# GLOBAL VENTURE CAPITAL PERSPECTIVES:

## A PREQIN & VERTEX STUDY

SEPTEMBER 2019

# Contents



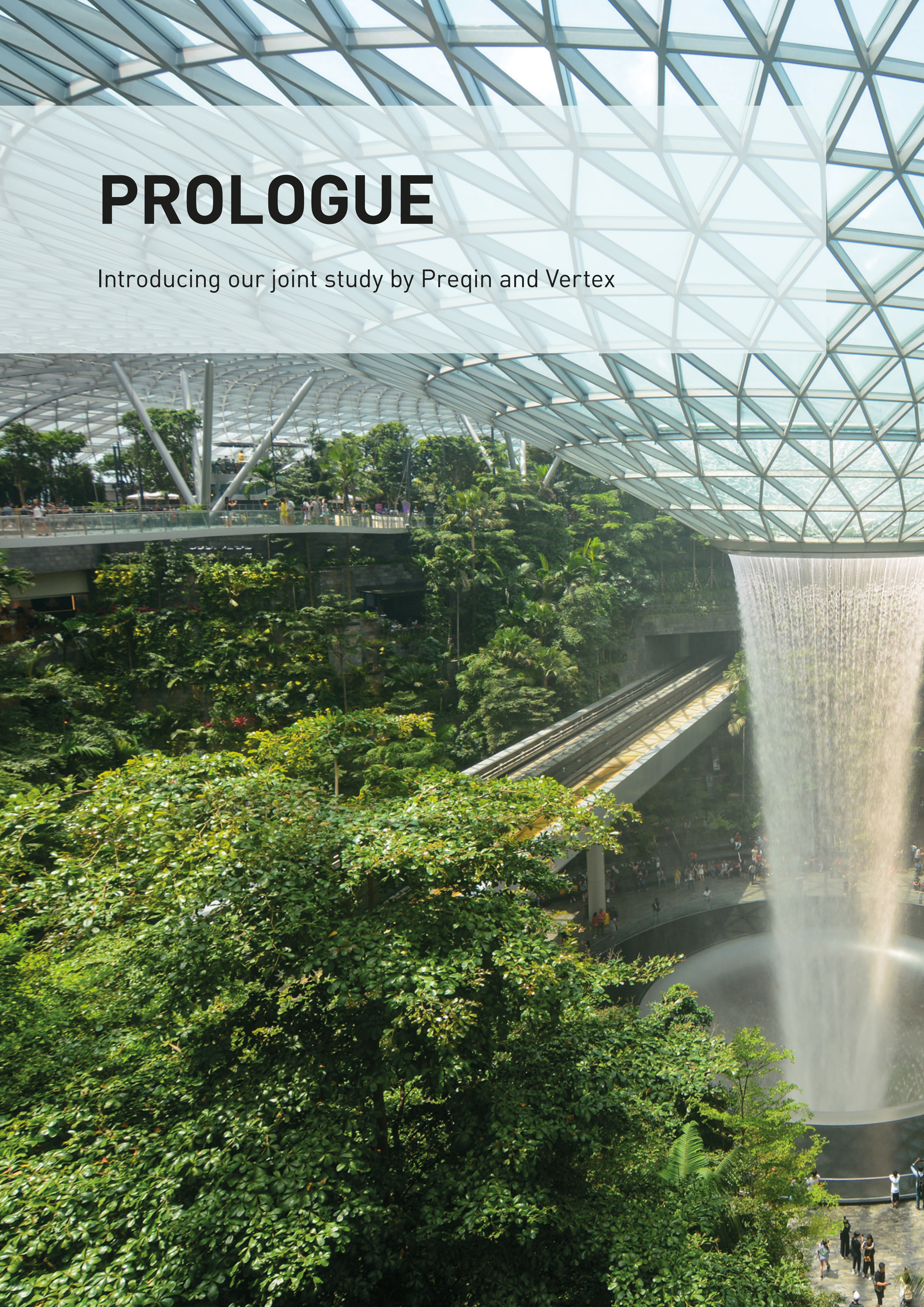
## Data Pack

The data behind all of the charts featured in this report is available to download for free. Ready-made charts are also included that can be used for presentations, marketing materials and company reports.

To download the data pack, please visit: www.preqin.com/GVCP19

# PROLOGUE

Introducing our joint study by Preqin and Vertex



# CEO's Foreword Preqin

**Mark O'Hare**
**Chief Executive Officer, Preqin**

Welcome to **Global Venture Capital Perspectives: A Preqin & Vertex Study**, published jointly by Preqin and Vertex.

Why a report on the venture capital (VC) industry? In some senses VC is the most mature of all private capital asset classes, dating back to the 1960s and having blazed the trail for the rest of the private capital industry. However, in other respects it is one of the most dynamic and vibrant of all:

- Global VC assets under management (AUM) has more than doubled over the past five years to reach $856bn as of December 2018, with annualized growth of 17% p.a. over this period.
- As a result of this growth, VC comprises 14% of the $6.06tn global private capital industry; it is clearly on track to reach $1tn in AUM within the next couple of years.
- VC has a uniquely rich and diverse ecosystem – this report documents over 5,000 active GPs and over 5,000 significant active LPs investing in the space.
- This is a global community – the US remains the 'home of VC' with the largest ecosystem of GPs and LPs, but other regions are expanding quickly, most notably Asia and especially China, which is home to three of the 10 largest VC firms (the other seven are based in the US).

The ultimate role and objective of VC is to fund new ventures across all segments of the economy, but most especially in tech, healthcare and artificial intelligence; and to offer LPs the opportunity to profit from the enormous gains to be made from the 'next big thing.' VC therefore plays a vital role not only in economic development, but also in solving mankind's greatest challenges – 'doing well by doing good.' It is therefore unsurprising that VC is becoming increasingly global in nature, reflecting the global economy and the growth of Asia-Pacific and China.

As you read through the report and look at the pace of investment in each region – i.e. the deals being done, the companies being funded – you will notice a consistent and powerful theme globally. In most regions the number of deals being done is growing (i.e. more new companies are being funded by VC), but the value of those deals is growing at a much more rapid pace – i.e. significantly more money is being put to work by VC fund managers and the average size of deals is growing rapidly.

What can we conclude from the rapid growth in average deal sizes? The positive message is that VC is funding growing businesses through more of their lifecycle, and scaling them further ahead of the eventual exit. The worrying question is about valuations: do today's entry valuations leave LPs sufficient opportunity for upside?

The evidence on returns is quite encouraging. IRRs for VC funds post-GFC (Global Financial Crisis) have been good (see page 25); and this performance has evidently

**Venture capital plays a vital role not only in economic development, but also in solving mankind's greatest challenges**

encouraged more and more LPs to allocate to VC funds, supporting the strong fundraising environment and the industry's growth. The biggest question mark at this point is around cash flows. As the industry has grown rapidly and funded so many new (and large) businesses, the flow of cash into VC to fund drawdowns and investment has been greater than the cash flowing back to LPs via distributions (see page 24). But this isn't cause for alarm; the tremendous growth of the VC industry as it has expanded globally inevitably requires investment ahead of the anticipated returns. However, it is a clear marker for the coming years: LPs will be expecting to see strong distributions to back up the encouraging IRR performance thus far.

In summary, VC is in a tremendous place, with strong growth globally funding transformational businesses and driving returns for LPs. The industry is evolving at breakneck pace. Preqin is honoured to support our customers and the industry in providing the data and insights necessary to plot a successful course through the available opportunities.

We are therefore delighted to be publishing this report together with our partners Vertex. We hope that you will find it useful and, as always, we welcome your feedback and suggestions for future work.

# CEO's Foreword Vertex Holdings

In 2018, we first embarked on our collaboration with Preqin to publish **Asia's Venture Capital Eclipse: A Preqin and Vertex Ventures Study**. The principal objective for this publication was a common interest in providing our perspectives on the Asian start-up ecosystems with investors, stakeholders and the wider innovation community. Specifically, Preqin would share key venture capital (VC) funding and performance trends, while our Vertex Ventures General Partners would share key insights on the investment opportunities and risks in the innovation ecosystems of China, India and Southeast Asia.

**Chua Kee Lock**
**Chief Executive Officer, Vertex Holdings**

This year, we are publishing **Global Venture Capital Perspectives: A Preqin & Vertex Study**. Our objective is to provide global coverage by including additional insights from Europe, Israel, Japan and the US. For Europe, Jean Schmitt – Jolt Capital's Managing Partner – shares his thoughts on the European landscape, including the opportunities and challenges observed. For Vertex Ventures, our General Partners – Tay Choon Chong, Ben Mathias, Yanai Oron, Chua Joo Hock and Insik Rhee – highlight key developments in their respective start-up ecosystems: China, India, Israel, Southeast Asia and the US.

For Japan, we touch on the interest among Japanese corporates and institutions in our recently established Vertex Master Fund II (VMF II). VMF II deploys capital as an anchor-investor into our Vertex funds comprising four early-stage, IT-focused funds across China, Israel, the US, Southeast Asia and India. It also invests in two global Vertex funds – a specialist healthcare fund and a global growth-stage-focused fund that looks at follow-on opportunities from our portfolio of over 170 early-stage companies today.

In this year's report, we have also included three roundtables to provide more colour through an array of viewpoints from different stakeholders. In our Limited Partners (LP) roundtable, we have Brijesh Jeevarathnam, Partner & Co-Head of Global Venture Fund Investments at Adams Street Partners; Roque Velasco, Managing Partner at Galdana Ventures; Jung Woo Sung, Managing Director & CEO of the US at Hanwha Asset Management; and Naoto Sato, Joint Head of the Investment Department at Mizuho Securities Co. Our experts share their thoughts on investing, performance, risks, where they see opportunities and how they see the VC landscape evolving in the years ahead.

There is also a VC growth roundtable, where James Lee – Managing Director, Vertex Growth Fund – shares his views on VC growth-stage investing, and the genesis, uniqueness and value creation approach of Vertex Growth Fund. Richard Ji from All-Star Investment also provides a very interesting account of his team's impressive experience and expertise in seeking and backing growth-/late-stage leaders in

the internet space for Greater China. Nikhilesh Goel and Pratik Gandhi are co-founders and leaders from our growth-stage portfolio companies Validus and InstaReM respectively. They provide candid views of their journey in scaling, fundraising and what they look for when seeking specialist- (growth/late) stage investors.

To provide greater granularity on the global artificial intelligence (AI) landscape, our Vertex Venture partners Emanuel Timor, Liu Gen Ping, Sandeep Bhadra and Xia Zhi Jin share key developments observed in their respective start-up ecosystems of China, India, Israel, Southeast Asia and the US. They also provide forward views on the trajectory of AI development as seen from their lenses.

Focused on our mission to seek out promising disruptive, transformational leaders from around the world and nurturing them into prospective global champions, Vertex today is organized as a global network of independently managed and localized VC funds.

At Vertex, we believe that innovation comes from around the world, requiring deep, local knowledge and networks to access the best investment opportunities. At the same time, markets for innovative products and services are global. Our global-local, team-of-teams architecture enables our professional, localized investment teams to be deeply connected with the innovation ecosystems they operate in. This is important in deal-sourcing and portfolio value creation while having the unique advantage of support from the global Vertex network. Across Vertex today, we have a global bench of over 90 VC professionals, representing an impressive array of investor-operator experience(s) and expertise.

We are proud to have built many great technology companies that improve people's lives and help societies while transforming businesses, portfolios and economies. Building on the foundations of our unique parentage and support from Temasek, operating expertise and track record, Vertex is looking ahead towards building a differentiated and enduring Global Venture Capital Platform.

# Executive Summary

Defying the macroeconomic challenges of recent years, the venture capital industry has more energy and momentum than ever before. Growing at an unprecedented pace, total assets under management (AUM) reached a record $852bn as of September 2018.

Once dominated by San Francisco's tech elite, Silicon Valley has long been a magnet for entrepreneurs and investors across the globe, pulling billions of dollars into the US economy. Unsurprisingly, many entrepreneurial hubs across the globe have tried to emulate this success.

And some are succeeding. At RMB 102bn, China-based China State-Owned Capital Venture Investment Fund became the largest venture capital fund to close in the past 10 years. Not only are these hubs catching up with the US, but some could well be on track to surpass it.

What is behind this growth? Let's take a brief look at how venture capital has evolved over the past five years.

### The Role of Technology

In search of disruptive technologies that can enhance their core business, venture capitalists pour billions into artificial intelligence, autonomous driving, smart transport, biotech and blockchain, among other areas.

As technological advancement continues to steer the start-up industry, global venture capital fundraising has remained buoyant, despite falling in 2017 and 2018 from the peak ($113bn) achieved in 2016. Annual aggregate capital raised has almost doubled in comparison with 2013, reaching $97bn in 2018.

### The Asian Venture Boom

Increasing demand for Asia-focused funds has been a key factor behind the rapid expansion of the global venture capital industry, which in turn achieved a compound annual growth rate of 17% for the past five years.

Asia-focused venture capital funds hold $334bn in AUM as of September 2018, up from just $75bn five years ago. Asia is significantly gaining ground on the US, which holds $397bn in AUM. Emerging as a global innovation hub in recent years, China is the clear driving force behind this surge in Asian growth.

### Investors Are Diversifying

As the hub of the industry, the US has historically housed the largest number of investors in the asset class. However, with such rapid growth in Asia, it is unsurprising that the number of Asia-based institutional investors allocating to venture capital has doubled over the past five years. Among them, 94% target investment in Asian venture capital.

### The Deal Story

Further testament to the rise of the Chinese market, in 2018, the aggregate value of venture capital deals in Greater China ($107bn) surpassed US deals ($105bn). China, however, is not the only growth story in Asia. Southeast Asia has seen a boom in deals with annual aggregate deal value surpassing $10bn in 2018 for the first time.

Outside of the US and Asia, deal activity in Europe has continued to increase despite political uncertainty in the region. Aggregate deal value in 2018 surpassed

## As technological advancement continues to steer the start-up industry, global venture capital fundraising has remained buoyant

$20bn for the first time, while activity in the first half of 2019 puts us on course for another record year.

**Robust Global Performance**

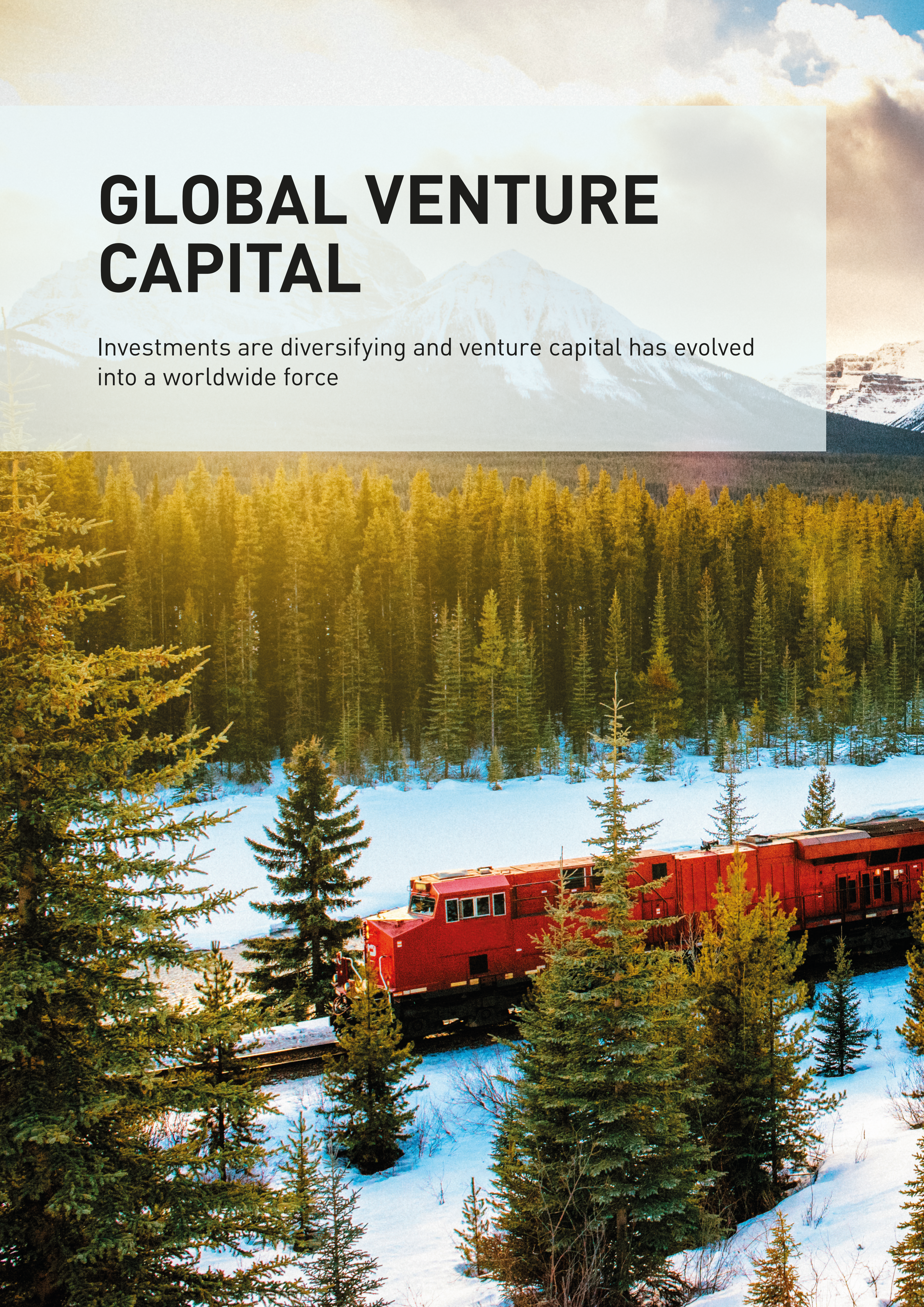
With North America representing the most developed region for venture capital investment, the risk/return profile of funds invested in the region is lower than other geographies. Asia-focused funds, on the other hand, operate in a high-risk, high-reward environment – new funds are emerging all the time in this new industry hub.

Venture capital fund performance has been strong globally, and in 2017, a record $100bn in investor capital was called up.

These are some of the key trends we have observed in the venture capital industry in recent years. Read on to discover more granular detail, including the various regional ecosystems around the globe and the macroeconomic trends that are shaping them.

# GLOBAL VENTURE CAPITAL

Investments are diversifying and venture capital has evolved into a worldwide force



# Global Fundraising

## More funds are meeting their targets as fund managers rise to increasing investor demand

With investors drawn to the seemingly endless realms of possibility in today's start-up space, the global venture capital industry continues to attract billions of institutional capital every year. Technology-focused funds have been the driving force behind the rise in venture capital fundraising over the past 10 years. China State-Owned Capital Venture Investment Fund, which invests predominantly in innovative technology, raised RMB 102bn in 2016 to become the largest ever venture capital fund closed.

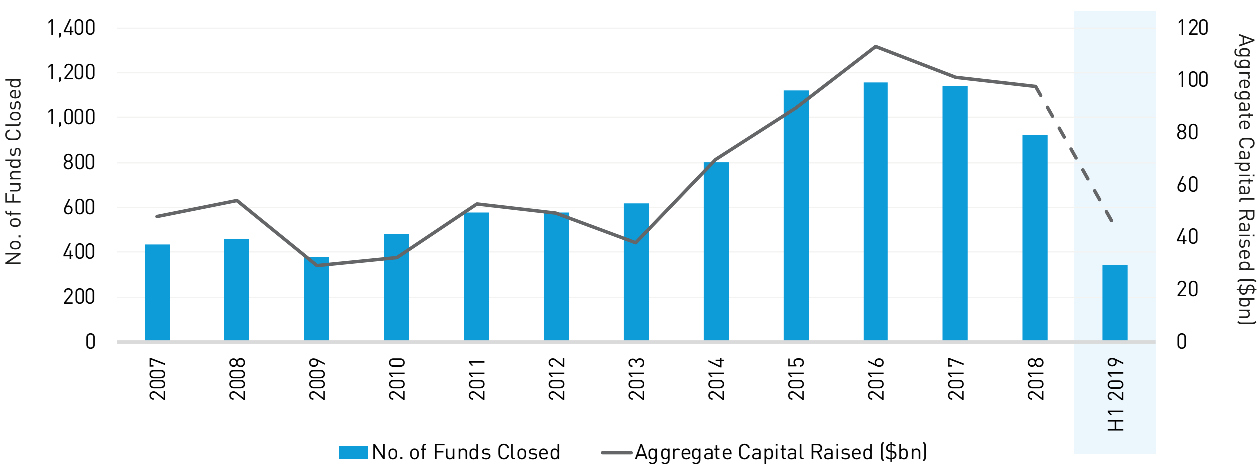
### Getting the Technology Bug

Technological advancement has dominated the start-up industry, fostering a healthy entrepreneurial environment which has in turn bolstered venture capital fundraising*. Eight of the 10 largest venture capital funds closed in the past decade have a focus on technology. Although levels of fundraising dipped slightly in 2017 and 2018, the market remains buoyant and aggregate capital raised has more than doubled since 2013, amounting to $97bn in 2018 (Fig. 1).

Fig. 2 shows that venture capital funds entering the market are seeing more success in fundraising in spite of annual figures sliding from the peak of 2016. Although a record $113bn in venture capital was raised in 2016, 24% of funds closed that year failed to meet their initial target, and this compares with 20% of funds closed in 2018. Among funds closed so far in 2019, only 17% have closed below target.

While the proportion of venture capital funds that have been reaching their targeted size has been increasing in recent years, there is an element of bifurcation on the road. Fig. 4 shows that nearly one third (30%) of funds closed in 2018 spent over two years fundraising, while among funds closed in H1 2019 34% closed within six months.

**Fig. 1: Annual Global Venture Capital Fundraising, 2007 - H1 2019**




Source: Preqin Pro

*Venture capital fundraising data includes capital committed to corporate venture capital, commingled funds and separate accounts.*

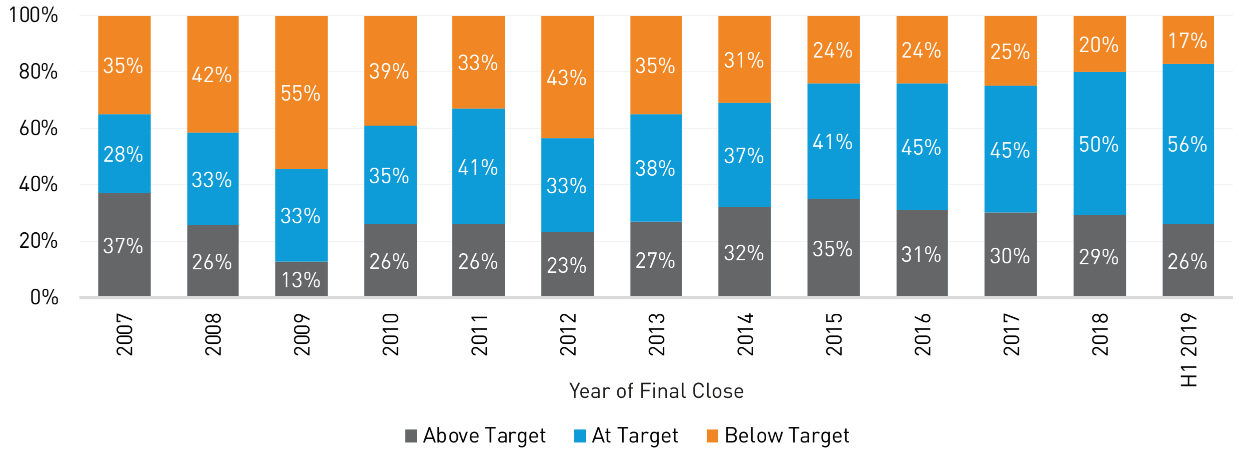
## US Bounces Back

When Asia-focused venture capital fundraising surged from 2013 to 2017, it boasted the lion's share of the global venture capital market, as Fig. 5 shows. Since then, North America has regained its spot as the largest fundraising market, securing just over half ($49bn) of the total market share in 2018.

That said, capital continues to flow around the globe with many established US managers raising large funds for global opportunities.

One such manager, New York-based Tiger Global Management closed Tiger Global Private Investment Partners XI on $3.8bn to target the Indian and Chinese internet, media and telecoms sectors (Fig. 3).

### Fig. 2: Fundraising Success of Venture Capital Funds Closed, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 3: Notable Venture Capital Funds Closed in the Last 12 Months

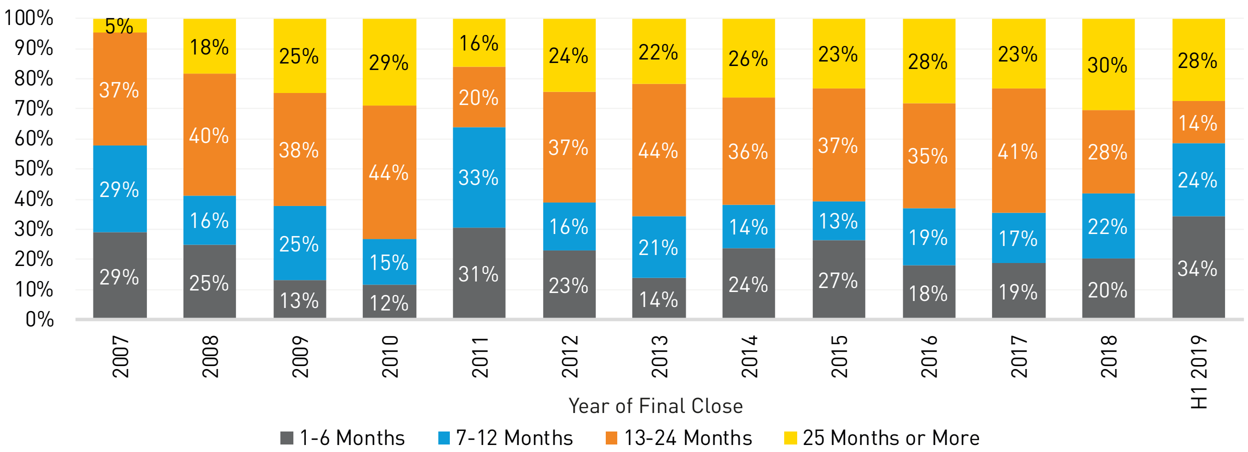
| Fund | Firm | Fund Type | Firm Headquarters | Fund Size (mn) | Geographic Focus |
|---|---|---|---|---|---|
| Tiger Global Private Investment Partners XI | Tiger Global Management | Venture Capital (General) | US | 3,750 USD | China, Global, India, US |
| Sequoia Capital China Yuan Fund | Sequoia Capital | Venture Capital (General) | US | 15,000 CNY | China |
| Bessemer Venture Partners X | Bessemer Venture Partners | Early Stage | US | 1,850 USD | Global, India, Israel, US |
| H.I.G. Strategic Partners Fund | H.I.G. BioHealth Partners | Venture Capital (General) | US | 1,275 USD | US |
| GGV Capital VII | GGV Capital | Venture Capital (General) | US | 1,090 USD | China, US |
| Abu Dhabi Catalyst Partners | Mubadala Capital | Venture Capital (General) | United Arab Emirates | 1,000 USD | United Arab Emirates |
| Morningside China USD Fund | Morningside Venture Capital | Early Stage: Start-up | China | 1,000 USD | China |
| Mirae Asset-Naver Asia Growth Fund | Mirae Asset Global Investments | Venture Capital (General) | South Korea | 1,000,000 KRW | Asia, China, India, Indonesia, Japan, South Korea, Vietnam |
| Flagship Pioneering Special Opportunities Fund II | Flagship Pioneering | Venture Capital (General) | US | 824 USD | US |
| Third Rock Ventures V | Third Rock Ventures | Early Stage | US | 770 USD | US |

*Source: Preqin Pro. Data as of June 2019*

### Targeted Capital Soars

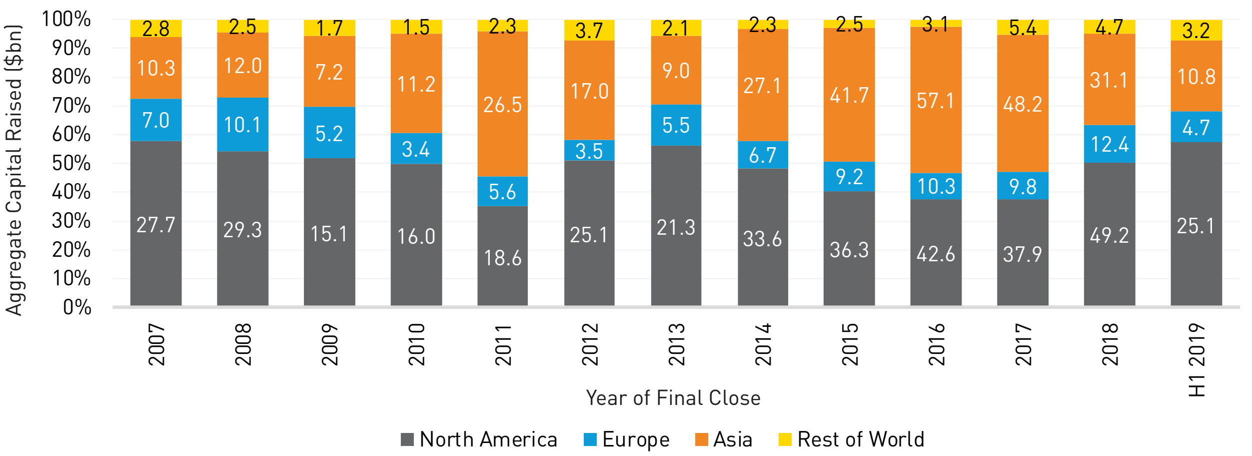
Amid the shifts and advancements in technology, investor demand is rising fast. In an attempt to meet this demand, fund managers are bringing more funds to market and aggregate target capital is inflating in tandem. In January 2019 there were 2,163 venture capital funds in market, targeting an aggregate $156bn (Fig. 7). Given the volume of new technology start-ups, and with the fundraising market as healthy as it is, venture capital fund managers are likely to continue sourcing attractive opportunities across the globe.

**Fig. 4: Average Time Spent in Market by Venture Capital Funds Closed, 2007 - H1 2019**



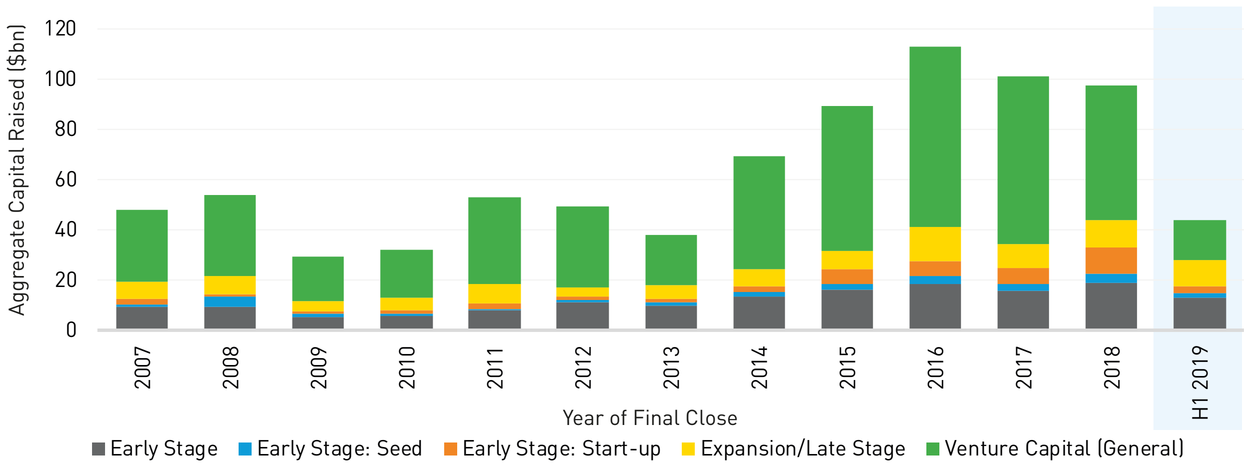

*Source: Preqin Pro*

**Fig. 5: Annual Global Venture Capital Fundraising by Region, 2007 - H1 2019**



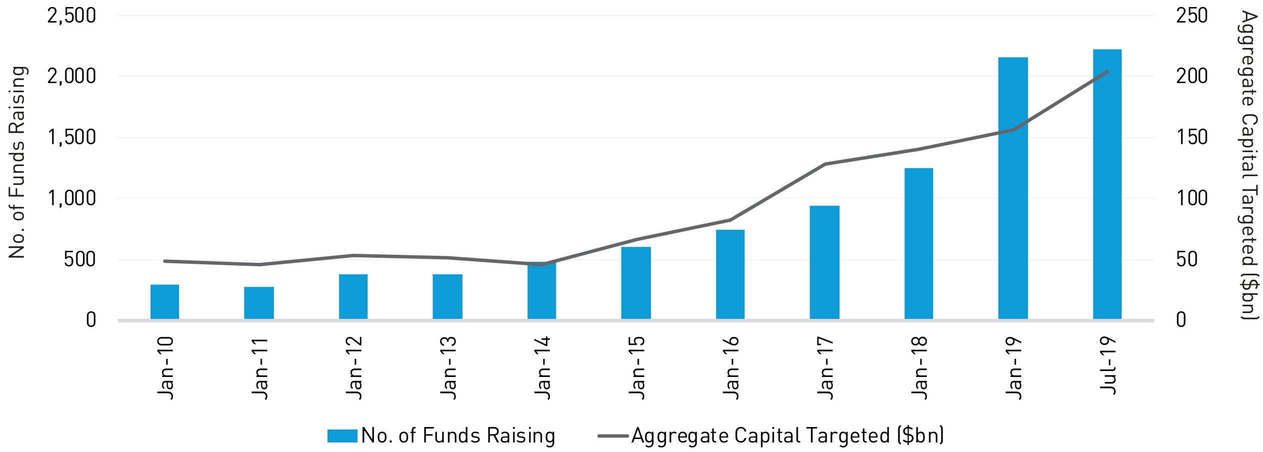

*Source: Preqin Pro*

### Fig. 6: Aggregate Capital Raised by Venture Capital Funds Closed by Strategy, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 7: Venture Capital Funds in Market over Time, 2010 - 2019




*Source: Preqin Pro*

# Fund Managers & AUM: On the Road to $1tn

## Industry AUM hits record levels as investors flock to Asia-focused venture funds

Global venture capital is expanding fast. Over the past five years, the industry posted a compound annual growth rate of 17%. Assets under management (AUM) soared to $856bn as of December 2018, a new record (Fig. 8). This puts the asset class within reach of a major milestone: $1tn in AUM, representing just under a third of total industry assets held by both private equity and venture capital.

Below, we take a closer look at a key driver underpinning the rise of global venture capital.

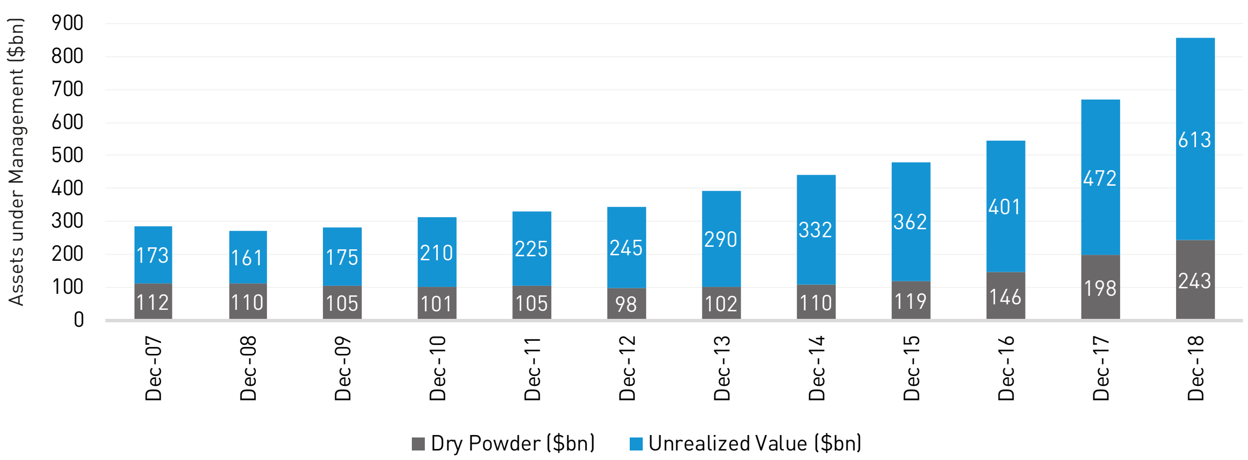
### The Asian Venture Capital Boom

Surging investor demand for Asia-focused venture capital funds has played a major role in the rapid expansion of global venture capital. Consider Fig. 10, which compares AUM growth in Asian venture capital with AUM growth in North American venture capital between 2007 and 2018. The chart shows a rapidly narrowing gap between the two regions – as of December 2018, that gap stands at just $74bn. AUM held by North America-focused venture capital funds stands at $397bn vs. $323bn for funds targeting Asia. Just five years ago, North America-focused venture capital AUM ($241bn) was well over twice that of Asia-focused venture capital AUM ($72bn).

What is behind the increasing investor appetite for Asian venture capital? In a word: China. China's per capita income may be significantly below that of the US, but it is rapidly gaining ground when it comes to innovation.

Indeed, cities like Beijing and Shanghai have emerged as top global innovation hubs, attracting billions of dollars in venture capital.

**Fig. 8: Global Venture Capital Assets under Management, 2007 - 2018**

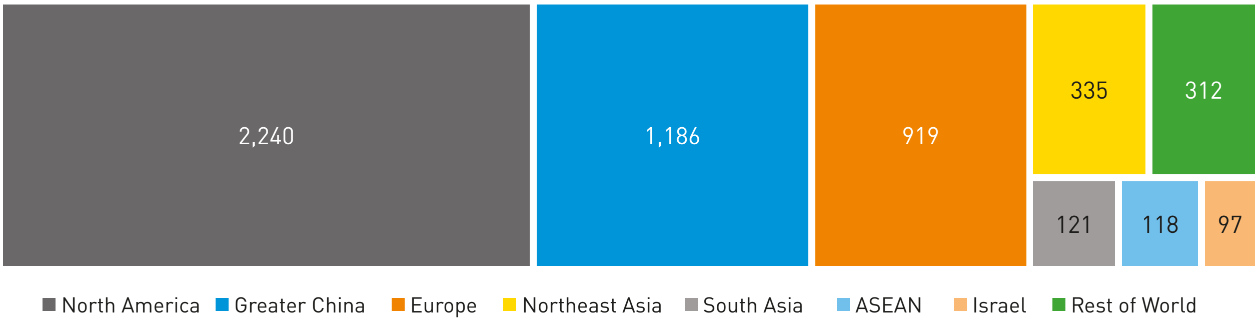



*Source: Preqin Pro*

**A Bright Future**

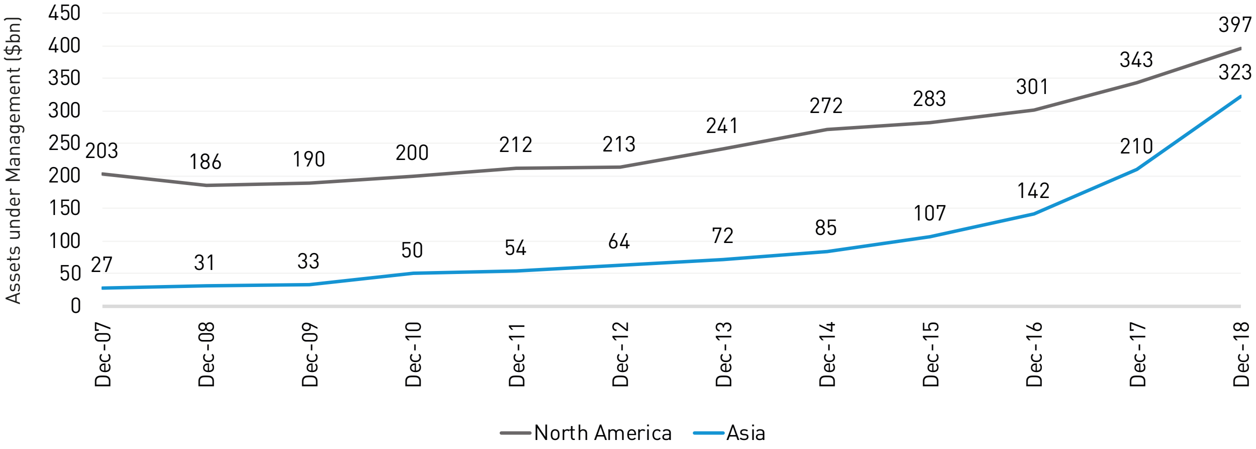
With billions of dollars in financial firepower at their disposal, Asia-based venture capital funds are well positioned to take advantage of the rapid pace of innovation in the region. The 10 largest Asia-based venture capital funds, ranked by dry powder, are all headquartered in China, underscoring the nation's significance in the region's venture capital space.

**Fig. 9: Number of Venture Capital Fund Managers by Ecosystem**



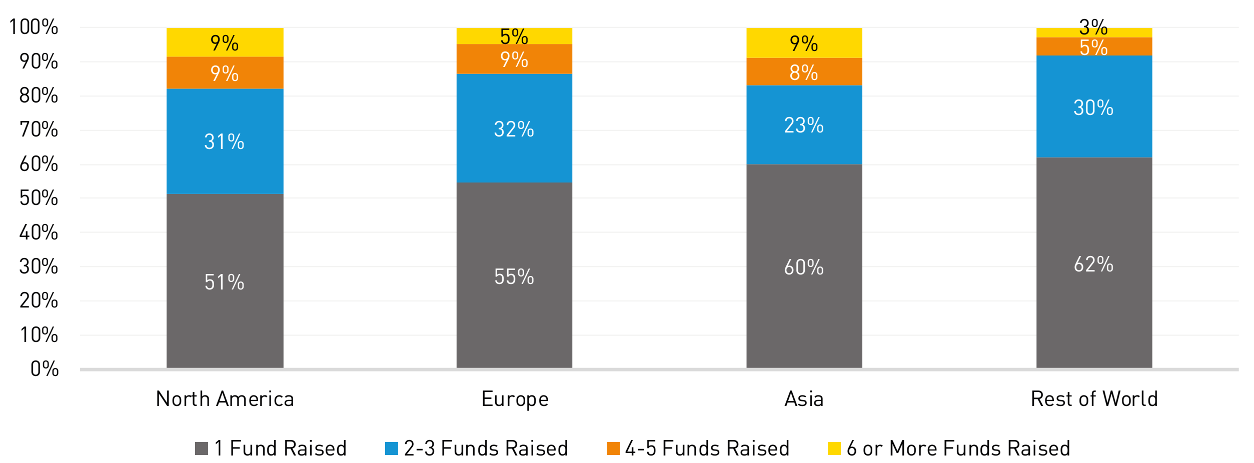

*Source: Preqin Pro*

**Fig. 10: Venture Capital Assets under Management by Primary Geographic Focus: North America vs. Asia, 2007 - 2018**




*Source: Preqin Pro*

**Fig. 11: Venture Capital Fund Managers by Experience and Location**




*Source: Preqin Pro*

# Global Demand for Venture Capital

## Strong performance and technological insight continue to attract investors

Venture capital funds are a key component of many investor portfolios. With the ability to provide some of the highest returns seen in the private markets (page 25), these funds can complement other private market strategies with more conservative risk/reward profiles.

That said, the benefits of investing in venture capital can go beyond performance. Many investors seek access to the frontline of technological innovation, which allows for deeper understanding of the future implications for relevant industries – fintech, for example.

Following years of strong returns and high-profile success stories, the universe of venture capital investors has grown, both in terms of the number of participants and the amount of institutional capital being deployed into the market.

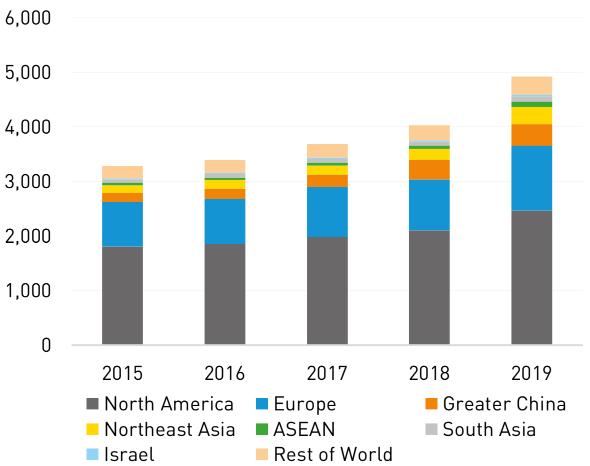
Since the start of 2016, the venture capital industry has received an average of $100bn in institutional capital per year. The number of active institutions has increased 50% in the past five years – growth in Asia has been particularly strong (Fig. 12).

### Growth Is Global

The US is the longstanding hub of the venture capital industry, housing the greatest number of investors. While the number of US-based institutions has grown steadily over the past five years, growth in the number of investors active in venture capital has been seen around the world. Various other venture capital ecosystems around the world are emerging and attracting capital from both onshore and offshore institutions.

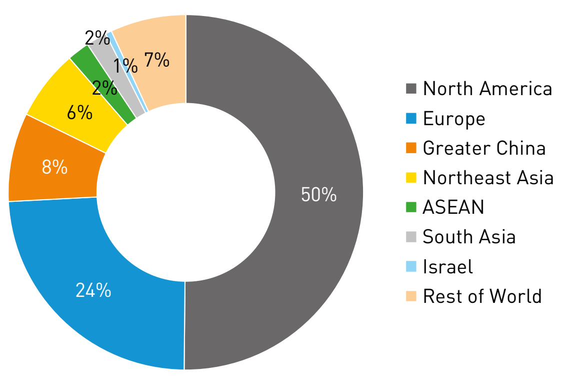
The number of institutions in Asia allocating to venture capital has doubled over the past five years. Such rapid growth means that Asia is now driving the global expansion of the industry – the US's share of global venture capital investors decreased from 55% in 2013 to 50% five years later (Fig. 13).

**Fig. 12: Number of Venture Capital Investors by Ecosystem, 2015 - 2019**




*Source: Preqin Pro*

**Fig. 13: Proportion of Venture Capital Investors by Ecosystem**




*Source: Preqin Pro*

And where there are more investors, there are more opportunities: 94% of Asia-based investors target investment in Asian venture capital.

### Opportunity for All

The universe of venture capital investors is diverse. Since the minimum investment in a venture capital fund is typically smaller than for other private capital fund types, the venture capital opportunity reaches far across the size spectrum of institutional investors. As some of the most active institutional investors in alternative assets, foundations and pension funds represent the greatest proportion of venture capital investors (Fig. 14).

### Challenge for the Future

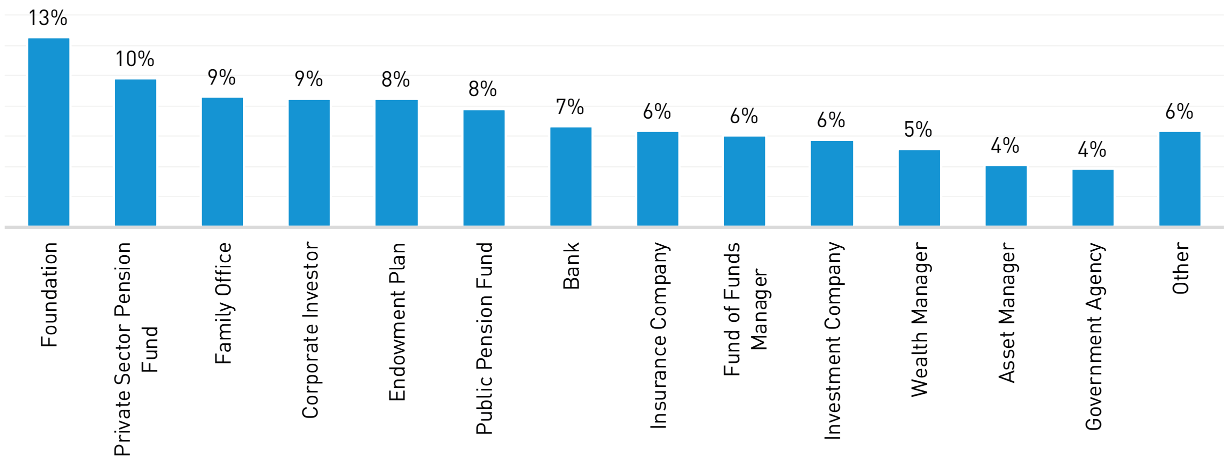
Venture capital fundraising has been strong for many years. With over 350 venture capital investors currently holding active fund searches and mandates, this environment may well persist.

In a market dominated by the US and Asia, signs are showing that European investors may be gearing up for a stronger foothold in the market: joint with the US, 148 Europe-based investors are looking to actively invest over the next 12 months.

Allocating to venture capital is not without its challenges. With strong investor demand for pooled funds, as well as the ever-increasing demand for more custom vehicles such as co-investments and separate accounts, managing GP relationships remains crucial for investors. Fund selection is also vital: the spread between the performance of top- and bottom-quartile venture capital funds is vast (page 28).

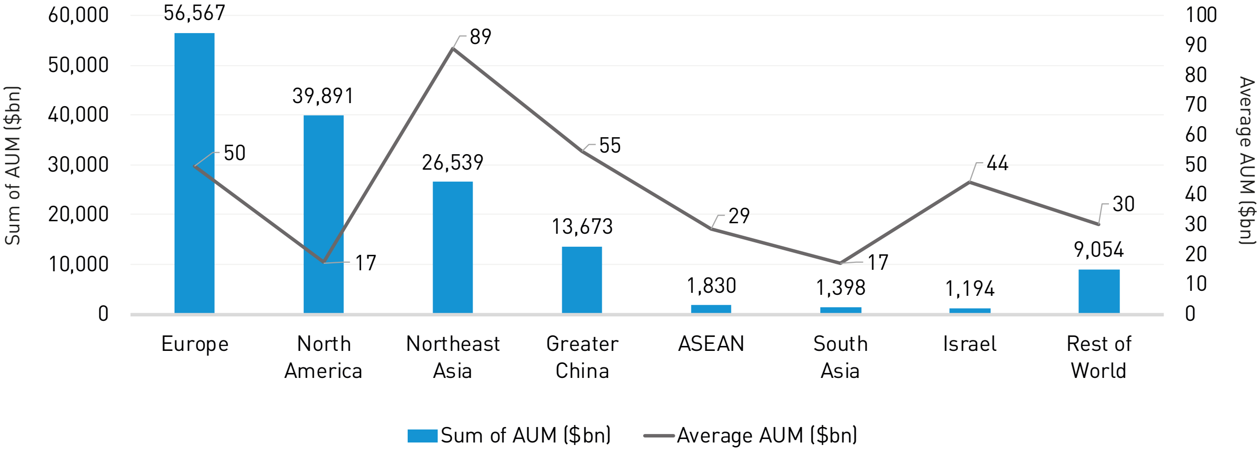
These challenges must be overcome in order to capture the potential benefits venture capital exposure can bring to a portfolio: high returns and a front-row ticket to the world of innovation.

**Fig. 14: Global Venture Capital Investors by Type**




*Source: Preqin Pro*

**Fig. 15: Global Venture Capital Investors in Each Ecosystem by Assets under Management**




*Source: Preqin Pro. Data as of June 2019*

# Global Deals & Exits

## Deals in China reach highest value, while North America posts record exit figures

The aggregate value of venture capital deals worldwide has surged in the past five years. Although the number of transactions each year is relatively level, deals are getting larger. The average size of transactions in 2018 rose to $23mn from $6.7mn in 2013.

Each year, more and more capital is being deployed in venture capital, leading to larger rounds of financing: there were 24 mega deals (valued at $1bn+) completed in 2018, compared with no such recorded deals in 2013.

### China Surpasses US

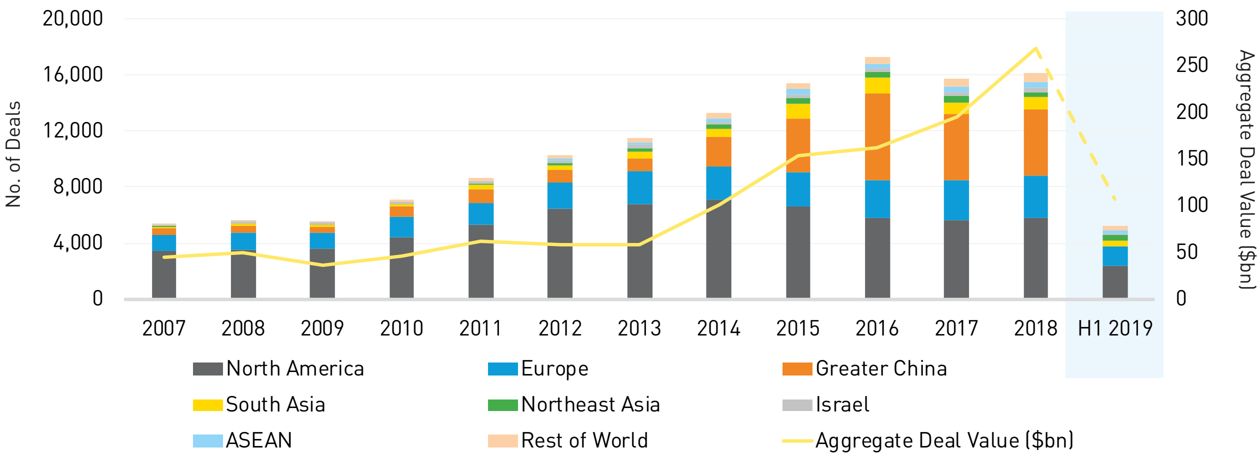
North America was home to more venture capital deals (5,781) over 2018 than any other ecosystem (Fig. 16). And yet, the 4,727 deals completed in Greater China reached a higher aggregate value at $107bn vs. $105bn in the US. Greater China has rapidly developed into an attractive hub for start-ups in recent years, especially those with a focus on technology and artificial intelligence.

While the deals landscape is rich in Greater China, exits are not as fruitful. Given the relative youth of investments in Greater China, exit levels are low, but as the region develops and more capital flows into the region exit levels will increase. Exits in Greater China amounted to $41bn in 2018, which is less than half of the value of US exits, but represents over double the aggregate exit value in 2017 ($13bn).

### Slow and Steady for Europe

In the shadow of the US and China, the venture capital market in Europe has not enjoyed such a rapid pace of growth. The number of deals made in Europe has consistently risen since 2009, as Fig. 16 shows, as Europe continues to develop as a destination of venture capital investment. The value of European deals has also increased, amounting to $22bn in 2018 through 3,025 transactions. Average deal size grew from $4.3mn in 2013 to $8.6mn in 2018, but this increase is miniscule when compared with the US and China.

**Fig. 16: Venture Capital Deals* by Ecosystem, 2007 - H1 2019**




Source: Preqin Pro

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.

With 201 exits valued at $18bn in 2018 (Fig. 18), Europe has recorded some notable venture capital exits in recent times, including IPOs for Sweden-based Spotify and UK-based Funding Circle. However, such juggernaut offerings are few and far between in the region, which relies more heavily on a large quantity of comparatively smaller deals.

Despite consistently trailing Asia and North America in the venture capital space, and belying the political and economic tensions of the past few years, Europe-focused venture capital funds raised a record-high $13bn in aggregate capital in 2018. Progress is slow, but appetite for European venture capital opportunities could well be on the rise.

### Exit Means Exit

Global exit value rose dramatically in 2018, reaching a record $170bn (Fig. 18), in tandem with a decrease in the total number of exits between 2017 and 2018. As mentioned, the US saw the most exits of any ecosystem, and at the highest total value ($88bn). At $30bn higher than the 2017 total, this was a record level for the region.

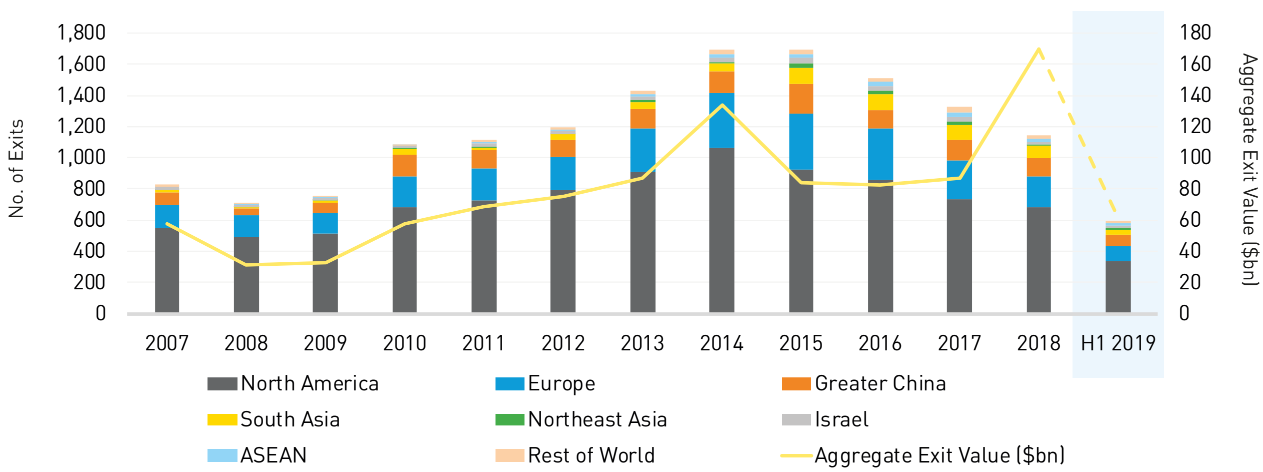
The impending US-China trade war will provide some healthy competition as more opportunities present themselves in the Asian venture capital space, promising a continuation of this robust deal-making landscape.

### Fig. 17: Notable Venture Capital Deals* in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| WeWork Companies Inc. | Jan-19 | Unspecified Round | 2,000 USD | SoftBank | Commercial Property | US |
| Grab Holdings Inc.** | Mar-19 | Series H/ Round 8 | 1,460 USD | SB Investment Advisers | Transportation Services | Singapore |
| OneWeb LLC | Mar-19 | Unspecified Round | 1,250 USD | Qualcomm Ventures, SoftBank, Government of Rwanda, Grupo Salinas | Internet | US |
| Rappi S.A.S. | Apr-19 | Unspecified Round | 1,000 USD | SB Investment Advisers, Softbank Latin America Ventures | Internet | Colombia |
| Go-Jek Indonesia | Apr-19 | Series F/ Round 6 | 920 USD | JD.com, Tencent, Google Inc., Mitsubishi Corporation, Provident Capital | Internet | Indonesia |
| Horizon Robotics*** | Feb-19 | Series B/ Round 2 | 600 USD | China Oceanwide Holdings Group, Morningside Venture Capital, CLSA Capital Partners, Linear Venture, V Fund, Hillhouse Capital Management, SK China, SK Hynix, China Minsheng Investment Group, CITIC Securities International, Oceanpine Capital | Software | China |

*Source: Preqin Pro*

### Fig. 18: Venture Capital Exits by Ecosystem, 2007 - H1 2019




*Source: Preqin Pro*

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.
**Vertex Ventures SEA & India was the first institutional investor in Grab and invested in Series A, B and C financing rounds.
***Vertex Ventures China invested in the Series A financing round.

### Fig. 19: Notable Venture Capital Exits in H1 2019

| Portfolio Company | Investors (Entry) | Total Known Funding (mn) |
|---|---|---|
| Uber Technologies, Inc.** | Axel Springer AG, Baidu, Barclays, Benchmark Capital, BlackRock, Caspian Venture Capital, Citigroup, Didi Chuxing, Dragoneer Investment Group, Fidelity Investments, First Round Capital, Founder Collective, Glade Brook Capital Partners, Goldman Sachs, Goldman Sachs Merchant Banking Division, GV, Innovation Endeavors, Kleiner Perkins Caufield & Byers, Kumpulan Wang Persaraan, LetterOne, Lone Pine Capital, Lowercase Capital, Menlo Ventures, Microsoft, Morgan Stanley, New Enterprise Associates, Public Investment Fund, Qatar Investment Authority, SB Investment Advisers, SBT Venture Capital, Sequoia Capital, Signatures Capital Partners, SoftBank, Summit Partners, Summit Series, Tata Capital Private Equity, Tencent, Times Internet, Toyota Financial Services, Toyota Motor Corporation, TPG, Tuesday Capital, Valiant Capital Partners, Wellington Management | 14,741 USD |
| Slack Technologies, Inc.** | Accel, Andreessen Horowitz, Atlassian Pty. Ltd., Baillie Gifford, Comcast Ventures, Dragoneer Investment Group, DST Global, FundersClub, General Atlantic, GGV Capital, Global Founders Capital, GV, Horizons Ventures, Index Ventures, Institutional Venture Partners, Kleiner Perkins Caufield & Byers, Riverside Ventures, Sands Capital Ventures, SB Investment Advisers, Social Capital, Spark Capital, SV Angel, T Rowe Price, Thrive Capital, Wellington Management | 1,217 USD |
| Auris Health, Inc. | Coatue Management, D1 Capital Partners, E15VC, Highland Capital, Highland Capital Partners, Lux Capital Management, Mithril Capital Management, NaviMed Capital, Partner Fund Management, Section 32, Senator Investment Group, Viking Global Investors, Wellington Management | 783 USD |
| Looker Data Sciences, Inc. | CapitalG, Cross Creek Advisors, First Round Capital, Geodesic Capital, Goldman Sachs, Kleiner Perkins Caufield & Byers, Meritech Capital Partners, PivotNorth Capital, PremjiInvest, Redpoint Ventures, Sapphire Ventures | 281 USD |
| Lyft, Inc.** | AB, Alibaba Group, Andreessen Horowitz, AutoTech Ventures, Baillie Gifford, CapitalG, Chromo Invest, Coatue Management, Didi Chuxing, Facebook, Fidelity Management & Research Company, Flat World Partners, Floodgate, Fontinalis Partners, Fortress Investment Group, Founders Fund, General Motors, Glade Brook Capital Partners, Graphene Ventures, Icahn Enterprises, InMotion Ventures, Janus Capital Group, K9 Ventures, Kingdom Holding Company, KKR, Machine Shop Ventures, Magna International, Mayfield, Olympus Partners, Ooga Labs, Public Sector Pension Investment Board, Rakuten, Inc., Senator Investment Group, SharesPost, Tencent, Third Point Management, UTA Capital | 4,913 USD |
| Bigo Technology Pte. Ltd. | BAI Fund, Gaorong Capital, Morningside Venture Capital, Ping An Insurance Group, YY | 272 USD |
| Pinterest, Inc.** | Acequia Capital, Andreessen Horowitz, Bessemer Venture Partners, Blisce, Fidelity Investments, FirstMark Capital, Founders Circle Capital, Goldman Sachs, Manatt Venture Fund, Rakuten, Inc., SV Angel, Valiant Capital Partners, Wellington Management, You & Mr Jones | 1,466 USD |
| Harry's, Inc. | Alliance Consumer Growth, BoxGroup, Grace Beauty Capital, Harrison Metal Capital, Highland Capital Partners, Lakestar, Red Swan Ventures, SV Angel, Tao Capital Partners, Temasek Holdings, Thrive Capital, Thrive Capital Partners, Tiger Global Management, Wellington Management | 463 USD |
| Paragon Bioservices, Inc. | Camden Partners, Eagle Private Capital, NewSpring Capital | 22 USD |
| Peloton Therapeutics, Inc. | BVF Partners, Cancer Prevention & Research Institute of Texas, Curative Ventures, Driehaus Capital Management LLC, EcoR1 Capital, Eventide Asset Management, Foresite Capital, Nextech Invest, OrbiMed Advisors, RA Capital, Remeditex Ventures, The Column Group, Tichenor Ventures, Topspin Partners, Vida Ventures | 254 USD |

***Denotes a partial exit.*

| Exit Type | Exit Date | Exit Value (mn) | Acquiror (Exit) | Industry | Ecosystem | Location |
|---|---|---|---|---|---|---|
| IPO | May-19 | 8,100 USD | - | Transportation Services | US | US |
| IPO | Jun-19 | 4,560 USD | - | Telecoms | US | US |
| Trade Sale | Feb-19 | 3,400 USD | Ethicon, Inc. | Medical Devices & Equipment | US | US |
| Trade Sale | Jun-19 | 2,600 USD | Google Inc. | Software | US | US |
| IPO | Mar-19 | 2,340 USD | - | Transportation Services | US | US |
| Trade Sale | Mar-19 | 1,453 USD | YY | Internet | ASEAN | Singapore |
| IPO | Apr-19 | 1,430 USD | - | Internet | US | US |
| Trade Sale | May-19 | 1,370 USD | Edgewell Personal Care Company | Consumer Products | US | US |
| Trade Sale | Apr-19 | 1,200 USD | Catalent, Inc. | Pharmaceuticals | US | US |
| Trade Sale | May-19 | 1,050 USD | Merck | Biotechnology | US | US |

*Source: Preqin Pro*

# Global Performance

## Performance in Asia and Europe is improving, but an increasingly crowded market will test managers

Venture capital is a rapidly growing industry. As more funds enter the industry, more capital is called up. In 2017, a plethora of new funds emerged in Asia, which led to a sharp decline in global net cash flow. Capital called far outweighed capital distributed to give an annual net cash flow of -$48bn, a stark contrast to 2016's positive net cash flow of $8.2bn (Fig. 20).

As we have seen throughout this report, the venture capital industry is thriving in Asia and growing at an unprecedented pace. Given its youth, though, the region is associated with higher risk for investors in the asset class when compared with Europe- and North America-focused funds.

### Worth the Risk?

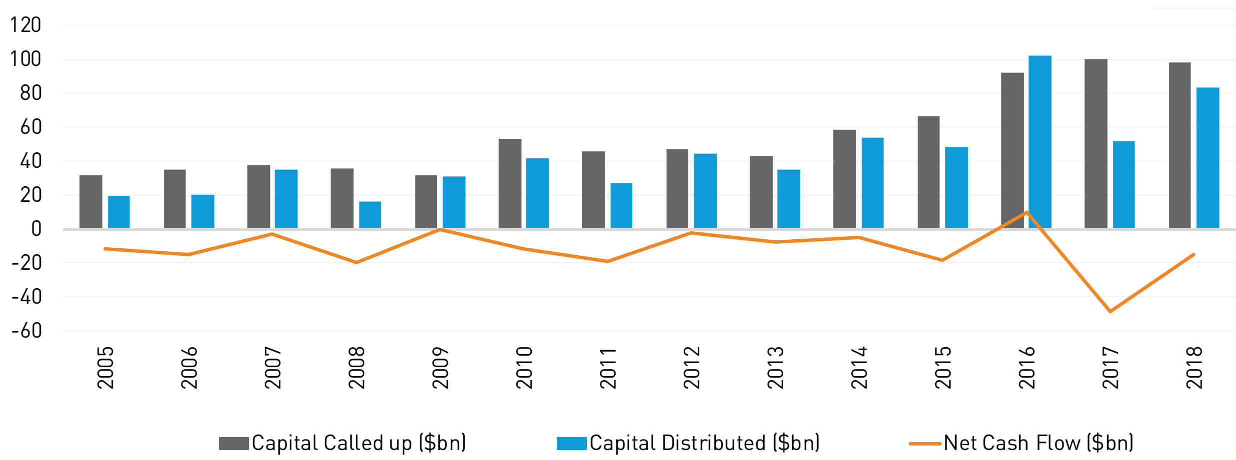
The historical home of venture capital, North America holds $397bn in AUM (as of December 2018) and funds in the region secured a total of $58bn in 2018. Venture capital funds targeting the region have continued to provide investors with a low risk profile, where potential returns are favourable but not exceptional. As Fig. 21 shows, the risk/return for North America-focused funds has remained relatively low for funds of vintages 2006-2016, while for Asia-focused funds the associated risk is considerably higher, but with more attractive return prospects.

Following the emergence of several tech unicorns and the increased digitization across local economies, more and more venture capital funds have launched in Asia, and particularly in China, over the past few years. Since venture capital is still an unknown market to many Asian institutions, the levels of associated risk mean Europe- and North America-focused funds are still the safer bet – at least for now.

### Asia and Europe on the up

With the Asian venture capital market growing at a remarkable rate, the PrEQIn Index for Asia- and Rest

**Fig. 20: Global Venture Capital Funds: Annual Capital Called up, Distributed and Net Cash Flow, 2005 - 2018**



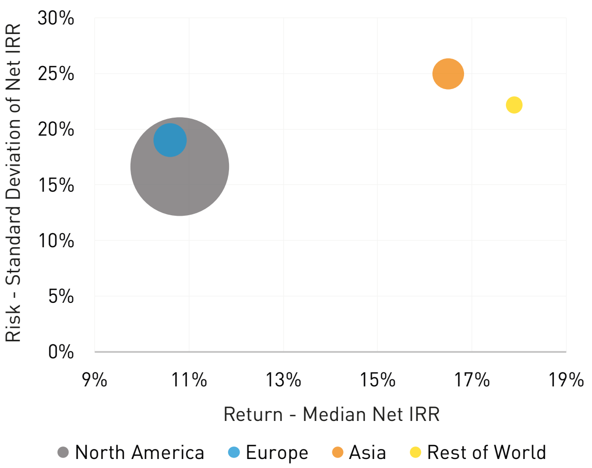

*Source: Preqin Pro. Most Up-to-Date Data* of World-focused venture capital funds has enjoyed a meteoric rise over the past 10 years, outperforming all other regions as well as the Russell 2000 TR Index (Fig. 24).

While the index for North America-focused funds has remained steady over this time period, the index performed the worst of all regions in 2017. Yet, this owes itself more to the improved performance of Europe-focused funds than a dip in North America-focused returns. Between late 2014 and early 2016, returns for Europe-focused funds weakened, but have since delivered high levels of outperformance over other regions.

### A Crowded Market

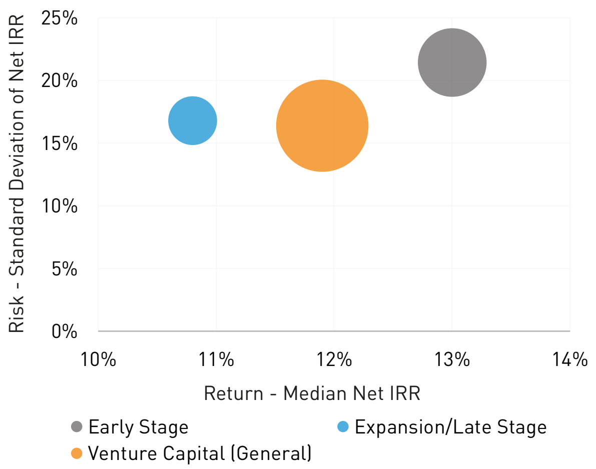
With an increasing number of new venture capital funds emerging across the globe, we expect the levels of capital called to remain high. The industry has exhibited strong performance, with vintage 2016 funds in the upper quartile boundary returning 33.9% (Fig. 25). The challenges fund managers face in delivering future performance will centre around their ability to source attractive opportunities in a crowded industry and, if a downturn does come, successfully navigate the market.

**Fig. 21: Venture Capital: Risk/Return by Geographic Focus (Vintages 2006-2016)***



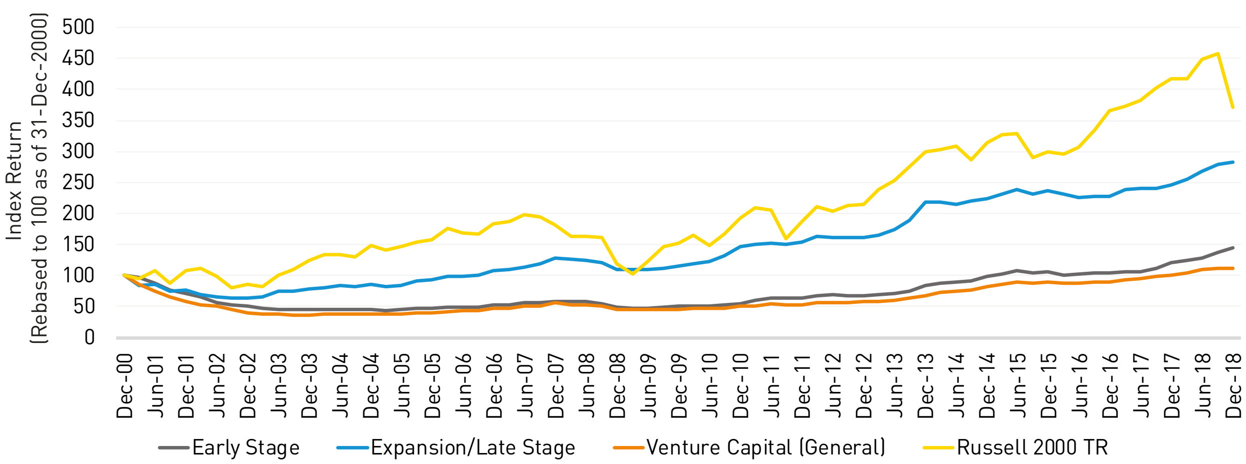

*Source: Preqin Pro. Most Up-to-Date Data*

**Fig. 22: Venture Capital: Risk/Return by Fund Type (Vintages 2006-2016)***




*Source: Preqin Pro. Most Up-to-Date Data*

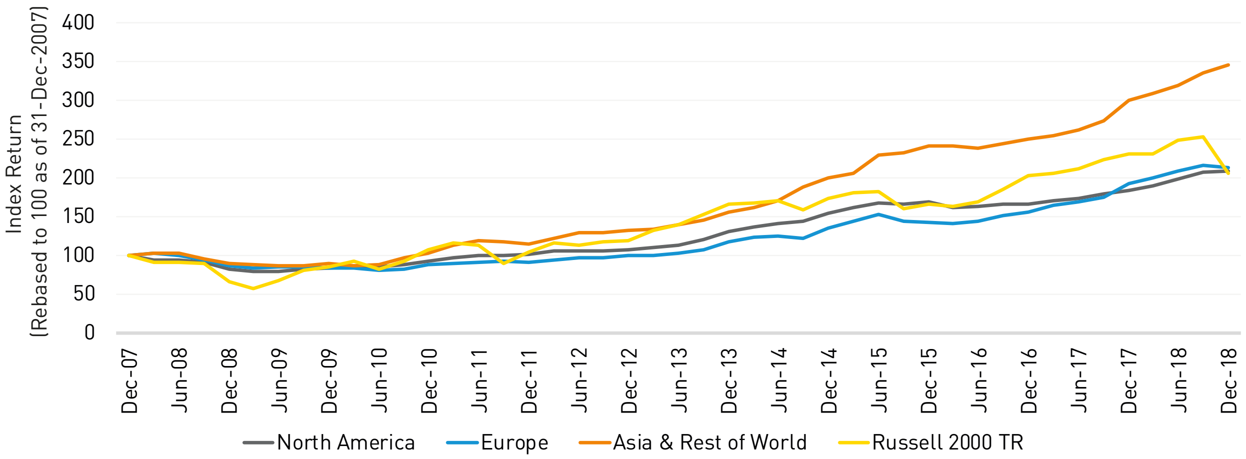
**Fig. 23: PrEQIn Index: Venture Capital by Fund Type vs. Public Markets (Rebased to 100 as of 31 December 2000)**




*Source: Preqin Pro*

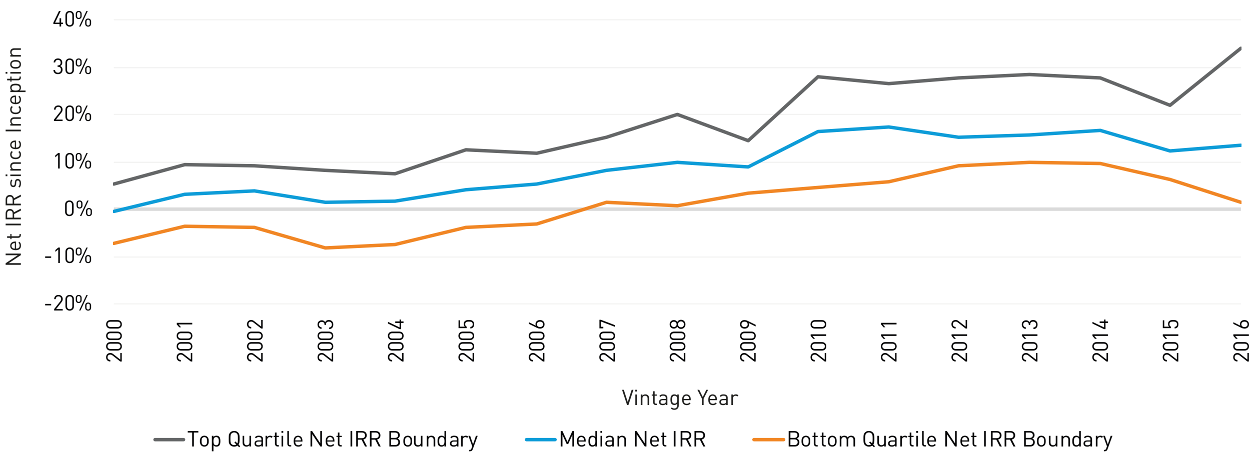
**The size of each circle represents the capitalization of funds used in this analysis.*

**Fig. 24: PrEQIn Index: Venture Capital by Geographic Focus vs. Public Markets (Rebased to 100 as of 31 December 2007)**




*Source: Preqin Pro*

**Fig. 25: Venture Capital: Median Net IRRs and Quartile Boundaries by Vintage Year**

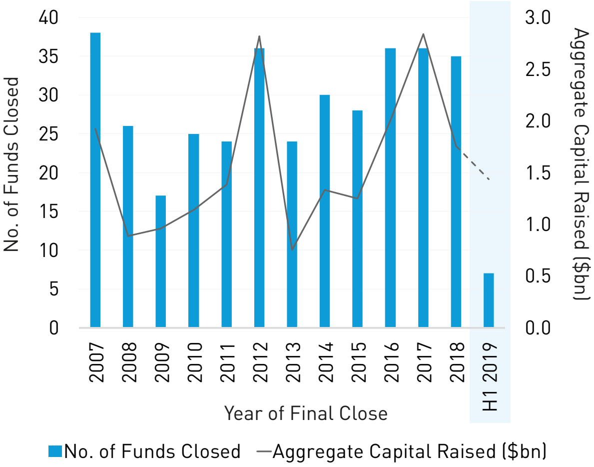



*Source: Preqin Pro. Most Up-to-Date Data*

# In Focus: Rest of World

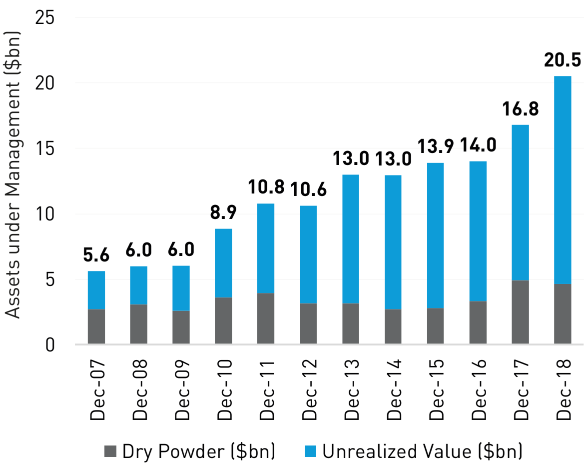
## First $1bn deal in Latin America signals venture capital's global progress

### Fig. 26: Annual Rest of World-Based Venture Capital Fundraising, 2007 - H1 2019




Source: Preqin Pro

### Fig. 27: Rest of World-Focused Venture Capital Assets under Management, 2007 - 2018




Source: Preqin Pro. Data as of June 2019

### Fig. 28: Notable Venture Capital Deals* in Rest of World in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| Rappi S.A.S. | Apr-19 | Unspecified Round | 1,000 USD | SB Investment Advisers, Softbank Latin America Ventures | Internet | Colombia |
| Creditas Soluções Financeiras Ltda. | Jun-19 | Series D/ Round 4 | 231 USD | Softbank Latin America Ventures, Vostok Emerging Finance, Amadeus Capital Partners, Santander InnoVentures | Financial Services | Brazil |
| Loggi TECHNOLOGY Ltd. | Jun-19 | Series E/ Round 5 | 150 USD | GGV Capital, Fifth Wall Ventures, VELT Partners, Microsoft, SB Investment Advisers | Consumer Services | Brazil |
| PayClip, S. de RL de CV | May-19 | Unspecified Round | 100 USD | General Atlantic, SoftBank | Financial Services | Mexico |
| Selina LTD | Apr-19 | Series C/ Round 3 | 100 USD | Access Industries, Colony Capital, Wiese Capital | Travel & Leisure | Panama |

Source: Preqin Pro

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.
NB: 'Rest of World' is comprised of Africa, Australasia, Latin America and the Middle East.

The market remains centred around the US and Asia, but as competition in these established markets increases, more capital is flowing into high-growth ecosystems emerging across the globe.

Latin America has been the standout emerging venture capital market in recent years, spearheaded by Softbank Latin America Ventures' SoftBank Innovation Fund, which was launched in early 2019 and targets $5bn for investments across Latin America.

Larger funds entering the region are making larger deals. The first $1bn+ venture capital deal in Latin America was financed by SoftBank Innovation Fund, which invested $1bn in Rappi S.A.S., an on-demand delivery start-up headquartered in Colombia (Fig. 28).

Over 200 transactions were completed in 2018 for an aggregate $2.8bn – both record figures (Fig. 30). 2019 has also started strong with $2.0bn of deals completed in the first half of the year. Multibillion-dollar activity in Latin America is becoming the new norm.

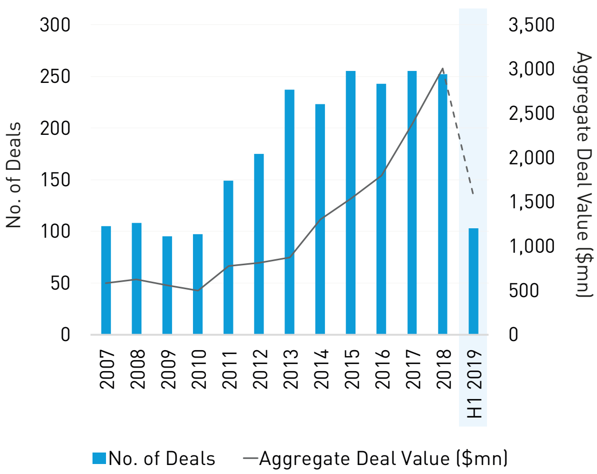
While still representing emerging markets on a global scale, venture capital activity in the Rest of World region is undisputedly on the up. Total Rest of World-focused dry powder stands at a significant $4.6bn as of December 2018 (Fig. 27). With capital ready to be deployed and positive economic changes in recent years – such as Colombia's 2019 tax reforms – these emerging ecosystems look set to continue attracting global capital.

### Fig. 29: Notable Rest of World-Based Venture Capital Funds Closed in the Last 12 Months

| Fund | Firm | Fund Size (mn) | Firm HQ |
|---|---|---|---|
| Abu Dhabi Catalyst Partners | Mubadala Capital | 1,000 USD | Abu Dhabi, United Arab Emirates |
| Monashees Capital VIII | Monashees Capital | 150 USD | São Paulo, Brazil |
| Agri-Vie II Fund | EXEO Capital | 146 USD | Bellville. South Africa |
| Ghadan Ventures Fund | Ghadan Ventures | 353 AED | Abu Dhabi, United Arab Emirates |
| Iron Pillar Fund I | Iron Pillar | 90 USD | Ebene, Mauritius |

*Source: Preqin Pro. Data as of June 2019*

### Fig. 30: Venture Capital Deals* in Rest of World, 2007 - H1 2019

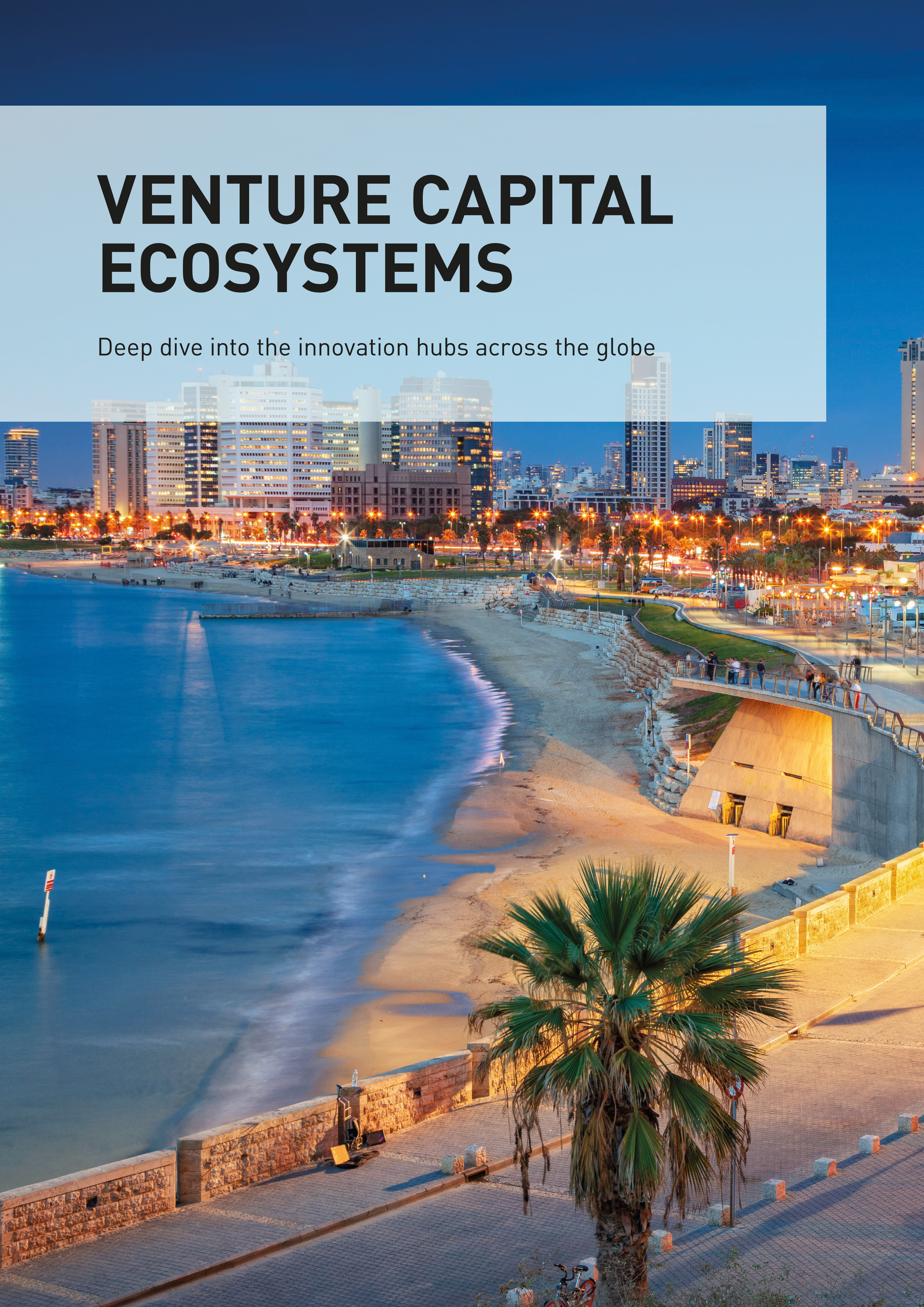



*Source: Preqin Pro*

**Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

# VENTURE CAPITAL ECOSYSTEMS

Deep dive into the innovation hubs across the globe



# Vertex Innovation Partnerships

## Vertex is enabling Japanese institutions to target international opportunities

**Chua Kee Lock**
**CEO, Vertex Holdings**

**Vertex recently invited Japanese institutions to invest in a $700mn+ feeder fund targeting potential unicorns in regions where Vertex has teams on the ground: the US, Israel, China, India and Southeast Asia. What is the rationale?**
Japan-based investors have been putting more capital to work outside Japan. In 2018, venture capitalists based in Japan – including corporate venture capitalists – invested twice the amount in companies located outside Japan as compared with 2017. Venture capital invested overseas doubled to $1.0bn, or about half of the $2.2bn total invested in start-ups.

By bringing Japan-based institutional investors on board, we are widening the Vertex network of innovation partnerships beyond our existing investors and the broader Temasek portfolio. Investors in our new fund will help to connect Japanese corporates with start-ups based outside the country.

**Why are Japanese corporates increasingly pursuing innovation partnerships and investments in overseas start-ups?**
There are many Japanese corporates with deep pools of capital and strong, predominantly Japan-centric businesses that are seeking new markets and business transformation prospects. These companies are keen to learn about disruptive technologies or business models that could positively influence their growth strategies. In fact, many of our portfolio companies often receive enquiries from Japanese corporates seeking innovative technologies.

For example, Beijing-based Geek+, which provides advanced robotics and AI technologies used in logistics and warehouse automation solutions, also has a branch in Tokyo. This is to deepen and broaden client relationships in Japan, and to help industrial enterprises there enhance their efficiency in a cost-effective way.

**What other types of tech start-ups are of interest to Japanese corporates?**
Our fintech portfolio companies are interesting to Japanese banks looking for new business models in remittance and lending. Singapore-based soCash, for instance, is an app that lets users withdraw cash from shops, cafés and grocery stores, so they're never far from an ATM.

Cybersecurity is another example. Our start-ups are helping Japanese utilities and transport companies – in sectors like railways, cars, planes and so on – to fortify their critical assets/infrastructure against cyber-attacks. Our portfolio companies include businesses like US-based CyberArk, which proactively stops advanced cyber threats and has offices in Asia-Pacific and EMEA as well as the Americas.

Using innovation partnerships and co-investment opportunities, Vertex is helping to match Japanese corporates with promising disruptive or transformational start-ups outside the country.

**Why do investors and start-ups come to Vertex? What is your key differentiator?**
Our global network of independently managed, localized venture capital investor-operators comprises four early-stage, IT-focused funds across China, India, Southeast Asia, Israel and the US, as well as a global healthcare fund. Vertex also has a growth-stage-focused fund that looks at follow-on opportunities from its portfolio of early-stage companies.

This network architecture enables our partners to access the best companies. It also provides a business development platform for these start-ups to scale internationally, by leveraging the Vertex global network and Temasek's portfolio.

**Besides business development, what else can the Vertex network do?**
Human capital is a sine qua non for high-performance start-ups to succeed and grow fast. At Vertex, beyond providing capital and business development opportunities, we also actively assist our portfolio companies in sourcing talent.

**Many Japanese corporates with deep pools of capital and strong, predominantly Japan-centric businesses are seeking new markets and business transformation prospects**

## About Chua Kee Lock

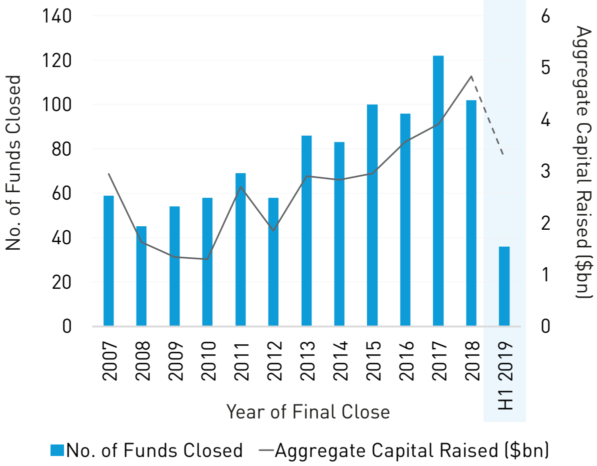
Chua Kee Lock is the CEO of Vertex Holdings. He provides guidance to Vertex on the broader investment strategy. He has significant experience ranging from investment-related roles to various management functions.

Prior to Vertex, Kee Lock served as the President and Executive Director of Singapore-listed Biosensors, a developer and manufacturer of medical devices used in interventional cardiology and critical care procedures. Previously from 2003-2006, Kee Lock held the position of Managing Director at a US-headquartered venture capital firm, Walden International, and was responsible for all its investment activities in the South Asia market.

# In Focus: Northeast Asia

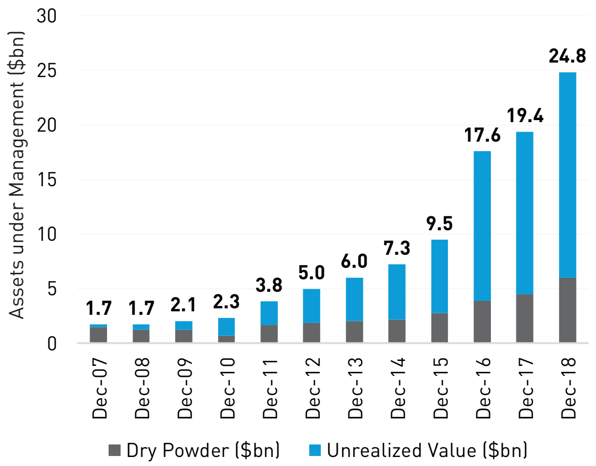
## An advancing technology sector provides great opportunity for venture capitalists

### Fig. 31: Annual Northeast Asia-Based Venture Capital Fundraising, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 32: Northeast Asia-Focused Venture Capital Assets under Management, 2007 - 2018




*Source: Preqin Pro. Data as of June 2019*

### Fig. 33: Notable Venture Capital Deals* in Northeast Asia in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| Yanolja Co., Ltd. | Jun-19 | Series D/ Round 4 | 180 USD | GIC, Booking Holdings | Internet | South Korea |
| Kurly Inc. | Apr-19 | Series D/ Round 4 | 100,000 KRW | Global Venture Partners, Sequoia Capital | Internet | South Korea |
| Ground X | Mar-19 | Seed | 100,000 KRW | IDG Capital, Crescendo Equity Partners, TransLink Capital | Software | South Korea |
| Socar | Jan-19 | Unspecified Round | 50,000 KRW | Softbank Ventures Asia, Altos Ventures, Stonebridge Capital, KB Investment | Telecoms | South Korea |
| Pixie Dust Technologies, Inc. | Apr-19 | Series B/ Round 2 | 3,846 JPY | INCJ, Ltd, SBI Investment, Toppan Printing, SMBC Venture Capital, Mizuho Capital, K4 Ventures, Venture Labo Investment, Dentsu, Global Brain Corporation, Dai-ichi Life Asset Management Co. Ltd | Software | Japan |

*Source: Preqin Pro*

**Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

The venture capital asset class has thrived in Northeast Asia, and AUM has more than doubled over the past five years. The vast majority ($19bn) of the $25bn in Northeast Asia-focused assets currently exists as unrealized value (Fig. 32), highlighting the plethora of opportunities available to venture capital managers in Japan and South Korea. In fact, dry powder has not surpassed unrealized value since the end of 2009.

In tandem with this growth in assets, the rise in Northeast Asia-based fundraising has shown little sign of slowing. Aggregate capital raised each year has risen continuously since 2014, as Fig. 31 shows. By the end of 2018, 102 funds had closed for an aggregate $4.8bn, which is almost $1bn more than was secured in 2017 and through 20 fewer fund closures.

At the midpoint of 2019, 335 venture capital firms are active in Northeast Asia; of these, 231 are headquartered in Japan and 104 in South Korea. Samsung Venture Investment Corporation, based in Seoul, is the largest venture capital firm in the region having secured more than $2.3bn over the past 10 years.

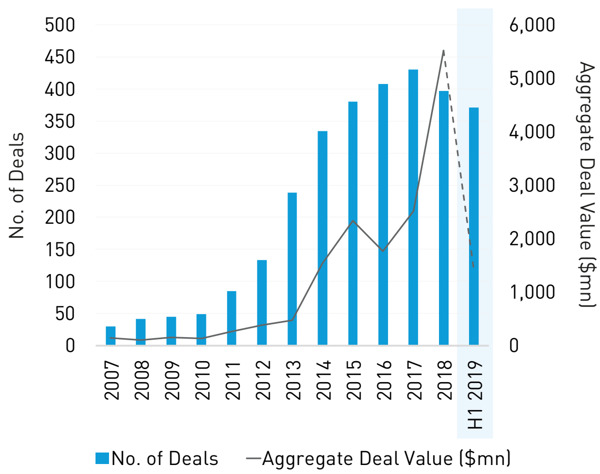
Last year, the total value of venture capital deals in Northeast Asia reached an unprecedented $5.5bn, more than double the aggregate value of deals completed in 2017 ($2.5bn, Fig. 35). This record sum belies the overall number of deals, which was smaller compared to 2017. Almost as many deals have already been completed in the first half of 2019, however, with 371 deals recording an aggregate value of $1.4bn.

### Fig. 34: Notable Northeast Asia-Based Venture Capital Funds Closed in the Last 12 Months

| Fund | Firm | Fund Size (bn) | Firm HQ |
|---|---|---|---|
| Mirae Asset-Naver Asia Growth Fund | Mirae Asset Global Investments | 1,000 KRW | Seoul, South Korea |
| Mirai Creation Fund II | SPARX Group | 73 JPY | Tokyo, Japan |
| SBI AI & Blockchain Fund | SBI Investment | 60 JPY | Tokyo, Japan |
| MUFG Innovation Partners I | MUFG Innovation Partners | 20 JPY | Tokyo, Japan |
| NTT Investment Partners Fund III | NTT DOCOMO Ventures | 20 JPY | Tokyo, Japan |

*Source: Preqin Pro. Data as of June 2019*

### Fig. 35: Venture Capital Deals* in Northeast Asia, 2007 - H1 2019




*Source: Preqin Pro*

**Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

# Investing in Southeast Asia's Future

**Sectors like retail, gaming and platform businesses are hot, but investors should watch for hyped-up valuations**

**Chua Joo Hock**
**Managing Partner, Vertex Ventures SEA & India**

**What are some of the emerging trends in Southeast Asia? Any industries that are particularly exciting?**
Millennials[1] account for 30% of the world's population; they are expected to make up the majority of the workforce by 2025, and their spending power is set to overtake that of Generation X's by 2020. Taking this into consideration, Vertex Ventures Southeast Asia (SEA) and India team conducted research on the coming of age of this demographic group to understand how they are redefining the consumption and growth story.

Based on World Bank data, SEA's 214 million millennials comprise 32.6% of the region and 9.0% worldwide while India's 459 million millennials comprise 33.9% of the country and 19.5% worldwide. There are a few characteristics that make SEA and Indian millennials unique: firstly, they are more active online as compared to millennials of other regions. Internet penetration is no longer limited to urban millennials with 84% of SEA and 70% of Indian millennials online.[2] On average, SEA and Indian millennials spent 8.3 hours on the internet in 2018, and three hours on social media daily while those in US, France and Germany spent 5.1 hours and 1.5 hours respectively. Secondly, they bring about a rise in consumerism as SEA and Indian millennials are observed to be bigger spenders with fewer financial burdens. With the rise of consumer credit markets and diminishing stigma of debt, there is a transition from savings to spending culture. Asian millennials have been found to spend more than they save – 30% and 20% of their income respectively – on leisure activities such as shopping and eating out. Tourism is also an industry fuelled by this increased willingness to spend, with millennial travellers expected to spend $340bn on international trips by 2020. In addition, without the cultural norm of moving out, Asian millennials are more likely to live with parents than the global average of 49%. Financial pressures for big-ticket items such as a house and/or car hence tend to be delayed; many SEA and Indian millennials put off these commitments until later in life, availing higher spending power than their North American and European counterparts.

This digital native population presents opportunities in sectors including retail, gaming and the sharing economy.

**Retail: Rise of Social-Driven Consumption**
The process of trend-making is no longer limited to traditional content platforms or corporates. With wide availability of tools such as editing software and the

*[1] Definition: Born between 1980 and 2000*
*[2] Using Facebook accounts as a proxy*

growth of social media as distribution platforms, the power of influencing is democratized. Customers are no longer satisfied merely with passive consumption but are eager to participate such as through creating content and funding ideas. As a result, we observe the increasing adoption and usage of platforms beyond traditional media such as Vogue magazine to social media such as Instagram and crowd-sourcing sites such as Kickstarter. This transition in trend-making gives rise to socially driven consumption in the retail sector with a focus on personalization and peer-driven marketing.

**Gaming: Evolution of E-Sports**
Contrary to intuition, social elements are the key drivers of the e-sports boom. Within games, players are able to redefine their social life and create an alternate reality with a virtual community. Fortnite, for instance, amassed a large following and generated $300mn in the month of April 2018 alone across mobile, PC and consoles. It is a free-to-play model, which gets as many players into the game as possible and generates revenue via in-app purchases of items such as 'skins,' a digital fashion symbol. Beyond playing the game, a wider community is engaged via streaming. Like watching a football match, many millennials watch leagues featuring professional e-sports players. In January 2018, Amazon's online video-streaming platform Twitch had nearly one million viewers at any one point in time putting it on par with traditional channels such as CNN, Fox News and ESPN. On the platform, many play games live while others watch and tip players in the form of 'bits' which are purchased with real money. The consumer market derived from e-sports lies in these social elements including streaming and in-game purchases.

**Sharing Economy: Rise of Platform Businesses**
Enabled by technology, new-age services such as on-demand groceries and the gig economy see the highest adoption among millennials. With reduced search and transfer costs facilitated by marketplace platforms and digitization of the economy, it is easier for consumers to find a variety of products at a suitable price. The availability of information also allows consumers to better evaluate options and build trust in this business model. Going forwards, platforms will seek to tackle services that require higher skill levels such as curation of experience via artificial intelligence and a higher level of trust from consumers to fulfil their needs.

## Millennials in Southeast Asia have higher spending power than their North American and European counterparts

**Some firms feel that quality deals are few and far between in Asia. Does Vertex share the same sentiment and can the same be said for the SEA market?**
There is no lack of quality deals in SEA; we continue to see interesting companies trying to solve pressing problems. Total cumulative investments in SEA from 2010 to 2018 amounts to approximately $23.4bn with 23% growth in deal value from 2017 to 2018. According to the e-Conomy SEA Spotlight 2017 report by Google and Temasek, SEA is home to 330 million internet users, the third highest in the world. This makes the region a ripe environment for the growth of more technology companies. Since 2012, SEA has seen the rise of 10 unicorns – Bukalapak, Grab, Go-Jek, Lazada, Sea, Razer, Tokopedia, Revolution Precrafted, Traveloka and VNG – with a combined market value of $34bn.

However, our concerns are that of overfunding and hyped-up valuations. In terms of venture capital investment pace, SEA mirrors what China was about 10 years ago at approximately $3bn per year. Indonesia has experienced the fastest growth in SEA where capital invested in Indonesia saw an increase of approximately 67% from $1.7bn in 2017 to $2.9bn in 2018. Yet, the model of aggressive growth with less concern for profitability may not be fully applicable to this region. This is observed, for instance, in Indonesia's P2P lending sector. According to Indonesia's financial services agency, Otoritas Jasa Keuangan (OJK), registered P2P lenders have channelled a combined $1.1bn in loans to 2.8 million borrowers between December 2016 and 2018. The P2P lending sector flourished rapidly with the large number of unbanked and underserved people in Indonesia; but in growing too quickly, the sector attracted many unregulated players from abroad which tainted the reputation of a sector that has potential to advance financial inclusion. At the same time, OJK received more than 1,300 complaints, issued warnings to 78 registered P2P lenders and enlisted the Communications Ministry to block more than 400 websites and applications offering illegal P2P lending services. To better regulate this sector, OJK issued new rules such as requiring fintech companies running P2P lending businesses to have a minimum of IDR 1bn and capital of IDR 2.5bn in order to apply for a business licence.

Ventures with no monetization outlook, overfunding and overvaluation are an increasing endemic cycle in SEA. Unsustainable valuations will eventually result in market corrections. Valuing a company is difficult and even more so for start-ups where traditional methods may not reflect a meaningful value for investors. For example, Grab and Go-Jek combined have 33 funding rounds. Grab's pre-valuation for Series H was $11bn and after it raised $4.5bn, its valuation increased to $14bn. With little disclosure of Go-Jek or Grab's profitability figures, high valuations seem to reflect how bullish investors are about the development of these super-apps in the region rather than the actual state of the company.

We observe increasingly strong interest for venture capital investments in SEA but Vertex remains cognizant that SEA is not a homogenous region, and with this myriad of potential investments, investors need to recognize the uniqueness of each country and customize strategy accordingly. Investing in SEA requires years of experience to understand the nuances of each country, and to be patient and regulator friendly. We see that many new investors coming to SEA tend to be more 'gung-ho' and wrongly believe that the models they are familiar with in their own regions can be similarly replicated wholesale in SEA.

For less experienced investors, the lure of momentum investing and the willingness to pay high valuations is harder to resist while staying sane in investing. Unfortunately this has been fuelled by the constant media reports about which venture capital funds are the most active investors and "the highest Series A valuation raised by XXX start-up." Many founders have even become unrealistic, and mostly misguided, about valuations; many are seemingly more interested in being quoted by the media as the one that managed to raise money at the highest valuation. Vertex Ventures' ethos has always been: "don't chase valuations," and also the corollary: "don't be chased by valuations."

**Going public is a common exit route in many regions, but in SEA, acquisitions or secondary transactions have the potential to generate higher financial returns than an IPO**

**With the recent exit boom where some of the world's most talked-about venture capital-backed companies are conducting or considering IPOs, how does Vertex view exits in SEA?**

The characteristic definition of a successful exit – going public – is highly influenced by mature tech ecosystems. However, the best type of liquidity event could differ by region. In SEA for instance, opportunities such as mergers & acquisitions and secondary transactions could result in larger financial returns than going public, especially if the acquirer has a strong strategic interest in the region.

In SEA, exits are happening and contributing to a healthy investment pace through the recycling of capital. The number of start-up exits grew for three consecutive years from 2015 to 2017. With only a handful of IPOs to name such as Sea and Razer, potential investors may thus have a dampened outlook on the SEA exit landscape. However, liquidity has more commonly been through trade exits and secondary sales, with 44 being closed out of 50 and 47 total events in 2017 and 2018 respectively. Additionally, SEA's unicorns are making acquisitions such as Grab's acquisition of Kudo and Traveloka's acquisition of PegiPegi, creating liquidity opportunities for start-ups and their early investors. Later-stage investors are buying secondary shares from early investors either to average down their costs or just to get ownership because they were not able to get any allocation in the actual financing rounds.

Hence, there are significant opportunities in SEA for investors and entrepreneurs alike to generate good financial returns on their investment. We see that in the next 3-5 years, there could be more IPOs for SEA-based unicorns or companies as they become more dominant and are able to narrow their losses or become profitable.

## About Chua Joo Hock

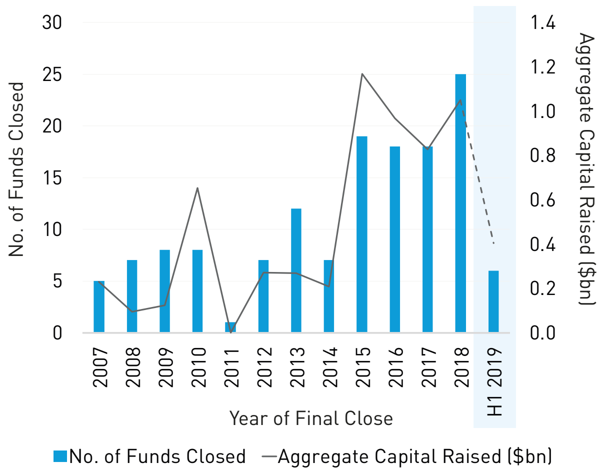
Chua Joo Hock is based in Singapore and heads the investment activities in Southeast Asia and India. Joo Hock joined the former Singapore Technologies Group in 1987 where he was involved in the early phase of Singapore Technologies' venture capital investments which later became Vertex in 1988.

Throughout his career in Vertex, he has been involved in VC investments globally particularly in the US, Singapore, Taiwan, India, China and Israel. He spent several years in the US from 1989 to 1992 and later from 1998 to 2004 where he was responsible for Vertex US investments and operation. Joo Hock graduated from the University of Singapore in 1979 with a Bachelor of Engineering (Mechanical). He also has a MBA from National University of Singapore.

# In Focus: ASEAN

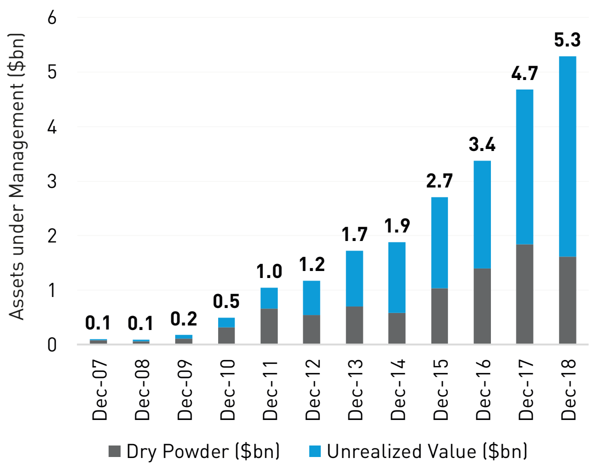
## High-growth region sees record venture capital activity

### Fig. 36: Annual ASEAN-Based Venture Capital Fundraising, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 37: ASEAN-Focused Venture Capital Assets under Management, 2007 - 2018




*Source: Preqin Pro. Data as of June 2019*

### Fig. 38: Notable Venture Capital Deals* in ASEAN in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| Grab Holdings Inc.** | Mar-19 | Series H/ Round 8 | 1,460 USD | SB Investment Advisers | Transportation Services | Singapore |
| Go-Jek Indonesia | Jan-19 | Series F/ Round 6 | 920 USD | JD.com, Tencent, Google Inc., Mitsubishi Corporation, Provident Capital | Internet | Indonesia |
| Traveloka | Apr-19 | Unspecified Round | 420 USD | GIC | Travel & Leisure | Indonesia |
| Grab Holdings Inc.** | Jun-19 | Unspecified Round | 300 USD | INVESCO Asset Management | Transportation Services | Singapore |
| Zilingo Pte. Ltd | Feb-19 | Series D/ Round 4 | 226 USD | Sofina, EDBI, Temasek Holdings, Sequoia Capital, Burda Principal Investments | Internet | Singapore |

*Source: Preqin Pro*

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.
**Vertex Ventures Southeast Asia & India was the first institutional investor in Grab Holdings Inc. and took part in Series A, B and C financing rounds.

Venture capital in ASEAN is booming. Global capital continues to flow into Southeast Asia as investors target exposure to this high-growth region, attracted by a young, technologically literate workforce and strong export levels.

In 2018, for the third time in the past four years, total ASEAN-focused venture capital fundraising surpassed $1bn, as seen in Fig. 36. ASEAN-focused AUM reached record levels at the end of 2018 ($5.3bn, the latest available data, Fig. 37), while the annual amount of capital deployed into the ASEAN venture capital market hit $10bn for the first time (Fig. 40).

Singapore is the hub of ASEAN venture capital. Indeed, activity in Singapore has pushed venture capital deal levels to record highs; nearly $15bn of venture capital deal value has been recorded since the start of 2017, two-thirds of total ASEAN deal value. Two companies have been the standout assets over this period, each recording multibillion-dollar financings in 2018: online department store Lazada and Grab Holdings Inc., provider of Grab, an app offering ride-hailing transport services, food delivery and payment solutions.

Emerging out of Singapore's shadow, though, is Indonesia. The venture capital market in Indonesia is moving from strength to strength, recording over $1bn in deals for the first time in 2017 ($1.7bn) and reaching $2.9bn in 2018. The 'GTT' – a group of three local tech giants – is behind this exponential development, and includes Go-Jek, an app providing various on-demand services; PT Tokopedia, an online marketplace; and Traveloka, an online platform for booking hotels and transport.

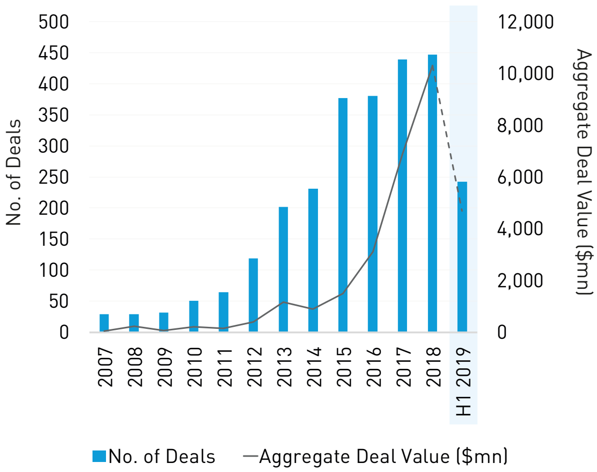
With dry powder at record highs and local governments looking to invest in digital frameworks across the region, investment in the ASEAN venture capital market is likely to continue its record-breaking pace.

### Fig. 39: Notable ASEAN-Based Venture Capital Funds Closed in 2018/2019

| Fund | Firm | Fund Size (mn) | Firm HQ |
|---|---|---|---|
| Vertex Ventures SEA & India Fund IV | Vertex Ventures Southeast Asia & India | 300 USD* | Singapore |
| EV Growth Fund | East Ventures | 200 USD | Singapore |
| Basil Partners Fund III | Basil Partners | 171 USD | Singapore |
| Openspace Ventures II, L.P. | Openspace Ventures | 135 USD | Singapore |
| ComfortDelGro Ventures | ComfortDelGro Capital Partners | 100 USD | Singapore |
| Golden Gate Ventures Fund III | Golden Gate Ventures | 100 USD | Singapore |

*Source: Preqin Pro. Data as of June 2019*

### Fig. 40: Venture Capital Deals** in ASEAN, 2007 - H1 2019




*Source: Preqin Pro*

**Vertex Ventures SEA & India Fund IV secured $230mn at its first close in May 2019. The fund's target size is $250mn.*
***Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

# Nurturing the Next Wave of Tech Unicorns in India

## The consumer-driven and fintech sectors are growing fast to meet demand from a young, tech-savvy demographic

Ben Mathias
Managing Partner, Vertex Ventures Southeast Asia & India

**From your vantage point, what are some of the emerging trends in India? Are there any industries that are particularly exciting?**
After China, India has the second-highest number of internet users in the world – over half of the population is expected to be online by the end of 2019. There is therefore tremendous potential to create new internet businesses in both consumer and B2B sectors addressing the next 500 million users. Moreover, as millennials become the prime drivers of consumption, we see massive opportunity to create new brands aligned with the ethos of this generation.

The momentum in Enterprise/SaaS sector continues to sustain and in addition we see a surge in number of core technology/deep-tech start-ups using artificial intelligence (AI) in a variety of sectors from healthcare to autonomous vehicles.

Let us examine a few of these trends in detail.

**Social content and commerce:** only 25% of India's 636 million internet users transact online for products. This represents a high level of untapped potential for commerce. To bridge this divide for the next 500 million users, new models that leverage social networks (such as WhatsApp and Facebook) or content platforms are entering the market. This formed a core part of our thesis for our investment in GlowRoad, a social commerce company, and we keep a close eye on this space. India's per capita internet consumption has skyrocketed from 150Mb per month in 2016 to 9Gb as of March 2019, and we will see new products launching to capture this growth.

**Consumerization of the SMB:** India has over 63 million micro, small and medium enterprises (MSMEs), but only 2% of them leverage digital tools and technologies. As more MSMEs look to participate in the digital economy, we see many start-ups aiming to solve problems in market access, supply-chain or financial services. Unlike in the West, where most MSMEs own a computer or laptop and are able to use sophisticated solutions, the MSME segment in India is largely new to such tools – solutions need to be built from the ground up, just as for consumers. Given the strong ties with the SME community, the network effect results in rapid growth of such start-ups. For example, Udaan is a B2B trade platform aimed at SMEs in India, and reached unicorn status in a mere 24 months.

**Rise of consumer brands:** home to nearly 459 million millennials, India is one of the world's youngest nations. This new generation has grown up in a post-liberalization era, where exponential growth fuels belief in the economy. This newly optimistic mindset has led to a shift from traditional savings to spending. Nearly 50% of any incremental income is spent on eating out, entertainment or apparel, and only about 10% goes towards savings. Combined with the tech knowledge of the younger generations, this has given rise to D2C customer brands which resonate with the values of the generation and cater to their need for quality, transparency, convenience and customer experience. Our portfolio company Licious has created a niche for itself in the meat category because of its superior product quality and the convenience of home delivery.

**Enterprise/Saas/Deep tech:** a sign of more to come, as Freshdesk became a unicorn in 2018, followed by Druva and Icertis in 2019. We are seeing new players emerging in this space to target specific verticals such as logistics and sales, across both India and Southeast Asia. Leveraging the deep talent pool in advanced technology, companies are also emerging in the deep tech space: start-ups using AI and machine learning to improve the productivity and efficiency of existing systems. We have already seen the first wave of these companies in the healthcare sector – like Tricog and SigTuple – and we will see many more in other advanced technologies like cybersecurity, autonomous vehicles and speech/video analytics. Our portfolio company Flutura is a leader in the Industrial Internet of Things (IoT) space and continues to make great strides.

**You raised $230mn for your Southeast Asia & India Fund IV; how much of this will be deployed in India and over what period?**
We don't have a fixed allocation; it depends on the opportunities we see. We have made 10 investments in India over the past three years from Fund III, which was a $210mn fund. Many of these investments – like online meat & seafood ordering start-up Licious, fintech platform Kissht and local marketing management platform Synup – have scaled really well.

We will continue to invest at a similar pace over the next 3-4 years. We are a hands-on investor and work closely with each company in their hiring and business development practices, leveraging our extensive network in the region. As such we tend to be selective in the companies we partner with. We are looking to invest in early- to mid-stage companies, which primarily means Pre-A to Series A financings, with some capital deployed in Series B. We will continue our focus on the enterprise technology, consumer and fintech sectors.

**Can you share your rationale behind launching a Southeast Asia & India-focused fund series, as opposed to a separate India-focused fund?**
We see a lot of synergies between India and Southeast Asia (SEA). Aside from the challenges that are typical

## Since the start of 2019, over $7.9bn poured into Indian start-up companies, taking the total number of unicorns in the country to 26

across emerging markets, there are many similarities in consumer behavior as well. This helps us to cross-pollinate our understanding of the Indian market to SEA, and vice versa. Our knowledge of the co-living market in India helped guide our investment in Roome, a co-living startup in Indonesia. Likewise, our investment in an insurance underwriter in Thailand helped us invest in a similar company in India.

The SEA market is the first port of call when Indian companies look to expand, and we can help by leveraging our strong network in the region. We also see many cross-border companies building global tech solutions out of Singapore-India. Digital money transfer start-up Instarem is one such example where the founding team is split in Singapore-India, as is bank-consumer service platform Active.ai.

**How have market conditions in India changed over the years, and how has Vertex adapted?**
India has enjoyed a robust and growing start-up culture in recent years. Over $10bn was invested into the Indian venture capital ecosystem in 2018. Of which 50% went to 9 startups including unicorns like hotel aggregator Oyo Rooms, Swiggy in food delivery, and edtech startup Bjyu's.

As we see it, there are three key themes playing out in the Indian market.

Matching the global trend, fewer deals are being completed in the Indian venture capital market; instead, investors are writing larger cheques. The investment momentum continues and since the start of 2019, over $7.9bn was invested into the Indian venture capital ecosystem, taking the total number of unicorns to 26 – new additions to the group include ecommerce logistics provider Delhivery, online fantasy sports platform Dream11, grocery delivery provider bigbasket, logistics platform Rivigo, OLA Electric, cloud data protection Druva and cloud contract management Icertis.

Indian VC ecosystem is getting larger with many global investors from China, Japan, Korea and United States are looking to deploy capital in early stage startups. 2018 alone has seen $900mn worth of investments from China-based funds. Besides the usual suspects Alibaba and Tencent, we now have Shunwei, Fosun, Morning-Side and CDH who want to deploy capital in early stage startups in India and have set up India-focused teams. The increased influx of capital has led to an upward trend in early stage startup valuations; however, we intend to be disciplined and stick to the fundamentals.

Lastly, the Indian government is acting as a powerful catalyst for start-up growth. Real-time instant payment system United Payments Interface (UPI) was developed in 2016, and its success – the platform processed 750 million transactions in June 2018 – has demonstrated the value of creating digital infrastructure for the public sector. Reserve Bank of India (RBI) has created a regulatory sandbox for fintech companies to test new products and services – the data sharing framework aims to accelerate the adoption of fintech and promote collaboration between start-ups, banks and other financial institutions/companies. The Department for Promotion of Industry and Internal Trade (DPIIT) plans to set up an India Startup Fund with an initial $150mn in seed funding for high-tech, cutting-edge start-ups in priority areas. Government initiatives like these, coupled with regulatory changes to support start-ups, are positively shaping the narrative of investing in India.

**How does Vertex view the exit landscape in India?**
Exits are happening and contributing to a healthy investment pace through the recycling of capital; liquidity has been mostly through M&A and secondary transactions. The largest exit in the Indian venture capital ecosystem was when Walmart acquired Flipkart in 2018 for $16bn. Two of our portfolio companies got acquired in the last couple of months, travel booking service Yatra was acquired by Ebix and CloudCherry, a customer experience management platform was acquired by Cisco.

The Initial Public Offering (IPO) market in India is robust as well. India ranked second in terms of the total number of IPOs in 2018, exceeded only by Hong Kong. Over time we will see more start-ups taking the IPO route as they start focusing on profitability. IndiaMART, a B2B e-commerce platform, went to an IPO this year and debuted the stock market with a market cap of about $500mn. This could well be a harbinger of many more successful exits to come in the next five years.

## About Ben Mathias

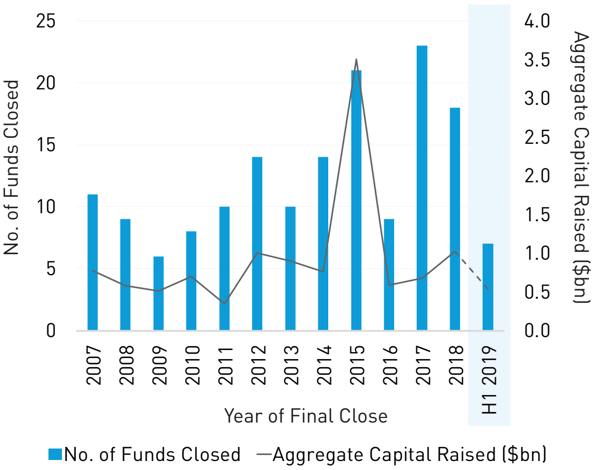
Ben Mathias is Managing Partner of Vertex Ventures Southeast Asia & India, having joined Vertex in 2015. While his key focus is in India, he is part of the Vertex team covering India and Southeast Asia. Prior to Vertex, Ben was a partner at New Enterprise Associates (NEA). He held senior positions at E2open and i2 Technologies.

Previously, Ben spent a number of years at PwC Consulting. In his early career, he was at Open Environment Corporation. Ben received his Master of Science in Engineering Sciences from Dartmouth College and his Bachelor of Technology from the Indian Institute of Technology, Madras.

# In Focus: South Asia

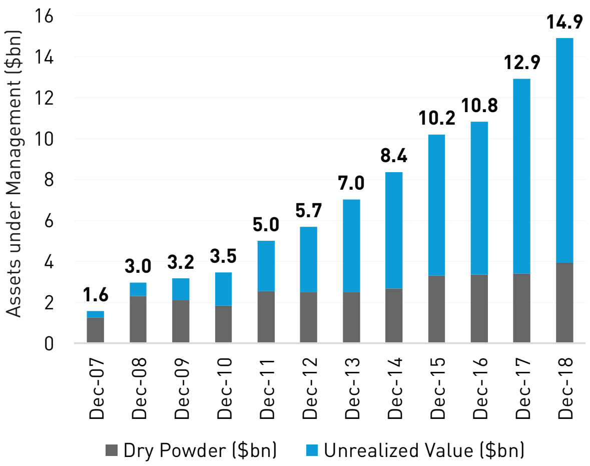
## More and more start-ups are emerging in India in search of funding

### Fig. 41: Annual South Asia-Based Venture Capital Fundraising, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 42: South Asia-Focused Venture Capital Assets under Management, 2007 - 2018




*Source: Preqin Pro. Data as of June 2019*

### Fig. 43: Notable Venture Capital Deals* in South Asia in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| Delhivery Pvt Ltd | Mar-19 | Series F/ Round 6 | 413 USD | Carlyle Group, Fosun International, SB Investment Advisers | Logistics & Distribution | India |
| ANI Technologies Private Limited | Mar-19 | Unspecified Round | 300 USD | Hyundai Motor Company, Kia Motors Corporation | Transportation Services | India |
| Policybazaar Insurance Web Aggregator Private Limited | May-19 | Series F/ Round 6 | 10,594 INR | SB Investment Advisers, Info Edge (India) Limited, True North | Internet | India |
| Supermarket Grocery Supplies Pvt. Ltd. | Mar-19 | Series F/ Round 6 | 150 USD | Mirae Asset Global Investments, CDC Group, Alibaba Group | Internet | India |
| BrainBees Solutions Pvt. Ltd.** | Jan-19 | Series E/ Round 5 | 150 USD | SB Investment Advisers | Internet | India |

*Source: Preqin Pro*

**Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*
***Vertex Ventures Southeast Asia & India took part in Series B, C and D financing rounds.*

India has been the fastest-growing economy in the world since 2014, and is on course to overtake the UK in the IMF global rankings to fifth position. It is of little surprise, then, that 116 of the 121 South Asia-based venture capital firms are headquartered in India. Boosted by support from government-backed programs such as Startup India, the region has become an attractive ecosystem for would-be start-ups seeking funding.

Venture capital AUM in South Asia has steadily grown over the past 10 years, reaching $15bn as of December 2018 (Fig. 42). Fundraising in the region peaked in 2015 when 23 funds secured a combined $3.5bn (Fig. 41). Aggregate capital raised declined sharply the following year but has gradually recovered since.

At $1.6bn, SIDBI in Lucknow, India has raised the most of any venture capital firm in the region over the past 10 years. The dominance of the Indian venture capital ecosystem within South Asia is undisputed: the country is home to all of the top 10 South Asian venture capital firms by aggregate capital raised.

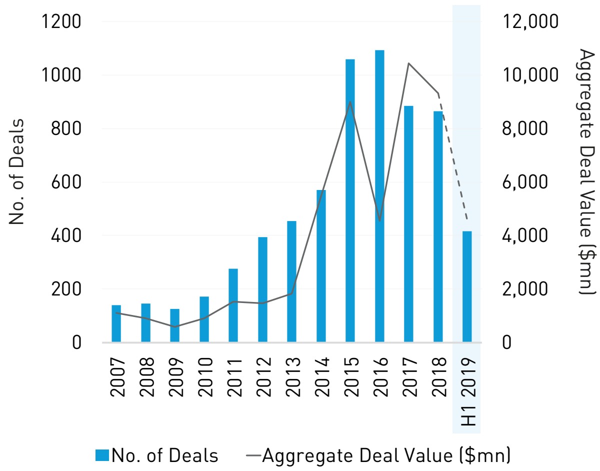
The annual aggregate value of venture capital deals in South Asia reached a record $10bn in 2017 (Fig. 45), which was the highest regional total recorded across Asia, excluding Greater China, during that year. Deal-making remains buoyant in 2019, and ongoing government support together with a strong economic outlook should secure the future growth of the venture capital industry in South Asia.

**Fig. 44: Notable South Asia-Based Venture Capital Funds Closed in 2018/2019**

| Fund | Firm | Fund Size (mn) | Firm HQ |
|---|---|---|---|
| A91 Emerging Fund I | A91 Partners | 351 USD | Mumbai, India |
| Matrix India III | Matrix Partners India | 321 USD | Bengaluru, India |
| Vertex Ventures SEA & India Fund IV | Vertex Ventures Southeast Asia & India | 300 USD* | Bengaluru, India |
| Omnivore Partners Fund 2 | Omnivore Partners | 6,790 INR | Mumbai, India |
| Stellaris Fund I | Stellaris Venture Partners | 90 USD | Bengaluru, India |

*Source: Preqin Pro. Data as of June 2019*

**Fig. 45: Venture Capital Deals** in South Asia, 2007 - H1 2019**




*Source: Preqin Pro*

*Vertex Ventures SEA & India Fund IV secured $230mn at its first close in May 2019. The fund's target size is $250mn.*
***Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

# Vertex Ventures SEA & India: Selected Portfolio Companies

**Binance Singapore** is the fiat-to-crypto platform for the buying and selling of cryptocurrencies with Singapore Dollars (SGD) of global cryptocurrency and blockchain ecosystem, Binance.

**Cicil** is a cloud-based loan management system aimed at addressing the financial needs of Indonesian University Students.

**Firstcry** is an online portal for baby care, kids and maternity care products in India which sells products from the top international and Indian brands.

**Grab** offers ride-hailing transport services, food delivery and payment solutions in Southeast Asia.

**HappyFresh** is an online grocery platform in Southeast Asia that enables customers to easily order from their favourite supermarkets.

**InstaReM** offers cross-border money transfer and payment services in real time with a presence across Asia-Pacific, North America and Europe.

**Kissht** is a consumer lending platform in India that enables instant, seamless credit to make purchases at the digital point of sale.

**Licious** provides online fresh meat and seafood delivery services in India and owns the entire back-end supply chain and cold chain.

**Patsnap** is an Intellectual Property (IP) search, analytics and management platform which provides a comprehensive R&D dataset.

**PayFazz** enables branchless banking through a distributed network of bank agents.

**Storehub** is a Point of Sale (POS) system that enables retailers to manage their businesses more efficiently with real-time data visualization.

**Sunday** is an online insurance platform that offers non-life insurance products in Thailand, ranging from flight delay coverage to auto and health insurance.

**Synup** offers a comprehensive local data management platform that manages your location data, presence, reputation and analytics.

**Tickled Media** is a multinational tech company and digital publishing house focused on content and community platforms for Asian women.

**Validus** is a peer-to-peer lending marketplace that connects SMEs to accredited and institutional investors for easier and quicker financing at affordable rates.

**Warung Pintar** is a micro-retail platform that helps traditional merchants to digitize their business and connects farmers directly to food stalls and food vendors.

# China: Promising Investment Opportunities in its Economic Transformation

## China's rise as a global innovation hub makes sectors like AI and deep tech especially attractive

**Tay Choon Chong**
**Managing Partner, Vertex Ventures China**

**China is advancing rapidly in the Global Innovation Index[1] of 129 countries, and it comes top for quality of innovation among middle-income economies. How has China grown its innovation economy so fast?**
China has a large, tech-savvy domestic market, and that makes it an ideal place to experiment with innovations. Locals are keen to embrace new technologies: since 2000, internet use in China has grown by over 80x to 800 million users. It's one of the world's leading players in digital payments. Mobile payments exceeded $41tn in 2018, an increase of almost 37% compared with 2017. In China, urban areas are essentially cashless.

At both the national and local level, there are government policies in place to foster high-tech development, with a huge talent pool that start-ups can draw on. And China's entrepreneurial drive is impressive. We believe that this will allow China to sustain its advantage, giving it a fair chance of surpassing the rest of the world in innovation. There are plenty of opportunities here for innovative start-ups, particularly in retail, healthcare and transportation.

**How is the Chinese market responding to challenges like the US-China trade battle and the recent economic slowdown?**
China is transitioning to a new economic model, one that is underpinned by a wealth of talent and motivation and immense intrinsic demand. It has embraced slower economic growth, referring to it as the 'new normal.' This new normal relies less on fixed investment and exports, and more on private consumption, services and innovation to drive economic growth.

**Could you tell us more about this transition; what has facilitated the shift towards higher private consumption?**
Over the past 40 years, China's growth has come from large-scale capital investment – financed by significant domestic savings and foreign investment – as well as rapid productivity growth and trade liberalization. This growth has been led by China's coastal regions, which were designated as open cities and development zones in order to attract foreign investment, boost exports and import high-tech products.

Now, China's smaller cities and towns located farther inland are growing fast. Driven by supportive government policies, improved infrastructure – including high-speed railways, highways, airports and connectivity – as well as shifting consumer attitudes, these places are growing bigger and richer. They are also eager to spend. Consumption in smaller cities is expected to triple from $2.3tn in 2017 to $6.9tn by 2030, according to Morgan Stanley.

[1] *https://www.globalinnovationindex.org/gii-2019-report*

This is a market with a lot of potential for high-quality local brands that understand the culture in China's vast rural regions and can effectively leverage domestic media to market themselves. Three Squirrels, an e-commerce snack-food retailer based in Anhui Province, is a case in point.

**What shifts have you seen on the technology front?**
The entrepreneurial culture in China has gradually evolved from 'Made in China' to 'Invented in China.' Several factors made this possible. The Chinese Government made innovation a top priority in its economic planning, with initiatives like 'Made in China 2025,' announced in 2015, to upgrade Chinese manufacturing in 10 key sectors and reduce its reliance on foreign technology.

Take semiconductors. At present, China is the largest global consumer of semiconductor chipsets, importing about $200bn each year. China is investing heavily in chipmaking facilities and talent in a bid to limit its dependence on imported semiconductors. There's also 5G, a vital enabler for digital technology. China is well set up for the roll-out of 5G, thanks to widespread full fibre availability, plentiful small cell deployments, 4G maturity and a supportive regulatory environment.

By investing in tech that is critical to innovation, China is looking to lift its domestic industries up the value chain, across robotics, aerospace, cleantech, new energy vehicles, new materials and healthcare. The goal is to replace imports with local products and build global tech champions.

**Speaking of China's domestic industries, which tech sectors are particularly exciting to you?**
We look for potential investments in artificial intelligence (AI), deep tech and consumption opportunities.

**AI:** around 2013, when venture capitalists first began investing in AI in China, most investments went into fundamental technologies like image and audio recognition. Over the past two years, with the advancement of AI and the availability of open-source algorithms, the focus has shifted to applications in different vertical markets like healthcare, self-driving cars, traffic management and various smart-city applications.

A major AI application is edge computing. Placing computing infrastructure at 'the edge' of the network, closer to the sites that are collecting and analyzing critical data, helps to speed up response times. Edge computing technology makes Internet of Things (IoT) devices even more efficient, as they can send and receive data much more quickly.

Our portfolio company Horizon Robotics is a case in point. Horizon Robotics is the first such company in China to deploy AI processors for general applications, from powering smart cameras to smart cars. Horizon AI processors provide a complete solution which spans software, hardware, processors, algorithms and cloud infrastructure, with applications in smart mobility, smart city and smart retail. It announced its Series B financing of about $600mn, jointly led by conglomerates SK China, SK Hynix and several top automotive groups.

AI is also being used in online education, a fast-growing market. Chinese online education is expected to grow to some 240 million users and a total value of $64bn by 2021. A beneficiary of this trend is our portfolio company XueBaJun. It specializes in using deep-learning tech to develop mobile online solutions that can help K12 students with their homework.

**Deep tech:** China is a rising world leader in advanced manufacturing and robotics. According to Inc. Magazine, Shenzhen is the electronics manufacturing hub of the world, making 90% of the world's electronics. And the country employs the highest number of industrial robots in the world.

Capitalizing on this trend, we invested in Geek+, which offers advanced robotics and AI for logistics and warehouse automation solutions. Geek+ robots have been deployed in DKSH, SF Express, Tmall and Suning's warehouses.

We also invested in Guangli, which makes augment reality (AR) glasses that target consumers. What's especially exciting is the technology Guangli developed to solve typical customers' pain points when it comes to wearing AR glasses: dizziness and bulkiness. This year, Guangli is launching the world's first light-field AR glasses.

**Consumption opportunities:** there are significant opportunities for new brands that can meet the unique preferences of specific consumer segments, and produce quality products. Many new names in the market have well-designed products that have been elevated to leading consumer brands by multi-channel marketing such as online media, WeChat, domestic movies and TV shows.

For example, Loho is an online-to-offline spectacles brand owner and distributor. Neiwai designs comfortable and natural innerwear that promotes health and wellbeing. And 73Hours designs and sells high heels that are entry-level luxury, targeting China's rising middle class.

**Let's talk about exit channels for venture capital investors. What role could the recently launched Shanghai Science and Technology Innovation Board (STAR) play?**
STAR aims to become the Chinese version of Nasdaq. It uses a registration-based system to help growth-oriented tech companies with financing. The new system reviews applicants' earning potential instead of requiring them to be consistently profitable for five years, which is the case in the A-share market. The focus will be on a start-up's ability to demonstrate core technology or research results.

The STAR market provides an exit channel for venture capital investments. There are stringent information disclosure and delisting terms in place to protect investor interests. The new market is designed to lure high-potential tech companies to list domestically, and it's expected to draw listings from China's rich reserve of unicorns: there's already a queue of over 120 companies wanting to list.

In fact, we invested in Chipscreen – a leading China-based drug company specializing in discovering and developing proprietary, small molecule therapeutics. The company has and continues to develop a portfolio of clinical and preclinical stage programs in a number of therapeutic areas including cancer, diabetes, and nerve diseases, by utilizing its proprietary chemical genomics-based drug discovery platform – Chemogenomics. Specifically, Chemogenomics uses an integrated discovery approach by connecting small molecule structures to disease targets to accelerate the discovery process by effectively comparing the molecular profiles of successful drugs, failed drugs, and classical toxins served as the molecule probe compounds in different model systems with the profiles of potential lead compounds. The company has provided very good long-term returns for investors when it listed on the STAR market in August 2019.

**How do you stay ahead of the herd when it comes to investing in the next big thing?**
We take a long-term view and invest in start-ups focused on solving major pain points. I'll share an example.

In 2015, most venture capitalists in China were yet to pay attention to smart manufacturing. So they missed the opportunity to fix a pain point that large manufacturers were experiencing. Companies like Foxconn (electronics), Quanta (computing) and Jabil (manufacturing services) were struggling to recruit people. Due to a shortage of qualified workers, they had to increase their recruitment budgets dramatically every year during peak season.

We began looking at smart manufacturing, focusing especially on industrial robotics. This industry is made up of three layers: the lowest-level solution providers at the bottom, robotics body manufacturers in the middle and core component manufacturers at the top. Based on our research, we found that the top- and mid-tier components produced in China lagged behind other countries. That's why we chose to start at the bottom tier, and invested in a company called iOranges.

In 2017, 3C manufacturing (computers, communications and consumer electronics) robotic applications took off. By then iOranges had chalked up multiple successes, gaining recognition from leading customers and achieving significant business growth. iOranges was in the right place, at the right time. This example underscores why it's so important to avoid getting caught up in fads. You have to do your research, take the time to really understand a sector, and take a view rather than follow the crowds. Our thinking has served us well.

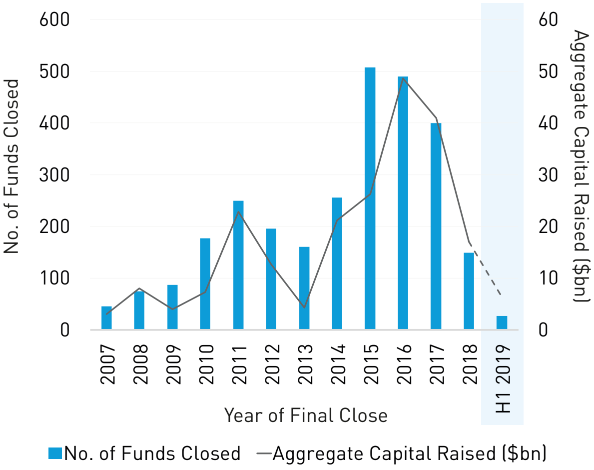
## About Tay Choon Chong

Tay Choon Chong joined Vertex in 2009. Prior to joining Vertex, he was the Senior VP of GIC based in Beijing, China, from 2007 to 2009. Prior to that, Choon Chong was the Senior VP of ST Aerospace responsible for its Component Aviation Service Division. From 2000 to 2005, he headed Fortune VC Singapore and covers VC investment in China and Singapore. Choon Chong graduated from Imperial College with BEng in Electrical Engineering and from Stanford University with MSc in Electrical Engineering.

# In Focus: Greater China

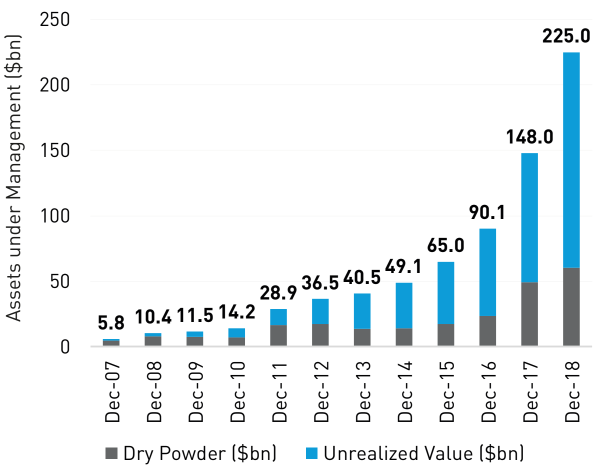
## China taking measures to become the number-one venture capital market

### Fig. 46: Annual Greater China-Based Venture Capital Fundraising, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 47: Greater China-Focused Venture Capital Assets under Management, 2007 - 2018




*Source: Preqin Pro. Data as of June 2019*

### Fig. 48: Notable Venture Capital Deals* in Greater China in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| Horizon Robotics** | Feb-19 | Series B/ Round 2 | 600 USD | China Oceanwide Holdings Group, Morningside Venture Capital, CLSA Capital Partners, Linear Venture, V Fund, Hillhouse Capital Management, SK China, SK Hynix, China Minsheng Investment Group, CITIC Securities International, Oceanpine Capital | Software | China |
| Qi An Xin (360 Enterprise Security Group) | Apr-19 | Strategic Investment | 3,700 CNY | China Electronics Corporation | IT Security/ Cybersecurity | China |
| Yipin Shengxian (Anhui Yipinhong Technology Co., Ltd.) | Mar-19 | Series B/ Round 2 | 2,000 CNY | Eastern Bell Capital, Longzhu Capital, Capital Today, Tencent Investment | Retail | China |
| Luckin Coffee | Apr-19 | Series B | 150 USD | BlackRock, China International Capital Corporation, Darsana Capital Partners, Government of Singapore Investment Corporation | Consumer Products | China |
| LELECHA | Apr-19 | Unspecified Round | 200 CNY | Vertex Ventures China, Ruchuan Capital, Hina Group, Z&H Investment, Prometheus Capital | Consumer Products | China |

*Source: Preqin Pro*

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.
**Vertex Ventures China invested in the Series A financing round.

Supported by a fast-growing economy and strong government impetus, China has risen to become one of the world's leading venture capital markets. To encourage the development of an innovative ecosystem, the State Council released the 'New Generation Artificial Intelligence Development Plan' back in 2017, outlining China's strategy to build a domestic AI industry worth nearly $150bn and to become the leading power in artificial intelligence by 2030. To make the country more competitive and attract new funding for start-ups, the government also released an entrepreneurship and innovation development guideline in 2018.

These measures are clearly having an impact. A surge of capital has entered the Chinese market, and China-focused AUM reached a record-high $225bn in December 2018, of which $60bn is held as dry powder (Fig. 47). Fund managers continue to put capital to work in Greater China, with annual aggregate deal value surpassing $100bn for the first time in 2018 (Fig. 50).

The 10 largest venture capital deals in 2018 were valued at a combined $33bn, a 50% increase from $22bn in 2017. The largest deal was a $14bn Series C financing for Ant Financial Services Group, a financial services platform which operates Alipay, a provider of online payment services.

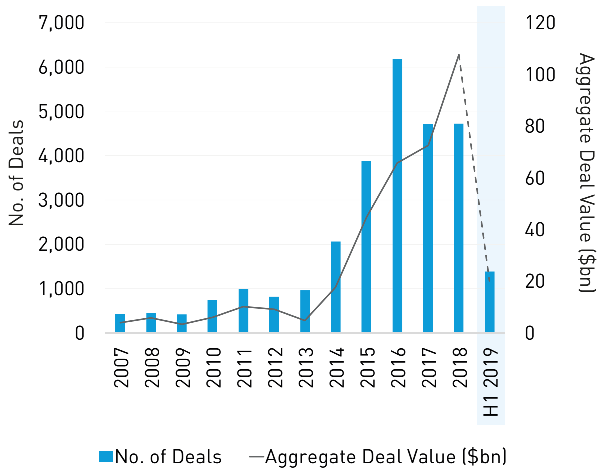
Firms in the US such as KKR, Sequoia Capital and Tiger Global Management have all been actively investing in Greater China venture capital in recent years. Despite the tensions around trade and foreign direct investments, the outlook for venture capital in China is strong, as the country pushes ever closer to its goal.

**Fig. 49: Notable Greater China-Based Venture Capital Funds Closed in the Last 12 Months**

| Fund | Firm | Fund Size (mn) | Firm HQ |
|---|---|---|---|
| Morningside China USD Fund | Morningside Venture Capital | 1,000 USD | Shanghai, China |
| Genesis Capital II | Genesis Capital | 850 USD | Beijing, China |
| LAV Biosciences Fund V | Lilly Asia Ventures | 750 USD | Shanghai, China |
| All-Stars Private Partners Fund I | All-Stars Investment | 500 USD | Hong Kong |
| Gaorong Partners Fund IV | Gaorong Capital | 450 USD | Beijing, China |

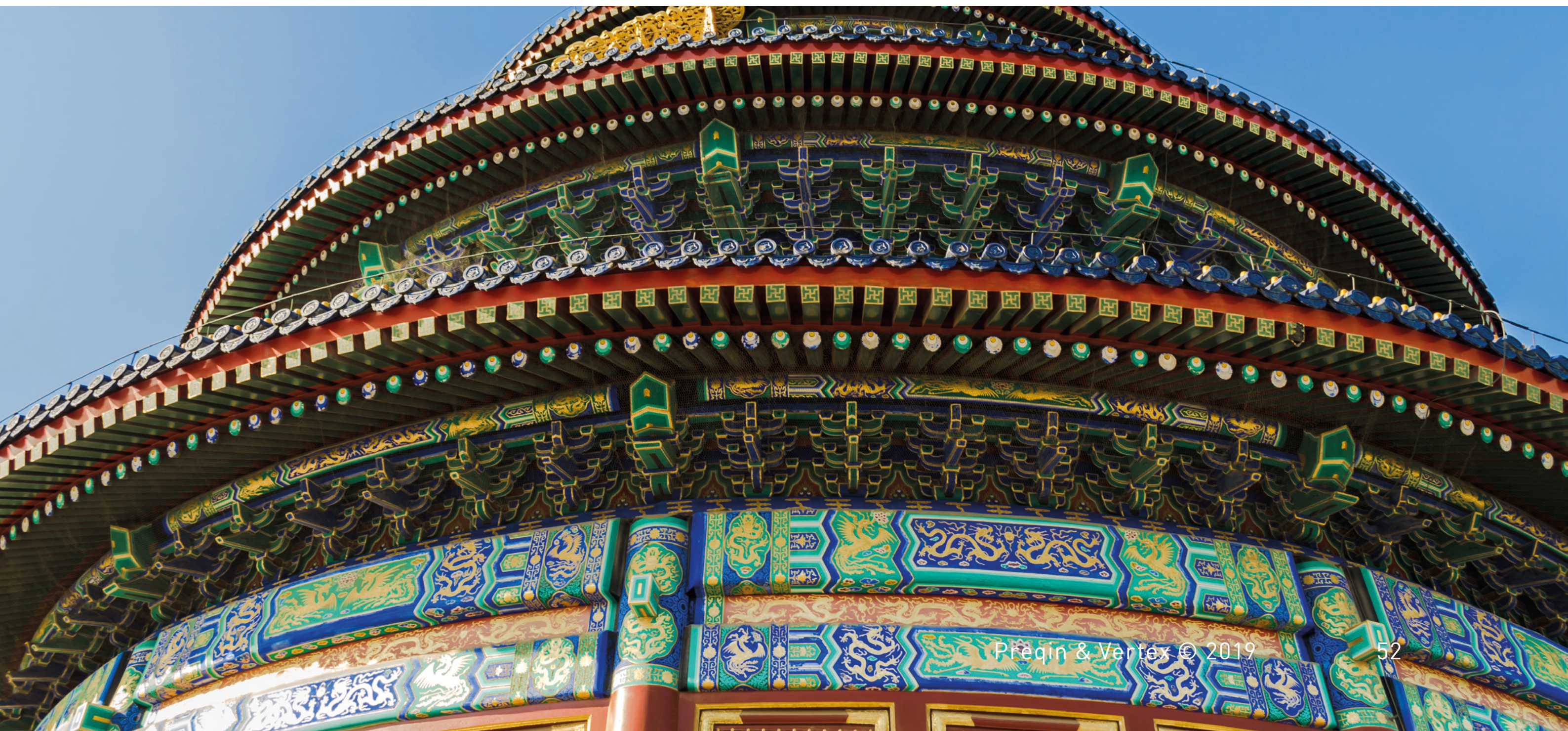
*Source: Preqin Pro. Data as of June 2019*

**Fig. 50: Venture Capital Deals* in Greater China, 2007 - H1 2019**




*Source: Preqin Pro*

**Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*



# Vertex Ventures China: Selected Portfolio Companies

**Chipscreen** specializes in the innovative research and development of small molecule pharmaceuticals.

**Geek+** applies advanced robotics and AI technologies to bring intelligent logistics automation solution to logistics and warehousing.

**Global Scanner** is a social e-commerce platform with a unique membership system allowing members to save money while making money.

**Guangli** develops light field 3D display technologies in the field of Augmented Reality.

**Haici** has created an online doctor appointment booking system. The company is committed to creating an integrated platform for online and offline medical services.

**Horizon Robotics** establishes the leading-edge AI platform for smart mobility, smart city and smart retail.

**iOranges** provides robotic automation solutions targeting the manufacturing industry.

**Julive** combines online information with offline consultancy services to provide users with an e-commerce housing purchasing platform for group buying.

**Lelecha** is a pioneer in selling tea and bread. The company uses fresh tea leaves daily and has on-site bakeries in each of their stores.

**Semidrive** is creating the next generation of car smart driving chips. Applications include V2X, high-end e-Cockpits, ADAS units and autonomous driving controllers.

**Solid Energy** manufactures the world's lightest rechargeable cells by using an ultra-thin lithium-metal foil for the anode, a proprietary electrolyte and an innovative cell design.

**Smarter Micro** develops next-generation multi-band tuneable power amplification modules.

**SmartX** is a provider of hyperconverged IT infrastructure solutions which integrate hypervisors and storage into a complete system solution.

**Tucodec** focuses on audio and video compression, transmission and analysis algorithms.

**XiaoduoAI** is the developer of AI-powered enterprise support chatbots designed to improve the online client service experience.

# Late-Stage Tech Investing in Europe

**European tech companies need smart capital to go global, says Jean Schmitt, Managing Partner at Jolt Capital**

Jean Schmitt
**Managing Partner, Jolt Capital**

**How have market conditions in Europe evolved?**
Despite growing tensions between the US and China, Europe is well positioned to be a beneficiary of the geopolitical friction. Prior to the trade war, China's appetite for US foreign direct investment (FDI) had already declined around 90% (since 2016), so this trend is likely to continue. For the private equity & venture capital (PEVC) industry, the impact of the 2018 Foreign Investment Risk Review Modernization Act (FIRRMA) will likely be more enduring. By enabling the Committee on Foreign Investment in the United States (i.e. CFIUS) with greater power to limit foreign-tied investments, Chinese capital (which accounts for c.30% of Bay Area investments) is almost certain to decline. Taken together, the potential reallocation of capital to Europe is vast.

Closer to home, Brexit is creating uncertainty for businesses and investors. Whether it eventually goes ahead in any form or not, many businesses have already suffered because of underinvestment, costly relocations or restructurings. To hedge against Brexit many growing companies are now building a pan-European footprint and alternative supply chains/routes, while also unlocking further opportunities to scale.

Given this, UK companies will likely seek continental capital earlier in their lifecycle to support this European expansion. They will also likely find it's more challenging to raise money at home as the flow of European LP and EU (i.e. European Investment Bank and European Investment Fund) money to the UK diminishes. That said, Europe-based GPs will perhaps be further drawn to the UK, somewhat filling this financing void.

On the whole, Europe remains a fragmented continent. National stock markets are small, predominantly supported by local investors, resulting in insufficient capital. Going public too early can sometimes be a death knell for companies. Valuations are often inflated because limited trading volumes and little float result in almost no liquidity in these markets. Some businesses are left stuck, unable to satisfy their equity financing needs. Smart investors, aware of these issues, look elsewhere. Until these are addressed, the US will remain the preferred destination for big IPOs.

That said, Europe remains a market filled with potential. It's a bedrock of talent and technology, with vibrant research activities and plentiful funding in certain countries, too. Europe has an impressive intellectual property (IP) portfolio, with 24% more patents enforced abroad compared with the US and 93% more than China. China is rapidly increasing its number of international patents (albeit from a low base), but Europe's IP stockpile is growing 50% faster than that of the US. Europe is also about 50% more productive than the US when it comes to patents per R&D dollar, filing 1.5 patents per million dollars compared with one patent per million dollars in the US. When it comes to monetizing patents, Europe has progress to make, which also creates opportunities for technology investors.

**How has Jolt Capital adapted to these market changes?**

For late-stage technology-focused private equity funds, such as Jolt Capital, this set of market attributes represents a significant opportunity for building large sustainable businesses focused on profitable growth. As a growth-stage fund, we've positioned ourselves to leverage technologies that proliferate in sometimes unexpected places, and we bring these companies to critical mass. We bridge many of the fragmented divides that exist within the European markets and act as an enabling force for consolidation within our portfolio companies. We often perform several M&A transactions during our holding period.

European early-stage capital has grown in recent times against the US benchmark, but only represents around 25% of the US total, while the equivalent figure for growth-stage capital is closer to 20%. It continues to be a challenge for companies in Europe to secure next-stage financing. Yet, somewhat counterintuitively, this current asymmetry towards earlier-stage financing means that VCs are creating and enabling an inventory stockpile for later-stage, hands-on growth investors like Jolt Capital.

**How does Europe compare to other start-up ecosystems?**

Despite the EU enabling the freedom of movement for capital, goods, services and labour, Europe remains a patchwork of cultures that don't understand each other. There is often limited visibility into nearby markets.

For us, it's never clear where we'll find the best start-ups. At Jolt, some of the best companies we've found have been far from the perceived hubs of London, Berlin and Paris. Nonetheless, smaller tech-focused clusters have sprung up, often close to universities or in the shadows (or from the remains) of large electronics companies. These include Odense, Denmark, for robotics, the Netherlands for optics and Grenoble, France, for semiconductors.

On the financing front, there is an abundance of non-dilutive instruments (subsidies, tax credits, low interest loans, etc.) for start-ups at regional, national and supranational levels that can support various stages of research, development and/or co-operations. Because many firms lack visibility into what other countries may offer, they often fail to take advantage of schemes across Europe that could benefit them.

> **Europe's venture capital market is well positioned to be a beneficiary of the current geopolitical friction between the US and China**

Overall, Europe lacks in supply and relative diversification of equity financing. This limited supply of capital is most severe in later-stage growth capital rounds. Switzerland, for instance, has a range of equity and non-dilutive financings available for early-stage companies, but lacks later-stage growth capital for more mature SMEs. This is one reason Jolt Capital opened an office in Lausanne, a well-known hotbed for technology and innovation.

Because there is a persistent shortage of late-stage capital rounds, many European companies have assumed equity financing to be unattainable and accordingly adjusted their plans. They often rely on inflexible debt financing, which is more expensive. A European Investment Bank study suggests companies are paying a 9% premium for debt financing instead of equity financing.

Many companies also fear equity means excessive dilution and/or losing control, making it important for companies to work with sophisticated investors that can architect an optimal funding plan that keeps all parties aligned on the path to a successful exit.

Many European companies have responded to local market challenges by almost immediately looking abroad to find new customers and capturing more from their respective value chains. At the same time, they are also announcing themselves to potential international buyers. Their US and Chinese competitors have the relative luxury of large home markets with large buyers and investors lying in wait, but European companies need a bit more patience to scale and resourcefulness to exit in a similar manner.

**What are some of the key trends in Europe?**

At a macro level, the increased availability of capital is easing the path to critical mass for many companies, and more of them are reaching unicorn status. There is a growing number of investment managers across Europe to allocate the available capital. In essence, it means more of the same, but at a bigger level. That said, more players and funding doesn't bring additional clarity into what technology trends will win. That will depend on trial and error and market testing, leading to unexpected outcomes and upsides.

At a more fundamental level, despite some of the scaling difficulties inherent to Europe, cross-border commerce is becoming easier, thanks in part to the growing influence of the English language. According to *The Economist*, the number of 13-year-olds across the continent learning English has reached nearly 97%, while the number of university courses taught in English across the EU has risen by well over 1,000% since 2002. At a practical level, EU courts are implementing English. The International Chambers of the Paris Courts, the Netherlands Commercial Court and the Regional Court in Frankfurt now hear cases in English. Belgium shelved a similar plan for an English-speaking international court for now, but the trend towards English is clear – and it's good for businesses and investors alike.

On the political front, recent EU elections have rewarded green parties in a splintered European Parliament, meaning that environmentalists will now have even greater sway to effect change. Given Europe's pioneering position in the fight against climate change, we expect cleantech subsidies, grants, loans and equity financings to be further promoted.

In terms of competition and antitrust issues, the EU's recent decision to prevent the planned merger between Siemens and Alstom is a clear indication that Europe looks set to remain a relatively meritocratic business arena, whereby the best companies (in the market and for the benefit of consumers) will prevail, not simply the best financed. The EU has shown how seriously it treats rule-breakers in the recent cases against both Google and Apple, representing aggregate fines of around $17bn.

Finally, GDPR, the 2018 data privacy regulation, has reshaped how companies use, track and trade personal data. This puts European companies under increased stress in areas such as AI-related facial recognition, geolocation services, advertising and medical services, but on the other hand, it also gives them a head start on developing data management solutions, which we expect to be an area of global growth.

**Which technology sectors/industries are particularly exciting?**

In terms of hardware-based solutions, Europe remains particularly innovative in technologies inspired by science rather than customers. This naturally results in some difficulties in finally finding a market for those companies, but it's also a blessing for those that do succeed, since they will not only ride a strong market, but have solid IP protection and visionary approaches to remain ahead of the competition.

Europe represents a particularly fertile ground for deep-tech companies in advanced software and hardware. We see many examples of leading-edge technologies, ranging across diverse applications like semiconductor materials, sensors, AI, atomic-scale metrology and surface treatment processes, that are just waiting for smart capital and support scaling.

**What about start-up valuations in Europe and where are the next big opportunities?**

European companies tend to trade at a discount to similarly positioned US companies. However, we see valuations converge when European companies are global and approach a critical mass. Naturally, this implies that European companies must first overcome the region's inherent scaling challenges.

Many hardware goods companies have shown to be particularly adept at this. Their value chain is inextricably linked to Asia, and they frequently look to

**Some of the best companies we've found have been far from the perceived hubs of London, Berlin and Paris**

the region for production or partnering, which often necessitates co-investing with local funds that can add real value.

For software companies, this often means pushing to become the default continental player.

In both types of companies, speed and a global mindset will be paramount to succeed. It will be fundamental for many companies to look towards acquisitions, mergers, outsourcing contracts (possibly at an earlier stage than normal) and joint ventures. Today, with the increasing quantity of earlier-stage financing in Europe and remaining deficiency in later-stage capital, there will be plenty of opportunity for such transactions as consolidations become more attractive as markets mature.

Research suggests that such an approach to scaling yields positive returns for investors, when the fund has the right operational underpinning and skill to repeatedly implement these transactions. For companies in the global race to scale, a key differentiator is having the right investor(s) to facilitate and co-lead such endeavours.

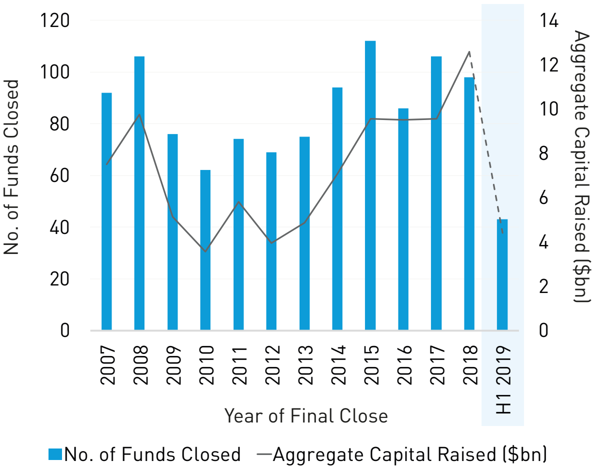
## About Jean Schmitt

As Founder & Managing Partner, Jean has driven Jolt Capital's development since 2012. The impetus behind Jolt's founding was Jean's realization that the best risk-adjusted returns typically come from later-stage growth rounds in companies without technology risk. Prior to founding Jolt Capital, Jean was Managing Partner at Sofinnova Partners. Preceding this, Jean was CEO and founder of four companies with successful exits, including SLP InfoWare, which he sold to Gemplus (now Gemalto) in 2000 for $60mn. Jean graduated from Telecom ParisTech and has a post-graduate degree in AI, and is a Member of Henkel's Henkel X mentorship program.

# In Focus: Europe

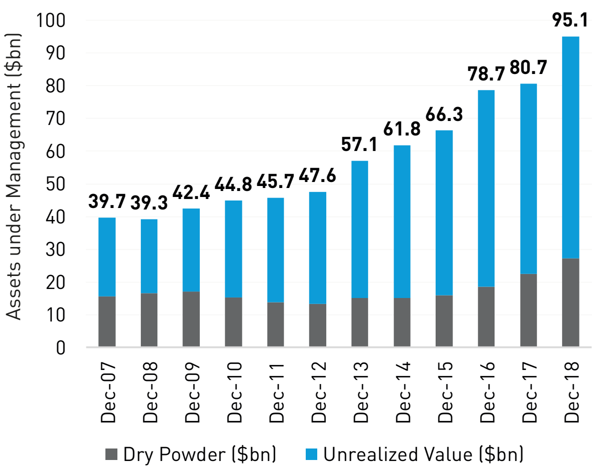
## 2018 was a record-breaking year, with tech deals driving aggregate deal value to a high of $22bn

### Fig. 51: Annual Europe-Based Venture Capital Fundraising, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 52: Europe-Focused Venture Capital Assets under Management, 2007 - 2018




*Source: Preqin Pro. Data as of June 2019*

### Fig. 53: Notable Venture Capital Deals* in Europe in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| Roofoods Ltd | May-19 | Series G/ Round 7 | 575 USD | Amazon.com, Inc., T Rowe Price, Fidelity Management & Research Company, Greenoaks Capital | Internet | UK |
| Veeam Software | Jan-19 | Unspecified Round | 500 USD | CPP Investment Board, Insight Venture Partners | Software | Switzerland |
| GetYourGuide Deutschland GmbH | May-19 | Series E/ Round 5 | 484 USD | SB Investment Advisers, Temasek Holdings, Lakestar, Heartcore Capital, Korelya Capital | Internet | Germany |
| OakNorth Bank plc | Feb-19 | Unspecified Round | 440 USD | SB Investment Advisers, Clermont Group | Financial Services | UK |
| Meero SAS | Jun-19 | Series C/ Round 3 | 230 USD | Avenir Growth Capital, Prime Ventures, Global Founders Capital, Aglaé Ventures, Alven, White Star Capital, Idinvest Partners, Eurazeo | Internet | France |

*Source: Preqin Pro*

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

European venture capital is thriving, and 2018 was a record-breaking year. Amid low to negative interest rates, a cooling economic mood across the continent and uncertainty over Brexit, investors flocked to venture capital in search of high absolute returns.

Europe's share of global venture capital AUM surged in the year to December 2018, hitting a record high of $95bn [Fig. 52].

In 2018, a total of 98 Europe-based venture capital funds reached a final close, raising an all-time record high of $13bn [Fig. 51].

Investment activity also rose, with a peak of 3,025 deals completed in 2018 for a total value of $22bn [Fig. 55]. That is a 21% increase from the $18bn in deal value recorded in 2017.

And with $14bn in deals as of H1 2019, the industry is well over halfway (62%) towards matching the 2018 high.

The tech sector drew significant investment – four of the five largest venture capital deals in H1 2019 were for internet and software companies based in the UK, Switzerland, Germany and France. The largest deal was the $575mn Series G fundraising by UK-based Roofoods Ltd., which operates as Deliveroo, an online food delivery platform. The Greenoaks Capital-backed company closed its financing round in May 2019.

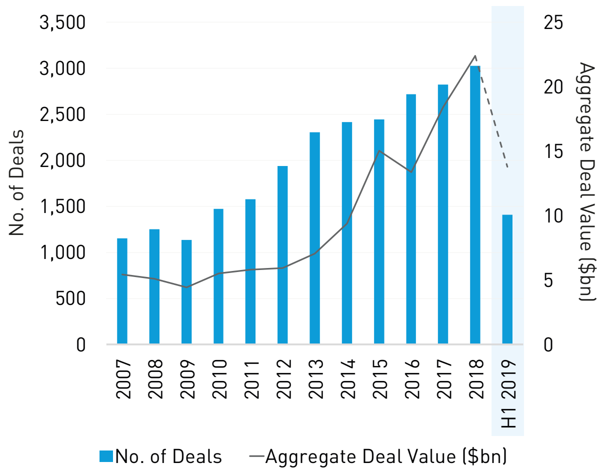
And with $27bn in dry powder as of December 2018, the largest sum yet, Europe's venture capital industry has the financial firepower it needs to break new records.

### Fig. 54: Notable Europe-Based Venture Capital Funds Closed in the Last 12 Months

| Fund | Firm | Fund Size (mn) | Firm HQ |
|---|---|---|---|
| Index Ventures Growth IV | Index Ventures | 1,000 USD | London, UK |
| Forbion Capital Fund IV | Forbion | 360 EUR | Naarden, Netherlands |
| DTCP Venture & Growth Fund II | Deutsche Telekom Capital Partners | 350 USD | Hamburg, Germany |
| Leap Fund | Wellcome Trust | 250 GBP | London, UK |
| Abingworth Bioventures VII | Abingworth Management | 315 USD | London, UK |

*Source: Preqin Pro. Data as of June 2019*

### Fig. 55: Venture Capital Deals* in Europe, 2007 - H1 2019

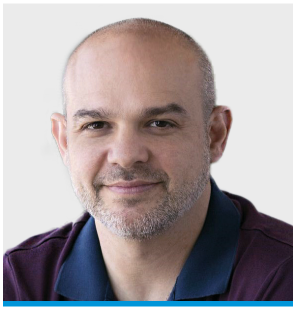



*Source: Preqin Pro*

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.

# From Start-up Nation to Scale-up Nation

## Automotive technologies, digital health and cybersecurity are among the most exciting tech sectors to invest in right now



Yanai Oron
General Partner, Vertex Ventures Israel

**What type of investing do you do, and what kinds of companies do you look for?**
Vertex Israel invests mostly in seed and Series A rounds. For some early-stage investments, there may be little market traction that we can analyze. That's why we look out for tenacious founders with a high capability to succeed, combining a strong technology background with business experience. We rely on strong deal flow, which comes from our established network of founders, founder-alumni, angel investors and peer seed funds.

**Israel is the fifth most innovative country in the world, up from 10th place last year, according to the 2019 Bloomberg Innovation Index. How is its innovation ecosystem evolving?**
We believe that the Israeli innovation ecosystem is at an inflection point. The potential it holds may well exceed achievements of prior decades. Let me explain why.

The first thing to note is how fast the market has grown. In 2018, Israel-based tech companies raised $6bn. That's a 15% increase from 2017, and a 140% jump from 2014. Israel now leads the world in 'innovation density,' whether this is measured by R&D spend, number of tech start-ups, venture capital funding in per capita terms, or as a percentage of GDP.

Israel is also a global leader in emerging technologies such as cybersecurity, computer vision, fintech, digital health, agritech and many other emerging sectors. Today, there are more than 6,000 active Israeli start-ups, with about 80% offering B2B products. More than 430 venture capital investors have a permanent presence in Israel, about a quarter of which are non-Israeli. They hail from locations including the US, Europe, Japan and China (which invests mainly as an LP of local funds).

Across the global economy, the vector and rate of technological change points to pervasive sectoral disruption. That's an ideal setting for Israel's culture of innovation.

**What are the key drivers behind Israel's rise as a nation of innovative start-ups?**
Many of Israel's strengths were born of necessity. Take the high-tech sector, which has been the country's most prolific, innovative sector since the 1980s. The large investments in defence that Israel made back then – in sectors like computer vision, robotics, cyber software, aviation and communications – resulted in new technologies which became the foundation for today's high-tech industries.

The lack of a sizeable local market is another driver. Start-ups must be very quick to adapt to foreign markets, and they must have a global mindset from day one. A third factor is government policies that have boosted the start-up economy from an early stage. In the 1990s, the Israeli Government launched a program called Yozma (Hebrew for 'initiative') which incentivized foreign venture capitals to invest in Israel. Israel now has over 30 programs to help start-ups secure funding.

What we see today is a tech industry on its fourth cycle of innovation, with mature venture capital funds, repeat entrepreneurs and a large presence of multi-nation R&D centres, over 300 strong. All of this in a small geographic area makes for an environment that nurtures entrepreneurship and innovation.

**Which tech sectors do you see as particularly exciting?**
I'll name three, starting with **retail-focused technologies**. As retail tech spending is estimated to be over $200bn in 2019 alone, we see tremendous opportunity to innovate in this space. There are numerous retail-focused start-ups in Israel even though it is only a recent trend. One of our portfolio companies, Trigo Vision, uses cutting-edge vision tech to allow for seamless shopping in grocery stores – similar to what Amazon Go is doing but with much fewer off-the-shelf cameras. We also recently invested in a start-up that is still in stealth mode, working on a new chip that will digitalize physical fashion-focused retail with a battery-less Internet of Things (IoT) tag.

Second, **digital health**. As digitalization transforms healthcare across the globe, we're seeing start-ups in Israel deploying innovative new technologies to improve patient outcomes. Our portfolio companies in this sector include a software company called Nucleai, which uses machine learning and machine vision algorithms to assist pathologists in their analysis and diagnostics of cancer biopsies.

For example, a pathologist may analyze slides, make a report and run Nucleai's algorithms as part of a quality assurance check to find any mistakes. Nucleai can also take on the role of a 'digital resident,' producing initial reports which are then reviewed by pathologists to ensure accuracy. Nucleai is working with leading hospitals including Sheba Medical Centre, and more recently, Nucleai partnered Protean BioDiagnostics to improve cancer diagnosis.

A third sector is **cybersecurity**. With its core expertise in defence, Israel is the second largest cybersecurity hub after the US. This is an industry that's expanding at a compound annual growth rate of almost 10%, and by

> **We believe that the Israeli innovation ecosystem is at an inflection point. The potential it holds may well exceed achievements of prior decades**

2020, the global market for cybersecurity is expected to exceed $100bn.

The main challenge in this field is that it is crowded. But we believe there is room for innovation, and in recent years we've invested in several new categories in the field. These include industrial security (Indegy), railway cybersecurity (Cylus), counter-drone technology (D-Fend), a breach-and-attack platform (Cymulate), and a cybersecurity asset management platform (Axonius).

**What has the market for exits been like for Vertex Israel?**
The first half of 2019 has been favourable for us. Our portfolio company Dynamic Yield, an AI-powered omnichannel personalization platform, was acquired by global food services retailer McDonald's Corporation for over $300mn. Dynamic Yield's technology will be used to improve the customer experience across multiple digital touchpoints, from McDonald's outdoor Drive-Thru menu displays to its Global Mobile App. Another successful exit for us was Meta Networks, a cloud cybersecurity specialist. Meta Networks raised $10mn and was acquired by enterprise security company Proofpoint for $125mn.

**Both Dynamic Yield and Meta Networks are examples of exits via acquisition by a strategic buyer. What other types of exit opportunities are you seeing?**
Acquisitions by multinational companies (MNCs) are the principal exit option for Israeli start-ups. However, in the past few years, we've seen increasing numbers of growth companies taking a different path. This trend is driven by the emergence of a new breed of entrepreneurs who strive to build large, standalone

companies in Israel. This bodes well for the ecosystem, as it strives for a balanced mix of MNCs and local start-ups.

As opportunities are quick to come and go, and given that this is a competitive market, our ability to move quickly is essential. To continue to invest in the right sectors, we leverage the Vertex network to help us stay ahead of global trends, talent recruitment and business development.

**To invest in the right sectors, we leverage the Vertex network to help us stay ahead of global trends, talent recruitment and business development**

## About Yanai Oron

Yanai Oron joined Vertex in early 2014, following an operational and technical background. Yanai's current portfolio includes Taranis, Trigo Vision, Verbit, Meta Networks (acquired by Proofpoint), Kryon, Identiq, DataRails, EasySend and Saga.

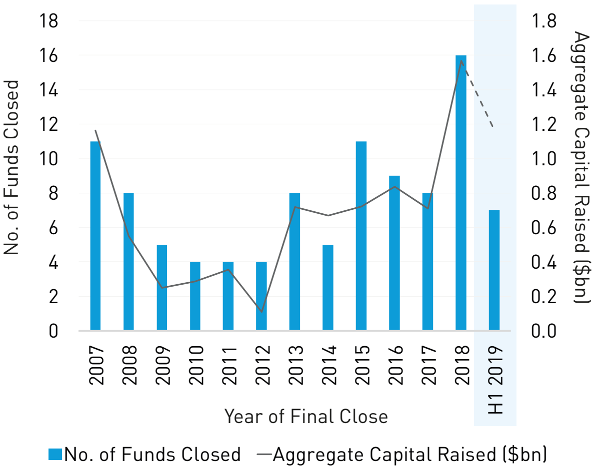
Previously, Yanai was General Manager at DVTel (acquired by FLIR) managing the company's Access Control unit. Prior to that, Yanai served as its Director of Business Development and headed the company's M&A team. He started his career as an embedded engineer at Intel Corporation.

Yanai holds a BSc in Electrical Engineering from Tel Aviv University and an MBA from New York University's Stern School of Business.

# In Focus: Israel

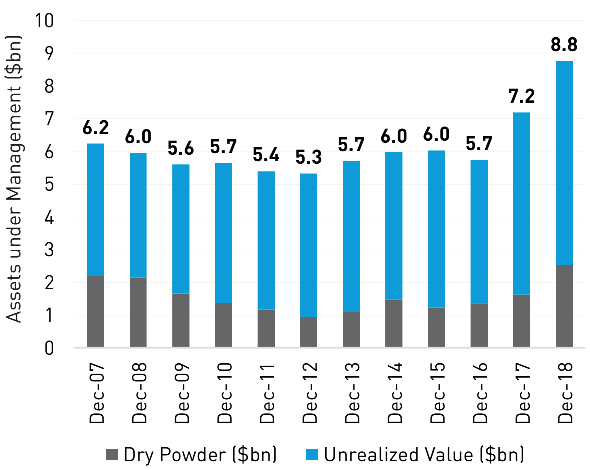
## Buoyed by technology, the Israeli venture capital industry is thriving

### Fig. 56: Annual Israel-Based Venture Capital Fundraising, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 57: Israel-Focused Venture Capital Assets under Management, 2007 - 2018




*Source: Preqin Pro. Data as ofJune 2019*

### Fig. 58: Notable Venture Capital Deals* in Israel in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| Innoviz Technologies Ltd. | Mar-19 | Series C/ Round 3 | 132 USD | Vertex Ventures Israel, Shenzhen Capital Group, New Alliance Capital, Harel Insurance, Phoenix Group Holdings, Delek Group Ltd., Magma Venture Partners, Vertex Ventures Israel, China Merchants Capital | Automobiles, Other Vehicles & Parts | Israel |
| DriveNets Ltd. | Feb-19 | Series A/ Round 1 | 110 USD | Bessemer Venture Partners, Pitango Venture Capital | Software | Israel |
| Aqua Security Software Ltd. | Apr-19 | Series C/ Round 3 | 62 USD | Insight Venture Partners, Lightspeed Venture Partners, M12, TLV Partners | Software | Israel |
| GuardiCore Ltd. | May-19 | Series C/ Round 3 | 60 USD | Qumra Capital, Deutsche Telekom Capital Partners, Partech Partners, ClalTech, Battery Ventures, 83 North, TPG, Greenfield Partners | IT Security/ Cybersecurity | Israel |
| Cato Networks Ltd. | Jan-19 | Series C/ Round 3 | 55 USD | Lightspeed Venture Partners, Aspect Ventures, Greylock Partners, Singtel Innov8, US Venture Partners | Software | Israel |

*Source: Preqin Pro*

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

Belying its relatively small size, Israel is fast becoming one of the most influential technological ecosystems in the world, and is an attractive prospect for many investors worldwide. The Israeli venture capital industry has boomed since 2017 following a prolonged period of stability, with Israel-focused AUM rising from $5.7bn in December 2016 to $8.8bn as of December 2018 (Fig. 57).

Fundraising by Israel-based venture capital firms also reached record levels in 2018, securing an aggregate $1.6bn from 16 funds closed. This is double the amount of funds closed in the previous year (Fig. 56).

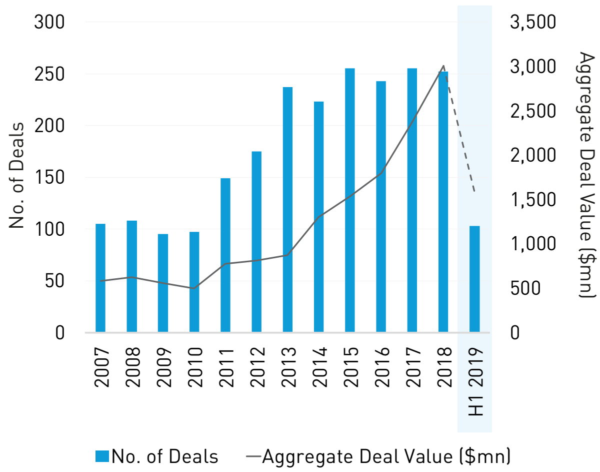
Although the number of deals completed annually has remained steady over the past few years, the value of these deals has risen significantly, reaching a record $3.0bn at the end of 2018. And there is little evidence to suggest any kind of slowdown, as Fig. 60 shows. So far in 2019, Bessemer Venture Partners and Pitango Venture Capital have invested in the software firm DriveNets Ltd. for $110mn. Furthermore, Innoviz Technologies Ltd. raised $132mn in the Series C financing round (Fig. 58) – Innoviz Technologies Ltd. is one of the many Israeli start-up firms focusing on the automobile industry, as self-driving technology gathers momentum with the advancement of artificial intelligence.

### Fig. 59: Notable Israel-Based Venture Capital Funds Closed in 2018/2019

| Fund | Firm | Fund Size (mn) | Firm HQ |
|---|---|---|---|
| aMoon II | aMoon | 660 USD | Ra'anana, Israel |
| Jerusalem Venture Partners VIII | Jerusalem Venture Partners | 220 USD | Jerusalem, Israel |
| Vertex Ventures Israel Fund V | Vertex Ventures Israel | 175 USD | Tel Aviv, Israel |
| Qumra Capital II | Qumra Capital | 150 USD | Tel Aviv, Israel |
| Viola FinTech Fund | Viola FinTech | 120 USD | Herzeliya, Israel |

*Source: Preqin Pro. Data as of June 2019*

### Fig. 60: Venture Capital Deals* in Israel, 2007 - H1 2019




*Source: Preqin Pro*

**Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

# Vertex Ventures Israel: Selected Portfolio Companies

**Atidot** is a cloud-based predictive analytics platform for data modelling and risk assessment targeted at insurtech.

**Axonius** offers a comprehensive cybersecurity asset management solution providing full visibility and control across all devices.

**Codefresh** provides an unmatched experience for developers by seamlessly stitching together different container technologies.

**Cylus** was founded to help mainline and urban railway companies avoid safety incidents and service disruptions caused by cyber-attacks.

**Cymulate** is a breach and attack simulation platform that allows organizations to protect themselves at the click of a button.

**D-fend** provides counter-drone solutions for urban environments, using comprehensive, safe and scalable solutions for securing a stationary perimeter and portable usage.

**EasySend** is a digital transaction management platform that empowers enterprises to deliver fast, simple and intelligent digital experiences.

**Fleetonomy's** fleet management platform enhances fleet efficiency, generates more insights from data, and creates additional revenue streams from new mobility services.

**Identiq** has created a distributed network enabling its members to validate new users and vouch for existing ones, all without sharing any user information.

**Innoviz** is a leading manufacturer of high-performance, solid-state liDAR sensors and perception software that enable the mass-production of autonomous vehicles.

**Kryon** offers a comprehensive Robotic Process Automation (RPA) solution that helps large enterprises replace manual work and increase efficiency of existing employees.

**Nucleai** uses AI-based diagnostic solutions to assist pathologists in the analysis and diagnostics of cancer biopsies.

**OwnBackup** has built a platform that integrates with leading SaaS/PaaS solutions to protect companies from losing data.

**Spotinst** automates multi-cloud workloads to improve performance, reduce complexity and lower compute infrastructure costs.

**Taranis** is an international precision ag-tech start-up offering a full stack solution with all the necessary tools required by a comprehensive crop monitoring system.

**Trigo Vision** is fully automating the retail checkout process using only cameras, alongside features such as shoplifting prevention and real-time inventory updates.

**Upright** has created a discrete wearable device that tracks and trains posture of the back.

**Verbit** uses advanced AI algorithms to provide low-cost transcription services to help organizations maximize the potential of their audio and video files.

**Yotpo** integrates with leading ecommerce platforms and apps to generate and maximize the power of user-generated content, helping brands to accelerate growth.

**Zencity's** AI-driven platform helps governments translate what people want in their cities more effectively and eliminates the guesswork from policymaking.

# US Enterprise Tech Stays Strong Throughout Economic Cycle

**Cloud computing, cybersecurity and data analytics businesses are among those best positioned for accelerated growth in the US**

**Insik Rhee**
General Partner, Vertex Ventures US

**How is the US start-up ecosystem faring from a Vertex Ventures US perspective?**
We've observed three things. First, the US venture capital market remains healthy and vibrant. Between 2017 and 2018 deal value soared by almost 31%, from $83bn to $132bn. Meanwhile, deal count has shown little change, hovering at an average of 9,450.

Second, the rise of mega funds (with over $500mn to invest) is resulting in much larger deals. A record 22 US mega funds closed in 2018, and over the past two years the share of deals valued at over $100mn has more than tripled. Valuations have climbed to unprecedented levels; never has capital been so readily accessible before.

Third, as operating costs increase, more venture capital activity is moving out of Silicon Valley. The cost of living in the area is among the highest in the world. There's also the challenge of attracting talent in the Valley. With heightened competition for talent both locally and abroad, venture capital is moving to other parts of the US and elsewhere in search of promising start-ups.

That said, Silicon Valley remains a mecca for global technology innovation. We continue to see many early-growth companies from around the world either relocating to Silicon Valley or investing here.

**Explain your investment focus on enterprise tech? How is it evolving with new innovation cycles?**
Enterprise tech companies transform entire industries through software and data. Every five years or so, a fundamental tech innovation results in a platform shift which creates a bevy of new opportunities and start-ups. It happened when Microsoft launched Windows, when Netscape created the browser, when Sun launched Java, when Linux started the open source movement, when Apple launched the iPhone, when VMware gave rise to virtualization, and when Amazon launched the AWS cloud.

We take a long view and deep study of these tech shifts and strongly believe that it's possible as an investor to synthesize and predict the next platform shift. Since the birth of the internet, we've already witnessed mass disruption during the past 20 years in sectors such as media, financial services, telecommunications, retail and travel.

Traditionally, much of the value of innovation in enterprise tech was captured by selling to the incumbents. However, we are beginning to see a fundamental shift in how easy it is to create new digital companies thanks to the platform innovations of cloud computing and open source. This begs the question of whether we should seek to continue to arm the incumbents with the proper tools or to back innovative digital companies who will take on traditional businesses head-on for potentially larger rewards.

**What are some of the trends in enterprise technology that have shaped your investment portfolio?**
I'll mention five key examples.

**Cloud computing:** the global cloud computing market size is forecasted to grow from $272bn in 2018 to $623bn in 2023. Growth factors for the market include rising automation and agility, the demand for enhanced customer experiences, increased cost savings and return on investment(s).

We began to witness major US corporations publicly acknowledge their adoption of cloud computing as early as 2014, and today it's a foregone conclusion that all major industries will run a significant portion of their new applications on public clouds. As a result, modern 'cloud native' infrastructure companies are being developed across the entire IT landscape.

Valtix is a portfolio company creating a set of modern security services optimized specifically for the cloud. They offer a unified, multi-cloud enterprise security platform for greater visibility, agility and performance. Connecting to legacy data centres and new, as well as different, cloud vendors for the first time gives enterprises freedom of vendor choice.

**Data and analytics:** as cloud computing, open-source software and big data have surged in the past decade, enterprises have found it easier and cheaper than ever before to collect and manage vast pools of data to improve their businesses and build market intelligence. It's reported that 90% of the world's data has been created in just the past two years. As a result, enterprises are investing heavily in their big data capabilities and advanced analytics, machine learning and artificial intelligence (AI) to improve their way of discovering actionable insights from their data.

Our portfolio company Interana is a SaaS company with an advanced platform that helps global enterprises better understand customer behaviour in real time. By tracking trillions of data points from 'events,' or customer interactions, Interana provides product analysts with answers to critical questions, ranging from product development and engineering efficiencies to customer success. Interana's team came from Facebook, where they built a similar event-data platform that enabled the product team to understand how Facebook's features were being used. Companies using the Interana platform include Microsoft, Comcast, Uber and Sonos.

**Cybersecurity:** as enterprises continue to collect and mine more data for key business insights, they have also become ripe targets for hackers. The need for better management of consumer, personal and confidential information will affect all major enterprises around the globe. In 2018 the EU unveiled its General Data Protection Regulation (GDPR) and recently started imposing massive fines on the likes of British Airways ($230mn). GDPR-like standards are in the works around the globe, including in the US (CCPA), and we are seeing opportunity for a new breed of information governance and security companies to be built.

One method of protection is to block non-humans from accessing sites meant for consumers. Today, over half of all traffic to e-commerce sites consists of non-human 'bots.' These attacks range from state actors to hackers stealing credentials to rogue operators redirecting traffic to other websites. Our portfolio company PerimeterX analyzes the behaviour of humans, applications and networks to identify and exclude automated bot attacks in real time with high accuracy. They work with some of the largest e-commerce brands such as Kiva, Puma and Zillow.

**Hyperscale for enterprises:** to forecast the future of enterprise tech adoption, it's essential to understand 'hyperscale' internet companies that have scaled massively and innovate at a blistering pace. The FANGs – Facebook, Amazon, Netflix and Google – represent a generation of hyperscale companies with incredibly agile processes. Often, what starts as a trend in the hyperscale companies finds its way to large enterprises within a few years. Innovations around big data, machine learning and AI were all pioneered by the hyperscale companies.

Our portfolio company LaunchDarkly operates a platform that enables teams of DevOps (developers and operations experts) to manage the whole lifecycle of digital features: from concept to launch to value. LaunchDarkly's vision is to eliminate risk from the software development cycle and offer agility of faster release cycles. Developers can use LaunchDarkly's dashboard to wrap unfinished code with 'feature flags' – which allow code and features to be tested in a production environment and enabled for users only when ready. The service is highly reliable and scalable, crucial for a product controlling access to product features. LaunchDarkly evaluates over 360 billion flags per day.

**Industry 4.0:** we are seeing digital innovations revolutionize manufacturing, heavy industry and warehouse operations. Improvements in sensors, connectivity, robotics and actuators – combined with the lowered cost of analyzing and transforming data – will drive agile workflows.

While automation has already done a lot for manufacturing, the most complex tasks are done by people. Our portfolio company Tulip is bringing digital workflows to the manufacturing shop-floor. Unlike previous generations of manufacturing execution systems that need to be configured by IT consultancies, Tulip offers a self-serve, drag-and-drop visual tool that industrial line managers can use to build apps, connect to Internet of Things (IoT) devices and factory systems, and collect real-time data without writing any code.

**Why do entrepreneurs choose to be a Vertex Ventures US portfolio company?**
We establish a solid rapport with the entrepreneurs we work with because we've been in their shoes before. Since the late 1990s, our partners have built a successful track record founding, operating and investing in enterprise and deep tech markets.

Our team takes a focused approach betting big on a few companies rather than betting small on a larger number. We operate as a boutique team, and founders work with all of us at relevant junctures in their business-building journey. Collectively, we thrive on solving ambiguous and imperfect problems, leveraging the breadth of our team's experience and expertise for the benefit of founders. And where we identify gaps in the market, we seize the opportunities to turn ideas into businesses built for the long term.

**To forecast the future of enterprise tech adoption, it's essential to understand 'hyperscale' internet companies that have scaled massively and innovate at a blistering pace**

Most importantly, we stay curious about what's ahead in the market. We constantly challenge ourselves and our founders to ideate and build conviction around nascent problems and solutions with the belief that they will become gigantic opportunities. Our ability to share in this early conviction with founders is crucial in forging a great relationship from the onset.

## About Insik Rhee

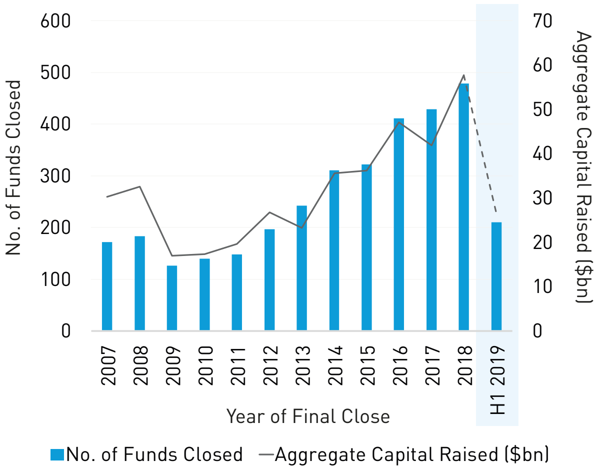
Insik Rhee joined Vertex in 2014, with a unique career background as both an entrepreneur and investor. Insik's current portfolio includes Interana, Testlio, Zepl and Hedvig. Insik previously spent time as a General Partner at Rembrandt Venture Partners as well as a Venture Partner at Accel Partners. Insik started his career as an entrepreneur, founding his first company Kiva Software (acquired by Netscape) as a 24-year old and Opsware (Nasdaq:OPSW – acquired by HP).

Insik Holds a BS in Electrical Engineering and Computer Science at UC Berkeley, where he serves as an executive advisory board member for the College of Engineering.

# In Focus: North America

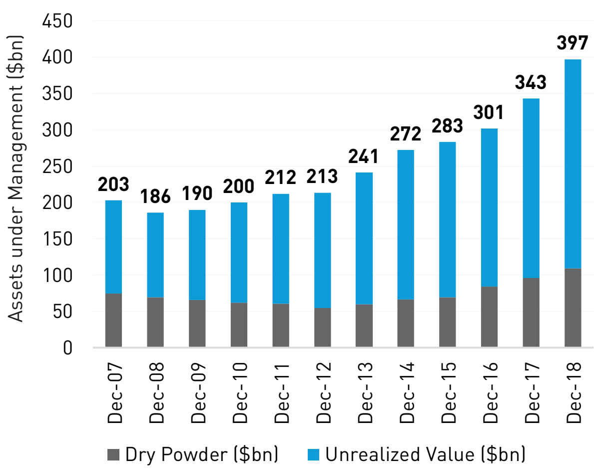
## Record-breaking deal activity belies the geopolitical tensions of late

### Fig. 61: Annual North America-Based Venture Capital Fundraising, 2007 - H1 2019




*Source: Preqin Pro*

### Fig. 62: North America-Focused Venture Capital Assets under Management, 2007 - 2018




*Source: Preqin Pro. Data as of June 2019*

### Fig. 63: Notable Venture Capital Deals* in the US in H1 2019

| Portfolio Company | Deal Date | Stage | Deal Size (mn) | Investor(s) | Industry | Location |
|---|---|---|---|---|---|---|
| WeWork Companies Inc. | Jan-19 | Unspecified Round | 2,000 USD | SoftBank | Commercial Property | US |
| OneWeb LLC | Mar-19 | Unspecified Round | 1,250 USD | Qualcomm Ventures, SoftBank, Government of Rwanda, Grupo Salinas | Internet | US |
| Uber Advanced Technologies Group** | Apr-19 | Unspecified Round | 1,000 USD | DENSO Corporation, Toyota Motor Corporation, SB Investment Advisers | Electronics | US |
| Flexport, Inc. | Feb-19 | Unspecified Round | 1,000 USD | SB Investment Advisers, Founders Fund, DST Global, Cherubic Ventures, Susa Ventures, SF Express | Software | US |
| Verily Life Sciences LLC | Jan-19 | Unspecified Round | 1,000 USD | Ontario Teachers' Pension Plan, Silver Lake | Healthcare IT | US |

*Source: Preqin Pro*

*Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.
**Expected to be completed in Q3.

San Francisco's tech elite dominates the venture capital industry in North America. For decades, Silicon Valley has been a magnet for technology entrepreneurs and investors across the globe, injecting billions of dollars into the US economy.

While many entrepreneurial hubs across the globe have sought to emulate this success, activity in the US continues to reach new heights. North America-focused venture capital AUM reached a record-high $397bn as of December 2018, $109bn of which is held as dry powder (Fig. 62).

Also in 2018, annual aggregate deal value surpassed $100bn for the first time (Fig. 65). This was driven by several high-profile deals involving California-based companies: Uber Technologies, Inc. secured $1.25bn in January 2018; SB Investment Advisers completed a $1.1bn funding of View, Inc. in November; and Public Investment Fund invested $1bn in Lucid Motors, Inc. in September. For the past decade, California was responsible for roughly half of the capital entering North America each year.

The US economy has been hit hard by geopolitical uncertainty and the US-China trade war. 2019 has so far continued the record-breaking level of venture capital investment in North America. Five $1bn+ deals have been completed in H1 2019, and the three largest deals were for companies located outside California.

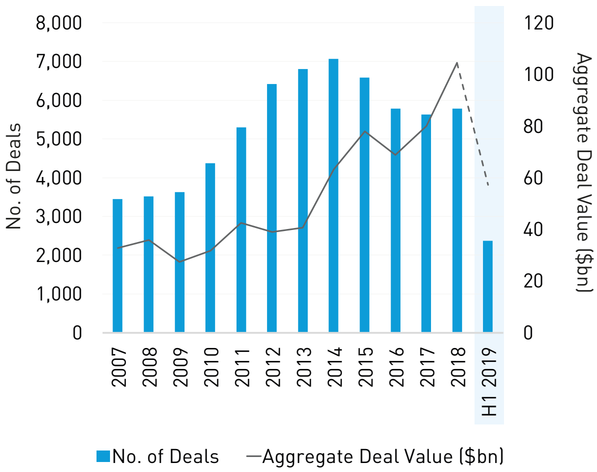
Investor demand for US venture capital remains strong despite the geopolitical tensions. All signs suggest that the North American venture capital market will keep on growing.

**Fig. 64: Notable North America-Based Venture Capital Funds Closed in the Last 12 Months**

| Fund | Firm | Fund Size (mn) | Firm HQ |
|---|---|---|---|
| Technology Crossover Ventures X | Technology Crossover Ventures | 3,000 USD | California, US |
| Bessemer Venture Partners X | Bessemer Venture Partners | 1,850 USD | New York, US |
| Lightspeed Venture Partners Select III | Lightspeed Venture Partners | 1,362 USD | California, US |
| Third Rock Ventures V | Third Rock Ventures | 770 USD | Massachusetts, US |
| Vertex Ventures US Fund II | Vertex Ventures US | 150 USD | California, US |

*Source: Preqin Pro. Data as of June 2019*

**Fig. 65: Venture Capital Deals* in the US, 2007 - H1 2019**




*Source: Preqin Pro*

**Excludes add-ons, grants, mergers, secondary stock purchases and venture debt.*

# Vertex Ventures USA: Selected Portfolio Companies

**Astound** is an enterprise Software-as-a-Service (SaaS) company building AI-driven automation for customer service and support.

**Desktop Metal** was created to change the way we bring products to market. Current metal 3D printing is too expensive and industrial for prototyping and it's not fast enough or cost-effective enough for mass production.

**Dor Technologies** is a tool for the evolving retail landscape. It's a wireless, thermal-sensing people counter and analytics dashboard.

**Hasura**'s GraphQL engine gives you an instant, high-performance GraphQL for any Postgres app without you having to write any backend code.

**Interana** is a fast, scalable event-based analytics solution built to answer critical business questions about how customers behave, and how products are used.

**LaunchDarkly** takes the feature flagging platform that the biggest tech giants build in-house and provides it as a service to everyone else.

**PerimeterX** prevents automated attacks by detecting and protecting against malicious web behaviour. By analyzing the behaviour of humans, applications and networks, it catches in real time automated attacks with unparalleled accuracy.

**Testlio** is a full service mobile app test management solution that provides a dedicated global community of testers and scales through software.

**Tulip** allows you to build apps for all your shop-floor needs with intuitive visual development. You can create user-friendly and functional apps that improve the productivity of your operations, without writing any code.

**Valtix** enables enterprises to more comprehensively secure their critical cloud workloads using a true cloud-native architecture that offers expanded security at a significant fraction of the cost.

**Very Good Security "VGS"** eliminates the risk and expense of data custodianship while enabling organizations to benefit from using their sensitive data.

**Vintra** created a deep-learning video analytics solution capable of continued evolution and improvement over time that works on video data from any source.

# PREQIN AND VERTEX ROUNDTABLES

Perspective from investors, fund managers and start-ups on upcoming trends

# Roundtable: Artificial Intelligence – A Vertex Perspective

## More capital is flowing into artificial intelligence start-ups as the uses and implications evolve

New technologies continue to disrupt the way businesses operate, and no technology has been more disruptive in recent years than artificial intelligence (AI). After recording an aggregate $1bn in venture capital deals for the first time in 2013, the sector has exploded – deals in 2018 amounted to $15bn.

Preqin's **Dmitri Sedov** sits down with Vertex Ventures' **Sandeep Bhadra**, **Emanuel Timor**, **Xia Zhi Jin** and **Liu Gen Ping** to discuss the latest developments and investment opportunities in AI.

**Dmitri Sedov: AI is obviously more than machine learning or predictive systems; it goes all the way to autonomous transportation and robotics, and touches so many different use cases and verticals ranging from infrastructure, education, healthcare to international security. Can you perhaps give your take on what the landscape of AI looks like today and how it is evolving? Where do you see it going forward?**

**Sandeep Bhadra:** The big fundamental breakthroughs in the AI space were made over seven to eight years ago with the DeepMind guys. Experts like Yoshua Bengio and the guys in Montreal understood that they could stack a lot of neural networks back to back and create these deep networks. They figured out how to train them, so they learn the statistical properties of inputs and outputs.

I think the subsequent explosion of AI R&D that has followed has been primarily doing two things, one is to figure out how to train these ever-larger networks on different types of datasets. Much like you mentioned, they first started with images and since then it has been applied to speech, natural language processing, video data, data from radar systems for cars, robotics and sensors. But ultimately, it's the same types of underlying multi-level neural networks. The companies that we see today are working on a different type of dataset that we think neural networks are particularly well suited to training. Secondly, the type of enhancements in the engineering of neural networks infrastructure so that others may use it to train, manage and operate neural-based networks better.

**Emanuel Timor:** I think indeed there are two ways to look at AI from an investment point of view. The first one is AI infrastructure and asking the question 'how do I help the rest of the world use AI in a better way?' This can be via hardware – semiconductor devices, a module or a system that enhances AI and the computational part of an AI and another would be as Sandeep said – a software platform or framework that helps to collect the data, train the system and optimize it. Currently there are a lot of start-ups in the field and there will be few winners.

The second is companies that are using AI at the core of their offering. As many companies are using AI and aim to create a new market or disrupt an existing one, the question is how do they differentiate themselves? If a company has AI capabilities, does that make it an AI company? As the usage of AI grows, it's important to understand what is unique in the offering of the company or the market and use-case it is targeting. What is the market opportunity, do they have a unique dataset that differentiates them from others? These are questions we ask ourselves as investors.

**Dmitri Sedov:** Investment in AI start-ups has been growing rapidly – here at Preqin we track deals data across 50 industry verticals. AI start-ups attracted roughly 8% of all venture capital investment worldwide in the first half of 2019 – that's a significant increase from the 2% just five years ago in 2015.

There are three key trends at play in the global market right now for AI investments. Firstly, we are seeing few but very large investments in Chinese AI start-ups. Secondly, the US is currently the market-leader in terms of the number and size of investments – the US recorded a greater number of large investments at $30-35mn per ticket in 2018. Lastly, Europe enjoyed a steady increase in the number of small investments at around $8-9mn per transaction in 2018.

**Dmitri Sedov: With those trends in mind, we know that deal values and opportunities will vary by vertical – AI valuations differ across sectors such as fintech, transport, healthcare and security. Where are you seeing attractive AI opportunities right now?**

**Liu Gen Ping:** We invest across the AI spectrum, from AI-first companies to those that leverage AI in their business in some way. While a lot of our fintech portfolio companies have a strong AI angle, we wouldn't class these as AI companies. It's more about adding value with AI across various industries, and fintech is one example. We have several fintech companies leveraging alternative data sources or consumer data for credit scoring. For more AI-heavy tech start-ups, we have Active.AI which provides chatbot service to the financial services industry and it is really AI-heavy. Hertzwell, another start-up, is developing autonomous vehicle radar solutions using deep learning to crunch the radar raw data.

Historically, if you look at the business model for some of the lending companies, you'll find that it is very difficult to survive because it's just impossible to build an engine to do small ticket-size SME or consumer lending thus AI really became an enabler. But, can you really label it as a pure AI company or AI start-up? I'm not sure. From that perspective, most fintech companies that work with us have a strong AI angle. So, for Preqin or other data sources, how do they categorize those types of start-ups?

## Part of the challenge in AI at the moment is understanding whether AI start-ups have unique datasets that will enable them to have a unique approach to the market

**Dmitri Sedov:** It's a great question. We get our data from fund managers and from LPs, so how they view these investments would determine how we categorize them in our database. But to your point, it is increasingly clear that those horizontal industry efficiencies that are achieved through some level of AI are almost becoming implied in the business model. This is something that a data provider, recommendation engine or perhaps a workflow tool ought to have in order to have a sustainable and viable business model.

You almost expect that to have an AI component in some cases, it would be highlighted as an AI-specific investment, and in some cases it won't. Then you still have more industry-specialized vertical applications of AI that go beyond just data science and fintech and into areas like autonomous transportation, robotics and intelligence augmentation. We are seeing very specific start-ups and innovations incubate and build themselves as AI, but as a fit for purpose or a specific application of AI solving a specific problem.

**Dmitri Sedov: We're seeing quite an increase in these specific applications in Israel and China. So maybe here's a question for Zhi Jin: what are the areas you are seeing in China that are in fact more AI-driven rather than a robotic process automation creating general efficiencies?**

## AI can be used to add value across various industries – fintech is just one example

**Xia Zhi Jin:** Thank you. I wanted to introduce you to something we're seeing in China now. I agree with Emanuel, in the earlier stages we saw many start-ups doing R&D in AI as the core technology and they try to build up platforms and the infrastructure. An example of this would be the AI chipset and image recognition companies. We are seeing many start-ups implementing that as the first stage of the technological development cycle. I think it is natural for every new technology to develop at different stages and we are seeing many start-ups use that kind of technology to improve and enable the traditional industries across the start-up landscape in China. Additionally, it is worth noting that in 2018 the commercialization pressure has been very obvious for every AI start-up in China.

The past several years have seen China investing significantly in the development of AI capabilities. Start-ups in China can get a lot of funding from venture capitalists and I think it's the same in the US. However, since 2018 you actually have to prove that you can use AI technologies to do something valuable when building up a sustainable business model. Accordingly, some of the large start-ups in China, known as unicorns, usually find it easier to get high levels of funding. Many smaller start-ups face the challenge of securing funding, this is largely due to the current macro environment in China and their inability to find a way to make money and that's something we have noticed over the last year.

Yet, there are still many opportunities in China for AI entrepreneurs because I think the demand is very strong and scenarios are very diverse. For example, there has been a rise in payments being completed via facial recognition technology. Payment technology in China is advancing due to the demand of ease and convenience, stores now accept payments for goods by facial recognition and we have noticed the technology being applied on subway commutes when purchasing high-speed rail tickets and using facial recognition for hotel check-in.

The government also uses the facial recognition technologies to apprehend criminals or enable consumers to apply for bank loans online. There is also strong demand from manufacturers as they are eager to use AI and automation technologies to improve productivity and stay competitive. For example, some are using the technology to conduct visual inspections and predictive maintenance. This type of environment is a challenge for each AI start-up, they must consider how to build up a business model and how to scale the business. That's the key question start-ups should be asking themselves.

**Dmitri Sedov: You mentioned that it's getting harder to attract capital to your smaller AI start-up. It seems like quite a lot of funding is going into larger, more established start-ups with proven commercial models. Would that also indicate that the AI space is maturing? Are valuations realistic?**

**Xia Zhi Jin:** I wouldn't say it's mature, but I think it's evolving. The valuations for AI start-ups have been very high for some time. I think in most cases valuations seem stretched. From an investor's perspective, you have to put in some money if the risk-return makes sense, even if some turn out to be near-term setbacks.

The large AI start-ups have significant revenues and government backing. They have the resources and have built customer relationships. Even though valuations are still very high, I think it's merely a setback for some deep-pocketed investors. For smaller start-ups they are still trying to build up their businesses starting from low revenues. Therefore, it's very hard to convince investors to put money in these small businesses especially when valuations are still very high. In my opinion, valuations for the smaller AI start-ups do appear relatively high.

**Dmitri Sedov: Emanuel, from your vantage point in Israel – a rapidly growing AI market – what are you seeing in terms of valuations?**

**Emanuel Timor:** Well, we are focusing on investing in early-stage companies and obviously later on we support them as they progress and invest in the late-stage part of their lives. We first invest in early stages as the company is being established, giving them the first round of money that helps them come to life or in their A round of financing. In those stages we think that the valuations of AI companies are still very reasonable. This is part of the reason why we focus on early-stage companies, in the company's infancy it's easier for us to become a majority shareholder and to own a big chunk of the company.

**Dmitri Sedov: Gen Ping, what are you currently seeing in the space?**

**Liu Gen Ping:** The US, China and Israel all possess a lot of talent and opportunities in deep tech and AI. For emerging geographies such as Southeast Asia and India, it's a little bit different.

Fundamentally, valuations are driven by supply and demand, and we've seen a considerable increase in the supply of capital into these emerging markets over the past 12 months – new funds are set up every few days. The trade war between China and the US is pushing investors to look elsewhere, and the growth in emerging Asia is really exciting to see.

While the supply of capital is strong, the universe of AI start-ups in Southeast Asia is smaller compared to other, more developed regions. Naturally, this supply and demand relationship pushes up valuations, and I think the trend will continue for a while yet – certainly for the next 12 months.

**Dmitri Sedov: Thank you. Sandeep, what's your perspective on the current valuations and the way they're going?**

**Sandeep Bhadra:** I will start off with Emanuel's previous point. I don't know how to distinguish the valuation or the investment market for early-stage AI start-ups from early-stage start-ups in general.

Let me throw the question back at you for a second – do you guys feel that in North America or in the US, the pattern or the distribution of capital across early, mid and late stages for AI companies is substantially different from that of start-ups in general?

**Dmitri Sedov:** That's a good question. In the US we're certainly seeing the shift of AI investment going towards specific verticals and away from what used to be differentiated and potentially impacted valuations from maybe five or eight years ago. Now, with robotic process automation, machine learning or any type of data-driven business applications that have the AI component, I would completely agree with you Sandeep that there is no real difference in valuations there.

But then you look at something like Zymergen, Inc., a biotech and data mining firm. They are essentially reading social media using some AI tools to spot breaking news in real time, and they held a $400mn round. Some other examples include firms such as the robotic process automation (RPA) company Automation Anywhere, Inc., which recently raised $300mn. You also have cybersecurity firm Tanium, Inc. which raised close to $200mn. The company ZipRecruiter, Inc. is a job search site which uses some proprietary AI technology that recognizes patterns and identifies the right candidate, and raised $150mn. The further you go with the sector of the company, the more differentiation there is around the type of AI that the company is using and what its business case is. That's the point that Zhi Jin was making earlier.

**Sandeep Bhadra:** One way to think about it, is that large successful companies which already have tremendous customer traction have tons of data and so it lends itself to having some sort of AI strategy in the first place. Tanium did not start out as an AI company by any means and neither did this company called Compass which is like brokerage for residential real estate. They hired Microsoft's AI Executive as the head of AI. Then you ask yourself the question: is Compass, which is a real estate brokerage which competes with mom-and-pop brokerages across North America, as well as Century 21 and Sotheby's, an AI company? And then you begin to realize that no, they actually collect pricing data and customer sentiment data about the

**The challenge for AI start-ups is understanding how to build up a business model and how to scale their business**

housing market in the US. Which in turn lends itself to the possibility that they would actually do something useful with the data and so now they're an AI company.

**Dmitri Sedov:** I think you are absolutely correct and I couldn't agree more when it comes to the data space – of course, Preqin is in the same space. We don't think about whether we do or don't need AI to enhance our data collection. The fact that we need natural language processing and some level of RPA in how we collect information is a given – we won't be here in the next five or 10 years without that. How we combine these technologies and tools that are available to us today with human intelligence – which is also so important for us as a business – that's the key question for us. As the largest data provider in the space, Preqin has that corpus of data that gives us the luxury and ability to deploy various data science applications and experiment with the latest technologies around data analysis, which we can ultimately turn into additional products for our customers, and that's exactly what we're doing.

**Dmitri Sedov: Gen Ping, what is your take on valuations and what are you currently seeing in the space?**

**Liu Gen Ping:** Yeah, I guess for the US, China and Israel there's a certainly a lot of talent in the deep tech and AI space. For emerging countries such as in Southeast Asia and India, it's a little bit different. Fundamentally the valuations are driven by supply and demand. The supply of capital in this region has increased a lot over the last 12 months, every few days you will see a new fund set up. Why is that? Because the trade wall between China and the US has pushed a lot of investors to look at other emerging countries and the growth for this region has been really exciting so far. The supply of capital in China is really on the positive. The region traditionally didn't have so many innovative AI start-ups, but recent years have seen more and more probably come back from the US and other regions. There are a smaller number of AI start-ups compared to other regions. So naturally you see the amount of capital push up valuations and I think the trend will continue for a while, although that seems to be slowing down in China and the US. However, Southeast Asia probably will go on for a while, and the nation will still be seeing higher levels for some time, we are predicting for another 12 months.

**Dmitri Sedov:** One last question, and this one has less to do with the companies that you may be investing in and more to do with your day-to-day. One interesting application of AI would be in private capital investing as you are striving to deliver alpha. We are seeing applications that help analyze unstructured data and this could really help you to identify better opportunities faster.

**Dmitri Sedov: What are you seeing in your own day-to-day workflow that is being enhanced by machine learning, predictive systems or any other innovation in this space?**

**Liu Gen Ping:** Yes. I don't think we are using AI in our workflow in Southeast Asia right now. I don't think we will use those tools in the near future. I think the idea of AI will change some aspects of their investments that we are going start from structural investments or structured data. For example, in stock market investment we know that there are many start-ups doing AI advisory for the investments but for venture capital investments it's much harder to do that. I think the information is very diverse and unstructured, and the decision process remains people driven. However, maybe in the future we will see some very strong AI that can replace venture capitalists, but I don't think that will happen in the future.

**Dmitri Sedov: Are you seeing anything from your vantage point with a certain pattern recognition or analysis of companies and their likelihood of success entering the realm of what you are doing today?**

**Sandeep Bhadra:** People have been doing pattern recognition in public and private markets for a very long time. Yes, it's well understood that the past is no guarantee for the future. Otherwise a company like Zoom with a $20bn market cap would not have such a tremendously hard time raising even $5mn at a Series A round. I think that goes to show that there are tons of data available and people have all kinds of heuristics for capturing signals from that data. But as with all learning systems it's garbage in garbage out.

**Dmitri Sedov:** Good point.

**Emanuel Timor:** We're not a medium-sized enterprise, we're actually a very small enterprise and so in terms of what we do in our day-to-day we will probably be a very late adopter.

**Liu Gen Ping:** I agree with that. I guess we are lucky that we are in this industry which will take another 100 years to get disrupted by AI.

## Dmitri Sedov

**Chief Product and Marketing Officer, Preqin**

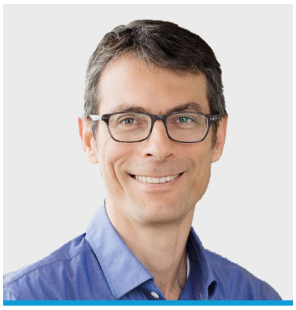
Dmitri leads Preqin's global Products & Markets Group, spearheading initiatives to ensure that the company's award-winning portfolio of products and services evolve to meet the changing needs of customers and capital markets. He brings nearly 20 years of experience in strategy, product innovation and market development, having led innovation at S&P Global and served as Managing Partner at Evocado Ventures, where he co-invested in and advised growth-stage tech start-ups.

## Sandeep Bhadra

**Partner, Vertex Ventures US**

Sandeep joined Vertex in 2017 and focuses primarily on cloud infrastructure, data-driven business applications and cybersecurity.

Prior to joining Vertex, Sandeep was a Principal at Menlo Ventures where he focused on investments in infrastructure and data/machine-learning driven applications including Platform9, Signifyd, Unravel Data and Clarifai. Prior to that, he was with Cisco's Corporate Development team and also worked on Cisco's investments in MapR, Platfora, Moogsoft and acquisitions of Metacloud, tail-f and Memoir Systems. Sandeep received both a B.Tech from IIT Madras and a Ph.D. from the University of Texas at Austin in Electrical Engineering, and an MBA from INSEAD.



## Emanuel Timor

**General Partner, Vertex Ventures Israel**

Emanuel Timor joined Vertex in 1998 and possesses nearly 20 years of experience working closely with start-ups in the fields of Enterprise, Cyber-Security, Automotive and Networking platforms. Among his most recent successes, his investment in portfolio company Percello led to its profitable acquisition by Broadcom.

Prior to joining Vertex, Emanuel was an articled apprentice at an Israeli law firm where he acquired expertise in IPOs and M&As. From 1992 to 1997, Emanuel was one of the leading financial journalists for Globes, Israel's daily business newspaper. He covered the Israeli high-tech and venture capital industry.

Emanuel received a B.A. in Economics and an LL.B from Tel Aviv University, Israel.

## Liu Gen Ping

**Partner, Vertex Ventures SEA & India**

Gen Ping joined Vertex in 2010. He covers Southeast Asia on industry sectors including internet/mobile and enabling technologies.

Gen Ping has a diversified set of experience working with start-ups and multinational companies in various sectors including internet, electronics (batteries), telecoms and investment banking. He started his career with a product manager role at Motorola Electronics Singapore.

Gen Ping holds a Bachelor of Computer Engineering from Nanyang Technological University Singapore, and MBA from University of California – Los Angeles.

## Xia Zhi Jin

**General Partner, Vertex Ventures China**

Xia Zhi Jin joined Vertex in 2010 and focuses on early investments in high-tech fields in artificial intelligence, advanced manufacturing and online education.

Prior to joining Vertex, Zhi Jin was a research engineer in the Thomson Research and Innovation Department, dedicated to video processing technology and obtaining several international patents. He also worked as an analyst at Taishan International Investment Corporation.

# Roundtable: The Growth Venture Capital White Space

**Strong returns and a robust fundraising environment make growth-stage funds an attractive prospect**

A continued flow of capital into the technology sector is driving interest in growth-stage venture capital (VC). What's behind this trend, and what does it mean for fund managers, investors and start-ups?

To find out, Preqin's **Michelle Stern** sits down with two fund managers, **Richard Ji**, Co-Founder, All-Star Investments and **James Lee**, Managing Director, Vertex Growth Fund, and the leaders of two venture-backed fintech firms, **Pratik Gandhi**, COO, InstaReM, and **Nikhilesh Goel**, Co-Founder, Validus Capital.

**Michelle Stern: We've seen a trend of venture capital increasingly going to growth-stage funds compared with early-stage funds. What's driving this?**

**James Lee:** The theme of technology disruption currently resonates strongly across both public and private markets. From our own fundraising experience, we see very healthy interest, particularly from corporates, to invest part of their balance sheet to gain access to technology and insights, to inform their business strategy formulation and to leverage technology to enhance their core business requirements. For more returns-focused investors, growth-stage technology assets present an optimal risk-reward balance with a shorter horizon to liquidity relative to earlier-stage assets.

One datapoint we have seen that corroborates these observations is the 15-20% year-on-year growth in capital commitments towards growth-stage technology assets in recent years.

**Nikhilesh Goel:** As a start-up, when we were raising money, it was extremely important that the existing funds participated in the next round. It's become an unspoken rule that if they don't attend, it sends a bad signal to the market. It becomes very important when choosing a VC partner that the VC has multiple funds that can support us through our journey from Series B to C, and so on.

**Michelle Stern: Are there advantages a venture capital firm can bring beyond capital? If so, how do the advantages differ between an early-stage and growth-stage fund?**

**Pratik Gandhi:** For a company like InstaReM, we are in a business that relies a lot on the trust of the customer, whether individual or corporate. They're actually giving their funds to us, and they want us to make sure that their money goes to the other end safely, soundly and without deductions. Secondly, we use bank rails; we have an interesting relationship with banks because they consider us to be competitors as well as being high risk, so they are often reluctant to start a relationship with us. For these reasons, a reputable investor can bring both credibility and open the doors for us.

Furthermore, a venture capital firm should understand your company at every stage.

At the initial stage of a company's life, investors may present numbers, whether volumes or P&L, but these are often aspirational numbers. Experienced players will understand that as long as there is genuine effort, it's not the end of the world if you are behind on your numbers. If you have an investor asking why the quarterly number not tying up with what was promised may be missing the woods for the trees.

Now we're at the growth stage, and we are getting more mature. There is more focus on economics and corporate governance. One of the first things our VC partners insisted on during the growth stage is that we needed to have a full-time CFO. That obviously happens over time. You don't expect a baby to start running before they can walk.

**Nikhilesh Goel:** The benefits that a growth-stage fund can bring are more than just the money.

Our business relies a lot on being able to partner with large corporates. We can have the best value proposition in the world, but trying to negotiate corporate bureaucracy and hierarchy is very difficult for a start-up. A VC can bring a blue-blooded name, and the brand name matters. It can bring the credibility that start-ups lack, especially when dealing with large corporates.

**Richard Ji:** When you have a company that's only at the idea stage, they need assisting. You can help them to recruit talent, fine-tune their product offering and find the right marketing channel.

We are focusing on companies that are often about 15 years old, targeting an IPO. At this stage, companies will typically worry about two things.

First, a potential public listing. The founders may not want to publicly discuss it, but an exit will come at some stage, and the founders want to reward long-term commitment from their employees and early-stage investors. The first type of value-add we provide is around an IPO; there are very few funds in this space with experience as extensive as ours in this area.

Second, the ecosystem. Many companies want business partners across different sectors and regions. That's where our so-called 'all-star ecosystem' comes into play. We deliberately built our LP network to comprise established groups in the finance, consumer and tech spaces. During our due diligence process, we typically focus on the top three needs of our target company. We try to help at least resolve one of them.

> **With companies staying private for longer there are increased opportunities for growth funds**

**James Lee:** The Vertex Growth Fund is the newest addition to the Vertex family of funds. Our five sister funds are early-stage focused, typically Series A and B, while we come in at a later stage. The idea for Vertex Growth Fund started from the realization that there was an internal 'gap' to fill due to our early-stage sister funds collectively putting more than $1bn of capital to work into early-stage technology and healthcare opportunities across the key innovation hubs. Due to their early-stage focus and need for portfolio diversification, there is a break in continuity of funding support at the stage when the promising portfolio companies require further funding to accelerate their growth. From a capital management perspective, we have been missing the opportunities to capitalize on further upside emerging from the strong early-stage portfolio across the Vertex network.

Beyond this, the focus, capabilities and experience that our early-stage partners and what the growth fund team brings to the table would also be different. For Vertex Growth, as we typically invest after companies have crossed technology and product hurdles, and are at the cusp of ramping business growth, we focus a lot on value-creating on the business acceleration side of things. We leverage the Vertex platform and our extended network to bridge cross-border business opportunities and supporting our portfolios to land and expand in new markets, which could be connecting local/regional distribution partners or helping with their local sales team hiring.

**There are four areas we are excited by, which can be summarized as ABCD. These are artificial intelligence, blockchain, cloud computing and data analytics**

**Richard Ji:** While running a $2bn fund, we've been responsible for the IPOs of well-known tech leaders in China, such as Alibaba and Tencent while at Morgan Stanley. We typically focus on pre-IPO tech leaders that are 2-3 years away from a potential listing. Compared with the typical venture capital firm, we are at a much later stage. We focus only on the champions.

Due to their expertise, our investors bring two types of resources beyond capital. The first is proprietary deal flow. The second is that these leaders can bring value-added strategic resources to aid in the growth of our portfolio companies, such as technology transfer, business collaboration, overseas opportunities, government relationships and even senior executive hiring recommendations. Deal competition tends to be intense. Providing capital is not enough. We need to impress the company by bringing resources and adding value.

**Michelle Stern: What types of risks are inherent in growth-stage investing or as a growth-stage company?**

**James Lee:** I think the primary risk is market risk – the company's ability to scale, gain market share and dominate. There is also financial risk in that what sells may not eventually be profitable. There are many examples of companies where systemic to the business model, growth comes at the expense of profitability. Ability to figure out an eventual path to profitability is important. People risk also exists across stages. Often at the growth stage, one key management challenge is figuring out how to grow the team in size and depth, and yet preserve the dedication, focus and nimbleness of the founding group that pioneered the company.

**Pratik Gandhi:** All of the above. And for us, there is the inherent risk that the disruptors could become disrupted. There's always a challenge to keep thinking, innovating and staying abreast of what's happening in the market. Fintech is basically about doing what the banks couldn't get right; one of the things that fintechs, by definition, bring to the table is the ability to be agile and make quick decisions. However, agility does not mean that we can be foolhardy when we deal with customer funds or regulations. For InstaReM, the fact that we have experienced professionals helps us get past that risk.

**Nikhilesh Goel:** Reputational risk. Any mistake results in huge loss of information which can really kill the business. In our case, we must be extremely careful as we go about building our business.

**Michelle Stern: Is the investor profile different for growth funds vs. other strategies?**

**James Lee:** Vertex Growth Fund's LP base comprises broadly of two categories of investors. One has a very strong corporate interest in technology; these investors invest with a view to gain access to technology opportunities relevant to their core businesses, and insight into technology trends that may pose a disruptive threat. Our corporate LPs span various industry verticals including financial services, manufacturing and education as some examples. The other would be investors focused on financial returns who like the risk-return profile of growth-stage technology opportunities and the shorter expected time horizon for observing returns.

**Michelle Stern: What is the fundraising landscape like for growth companies?**

**Pratik Gandhi:** It's not challenging, but it can be interesting. I remember one incident in our earlier rounds when we had three interested venture capital firms. Within a month, all three had dropped out for various reasons. From a comfortable position, we were suddenly a bit dire. As luck would have it, three new firms came up and we managed to close within a month. I remind myself of this story many times because it showed that patience and trust in your own proposition eventually pays dividends.

**Nikhilesh Goel:** Because we are in the fintech sector, we are the flavour of the month right now. There are certainly other sectors that aren't so lucky.

**James Lee:** With the broader market conditions being where they are now in the economic cycle, investors are generally more cautious. The bar has certainly been raised with regards to meeting the criteria for investment.

This may explain what we see as a bifurcation in the marketplace. Good companies will continue to attract a lot of interest, and there is ample private capital dry powder out there. Companies that do not meet that bar will see the funding landscape to be in retreat and face significant difficulty in fundraising.

**Michelle Stern: What trends are you seeing that could be disruptive?**

**Richard Ji:** There are four areas we are excited by, which can be summarized as ABCD. These are artificial intelligence, blockchain, cloud computing and data analytics.

Many sectors are overbuilt and have abundant upstream surplus capacity. That's why the sharing economy model works particularly well in China. You can share all this idle supply with downstream demand. We were early investors in China's Uber, DiDi. We invested in the $2bn round and now it's at $56bn. We also invested in China's Airbnb - Tujia, and China's WeWork - UCommune.

**Nikhilesh Goel:** In the fintech area, the entire consumer-focused space is getting very crowded. Anything to do with B2B or SMEs seems a lot more attractive and interesting because it's more difficult to crack. If successful, the value proposition is much stronger. That segment of the market typically accounts for 50% or more of GDP in every Southeast Asian country. It's a huge white space to be tapped.

**Michelle Stern: What is your advice to other corporates coming into growth-stage financing rounds?**

**Pratik Gandhi:** Everyone has a different opinion, but from InstaReM's own experience, an early-stage company is all about volume. At a later stage, profitability becomes increasingly important. Growth companies shouldn't overlook the fact that every company eventually must stand on its own feet. This includes taking control of aspects such as expenses more than ever and working on company basics that might have been ignored earlier.

This may include getting tenured professionals in back-end related areas, such as operations and finance, and documenting processes. It's about building long-term automation, not Band-Aid solutions.

## Michelle Stern

**SVP, Head of Market Development, Preqin**

Michelle Stern leads the global marketing team at Preqin. She has more than 12 years of experience marketing financial data, information and software solutions. Prior to Preqin, she was Head of Marketing at Axioma, Head of Digital Marketing at Tradeweb and a Market Development Manager at Standard & Poor's Ratings Services. She is based in San Francisco.

## James Lee

**Managing Director, Vertex Growth Fund**

James oversees the investment and portfolio management activities at Vertex Growth Fund. Concurrently, he leads the Partnership Group at Vertex Holdings, which focuses on facilitating collaborations and building partnerships across the Vertex network.

## Pratik Gandhi

**COO, InstaReM**

Pratik is the Chief Operating Officer for InstaReM Pte Ltd., a global payment infrastructure company headquartered in Singapore. He is a Chartered Accountant and Company Secretary and has over 25 years of multi-industry and multi-geography experience, having worked for companies such as Xerox, PepsiCo and Telstra. Prior to joining InstaReM, he has worked at Standard Chartered Bank Singapore (CFO) and at Citibank Singapore (Regional CFO).

## Nikhilesh Goel

**Co-Founder, Validus Capital**

Nikhilesh has over 12 years' experience in private equity, investment banking and corporate strategy across Southeast Asia. At Validus, Nikhilesh is responsible for managing the overall business operations. He has played a key role in driving successful funding rounds, geographic expansion into new countries, and forging strategic partnerships with global brands.

## Richard Ji

**Co-Founder, All-Star Investments**

Dr Ji cofounded All-Stars Investment, which focuses on investing in the "new economy" champions in Greater China, such as Didi Chuxing (China's Uber), SenseTime (AI leader in China) and Tujia (China's Airbnb). At Morgan Stanley, he participated in the IPOs of many tech companies, including Tencent and Alibaba. He was rated as "the No.1 stock picker in software and services" in Asia by Financial Times and as the First Team (Asia) by Asiamoney.

# Roundtable: VC Outperformance – Global LP Perspectives

**Four top institutional investors share their views on asset allocation, returns and why they expect venture performance to remain strong**

Amid jittery markets and a weakening global economy, venture capital (VC) continues to thrive. As a key driver of innovation, VC is well placed to benefit from digital transformation and disruption. No wonder investors in top-tier funds see exciting opportunities ahead in innovation markets across the globe.

To discuss VC investing from an LP perspective, Preqin CEO **Mark O'Hare** sits down with **Brijesh Jeevarathnam**, Partner & Co-Head of Global Venture Fund Investments, Adams Street Partners; **Naoto Sato**, Joint Head of the Investment Department, Mizuho Securities Co.; **Jung Woo Sung**, Managing Director & CEO of the US, Hanwha Asset Management; and **Roque Velasco**, Managing Partner, Galdana Ventures.

**Mark O'Hare: To kick off our discussion today, could you share your approach to investing in VC? How have you gone about constructing your portfolio?**

**Brijesh Jeevarathnam:** Our VC portfolio is relatively concentrated in terms of the number of managers, and we look to maximize the allocation to our selected managers. What that means is our primary venture (fund investing) capacity is fairly constrained. We regularly do a bottom-up assessment of which GPs we want to commit to and what capacity we might have. That's how much capital we look to raise. For example, our current fund of funds would have about 17 or 18 VC managers globally. By capital we're looking at a roughly 70-75% US focus; the remainder will focus on China, Western Europe, India, etc.

**Roque Velasco:** Galdana is a fund of funds, and we look at diversification in terms of geographies, stages and sectors. Our thesis is that past returns say a lot about the future. If you have a strong track record in VC investing, you are likely to continue being successful in the industry.

Portfolio companies want investment from fund managers that have had previous success and we, the LPs, want to invest in those successful GPs. Our approach is to provide our investors with a global and well-diversified VC portfolio that features the best names in the industry.

**Mark O'Hare: Thank you Brijesh and Roque, those are two very interesting examples of a fund of funds approach. Sato-san, could you tell us about Mizuho's approach?**

**Naoto Sato:** At Mizuho Securities' Investment Department, we invest directly or indirectly in a wide array of private assets, such as private equity & venture capital, private credit and real estate. Our investments include LP participation in buyout, VC and infrastructure funds, as well direct stakes in fintech start-ups and mezzanine tranches. Our team has also incubated and spun off 14 GP brands.

**Mark O'Hare: Mizuho is one of Japan's three biggest financial services groups. How does being part of a much larger financial institution shape your investment goals?**

**Naoto Sato:** We aim to make capital gains and generate revenue related to our investment banking business, including financial advisory services and IPO underwriting. We are not only looking for capital gains, but also to business related to banking.

**Mark O'Hare: Hanwha Asset Management (HAMC) is also part of a much larger financial group, which includes Hanwha Life, the second-largest life insurer in Korea. Jung Woo, how did HAMC come to invest in VC? How did you build its portfolio?**

**Jung Woo Sung:** Prior to 2017, HAMC's investment exposure had mainly been limited to real assets, corporate private equity and private credit. But our parent company, Hanwha Life, has had indirect exposure to certain VC funds, such as Vertex's Southeast Asia fund, to gain insight into innovation in the fintech space.

In 2017, HAMC was given a small pool of capital for allocation to VC, and tasked with creating a portfolio of different types of GPs in the US for the purpose of generating financial returns.

In parallel, we looked at VC commitments in Europe and Southeast Asia opportunistically, as part of HAMC's tactical asset allocation activities conducted on behalf of Hanwha Life. We created the US VC portfolio by looking at established managers with a long track record. The aim wasn't necessarily outsized returns, but rather stable returns that could generate some sort of alpha for HAMC. We also looked at emerging managers raising their fund twos or maybe threes. Then came sectors: we looked at certain sector-focused funds to gain exposure to industries relevant to Hanwha, such as fintech and healthcare.

In conjunction with that, we also look to co-invest with our GP partners in promising start-ups, particularly in the Series C/D space in artificial intelligence (AI), fintech and healthcare.

**Mark O'Hare: Jung Woo, you mentioned emerging managers just now. At Preqin, we sometimes see emerging managers outperforming their more established counterparts. But with these newer entrants to the asset class, how do you determine which ones are best placed to outperform?**

**Jung Woo Sung:** For us, emerging managers are those that are in their fund twos or fund threes; they're still harvesting their fund ones and still trying to build a track record. When we select emerging managers, we go through an extensive due diligence process.

We're referred to certain managers that were funded by very reputable LPs such as Roque and Brijesh. These LPs that funded the emerging managers' fund ones have seen the build-out of the team, the track record and whether the strategy has been working. That makes us more comfortable investing in those emerging managers.

We also talk to these GPs for around 6-12 months even before they start fundraising for their subsequent funds. During this time, we talk very extensively with their existing sponsors and their anchor LP investors and we talk to the GPs themselves and find out how they plan to build out their platforms. Therefore, by the time the GPs start fundraising, we're already quite prepared to become an LP.

**Mark O'Hare: Indeed, it's a time-consuming process, and you really need to have the skills and the abilities to discern who's likely to do well. Thank you, Jung Woo.**

**Now I'd like to touch on the broader financial and market environment. We're seeing ongoing concerns around the US-China trade war with the Renminbi dropping to seven to the dollar this week, and there are concerns with growth slowing globally. How does that macroeconomic uncertainty impact your view on VC investing? Does it raise question marks, or does it increase your interest in VC?**

**Brijesh Jeevarathnam:** Investing in VC is a 10+ year cycle, so you have to take a long-term view. Yes, it looks like there'll be some rocky patches in the near term but there are a couple of points to keep in mind.

Number one: we maintain a 10+ year/long-term perspective – we don't want to make tactical changes in response to short-term stimuli.

Number two: from a China perspective, the GPs we're investing with and the companies we are investing in should not be impacted meaningfully by any tariffs or any international trade issues. They're really focused on innovation, mostly domestic innovation, both on the consumer and the enterprise side. Those sectors will be less impacted by trade tariffs, and they will likely remain strong through economic cycles because it's about creating new markets and categories as opposed to incremental growth in an old sector. In short, we will continue to be active in Chinese VC.

As for our interest in VC given this backdrop, there are still strong positives. One is that venture has been an asset class where return persistence for us as investors has been always high and it remains high. This means that for LPs who have access to great managers there's a strong probability of outperforming your peer group and the public markets. So it's a good asset class from a long-term return persistence perspective.

Another is the innovation cycle.

Let me take a step back. When we look at the venture markets we look at two sides. One side is what's happening in the tech innovation markets which of course impacts new company formation, and the second is the capital markets which impact IPOs, M&As and fundraising for companies.

Both of those markets have been very strong in recent years and we believe that the innovation markets will remain strong for the next 10-15 years even if the capital markets enter a down cycle. So for us as investors in the early stages of venture, we think it will remain a strong asset class for the foreseeable future.

**Naoto Sato:** I think most investors in the market are concerned in some way with the US-China trade war and Brexit and so on. That said, we are not reconsidering our asset allocation, and this is for two reasons.

First, the ratio of overseas to domestic investment is still less than 30% for us. Traditionally we have been focusing on the Japanese market, and now we aim to expand our portfolio globally and increase our ratio of overseas investments.

Second, it's important for us to continue to invest in funds, because we know that profits cannot be realized constantly every single year. Taking a longer-term view and allocating to funds can provide a form of protection, even if a financial crisis comes. Of course, the investment amount will be adjusted based on the economic environment.

**Jung Woo Sung:** The public bond markets, the interest rates and the public stock markets have really taken a hit recently, so we know that we have to increase our exposure to alternatives. That being said, we have to create an alternatives portfolio where our VC exposure is carefully balanced with that towards real assets and private equity/credit.

> **It's important not to see venture capital as a cycle play. Venture capital is a long-term strategy and we try to make sure that we're generating our overall target returns despite economic instability**

In light of the recent economic instability, it's important to note that VC is not a cycle play for Hanwha. We can't time the market or be sure that we'll make money in a downturn. We just want to make sure that we're generating our targeted band of returns within the VC space.

So, we're hesitant to say that because of this situation we should allocate to VC. However, we are seeing pockets of opportunity in the current market, particularly in the US and Southeast Asia.

We have not been too aggressive looking at certain emerging markets such as Latin America, MENA and Eastern Europe. But we do believe that the overall economic growth of the Southeast Asian markets and the overall technological innovation in the US will continue to provide attractive opportunities from a VC allocation perspective.

**Mark O'Hare: Roque, what's your outlook and what are you hearing from your LPs in terms of VC investing given the macroeconomic uncertainty?**

**Roque Velasco:** If you consider our investment timeline as a fund of funds, we typically commit all our capital within three years, but then those funds also have a three- to four-year window to commit their capital.

## AI, IoT and healthcare are sectors providing great opportunities for venture capital investing

So, our timeline of committing capital and seeing a return can span seven or more years. For us, the current situation will likely have an impact on our portfolio, but to echo Brijesh, we won't be making changes due to short-term factors.

**Mark O'Hare: What areas within VC are you finding to be particularly exciting at the moment? Which industries and geographic markets are you seeing as presenting the best opportunities?**

**Roque Velasco:** In terms of sectors, we're seeing software as a hotspot, with particularly good opportunities in the US and across Asia.

In terms of stages, we believe that early-stage investments are currently showing the most attractive opportunities in VC. We're seeing that valuations for early-stage companies are not as high as those for later stages of investing. And as early-stage companies have grown and developed more than seed-stage businesses, there's less risk.

**Naoto Sato:** We see AI, Internet of Things (IoT) and healthcare as promising areas. These sectors are particularly interesting to a lot of large Japanese corporations eager to invest in start-ups. They're looking for innovation partnerships that will give them insight into transformative technologies in their sectors. Mizuho is an intermediary for many of these large corporations. We've connected many Japanese corporations with start-ups in potentially disruptive sectors.

In terms of geographies, the US, China, Southeast Asia and Israel present the best opportunities right now. We're seeing a lot of demand from Japanese corporations that want to connect with start-ups in these countries.

**Jung Woo Sung:** The US and Southeast Asian markets are very much of interest from a geographic perspective. We don't have that much of a VC exposure in China; I think we may be too late in the game to play in that market aggressively. We'll look opportunistically at the European markets, especially the Western bloc and the Nordic region as well.

From a sectoral perspective, fintech has always been an interest of ours. We're also looking at the blockchain and how that could bring meaningful opportunities for the financial services industry. Healthcare, or digital health and healthcare technology, is an area that is still of interest to us, particularly in direct investing. We also continue to look at identifying Series C/D consumer companies.

We are keenly interested in what value-add we could bring to the table when there is a Europe- or US-based company that's looking to expand into Asia, and how Hanwha could be of help to those companies using our global network of GPs and strategic investors.

**Mark O'Hare: Roque, can you comment a bit on the VC market in Europe? I know you invest globally and much of the commentary in the market currently surrounds Asia and the US, but what's going on in Europe at the moment?**

**Roque Velasco:** Europe is a smaller venture capital market than the US and Asia; and it doesn't have the same amount of IPOs or deals. But, relative to its size, the venture capital environment in Europe is pretty interesting. You have a lot of high-quality cities: London, Berlin, Madrid, Barcelona, Paris and Nordic cities and in addition to this there are some other innovation hubs across Europe. The challenge when it comes to Europe is having that local knowledge of all these different markets and the relevant GPs , as most of them are only active in one or two of those cities.

**Mark O'Hare: Are GPs finding it more challenging to make attractive investments right now? Is this a slightly slower time for completing deals?**

**Roque Velasco:** My feeling is that the deal-making pace is not slowing. I think we're seeing GPs invest their funds more quickly than before.

With companies staying private for longer there is more opportunity for deal-making in the later stages, which is driving larger fundraises. Perhaps this is where the view that there is a lot of capital in the market comes from.

I think the level of innovation in many different regions – across the US, Asia and Europe – is still very strong. So I'd say that yes there is more money, but there are also more opportunities for deals.

**Naoto Sato:** Funds are sitting on a lot of dry powder, and there's worry in the market that valuations may continue to rise because of this. In our view, the important thing is to invest continuously, throughout the market cycle.

**Brijesh Jeevarathnam:** We don't look at quarter-to-quarter trends because there can be some idiosyncratic changes in pace over these periods.

Taking an annual perspective, we believe that the market in 2019, and perhaps even in 2020, will remain active. And the reason for that is two-fold: demand and supply of capital.

One is the demand from companies that are, as Roque said, staying private and looking to raise growth capital in the next say 12-18 months. Secondly there's been a lot of fundraising by venture firms in the past 12 months, and they're still sitting on a lot of dry powder. That capital supply will flow to high-quality growth-stage companies even if the macro environment shifts

**Mark O'Hare: Continuing to look ahead, what do you see as the biggest challenges for VC?**

**Brijesh Jeevarathnam:** A big challenge is that a lot of capital is entering the VC market in a short period of time. We're not talking about the same levels being invested in fixed income or public equities, of course – VC is still a drop in the investment ocean.

But at the company level we focus on some of these huge rounds that are being raised. Our venture managers are working hard to ensure that these companies are building sustainable business models.

So, the challenge for the asset class is keeping capital discipline at the portfolio company level, and to keep building sustainable business models, rather than essentially VC-subsidized business models. We've seen a few of the latter, and they haven't been lasting enterprises. I think that's a big challenge for the asset class.

**Mark O'Hare: Let's talk about returns. In VC it's especially dependent on manager and fund selection; Preqin data shows there's a significant dispersion in returns, so if you're going to invest in VC you really want the best managers with the best track records. Does that chime with your experience?**

**Roque Velasco:** Well, you just described our thesis! As a fund of funds, our main job is to invest in the top quartile; it's the only safe place in the VC industry. You have to invest in the best funds, or the risk/return profile doesn't work out.

**Brijesh Jeevarathnam:** In the venture asset class, the top managers have outsized returns, and we've been fortunate to have access to and meaningful relationships with those GPs. The top few handfuls of GPs in both the US and outside the US have had exceptional performance in the last 5+ years.

**Mark O'Hare: What words of advice would you offer investors who may be new to the asset class, and are looking to access the top funds?**

**Jung Woo Sung:** Even before a GP starts raising its fund, we visit early and we introduce ourselves, and we make sure that we're honest about how much we can and cannot invest as an LP in their fund. We set the right expectations and when the opportunity comes, we

**Although it seems we are living in a digital world, I think we've only seen the first phase of what technology can bring to society**

make sure to follow through. Some investors contact the GP and then they're out of the picture for a long time, and then the GP just forgets about you. They don't reach out to you when they start their fundraising.

You want to make sure that there's a consistent relationship that's being built based on honesty. Any financial institution that wants to get into this space must do that, because it's such a small group of funds that you're trying to access, and you have to be a meaningful part of that ecosystem.

**Mark O'Hare: Surveying the VC landscape, where do you see the best potential for future unicorns?**

**Naoto Sato:** For the really big VC stories and possible unicorns, I think you're looking at the US and China really. There are a lot of high-growth opportunities elsewhere, of course, but for unicorns, those markets are the most promising.

In terms of sectors that we'll see big VC opportunities come from, you've got AI. Another that I think has massive potential is transportation and car manufacturing. That's why you have corporates like car companies entering the VC space: to gain access to disruptive technologies that are relevant to their core business. This kind of activity could help to drive VC-backed companies to hit that $1bn mark.

**Mark O'Hare: Looking ahead, how do you think VC will perform in the future? Is the market seeing positive indicators?**

**Roque Velasco:** VC is a funder of innovation and growth, partially in high-growth industries like technology, biotech, healthcare and energy for example.

And although it seems we are digitalized and/or living in a digital world, I think we've only seen the first phase of what technology and these industries can do. So really, I see a lot of opportunities to innovate and disrupt in these sectors in the future and VC will be a key driver of that. All in all, I think future performance will be at least as good as it has been in the past.

**Brijesh Jeevarathnam:** I think there are a few positive indicators for VC.

VC in general has been an asset class where performance or return persistence has always been high, and it remains high.

## As the uses and integration of technology increase in various sectors and geographies, the investable universe for venture capital LPs will grow

You've heard the expression digital transformation and every 'traditional' non-tech company is trying to go that way, and there are two ways of doing this. One way is through in-house initiatives and the other is by acquiring outside innovative (tech) companies that are pertinent to their business. We're seeing venture-backed businesses now in everything from agriculture to transportation & logistics to financial services – you name it. Most of them are software companies at heart, but they're really disrupting large, old industries that have not changed in a long time.

So what that means for us as VC investors is that the addressable universe of the market for revenue growth gets bigger. And just as importantly, the addressable universe of potential acquirers gets bigger. We have companies like John Deere or Wal-Mart or GM or Ford buying venture-backed technology companies and that was not the case six or seven years ago. That's really the 'mainstream-ization' of VC and technology which is a good thing for venture investors.

## Mark O'Hare

**CEO, Preqin**

Mark O'Hare is Founder and Chief Executive of Preqin, the alternative assets information service. Preqin provides extensive research and data on the entire global alternative assets industry.

Before Preqin, Mark's initial career was as a Manager with Boston Consulting Group, after which he founded Goodall Alexander O'Hare & Co, an independent strategy consulting firm. In 1993 he founded Citywatch, the UK's leading shareholder information service, which was acquired by Reuters in 1998. Mark studied Mathematics and Mathematical Statistics at Cambridge University, where he graduated with First Class Honours and was awarded the Stokes Prize.

## Jung Woo Sung

**Managing Director & CEO of the US, Hanwha Asset Management**

Jung Woo Sung is the Global Co-Head of Private Equity, Credit & Venture Capital, and Managing Director & CEO of the US for Hanwha Asset Management. Jung also helps manage the real assets investments in the US for Hanwha Asset. Prior to joining Hanwha in October 2016, Jung was CFO & Head of Corporate Development for the US at SK planet. Prior to SK, Jung was a VP at The Carlyle Group's Asia Growth Capital team for six years. Prior to joining Carlyle, Jung was a Principal at SAIF Partners. Jung received his B.A. in Economics from The University of Chicago.

## Naoto Sato

**Joint Head of the Investment Department, Mizuho Securities Co.**

Naoto Sato is Joint Head of the Investment Department at Mizuho Securities Co., Ltd, a leading financial institution in Japan with a 20-year track record in the investment business. He has over 12 years of experience in private equity/venture capital investment and direct investment and has established several PE/VC funds to date. He also serves as an advisor to large corporates in the corporate venturing field, which is among the new initiatives recently activated by Mizuho Securities' Investment Department. Prior to joining Mizuho, he worked as a consultant and analyst at Fujitsu Research Institute. He engaged in many consulting areas, such as developing the mid-term management plan and evaluating enterprise value in M & A. Graduate school of Media and Governance, Keio University.

## Roque Velasco

**Managing Partner, Galdana Ventures**

Based in Barcelona, Roque is a Managing Partner at Galdana Ventures, a €800mn fund of funds family focused in venture capital that invests in some of the top-tier firms in the US, Asia, Israel and Europe. Galdana is part of Altamar Capital Partners, a $7bn global alternative asset manager in Europe.

Roque has more than 15 years of experience in managing high-growth technology companies. In 2008 he joined Inspirit Group as COO, which included companies like Fhios, Insequent, Addfleet and Spamina among others, and employed an aggregate of 400 people. While at Inspirit he directly led many rounds alongside other well-known VC firms.

He is currently serving as board member in several companies, among them Tradeinn (Spain-based operator of online stores selling outdoor equipment) and Alpify (now known as Safe365, a GPS tracker for elderly family members).

Roque is an Industrial Engineer, holds an MBA from ESADE and an EPGC (Executive Program for Growing Companies) from Stanford.

## Brijesh Jeevarathnam

**Partner & Co-Head of Global Venture Fund Investments, Adams Street Partners**

Brijesh focuses on the Adams Street global venture capital fund portfolio, and is responsible for building and maintaining relationships with key venture capital general partners around the world.

Prior to joining Adams Street, Brijesh spent 10 years at Commonfund Capital, most recently as the Managing Director and Co-Head of Global Venture Capital and Head of Emerging Markets. In this role, Brijesh led the fundraising, portfolio construction and investment of global venture capital funds. Brijesh also played a key role in Commonfund's strategy development regarding new products, markets and client development.

Before Commonfund, Brijesh spent four years at McKinsey & Company, where he oversaw consultant teams performing due diligence, turnarounds of portfolio companies, and the development of investment and organizational strategy for private equity firms. Brijesh began his career as a member of GE Capital's Mergers & Acquisitions team where he managed acquisition-related due diligence and deal structuring.

Brijesh is a member of the Portfolio Construction Committee.

# Venture Capital Global Perspectives: A Preqin & Vertex Study

**In-House Contributors:**
Farnod Afsharnejad
Dan Anghelache
Christopher Beales
Ashish Chauhan
Charmaine Choy
Cat Hall
Adam Jackson
Sital Keshwala
Igli Kojku
Claire Lee
Nicole Lee
Jaysul Mistry
Charlotte Mullen
Logan Scales
Tim Short
Kamarl Simpson
Charlie Wood

**External Contributors:**

**All-Star Investments**
Richard Ji

**Adams Street Partners**
Brijesh Jeevarathnam

**Galdana Ventures**
Roque Velasco

**Jolt Capital**
Jean Schmitt

**Hanwha Asset Management (HAMC)**
Jung Woo Sung

**InstaReM**
Pratik Gandhi

**Mizuho Securities Co.**
Naoto Sato

**Validus Capital**
Nikhilesh Goel

**Vertex Ventures China**
Tay Choon Chong, Xia Zhi Jin

**Vertex Ventures Israel**
Emanuel Timor, Yanai Oron

**Vertex Growth**
James Lee

**Vertex Ventures Southeast Asia & India**
Ben Mathias, Chua Joo Hock,
Liu Gen Ping

**Vertex Ventures US**
Insik Rhee, Sandeep Bhadra

**Vertex Holdings**
Chua Kee Lock, Brian Toh, Tracy Jin,
Yui Ikai, Cheryl Chng, Bernice Ong,
Clifton Sim, Jill Nue

The Home
of Alternatives

preqin

www.preqin.com
info@preqin.com

vertex

www.vertexholdings.com
partnerships@vertexholdings.com