Series 402T “Entrepreneurship in Asian High-Tech Industries”
Week 1, 29 March 2022, Hybrid – Stanford and Zoom

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Asia Entrepreneurship Update – 2022

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Welcome!

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- **Goal of this weekly series**
  - Share and discuss newest information and trends on entrepreneurship and its supporting ecosystems in Asia high-tech industries
- **Presented by the US-Asia Technology Management Center**
- **Schedule**
  - Every Tuesday, through May 31, 2022, 5:30 – 7:00 pm
  - See <http://asia.stanford.edu> for upcoming schedule and previous videos, slides
- **Hybrid format**
  - Open to the **public** for participation **via Zoom**
  - Available to **Stanford students** for university credit: participation **on-site**
  - Goal of mixed audience: We all learn from each other's questions and comments
  - See **Syllabus** (summarized on next slide) about course credit requirements

For Stanford students: getting course credit

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- **Register in EE– 402T, EASTASN – 402T, or EALC – 402T**
  - No pre-requisites, open to undergrads and graduate students in all majors, departments
  - May be repeated for credit in future years
- **Credit requirements**
  - SEE SYLLABUS – 402T may be different from similar seminars in other departments

  (1) Regular attendance at the classroom (will be recorded)

  (2) Weekly email comment to me (instructor) that shows you watched the session
- **Accommodations**
  - If you need an accommodation (to participate by Zoom or to participate asynchronously, please send me an email (as specified below)
- Comments, requests: email me **(rdasher at Stanford dot edu)** with cc to Briana **(briana.burrows at Stanford dot edu)**

Outline of Today's Session

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- **The context: Increases in uncertainty, questioning of patterns to now**
- **Entrepreneurial activity and attitudes in major Asia economies**
- **Ecosystems and trends**
- **Discussion**

The context: increased uncertainty, more difficult business conditions

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- **Geopolitical events**
  - Ukraine
  - Increasing U.S. – China friction
  - Slow recovery from Covid-19
- **Climate change**
- **Public attitudes**
  - Reactions against IT success
  - Anti-globalist sentiment
- **Radical changes due to current "Industrial Revolution"**
  - Really two revolutions:
    - 3rd IR = ubiquitous spread of digital technology
    - 4th IR = new tools for gaining value from digital data, other digital technology

First common thread: globalization questioned

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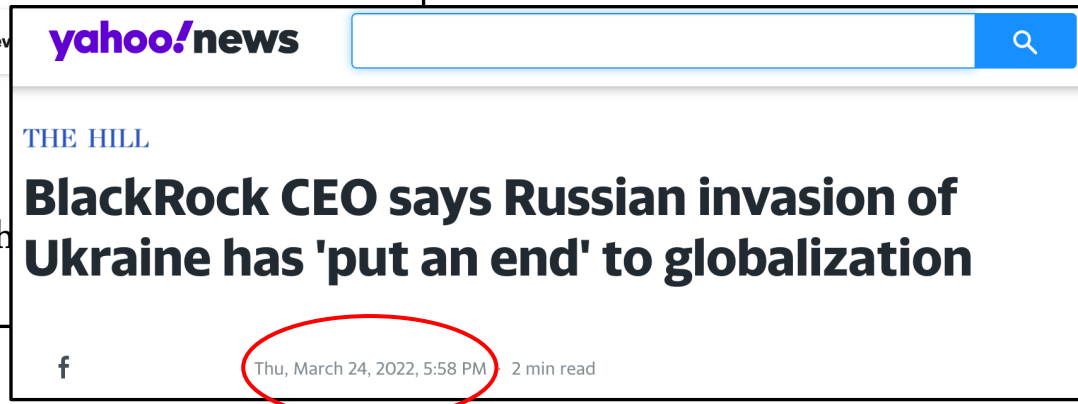

Not just Ukraine

- **Tendencies toward "de-coupling" between U.S. and China**
- **Disruption in supply chains caused by Covid shutdowns**
- **Popular concerns about (local) loss of jobs, while universal benefits tend to go unnoticed**

Second common thread: increasing socio-economic polarization

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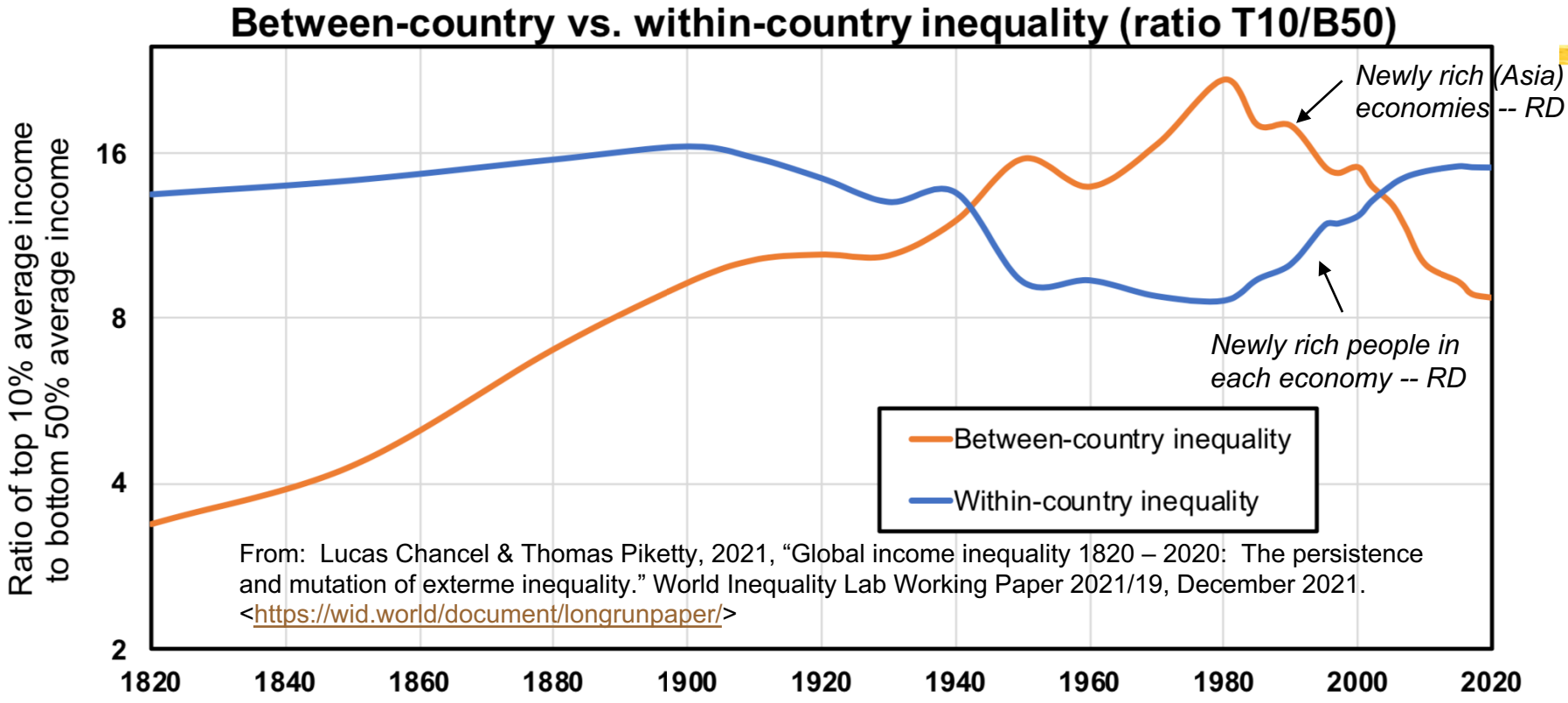

Understanding inequality and polarization

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- **Natural outcome of an industrial revolution**
  - Brings great opportunities and great risks
    - Companies and individuals on the side of innovation tend to win
      - Massive wealth creation for a few winners
      - In short term, innovation also carries higher risk, so there are losers among the innovators, too
    - Companies and individuals that do not innovate almost always left behind (lose)
- **Difficult to see pattern unless distinguish the "between country" and "in-country" patterns** – world Gini coefficient may not show so much change
  - Since 1980, GDP growth rates of Asia economies have exceeded world growth rate (moved out of bottom 50%)
    - Indicates the role of globalization in worldwide economic development
  - Rise of new wealthy class inside each economy (worldwide) is (more) noticeable
    - Creates socio-political backlash

Third common thread: Rising authoritarianism (often based on populist / nationalist arguments)

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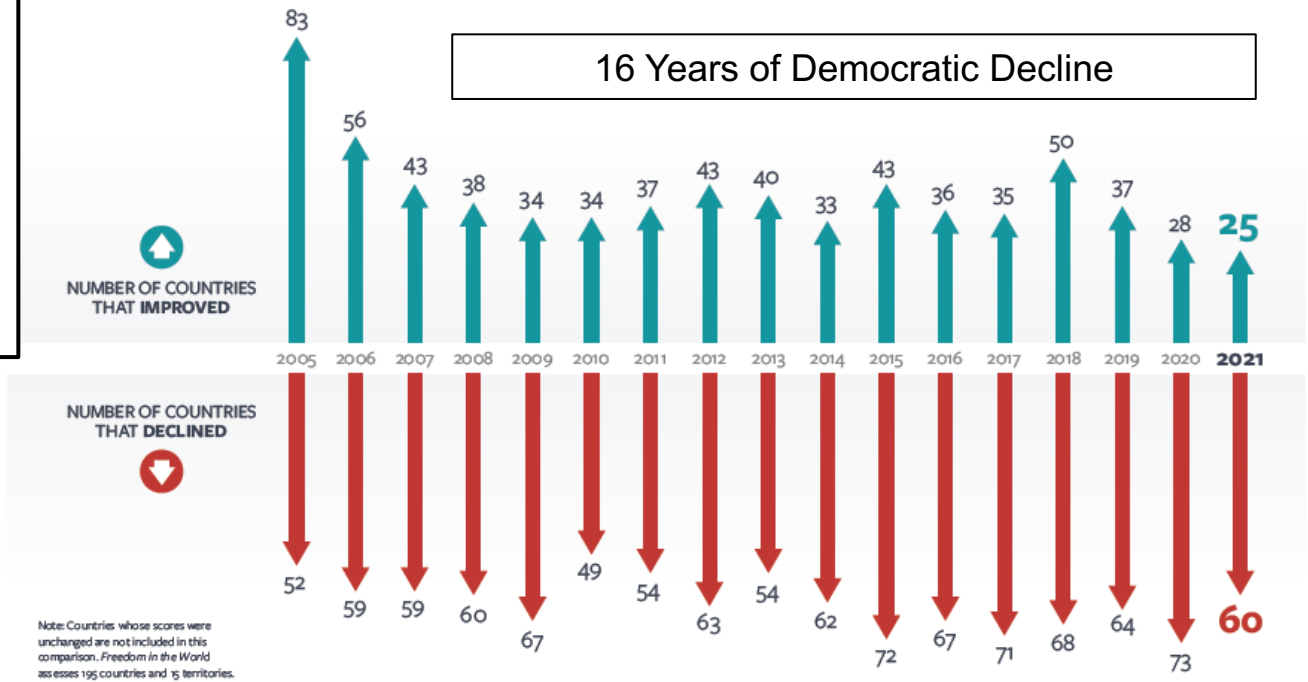
"Freer" countries are becoming less free (populism seized on by leaders with authoritarian tendencies in U.S., U.K., Philippines, Brazil, ...)

Countries with tight central control becoming even more controlled: China, Russia, Myanmar, mid-East, central Asia …

Countries with aggregate score declines in the *Freedom in the World* index have have outnumbered those with gains every year for the last 16 years. (Figure from *Freedom in the World 2022* by NPO Freedom House) https://freedomhouse.org/report/freedom-world/2022/global-expansion-authoritarian-rule



The context:
Asia continues to drive world economic growth

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Real GDP growth - %	2020	2021 Estimated	2022 Forecast	2023 Forecast
WORLD	**- 3.1**	**5.9**	**4.4**	**3.8**
USA	- 3.4	5.6	4.0	2.6
EU area	- 6.4	5.2	3.9	2.5
China	2.3	8.1	4.8	**5.2**
India	- 7.3	9.0	9.0	**7.1**
Japan	- 4.5	1.6	3.3	1.8
ASEAN-5	- 3.4	3.1	5.6	6.0

International Monetary Fund, World Economic Outlook, January 2022
https://www.imf.org/-/media/Files/Publications/WEO/2022/Update/January/English/text.ashx

	2021 **GDP** (@ **PPP**) $ Trillion	2021 Country Ranking (GDP @ PPP)
World	$141.96	
China	26.7	1
U.S.	22.7	2
EU	21.5	
India	10.2	3
ASEAN	9.0	
Japan	5.6	4

IMF, "Report for Selected Countries," Database, April 2021

Entrepreneurial activities and attitudes in Asia

Global Entrepreneurship Monitor

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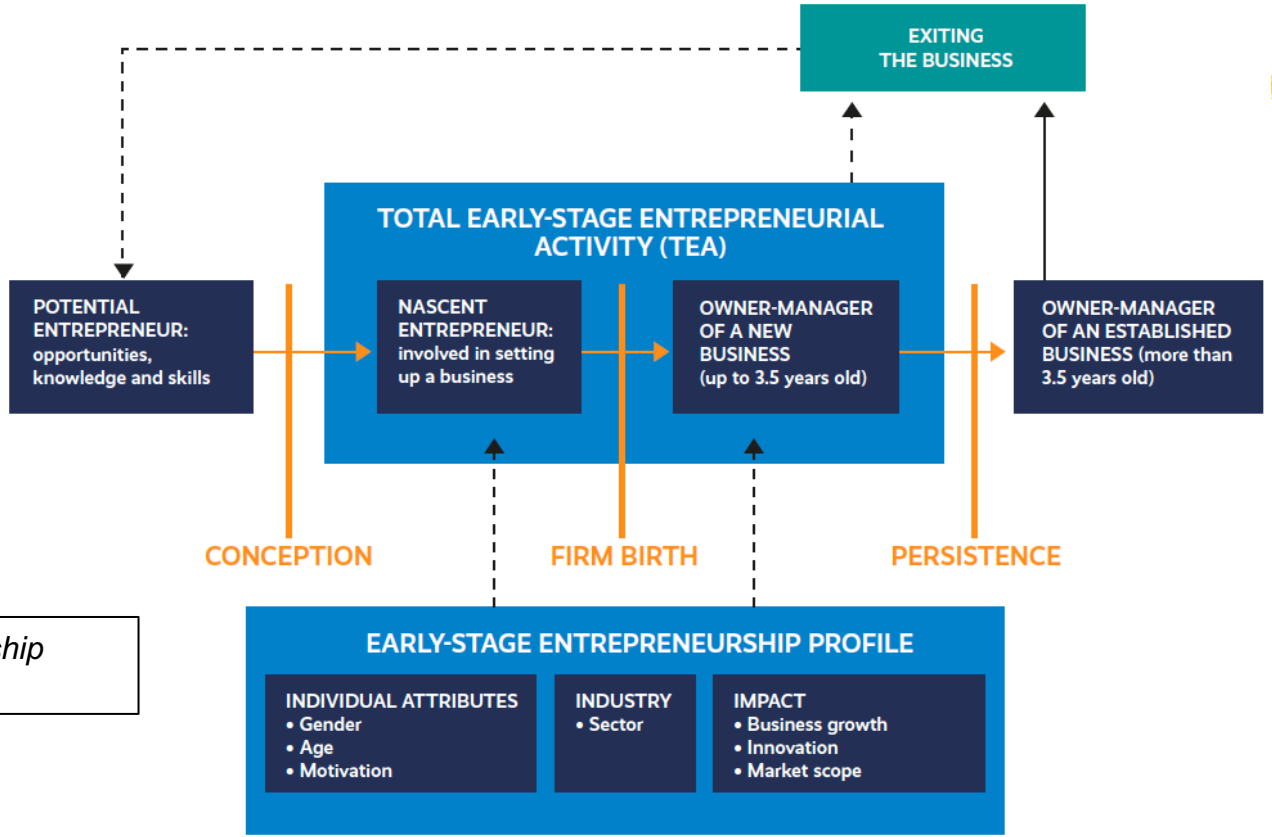
- **Two yearly surveys of 54+ economies (countries) around the world**
  - Global leaders: Babson College + three org. partners (in Chile, Malaysia, Korea)
- **Adult Population Survey of at least 2,000 adults in each economy described – often many more people**
    - Conducted by national teams (e.g. China survey done by Tsinghua University, Japan survey by four universities in Tokyo)
    - Four lead partners ensure compliance with standards – data not reported if, for example, insufficient number of respondents
  - (Not using data from **National Expert Survey**)
    - Survey of opinions of experts in each economy: they provide (subjective) assessments of ecosystem factors (government programs, physical infrastructure, cultural norms, etc.)
- **Yearly since 1999 – most recent is 2021-22 GEM Report (released Q1 2022), plus update reports**
- **Online database of country-specific data**

Challenge: Defining “entrepreneur”

To right: “**Total Early-Stage Entrepreneurial Activity**” (**TEA**) as defined by Global Entrepreneurship Monitor

Model can be applied to startup company or traditional SME



Source: GEM, *Global Entrepreneurship Report 2021 – 22*, p. 26

GEM Annual Survey: "TEA Rates" of Big-Three Asia Economies + U.S.

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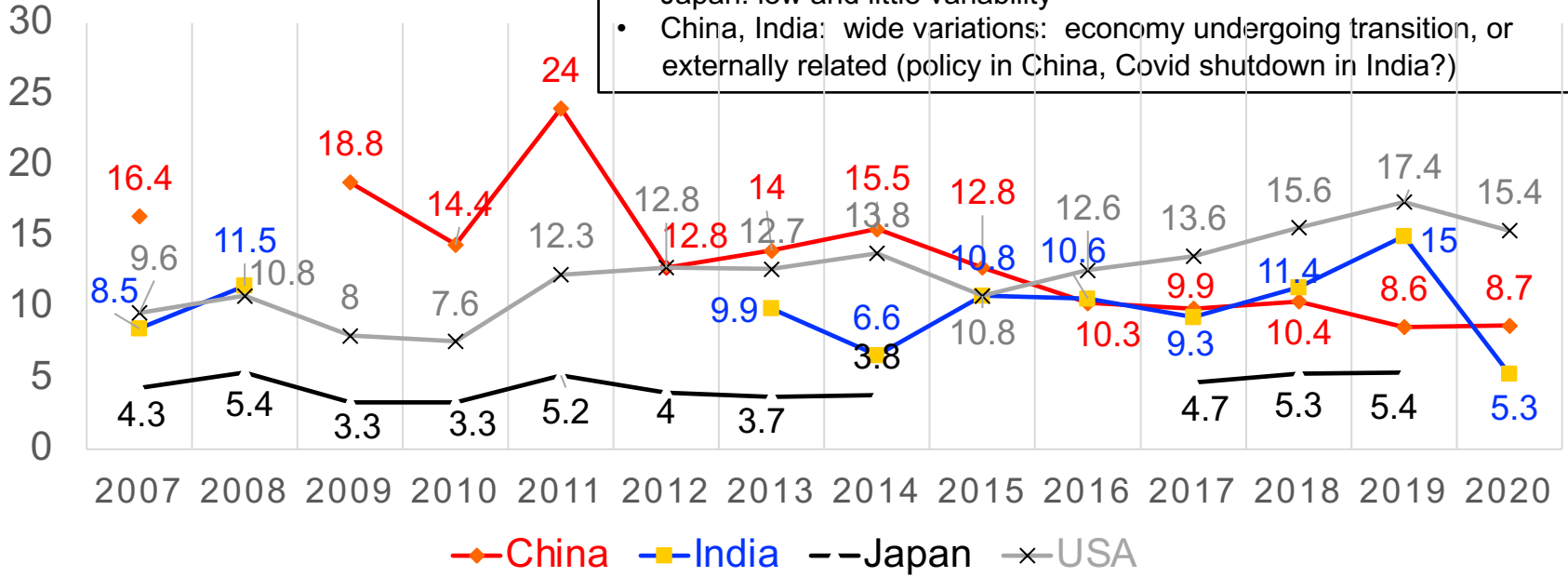
% of 18 – 64 year-olds in population

- U.S. relatively steady increase, some tracking of economic conditions
- Japan: low and little variability
- China, India: wide variations: economy undergoing transition, or externally related (policy in China, Covid shutdown in India?)



Data from http://www.gemconsortium.org/data, accessed 2022.03.28

GEM History: TEA Rates of "The Tigers" + U.S.

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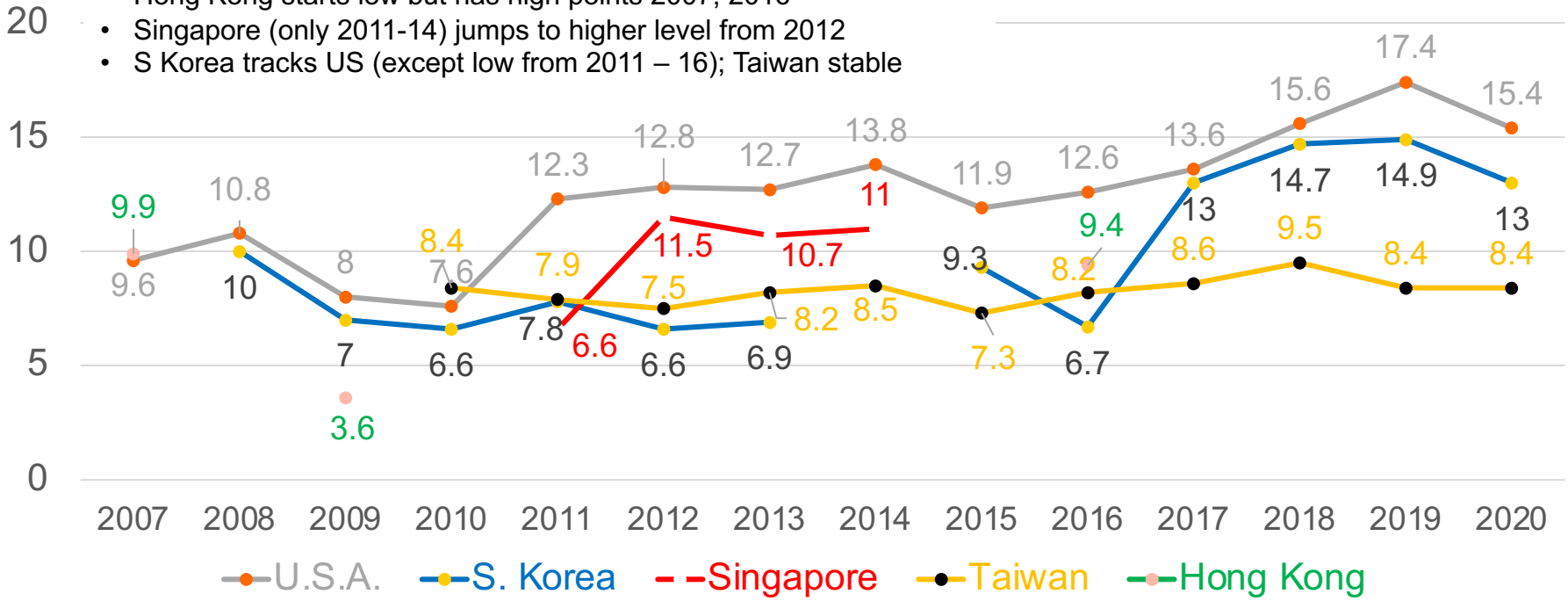
TEA Rates consistently lower than U.S. – their economies still favor big company prestige

- Hong Kong starts low but has high points 2007, 2016
- Singapore (only 2011-14) jumps to higher level from 2012
- S Korea tracks US (except low from 2011 – 16); Taiwan stable



Data from http://www.gemconsortium.org/data, accessed 202.03.28

GEM History: TEA Rates of SE Asia developing economies

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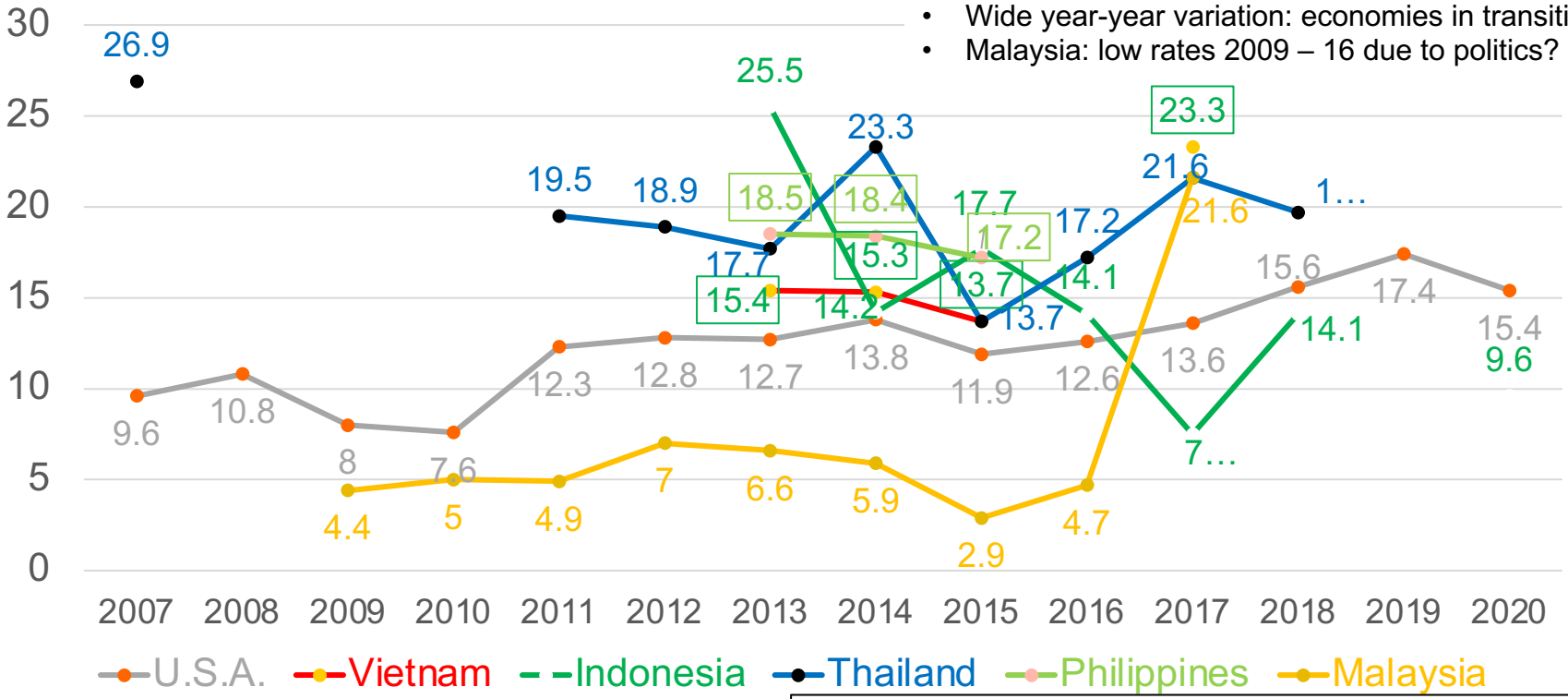
- Most start higher than U.S. but trend downward
- Wide year-year variation: economies in transition
- Malaysia: low rates 2009 – 16 due to politics?



Data from http://www.gemconsortium.org/data, accessed 2022.03.28

2019 – TEA Rates by gender in select countries

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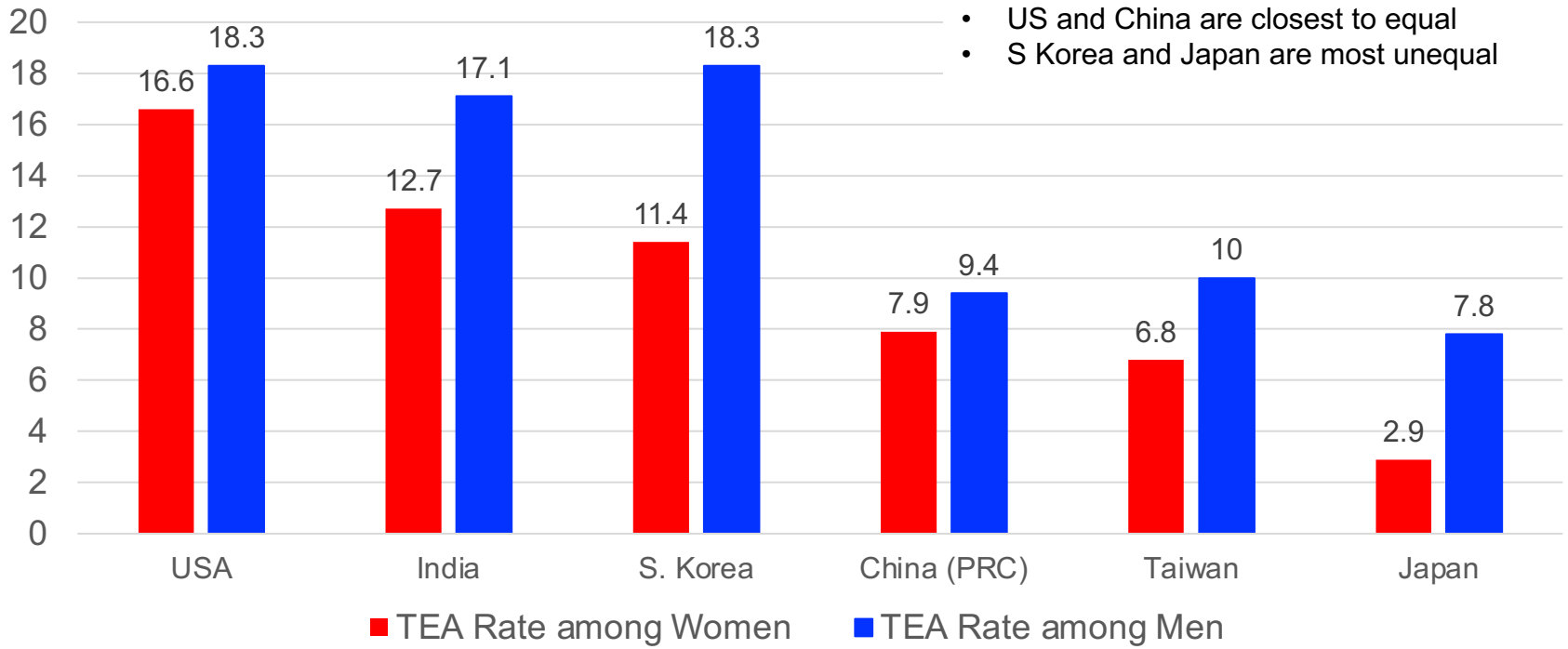

- US and China are closest to equal
- S Korea and Japan are most unequal

Data from Global Entrepreneurship Monitor, *2019/2020 Global Report*, accessed online 2021.02.21

2019 – TEA Rates of different age groups

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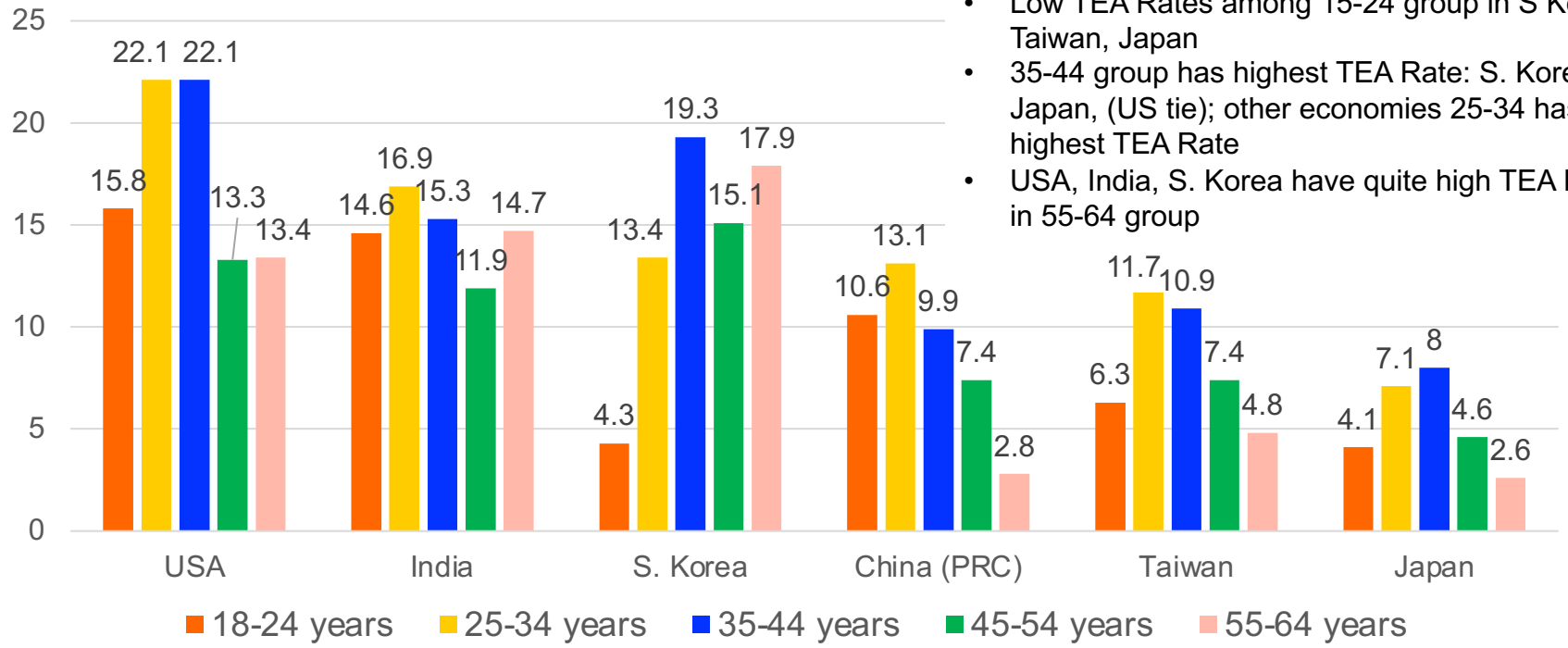

- Low TEA Rates among 15-24 group in S Korea, Taiwan, Japan
- 35-44 group has highest TEA Rate: S. Korea, Japan, (US tie); other economies 25-34 has highest TEA Rate
- USA, India, S. Korea have quite high TEA Rates in 55-64 group

Data from Global Entrepreneurship Monitor, *2019/2020 Global Report*, accessed online 2021.02.21

Entrepreneurship motivation index – 2018

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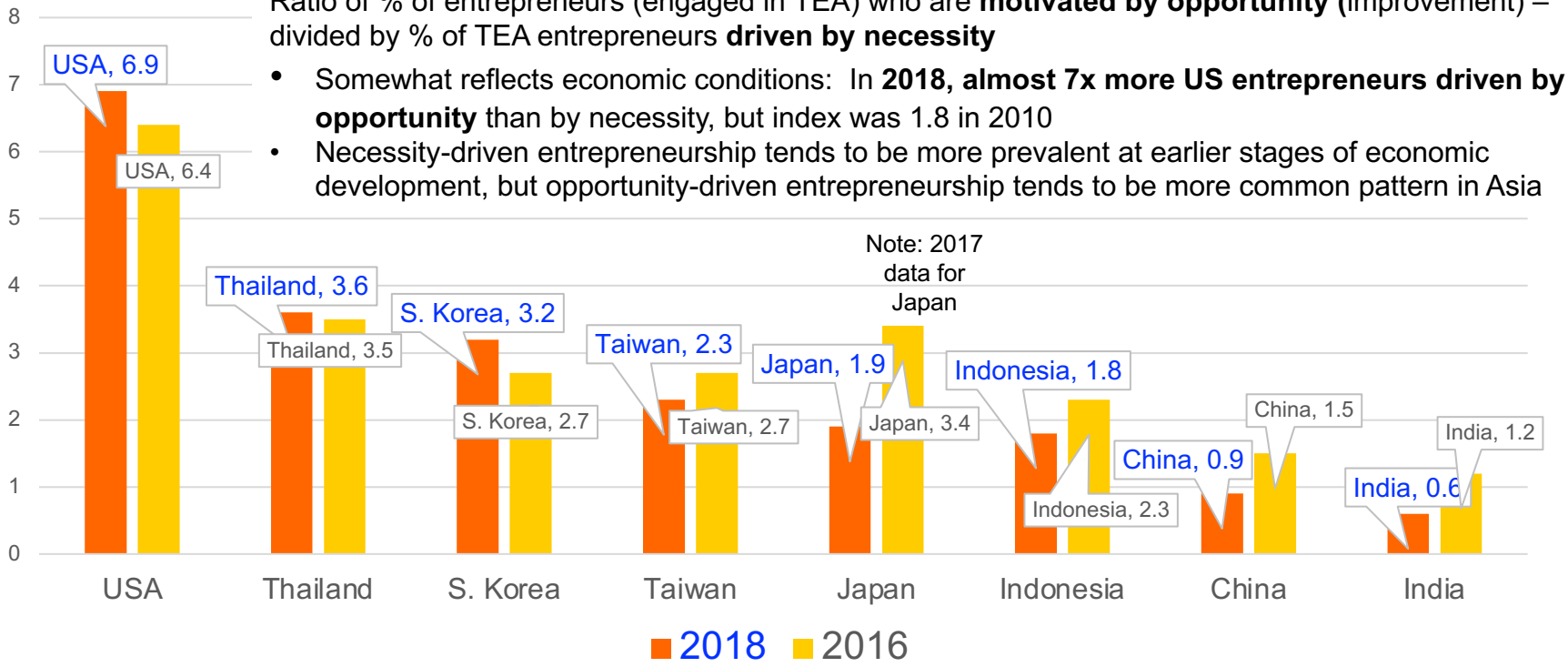
Ratio of % of entrepreneurs (engaged in TEA) who are **motivated by opportunity (**improvement) – divided by % of TEA entrepreneurs **driven by necessity**

- Somewhat reflects economic conditions: In **2018, almost 7x more US entrepreneurs driven by opportunity** than by necessity, but index was 1.8 in 2010
- Necessity-driven entrepreneurship tends to be more prevalent at earlier stages of economic development, but opportunity-driven entrepreneurship tends to be more common pattern in Asia



GEM Survey
History: attitudes of non-entrepreneurs in U.S.

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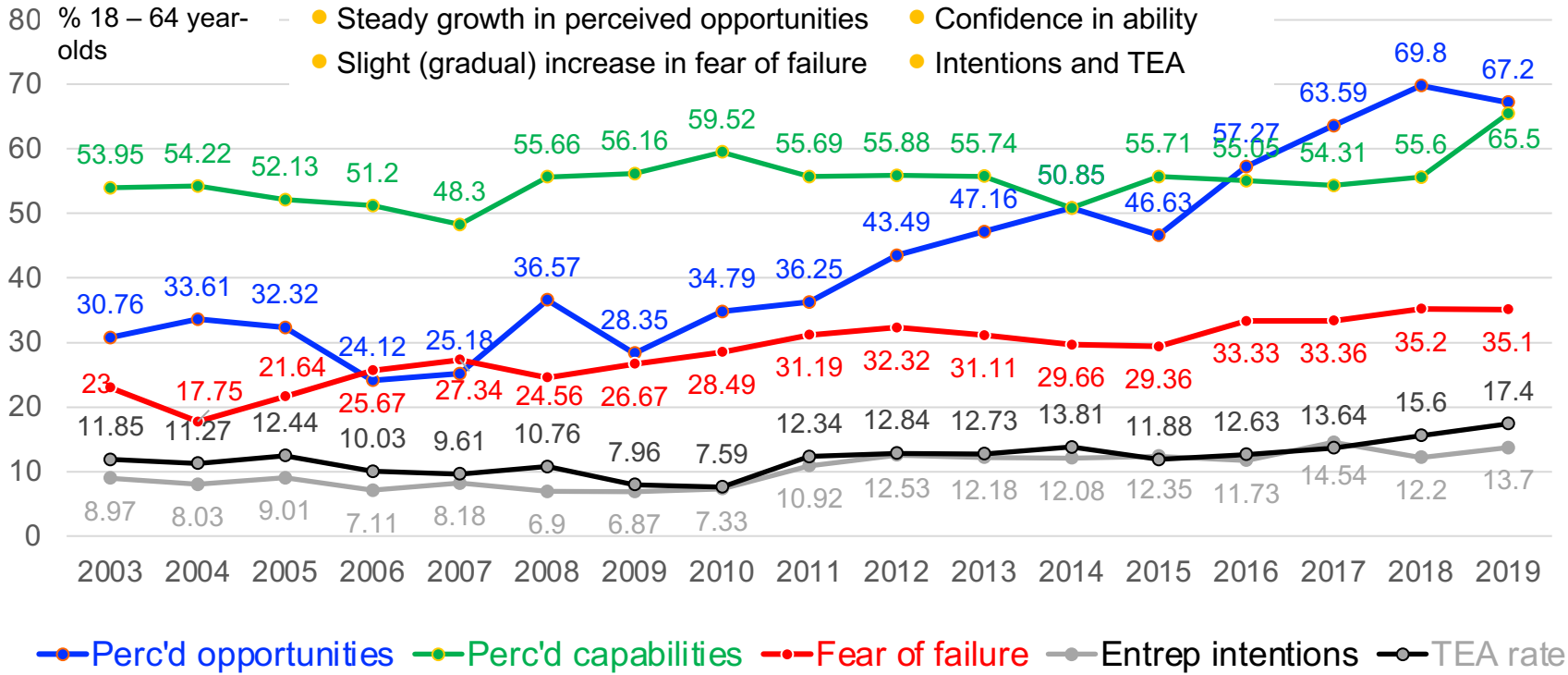

Data from http://www.gemconsortium.org/data, accessed 2021.02.20

GEM Survey
History: attitudes of non-entrepreneurs in China

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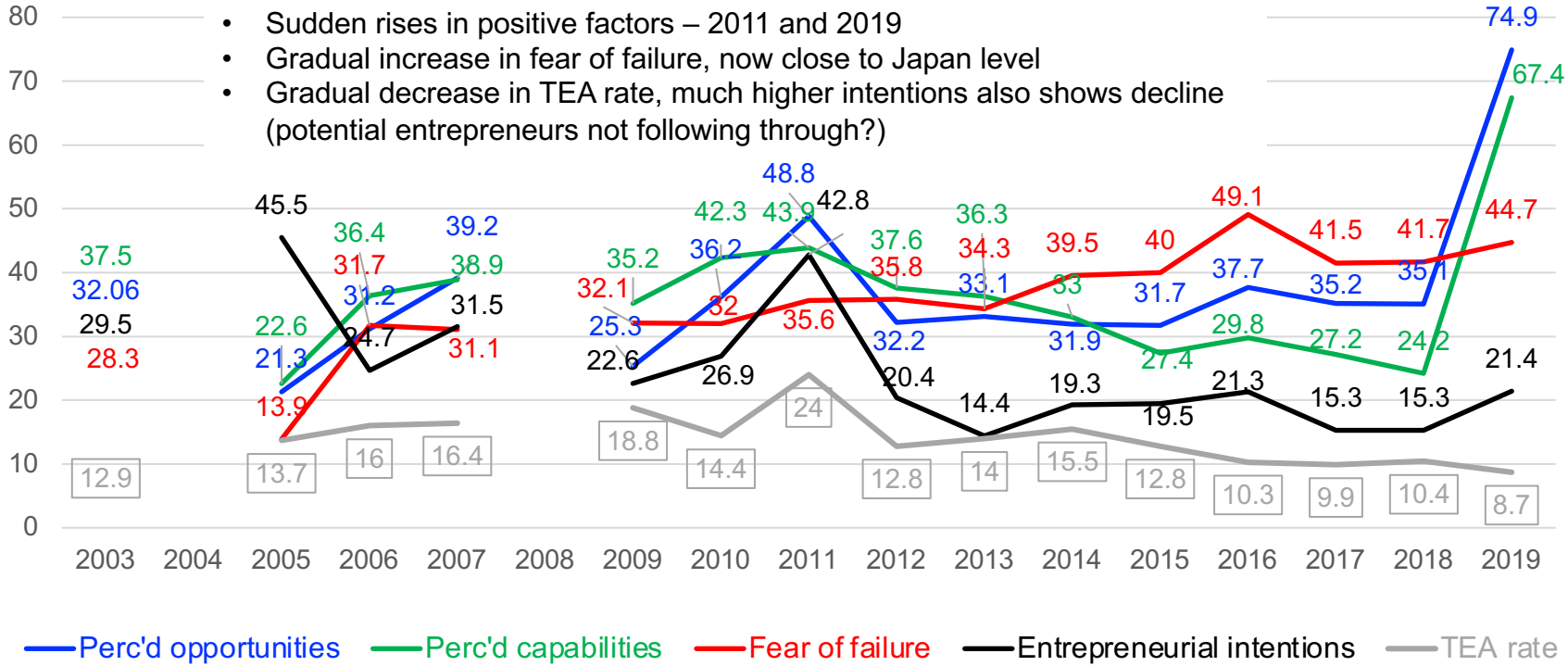
- Sudden rises in positive factors – 2011 and 2019
- Gradual increase in fear of failure, now close to Japan level
- Gradual decrease in TEA rate, much higher intentions also shows decline (potential entrepreneurs not following through?)



Data from http://www.gemconsortium.org/data, accessed 2021.02.20

GEM Survey
History: attitudes of non-entrepreneurs in Japan

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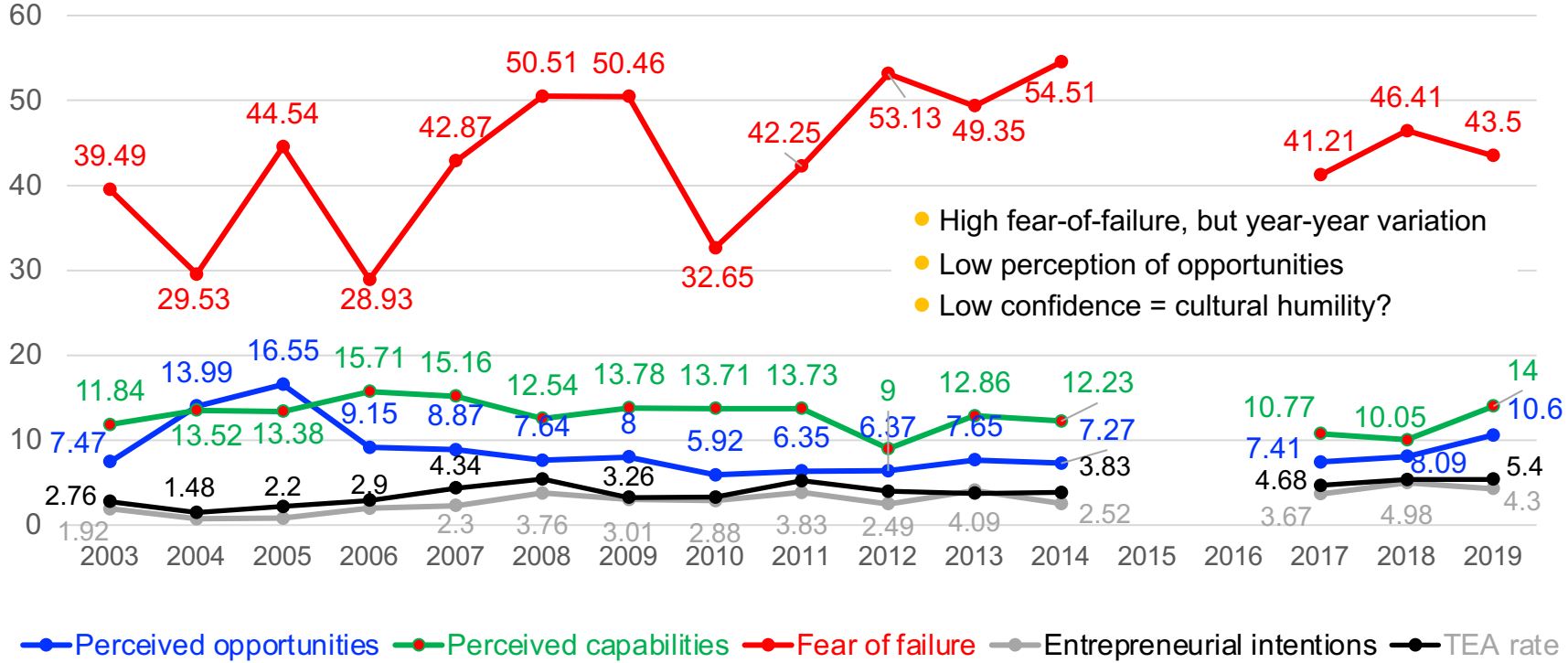

Data from http://www.gemconsortium.org/data, accessed 2021.02.20

Entrepreneurship: different goals & models

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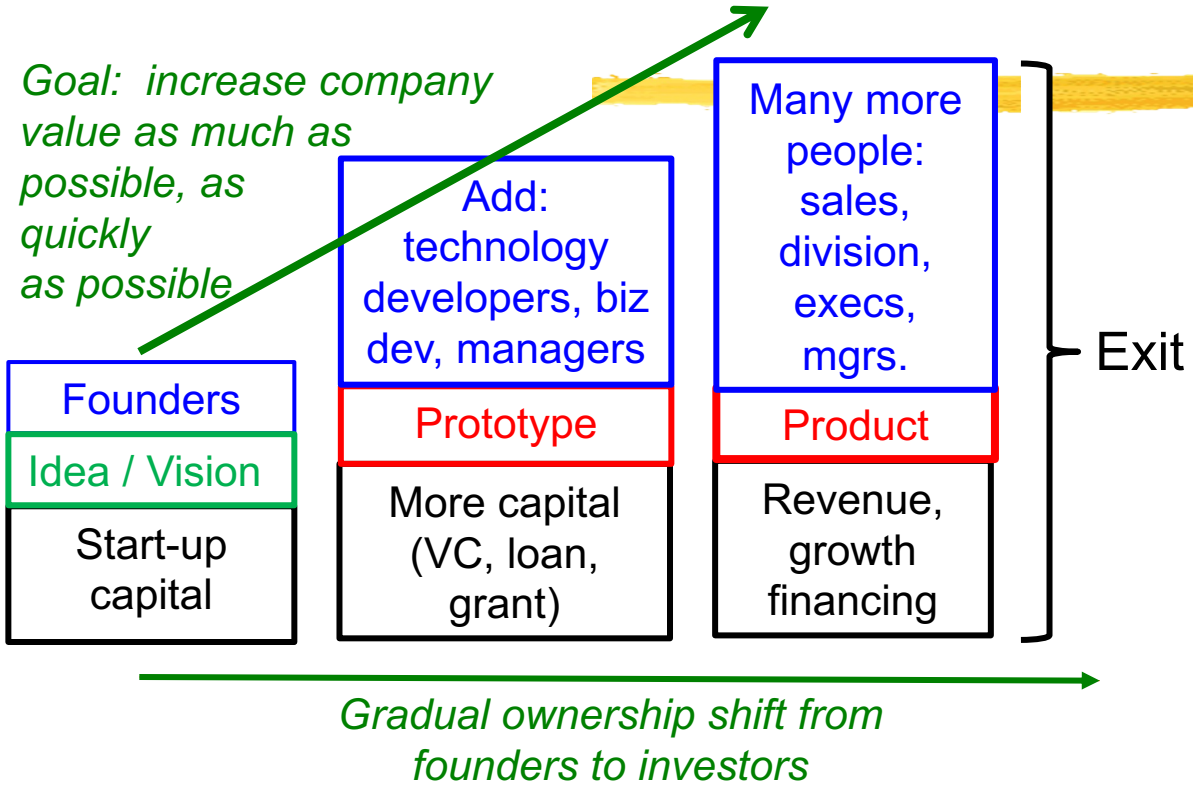
- **Different paths of entrepreneurship not distinguished by GEM**
- **Distinguishing traditional SMEs versus Silicon Valley – style startups**
  - **Startups**: grow as much as possible and then exit (Silicon Valley model)
  - **Traditional SMEs**: many business types usually stay small
    - Restaurants (but chains can grow greatly through franchising)
    - Retail (but chains can grow …)
    - Professional services, e.g. consulting, accounting (rarely have exit other than buyout)
  - **Intermediate types**
    (a) New companies that just **fulfill some supply chain niche**, especially if in a *keiretsu*
    (b) Many European companies aim for longer term lower growth – may stay family companies
- **Entrepreneurs must define their personal goals**
  - "Change the world" / bring great value to world, or just create a profitable entity
- **Business partners must understand dynamics of each startup company**

Startup company growth & exit (The **SV Model**)



The model at-a-glance:

- **Friends-and-family, then angel investors, then VC investment**
  - -- Angels take 10 – 25%
  - -- VCs may eventually own 1/3 – ½ of company
  - -- By exit, founders may have only 10 – 25% of stock
- **Silicon Valley investors want potential for aggressive growth: ~ 100% / year**
- **From earliest stage, founders and investors (and employees with options) plan to have an exit**
  - -- 90% of successful exits in U.S. are by acquisition
  - -- 50 – 60 IPOs per year by VC-backed startups in all U.S.

Example of “Silicon Valley startup model”: Square

2009 - 10	Founded 2009 by Jack Dorsey, Tristan O’Tierney, Jim McElvey	Self-funded, Angel stages = **?** Series A 11/2009 **$10M**	Service began 5/2010
		Series B 1/2011 **$27.5M**	
2011	Approx. 150 employees (end 2011)	Series C 6/2011 and 12/2011 **$103M**	~$1 billion payments processed (2011) [probably $10M income]
2012 - 13	Approx. 400 employees (9/2012)	Series D 9/ 2012 **$200M**	Approx. $8 billion of payments processed (2012 total, est.)
2014	Est. # employees 1,000 in 2014	Debt financing 4/2014 **$100M** Series E 10/2014 **$150M**	Approx. $30 billion of payments > declared ~ $900M revenue
2015	IPO 11/2015 @ **$9 / share** (lower valuation than expected): **raised $243M** (**market cap of ~ $3 billion**, rather than last VC valuation of $6 billion		
2021	Share value 2021.03.29 = **$207.18 / share (market cap $94.19bn)**		

Ecosystems to Support Entrepreneurship

Ecosystem for high-growth startup companies

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	Startup creation	Growth stage	Exit
People	Founders, advisors (typically receive stock)	Labor force (a) willing to work in startup (b) Capable of growing company	Flexible labor market: post-exit opportunities for founders, employees to support next gen of startups
Know-ledge	Access to R&D output, design thinking, access to market & business knowledge	Lean-startup principles, rapid prototyping, investor relations	Probability of realization of idea potential (not killing it) after M&A or IPO
Capital	Friends, Angel funds	VC Funds (later stage: debt)	M&A or IPO
Infra-structure	Physical: Incubators Soft: Legal & accounting infra, consultants (paid)	Physical: Location, access to markets Soft: Legal & accounting infrastructure, etc.	Business infra: bankruptcy law, transparent accounting, etc.

Ecosystem for startups in Asia: People

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- **Entrepreneurs exist everywhere**
- **Growth stage is the bigger problem in Asia**
  - Shortage of top-quality people who will work for (some entrepreneur's) startup
  - Incentivization by start-up companies is still not sophisticated (startup wages are cheap, little equity – creates less team cohesion)
  - New giants "BAT" (Baidu, Alibaba, Tencent) draining off good workers in China
- **Social stigma: not only fear of failure often cited, but GEM data suggests that perceived lack of opportunities is bigger problem**
- **Lack of mobility in some countries – career cost of failure high**
- **Entrepreneurs tend to stay with their company after exit**
  - Lack of clear expectations about exit: still only a few serial entrepreneurs in Asia

Ecosystem for startups in Asia: Idea and knowledge flow to startups

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- **Asia countries have all increased focus on "innovation" to industry from universities, research institutions; emphasis on tech transfer**
  - Not enough attention to flow of business knowledge to new company founders
- **Mentoring is not well-developed in Asian startups**
  - Legacy of Confucian apprentice system and considerations of "face"
  - Less confrontational board – management relations
- **B2B start-up companies seem to have more difficulty getting to market in Asia (perhaps except China)**
  - May lack systematic feedback from market and business partners
  - Startups in Silicon Valley seem to "pivot" better
  - Tech-focused startups in Asia may expect it to be easy to sell their tech solutions

Ecosystem for startups in Asia: Capital and financing - summary

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- **Begin with friends-and-family money: universal worldwide**
- **Angel investing: Bottleneck across Asia**
  - Reports from various locations that “second” round of funding is hardest to raise
- **Growth stage: Venture capital investments have grown in Asia**
  - Explosion of domestic VCs across Asia; more and more are more sophisticated, know SV-style
  - Silicon Valley influence is noticeable: participation in funding by SV investors, local investors with SV backgrounds
  - Chinese investors have long been active in cross-border investments across Asia; now some other intra-Asia cross-border investment relationships
- **Exit patterns differ greatly**
  - U.S.: 90% via acquisition, much larger IPOs, smaller % held by founders (in comparison to patterns in most Asia countries)
  - In S. Korea, Japan: 85 – 90% of exits by IPO, entrepreneur may keep 50%+ of stock
  - Variation among investor expectations in Asia: maximum growth or early profit sharing

Worldwide: venture funding exploded in 2021 (after pandemic)

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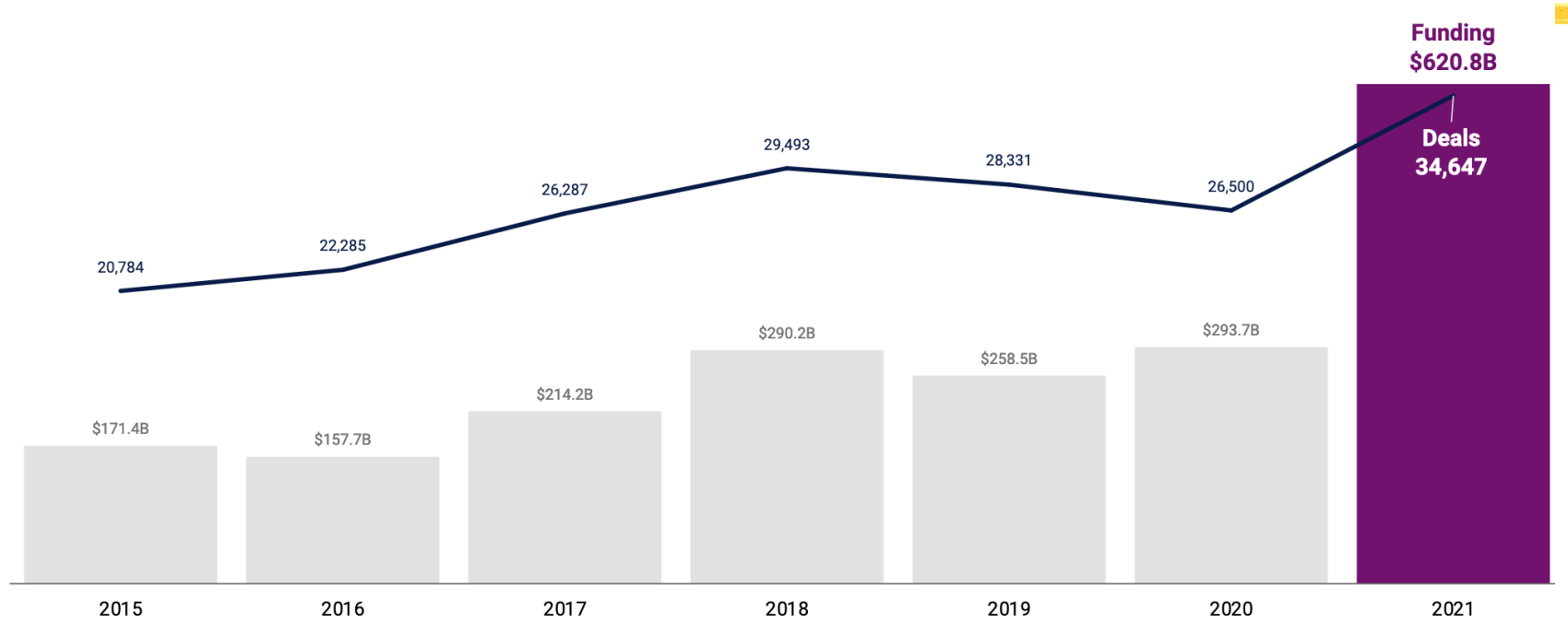

CBINSIGHTS *State of Venture: Global 2021* (released Jan. 2022)

By value, US accounted for 50% of all venture funding in 2021

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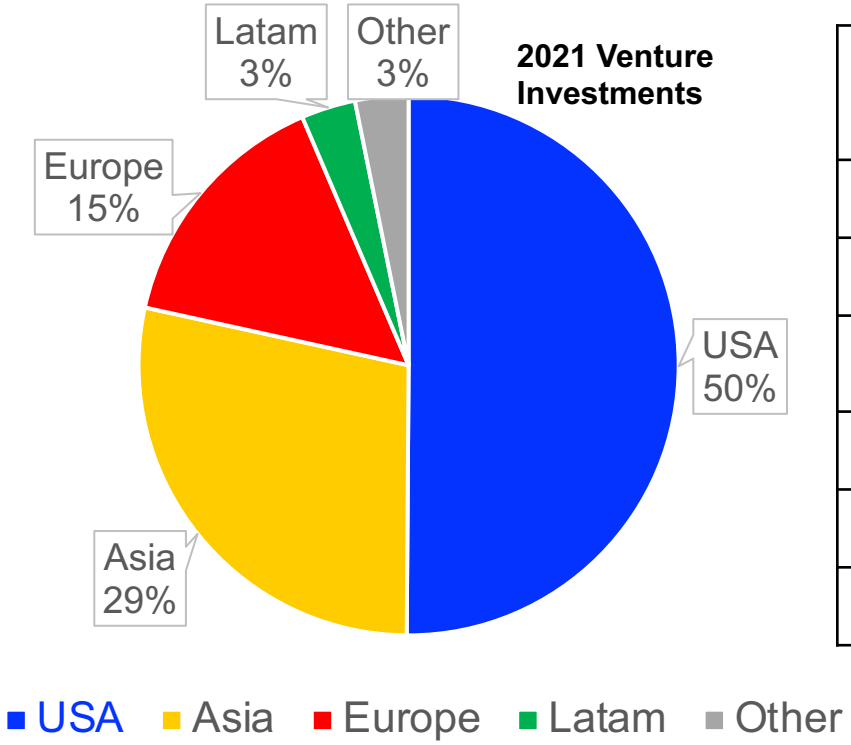

	2021 Amount ($ bn)	2020 Amount ($ bn)	**2021 Dealcount**	2020 Dealcount
USA	**311.2**	150.7	**12,281**	9,973
Asia	**175.9**	93.0	**12,485**	8,803
Europe (inc. UK)	**93.9**	38.5	**7,051**	5,746
LATAM	**20.2**	5.4	**952**	551
Other	**19.6**	6.1	**1,878**	1,427
WORLD	**620.8**	293.7	**34,647**	26,500

CB Insights, *State of Venture: Global 2021* (released Jan. 2022)

By dealcount, Asia leads in number of investments (36% in 2021Q4)

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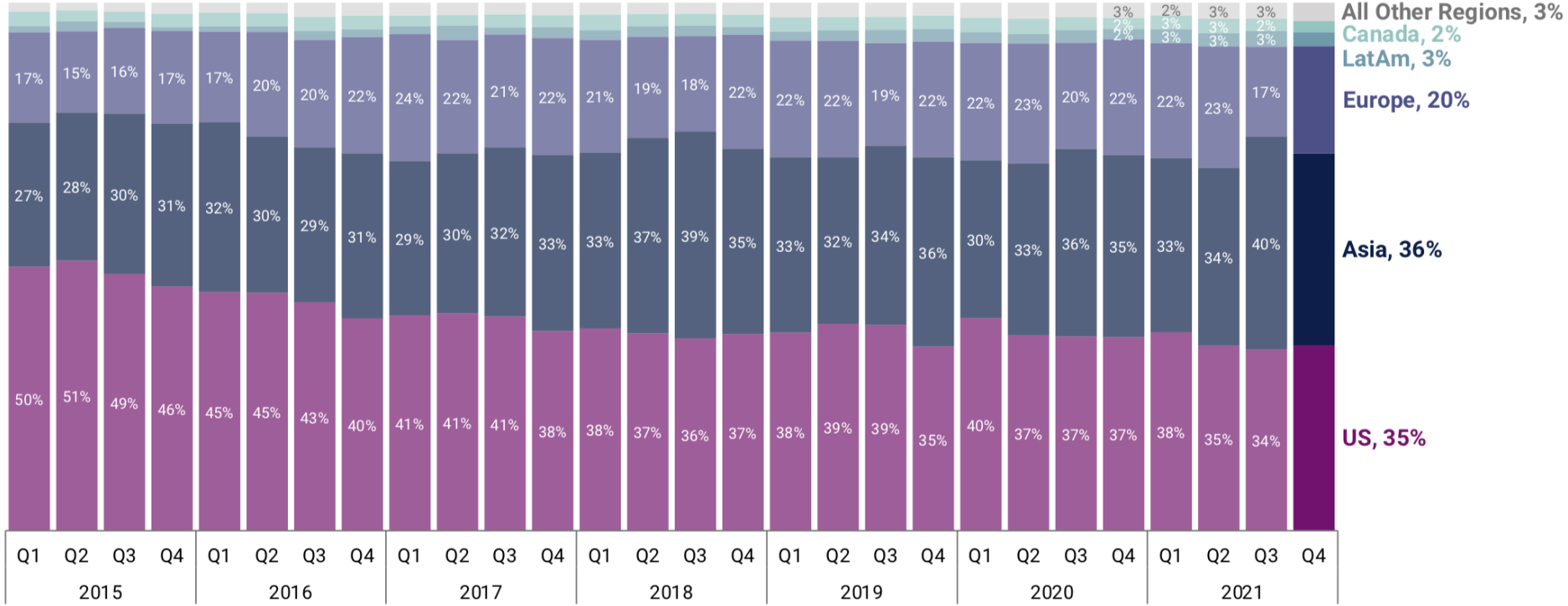

CBINSIGHTS *State of Venture: Global 2021* (released Jan. 2022)

Venture investing in “Greater China”
2021: return to pre-pandemic, pre-friction levels

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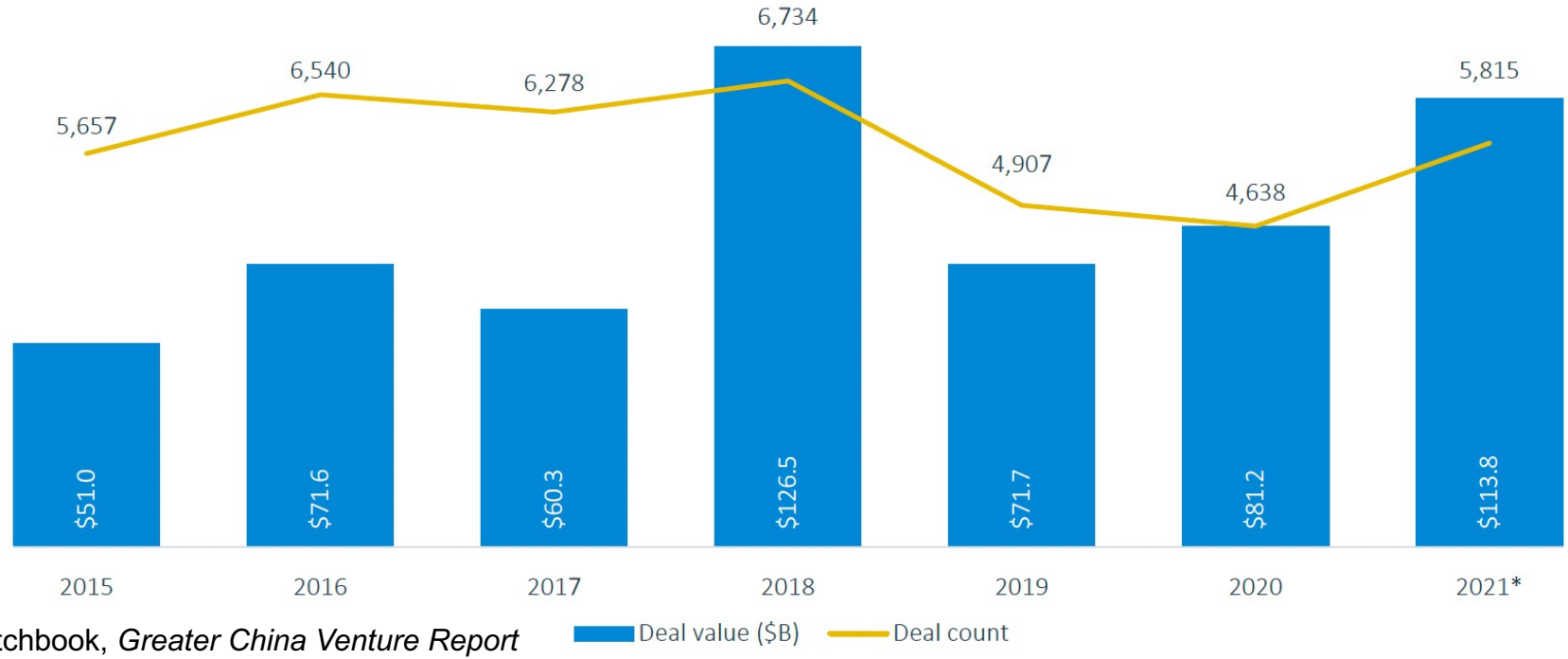

From Pitchbook, *Greater China Venture Report H2 2021*, released 3/29/2022. ”Greater China” = PRC, Hong Kong, Macau, Taiwan

Source: PitchBook | Geography: Greater China
*As of December 31, 2021

But, venture investing in Greater China continues dramatic shift to late-stage VC

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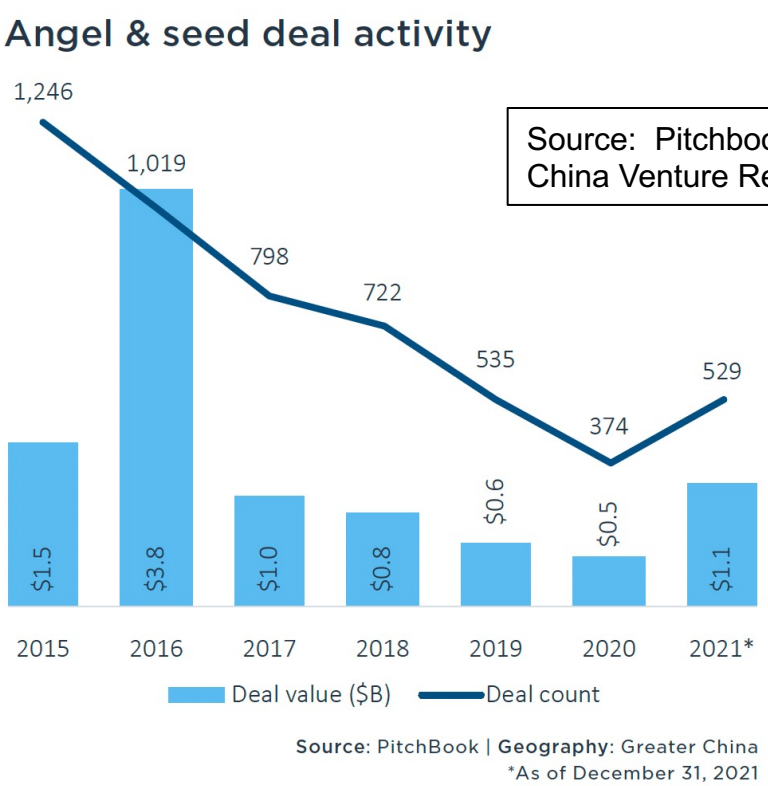
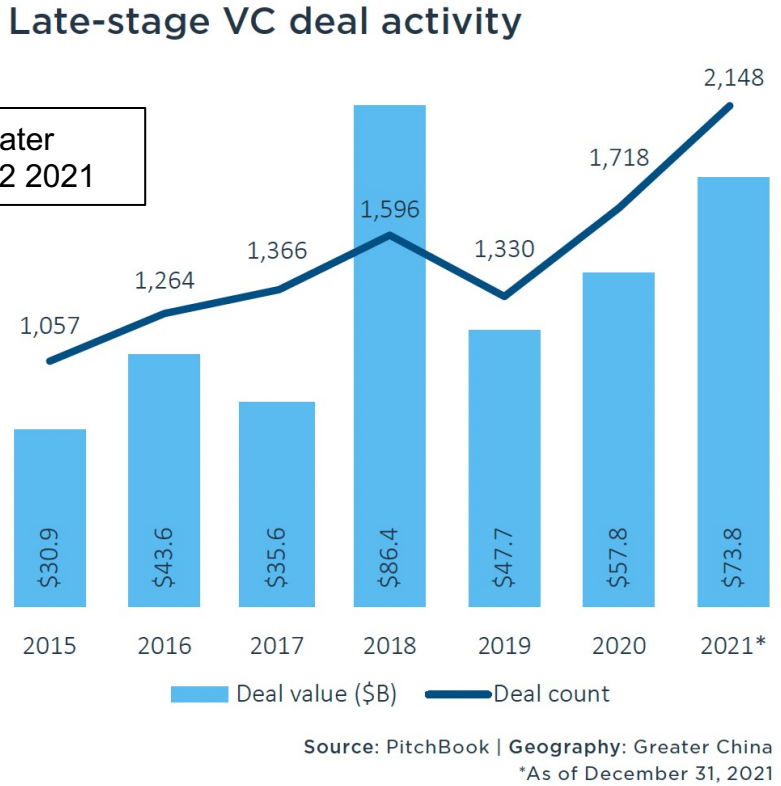
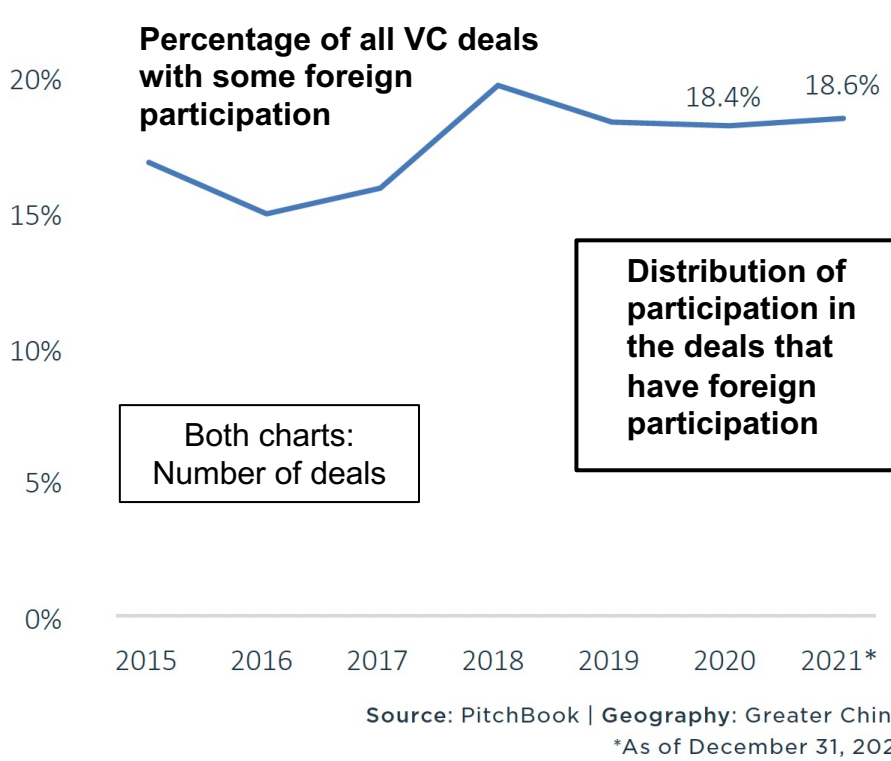
Source: Pitchbook, Greater China Venture Report H2 2021



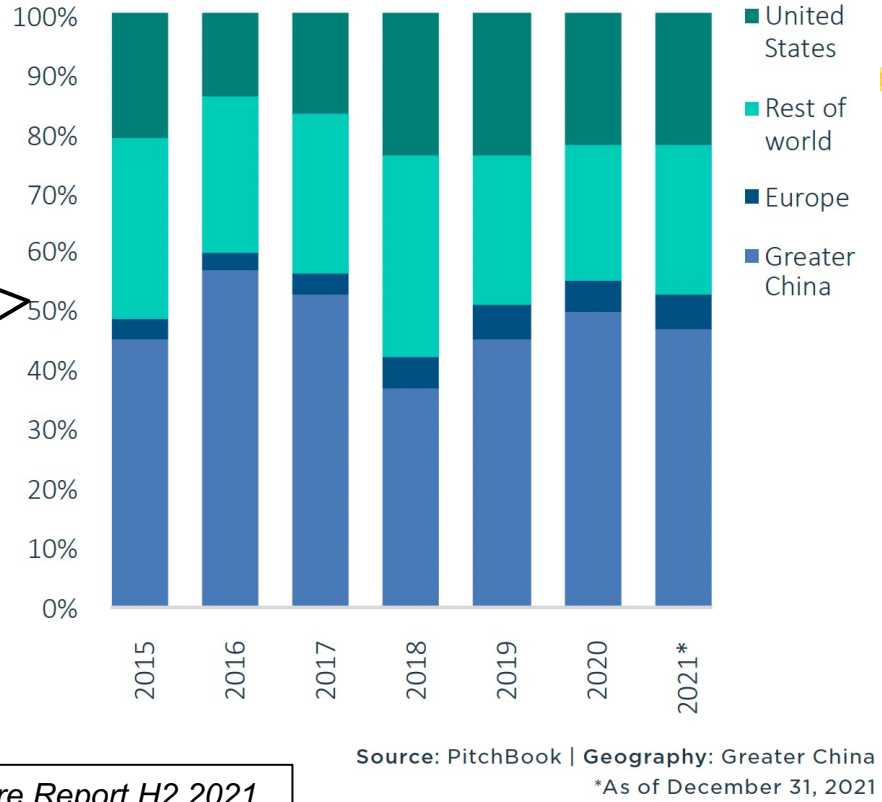


Greater China VC investing: foreign participation (from outside GC)



Both charts: Number of deals

Distribution of participation in the deals that have foreign participation



Source: Pitchbook, *Greater China Venture Report H2 2021*

Greater China – VC investments by sector

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	2021 amount ($ bn)	2021 number of deals	Angel / seed share* 2021	Angel / seed share* 2015	Early-stage VC share* 2021	Early-stage VC share* 2015	Late-stage VC share* 2021	Late-stage VC share* 2015
Software	**$21.10**	**1,463**	10	25	52	62	38	13
IT Hardware	**13.8**	**727**	6	16	60	66	34	18
Commercial goods & services	**13.5**	**1,039**	7	19	55	63	38	18
Consumer goods & services	**17.2**	**1,049**	13	25	55	56	32	18
Total of these sectors	**65.6**	**4,289**						

Notes: * share of deal count / these are approximate (eyeballed)

- Specific to Venture Capital: Chart on Slide 36 (total = $113.8 bn, 5,815 deals) may include other sectors, types of deals

Source: Pitchbook, *Greater China Venture Report H2 2021*

India venture funding: large increase in 2021 after drop in 2020

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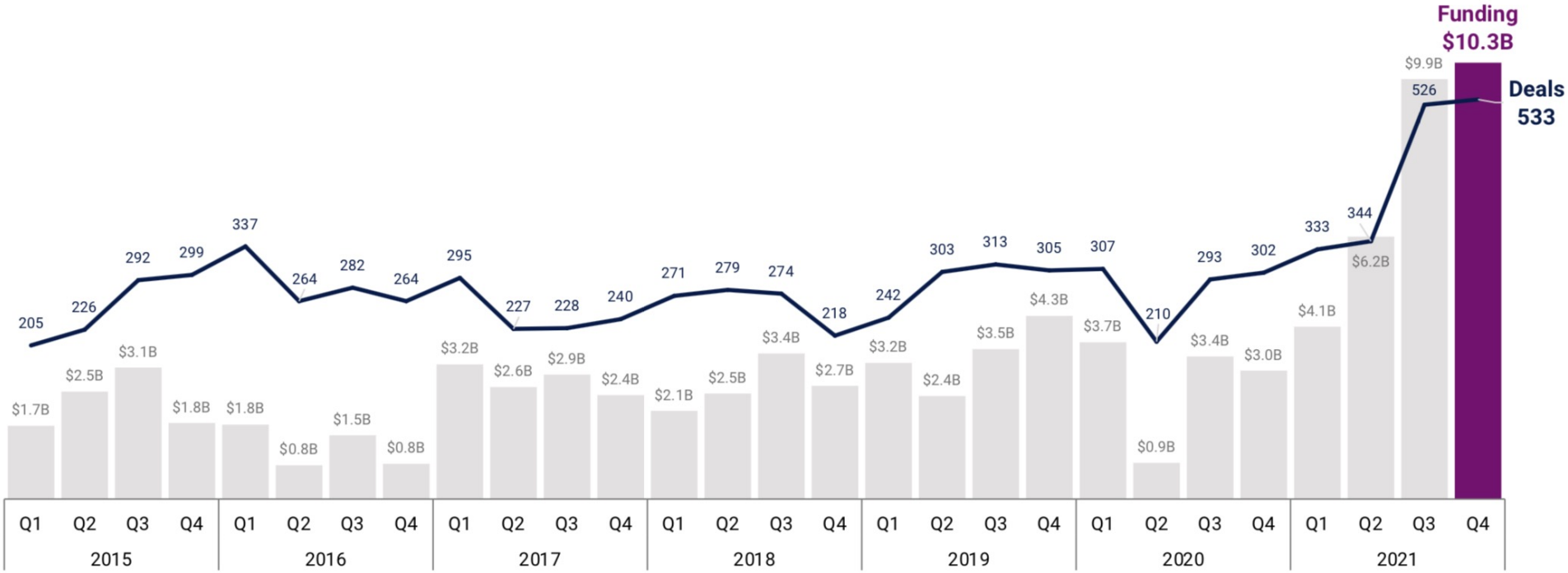

CBINSIGHTS *State of Venture, 2021*

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India tech investing: Foreign investor participation still dominates

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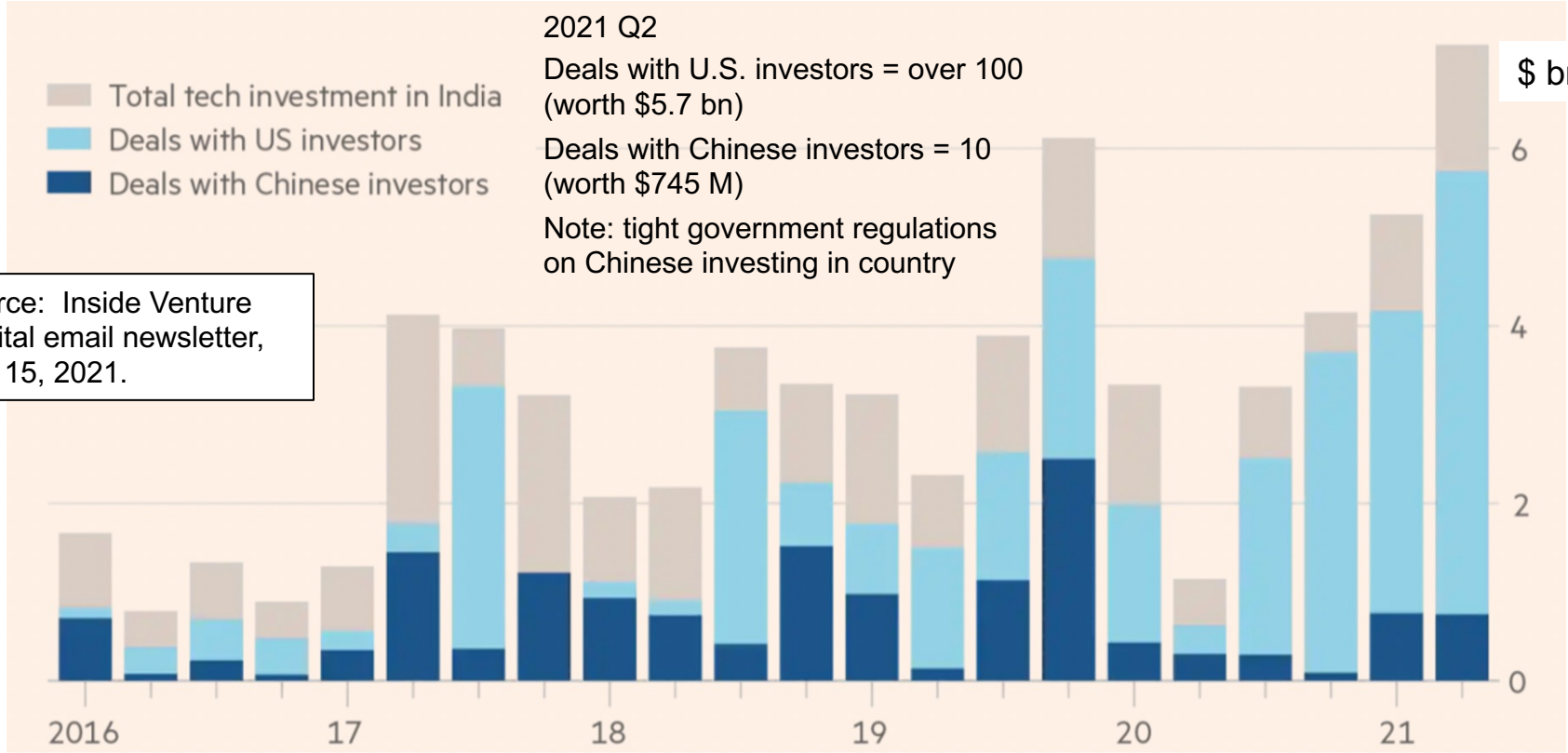

Source: Inside Venture Capital email newsletter, July 15, 2021.

Venture investing in SE Asia (on track for ~ $10 bn in 2021)

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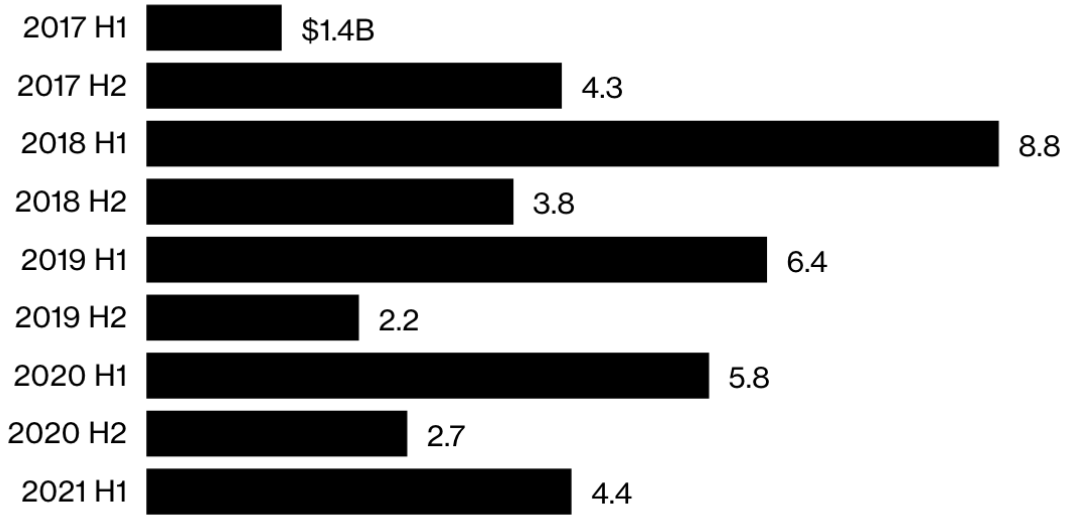
Trends Cited in Bloomberg article

- **Fewer mega-rounds in 2021** ($100M+)
  - -- Avg. deal size = $11.2 (was $17.7M in 2020 H1)
  - -- Fewer than 10% of rounds were Series C or later
  - -- Some big rounds
    - Ninja Van ($578M)
    - Advanced Intelligence Group ($400M)
- **Funding to Indonesian startups** = about half (amount raised)
  - -- Singapore startups took 32%

Other trends (not from article)

- Singapore as financial hub for region
- Singapore government support



Source: Yoolim Lee, "Southeast Asian startup deals hit record number in first half," Bloomberg (Technology), 9/26/2021 https://www.bloomberg.com/news/articles/2021-09-27/southeast-asian-startup-deals-hit-record-number-in-first-half

Venture capital investment in South Korea

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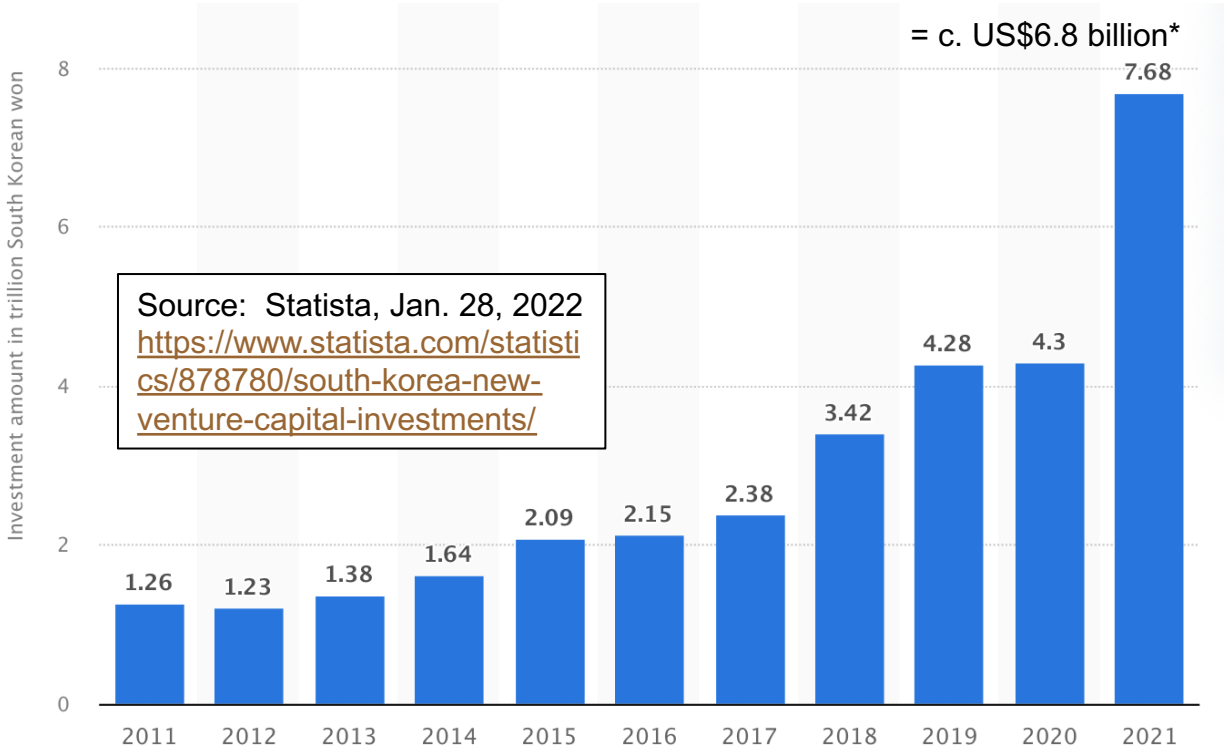

Trends (from other sources)

- Total # of VC funds came to exceed 1,000 in 2020 (*Korea Economic Daily* 9/05/2021)
- SK investors are starting to target SE Asia (*Korea Economic Daily* 10/18/2021)

  -- Several VC companies have joint funds with SE Asian VC partners or funds managed by SEA VC partners (*KED* 10/18)
- Investment across all sectors, but note medical and other services, ICT, gaming and entertainment, blockchain

Venture capital investment in Japan

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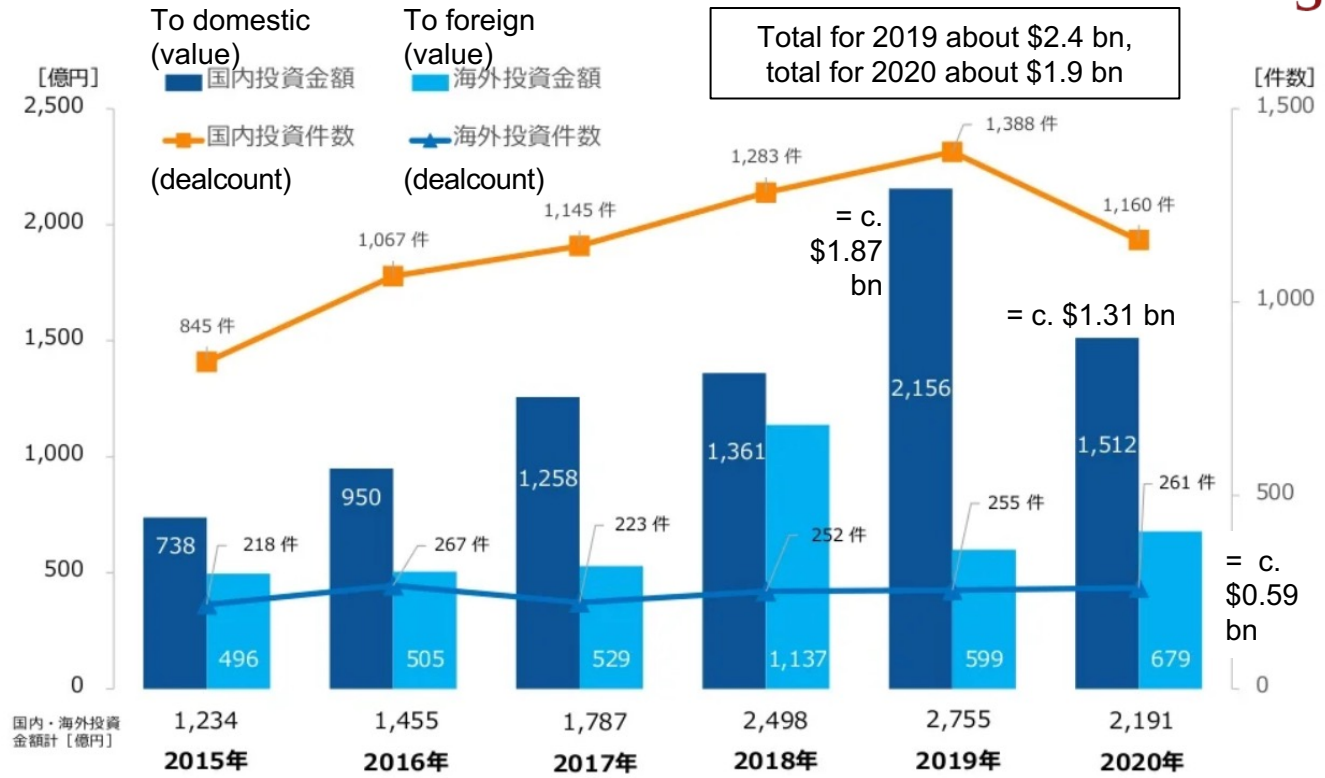

Source: Japan Venture Capital Association, 9/2021 https://jvca.jp/research/26844.html

Different calculation of all venture investing in Japan in 2021: $5.1 billion (CB insights, cited 12/25/2021 in *Japan Times*)

- Said to be up 50% over 2020

According to JVCA (source at left), top sectors in 2020 included

- IT and related (53.2%)
- Biomed/healthcare (17.7%)
- Industrial/energy (12.8%)
- Products/services (16.3%)

Corporate Venture Capital in Asia

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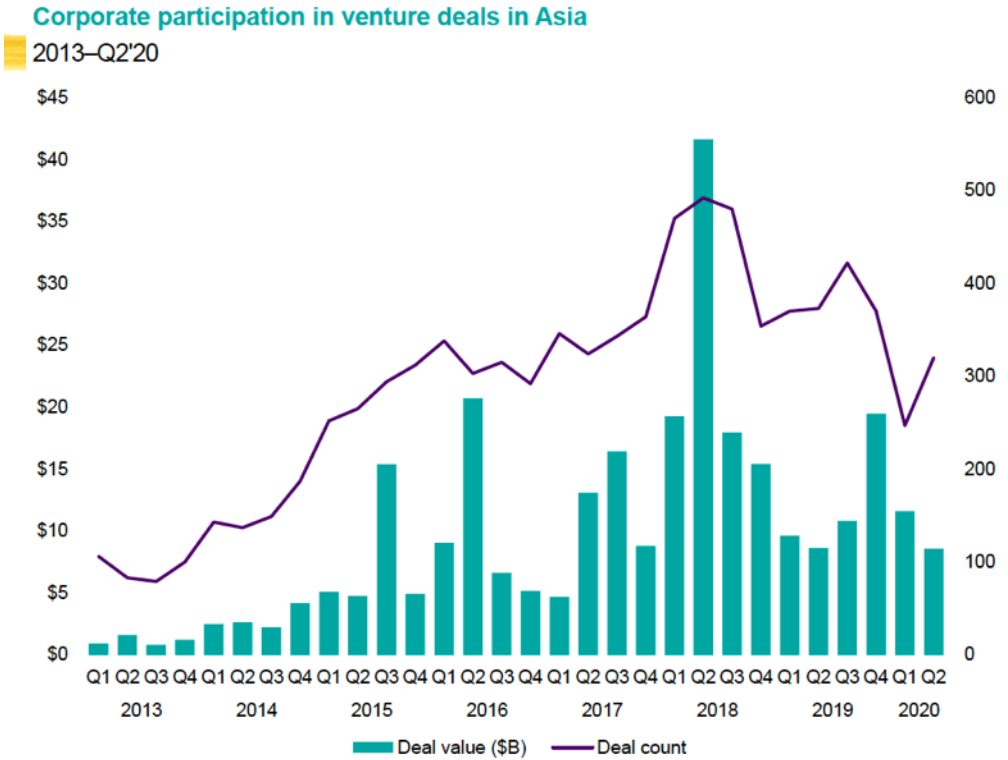
- **Japan: traditionally, majority of VC deals in Japan include a corporate (strategic) investor, e.g. a CVC fund**
  - Most of Japanese CVC goes to startups outside Japan
  - CVC to Japan domestic startups:
    - 2018 H1: yen 4.8 billion (~ $45.6M)
    - 2019 H1: yen 4.5 billion (~ $42.8M)
    - 2020 H1: yen 4.2 billion (~ $39.9M)
- **China: dominated by small number of big firms**
  - 2019: 10 industrial groups invested 79.4% of all CVC in China
  - Shift from direct (GP role) to LP role in other funds, but activist



From: KPMG, Venture Pulse Q2 2020; data from Pitchbook

Counting unicorns

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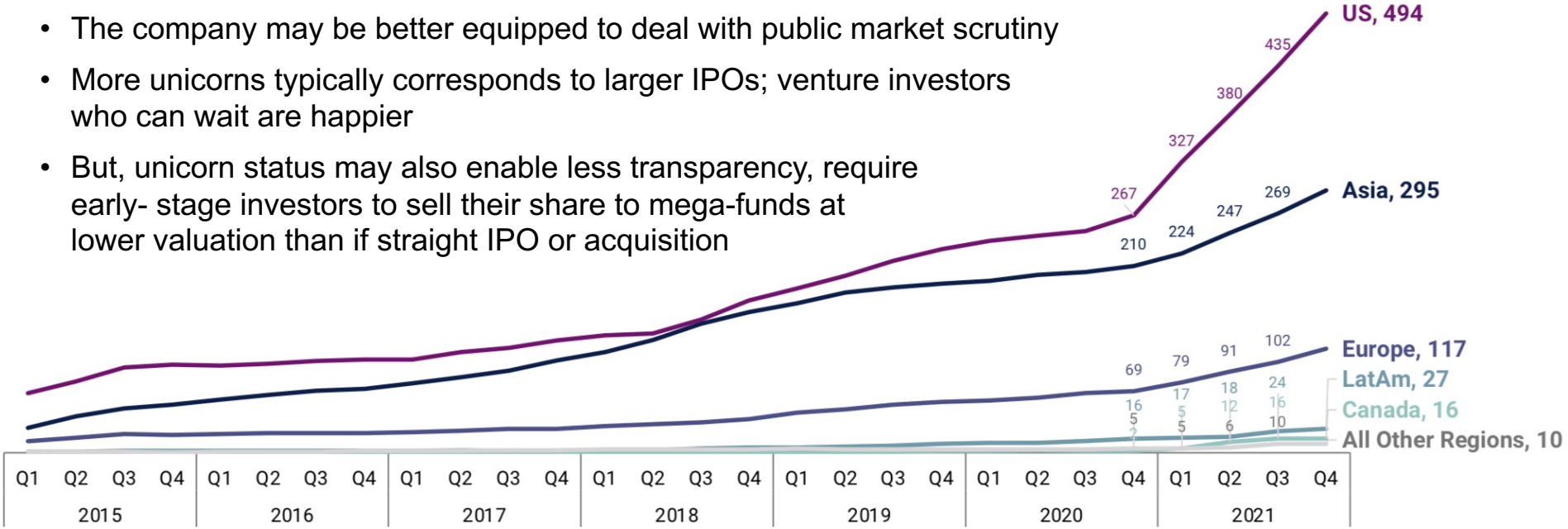
Implications: Unicorn status means later exit (IPO)

- The company may be better equipped to deal with public market scrutiny
- More unicorns typically corresponds to larger IPOs; venture investors who can wait are happier
- But, unicorn status may also enable less transparency, require early- stage investors to sell their share to mega-funds at lower valuation than if straight IPO or acquisition



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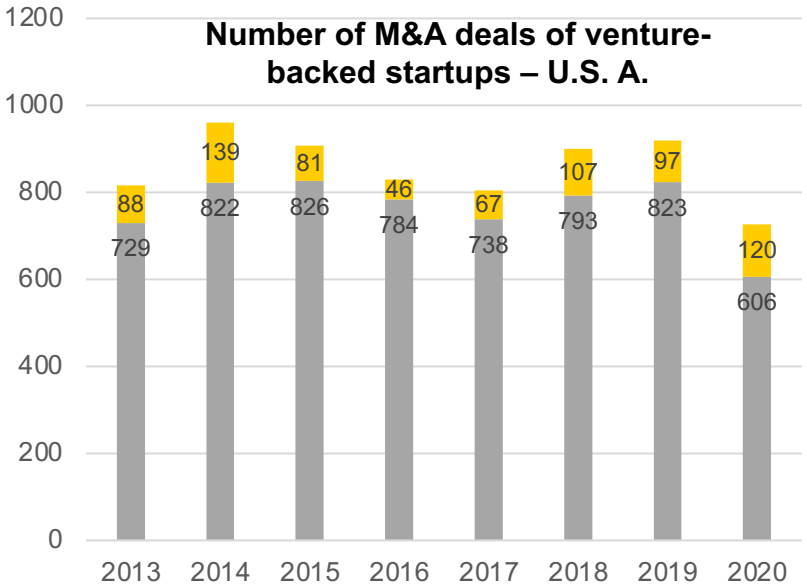
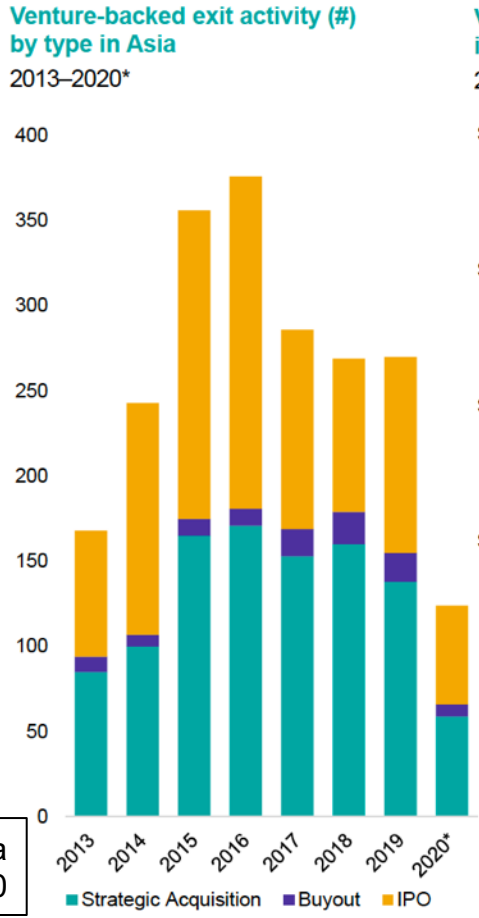
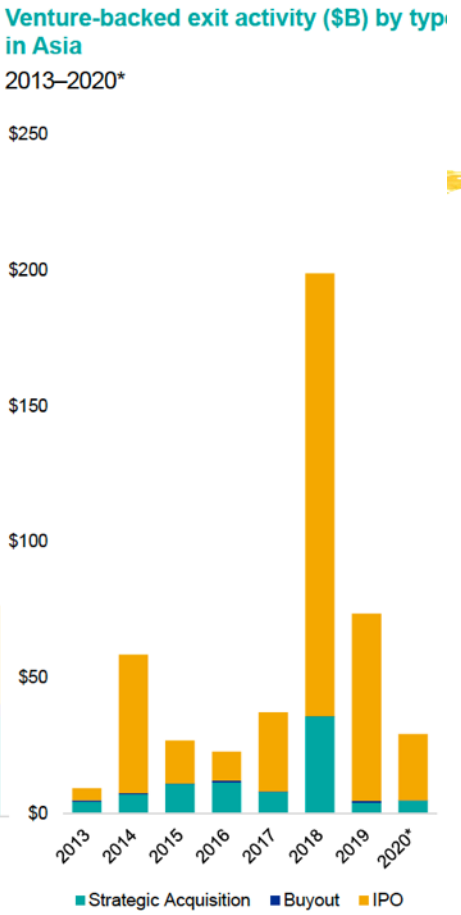
Exits by VC-backed startups in Asia Center on IPO (in US it's M&A)



Above: data from Pitchbook





Source to right: KPMG *Venture Pulse Q2 2020,* data provided by Pitchbook. 2020 amounts as of 30 June 2020

Summary

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- **Entrepreneurship ecosystems, esp. funding has bounced back**
  - Despite uncertainty due to Covid, U.S. – China friction
  - Uncertain how Ukraine situation will play out, but so far has not had noticeable impact on Asian entrepreneurship ecosystems
  - Climate change probably regarded as bringing opportunities – more from US-ATMC in future
- **People and knowledge flow**
  - Entrepreneurs can always be found in any economy
  - Opportunity-driven entrepreneurs is the norm in most Asia economies
  - Mentoring is still weak in most Asia ecosystems – not only qualified mentors but best practices
- **Growth of venture capital industry across major Asia economies**
  - Focus is on growth; early-stage investing has always been difficult
  - Driven by demand sectors: some movement toward more cross-border activities, “deeptech”
  - Variation in exit patterns depending on the country: longer-term incubation (and longer-term relationships) versus Silicon Valley style

Thank you for participating!!

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