How Do Venture Capitalists Make Decisions?

Paul A. Gompers
Harvard Business School and NBER

Will Gornall
University of British Columbia

Steven N. Kaplan
University of Chicago
Booth School of Business and NBER

Ilya A. Strebulaev
Stanford University
Graduate School of Business and NBER

Overview

- Firms supported by VCs have had huge impact.
  - Amazon, Apple, Facebook, Google, Starbucks, etc.

- Evidence that VC firms generate returns for investors.
  - Harris, Jenkinson and Kaplan (JF).

- Other countries try to promote entrepreneurship / VC.

➔ Suggests that VC firms are successful.
  - Likely that VC attracts talented individuals.
  - Likely that they take actions to perform well.

A survey of venture capitalists

- How do VCs source deals, select deals, value deals, structure deals, add value, exit investments, organize their firms, and interact with LPs?

- Related to literatures on capital allocation and governance
  - Do VCs do conform to what we academics think “should be done”?

- Related to Graham and Harvey (2001) survey of CFOs.

- Related to Gompers, Kaplan and Mukharlyamov (2016) survey of PE investors.

Whom did we survey?

- Received 1181 responses to our survey.
- 889 from 681 different institutional VCs.

Network	Responses	Response Rate
Chicago Booth Alums	23	37%
HBS Alums	164	19%
Kauffman Fellow Alums	62	35%
Stanford Alums	131	24%
NVCA Members	179	7%

- Typical respondent is a partner at a $120 M fund and spent 24 minutes on survey.
- Respondents include 9 of top 10 firms, 38 of top 50 (ranked by IPOs).
- Split into subsamples by industry, stage, success, size, and location.

How do VCs make decisions on

- Deal sourcing;
- Deal selection;
- Deal valuation;
- Deal structure;
- Post-investment value-add / monitoring;
- Exits;
- Internal organization of firms; and
- Relationships with limited partners.

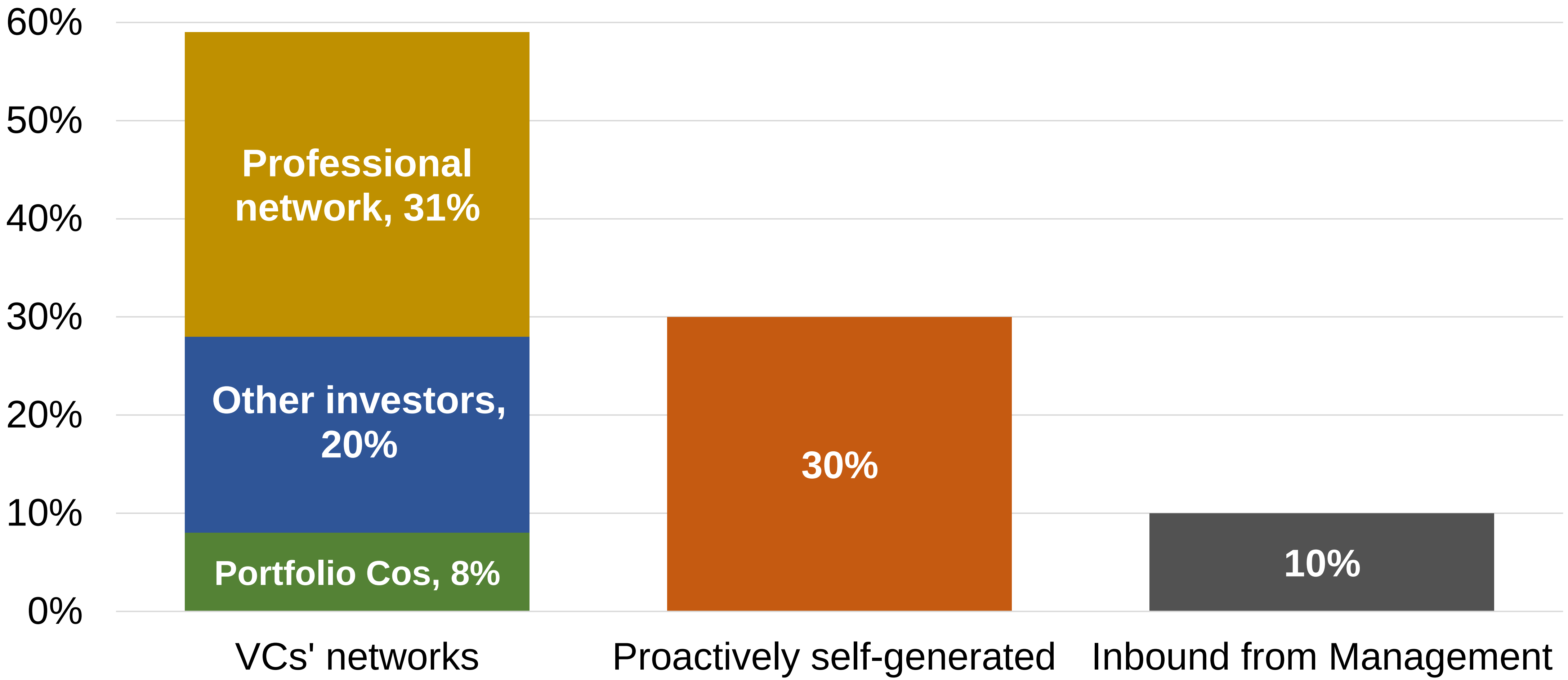
Investment decisions - Deal funnel

- One deal closed per 100 considered.

	All	Stage		Industry		IPO Rate		Fund Size		Location		
		Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Potential investments reaching stage per closed deal												
Considered per close	101	119	94	151**	78**	121	107	111	96	115	87	110
	(7)	(14)	(17)	(22)	(10)	(15)	(13)	(11)	(9)	(15)	(9)	(12)
Met management	28	34	24	50*	20*	45*	23*	37**	21**	46***	22***	23
	(3)	(7)	(3)	(13)	(3)	(11)	(2)	(6)	(2)	(10)	(2)	(2)
Reviewed with partners	10	11	10	13	11	15*	8*	11	10	10	12	8
	(1)	(3)	(2)	(5)	(3)	(4)	(1)	(1)	(2)	(1)	(3)	(1)
Exercised due diligence	4.8	4.6	4.4	5.3	5.3	6.3***	4.1***	5.3*	4.4*	5.2	5.4	3.7***
	(0.3)	(0.4)	(0.4)	(0.6)	(0.6)	(0.7)	(0.4)	(0.4)	(0.4)	(0.3)	(0.5)	(0.4)
Offered term sheet	1.7	1.5***	2.3***	1.6	1.6	1.8	1.7	1.7	1.7	1.7	1.8	1.6
	(0.1)	(0.0)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Number of responses	442	195	76	106	64	118	119	205	238	125	180	155

Investment decisions - Sourcing

Mix of network, self-generated, and management referrals.



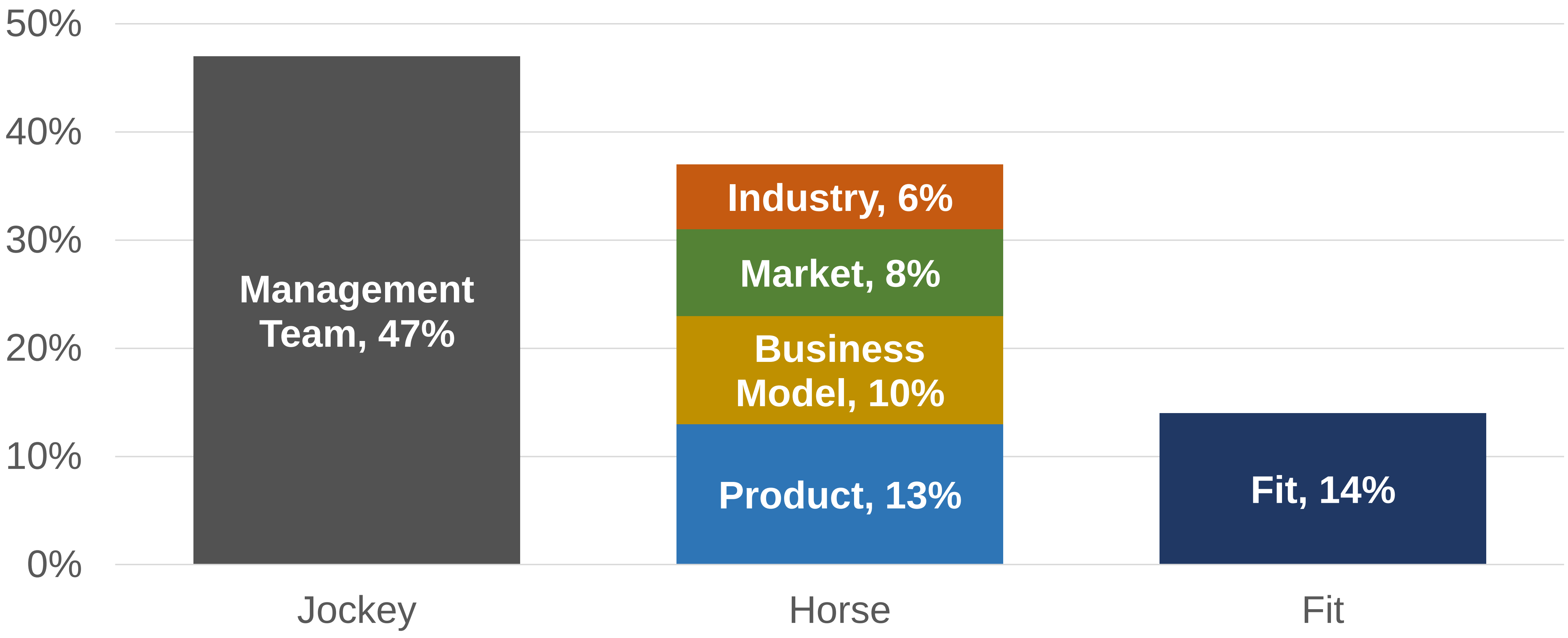
Investment decisions - Selection

- Debate in practice and academia of which is more important, jockey or horse?
  - Kaplan, Sensoy, and Stromberg (2009) and Bernstein, Korteweg, and Laws (2015).

- What did the VCs say was most important when deciding whether to invest?
  - Jockey / Team?
  - Business / Horse?
    - Business Model?
    - Product?
    - Market?
    - Industry?
  - Fit? Ability to add value?

Investment decisions - Selection

VCs care about both Jockey and Horse, but advantage goes to the Jockey.



Investment decisions - Process

- VCs devote significant resources to deal selection:
  - 83 days to close the deal
    - Faster for IT, early-stage, California
  - 118 hours on due diligence
    - Less for IT, early-stage, California
  - 10 references called
    - Larger funds call more

Financial metrics

- What financial metric do VCs use?
  - Relatively little use of NPV.
  - Cash-on-cash multiples is most common.
  - 9% of all VCs and 17% of early-stage VCs do not use one!

		Stage		Industry		IPO Rate		Fund Size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
None	9	17***	1***	13	7	10	12	9	10	11	8	10
	(1)	(2)	(1)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Cash-on-cash multiple	63	56***	71***	57**	72**	72	63	65	61	66	66	58**
	(2)	(3)	(5)	(4)	(5)	(3)	(4)	(3)	(3)	(4)	(3)	(3)
IRR	42	26***	60***	33	42	36	36	41	42	31***	49***	42
	(2)	(3)	(5)	(4)	(5)	(4)	(4)	(3)	(3)	(4)	(3)	(3)
NPV	22	12**	21**	16**	29**	19	17	24	21	16	20	29***
	(2)	(2)	(4)	(3)	(5)	(3)	(3)	(3)	(2)	(3)	(3)	(3)
Other	8	9	4	7	10	8	8	8	7	9	6	9
	(1)	(2)	(2)	(2)	(3)	(2)	(2)	(2)	(1)	(2)	(2)	(2)
Number of metrics	2.1	1.8***	2.4***	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1
	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Number of responses	546	238	90	130	88	137	153	243	306	156	217	195

Forecasting cash flows

20% of all VCs and 31% of early-stage VCs do not forecast cash flows.

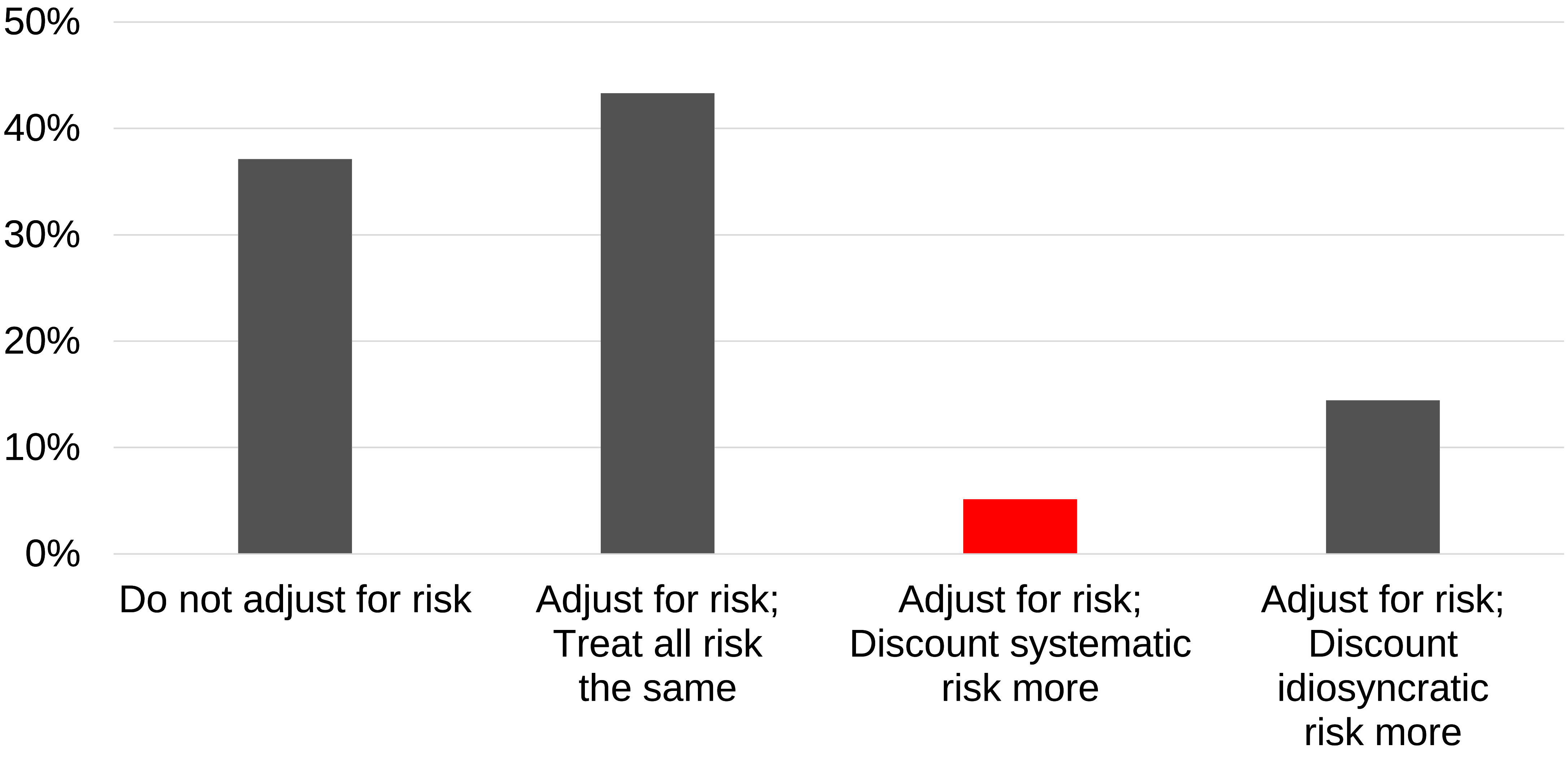
Those who do, typically forecast 3 to 4 years.

		Stage		Industry		IPO Rate		Fund Size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Do not forecast	20 (2)	31*** (3)	7*** (3)	22 (4)	29 (5)	19 (3)	18 (3)	17** (2)	24** (2)	24 (3)	20 (3)	18 (3)
1-2 years	11 (1)	14 (2)	8 (3)	20** (4)	8** (3)	12 (3)	12 (3)	9 (2)	11 (2)	12 (3)	9 (2)	12 (2)
3-4 years	39 (2)	38 (3)	39 (5)	41* (4)	28* (5)	38 (4)	43 (4)	43* (3)	36* (3)	38 (4)	36 (3)	44 (3)
5-6 years	27 (2)	16*** (2)	42*** (5)	16* (3)	27* (5)	28 (4)	25 (3)	27 (3)	27 (3)	24** (3)	34** (3)	21** (3)
7+ years	3 (1)	1** (1)	5** (2)	1*** (0)	8*** (3)	4 (1)	2 (1)	3 (1)	2 (1)	2 (1)	1 (1)	5** (2)
Average	3.1 (0.1)	2.3*** (0.1)	3.9*** (0.2)	2.5** (0.2)	3.2** (0.3)	3.1 (0.2)	3.0 (0.1)	3.2 (0.1)	2.9 (0.1)	2.8 (0.2)	3.1 (0.1)	3.2 (0.2)
Number of responses	530	225	90	123	82	132	147	237	295	149	211	191

Required returns

- 5.5x cash-on-cash multiple.
- 30% IRR.
- Not CAPM.
- Early-stage and small funds have higher required returns.
- Late-stage and large funds have lower required returns.

How do venture capitalists adjust for risk?



Financial metrics

- VCs do not use NPV techniques taught to MBA students.
  - Do not even forecast cash flows in some cases.
- VCs do not use CAPM.
- Very different from CFOs in Graham and Harvey (2001).
- Somewhat different from PE investors in Gompers et al. (2016).

Valuation of unicorns ($1b+ valuation companies)

- Are we in another tech bubble?
- We asked VCs two questions about unicorns (companies valued >$1billion):
  1. Have you invested in unicorns?
  2. Are unicorns under- or over-valued?

		Stage		Industry		IPO Rate		Fund Size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Investor in unicorns	37	39	37	50***	29***	59***	32***	52***	27***	55***	37***	28***
	(2)	(3)	(5)	(5)	(5)	(4)	(4)	(3)	(3)	(4)	(3)	(3)
Number of responses	516	226	84	121	79	131	144	233	285	143	207	186

Valuation of unicorns ($1b+ valuation companies)

The vast majority of venture capitalists say unicorns are overvalued.

		Stage		Industry		IPO Rate		Fund Size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Unicorns overvalued	91	91	93	87	89	92	94	92	91	90	92	92
	(1)	(2)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Number of responses	514	221	83	118	82	135	141	231	282	144	202	189

Among investors in unicorns												
Unicorns overvalued	92	93	89	90	92	94	94	92	92	91	91	93
	(2)	(3)	(6)	(4)	(5)	(2)	(3)	(2)	(3)	(3)	(3)	(3)
Number of responses	185	81	28	55	23	81	42	118	70	74	74	51

Deal structure

- How often are particular terms used?
- How negotiable are the terms?
  - Least flexible on pro rata rights.
  - Most flexible on dividends and redemption rights.
- Cross-sectionally:
  - Early-stage VCs care more about vesting and ownership.
  - IT VCs are more flexible and Healthcare VCs are less flexible.
  - California VCs use more founder friendly terms.

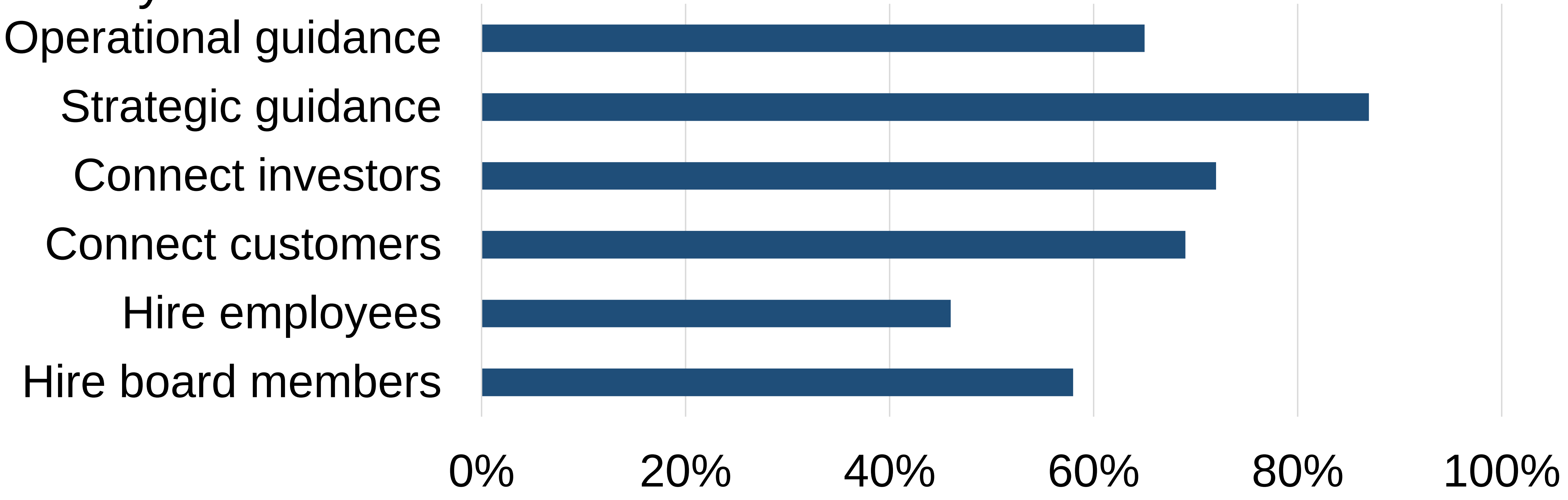
Post-investment value-add / monitoring

How frequently do you interact substantially with a typical portfolio company?

- 12% - less than once a month
- 26% - 2-3 times a month
- 33% - once a week
- 28% - multiple times a week

Post-investment value-add / monitoring

In what percentage of the companies do you undertake each activity?



Lerner (1995), Hellmann and Puri (2000), Baker and Gompers (2003), Kaplan and Strömberg (2004), Amornsiripanitch, Gompers and Xuan (2016).

Value creation

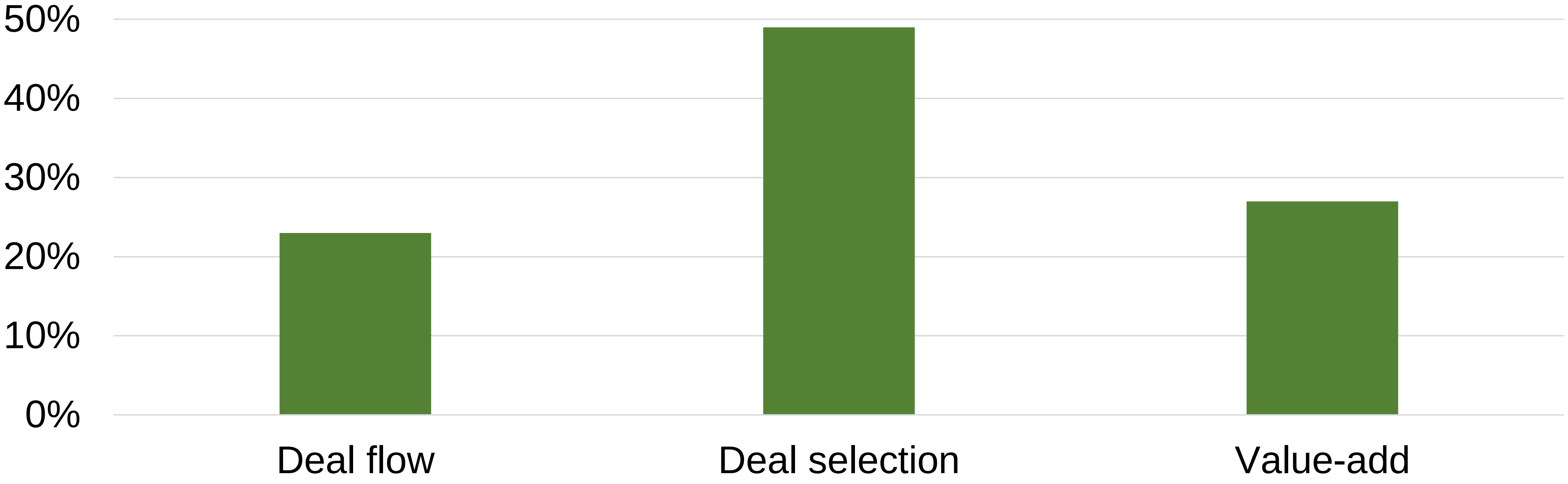
- Have looked at all aspects of VC involvement.

- Is sourcing deals, selecting deals, or monitoring more important to value creation?

- Is the horse or the jockey more important to success?

Value creation

What is the most important contributor to your value creation?



Sørensen (2007) estimates the contribution of VC value-add to be 40% and that of deal sourcing and selection combined to be 60%.

What was most important for **successful** investments?

	All	Stage: Early	Stage: Late	Industry: IT	Industry: Health	IPO Rate: High	IPO Rate: Low	Fund Size: Large	Fund Size: Small	Location: CA	Location: OthUS	Location: Fgn
Team	56	64***	42***	55*	42*	53	59	52*	59*	55	55	60
	(2)	(3)	(5)	(4)	(5)	(4)	(4)	(3)	(3)	(4)	(3)	(4)
Business model	7	4***	18***	8	3	6	6	8	7	6	8	7
	(1)	(1)	(4)	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(2)	(2)
Technology	9	6	11	7***	31***	11	10	10	9	9	9	10
	(1)	(2)	(3)	(2)	(5)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Market	2	1*	4*	0*	3*	4	2	3	1	2	2	2
	(1)	(0)	(2)	(0)	(2)	(2)	(1)	(1)	(1)	(1)	(1)	(1)
Industry	7	6	10	6	6	6	8	8	6	6	7	6
	(1)	(2)	(3)	(2)	(3)	(2)	(2)	(2)	(1)	(2)	(2)	(2)
Timing	12	11	11	16*	7*	7	9	10	13	11	11	11
	(1)	(2)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(3)	(2)	(2)
Luck	6	7	5	6	3	8	6	7	5	11*	5*	3*
	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(1)	(1)
Board of directors	1	0	2	1	4	2	1	1	1	0	1	1
	(0)	(0)	(2)	(1)	(2)	(1)	(1)	(1)	(1)	(0)	(1)	(1)
My contribution	0	0	0	0	1	0	0	0	0	0	1	0
	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(1)	(0)
Number of responses	513	225	84	120	78	131	141	236	281	145	206	182

What was most important for **failed** investments?

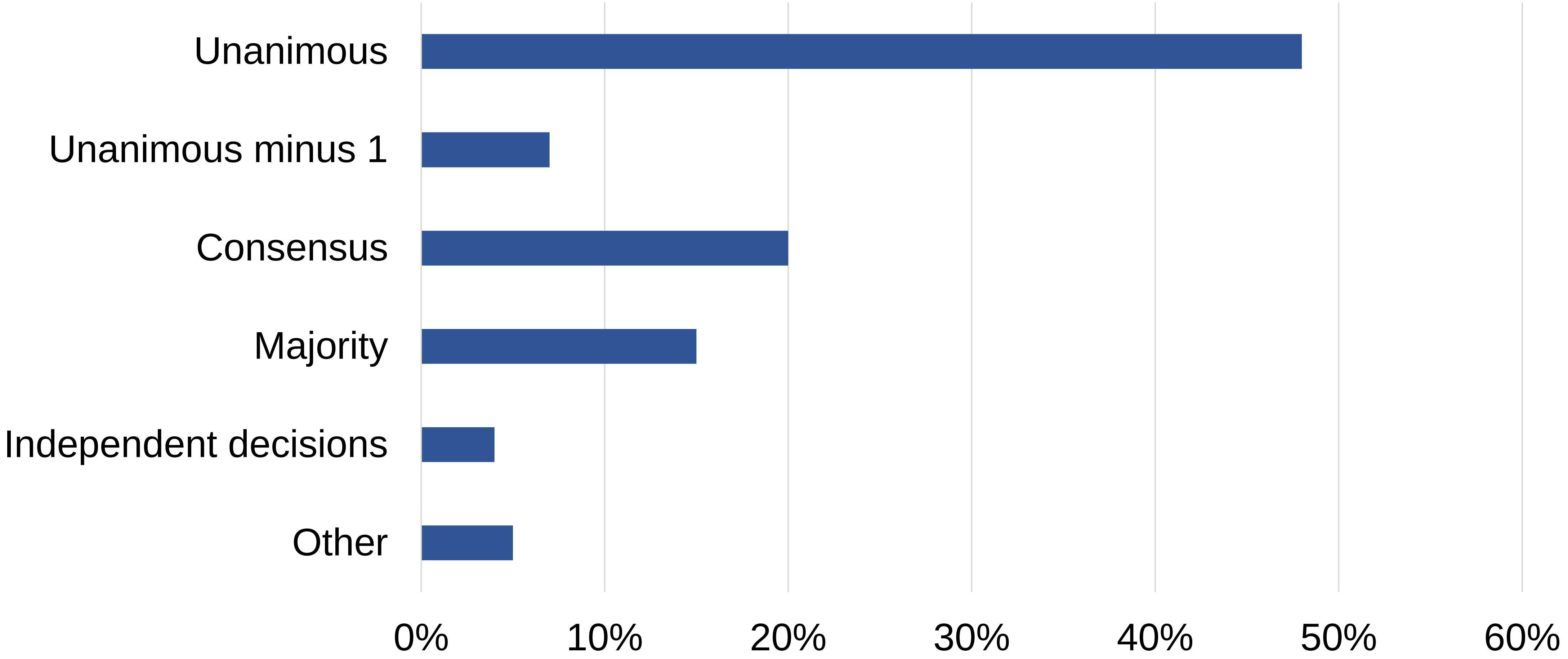
		Stage		Industry		IPO Rate		Fund Size		Location		
	All	Early	Late	IT	Health	High	Low	Large	Small	CA	OthUS	Fgn
Team	55	60*	48*	57***	34***	51	59	50**	59**	54	52	59
	(2)	(3)	(5)	(4)	(5)	(4)	(4)	(3)	(3)	(4)	(3)	(4)
Business model	10	7**	16**	13	10	7	9	6**	12**	8	11	10
	(1)	(2)	(4)	(3)	(3)	(2)	(2)	(1)	(2)	(2)	(2)	(2)
Technology	8	6	7	3***	36***	16***	7***	13***	5***	8	9	8
	(1)	(2)	(3)	(1)	(5)	(3)	(2)	(2)	(1)	(2)	(2)	(2)
Market	3	3	1	3	3	4	2	0***	4***	6**	2**	1**
	(1)	(1)	(1)	(1)	(2)	(2)	(1)	(0)	(1)	(2)	(1)	(1)
Industry	10	10	16	13	7	9	8	14**	8**	9	13	9
	(1)	(2)	(4)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Timing	9	8	10	9	5	8	8	10	8	10	9	9
	(1)	(2)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Luck	3	4	1	2	1	4	4	3	2	4	3	1
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(1)
Board of directors	3	2	1	2	4	1	3	2	3	1	2	4
	(1)	(1)	(1)	(1)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
My contribution	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Number of responses	511	226	82	120	78	131	142	235	279	145	205	181

Internal firm organization

- How do VCs spend their time?
- How do they make investment decisions?
- How are they compensated?
- How specialized are they?

Internal decision making

How do you make initial investment decisions?

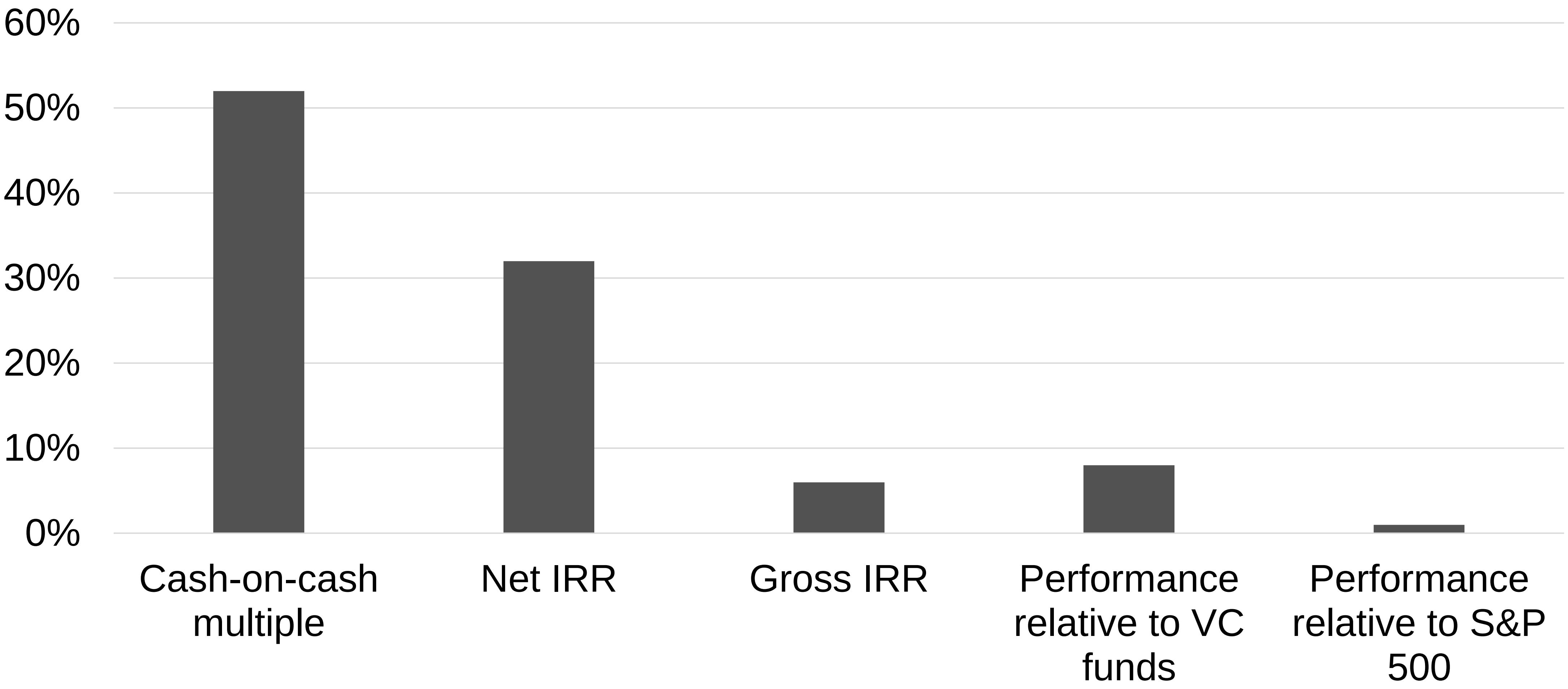


Internal fund structure

- Does compensation depend on individual success?
  - Yes - 74%, No – 26%
- Do partners get an equal share of carry?
  - Yes - 44%, No – 56%
- Do partners get an equal share of investable capital to invest?
  - Yes - 49%, No – 51%

Limited partner relationships

What is the most important benchmark for limited partners?



Conclusion

- Survey more than 800 VCs on how they make decisions.
- Study VC deal sourcing; deal selection; deal valuation; deal structure; post-investment value-add; exits; firm organization; and relationships with limited partners.
- Deal sourcing, selection and post-investment value-add all contribute to value creation.
  - Deal selection ranked most important.
  - Consistent with Sorensen (2007).
- Team / jockey versus business / horse.
  - Both important in deal selection.
  - However, team / jockey ranked higher in both deal selection and for successes.
- VCs do not use NPV or DCF techniques recommended by academic finance.
  - Most VCs rely on cash-on-cash multiples.
  - Sizable minority of early-stage VCs do not forecast cash flows.
  - When they adjust for risk, VCs adjust for both systematic and unsystematic risk.