

# Foundations of FinTech

Crowdfunding

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UCF

# What is crowdfunding?

## Definitions:

“The practice of funding a project or venture by raising many small amounts of money from a large number of people, typically via the Internet”. (Oxford Dictionary)

Entrepreneurship context: Crowdfunding refers to the efforts by entrepreneurial individuals and groups – cultural, social, and for-profit – to fund their ventures by drawing on relatively small contributions from a relatively large number of individuals using the internet, without standard financial intermediaries. (Mollick (2014))

*e.g., Joseph Pulitzer’s campaign to fund the pedestal of the Statue of Liberty in 1885 (BBC, 2013)*

# What is crowdfunding?

- Alternative source of early seed funding for entrepreneurial ventures.
- Conceptual fine-tuning through real-time interaction with stakeholders.
- Opportunity to recruit initial customer base and brand promoters.
  
- Mom & pop investors can participate:
  - Allowing more entrepreneurial ventures to launch.
  - Allowing more investors to contribute to venture growth.
  
- Peer-to-Peer lending (we saw in last class) is a special case of crowdfunding

# Crowdfunding Models

## Reward-based model:

- Funders receive non-monetary rewards often take the form of a token of appreciation or the pre-purchasing of products or services.

## Donation-based model:

- Funders donate to causes that they want to support, with no expected compensation.

## Lending-based model:

- Funders often receive fixed periodic income and expect repayment of the original principal investment. (Peer-to-Peer Lending)

## Equity-based model:

- Funders receive an interest in the form of equity in the venture they fund or, alternatively, revenue or profit-share arrangements.
- Non-equity revenue-sharing - funders receive a fixed share of revenues and/or profits.
- Was limited to accredited investors till June 16, 2015 (JOBS Act's Regulation CF relaxed this)

# Startup (financing) lifecycle

## Early-stage: Idea conception, Prototype & Early

- **Pre-Seed & Seed stage:** Startups figure out the product, the market and the user base. Typically, a seed round helps the company scale to a few employees past the founders and to build and launch an early product.
- **Series A:** Startups have figured out their product and user base, and are trying to establish a viable business model and scale up their operations.

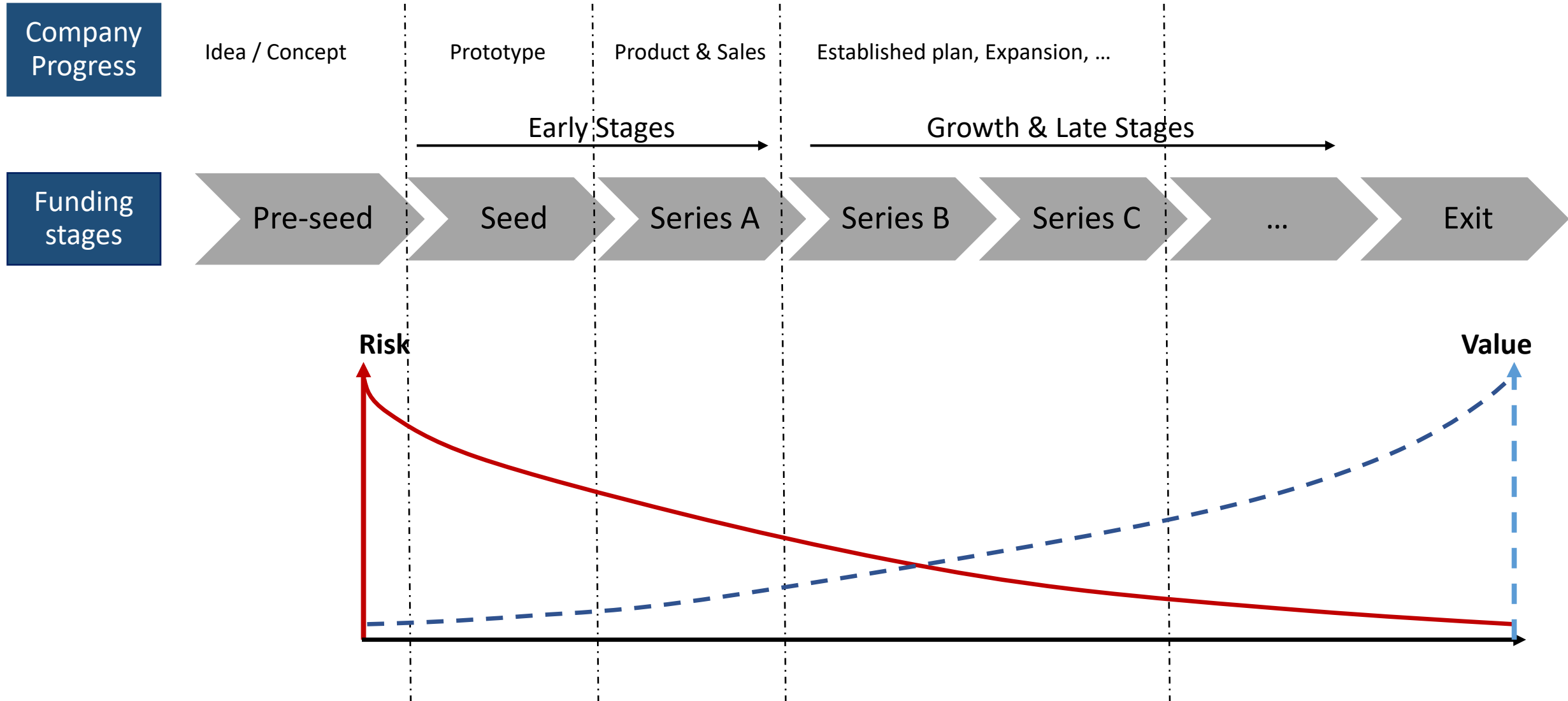
## Growth-stage: Scaling up

- **Series B:** Startups have an established product and business model, and are trying to scale up their business model and user base.

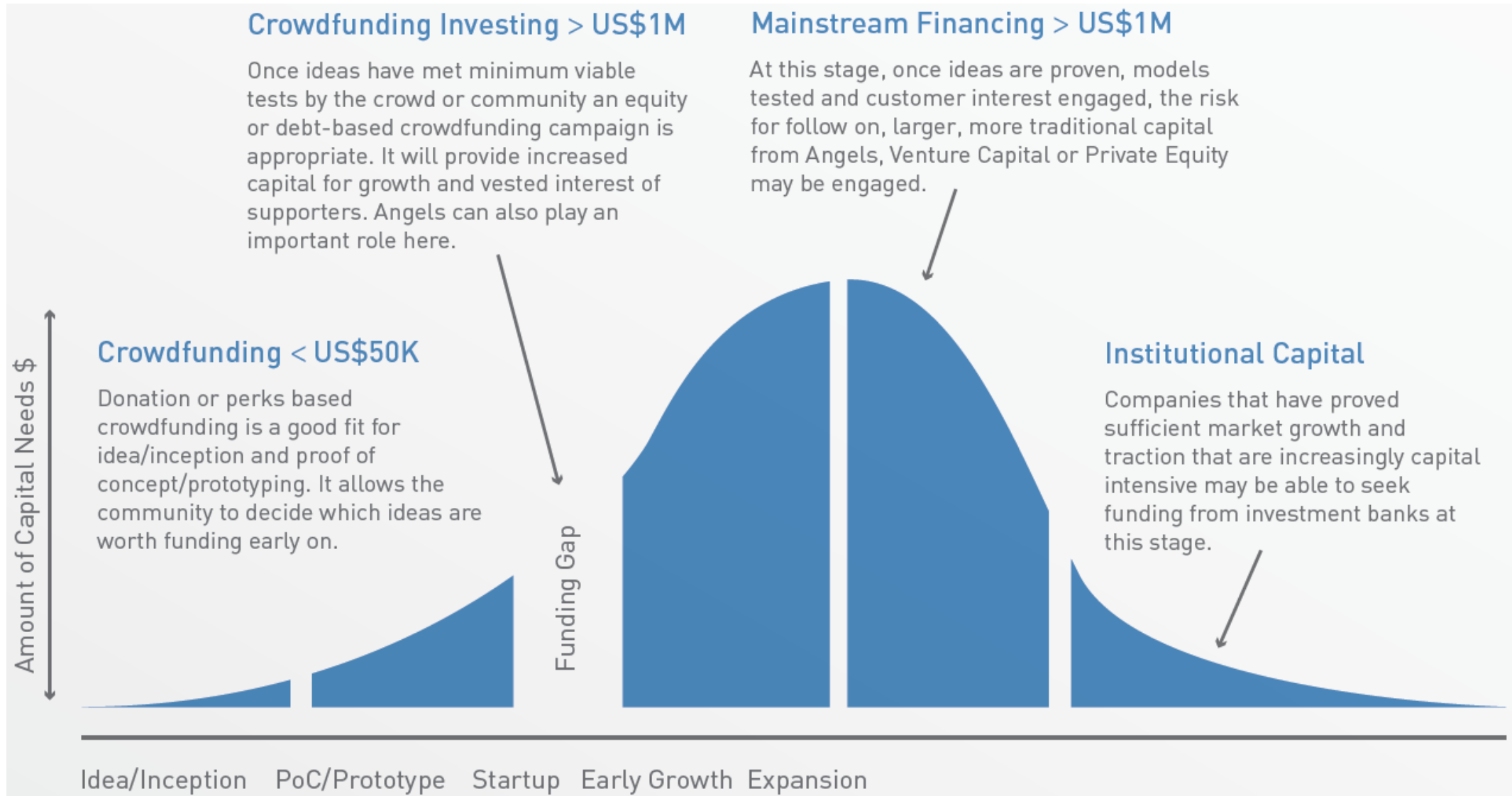
## Late-stage: Scaled and stable

- **Series C:** This stage is used by startups to accelerate their growth beyond the Series B stage; e.g., by going international or by making acquisitions.
- Firms requiring more funds raise them in stages Series D, E, etc.

# Startup (financing) lifecycle

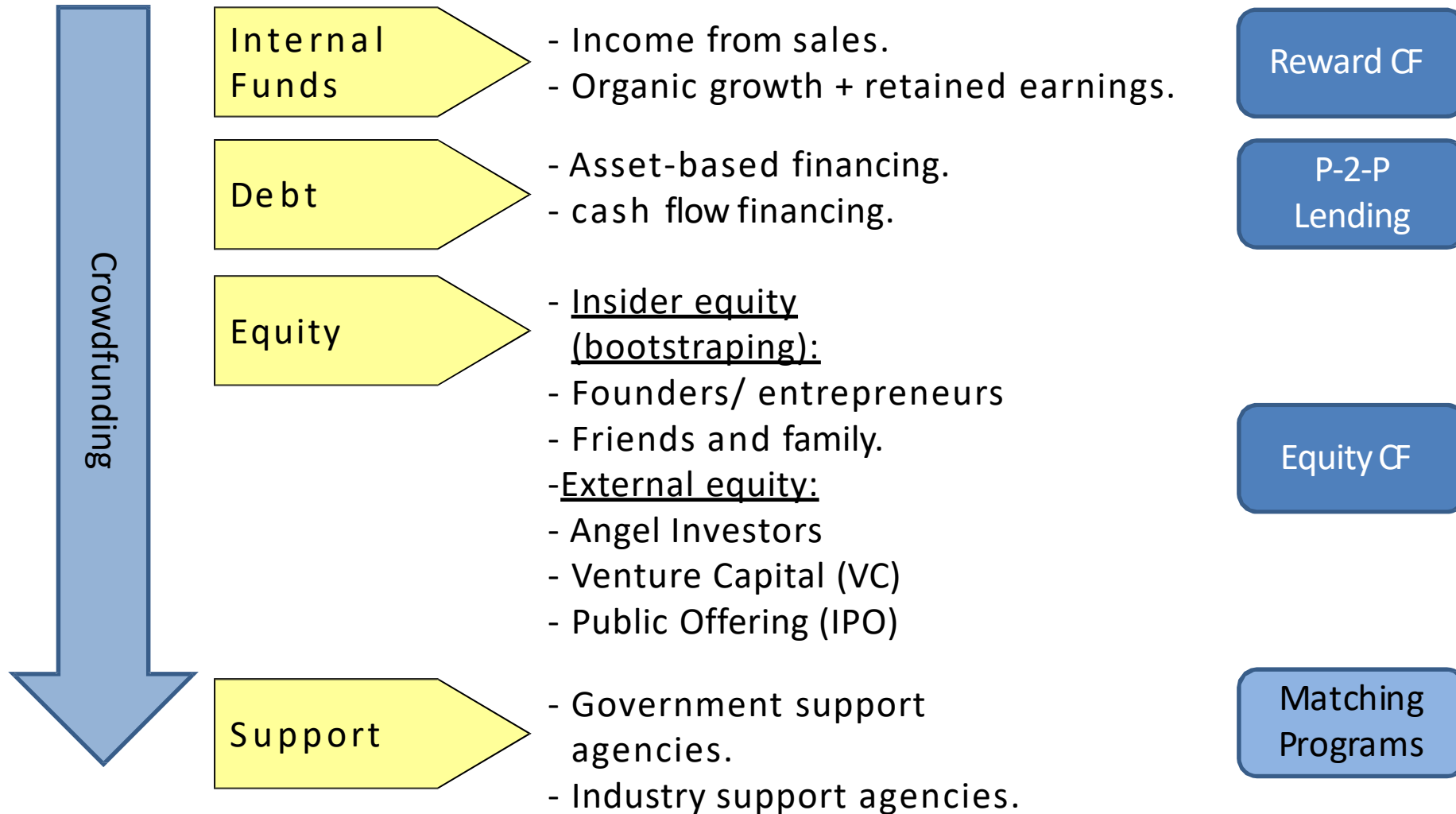


# Crowdfunding's place in financing lifecycle



Source: World Bank (2013) "Crowdfunding Potential for the Developing World"

# Sources of Financing



Source: *What is Crowdfunding?* Shneor & Rotem (2017)



# Greatest Challenge: Existing Regulation

## Reward-based model

- Regulate as e-commerce transaction vis-à-vis consumer protection and taxation laws.
- Enact reduced VAT to support startups, cultural and social projects (within limitations of firm size and age).

## Donation-based model

- Where relevant remove obstacles in license/permit fees and long processing times. Create exclusion laws for donation crowdfunding campaigns up to a certain amount (i.e. EUR 10.000).

## Lending-based Model

- No clear regulation requirements in most countries. Existing demands in some countries excessive.
- Follow Danish approach to regulation as “payment service provider with limitations”.

# Greatest Challenge: Existing Regulation

## Equity-based model

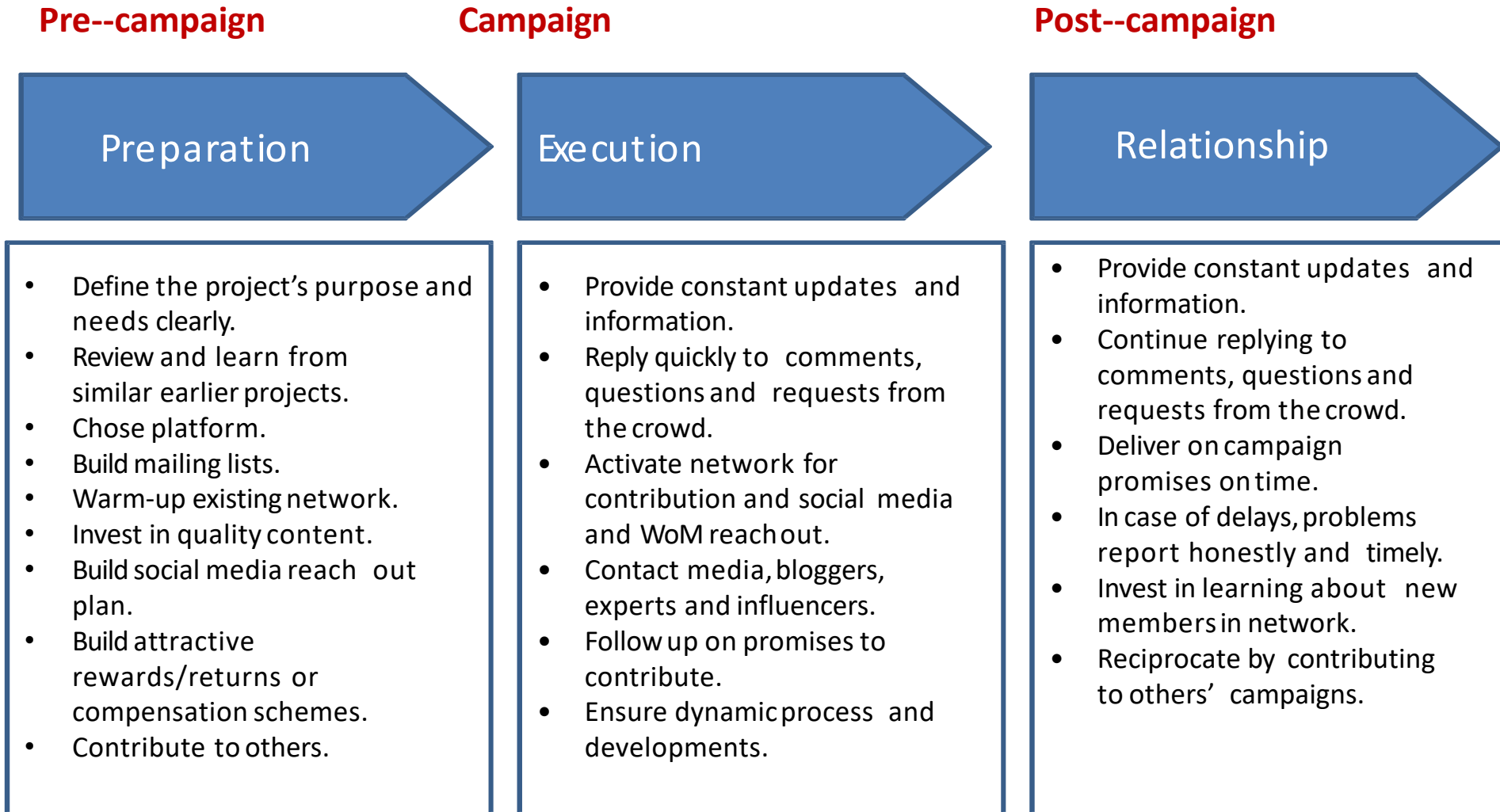
- Prospectus, Securities Markets, and Investment Services laws are irrelevant in the age of Internet and online communities.
- Follow Finnish approach through creating special register for crowdfunding intermediaries with simpler, faster procedures.
- Provide clear requirements for crowdfunding intermediary's procedures and its obligations towards the investor.
- Reduce capital requirement from platforms to EUR 50.000.
- Allow equity rounds of up to EUR 5 Million annually from unlimited number of investors.
- Simplify disclosure documents by businesses seeking to raise funding via equity crowdfunding. Use Finnish model of maximum 6-page document addressing all critical questions including risks.
- Allow tax deductions from losses on investments via crowdfunding, as applied in the UK (up to 88% of net loss).

# Greatest Challenge: Existing Regulation

## **All models**

- Standardize authentication procedures across the countries.
- Standardize KYC requirements from at least EUR 5000 and up.
- Allow for cross border authentication.

# Crowdfunding Campaign Process



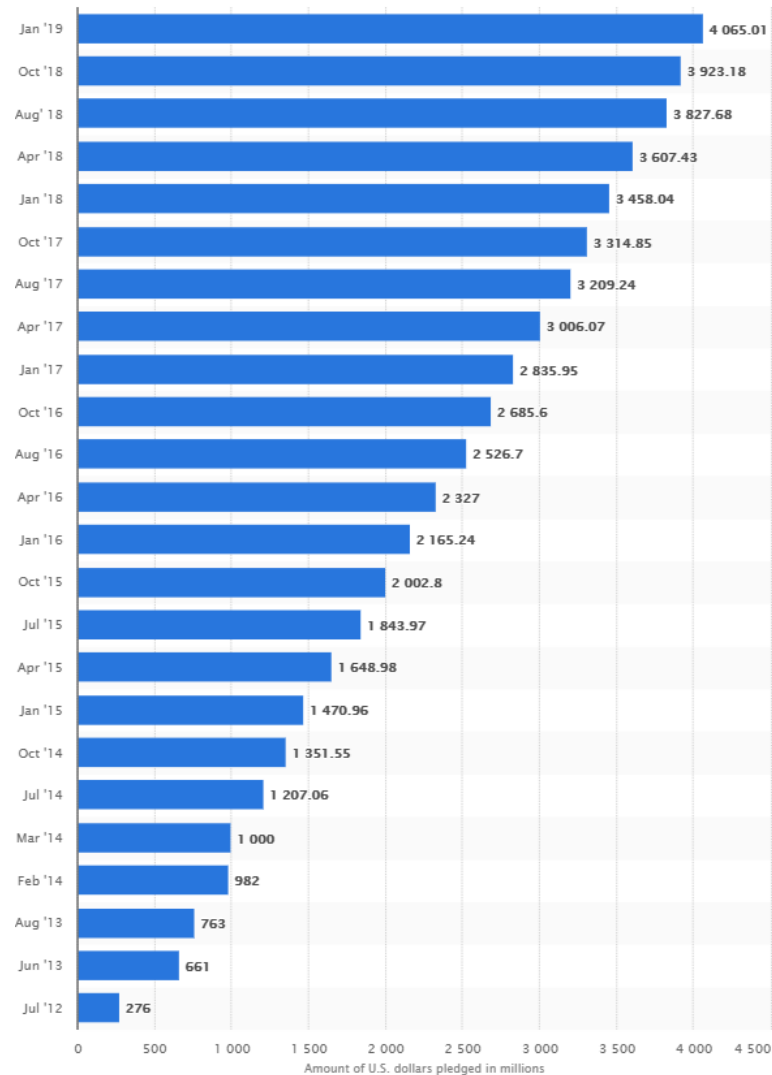
# Industries

## Projects and Dollars

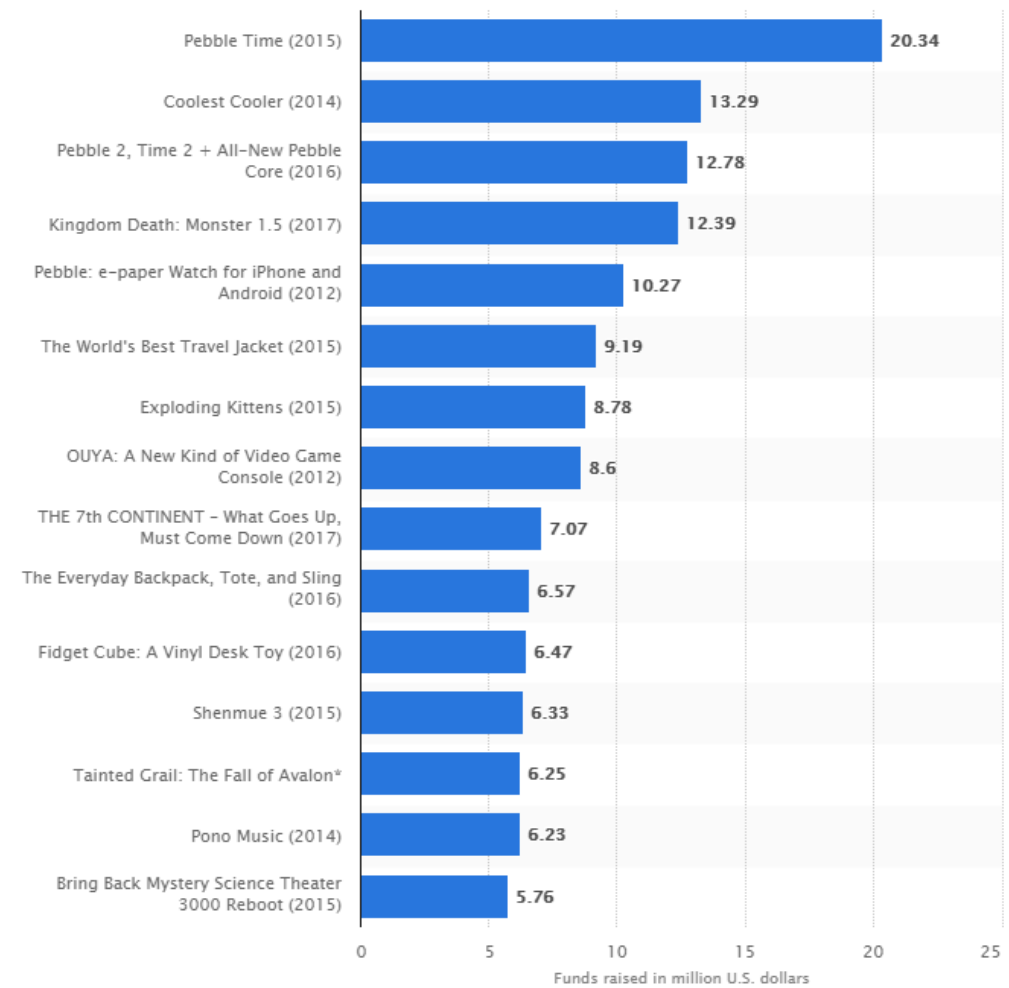
Category	Launched Projects	Total Dollars	Successful Dollars	Unsuccessful Dollars	Live Dollars	Live Projects	Success Rate
<b>All</b>	<b>477,980</b>	<b>\$4.81 B</b>	<b>\$4.30 B</b>	<b>\$462 M</b>	<b>\$44 M</b>	<b>4,004</b>	<b>37.55%</b>
Games	50,751	\$1.21 B	\$1.11 B	\$80.93 M	\$17.55 M	700	40.28%
Design	40,289	\$1.09 B	\$986.61 M	\$85.79 M	\$14.00 M	399	38.07%
Technology	41,717	\$903.41 M	\$793.36 M	\$104.87 M	\$5.18 M	383	20.65%
Film & Video	74,037	\$464.36 M	\$394.97 M	\$68.03 M	\$1.37 M	402	37.61%
Music	61,898	\$245.64 M	\$224.27 M	\$20.23 M	\$1.14 M	293	49.99%
Fashion	31,038	\$183.88 M	\$161.40 M	\$21.79 M	\$686.45 K	269	27.89%
Publishing	49,177	\$176.44 M	\$155.11 M	\$20.52 M	\$804.76 K	350	33.01%
Food	29,691	\$160.31 M	\$135.45 M	\$24.19 M	\$673.98 K	221	25.20%
Art	38,044	\$126.33 M	\$112.26 M	\$12.72 M	\$1.35 M	485	43.95%
Comics	15,643	\$107.43 M	\$99.83 M	\$6.38 M	\$1.23 M	228	58.68%
Photography	12,301	\$48.02 M	\$42.14 M	\$5.75 M	\$124.47 K	64	32.18%
Theater	12,217	\$46.67 M	\$41.88 M	\$4.71 M	\$79,004	39	60.08%
Crafts	11,248	\$19.54 M	\$16.07 M	\$3.36 M	\$109.27 K	108	25.00%
Journalism	5,683	\$17.71 M	\$15.43 M	\$2.22 M	\$65,044	37	22.71%
Dance	4,246	\$14.73 M	\$13.68 M	\$1.00 M	\$42,695	26	61.87%

Source: Kickstarter, Accessed on February 25, 2020

# More numbers on Kickstarter

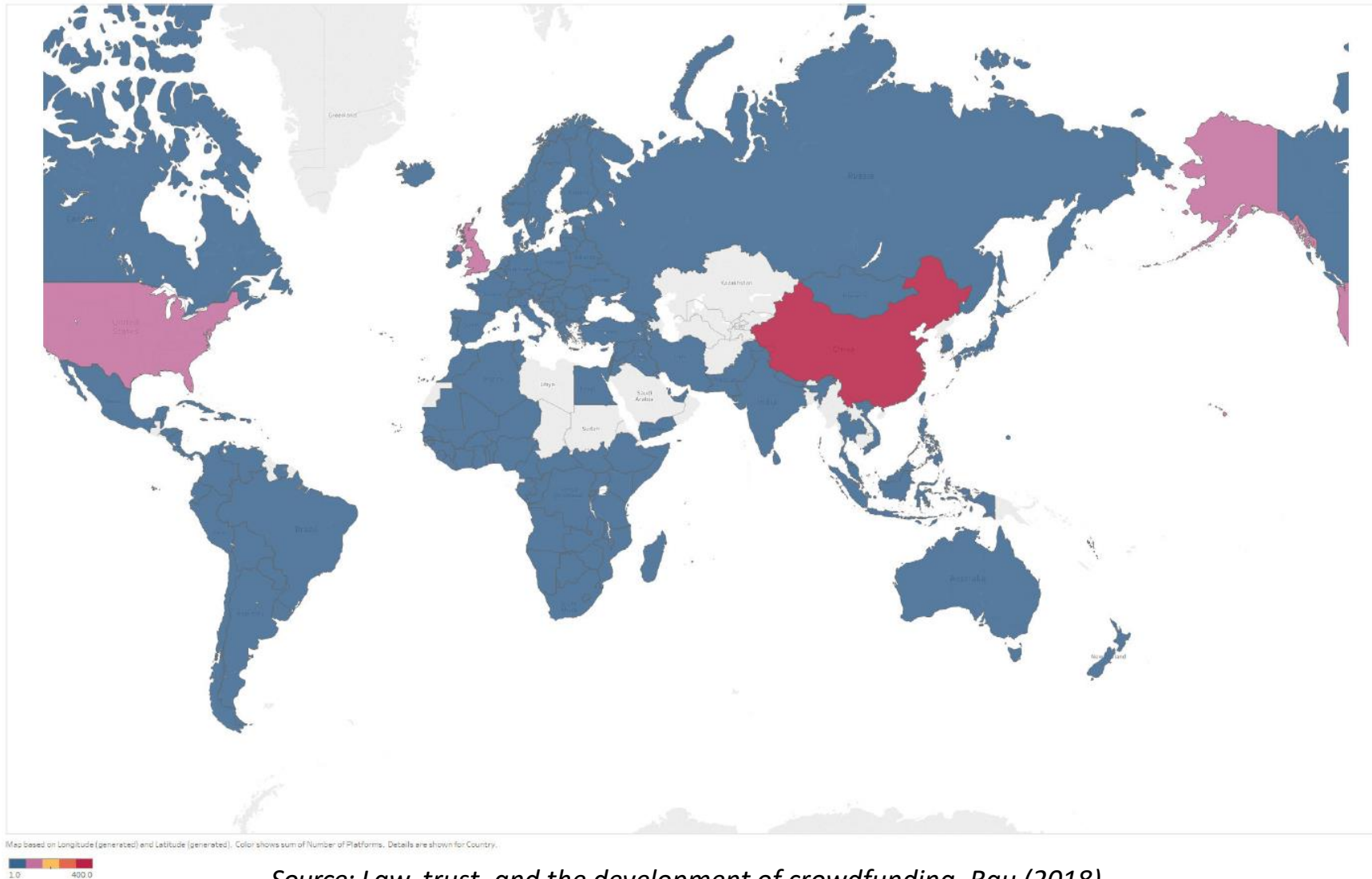


Cumulative amount of funding pledged to Kickstarter projects as of January 2019 (in million U.S. dollars). *Source: Statista*



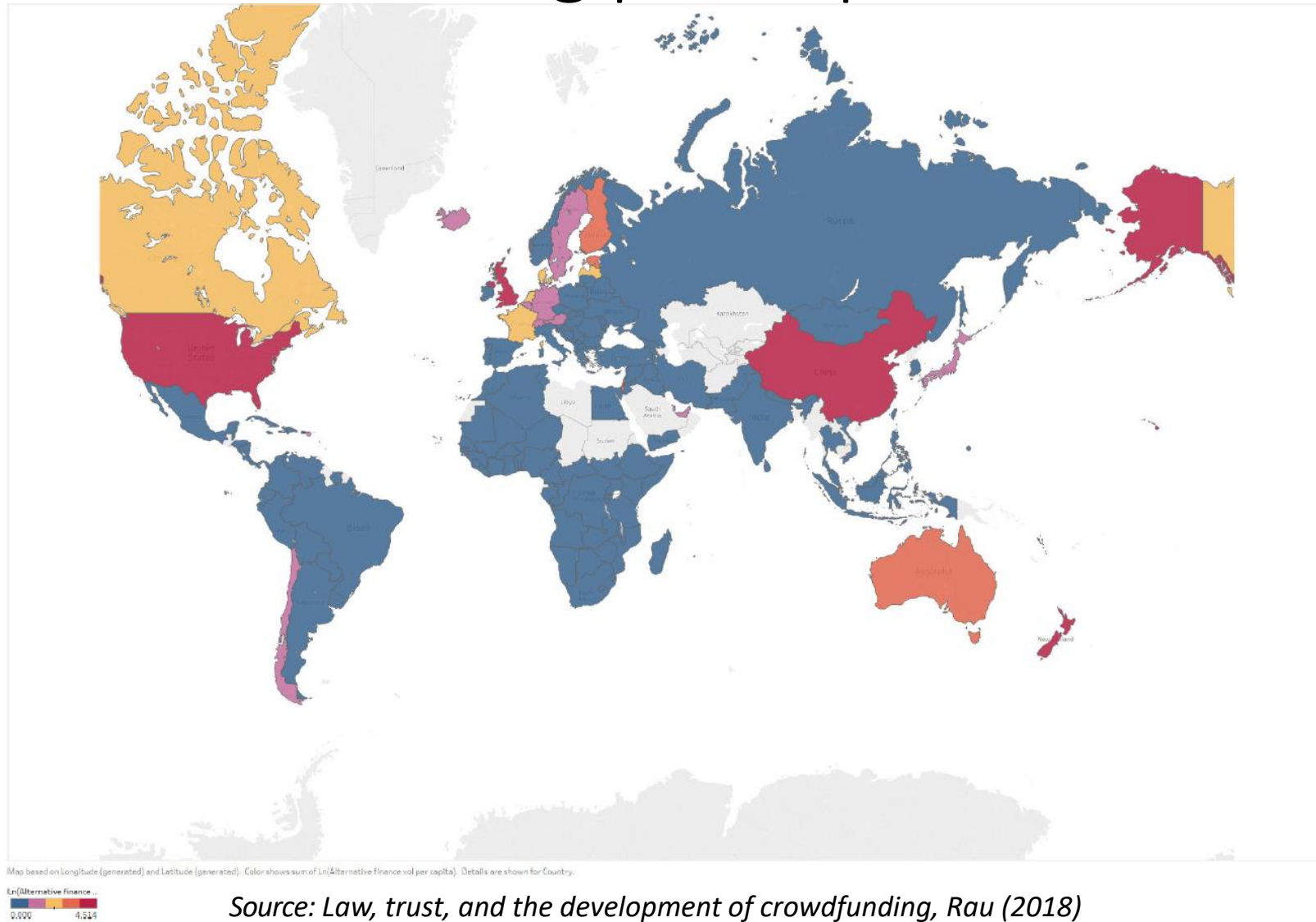
Most successfully completed Kickstarter projects as of January 2019, based on amount of total funds raised (in million U.S. dollars) *Source: Statista*

# Landscape: No. of Platforms



Source: Law, trust, and the development of crowdfunding, Rau (2018)

# Landscape: Crowdfunding per Capita



Source: Law, trust, and the development of crowdfunding, Rau (2018)



# Academic Literature

# The Dynamics of Crowdfunding: An Exploratory Study

Mollick (2014), *Journal of Business Venturing*

# Overview

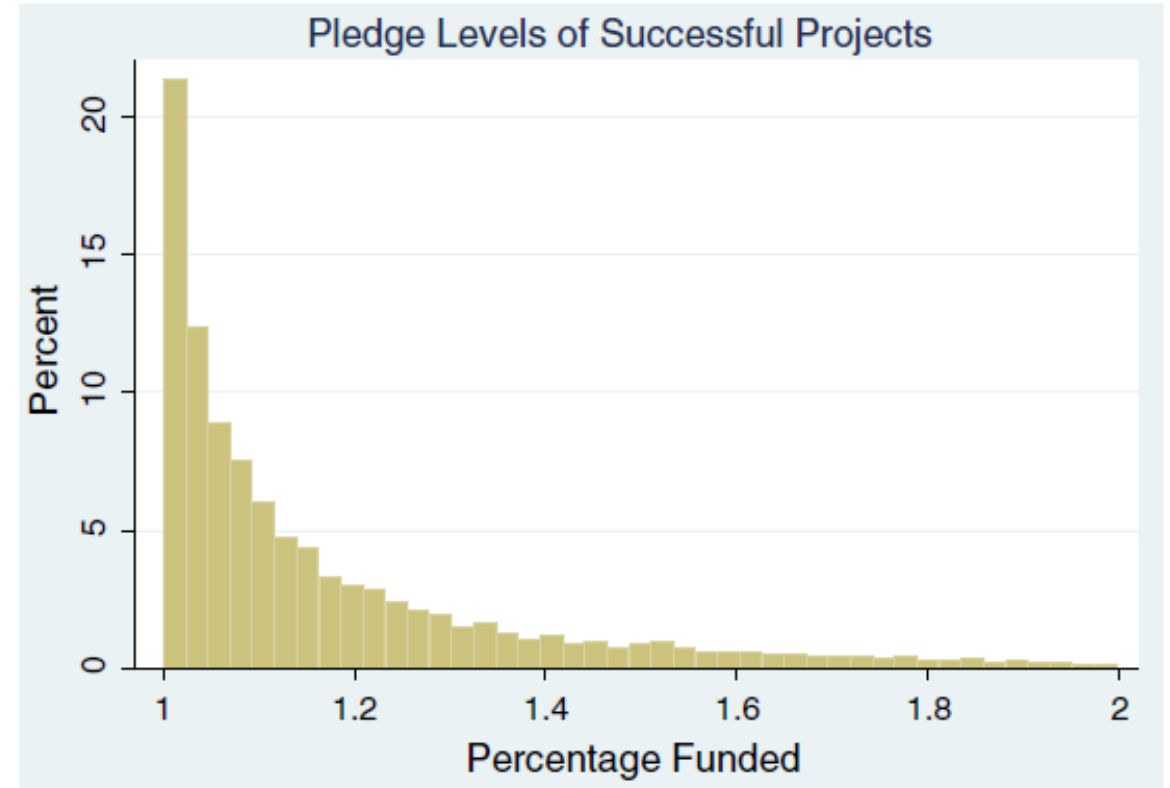
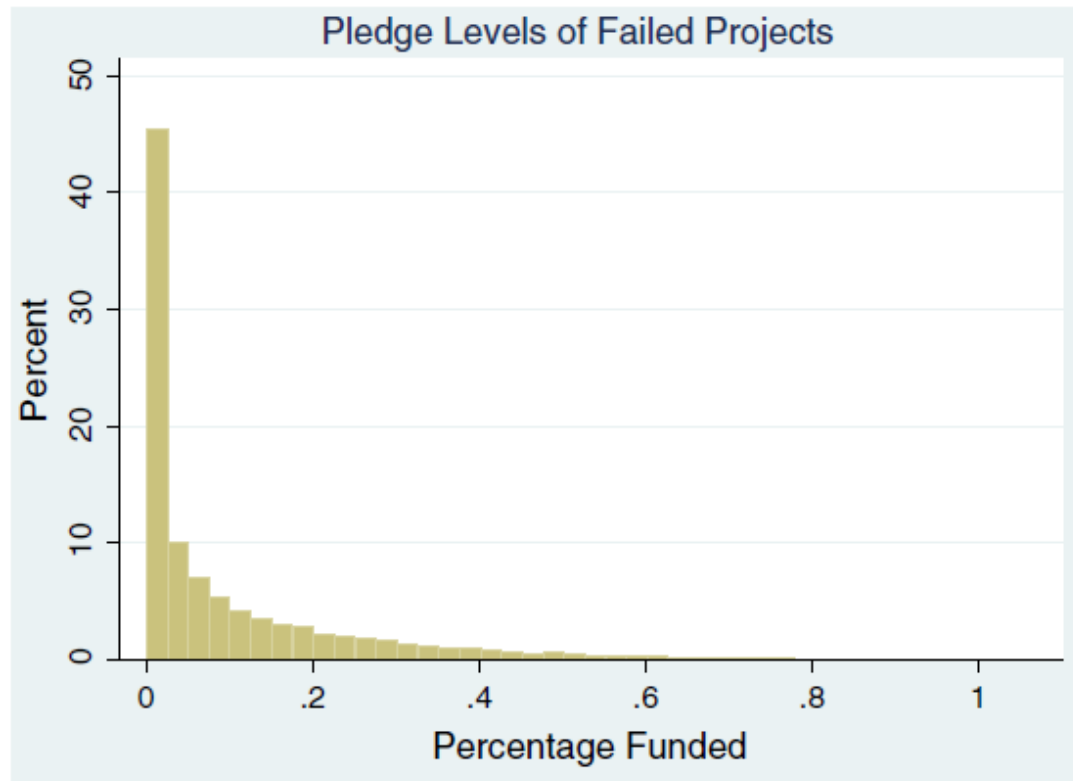
- **Synopsis:** Earliest descriptive paper on crowdfunding. Claims that personal networks and project quality influence funding success. Shows that most products are delivered late.
- **Kickstarter Model:**
  - Allows rewards and patronage models for fundraising.
  - All or Nothing or threshold model for project success determination.
- Sample: 48,526 projects (*49.4% successful*) that raised 237M on Kickstarter
- Sample period: 2009 to 2012

# Data Summary

Amount of funds raised is very small compared to traditional startups

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	All	Funded	Art	Design	Fashion	Film	Music	Publishing	Technology
Funded	0.494 (0.500)		0.526 (0.499)	0.394 (0.489)	0.310 (0.463)	0.452 (0.498)	0.597 (0.491)	0.354 (0.478)	0.356 (0.479)
Goal	9866 (27,481)	5604 (13,090)	6764 (26,270)	17,776 (35,664)	7872 (17,808)	14,279 (35,191)	5519 (11,092)	7386 (11,681)	21,177 (44,825)
Funded %	0.802 (6.500)	1.519 (9.194)	0.792 (2.500)	2.397 (34.25)	0.552 (1.142)	0.611 (0.726)	0.811 (0.771)	0.583 (1.226)	1.097 (2.762)
Backers	66.66 (548.8)	122.2 (776.6)	41.19 (88.59)	253.0 (1,887)	36.43 (177.3)	51.11 (163.3)	51.80 (245.2)	40.81 (115.0)	170.9 (650.0)
Pledge/backr	64.37 (94.11)	80.50 (71.33)	55.96 (62.11)	75.72 (98.62)	57.92 (72.79)	76.77 (117.2)	61.67 (83.93)	49.26 (109.4)	72.86 (94.84)
Updates	3.970 (6.303)	6.584 (7.557)	3.728 (5.778)	5.492 (7.922)	2.735 (4.501)	3.911 (6.541)	3.599 (5.121)	3.559 (6.274)	5.289 (8.321)
Comments	8.756 (219.8)	16.77 (312.6)	2.685 (9.400)	34.04 (239.8)	3.034 (14.61)	3.298 (19.28)	3.718 (14.95)	2.267 (8.037)	25.95 (145.1)
Duration	39.63 (17.45)	37.14 (16.01)	37.09 (17.36)	38.68 (15.01)	37.01 (15.83)	40.69 (18.29)	40.29 (17.33)	39.18 (17.12)	40.28 (16.66)
Observations	48,034	23,717	4355	1573	1210	13,729	12,207	4826	843

# Funds raised



- Projects **fail** to meet their funding goal by a **large margin** and **succeed** by a **small margin**
- Kuppuswamy & Bayus (2017) claim this is due to herding behavior

# Signaling in Crowdfunding

- Like startup financing, CF is also plagued by high levels of information asymmetry.
- Signals in Crowdfunding: Preparedness of founders
  - Videos
  - Updates after launch
  - Spelling errors
  - Network Size: Facebook friends of founders (Stuart & Sorenson (2008))

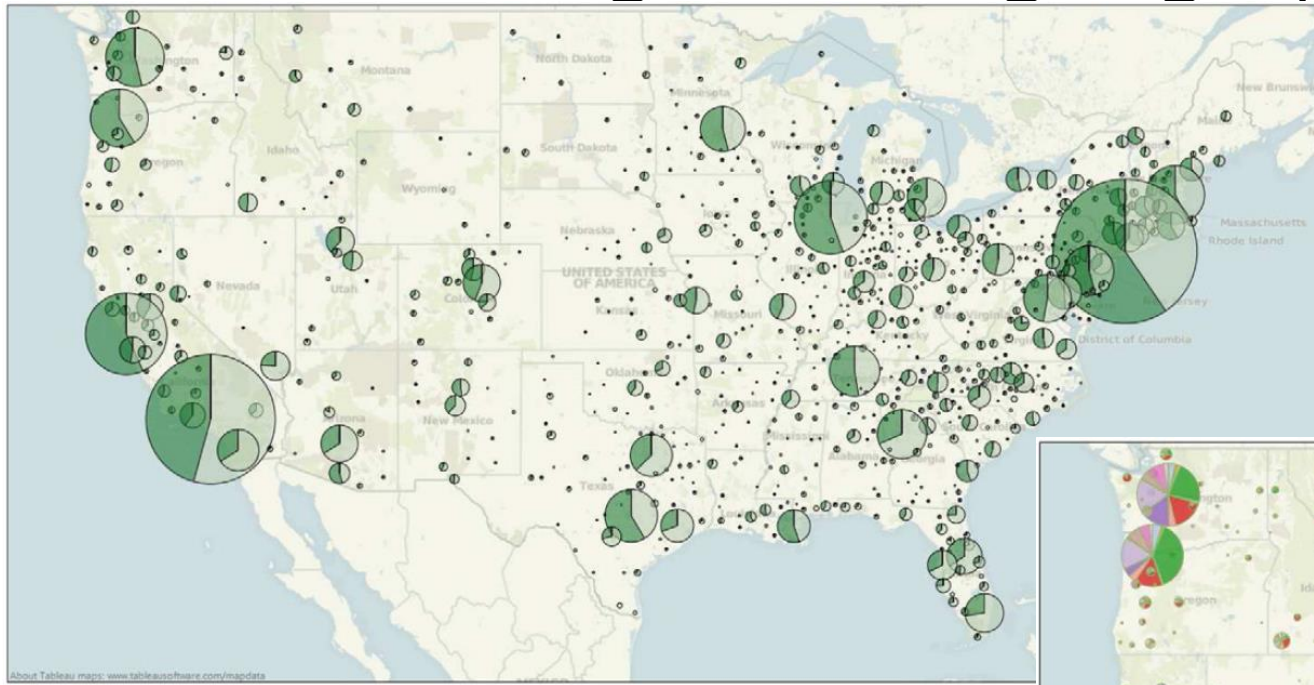
# Signaling in Crowdfunding

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Log(goal)	0.23*** (0.012)	0.22*** (0.017)	0.19*** (0.010)	0.23*** (0.012)	0.18*** (0.015)	0.19*** (0.010)
Duration	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.001)	0.99*** (0.002)	0.99*** (0.001)
Featured	20.47*** (2.403)	22.13*** (4.548)	17.90*** (2.146)	20.45*** (2.400)	19.77*** (4.134)	17.14*** (2.058)
Video			4.30*** (0.245)		4.27*** (0.389)	4.26*** (0.244)
Quick update			2.73*** (0.109)		2.69*** (0.161)	2.70*** (0.110)
Spelling error				0.36*** (0.041)	0.33*** (0.060)	0.38*** (0.046)
Log(FBF)		2.83*** (0.154)			2.77*** (0.156)	
FBF lower 25%						0.52*** (0.031)
FBF 25%–50%						1.01 (0.052)
FBF 50%–75%						1.46*** (0.072)
FBF top 25%						1.64*** (0.081)
Category controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	291.59*** (61.200)	19.34*** (6.658)	124.12*** (27.563)	296.63*** (62.311)	9.04*** (3.286)	127.01*** (28.519)
Observations	22,651	9603	22,651	22,651	9603	22,651
chi2	3021.57	1621.44	4578.38	3059.98	2269.24	4935.20
p	0.00	0.00	0.00	0.00	0.00	0.00
Pseudo R <sup>2</sup>	0.10	0.13	0.15	0.10	0.18	0.16

Posting videos & updates increases funding likelihood

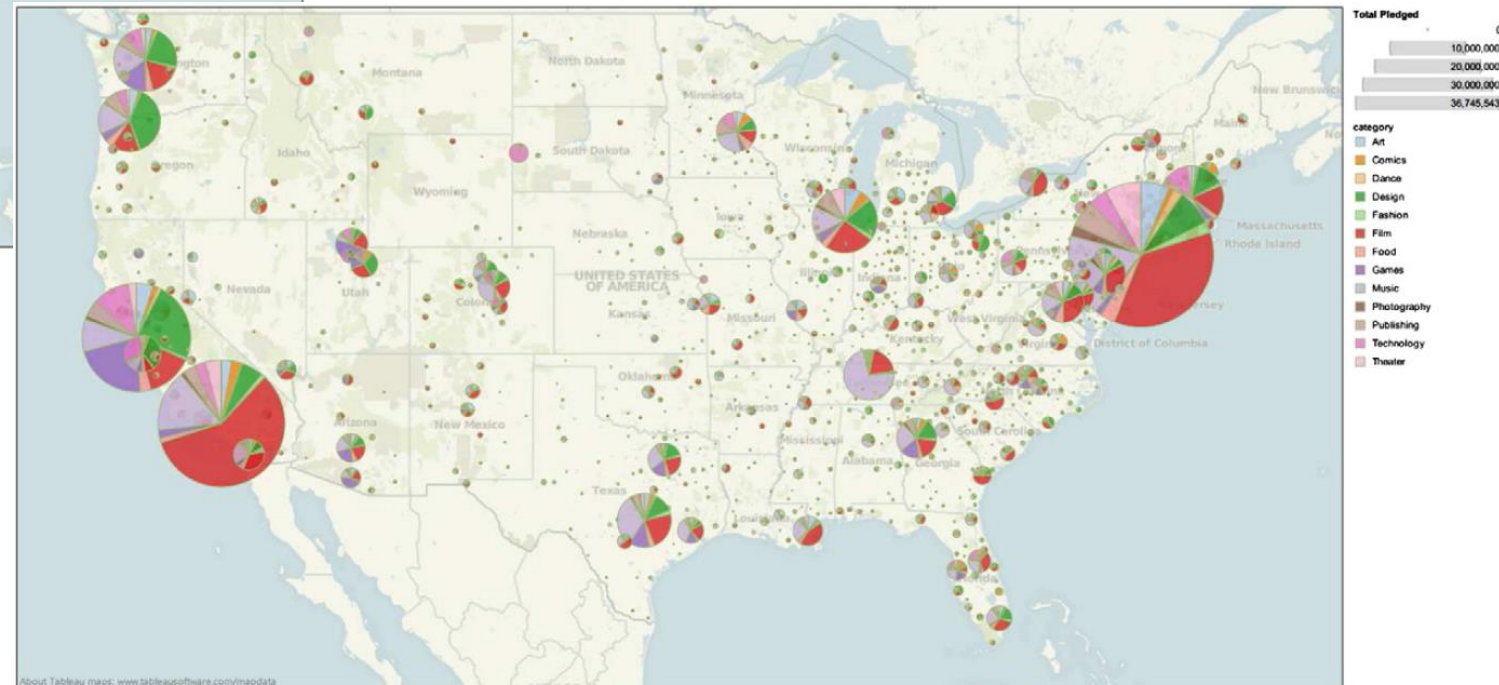
Spelling errors decrease funding success probability

# Crowdfunding relaxes geographical constraints?



- Startup activities are generally clustered around certain cities due to the need for talent, investors and ecosystem requirements (Stuart & Sorenson (2008).)

- Geographic clustering is prevalent event in CF.
- Underlying talent in an area affects the types of projects, investor mix and success

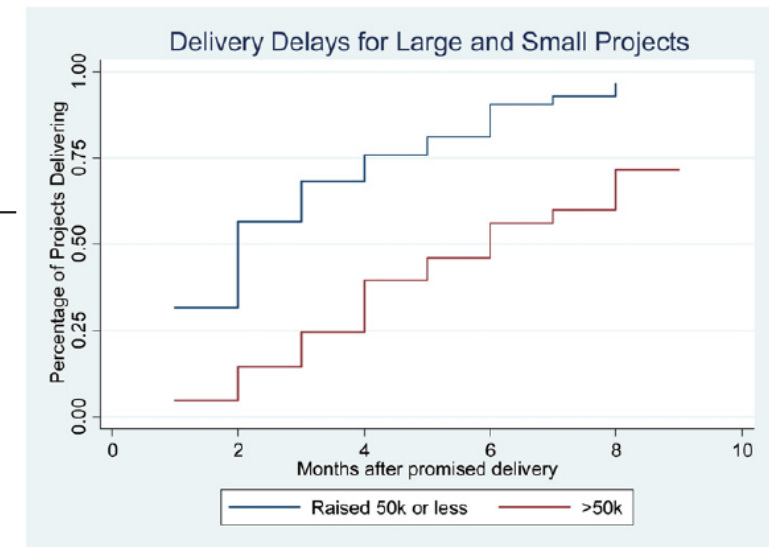
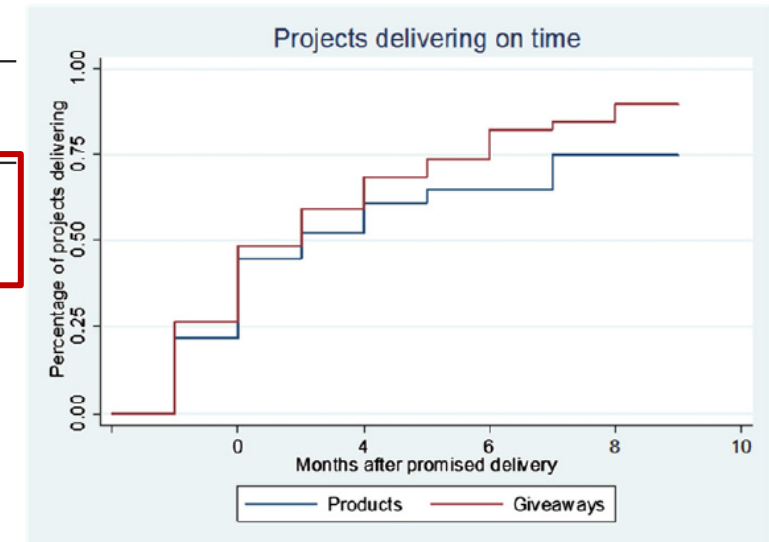




# Product Delivery Time

	(1)	(2)	(3)
Variables	Model 1	Model 2	Model 3
Log(goal)	0.68*** (0.069)	0.49*** (0.059)	0.48*** (0.067)
Log(percent funded)		0.45*** (0.074)	0.44*** (0.083)
Total backers			1.00 (0.000)
Category: graphic design	0.87 (0.277)	1.17 (0.366)	1.18 (0.367)
Category: hardware	1.05 (0.325)	1.44 (0.457)	1.45 (0.465)
Category: software	0.82 (0.441)	0.66 (0.357)	0.66 (0.357)
Category: product design	0.81 (0.186)	1.04 (0.246)	1.04 (0.248)
Category: technology	0.89 (0.278)	1.30 (0.417)	1.30 (0.418)
Observations	314	314	314
chi2	20.30	47.78	47.83
p	0.00	0.00	0.00

- Larger projects are delayed longer



- Delayed projects are 2.4 months late

# The Evolution of Equity Crowdfunding: Insights from Co-investments of Angels and the Crowd

Wang, Mahmood, Sismeiro & Vulkan (Forthcoming), *Research Policy*

# Overview

- **Synopsis:** The paper studies how the crowd and angel investors on an equity crowd funding (ECF) platform interact with each other.
  - Are angels “crowding out” crowd investors?
  - Can angels reduce information asymmetry?
- Equity crowdfunding is aimed helping early-stage startups raise funds.
- ECFs allow everyday investors to invest in a market that was dominated by angel investors
- Sample: 50,999 investors and 1151 campaigns from July 2012 to August 2017 on one of UK’s leading ECF platforms.

# Data definitions and summary

- Angels investors: top 1% (=510) investors in terms of amount pledged
- Crowd: everyone else (=50,489)
- Large campaigns: £100,000+

Average Campaign Attributes by Campaign Size.

	Large Campaigns (N = 640)	Small Campaigns (N = 511)
Pre-money Valuation (£'000)	4429.28	922.61
Funding Goal (£'000)	315.88	49.96
Campaign Equity Offered (%)	12.54	10.46
Number of Investors	153.25	55.52
Final Funded Rate	0.88	1.09

Average Investor Level Metrics by Type.

	Angel Investors (N = 510)	Crowd Investors (N = 50,489)
Total Amount Pledged (£)	254,707	2,110
Total Amount Pledged to Large Campaigns (£)	239,783	1,831
Average Amount Invested per Campaign (£)	142,862	1,401
Number of Pledges Made	18	3
Number of Pledges Made to Large Campaigns	13	2
Number of Campaigns Invested	11	2
Number of Days since Registration with the Platform	362	89

# Platform Evolution

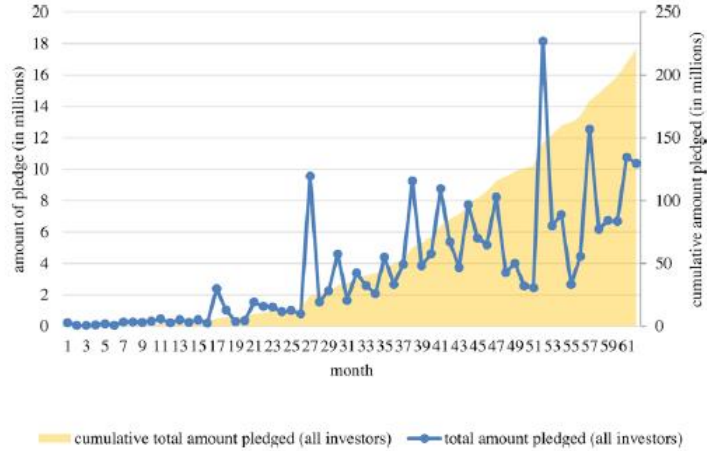


Fig. 1. Monthly Amount Pledged by All Investors (July 2012 to August 2017).

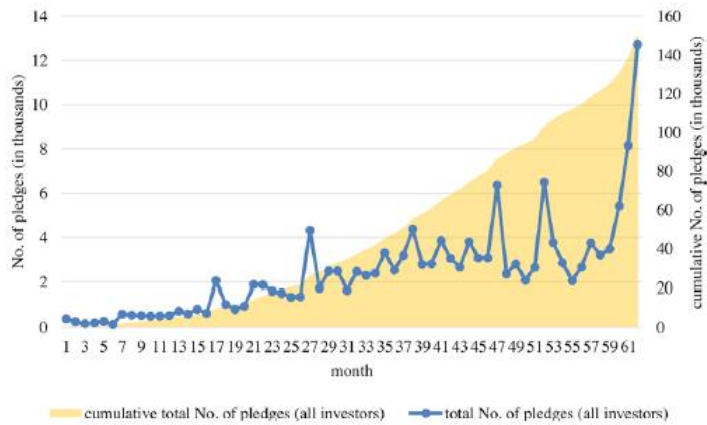


Fig. 2. Monthly Number of Pledges by All Investors (July 2012 to August 2017).

Platform has steadily grown in terms of amount & investors

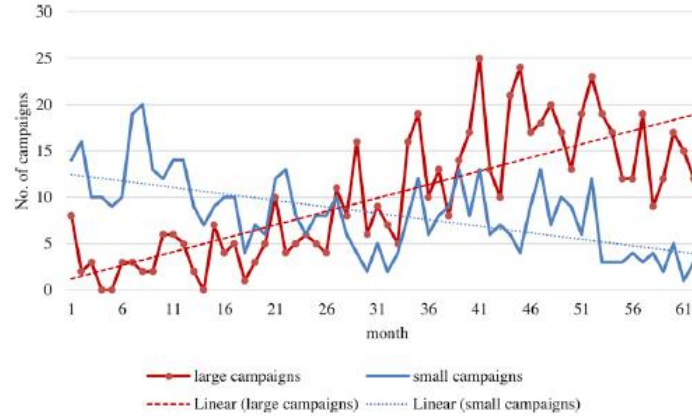


Fig. 3. Monthly Number of Newly Added Campaigns by Size with Fitted Trends.

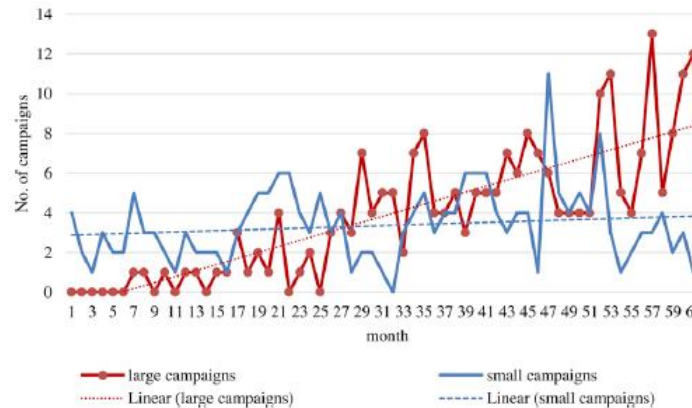


Fig. 4. Monthly Number of Successful Campaigns by Size with Fitted Trends.

More "large" campaigns and more successful ones

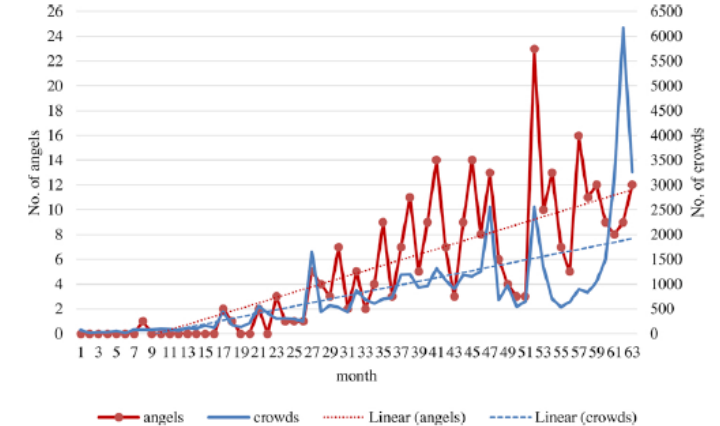


Fig. 5. Number of Newly Joined Investors by Type and Month with Fitted Trends.

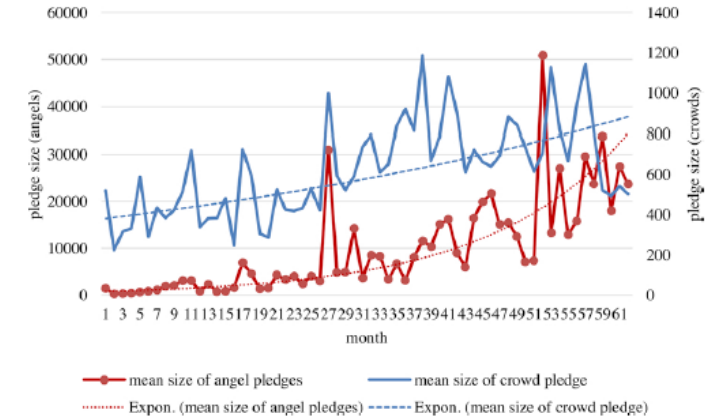


Fig. 6. Average Size of Pledges by Investor Type and Month with Fitted Trends.

More angels with increasing pledge size

# Law, Trust, and the Development of Crowdfunding

Rau (2018), Working Paper

# Overview

- **Synopsis:** This paper documents global crowdfunding patterns by using a survey of 3,000 platforms. The rule of law, quality of regulation, control of corruption, ease of entry, and financial profitability of extant intermediaries all determine the volume of crowdfunding. Trust, adventure-seeking, or other social factors do not matter much.

# Crowdfunding Landscape

Markets	Number of platforms	Crowdfunding volume (in \$millions)	Business finance volume (in \$millions)	Consumer finance volume (in \$millions)	Financial motives volume (in \$millions)	Non-financial motives volume (in \$millions)	Debt finance volume (in \$millions)	Equity finance volume (in \$millions)
<b>Totals</b>								
<b>All markets</b>	1,604	214,347.49	84,759.80	129,587.69	211,481.06	2,853.74	208,446.30	3,047.27
All developed markets	605	44,304.27	13,875.23	30,429.04	43,132.76	1,158.83	40,918.21	2,227.06
All emerging markets	999	170,043.22	70,884.56	99,158.65	168,348.30	1,694.92	167,528.09	820.21
All emerging markets (excluding China)	495	1,035.68	521.49	514.19	824.24	211.44	727.92	96.32
All common law countries	478	42,436.29	12,740.97	29,695.31	41,455.65	967.95	39,503.57	1,964.77
All civil law countries	1074	171,871.73	71,991.62	99,880.12	169,993.77	1,877.96	168,925.27	1,068.33
All Muslim law countries	52	39.47	27.21	12.26	31.64	7.84	17.47	14.17
<b>Proportions of totals across all countries</b>								
<b>All markets</b>	100%	100%	100%	100%	99%	1%	99%	1%
All developed markets	38%	21%	16%	23%	97%	3%	95%	5%
<b>All emerging markets</b>	<b>62%</b>	<b>79%</b>	<b>84%</b>	<b>77%</b>	<b>99%</b>	<b>1%</b>	<b>100%</b>	<b>0%</b>
All emerging markets (excluding China)	31%	0%	1%	0%	80%	20%	88%	12%
All common law countries	30%	20%	15%	23%	98%	2%	95%	5%
All civil law countries	67%	80%	85%	77%	99%	1%	99%	1%
All Muslim law countries	3%	0%	0%	0%	80%	20%	55%	45%



# Crowdfunding Landscape

Markets	Importance	Displacing the financial sector		Financing patterns				Network effects
	Crowdfunding volume (as a proportion of GDP) ( $\times 10^6$ ) (1)	Crowdfunding volume (as a proportion of domestic credit by banks) (in %) (2)	Crowdfunding volume (as a proportion of domestic credit by financial sector) (in %) (3)	Debt proportion of total crowdfunding volume (4)	Equity proportion of total crowdfunding volume (5)	Financial motive proportion of total crowdfunding volume (6)	Non-financial motive proportion of total crowdfunding volume (7)	Herfindahl index (8)
<b>Totals</b>								
<b>All markets</b>	248.60	0.042	0.030	39.59%	6.07%	45.67%	54.33%	0.680
All developed markets	340.29	0.038	0.019	55.20%	16.13%	71.32%	28.67%	0.350
<b>All emerging markets</b>	<b>229.67</b>	<b>0.043</b>	<b>0.032</b>	<b>36.38%</b>	<b>4.00%</b>	<b>40.38%</b>	<b>59.62%</b>	<b>0.748</b>
All emerging markets (excluding China)	110.37	0.035	0.025	35.90%	4.03%	39.93%	60.07%	0.753
All common law countries	192.93	0.054	0.036	43.25%	5.90%	49.15%	50.84%	0.669
All civil law countries	324.28	0.039	0.031	40.05%	5.00%	45.05%	54.95%	0.666
All Muslim law countries	33.89	0.024	0.002	26.97%	11.88%	38.85%	61.15%	0.779

# Findings

- **Questions:**

- Does crowdfunding allow emerging markets to access financing and investment opportunities (access)?
  - Globally, per capita crowdfunding volumes are higher in developed markets (US, UK) and China
- How important an industry is it (importance)?
  - 0.025% of GDP
- Is it displacing the formal financial sector (displacement)?
  - 0.042% of domestic bank credit
- What are the determinants of market share concentration across countries (network effects)?
  - Crowdfunding markets are easier to establish in countries where starting a business is easier, where competition from the banking industry is lower and rule of law is enforced. Dissatisfaction with existing financial markets are also an important factor. Social characteristics such as trust do not seem to influence crowdfunding development.

# Explanatory videos/articles

- What is crowdfunding?

- <https://www.youtube.com/watch?v=oStLD-yYAy0>
- <https://www.cnet.com/how-to/kickstarter-101-when-and-how-to-run-a-successful-crowdfunding-campaign/>

- How to run a campaign?

- <https://www.youtube.com/watch?v=cjnXMwe0KxY>