



Building Companies that Shape the Future

Demystifying Money: The Many Sources of Capital

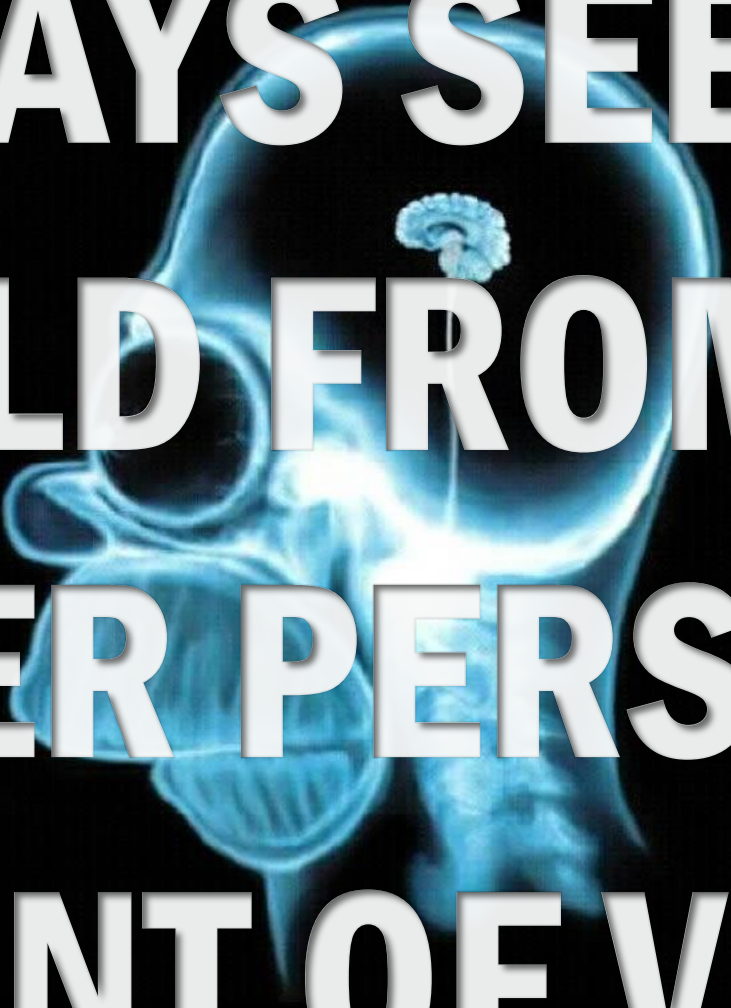
Matthew M. Nordan

 @matthewnordan

ARPA-E Summit, February 27, 2012



Fragile



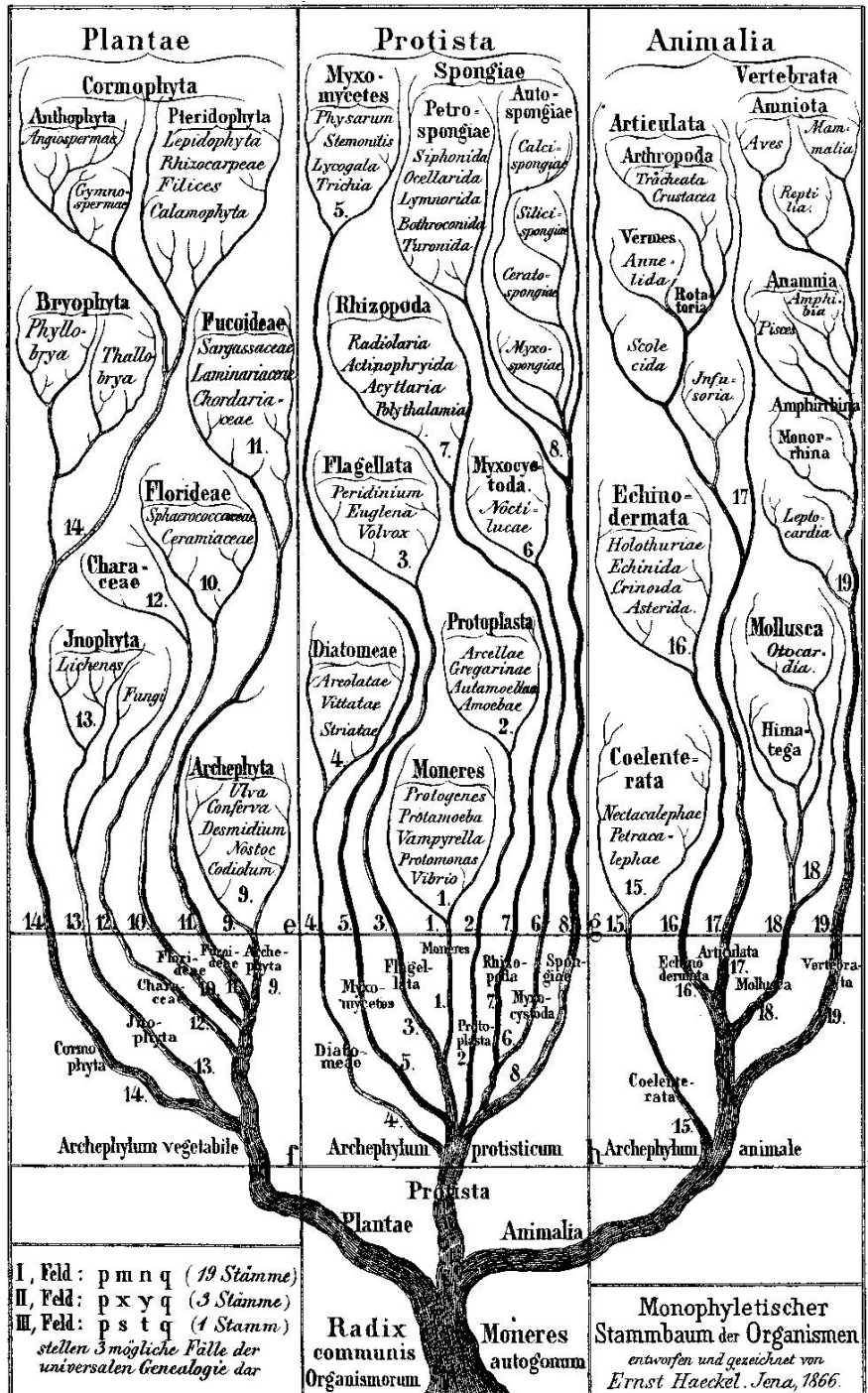
**ALWAYS SEE THE
WORLD FROM THE
OTHER PERSON'S
POINT OF VIEW**



**HIT HIM
HERE**

Parasitic Armored Arachnid

GOHMA

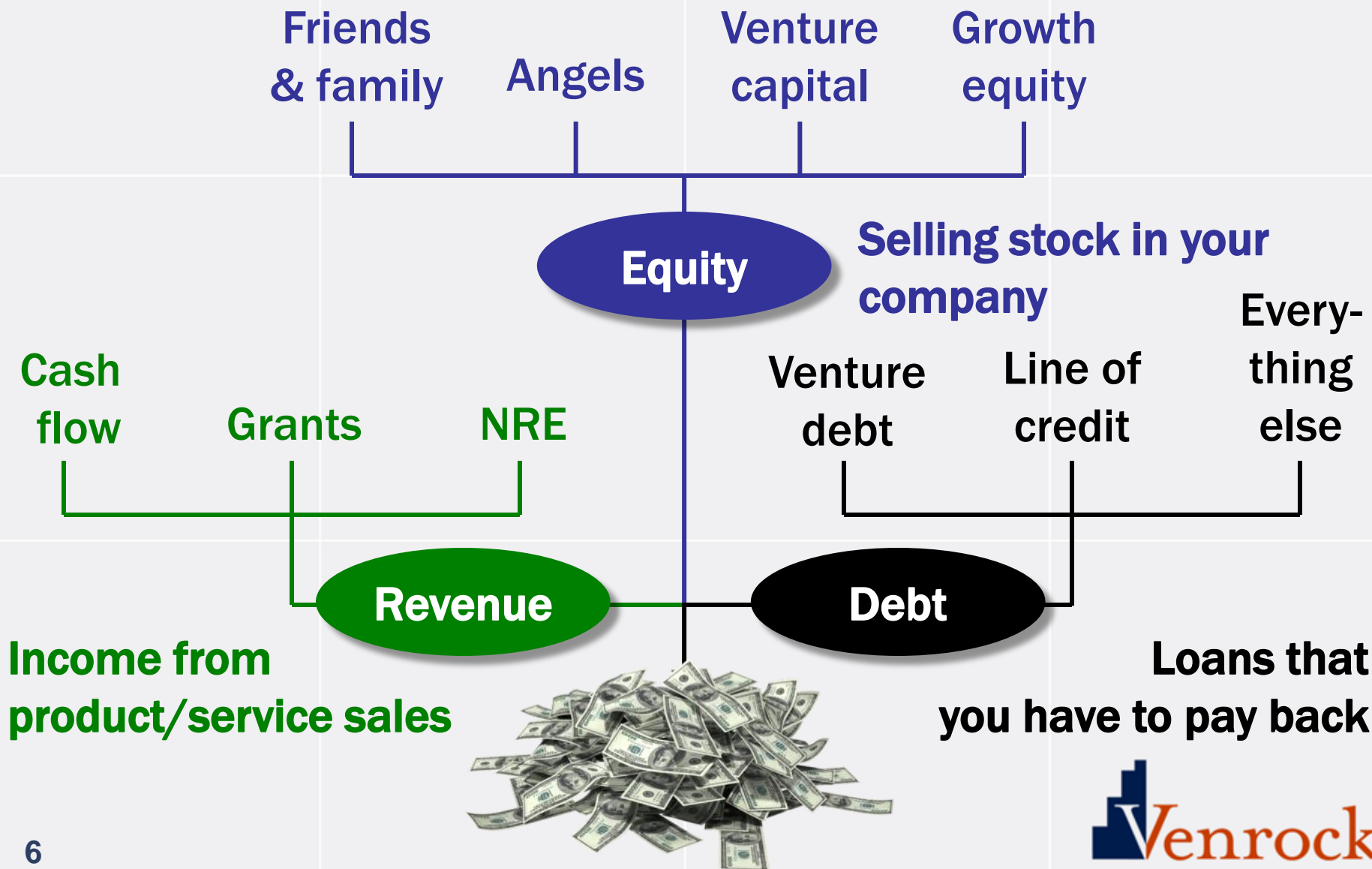


I, Feld: p m n q (19 Stämme)
 II, Feld: p x y q (3 Stämme)
 III, Feld: p s t q (1 Stamm)

Radix communis autogonum Moneres

Monophyletischer Stammbaum der Organismen
 entworfen und gezeichnet von Ernst Haeckel. Jena, 1866.

The tree of start-up financing



Three main categories of financing

Dilutive?

**Delayed or
distracting?**

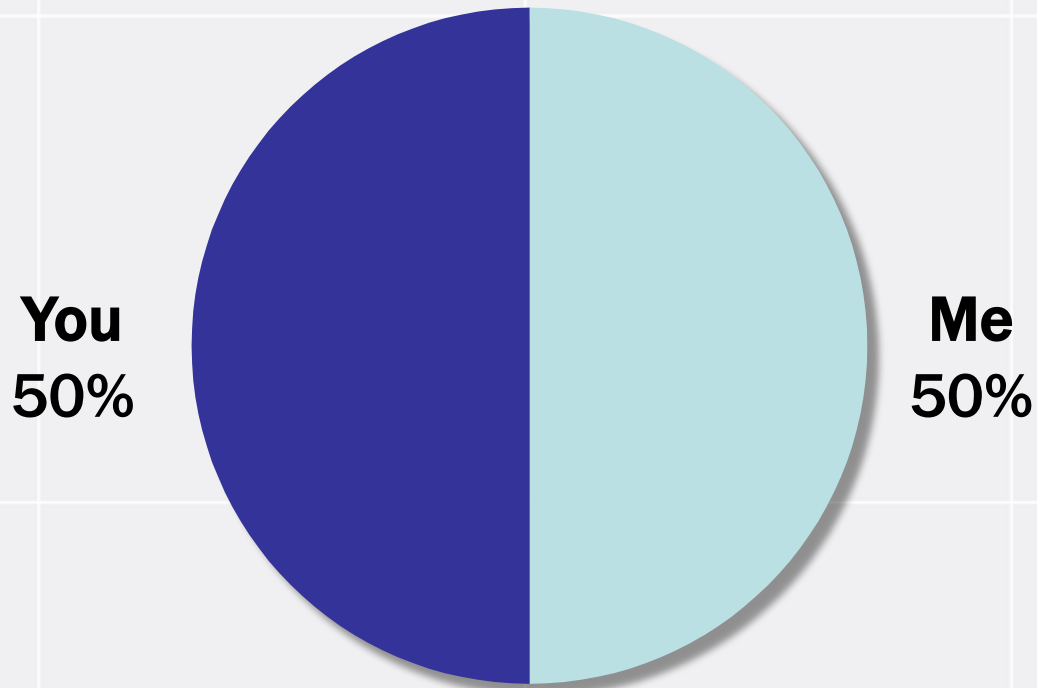
**Pay it
back?**

Equity

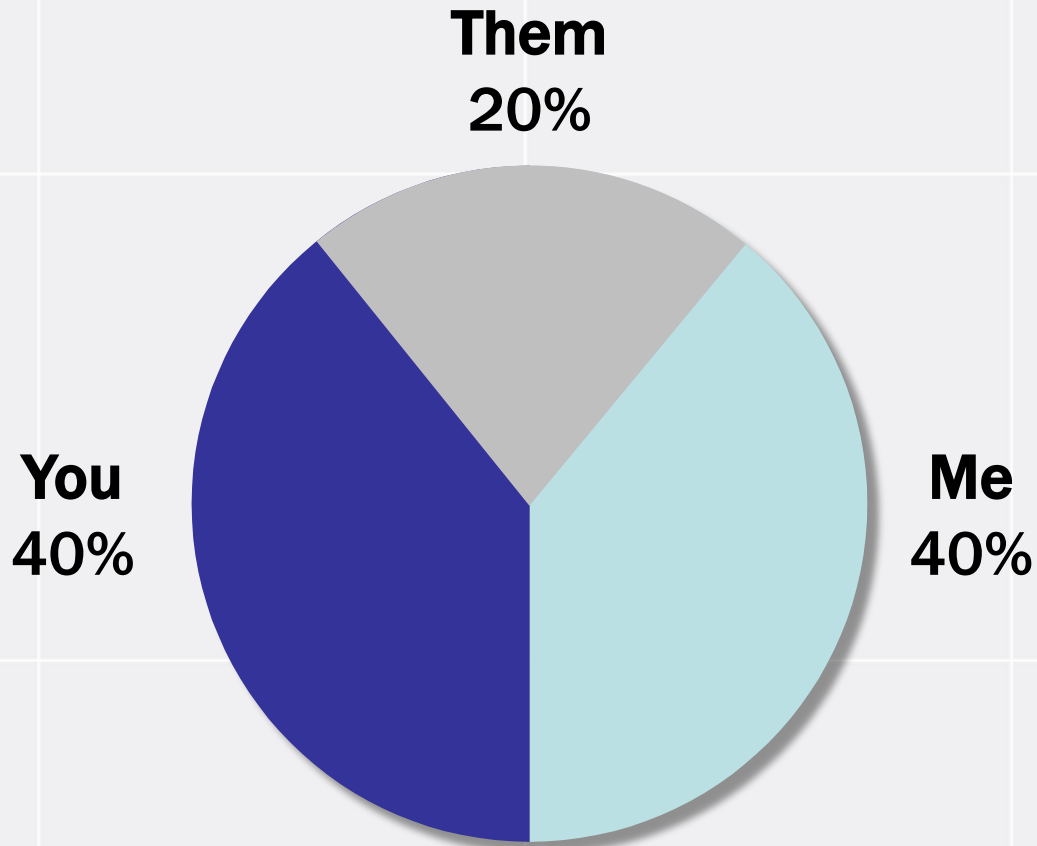
Revenue

Debt

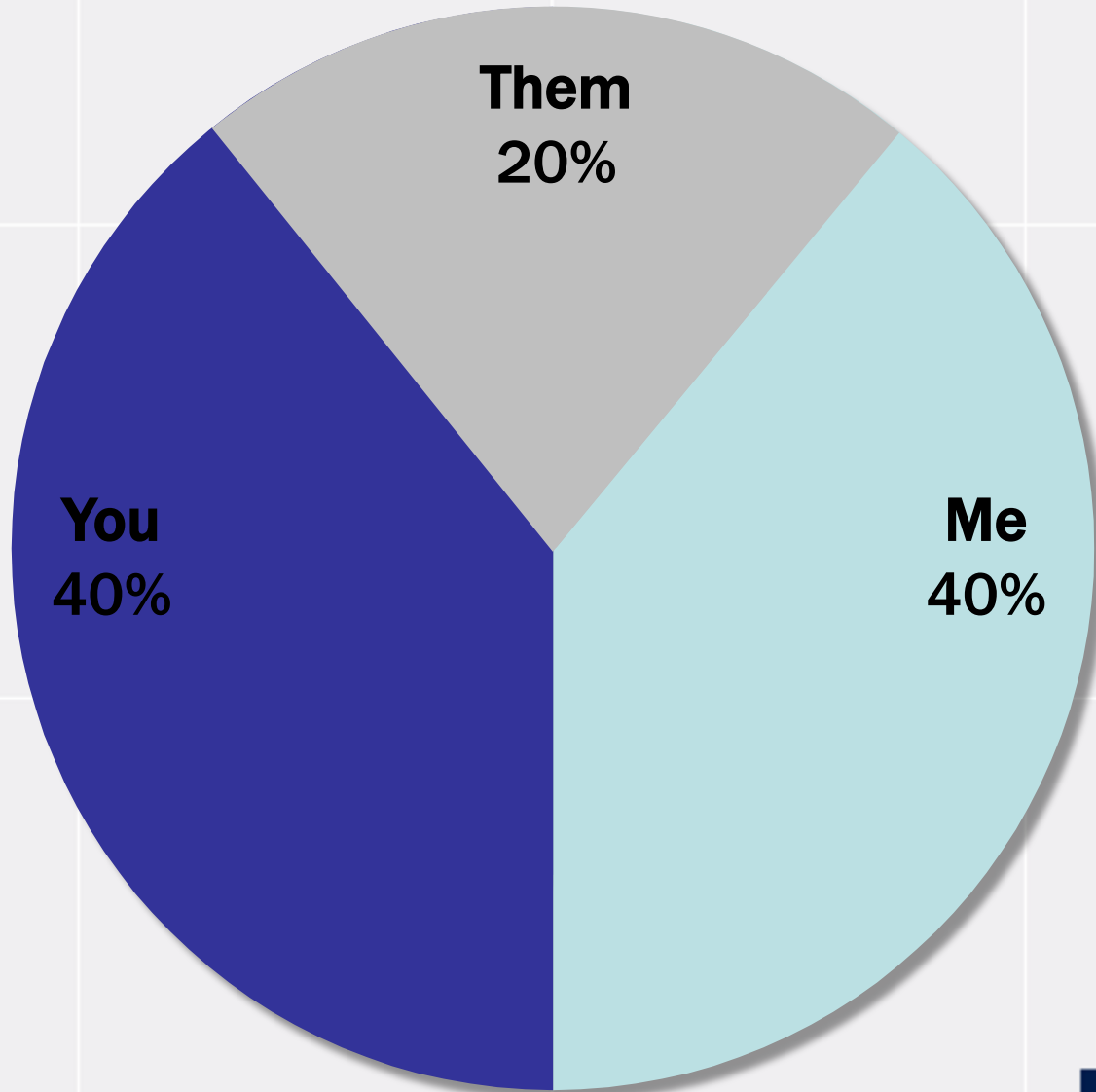
Dilution: Size-of-pie vs. slice-of-pie



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Three main categories of financing

Dilutive?

**Delayed or
distracting?**

**Pay it
back?**

Equity



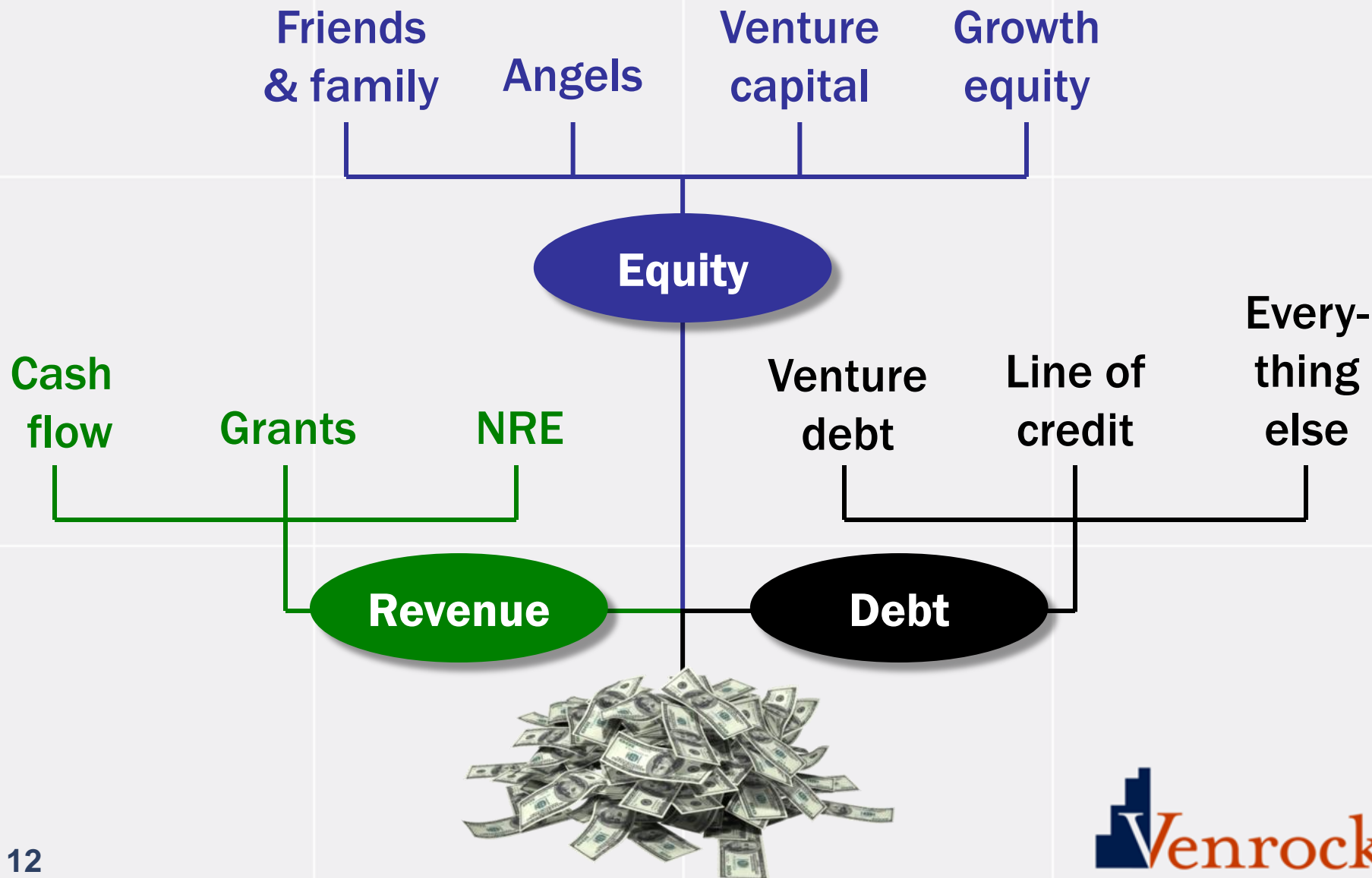
Revenue



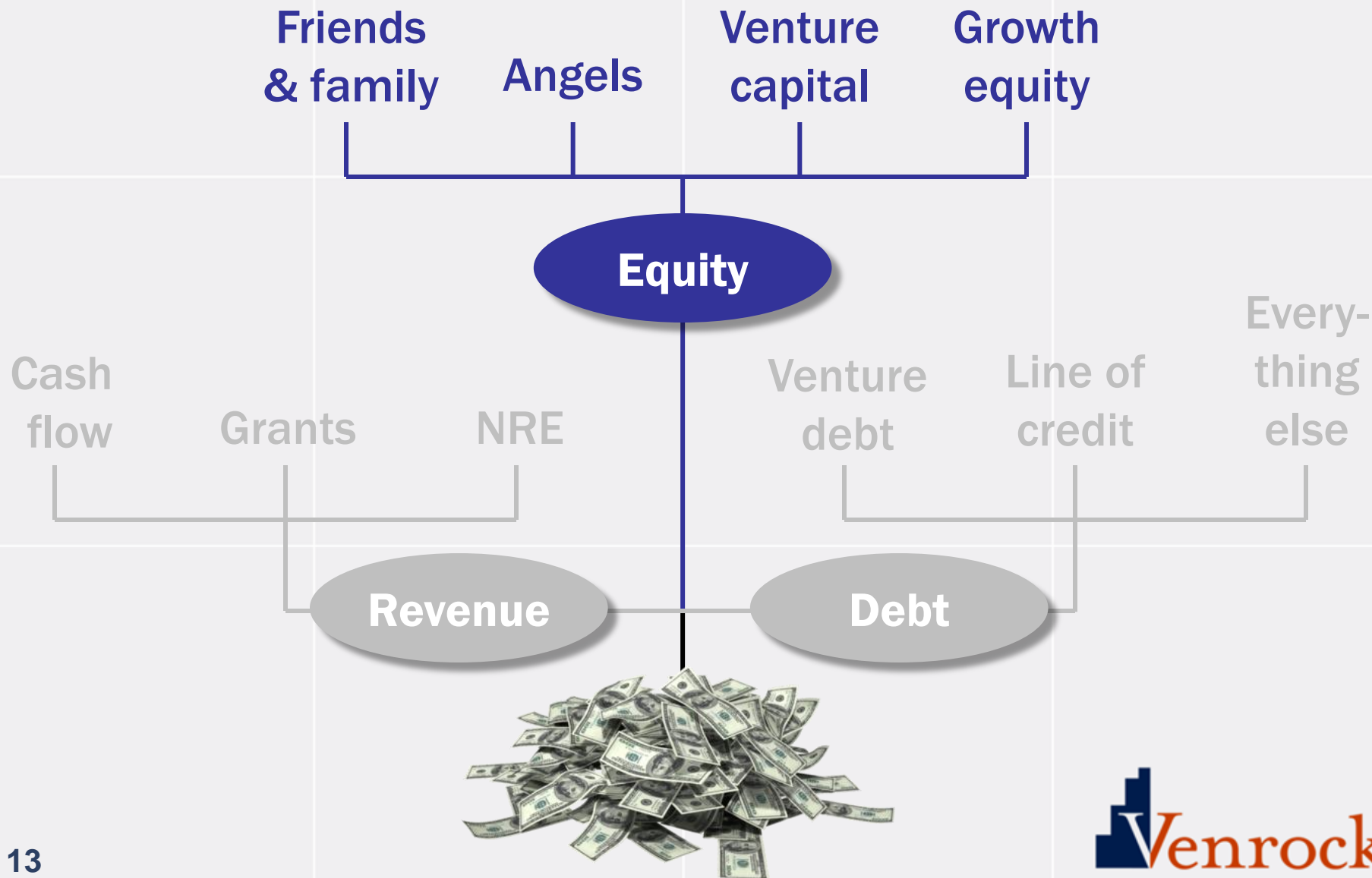
Debt



The tree of start-up financing



The tree of start-up financing



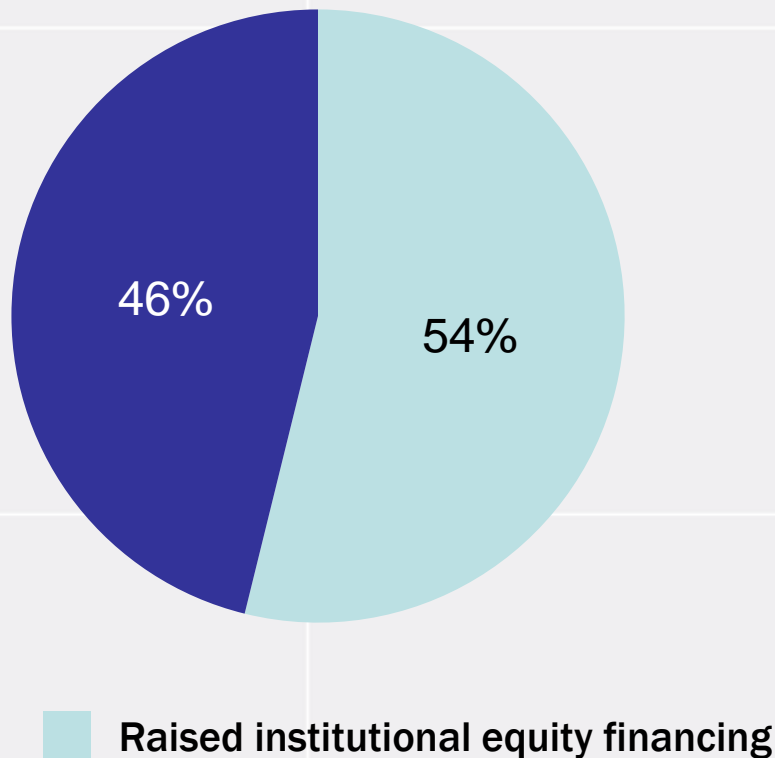


TESLA MOTORS

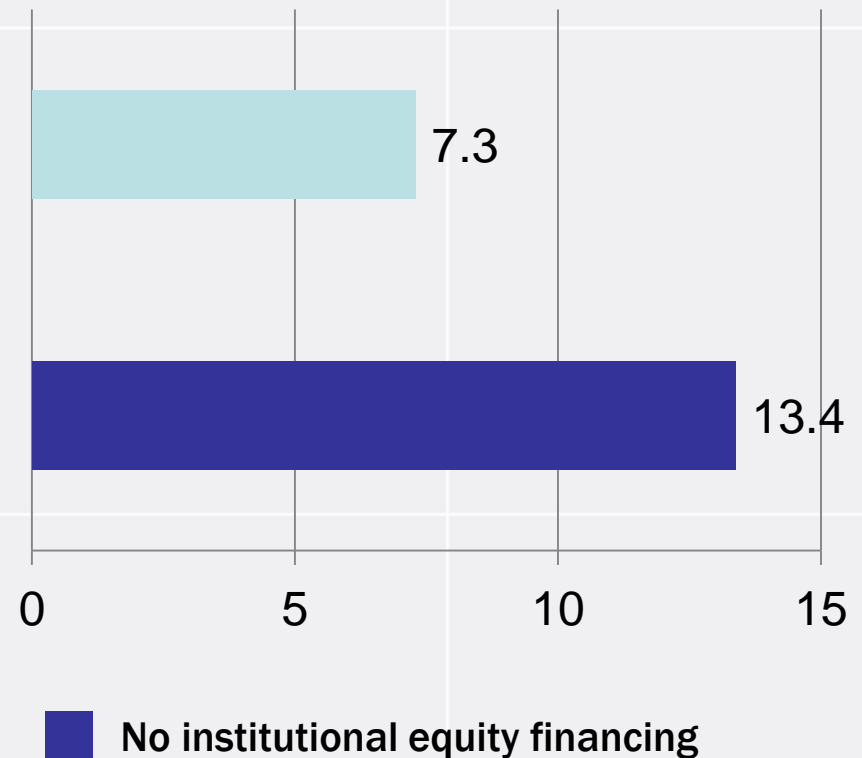
facebook®

Equity financing is not required for success

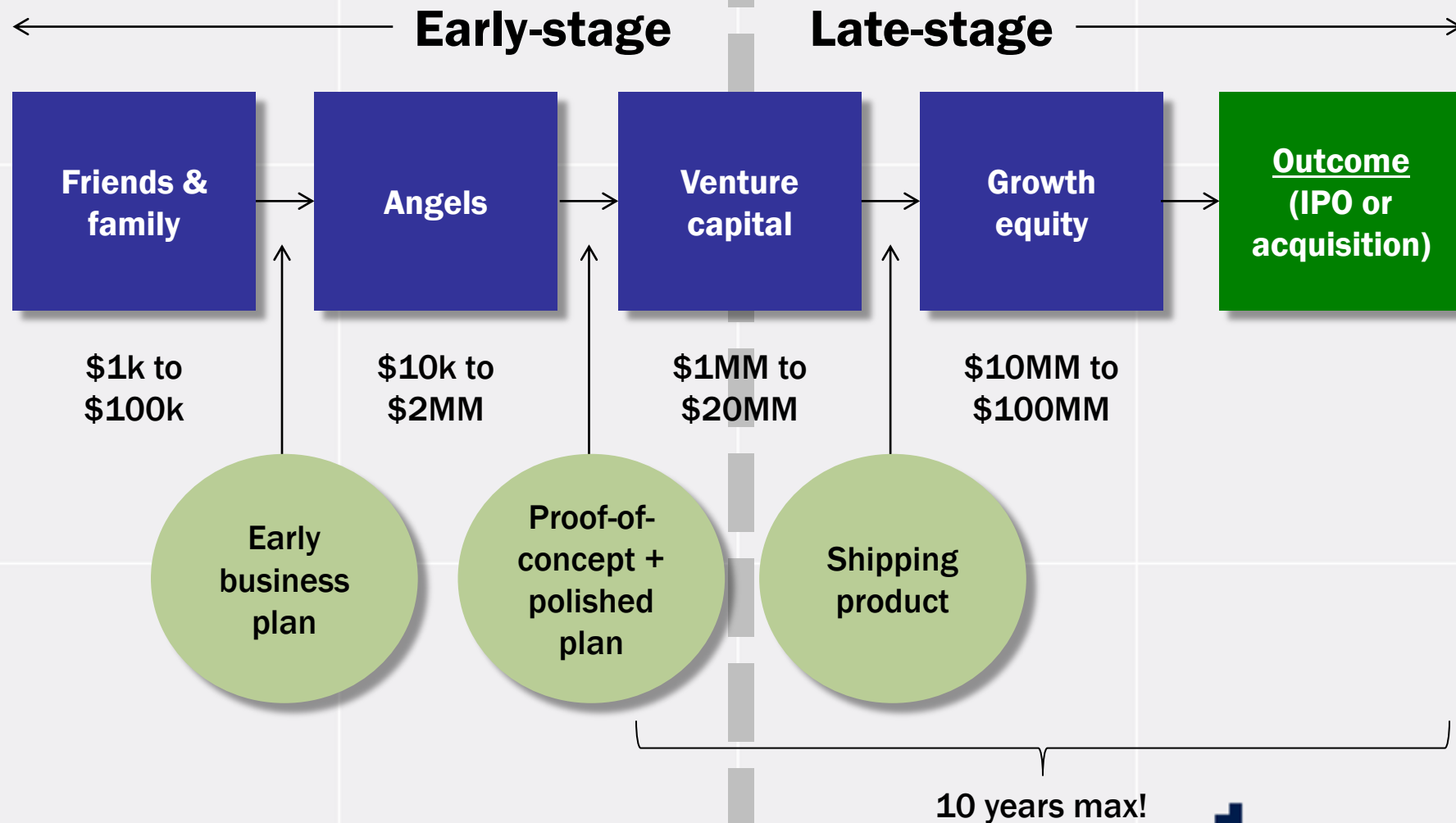
Percent of “cleantech” companies conducting IPOs

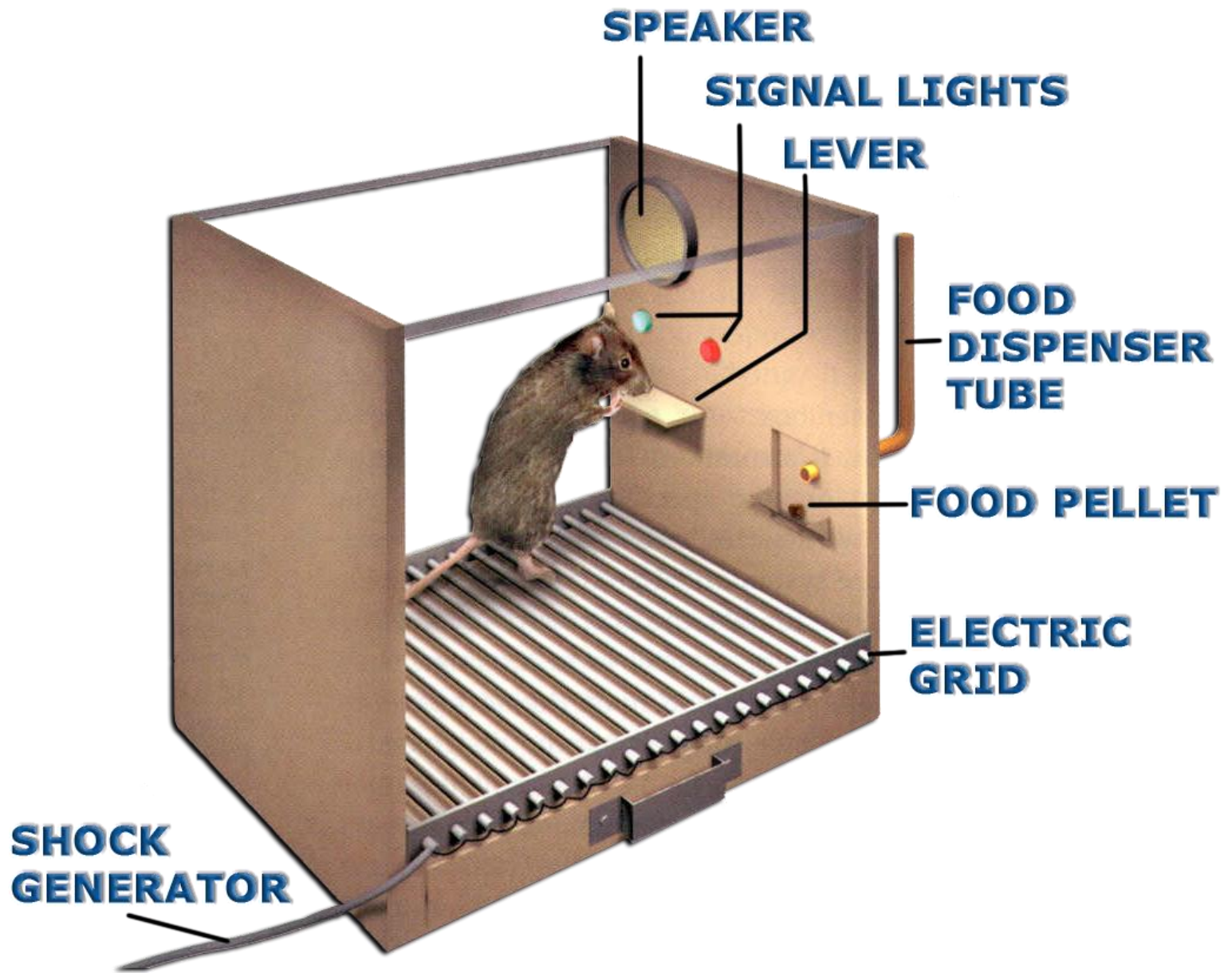


Average years from founding to IPO

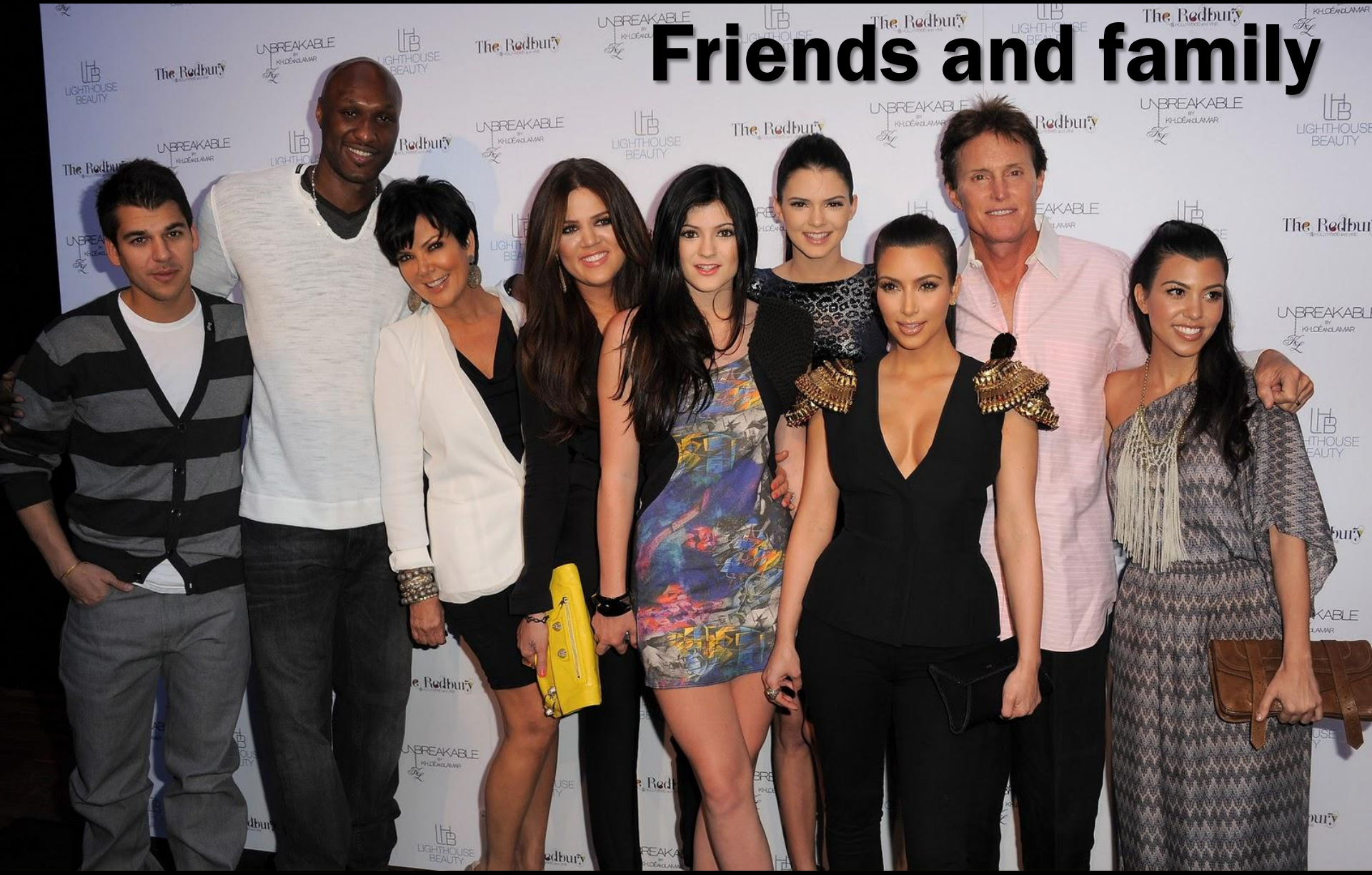


Equity financing sources vary by *stage*





Friends and family



Types of equity financing

Type	Friends & family
Example providers	Mom, ex-boss, ex-roommate at that hedge fund
Typical person	Trusts you implicitly
Motivation	Love, friendship, bragging rights
Key to their heart	You
Key variables	Just the amount (usually a convertible note)
Example deal	“Dad, you may lose this entire \$20k”

What's a convertible note?

- Used when a valuation is impossible to agree on
- A convertible note is a loan (with interest)...
- ...that *converts* into shares the next time that money is raised with a valuation attached
- Example
 - Jan 2012: I write you a \$100k note @ 10% interest
 - Jan 2013: You raise \$2.2MM (including my note) which buys half the company (\$4.4MM valuation)
 - My note converts into stock worth ($\$110k / \$4.4MM$) = 2.5% of the company

Angels



Types of equity financing

Type	Friends & family	Angels
Example providers	Mom, ex-boss, ex-roommate at that hedge fund	CEVG, Arunas Chesonis, Bill Gates
Typical person	Trusts you implicitly	Retired start-up or corporate executive
Motivation	Love, friendship, bragging rights	Mentorship, mission, profit
Key to their heart	You	Chemistry, passion for your mission
Key variables	Just the amount (usually a convertible note)	Note or shares? If note, term and discount rate
Example deal	“Dad, you may lose this entire \$20k”	1-year convertible note at 20% discount



Venture capital

Types of equity financing

Type	Friends & family	Angels	Venture capital
Example providers	Mom, ex-boss, ex-roommate at that hedge fund	CEVG, Arunas Chesonis, Bill Gates	Braemar, Terawatt Ventures, Mohr Davidow
Typical person	Trusts you implicitly	Retired start-up or corporate executive	Somewhat eccentric white male
Motivation	Love, friendship, bragging rights	Mentorship, mission, profit	10x profit, long time/high risk
Key to their heart	You	Chemistry, passion for your mission	Glimmer of a big, breakout success
Key variables	Just the amount (usually a convertible note)	Note or shares? If note, term and discount rate	Valuation, board seat(s), voting thresholds
Example deal	“Dad, you may lose this entire \$20k”	1-year convertible note at 20% discount	\$4MM buys 40% of company

Non-VCs can make VC-like investments

Corporate VCs



Family offices



“Superangels”



Proxies for 10x profit: TMT

Technology

- Can it work?
- Big cost/performance improvement over alternatives (“10x rule”)?
- Time to make it work?
- Discovery versus engineering?
- Proprietary IP?
- Fits into existing industry value chain?

Market

- Big (“\$1B rule”)?
- Growing?
- Market pull for innovation (“good enough” problem)?
- Clear channel to market?
- Time to adoption?
- Ability to capture value at start-up’s point in value chain?
- Regulatory factors?

Team

- Right CEO?
- Right CEO?
- Right CEO?
- Appropriate skill set for this stage of company’s growth?
- Trustworthy people who do the right thing for its own sake?
- Hungry to succeed?
- Aligned with mission?



Growth equity

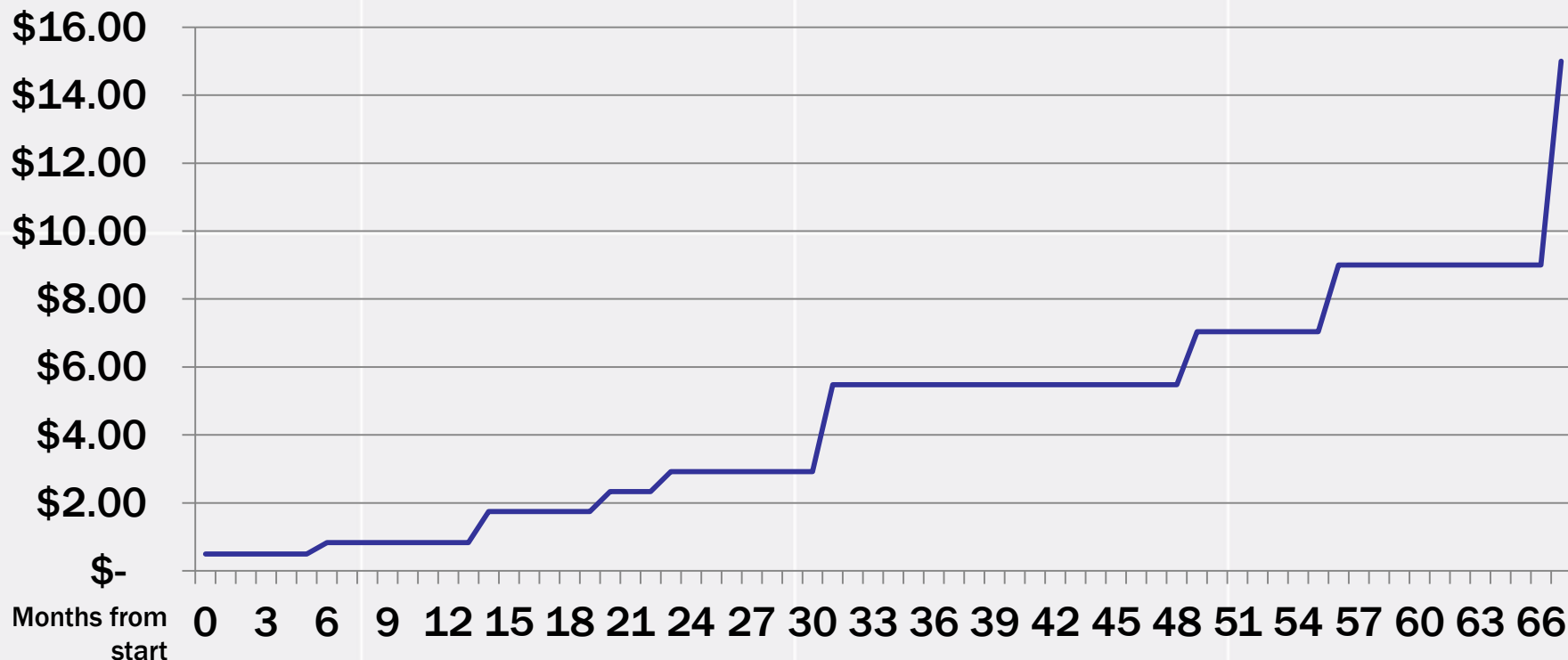
Types of equity financing

Type	Friends & family	Angels	Venture capital	Growth equity
Example providers	Mom, ex-boss, ex-roommate at that hedge fund	CEVG, Arunas Chesonis, Bill Gates	Braemar, Terawatt Ventures, Mohr Davidow	Hudson CEP, Silver Lake Kraftwerk
Typical person	Trusts you implicitly	Retired start-up or corporate executive	Somewhat eccentric white male	Spreadsheet-jockeying financier
Motivation	Love, friendship, bragging rights	Mentorship, mission, profit	10x profit, long time/high risk	3x profit, short time/low risk
Key to their heart	You	Chemistry, passion for your mission	Glimmer of a big, breakout success	Absence of risk
Key variables	Just the amount (usually a convertible note)	Note or shares? If note, term and discount rate	Valuation, board seat(s), voting thresholds	Valuation, arcane deal terms
Example deal	“Dad, you may lose this entire \$20k”	1-year convertible note at 20% discount	\$4MM buys 40% of company	\$30MM buys 15%, 3x preference, participation

Your equity financing mission

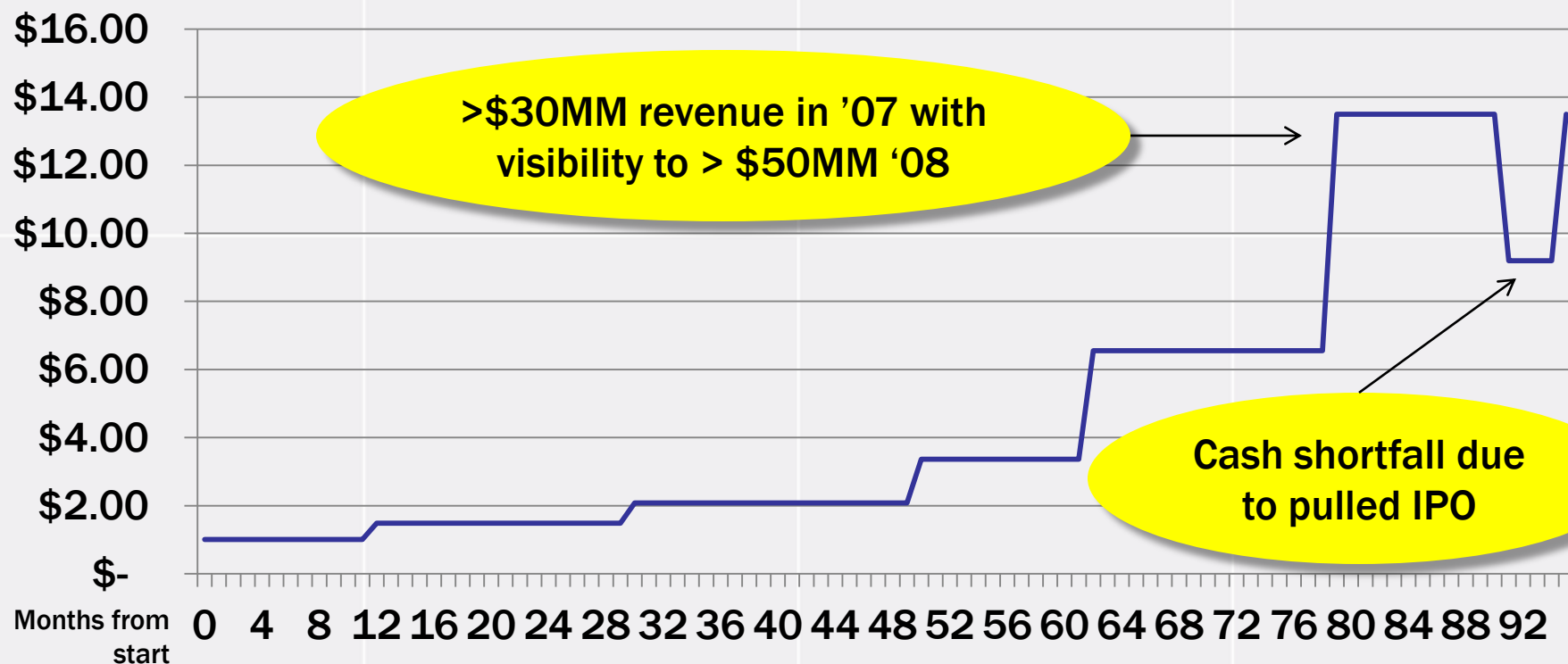
**Make sure the
valuation always
goes up**

Gevo share price history



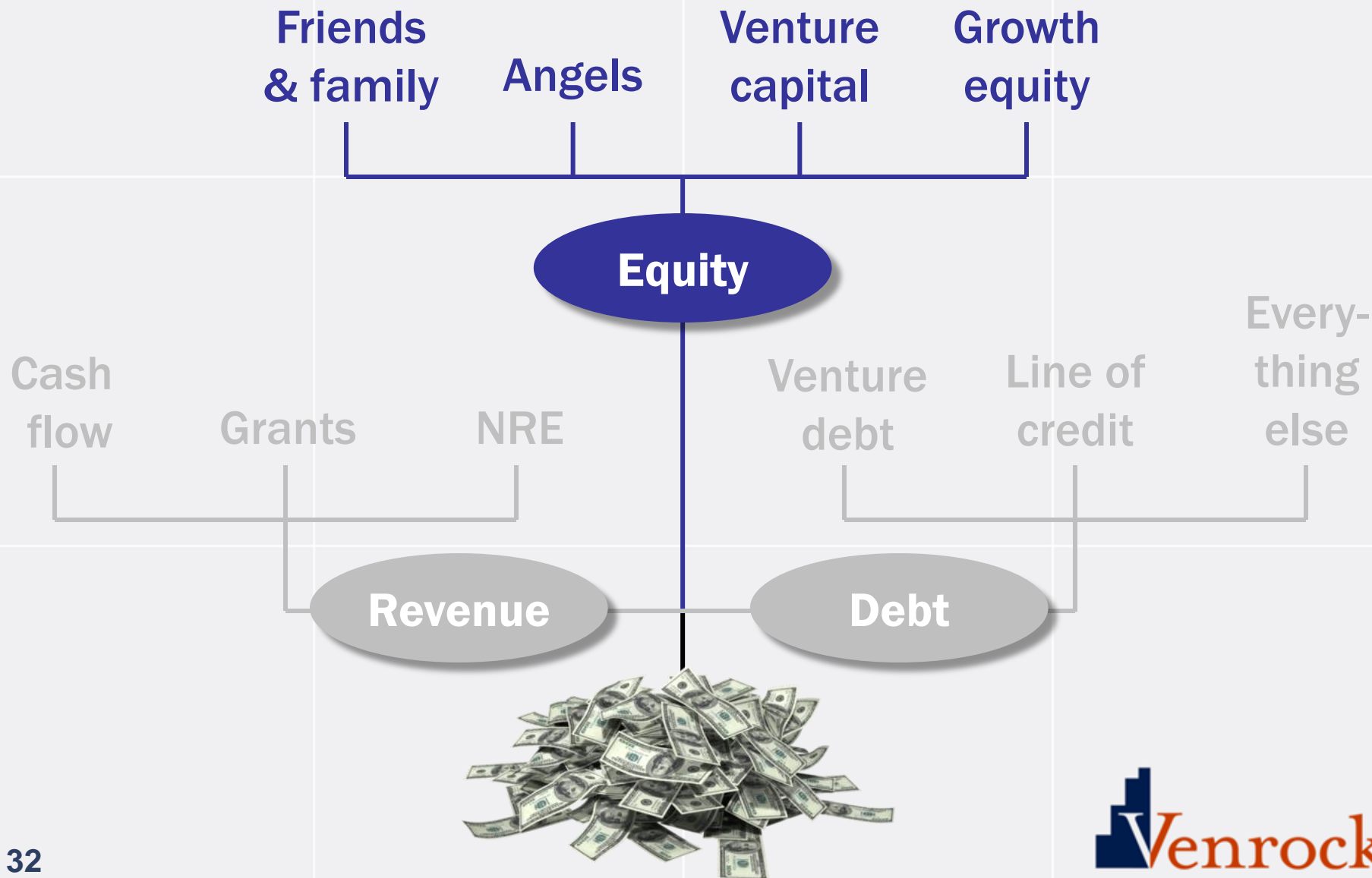
Gevo						
Round	Date	\$000s raised	Price/share	IPO/price	IRR	New investors
Series A-1	Aug-05	\$ 500	\$ 0.50	30.0	85%	Khosla
Series A-2	Feb-06	\$ 903	\$ 0.83	18.0	78%	None
Series A-3	Oct-06	\$ 1,601	\$ 1.75	8.6	64%	None
Series A-4	Apr-07	\$ 2,000	\$ 2.33	6.4	62%	None
Series B	Jul-07	\$ 3,000	\$ 2.92	5.1	57%	Virgin Green Fund
Series C	Mar-08	\$ 17,000	\$ 5.48	2.7	41%	Burrill, Malaysia Life Sciences Capital Fund
Series D	Aug-09	\$ 32,500	\$ 7.04	2.1	64%	Total
Series D-1	Mar-10	\$ 16,150	\$ 9.00	1.7	72%	Lanxess
IPO	Feb-11	\$ -	\$ 15.00			

A123Systems share price history

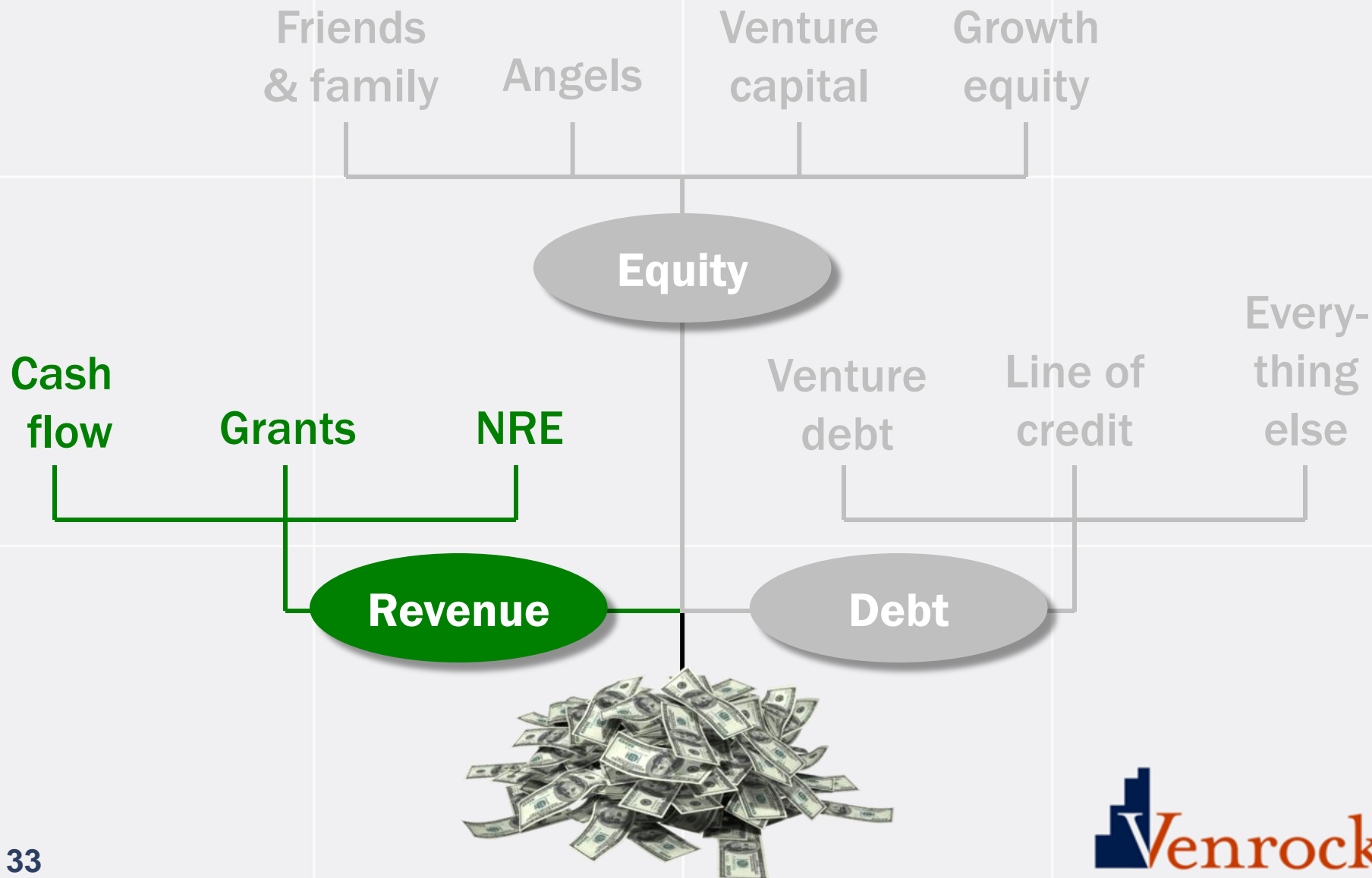


A123Systems						
Round	Date	\$000s raised	Price/share	IPO/price	IRR	New investors
Series A	Dec-01	\$ 8,374	\$ 1.01	13.4	40%	North Bridge, Sequoia, YankeeTek
Series A-1	Dec-02	\$ 4,346	\$ 1.49	9.1	38%	Motorola
Series B	Jun-04	\$ 19,995	\$ 2.08	6.5	42%	None (appears to be inside round)
Series C	Jan-06	\$ 30,278	\$ 3.37	4.0	46%	FATV, GE, AllianceBernstein, OnPoint
Series D	Jan-07	\$ 69,931	\$ 6.55	2.1	31%	CMEA, P&G
Series E	May-08	\$ 102,085	\$ 13.50	1.0	0%	None (appears to be inside round); conversion price equalled IPO price
Series F	May-09	\$ 99,900	\$ 9.20	1.5	221%	DTE, grab bag of venture investors
IPO	Sep-09	\$ -	\$ 13.50			

The tree of start-up financing



The tree of start-up financing





Cash flow

Types of revenue financing

Type	Cash flow
Example providers	You!
Typical person	You!
Motivation	Minimize dilution, stay out of debt
Key to their heart	Products sold at a profit
Key variables	Profit margin, payment terms
Example deal	50% profit margin on \$200k sale funds 1 headcount for a year

Grants



Types of revenue financing

Type	Cash flow	Grants
Example providers	You!	ARPA-E, DoE, NSF, DoE
Typical person	You!	Program manager at agency/foundation
Motivation	Minimize dilution, stay out of debt	Technology advancement, economic development
Key to their heart	Products sold at a profit	Great proposal
Key variables	Profit margin, payment terms	Project scope, milestones
Example deal	50% profit margin on \$200k sale funds 1 headcount for a year	\$2MM over 18 months to develop prototype

CORPORATION ST. 4

NRE

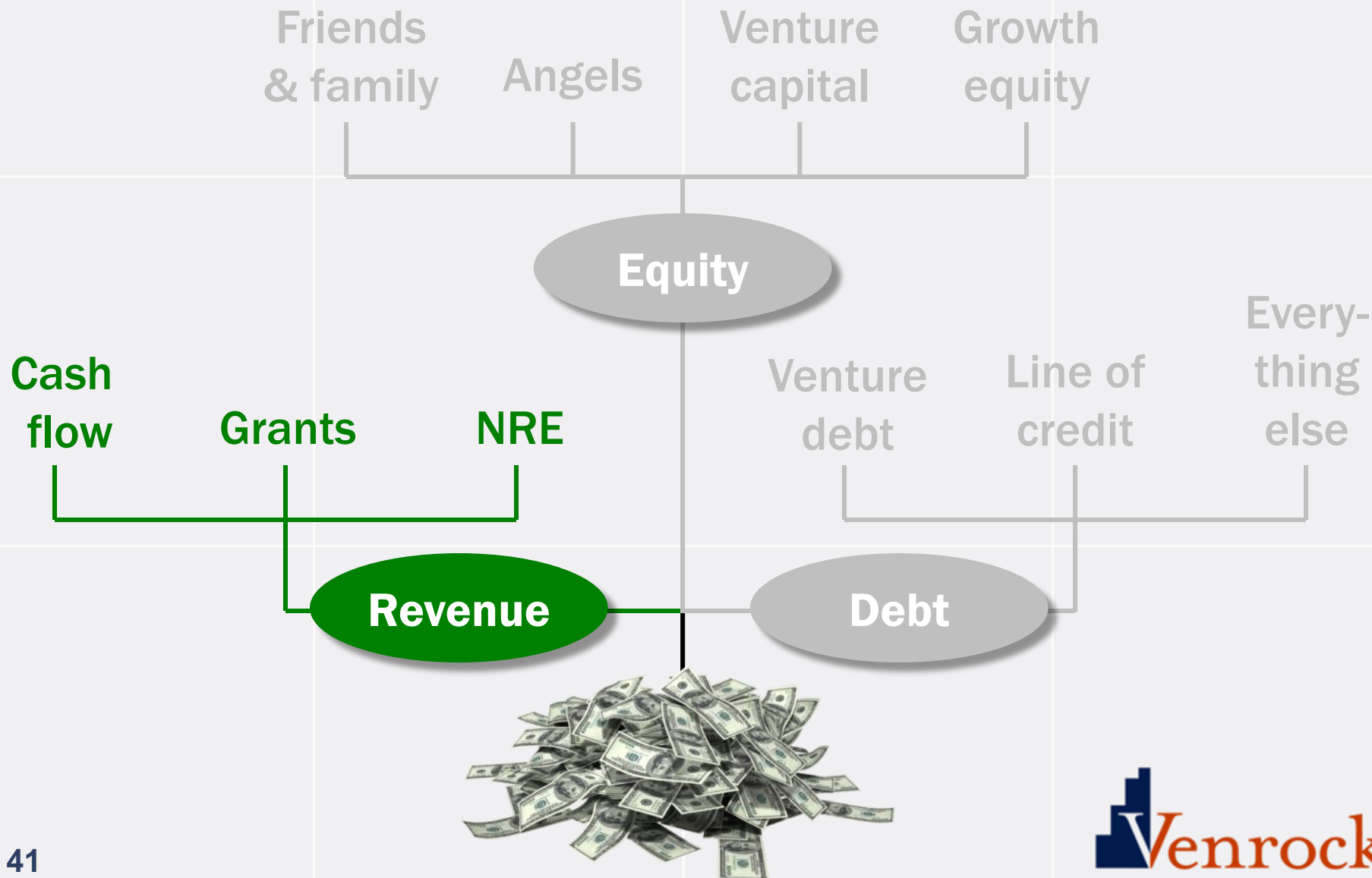
Types of revenue financing

Type	Cash flow	Grants	NRE (non-recurring engineering services)
Example providers	You!	ARPA-E, DoE, NSF, DoE	Lockheed Martin, Exxon Mobil, Johnson Controls
Typical person	You!	Program manager at agency/foundation	Corporate CTO/R&D leader/product manager
Motivation	Minimize dilution, stay out of debt	Technology advancement, economic development	Solve a problem, stay close to you, keep you from competitors
Key to their heart	Products sold at a profit	Great proposal	Killer technology, exclusivity
Key variables	Profit margin, payment terms	Project scope, milestones	Project scope, milestones, IP rights, exclusivity
Example deal	50% profit margin on \$200k sale funds 1 headcount for a year	\$2MM over 18 months to develop prototype	\$500k to deliver sample, royalty-free license, 1-year exclusivity

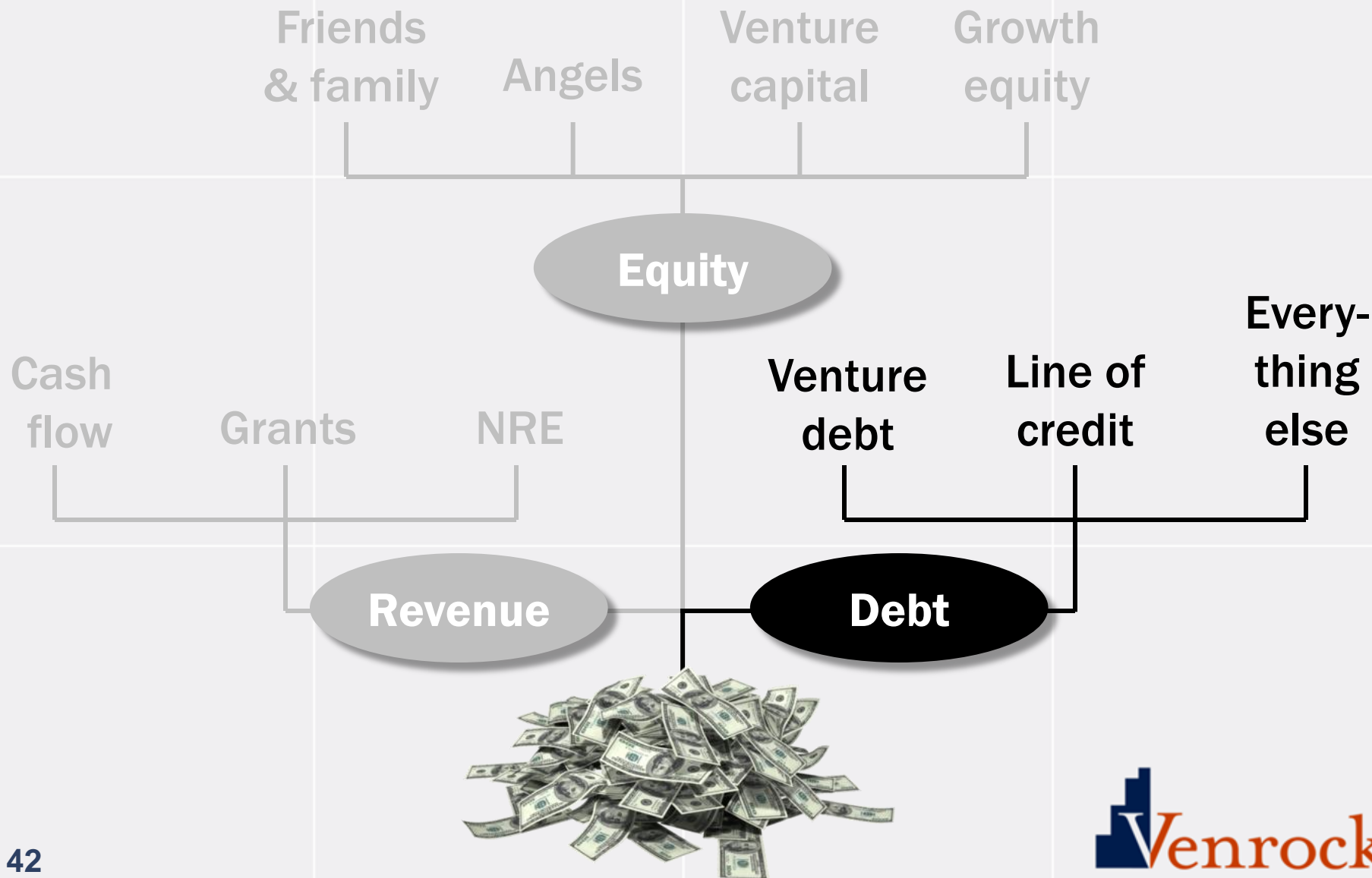
Your revenue financing mission

**Don't get
distracted**

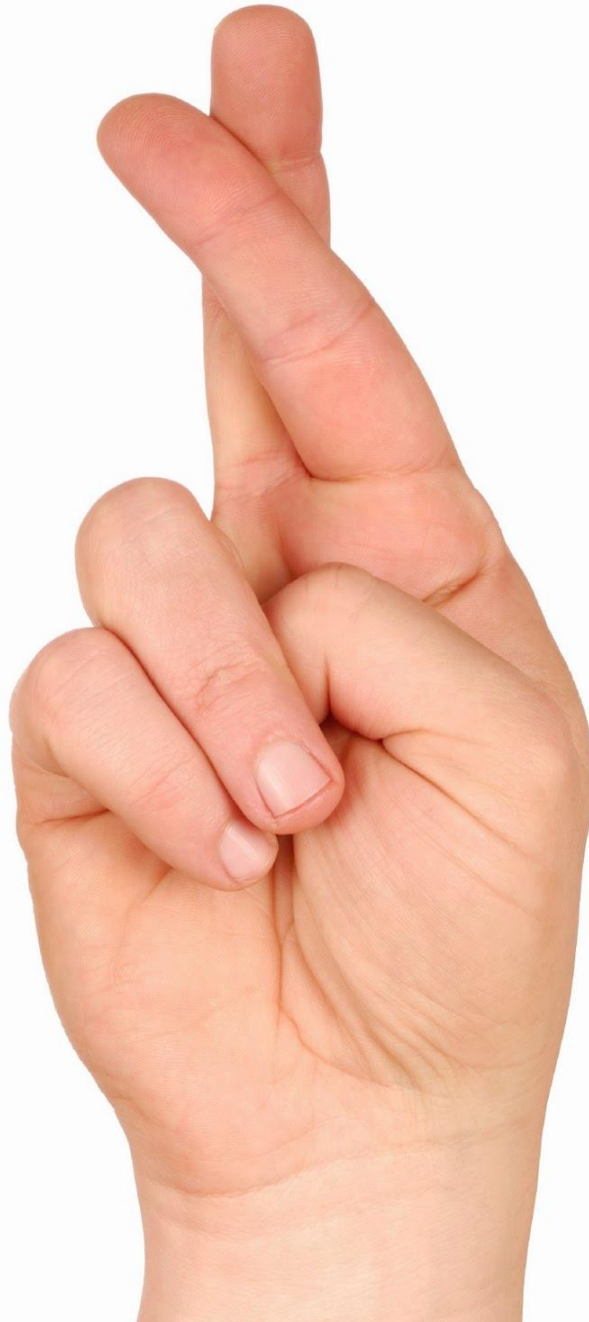
The tree of start-up financing



The tree of start-up financing



**Venture
debt**



Types of debt financing

Type	Venture debt
Example providers	Silicon Valley Bank, Comerica, Wells Fargo
Typical person	Banker
Motivation	Profit, cross-selling other products, ownership via back door
Key to their heart	VC backing
Key variables	Interest rate, payment terms, warrant coverage, covenants
Example deal	\$4MM, 12-month drawdown, 3-year term, prime+3% rate, 5% warrant coverage

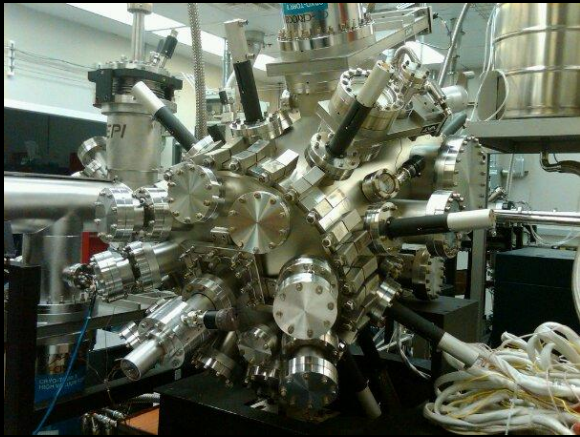
Working capital line of credit



Types of debt financing

Type	Venture debt	Working capital line of credit
Example providers	Silicon Valley Bank, Comerica, Wells Fargo	Hercules, WTI, Citibank
Typical person	Banker	Banker
Motivation	Profit, cross-selling other products, ownership via back door	Profit, cross-selling other products
Key to their heart	VC backing	Purchase orders
Key variables	Interest rate, payment terms, warrant coverage, covenants	Interest rate, collateral, payment terms
Example deal	\$4MM, 12-month drawdown, 3-year term, prime+3% rate, 5% warrant coverage	\$1MM revolving line of credit at prime+2% interest

Everything else



**Equipment
finance**



**Project
finance**



**Long-term
debt**

Types of debt financing

Type	Venture debt	Working capital line of credit	Everything else
Example providers	Silicon Valley Bank, Comerica, Wells Fargo	Hercules, WTI, Citibank	Big banks, specialty project financiers
Typical person	Banker	Banker	Banker or structured finance specialist
Motivation	Profit, cross-selling other products, ownership via back door	Profit, cross-selling other products	Profit
Key to their heart	VC backing	Purchase orders	Assets
Key variables	Interest rate, payment terms, warrant coverage, covenants	Interest rate, collateral, payment terms	Interest rate, collateral, payment terms
Example deal	\$4MM, 12-month drawdown, 3-year term, prime+3% rate, 5% warrant coverage	\$1MM revolving line of credit at prime+2% interest	\$100MM five-year loan to build factory at 7% interest

**Don't take on
debt without
cash flow**

Example #1: Energy Recovery Inc.

- Pressure exchangers for reverse osmosis
- Founded 1992, IPO 2008
- Funded by:
 - Equity – angels only, no institutions (\$24MM over 14 years)
 - Revenue – cash flow; primary financing mechanism for business
 - Debt – \$4MM revolving credit line, \$1MM equipment loan



Example #2: Solazyme

- Algal oils and biomaterials
- Founded 2003, IPO 2011
- Funded by:
 - Equity – \$128MM in venture capital over five rounds
 - Revenue – \$22MM government grant in 2009 for first integrated biorefinery
 - Debt – \$5MM long-term debt in 2007 at 10.7% interest, paid off in May 2010



Example #3: Tesla Motors

- **Electric vehicles**
- **Founded 2002, IPO 2010**
- **Funded by:**
 - **Revenue – customer pre-orders (\$40MM in 24 hours for Model X!)**
 - **Equity – \$324 million in venture capital and growth equity**
 - **Debt – \$465 million U.S. government loan for first large-scale manufacturing facility**



TESLA MOTORS



Thank you

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