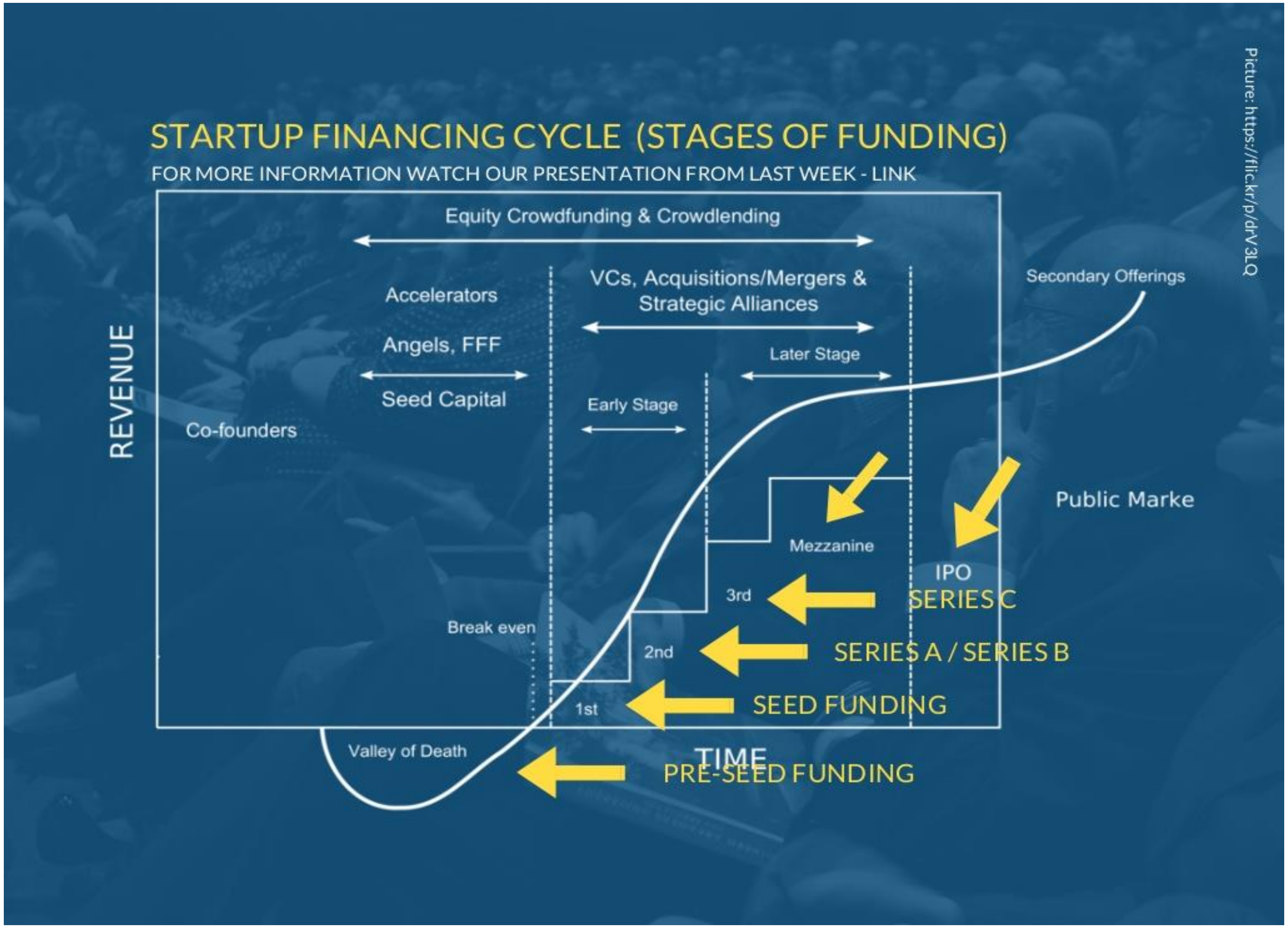
Outline of this week's lecture: Raising Equity Capital (Berk and DeMarzo Chapter 23)

1. Equity Financing Sources for Startups
2. Startups: Financing Terms and Valuation
3. Initial Public Offerings (IPOs)
4. IPO Puzzles
5. Seasoned Equity Offerings (SEOs)

Disclaimer: These lecture slides are modified and based on Dr. Mohamed Ghaly's previous year lecture slides. All remaining errors, mistakes and inaccuracies are my own.

1. Equity Financing Sources for Startups



Source: https://www.slideshare.net/MichalGromek/forms-of-funding-for-startups

Note: debt is also used at seed and early stages, e.g. credit cards, second mortgage, Microloans, bridge loans, bank loans, government loans.

Pre-seed Capital

- Pre-seed capital tends to cover the first stage in the life of a startup and is often comprised of three main sources of financing:
  - FFF (Family, friends, and fools).
  - Angel investors.
  - Accelerators (Incubators): Organizations that provide capital, mentorship and office space to startups in exchange for 5 to 10% of equity. Getting into some of these accelerator programs is very difficult as acceptance rate can be as low as 1.5% (e.g., Y Combinator, 500 Startups).

Angel Investors

- Individual Investors who buy equity in small private firms.
- Usually, previous startup founders who have had exits and decide to invest the money in other startups.
- Contrary to Venture Capital firms, angel investors often invest their own money at one of the riskiest stages in a startup’s life, so they are exposed to more risk.

Angel Investors

- Angel financing often occurs at such an early stage in the business that it is difficult to assess the value of the firm.

- To circumvent this problem, angels receive, in exchange for their investment, a note that is convertible into equity at a discount (typically 20%) when the company finances with equity in its seed round. The note is effectively deferring the company's valuation to this next round of funding.

- This allows angels and entrepreneurs to agree on terms without agreeing on a value for the firm, instead postponing the valuation until the firm is more mature and becomes attractive to venture capitalists.

Seed Capital

- The main providers of capital at this stage are:
  - Angel investors.
  - Angel investor syndicates.
  - Crowdfunders.
  - Early-stage Venture Capital firms.

Angel Investor Syndicates

- Angels with a good track record can lead investments in early-stage startups and allow other angels to co-invest, providing additional capital to the financing rounds.

- Lead angel investors get to choose the startups they want to invest in and don’t have to face the burden of providing all the capital.

- Angels that join in don’t have to select the startups if they trust the criteria of the lead angel investors.

- Startups can then get more capital quicker than usual.

- Example: AngelList

Crowdfunding

- Reward-based crowdfunding: Crowdfunders can back the projects they like and get something material in return (physical or digital products and services), receiving no equity from the companies providing such goods (e.g., Kickstarter and Indiegogo).

- Equity crowdfunding: Crowdfunders of the companies get equity in return, thus becoming shareholders. of the companies and participate in the future returns. Often carried out by platforms that serve as aggregators, choosing startups and inviting backers to invest in them through the platform, and charging a fee per deal closed (e.g., Crowdfunder, WeFunder)

Series A and B Funding

- Startups that get to this stage have usually figured out their product, the size of the market and need capital to scale.

- In Series A and B funding, investors are not just looking for great ideas but for companies with great ideas and a strong strategy for turning that idea into a successful business.

- The main key investors in these early-stage growth rounds are venture capital firms.

Venture Capital Firms

- Limited partnerships that specialize in raising money to invest in the private equity of young firms.

- Limited partners are usually institutional investors and general partners (known as venture capitalists) run the VC firm.

- VC firms offer limited partners advantages over investing directly in start-ups themselves as angel investors.
  - Limited partners are more diversified.
  - They also benefit from the expertise of the general partners (venture capitalist).

Venture Capital Firms

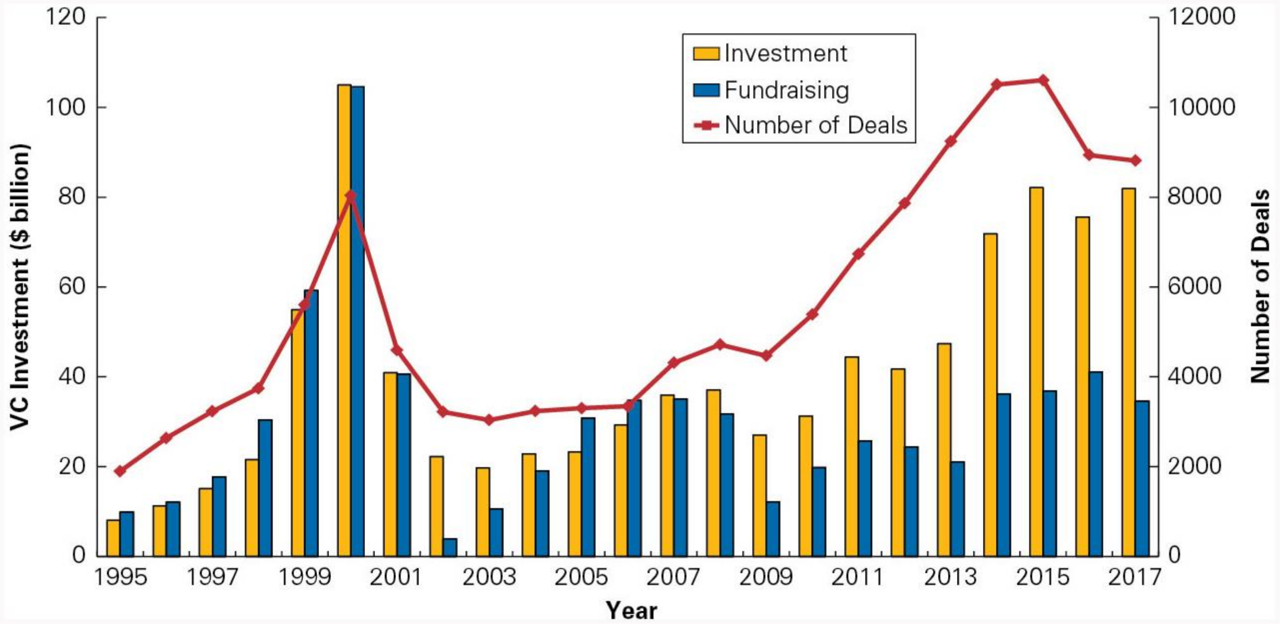
- But the advantages for limited partners come at a cost:
  - General partners usually charge substantial fees.
    - Most VC firms charge 20% of any positive return they make (carried interest).
    - They also generally charge an annual management fee of about 2% of the fund’s committed capital.
  - Venture capitalists often demand a great deal of control. They typically control about one-third of the seats on a startup’s board of directors, and often represent the single largest voting block on the board.

Most Active U.S. Venture Capital Firms in 2017
(By Number of Deals Completed)

Venture Capital Firm	Number of Deals	Average Invested per Deal (in $ million)
Sequoia Capital	219	121.0
Accel Partners	158	28.1
New Enterprise Associates	148	31.4
Y Combinator	141	12.8
500 Startups	141	1.8
Lightspeed Venture Partners	94	31.6
Bessemer Venture Partners	80	23.3
GV (Google Ventures)	79	34.9
Andreessen Horowitz	78	41.0
Kleiner Perkins Caufield & Byers	78	34.4
SV Angel	75	10.2
General Catalyst Partners	74	34.1

Source: Preqin

Venture Capital Funding in the United States 1995-2017



Source: National Venture Capital Association

Series C and Subsequent Rounds

- When companies reach this stage, they are fully mature.
- A clear difference between Series C and earlier rounds, besides the amount being invested, is that at this point private equity firms, institutional investors, investment banks, and corporate investors tend to be the lead investors, with the participation of large Venture Capital firms.
- Most commonly, a company will end its external equity funding with Series C. However, some companies can go on to Series D and even Series E rounds.
- From that stage on the outcome tends to be an IPO or to get acquired by a much bigger company.

Examples of Series C investors

- Private Equity Firms: Organized very much like VC firms, but they invest in the equity of existing (mature) privately held firms rather than early-stage start-up companies.

- Institutional investors: such as pension funds, mutual funds, hedge funds.

- Corporate investors: established firms that purchase equity in younger private companies. Might invest for corporate strategic objectives, in addition to the financial returns.

2. Startups: Valuation and Financing Terms

- When a company founder decides to sell equity to outside investors for the first time, it is common practice for private companies to issue preferred stock rather than common stock to raise capital.

- Preferred stock issued by young companies has seniority in any liquidation but typically does not pay regular cash dividends and often contains a right to convert to common stock.

- Each funding round will have its own set of securities with special terms and provisions.

- For example, Real Networks, which was founded by Robert Glaser in 1993, was initially funded with an investment of approximately $1 million by Glaser.
  - In April 1995, Glaser's $1 million initial investment in Real Networks represented 13,713,439 shares of Series A preferred stock, implying an initial purchase price of about $0.07 per share.
- Real Networks needed additional capital and management decided to raise this money by selling equity in the form of convertible preferred stock.

- The company's first round of outside equity funding was Series B preferred stock. They sold 2,686,567 shares of Series B preferred stock at $0.67 per share in April 1995. After this funding round the distribution of ownership was as follows:

	Number of Shares	Price per Share (last round) ($)	Total Value ($ million)	Percentage Ownership
Series A	13,713,439	0.67	9.2	83.6%
Series B	2,686,567	0.67	1.8	16.4%
	16,400,006		11.0	100.0%

- The Series B preferred shares were new shares of stock being sold by Real Networks. At the price the new shares were sold for, Glaser's shares were worth $9.2 million and represented 83.6% of the outstanding shares.
- Pre-Money Valuation
  - At the issuance of new equity, the value of the firm's prior shares outstanding at the price in the new funding round
    - $9.2 million in the Real Networks example.
- Post-Money Valuation
  - At the issue of new equity, the value of the whole firm (old plus new shares) at the price at which the new equity is sold.
    - $11.0 million in the RealNetworks example.

- Over the next few years, Real Networks raised three more rounds of outside equity in addition to the Series B funding round.

Series	Date	Number of Shares	Share Price ($)	Capital Raised ($ million)
B	April 1995	2,686,567	0.67	1.8
C	Oct. 1995	2,904,305	1.96	5.7
D	Nov. 1996	2,381,010	7.53	17.9
E	July 1997	3,338,374	8.99	30.0

Another Example

You founded your own firm two years ago.

Initially, you contributed $100,000 of your own money and, in return, received 1,500,000 shares of stock.

Since then, you have sold an additional 500,000 shares to angel investors.

You are now considering raising even more capital from a venture capitalist. The venture capitalist has agreed to invest $6 million with a post-money valuation of $10 million for the firm.

What percentage of the firm will the VC end up owning? What percentage will you own? What is the value of your shares?

Solution

Because the VC will invest \$6 million out of the \$10 million post-money valuation, his ownership percentage is 6/10 = 60%

The pre-money valuation is 10 − 6 = \$4 million. As there are 2 million pre-money shares outstanding, this implies a share price of

$$\frac{\$4 \text{ million}}{2 \text{ million shares}} = \$2 \text{ per share.}$$

Thus, the current value of your shares is: 1,500,000 shares x \$2 per share = \$3 million. You will own:

$$\frac{\$3 \text{ million}}{\$10 \text{ million}} = 30\%$$

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Venture Capital Financing Terms

- Liquidation Preference
  - Specifies a minimum amount that must be paid to these security holders—before any payments to common stockholders—in the event of a liquidation, sale, or merger of the company.
  - Typically set to between 1 and 3 times the value of the initial investment.

- Seniority
  - Investors in later rounds may demand seniority over investors in earlier rounds, to ensure that they are repaid first.

- Participation Rights
  - Allow the investors to “double dip” and receive both their liquidation preference and any payments to common shareholders as though they had converted their shares.
- Anti-Dilution Protection
  - If things are not going well and the firm raises new funding at a lower price than in a prior round, it is referred to as a “down round.”
  - This protection lowers the price at which investors in earlier rounds can convert their shares to common.
- Board Membership
  - The right to appoint one or more members to the board of directors of the firm as a way of securing control rights.

Exit Strategy

- An important consideration for investors in private companies is their exit strategy (i.e., how they will eventually realize the return from their investment).
- Investors exit in two main ways: through an acquisition or through an IPO.
- Large corporations usually purchase successful start-up companies. In such a case, the acquiring company purchases the outstanding stock of the private company, allowing all investors to cash out.
- Roughly 88% of venture capital exits from 2002–2012 occurred through mergers or acquisitions.

IPO

Zoom IPO on Nasdaq, April 2019. Source: Nasdaq.com

Uber IPO on NYSE, May 2019. Source Sky news

3. Initial Public Offerings (IPOs)

- The process of selling stock to the public for the first time.
- Advantages
  - Greater liquidity.
  - Better access to capital.
    - Public companies typically have access to much larger amounts of capital through the public markets.
- Disadvantages
  - The equity holders become more widely dispersed.
    - This makes it difficult to monitor management.
  - The firm must satisfy all of the requirements of public firms.
    - SEC filings, Sarbanes-Oxley, etc.

All time largest U.S. IPOs (in terms of valuation)

Company	Market Value at the time of the IPO	Pricing Date	Exchange
Alibaba Group Holding Ltd	$169.4 billion	Sept. 2014	NYSE
Facebook Inc	$81.25 billion	May 2012	Nasdaq
Uber Technologies Inc	$75.46 billion	May 2019	NYSE
AT&T Wireless Services Inc	$68.15 billion	April 2000	NYSE
Rivian Automotive Inc	$66.5 billion	Nov. 2021	Nasdaq
Didi Global Inc	$60.96 billion	June 2021	NYSE
United Parcel Service Inc	$60.16 billion	Nov. 1999	NYSE
Coupang Inc	$60.03 billion	Mar. 2021	NYSE
Ente Nazionale per l'Energia Elettrica (ENEL)	$54.85 billion	Oct. 1999	NYSE
Kraft Foods Inc	$53.79 billion	June 2001	NYSE
Deutsche Telekom AG	$51.81 billion	Nov. 1996	NYSE
Banco Santander Brasil SA	$50.92 billion	Oct. 2009	NYSE
General Motors Co	$49.50 billion	Nov. 2010	NYSE
Visa Inc	$44.32 billion	March 2008	NYSE
Airbnb Inc	$40.97 billion	Dec. 2020	Nasdaq
Gazprom	$37.72 billion	Oct. 1996	Traded OTC
Rocket Companies Inc	$35.98 billion	Aug. 2020	NYSE
Telefonica Moviles	$35.86 billion	Nov. 2000	NYSE
Blackstone	$34.15 billion	June 2007	NYSE
Snowflake Inc	$33.96 billion	Sept. 2020	NYSE

Source: https://www.reuters.com/business/biggest-us-ipos-all-time-2021-11-10/

10 biggest U.S. IPOs of all time, in terms of proceeds raised:

Company	Amount raised
Alibaba Group Holding Ltd	$25.03 billion
Visa Inc	$19.65 billion
General Motors Co	$18.14 billion
Ente Nazionale per l'Energia Elettrica (ENEL)	$17.41 billion
Facebook Inc	$16.01 billion
Deutsche Telekom AG	$13.03 billion
Rivian Automotive Inc	$11.93 billion
AT&T Wireless Services Inc	$10.62 billion
Telstra Corp Ltd	Nearly $10 billion
Kraft Foods Inc	$8.68 billion

Source: https://www.reuters.com/business/biggest-us-ipos-all-time-2021-11-10/

Top U.S. IPOs of 2021, ranked by market capitalization:

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Company	Market value at the time of the IPO
Rivian Automotive Inc	$66.5 billion
Didi Global Inc	$60.96 billion
Coupang Inc	$60.03 billion
Robinhood Markets Inc	$31.92 billion
UiPath Inc	$29.27 billion
AppLovin Corp	$28.64 billion
GlobalFoundries Inc	$26 billion
Full Truck Alliance Co Ltd	$20.64 billion
Toast Inc	$20.10 billion
RLX Technology Inc	$18.64 billion

Source: https://www.reuters.com/business/biggest-us-ipos-all-time-2021-11-10/

All time largest Global IPOs (in terms of proceeds)

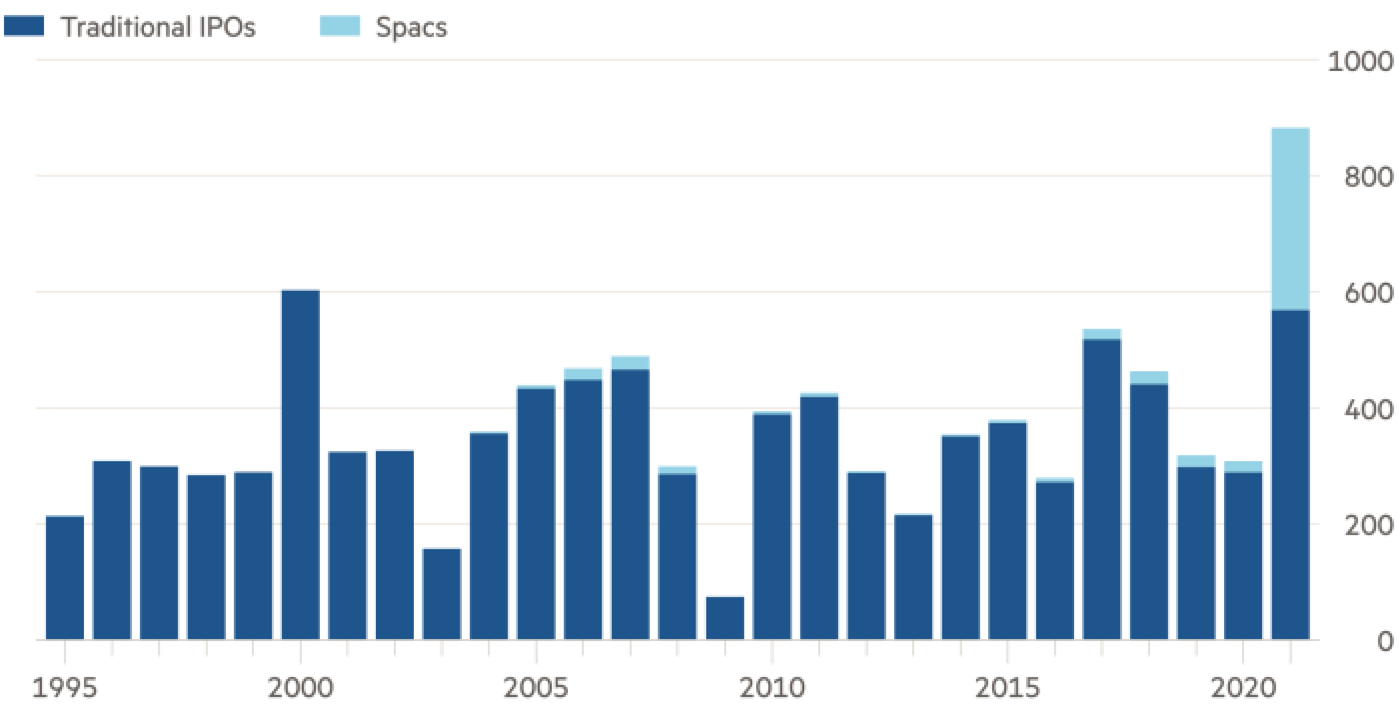
	Company	Offer Date	Exchange	Industry	Underwriter	Deal Size ($M)
1	Saudi Aramco	12/05/19	Tadawul	Energy	Citi	$25,599
2	Alibaba	09/17/14	NYSE	Technology	Credit Suisse	$21,767
3	SoftBank Corp	12/10/18	Tokyo Stock Exchange	Communication Services	Nomura Sec.	$21,345
4	NTT Mobile	10/21/98	Tokyo Stock Exchange	Communication Services	Goldman (Asia)	$18,099
5	Visa	03/18/08	NYSE	Technology	JP Morgan	$17,864
6	AIA (Am. Int'l Assurance)	10/20/10	Hong Kong Exchange	Financials	Citi	$17,783
7	ENEL SpA	11/01/99	NYSE	Utilities	Merrill Lynch	$16,452
8	Facebook	05/16/12	Nasdaq	Technology	Morgan Stanley	$16,007
9	General Motors	11/17/10	NYSE	Consumer Discretionary	Morgan Stanley	$15,774
10	ICBC - H	10/19/06	Hong Kong Exchange	Financials	Merrill Lynch	$13,958

Largest ever global IPO was anticipated in 2020. Chinese “Ant Group” was expected to raise $34 billion but the IPO was called off in October for regulatory reasons

Source: Renaissance Capital IPO Home

The number of companies going public has ballooned

Number of IPOs, by type



All figures year-to-date
Source: Dealogic

Spacs are shell companies known as special purpose acquisition companies.

IPO Market in 2020

- Excellent performance of several much-hyped technology IPOs.

IPOs in 2020	IPO Price ($)	Price as of 27Jan	Return
Snowflake (16 September)	120	280.98	134.2%
Airbnb (9 December)	68	192.74	183.4%
DoorDash (9 December)	102	198.22	94.3%
ZoomInfo (4 June)	36	49.25	36.8%

IPOs in 2019	IPO Price ($)	Price on 6 Feb 2020	Return
Uber Technologies	45	37.09	-17.6%
Lyft	72	47.42	-34.1%
Peloton	29	29	0.0%
Slack	26	22.65	-12.9%
Pinterest	19	23.01	21.1%

Types of Shares Offering and Mechanisms

- After deciding to go public, managers of the company work with an **underwriter**, an investment bank that manages the offering and designs its structure.

- Choices to be made include the type of shares to be sold and the mechanism the underwriter will use to sell the stock.

- **Types of shares to be sold:**
  - Primary Offering
    - New shares available in a public offering that raise new capital.
  - Secondary Offering
    - Shares sold by existing shareholders in an equity offering.

- **IPO Mechanisms:**
  - Best-Efforts Basis
    - For smaller IPOs, the underwriter commonly accepts the deal on this basis.
    - In this case, the underwriter does not guarantee that the stock will be sold, but instead tries to sell the sock for the best possible price.
    - Often such deals have <u>an all-or-none clause</u>: either all of the shares are sold on the IPO or the deal is called off.
  - Firm Commitment
    - More common.
    - An agreement between an underwriter and an issuing firm in which the underwriter guarantees that it will <u>sell all of the stock at the offer price.</u>

- Firm Commitment (cont’d)
  - The underwriter purchases the entire issue (at a slightly lower price than the offer price) and then resells it at the offer price.
  - If the entire issue does not sell out, the underwriter is on the hook: The remaining shares must be sold at a lower price and the underwriter must take the loss.
- Auction IPOs
  - A method of selling new issues directly to the public.
  - Rather than setting a price itself and then allocating shares to buyers, the underwriter in an auction IPO takes bids from investors and then sets the price that clears the market.
  - Google’s IPO in 2004 represents the most significant example of the use of the auction mechanism as an alternative to the traditional IPO mechanism.

Mechanics of the traditional IPO

- Underwriters and the Syndicate
  - Lead Underwriter
    - The primary investment banking firm responsible for managing a security issuance.
  - Syndicate
    - The lead underwriter provides most of the advice and arranges for a group of other underwriters, called the syndicate, to help market and sell the issue.

Top Global IPO Underwriters, Ranked by 2017 Proceeds

	2017				2016		
Manager	Proceeds (billion)	Market Share	No. of Issues	Manager	Proceeds (billion)	Market Share	No. of Issues
Morgan Stanley	10.52	5.9%	91	JPMorgan	8.38	6.4%	64
JPMorgan	10.04	5.6%	88	Morgan Stanley	7.94	6.1%	61
Citi	9.80	5.5%	100	Goldman Sachs	6.11	4.7%	52
Credit Suisse	8.47	4.7%	71	Citi	5.34	4.1%	60
Goldman Sachs	7.26	4.1%	62	Deutsche Bank	4.89	3.7%	42
UBS	6.07	3.4%	44	Bank of America Merrill Lynch	4.38	3.3%	42
Bank of America Merrill Lynch	5.87	3.3%	61	Credit Suisse	4.34	3.3%	48
Deutsche Bank	4.38	2.4%	44	UBS	4.23	3.2%	31
CITIC	3.42	1.9%	42	China Securities Co	3.34	2.6%	19
Barclays	3.41	1.9%	34	Nomura	3.28	2.5%	28
Top 10 Totals	69.24	38.7%	637	**Top 10 Totals**	52.23	39.9%	447
Industry Totals	179.33	100%	1595	**Industry Totals**	131.07	100%	1081

Source: http://dmi.thomsonreuters.com/Content/Files/4Q2017_Global_Equity_Capital_Markets_Review.pdf, 2017

Mechanics of the traditional IPO

- SEC Filings
  - Registration Statement
    - A legal document that provides financial and other information about a company to investors prior to a security issuance. Firms are required to submit it to the SEC.
  - Preliminary Prospectus (Red Herring)
    - Part of the registration statement prepared by a company prior to an IPO that is circulated to investors before the stock is offered.
  - Final Prospectus
    - Part of the <u>final</u> registration statement that contains all the details of the offering, including the number of shares offered and the offer price.

The Cover Page of RealNetworks' IPO Prospectus

Source: Courtesy RealNetworks, Inc.

RealNetworks

3,000,000 Shares

RealNetworks, Inc.
(formerly "Progressive Networks, Inc.")

Common Stock
(par value $.001 per share)

All of the 3,000,000 shares of Common Stock offered hereby are being sold by RealNetworks, Inc. Prior to the offering, there has been no public market for the Common Stock. For factors considered in determining the initial public offering price, see "Underwriting".

The Common Stock offered hereby involves a high degree of risk. See "Risk Factors" beginning on page 6.

The Common Stock has been approved for quotation on the Nasdaq National Market under the symbol "RNWK," subject to notice of issuance.

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION OR ANY STATE SECURITIES COMMISSION NOR HAS THE SECURITIES AND EXCHANGE COMMISSION OR ANY STATE SECURITIES COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

	Initial Public Offering Price(1)	Underwriting Discount(2)	Proceeds to Company(3)
Per Share	$12.50	$0.875	$11.625
Total(4)	$37,500,000	$2,625,000	$34,875,000

(1) In connection with the offering, the Underwriters have reserved up to 300,000 shares of Common Stock for sale at the initial public offering price to employees and friends of the Company.

(2) The Company has agreed to indemnify the Underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended. See "Underwriting".

(3) Before deducting estimated expenses of $950,000 payable by the Company.

(4) The Company has granted the Underwriters an option for 30 days to purchase up to an additional 450,000 shares at the initial public offering price per share, less the underwriting discount, solely to cover over-allotments. If such option is exercised in full, the total initial public offering price, underwriting discount and proceeds to Company will be $43,125,000, $3,018,750 and $40,106,250, respectively. See "Underwriting".

The shares offered hereby are offered severally by the Underwriters, as specified herein, subject to receipt and acceptance by them and subject to their right to reject any order in whole or in part. It is expected that certificates for the shares will be ready for delivery in New York, New York on or about November 26, 1997, against payment therefor in immediately available funds.

Goldman, Sachs & Co.
BancAmerica Robertson Stephens
NationsBanc Montgomery Securities, Inc.

The date of this Prospectus is November 21, 1997.

Mechanics of the traditional IPO

- Valuation
  - Underwriters work with the company to come up with a price range that they believe provides a reasonable valuation for the firm.
  - There are two ways to value a company:
    - Compute the present value of the estimated future cash flows.
    - Estimate the value by examining comparable firms (recent IPOs).
    - Most underwriters use both techniques.
    - However, when these techniques give substantially different answers, they often rely on comparables based on recent IPOs.

Mechanics of the traditional IPO

- Valuation
  - Road Show
    - Once an initial price range is established, the underwriters try to determine what the market thinks of the valuation.
    - Senior management and underwriters travel around promoting the company and explaining their rationale for the offer price to the underwriters' largest customers, mainly institutional investors such as mutual funds and pension funds.
  - Book Building
    - The process used by underwriters for coming up with an offer price based on customers' expressions of interest.

Mechanics of the traditional IPO

- Pricing the Deal and Managing Risk
  - Spread
    - The fee a company pays to its underwriters that is a percentage of the issue price of a share of stock.
      - For Real Networks, the final offer price was $12.50 per share, and the company paid the underwriters a spread of $0.875 per share, exactly 7% of the issue price.
      - Because this was a firm commitment deal, the underwriters bought the stock from Real Networks for $11.625 per share and then resold it to their customers for $12.50 per share.
        - $12.50 − $0.875 = $11.625

- Pricing the Deal and Managing Risk
  - When an underwriter provides a firm commitment, it is potentially exposing itself to the risk that it might have to sell the shares at less than the offer price and take a loss.
    - However, research shows that 75% of IPOs experience an increase in share price on the first day (only 9% experience a decrease).
  - Underwriters appear to use the information they acquire during the book-building stage to intentionally underprice the IPO, thereby reducing their exposure to losses.

- Pricing the Deal and Managing Risk
  - Over-Allotment Allocation (Greenshoe Provision):
    - In an IPO, this option allows the underwriter to issue more stock, usually amounting to 15% of the original offer size, at the IPO offer price (check footnote 4 in RealNetworks prospectus).
    - Underwriters initially market both the initial and the greenshoe allotment by short selling the greenshoe allotment.
    - If the issue is a success (i.e., demand for shares is higher than anticipated and the stock is trading in the secondary market above the offering price), the underwriter exercises the green shoe option, thereby covering its short position.
    - If the issue is not a success (i.e., demand is weak, and the stock price falls below the offering price), the underwriter covers the short position by repurchasing the green shoe allotment in the aftermarket, thereby supporting the price. The underwriter will still make profit as he will have short sold the additional shares at the IPO price and will buy them back in the market at the lower price.

- For more information about the traditional IPO process, I recommend reading the following Investor Bulletin from the SEC:

https://www.sec.gov/investor/alerts/ipo-investorbulletin.pdf

Going Public through a Direct Listing

- In 2018, Spotify took an unusual route to going public, by opting for a direct listing instead of a traditional IPO raising $9.2 billion.
- In a Direct Listing, the company sells shares directly to the public and without any brokers or investment banks to act as intermediaries.
- The process allows all existing investors to sell their shares to the public, but no new shares are issued in the process.
- As there are no new shares issued, there is no listing price specified.
- While many small-sized startups in the technology and biotech sectors have used the process for share listing in the recent past, Spotify is the largest and highest profile company to try such an approach (it was the first time the NYSE changed its rules to accommodate direct listing).

Going Public through a Direct Listing

- Potential benefits
  - Cheaper than traditional IPO process (no underwriting fees).
  - No lock-up period.
  - No ownership dilution.
- Potential risks
  - No roadshow to gauge the attractiveness of the stock.
  - No support or guarantee for the share sale.
  - No protection against volatility: No underwriter to support the trading price through market making.
  - No accommodation for increased demand through a greenshoe provision.

4. IPO Puzzles

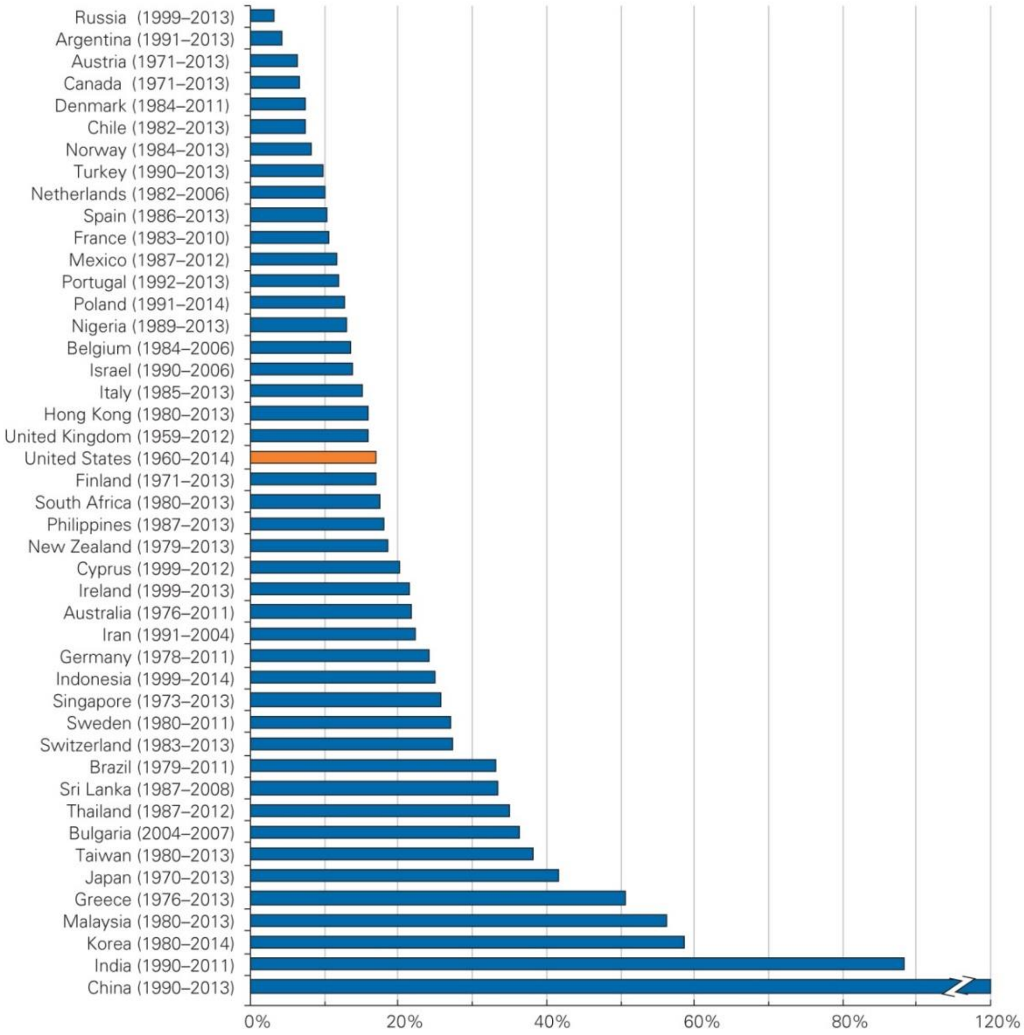
1. Underpricing
2. Cyclicality
3. Cost of IPOs
4. Long-run underperformance

Underpricing

- On average, IPOs appear to be underpriced: The price at the end of trading on the first day is often substantially higher than the IPO price.

- Generally, underwriters set the issue price so that the average first-day return is positive.
  - As mentioned previously, research has found that 75% of first-day returns are positive.
  - The average first day return in the United States is 18.3%.

International Comparison of First-Day IPO Returns



Source: Adapted courtesy of Jay Ritter (bear.warrington.ufl.edu/ritter/)

Underpricing

- Who benefits from this underpricing?
  - Underwriters: it reduces their risk.
  - New shareholders: who are able to buy at the low price.

- Who bears the cost?
  - The pre-IPO shareholders who sell their shares in the IPO: These owners are selling stock in their firm for less than what they could get in the aftermarket.

- Puzzle:
  - Why then do shareholders of issuing firms put up with this underpricing?
  - Do they have no choice?

Underpricing

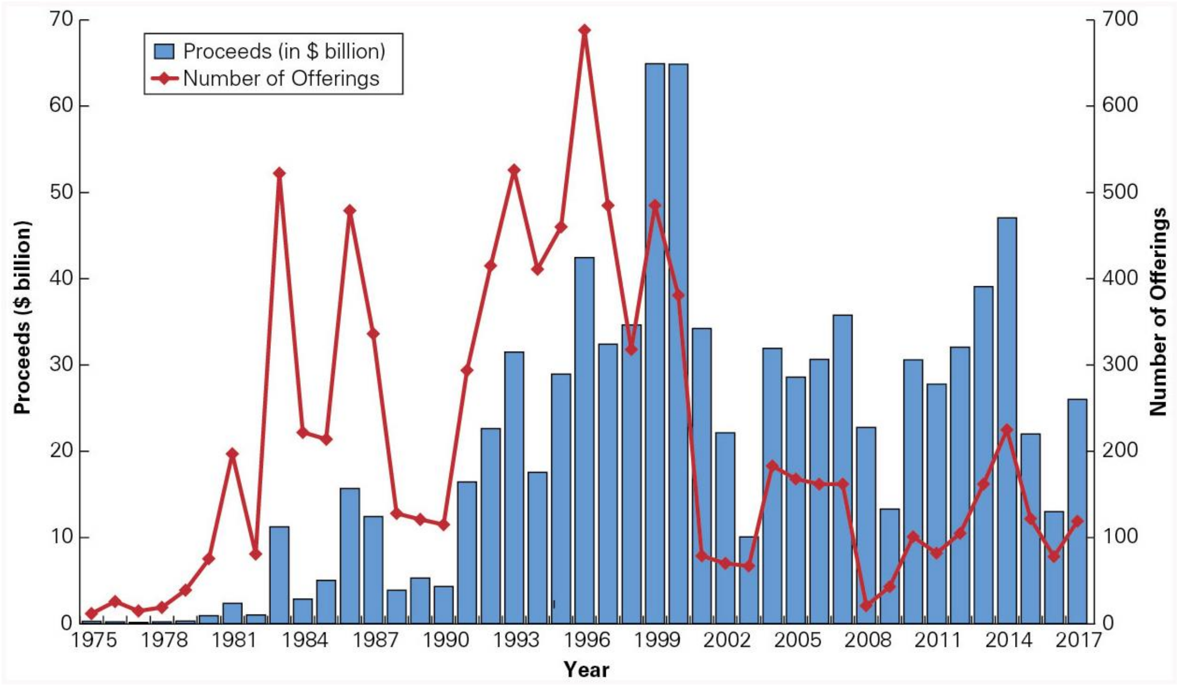
- IPO returns and the winner's curse:
  - Although IPO returns are hugely attractive (17% daily return on average!), investors cannot in reality always earn these returns by investing in IPO firms.
    - When an IPO goes well, the demand for the stock exceeds the supply. Thus, the allocation of shares for each investor is rationed.
    - When an IPO does not go well, demand at the issue price is weak, so all initial orders are filled completely.
    - Thus, the typical investor will have their investment in "good" IPOs rationed while fully investing in "bad" IPOs.

Cyclicality

- The number of issues is highly cyclical.
  - When times are good, the market is flooded with new issues; when times are bad, the number of issues dries up.

- This cyclicality by itself is not particularly surprising.
  - We would expect there to be a greater need for capital in times with more growth opportunities than in times with fewer growth opportunities.
  - What is surprising is the magnitude of the swings.

Cyclicality of IPOs in the U.S. (1975-2017)



Source: Adapted courtesy of Jay R. Ritter from “Initial Public Offerings: Tables Updated through 2017” (bear.warrington.ufl.edu/ritter/).

Cyclicality

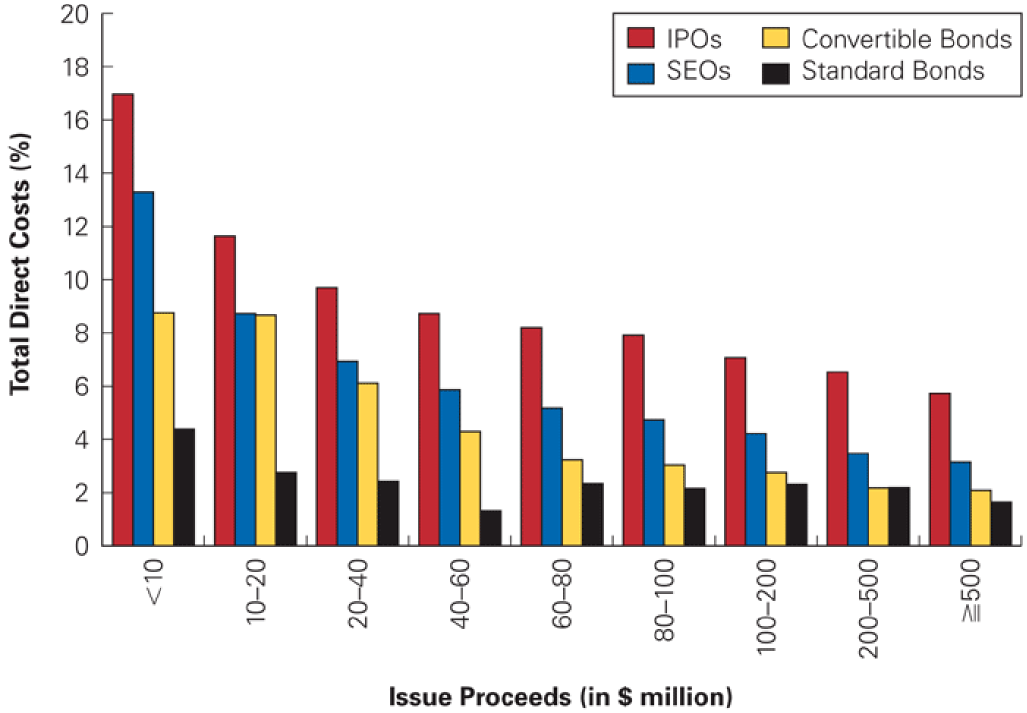
- Puzzle:
  - It is very difficult to believe that the availability of growth opportunities and the need for capital changed so drastically, for example between 2000 and 2003, as to cause a decline of more than 75% in the dollar volume of new issues.
  - It appears that the number of IPOs is not solely driven by the demand for capital.
  - Sometimes firms and investors seem to favor IPOs; at other times firms appear to rely on alternative sources of capital and financial economists are not sure why.

Cost of IPOs

- A typical spread is 7% of the issue price.
  - By most standards, this fee is large, especially considering the additional cost to the firm associated with underpricing.

- Puzzle:
  - It is puzzling that there seems to be a lack of sensitivity of fees to issue size.
  - One possible explanation is that by charging lower fees, an underwriter may risk signaling that it is not the same quality as its higher priced competitors.
  - It is also unclear why firms willingly incur these very high costs.

Relative Costs of Issuing Securities



Source: Adapted from I. Lee, S. Loch head, J. Ritter, and Q. Zhao, “The Costs of Raising Capital,” **Journal of Financial Research** 19(1) (1996): 59–74.

Long-Run Underperformance

- Although shares of IPOs generally perform very well immediately following the public offering,
  - It has been shown that newly listed firms subsequently appear to perform relatively poorly over the following 3 to 5 years after their IPOs.
  - On average, a three- to five-year buy and hold strategy appears to be a bad investment.

5. Seasoned Equity Offerings (SEOs)

- When a **public** company offers new shares for sale.
- Public firms use SEOs to raise additional equity.
- When a firm issues stock using an SEO, it follows many of the same steps as for an IPO.
  - The main difference is that a market price for the stock already exists, so the price-setting process is not necessary.

Mechanics of an SEO

- There are two types of seasoned equity offerings:
  - Cash Offers
    - A type of SEO in which a firm offers the new shares to the public.
    - Most offers in the U.S. are cash offers.
  - Rights Offers
    - A type of SEO in which a firm offers the new shares only to existing shareholders.
      - Rights offers protect existing shareholders from underpricing.
    - Most offers in the UK are rights offers.

Price Reaction to the announcement of an SEO

- Researchers have found that, on average, the market greets the news of an SEO with a price decline.

- This is consistent with an adverse selection explanation:
  - A company concerned about protecting its existing shareholders will tend to sell only at a price that correctly values or overvalues the firm.
  - The market infers from the firm’s decision to issue stock that the company is likely to be overvalued; hence, the price drops with the announcement of the SEO.