Initial Public Offering

Topics

- Venture Capital
- IPO

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Corporate Equity Financing Decisions

- Venture Capital
- Initial Public Offering
- Seasoned Offering

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Venture Capital

- Venture capital is money provided by professionals who invest alongside management in young, rapidly growing companies that have the potential to develop into significant economic contributors.
- Venture capital is an important source of equity for start-up companies.

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Venture Capital Funding

- Professionally managed venture capital firms generally are private partnerships or closely-held corporations funded by
  - private and public pension funds,
  - endowment funds, foundations, corporations,
  - wealthy individuals,
  - foreign investors, and
  - the venture capitalists themselves.
- Far from being simply passive financiers, venture capitalists foster growth in companies through their involvement in the management, strategic marketing and planning of their investee companies.
- Angel Investors

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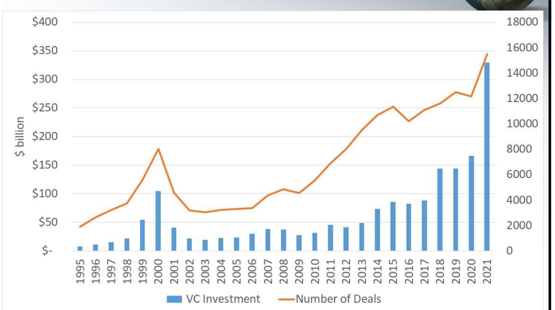
Venture Capital Industry



Data Source: PricewaterhouseCooper/NVCA MoneyTree Survey

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Venture Capitalists

Functions

1. Finance new and rapidly growing companies.
2. Purchase equity securities.
3. Assist in the development of new products or services.
4. Add value to the company through active participation.
5. Take higher risks with the expectation of higher rewards.
6. Have a long-term orientation.

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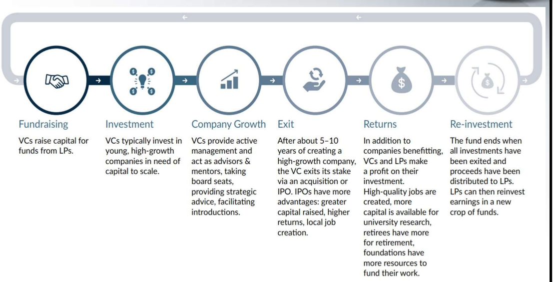
Venture Capital Funding Cycle



Source: National Venture Capital Association

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Venture Capital

- Venture capitalists mitigate the risk of venture investing by developing a portfolio of young companies in a single venture fund.
- Many times they will co-invest with other professional venture capital firms.
- In addition, many venture partnership will manage multiple funds simultaneously.
- VC backed companies – Example:
  - Digital Equipment Corporation, Apple, Federal Express, Compaq, Sun Microsystems, Intel, and Microsoft.

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Stages of Financing

- Seed investing: invest before there is a real product or company organized
- Early stage investing: provide capital to start up a company in its first or second stages of development
- Expansion stage financing: provide needed financing to help a company grow beyond a critical mass to become more successful
- The venture capitalist may invest in a company throughout the company's life cycle and therefore some funds focus on later stage investing by providing financing to help the company grow to a critical mass to attract public financing through a stock offering.

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Venture Capital

First Stage Market Value Balance Sheet ($mil)

Assets		Liabilities and Equity	
Cash from new equity	0.5	New equity from venture capital	0.5
Other assets	0.5	Your original equity	0.5
Value	1.0	Value	1.0

Second Stage Market Value Balance Sheet ($mil)

Assets		Liabilities and Equity	
Cash from new equity	1.0	New equity from 2nd stage	1.0
Other assets	2.0	Equity from 1st stage	1.0
		Your original equity	1.0
Value	3.0	Value	3.0

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VC Stages & CFs

Sources of funding: VCs, angel investors, incubators, accelerators, strategic investors (corporate groups), growth equity investors, private equity firms, debt investors

Source: National Venture Capital Association

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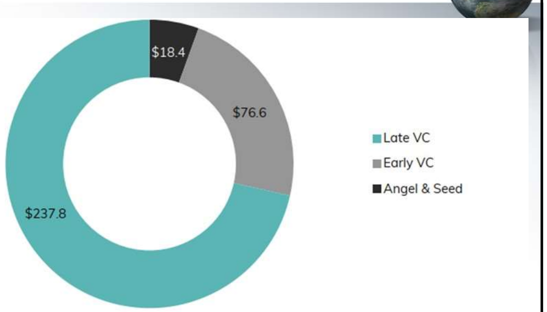
US VC Deal Value ($B) by Stage in 2021



Source: NVCA 2022 Yearbook, Data provided by PitchBook

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General Evidence on VC

1. Successful venture capital-backed firms do receive more total financing and a greater number of rounds than unsuccessful firms.
2. Early stage firms receive significantly less money per round.
3. Increases in asset tangibility increase financing duration and reduce monitoring intensity.
4. As market to book ratio increases, duration declines.
5. Higher R&D intensities lead to shorter funding durations.

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US VC Return As of June 2021

CA INDEX	5-YEAR	10-YEAR	15-YEAR	20-YEAR	25-YEAR
CAMBRIDGE ASSOCIATES LLC US VENTURE CAPITAL INDEX®[1]	25.80	18.69	14.60	9.60	27.79
MPME ANALYSIS[2]					
Constructed Index: MSCI World/MSCI All Country World Index[3] (gross)	15.22	10.35	8.32	8.49	8.15
Value-Add (bps)	1,058	834	628	110	1,964
mPME Russell 2000® Index	16.54	12.24	9.64	9.76	9.74
Value-Add (bps)	926	645	496	-16	1,805
mPME Constructed Index: NASDAQ Composite Price Index/NASDAQ Composite Total Return[4]	25.41	18.62	14.28	11.93	12.09
Value-Add (bps)	38	6	32	-234	1,570

Source: Cambridge Associates

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Venture Capital

- Venture capitalists will help companies grow, but they eventually seek to exit the investment in three to seven years.
  - Mergers and Acquisitions
  - IPOs
- The venture investment is neither a short term nor a liquid investment, but an investment that must be made with careful diligence and expertise.

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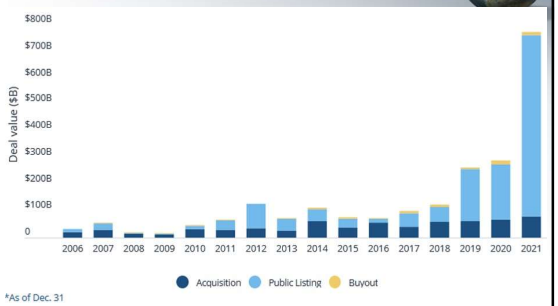
IPOs consist most of exit value



Source: NVCA 2022 Yearbook, Data provided by PitchBook

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Top 10 VC Backed IPOs in 2021

Company Name	Exit size ($M)	Industry Sector	State
Rivian	$55,791.6	B2C	California
Coinbase	$48,096.8	IT	California
Roblox	$45,314.0	IT	California
Robinhood Markets	$30,021.1	Financial Services	California
UiPath	$27,746.5	IT	New York
Toast	$19,103.7	IT	Massachusetts
Marqeta	$13,089.4	IT	California
HashiCorp	$13,087.0	IT	California
Tuya Smart	$10,839.6	IT	California
Samsara	$10,703.5	IT	California

Source: NVCA 2022 Yearbook, Data provided by PitchBook

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Initial Public Offering (IPO)

- Initial Public Offering (IPO) - First offering of stock to the general public
  - Underwriter: Firm that buys an issue of securities from a company and resells it to the public. They are investment banking firms that act as financial middlemen to a new issue.
  - Spread: Difference between public offer price and price paid by underwriter.
  - Prospectus: Formal summary that provides information on an issue of securities.
  - Tombstone: Newspapers advertisement by investment bankers for an IPO.
  - Underpricing: Issuing securities at an offering price set below the true value of the security.

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Other Financing Terminology

- Seasoned Offering: Sale of securities by a firm that is already publicly traded.
- General Cash Offer: Sale of securities open to all investors by an already public company.
- Shelf Registration: A procedure that allows firms to file one registration statement for several issues of the same security.
- Private Placement: Sale of securities to a limited number of investors without a public offering.
- Rights Issue: Issue of securities offered only to current stockholders.

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Sample Tombstone Advertisement


$2,127,500,000

Principal Financial Group

Principal Financial Group, Inc.

115,000,000 Shares
Common Stock

Price $18.50 Per Share

97,750,000 Shares

Goldman, Sachs & Co.
Credit Suisse First Boston
Merrill Lynch & Co.
Salomon Smith Barney

Banc of America Securities LLC	Bear, Stearns & Co. Inc.
A.G. Edwards & Sons, Inc.	Fox-Pitt, Kelton Inc.
JPMorgan	Lehman Brothers
Ramirez & Co., Inc.	UBS Warburg

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IPO: Underwriters

- Firm Commitment
  - Under a firm commitment underwriting, the investment bank buys the securities outright from the issuing firm. Obviously, they need to make a profit, so they buy at “wholesale” and try to resell at “retail”.
  - To minimize their risk, the investment bankers combine to form an underwriting syndicate to share the risk and help sell the issue to the public.
- Best Efforts
  - Under a best efforts underwriting, the underwriter does not buy the issue from the issuing firm. Instead, the underwriter acts as an agent, receiving a commission for each share sold, and using its “best efforts” to sell the entire issue.
  - This is more common for initial public offerings than for seasoned new issues.

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IPO Expenses

- Average IPO expenses (1767 IPOs from 1990-1994)

Value of Issue ($mil.)	Direct Costs	Underpricing	Total
2 - 9.99	16.96%	16.36%	25.16%
10 - 19.99	11.63%	9.65%	18.15%
20 - 39.99	9.70%	12.48%	18.18%
40 - 59.99	8.72%	13.65%	17.95%
60 - 79.99	8.20%	11.31%	16.35%
80 - 99.99	7.91%	8.91%	14.14%
100 - 199.99	7.06%	7.16%	12.78%
200 - 499.99	6.53%	5.70%	11.10%
500 and up	5.72%	7.53%	10.36%
All Issues	11.00%	12.05%	18.69%

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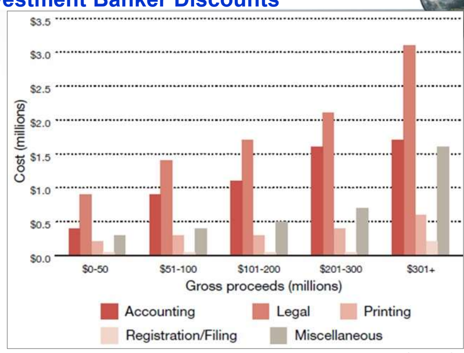
IPO Direct Cost Breakdown Excluding Investment Banker Discounts



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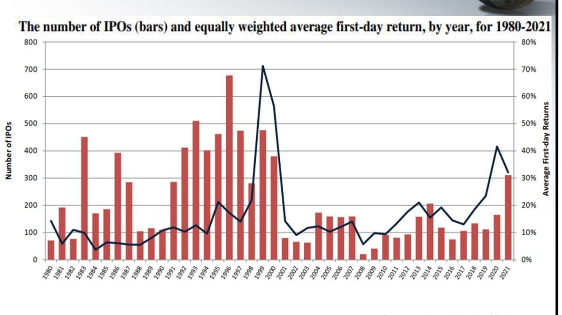
IPO Returns



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Initial Public Offering

- Ibbotson [1975] called the IPO underpricing a "mystery."

Theories

- Winner's Curse Model
- Signaling Theory
- Market Feedback Hypothesis
- Litigation Hypothesis

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Winner's Curse Model

- The winner's curse model is developed by Rock [1986].
- Information asymmetry among investors
  - Informed investors assumed to have superior knowledge about true value of the new IPO issue.
  - The issuing firm is regarded as 'the uninformed', because, even though the issuing firm knows more about itself, the market has better idea of assessing the firm's relative value.
  - Informed demand is assumed to be not sufficient.

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Winner's Curse Model

- Rationing process
  - Informed investors participate in the IPO only when the offering price exceeds its true value.
  - Uninformed investors, therefore, confront adverse selection problem.
  - If the issue is underpriced, informed investors will come to the IPO market, so the issue must be rationed.
  - If the issue is overpriced, uninformed investors will end up with the total amount of the issue.
- Unless IPO issues are underpriced on average, uninformed investors will not participate in the IPO process.

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Reputation of Underwriter

- Since firms go public only once, they have an incentive to "cheat" - in other words, not to underprice their shares. However, the underpricing is enforced by the active role of investment banks.
- Three conditions:
  - The investment banker is uncertain what the market price of the stock once it starts trading will be.
  - The investment banker has non-salvageable reputation capital at stake, on which it can earn a return. (Lower distribution costs, higher underwriting fees)
  - The ability to earn a return on this non-salvageable reputation capital drops if the underwriter 'cheats' by underpricing too much or too little.

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Winners Curse Model

- Fly in the ointment If informed are making abnormal profits then over time they should have sufficient wealth to purchase all shares of all firms wishing to go public.

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Signaling Theory

- Alternative underpricing theory: Signaling Theory
- The issuer is deliberately 'leaving a good taste in investors' mouth' in order to facilitate subsequent seasoned offering.

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Signaling Theory

- Underpricing, in addition to the fraction of equity retained, is used for signaling firm quality. Otherwise, investors cannot differentiate 'high quality' IPO issues from 'low quality' ones.
- In the signaling model, the issuer is assumed to have best information about the firm's quality, while the winner's curse model assumes that information asymmetry resides among investors.
- In addition, the issuer is assumed to maximize his utility over IPO and succeeding seasoned offerings (SOs), and, therefore, IPO underpricing is related to the likelihood of additional equity offerings.

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Signaling Theory

- Implications from the signaling theory

Firms offering more IPO underpricing tend to:

1. have high probabilities of subsequent SO,
2. issue additional equity rather immediately after the IPO,
3. offer larger volume of SOs, and
4. undergo a smaller price decline when SO is declared.

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Signaling Theory

- Empirical evidence is not very supportive of this hypothesis.
- Using IPO data from 1980 to 1986, Jagadeesh, Weinstein and Welch [1993] found 23.93% of the firms in the highest IPO underpricing quintile returned to the stock market for SO within 3 years of the IPO, while 15.62% of the firms in the lowest quintile reissued additional equity.
- However, their regression model demonstrated aftermarket returns were better indicators for following SOs and the initial return on the first trading day has little strength in forecasting subsequent SOs.
- **Signaling theory is inconclusive in explaining the IPO underpricing.**

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Other Explanations

- Market Feedback Hypothesis
  - Market is better informed than the issuer.
  - High return on the IPO date implies that the issuer has underestimated the quality of their projects.
  - The issuer will need additional funds in the future to grow.
- Litigation Hypothesis
  - An initial positive return is less likely to lead to future litigation by shareholders of firms whose share price declines substantially.

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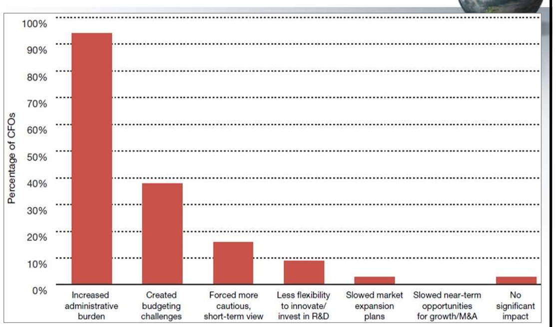
Challenges After IPO



Source: PwC/Oxford Economics Survey

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