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Advanced Corporate Finance

8. Raising Equity Capital

Objectives of the session

1. Explain the mechanism related to Equity Financing
2. Understand how IPOs and SEOs work
3. See the stylized facts related to post IPO and SEO performance

Equity Financing

- Initial Capital
  - Very early stage "Family, Friends and Fools", notion of Angel Investors
  - Venture capital firms=> specialized in raising capital for young firms

    => often diversification benefits

    =>possibility to benefit from expertise

    => substantial costs in terms of control
  - Private Equity Firms
    - Invest in firms already existing
  - Institutional Investors (pension funds, insurance companies etc…)
  - Corporate Investors
  - Outside Investors
- One general point of attention: the exit strategy

The IPO

- **IPO => Initial Public Offering**
- Advantages
  - Greater liquidity
  - Better access to capital
- Disadvantages
  - Diminution in ownership concentration
  - Need to follow the existing legislation (adaptation may be time consuming and thus costly)

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Types of Offering

- Usually, need of an underwriter
- Distinction between primary offering (new shares) and secondary offering (existing shares)
- Underwriter different contract features:
  - Best Efforts (often with all or nothing clauses)
  - Firm Commitment
  - Auction IPO (Open IPO) => bidders bid, offer is made at the price of the lowest bid allowing the sale of the number of shares planned
- Sherman (2005) => sealed bid IPO almost gone, mostly book building… because of risk reduction offered by the second method (number of investors evaluating the offering)

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In practice

- Lead underwriter and if needed creation of a syndicate (group of other underwriters)
- Need to do the compulsory paperwork (prospectus)
- Valuation => hard to do without past prices, shares are costly to evaluate, corporate insiders have a clear advantage (Sherman, 2005)
- Road show
  - Customers show their interest
  - Sum of the interest shown => book building
- Underwriters get a fee “underwriting spread”
- They may also require or negotiate a “greenshoe” or over allotment option

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Underwriters

- Risk faced by underwriters if firm commitment?
  - –Possible response reduce the price to make sure to sell the equity
  - –Maybe willingness to contact a maximum of potential buyers and to allot shares to more than available, knowing that some of them may withdraw their offer
  - –If so, risk of over-allotment which may be hedged thanks to the greenshoe option. Greenshoe options => option allows underwriters to sell more stock than initially planned (up to 15% the original size offer) (see for example Hansen, Fuller and Janjigian, 1987)

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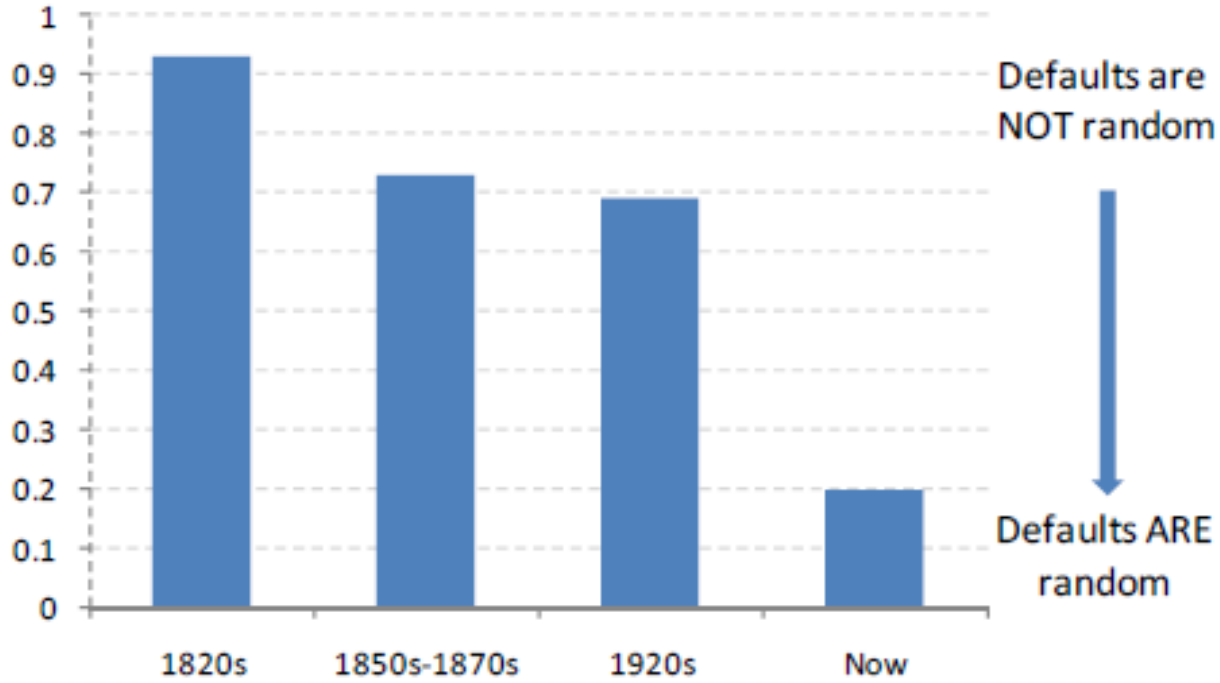
Underwriters

- Flandreau, Flores, Gaillard & Nieto-Parra (2009), comparison of underwriters role in the past and today
- Are defaults randomly distributed amongst underwriters?
- Historically underwriter had a liquidity provision AND signaling role
- Underwriter's reputation => lender of last resort?
- Historically, major underwriter => cherry picking the best ≠ today
- Form of underwriting => best efforts versus firm commitment
- Nowadays, outsourcing of the signaling to the rating agencies
- Comparison of defaults across underwriters (then versus now)

Underwriters

Figure 1. Cramér's V: Are Defaults Randomly Distributed Across Underwriters?



Source: Authors' computations

Source: Flandreau, Flores, Gaillard & Nieto-Parra (2009)

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IPOs' underpricing

- Empirical research has tried to assess the performance of stocks following new issues
- Ibbotson and Jaffe (1975) => notion of "hot issue" ⇔ stock issues which have risen from their offering prices to higher than average premia in the aftermarket
- Investing in IPOs => highly profitable if investing in all offerings would lead to a 16.83% return relative to the market! Need to take into account whether the market is "hot" or "cold" and in any case: rationing…
- Ritter (1984) => hot market of 1980, mean return on IPOs for the first day (offering to closing bid price on first day) = 48.4%! => what drives "hot" markets?
- Potential explanation: Uninformed versus informed investors and risk of adverse selection (akin to a winner's curse)

IPOs' underpricing

- The winner's curse (Rock, 1986)
  - 2 investors, Mr Uninformed and Mr Informed
  - Mr Uninformed believes everybody has the same info
  - He invests an equal share of his portfolio in all IPOs
  - Mr Informed picks underpriced issues only

- Mr Uninformed and Mr Informed have decided to buy a each a 1000 shares each in the following IPOs
- There are 10 IPOs:
  - Mr Uninformed buys 100 shares of each IPO
  - Mr Informed buys 1000 shares in one IPO and 0 in the others
- Each company issues 110 shares

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IPOs' underpricing

- If the company is undervalued:
  - M. Uninformed asks 100 shares
  - M. Informed asks 1000 shares
  - M. Uninformed receives 10 shares (rationing of 10%)
  - M. Informed receives 100 shares (rationing of 10%)
- If the company is overvalued :
  - M, Uninformed asks 100 shares
  - M. Informed asks 0 shares
  - M. Uninformed receives 100 shares
- Conclusion:
  - Mr Uninformed gets many shares in case of over-valuation and few in case of undervaluation
  - Mr Informed gets many shares in case of undervaluation
  - To attract normally informed people, companies have to issue at a low price

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IPOs' underpricing

- Underpricing often linked to asymmetry of information either between informed and uninformed investors or between the investment banker and the issuer
- In this context, the higher the asymmetry the larger the underpricing
- Levis (1990) => London Stock Exchange data where the issuing house may choose the allocation method of oversubscribed issues and costs to pay upfront for the whole amount wished for => danger of accelerated interest rate
- Example: British Gas IPO => 16000 shares @ 50 pence => 8000£ to pay and interest charges of 50£, if all shares, interest +/- 0.31 pence per share, if only 1600 shares effectively received, interest represents 3.12 pence per share!
- => underpricing of the new issue should be sufficiently large to cover the possibility of accelerated interest rate

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Levis (1990)

Table 2
Effective Returns

Value of application in £	Gross expected return (1)	Net return (2)	Net expected return (3)
500	1·88	8·14	1·67
	(1·98)	(5·08)	(2·01)
1,000	2·17	8·31	2·09
	(2·26)	(5·00)	(2·21)
2,000	2·92	8·06	2·69
	(2·86)	(4·89)	(2·70)
4,000	3·79	7·61	3·24
	(3·49)	(4·71)	(3·11)
8,000	5·14	7·14	4·18
	(4·21)	(4·56)	(3·67)
16,000	6·90	6·47	5·20
	(4·64)	(4·34)	(3·90)
32,000	7·52	5·83	5·16
	(4·88)	(4·11)	(3·90)
64,000	8·07	5·58	5·11
	(4·99)	(3·83)	(3·76)
128,000	8·18	5·64	4·31
	(5·03)	(3·79)	(3·45)
256,000	8·25	5·63	4·31
	(5·07)	(3·76)	(3·42)
512,000	8·28	5·21	3·89
	(7·25)	(3·45)	(3·04)
1,024,000	8·28	4·58	3·33
	(5·09)	(2·90)	(2·42)
2,048,000	8·28	2·53	1·44
	(5·09)	(1·34)	(0·83)

t statistics in parenthesis.

Gross expected return, accounts for the winner's curse problem by adjusting the market-adjusted return by the probability of obtaining a number of shares at different levels of application (see equation (5) in text).

Net return, accounts for interest costs per share received but does not adjust for the probability of obtaining shares (see equation (6) in text).

Net expected return, accounts for both the probability of obtaining shares and interest costs (see equation (7) in text).

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Underpricing and Closed-End Funds

- Peavy III (1990) => IPOs for Closed-End Funds
- Interesting because less asymmetry of information (underlying asset is a portfolio of marketable securities)
- Usually closed-end funds share sell at a discount compared to their Net Asset Value => but to issue these in the first place the creator of the funds must expect a positive value => overpricing… (unless superior management skills)
- Mean return on first trading day => 0.97% (far below the returns observed for other IPOs), an if special-access international funds are withdrawn
  => -0.62%

=> Comparison with two benchmarks (T-Bills and Market return)

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Underpricing and Closed-End Funds

Table 3
Initial returns for closed-end fund IPOs by type[1]

Type of IPO	Number of observations	Mean initial return	*t*-statistic	Proportion positive	Minimum initial return	Maximum initial return
Closed-end funds						
Stock total	32	0.0097	0.78	.3125	−0.0500	0.3875
Stock total[2]	29	−0.0111	−3.72*	.2414	−0.0500	0.0139
Diversified	11	−0.0076	−1.51	.3636	−0.0500	0.0139
International specialized	9	0.0623	1.45	.5556	−0.0375	0.3875
International specialized[2]	6	−0.0122	−1.77	.3333	−0.0375	0.0104
Domestic specialized	12	−0.0135	−3.36*	.0833	−0.0375	0.0125
Bond	19	0.0097	1.09	.0526	−0.0125	0.0750
Total	41	0.0097	0.97	.2683	−0.0500	0.3875
Total[2]	38	−0.0062	−1.60	.2105	−0.0500	0.0750
Nonfund issues[3]	412	0.0664	8.26*	NA	−0.4380	1.6370

NA = not available.

[1] Mean initial returns are defined as the difference between the offering day's closing price and the initial offering price divided by the offering price.

[2] Excluding the three special-access international funds that invest in securities of certain foreign countries that restrict direct ownership by U.S. citizens.

[3] For the period from January 1986 to May 1987 (June 1987 data was unavailable). *Source*: Muscarella and Vetsuypens (1987).

* Significant at the 0.01 level.

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Greenshoe Option

- Should remind you of an American call option…
- The underwriter has the right to buy additional shares at the offering price anytime during a fixed time period (often +/- 30 days)
- Hansen, Fuller and Janjigian (1987) => value of the option using Black Scholes estimated to be as much as 1% of the gross proceeds
- Muscarella, Peavy III and Vestuypens (1992) => option exercise distinguishing close end funds and non-fund IPOs
  - mean return of first day of trade (offer price to closing price of first day) = 9.93% for non-fund IPOs, not ≠ 0 for funds IPOs
  - Underwriters on average exercised the option for 83.71% of the non-fund IPO shares available thanks to the greenshoe option, whereas only 23.19% did so for the close end funds IPOS
  - In general, options are exercised rationnally

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Option exercise and performance

Table II After-Market Price Performance of Non-Fund IPOs and Closed-End-Fund IPOs by Use of Over-Allotment Option.

	Non-Fund IPOs	*Closed-End-Fund IPOs*
Mean Return from Offer Price through 20th Trading Day for Firms Exercising Over-Allotment Option (number of firms/percentage of firms)	+16.00% (486/92.0)	+7.65% (13/29.5)
Mean Return from Offer Price through 20th Trading Day for Firms Not Exercising Over-Allotment Option (number of firms/percentage of firms)	−10.12% (42/8.0)	−3.42% (31/70.5)
t-Statistic for Differences in Mean Returns between Firms Exercising and Not Exercising Over-Allotment Option	5.97*	3.23*
Total Number of Firms	528†	44

* Significant at the 0.01 level.
† Nine non-fund IPOs did not trade on day 20.

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Underwriter's aftermarket activities

- Aggarwal (2000) => three theroretical activities
- Pure stabilization: underwriters post a bid price inferior to the offer price (empirically absent)
- Short covering in the aftermarket => underwriters take a short position and oversell the issue because they have a greenshoe option.
  - If price drops, buyback on the secondary market (but sometimes option exercise to get the fee if price drop is limited)
  - If price increases, exercise the option
  - If short position superior to the greenshoe option then naked short position must be covered by buying on the secondary market (signaling, favoring clients, liquidity)
- Penalty Bids to Control Flipping (resell of shares on the first day => issue when demand is weak)

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Issuers Leaving Money?

- Loughran and Ritter (2002): between 1990 and 1998, companies going public in the US left close to $27 billion on the table (first-day price gain times number of shares sold) => detrimental to old shareholders (dilution and forgone profits)
- Twice the payment in investment banker fees…
- Netscape offer price 28$, closing market price 58.25$
- Nonetheless firms do not change underwriters for subsequent issues…
- Loughran and Ritter (2002) => phenomenon explained by prospect theory, agents care about the change in their wealth rather than the level of wealth. Original shareholder consider both the gains implied by the price on the share they retained and the relative loss due to the too low offering price

Issuers leaving money…

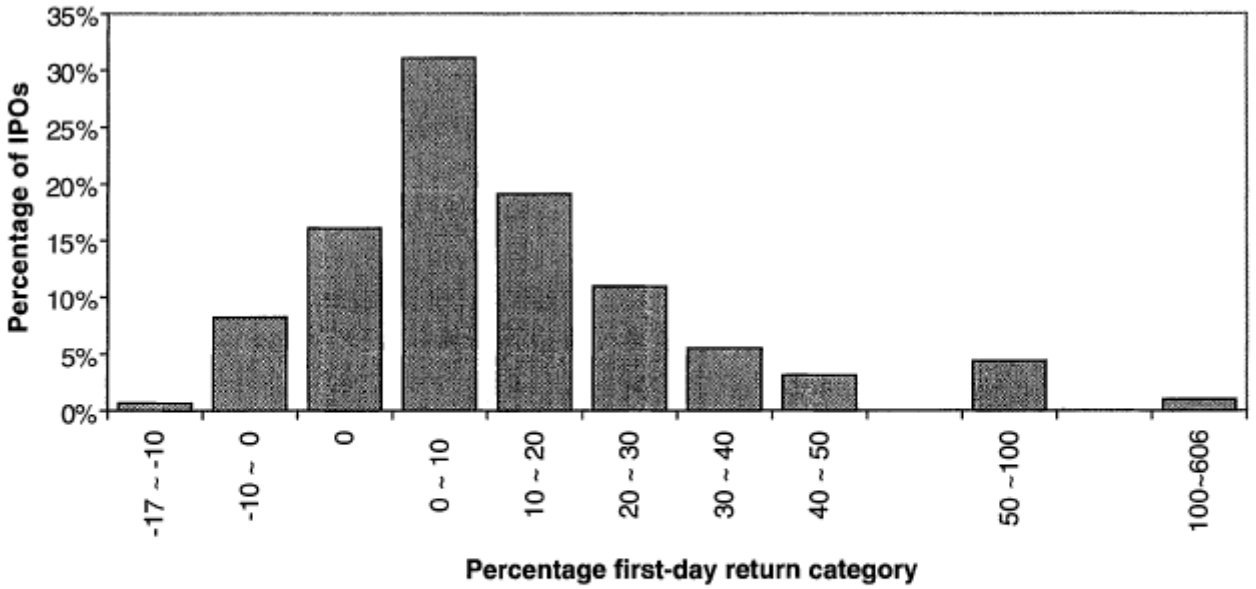

Figure 1
Histogram of first-day returns for 3,025 IPOs in 1990–1998
Units, ADRs, REITs, closed-end funds, partnerships, and IPOs where the midpoint of the file price range was less than $8.00 per share are excluded. The average first-day return (percentage return from offering price to first-day close) is 14.1%.

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Issuers leaving money…

- Back to the Netscape IPO => J. Clark 9.34 million shares, midpoint estimate $12-$14 implies a value of $121 million but at closing price his shares are worth $544 million
- Difference in company valuation = $151 million, he owned 28.2% of the company so he left on the table $43 million (out of the 151)
- If on the other hand shares had had to be priced downward (say to 6$) and had subsequently jumped to 12.50$, he would have left on the table « only » $32.5 million but would probably have been much more upset because the value of his other shares would not compensate for this relative loss

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Loughran and Ritter (2002)

- Relative gain and losses are computed with reference to the midpoint of the file price range
- Issuers will consider both the "money left on the table" and the potential gains and losses made vis-à-vis their reference point => importance of framing
- On top: relief when offering is completed and media's role: association of a large price jump with a successful IPO to be compared to Brealey and Myers's view "Contentment at selling an article for one-third of its subsequent value is a rare quality"!

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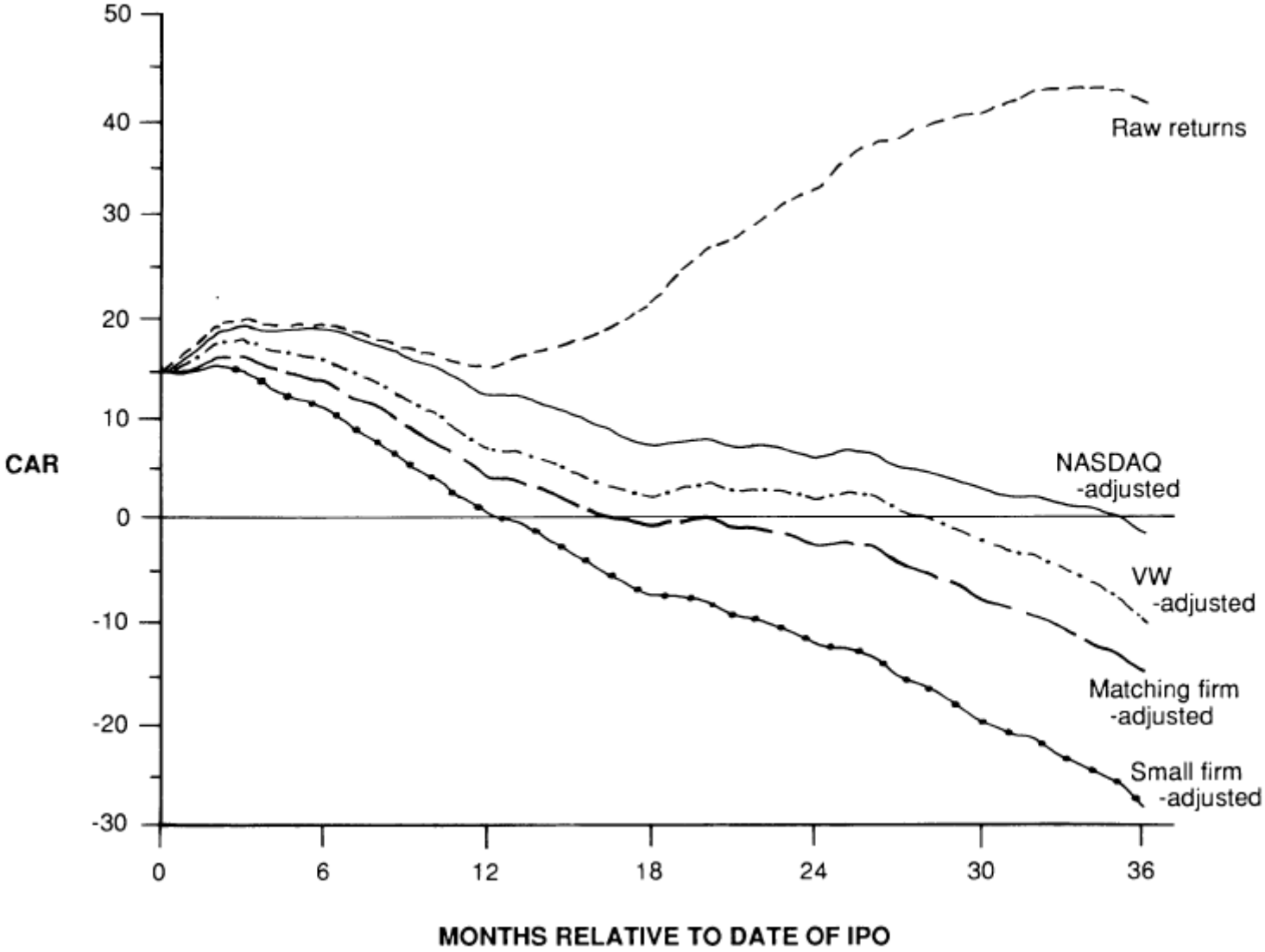
Long run underperformance

- Initial day returns => underpricing of IPOs
- But what in the long run??? Ritter (1990) finds that on the medium term (3 years horizon) these firms underperform!
- Comparison with several benchmarks
- Reasons?
  - Constraints on short selling IPOs => only optimists in the begin and return to average opinion
  - More IPOs follow successful IPOs
  - Ritter (1990)
    - Many firms seem to go public near the peak of industry-specific fads
    - High costs of raising capital should be viewed by taking the long run underperformance into account

Long run underperformance



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Ritter and Welch (2002)

- Decision to go public

⇒ Response to favorable market conditions

⇒ Only for firms beyond a certain stage in their life cycle

⇒ IPO underpricing => market misvaluation ruled out (why ≠ day 1 and day 2?) implies setting of the initial price need to be scrutinized

⇒ Theories based on asymmetry of information (underpricing positively related to the degree of asymmetric information)

⇒ Issuers more informed than investors (lemon problem), signaling theory (show you are above average by leaving money on the table)

⇒ Investors more informed than issuers (for example on the market)

⇒ Potential winners' curse (pricing even a bit too high is too risky for the issuer)

⇒ Bookbuilding allows obtaining information

⇒ Issuer less informed than underwriter

Ritter and Welch (2002)

⇒ Theories based on symmetric information

- ⇒Underpricing to reduce legal liability (empirical evidence not really convincing)
- ⇒Undepricing leads to higher trading volume (and higher trading revenues)

⇒ Theories focusing on allocation of shares : renewed attention because of perceived unfairness and money left on the table

- ⇒Potential conflict of interest between issuer and underwriter if underwriter have discretion regarding share allocation
- ⇒Money left on the table OK if stock of shares increases in price compared to expectations
- ⇒Underpricing as a strategy? => excess demand allow underwriter and issuer to choose who to give the shares too

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Seasoned Equity Offerings

- Two main approaches : cash or rights offer
  - Cash offer => everybody may buy
  - Rights offers: new shares offered only to existing shareholders
- Rights offers protect the existing shareholders from underpricing
- Market reaction? Most of the time SEO announcement leads to a price decline…
- Long run underperformance especially strong for small firms
- Due to conditions in which the company decides to launch the SEO?