

Entrepreneurship in Asia High-Tech Industries
Session 1, April 3, 2012

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2012 Asia Entrepreneurship Update

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Consulting Professor, Stanford University

Outline



◆ Introduction

- ◆ This series
- ◆ Focus of this series: major Asia economies
- ◆ Some data on entrepreneurial activities in Asia
- ◆ The environment for entrepreneurship in Asian economies
- ◆ Current trends in Asia entrepreneurship: what's hot
- ◆ Prospects for Asia start-ups; interactive discussion

Welcome to everyone!

- ◆ **Weekly public lecture / panel discussion series presented by the US-Asia Technology Management Center**
 - ◆ Every Tuesday, through 6/05/2012
 - ◆ Support from The Miner Foundation, Olympus Corporation (Thank you!)
 - ◆ See <<http://asia.stanford.edu>> for upcoming speakers, topics
- ◆ **Mission: new information and insights into entrepreneurship in Asia high-tech industries**
 - ◆ Habitat issues, trends, opportunities for the U.S.
- ◆ **Available for credit to Stanford students**
 - ◆ **EE-402T “Entrepreneurship in Asian High-Tech Industries”**
 - ◆ No pre-requisites, open to undergrads and graduate students
 - ◆ May be repeated in future years for credit; each series is separate

EE-402T Requirements for Credit

- ◆ Obtain **Syllabus** for official statement of credit requirements
- ◆ **MAY BE DIFFERENT REQUIREMENTS THAN FOR OTHER SEMINARS**
- ◆ **A. On-site attendance at eight (8) of ten (10) session**
 - ◆ Requirement A waived for SCPD students
 - ◆ **Today fill out survey, then weekly sign-up sheet at auditorium**
- ◆ **B. Submit a comment / summary each week for nine (9) of the ten (10) sessions**
 - ◆ **Send comment by email within two weeks of the session**
 - To me (Prof. Dasher) <rdasher at stanford dot edu>
 - Always cc to Tiphannie <gammontd at stanford dot edu>
 - ◆ Comment must provide evidence that you watched the session

Request to everyone (visitors and students) for today, 3/29



- ◆ **Please fill out incoming-survey and leave with Siejen, Tiphonie, or me**
 - ◆ **Even if you have attended our series in the past**
- ◆ **For students registering for credit, the survey is your on-site attendance record for 4/03/2012**
 - ◆ **In addition, you will need to submit your comment / summary about the content of this session within two weeks**



**Background:
Selected Asia Economies**



GDP of the top five national economies of the world

	2009 \$ trillions	2010 \$ trillions	2011 \$ trillions	2011 GR - %	2011 GDP/ person - \$
World total	72.52	76.10	78.94	3.7	11,800
USA	14.38	14.82	15.04	1.5	48,100
China	9.36	10.34	11.29	9.2	8,400
India	3.76	4.14	4.46	7.8	3,700
Japan	4.24	4.41	4.39	- 0.5	34,300
Germany	2.90	3.00	3.09	2.7	37,900

Estimated amounts in 2011 dollars, according to **PPP**
CIA World Factbook, data retrieved 4/01/2012

GDP of other Asia economies

	2009 \$ billions	2010 \$ billions	2011 \$ billions	World rank	2011 GR – %	2011 GDP / person - \$
S. Korea	1,409.0	1,495.0	1,549.0	13	3.6	31,700
Indonesia	993.0	1,054.0	1,121.0	16	6.4	4,700
Taiwan	758.6	841.2	885.3	20	5.2	37,900
Thailand	537.4	600.8	601.4	25	3.7	4,100
Malaysia	396.4	424.8	447.0	30	5.2	15,600
Philippines	349.2	375.9	389.8	33	3.7	4,100
Hong Kong	312.0	333.7	350.4	37	5.0	49,300
Singapore	260.9	299.5	314.2	40	4.9	59,900
Vietnam	265.0	282.9	299.2	43	5.8	3,300

Estimated amounts in 2011 dollars, according to **PPP**
CIA World Factbook, data retrieved 4/01/2012

Comments on preceding slides

◆ Growth rates

- ◆ China and India stand out (9.2% and 7.8%, respectively)
- ◆ Other Asia economies' 2011 growth rates slowed a great deal over 2010 (which were much higher -- fueled by recovery from 2009)
- ◆ Japan – negative growth mostly results from 3/11/2011 disasters

◆ GDP per capita shows intensity of economic output

- ◆ Typically has a broad correlation with income
- ◆ Overall growth rate typically declines as GDP per capita increases
 - ◆ Philippines and Thailand are growing slowly (both at 3.7%) for their levels of GDP per capita (both \$4,100)
- ◆ PPP calculation puts Japan (and Germany) at a disadvantage
 - ◆ Similar GDP per capita, but different feeling to lifestyle than S. Korea or Taiwan
 - ◆ India: #3 @ PPP (\$4.46 trillion) but \$1.84 trillion @ official exchg rate

China is undergoing economic rebalancing

◆ China trade balance being compressed

- ◆ **Current account surplus: 10% of GDP in 2007, 3% of GDP in 2011**

- ◆ **Still has high share of global world exports**

- “Higher than the shares that Japan and S. Korea had when they started having trouble gaining further market share” (Shinohara)

- ◆ **Now: strong imports, but exports hindered by weak world markets**

◆ China: focus of intra-Asia trade, which has been growing faster than world trade

- ◆ **Earlier pattern: shipping of “intermediate goods” to China for assembly, then shipped to advanced countries)**

- ◆ **More recent: shipments to China for domestic consumption**

- ◆ **Domestic consumption (and China growth overall) has been driven by infrastructure investment; will it become driven by consumer demand?**

- If increase in consumer demand, maybe more opportunities for higher value-added goods from rest of Asia to China (Shinohara)

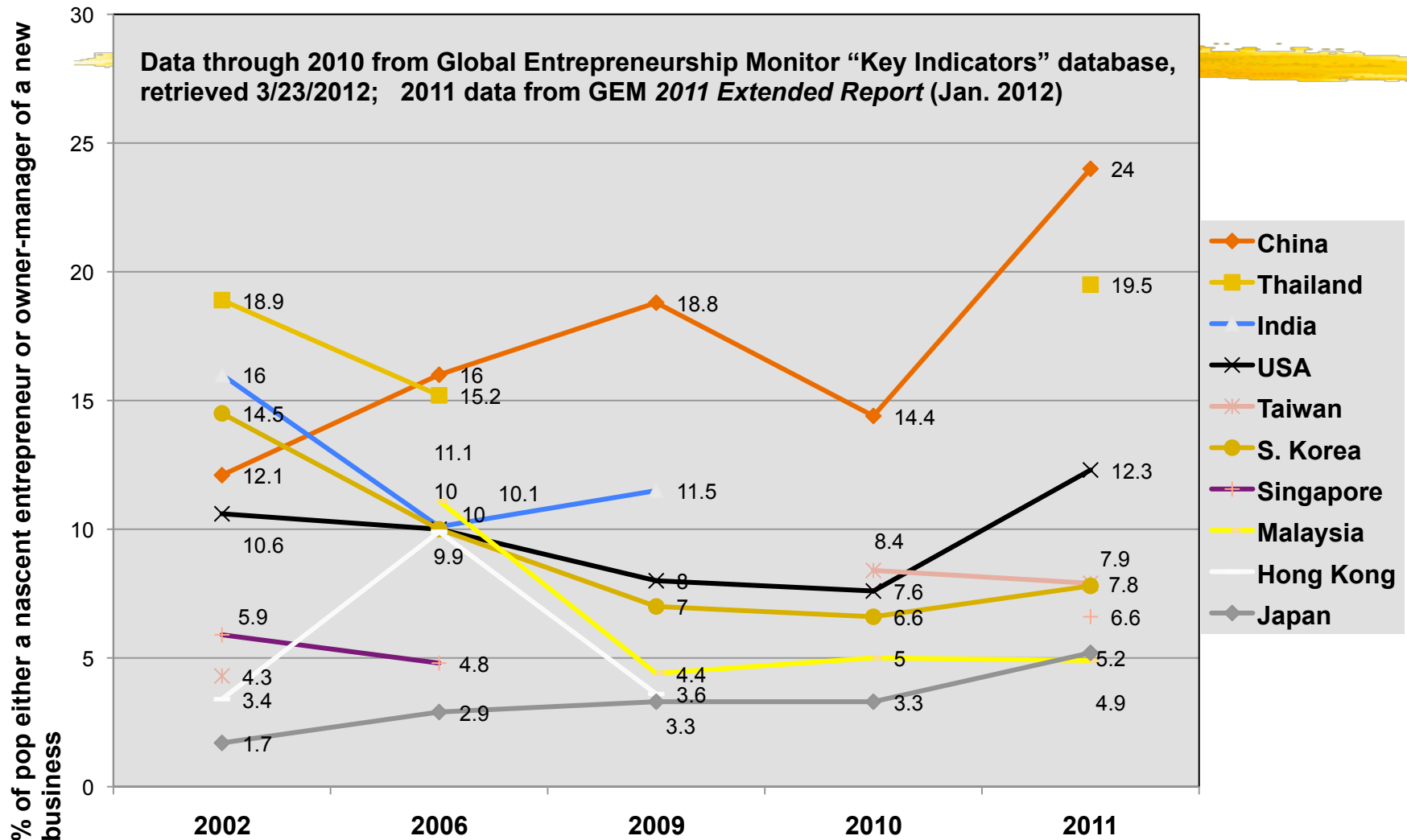
Shinohara, N. (Deputy Mg. Dir., IMF), 2012.03.27, “Global and Regional Economic Outlook and the Role of Integration in Asia” <http://www.imf.org/external/np/speeches/2012/032712.htm>



Entrepreneurial Activities in Asia



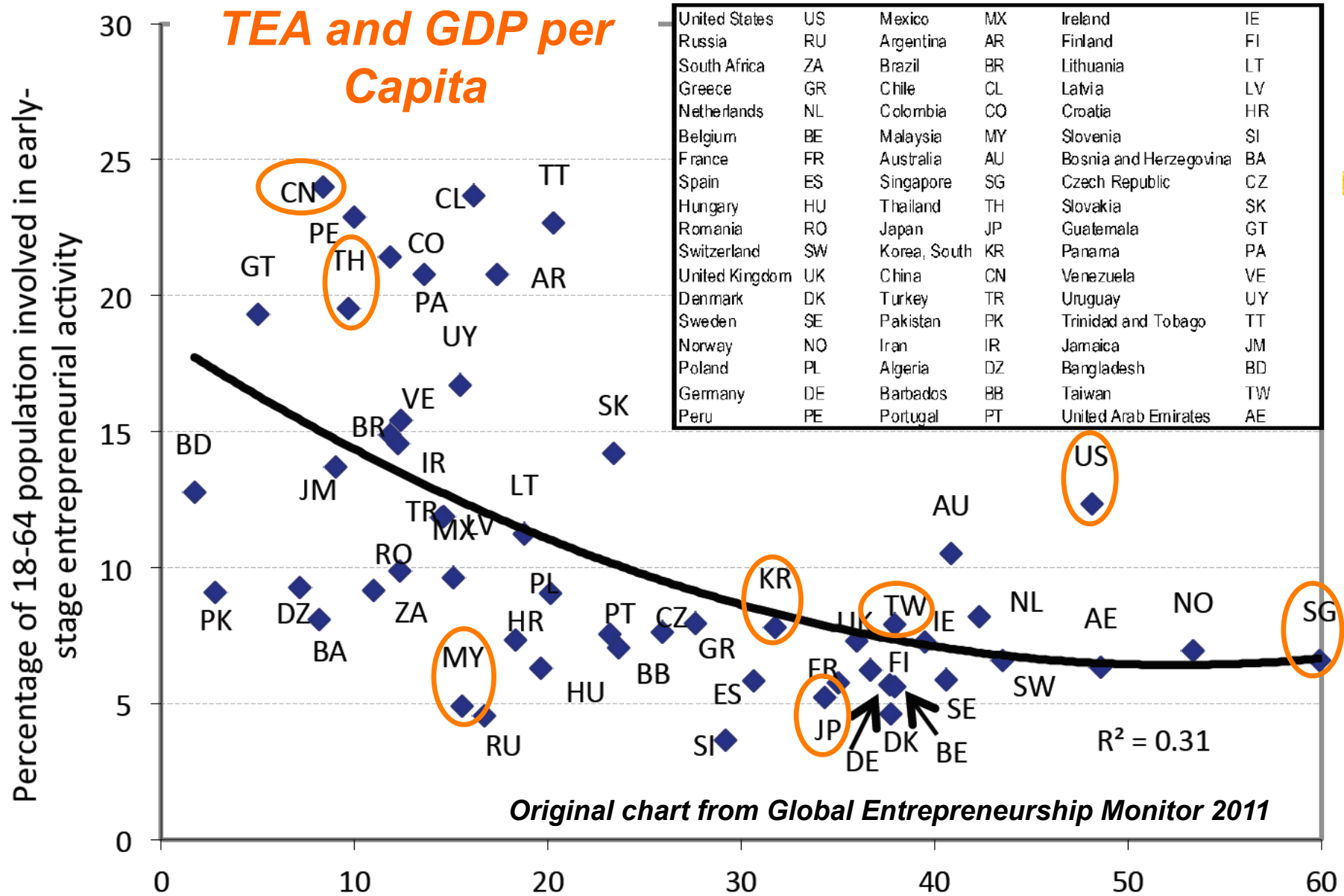
“Total Early-Stage Entrepreneurial Activity” (TEA) in Select Asia Economies & the U.S.



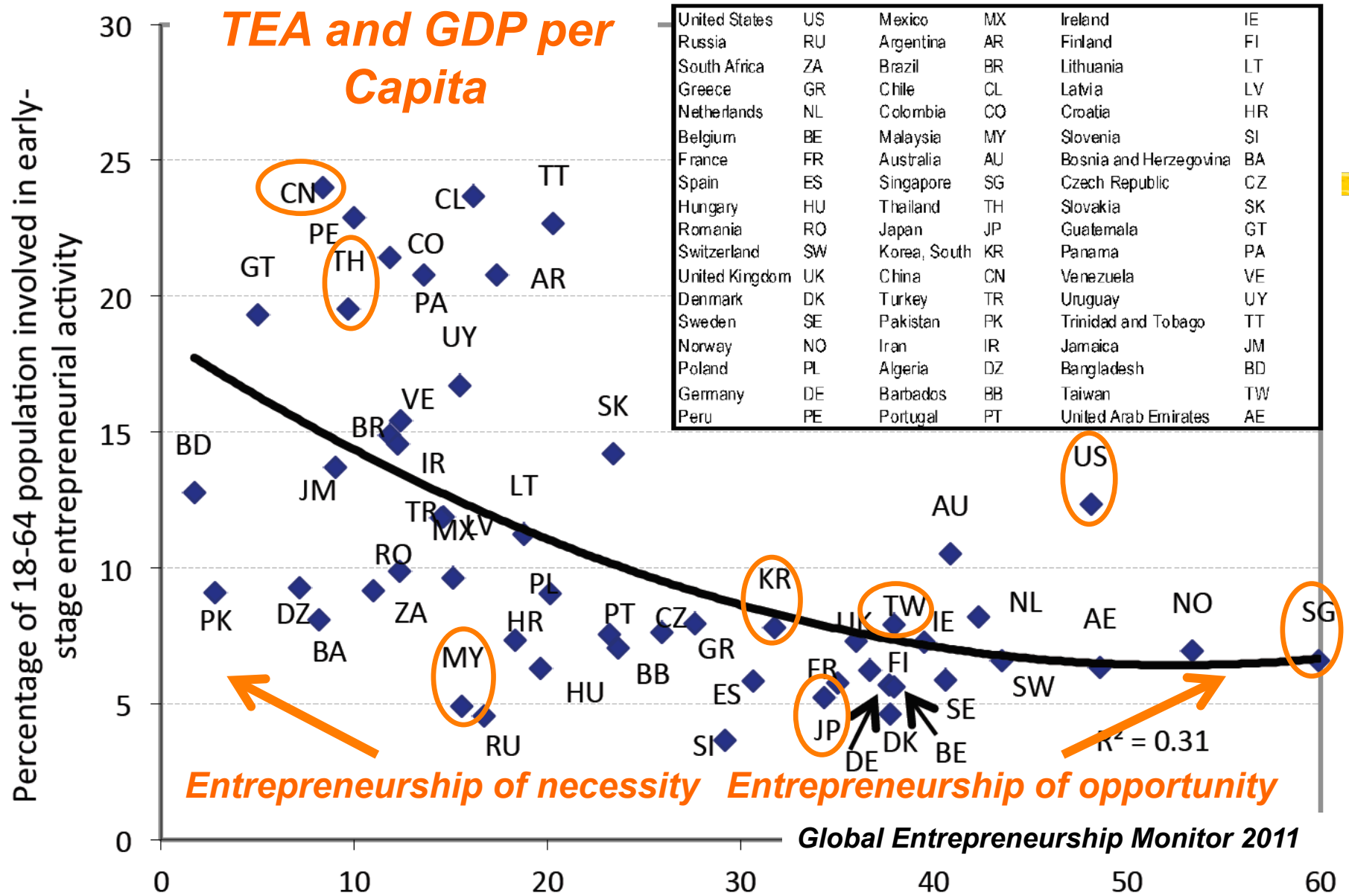
GEM definitions



- ◆ **Total Early-Stage Entrepreneurial Activity (TEA Rate):** Percentage of 18–64 age group who are either a nascent entrepreneur or owner-manager of a new business
 - ◆ **Nascent Entrepreneur:** actively involved in setting up a business s/he will own or co-own; this business has not paid salaries, wages or any other payments to the owners for the last three months
 - ◆ **Owner-Manager of a New Business:** (co-)owns and manages a running business that has paid salaries, wages or any other payments to the owners for at least three months but no more than 42 months



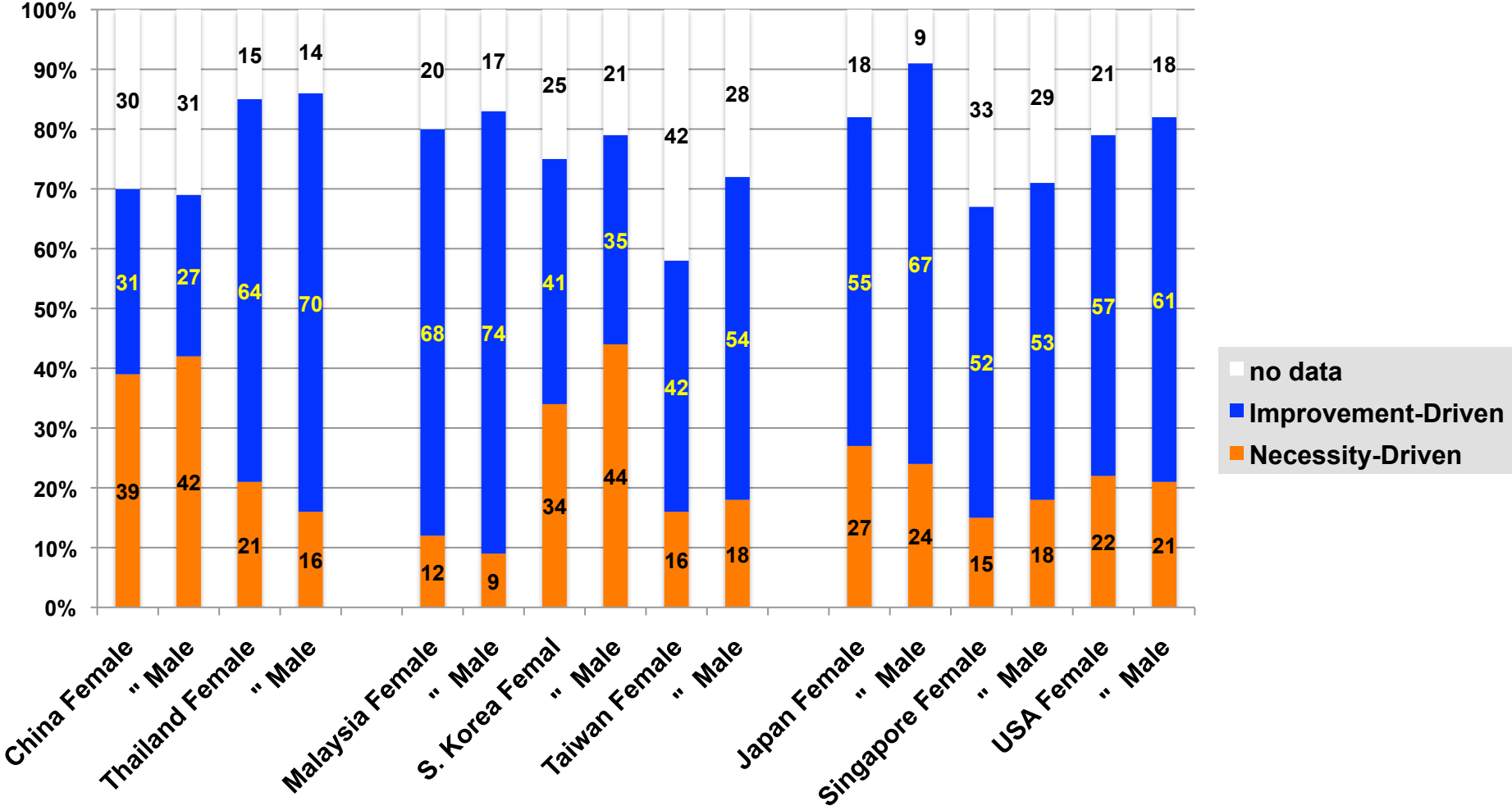
Original chart from Global Entrepreneurship Monitor 2011



2012.04.03

GDP per capita in Purchasing Power Parities (\$), in thousands
Richard B. Dasher, Stanford University

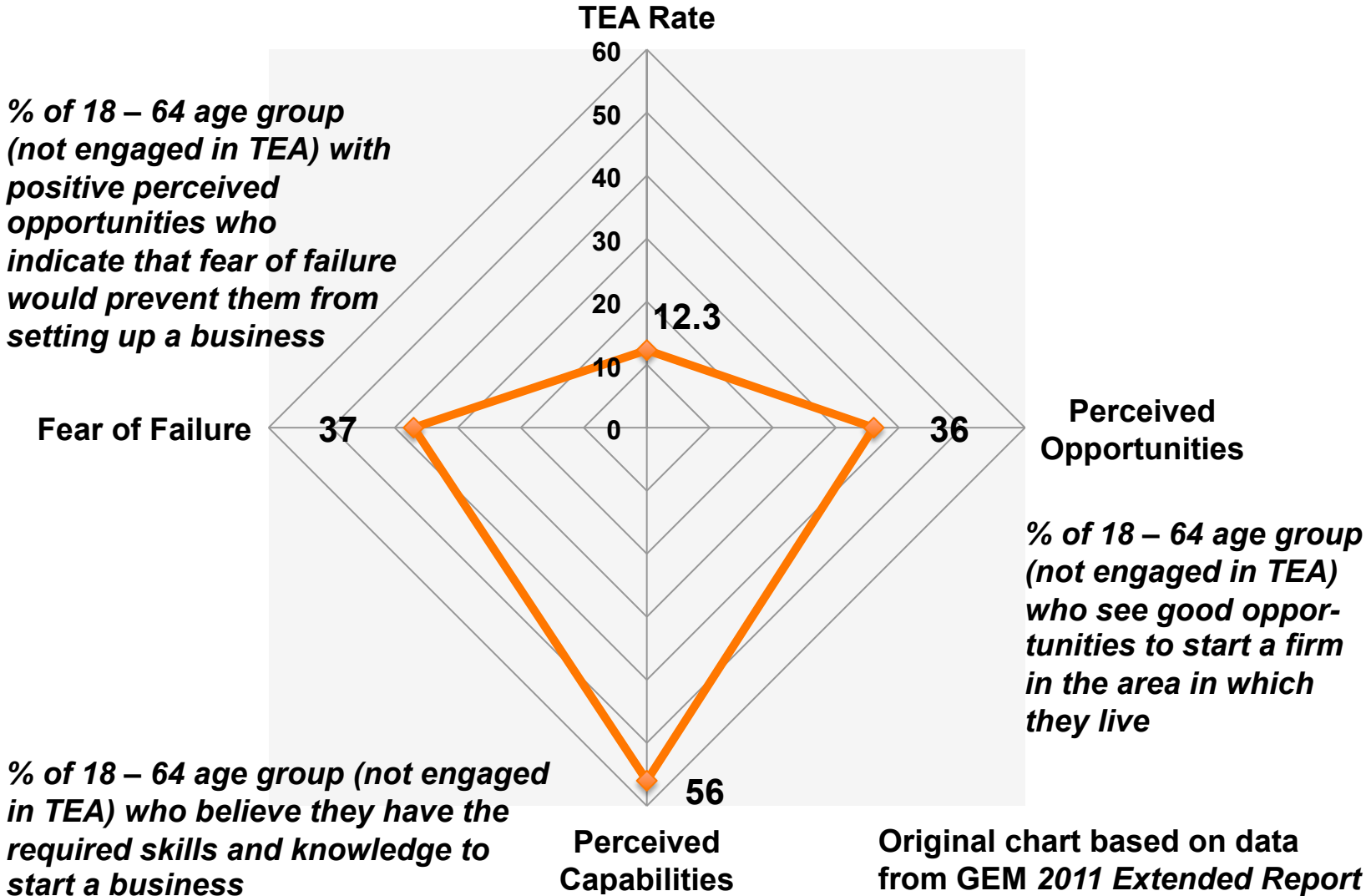
Necessity-driven versus improvement-driven entrepreneurship



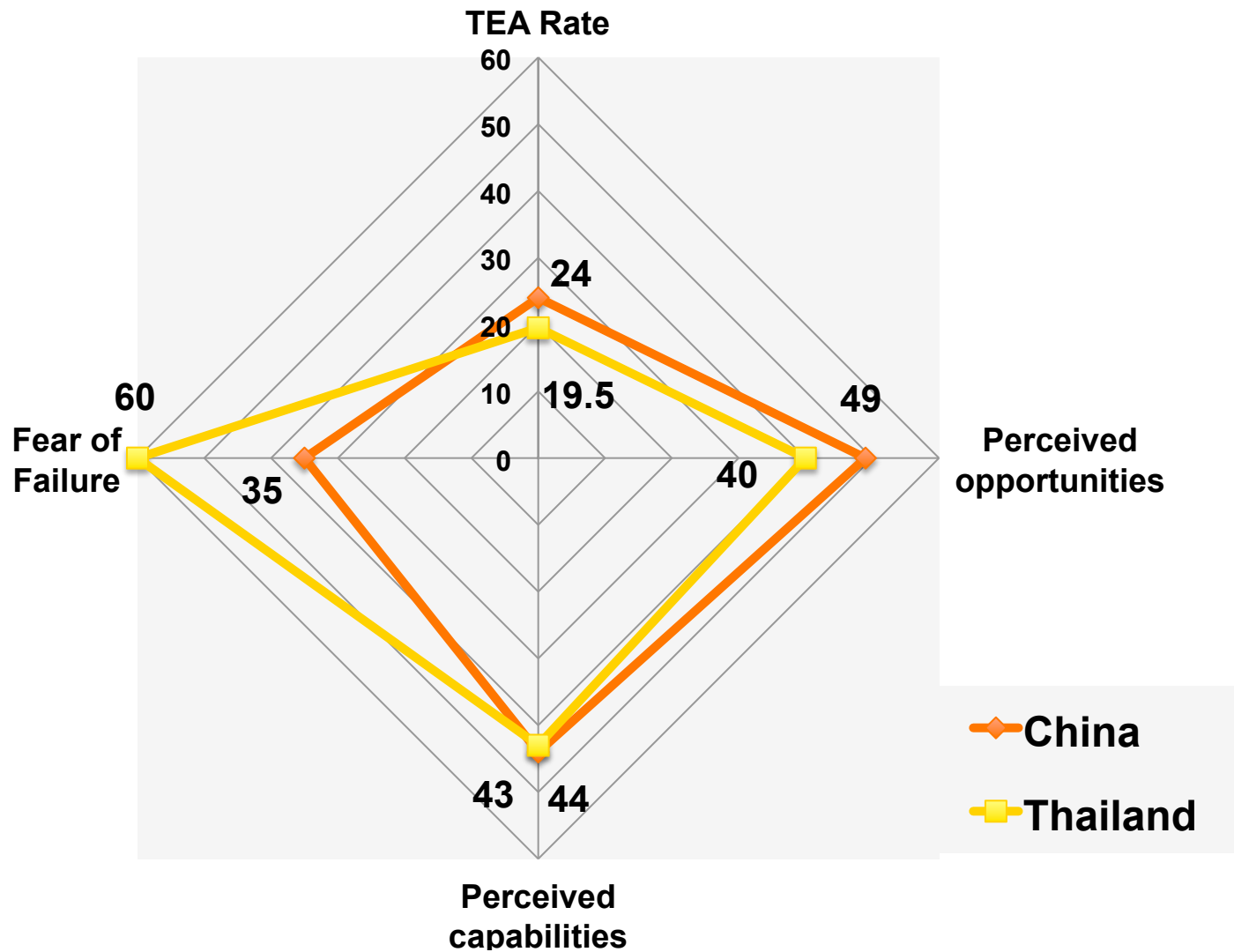
Definitions

- ◆ Percentages on previous slide apply to survey respondents who fit into the TEA category (nascent entrepreneurs or new business owner-managers)
- ◆ Necessity-driven entrepreneurship:
 - ◆ Involved in entrepreneurship, because they had no other option for work
- ◆ Improvement-driven entrepreneurship:
 - ◆ (i) claimed to be driven by opportunity, as opposed to finding no other option for work; and
 - ◆ (ii) indicated the main driver for being involved in this opportunity is to be independent or increase their income, rather than just maintaining current income level

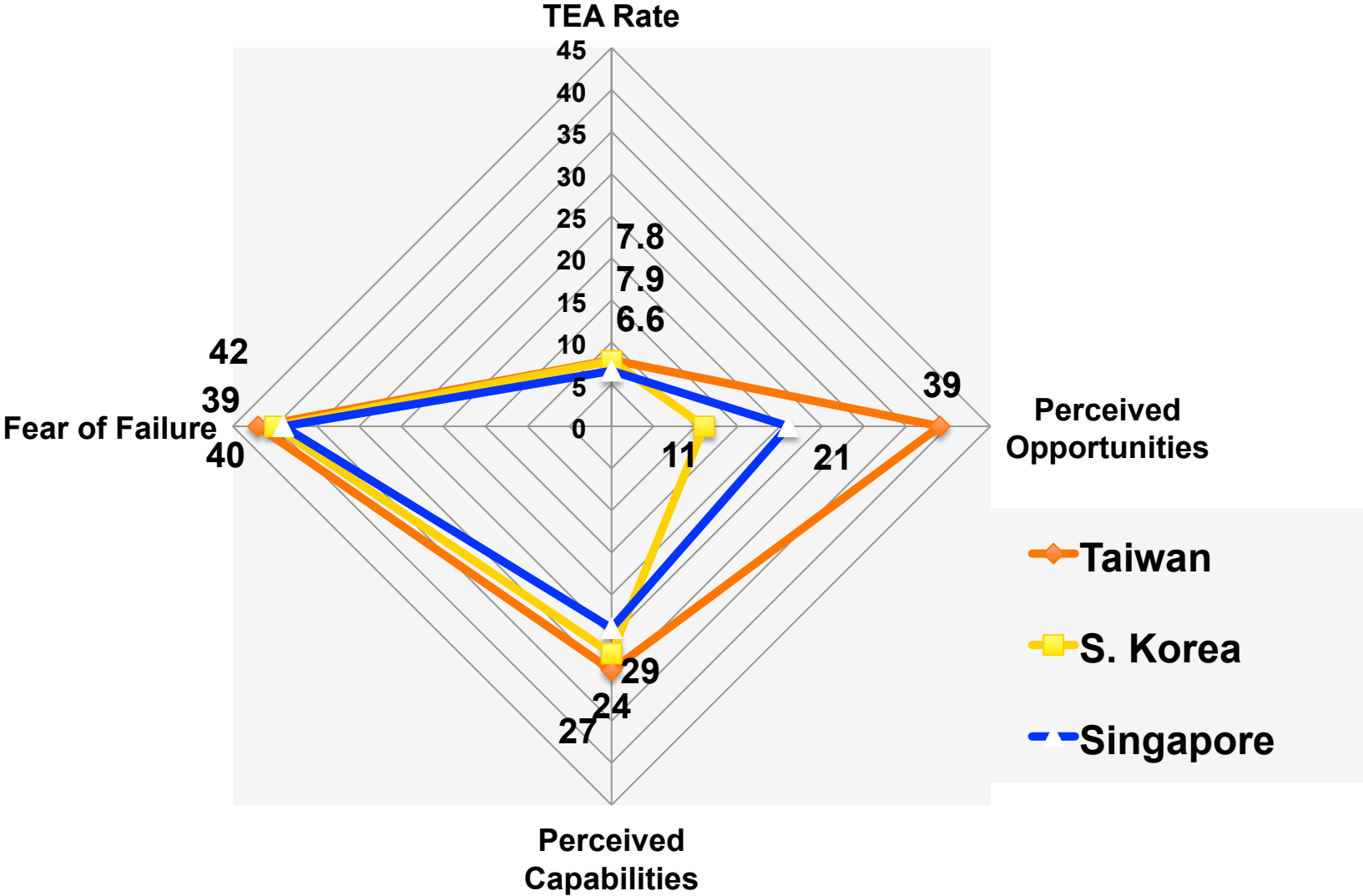
2011 Entrepreneurship Attitude Profile – USA



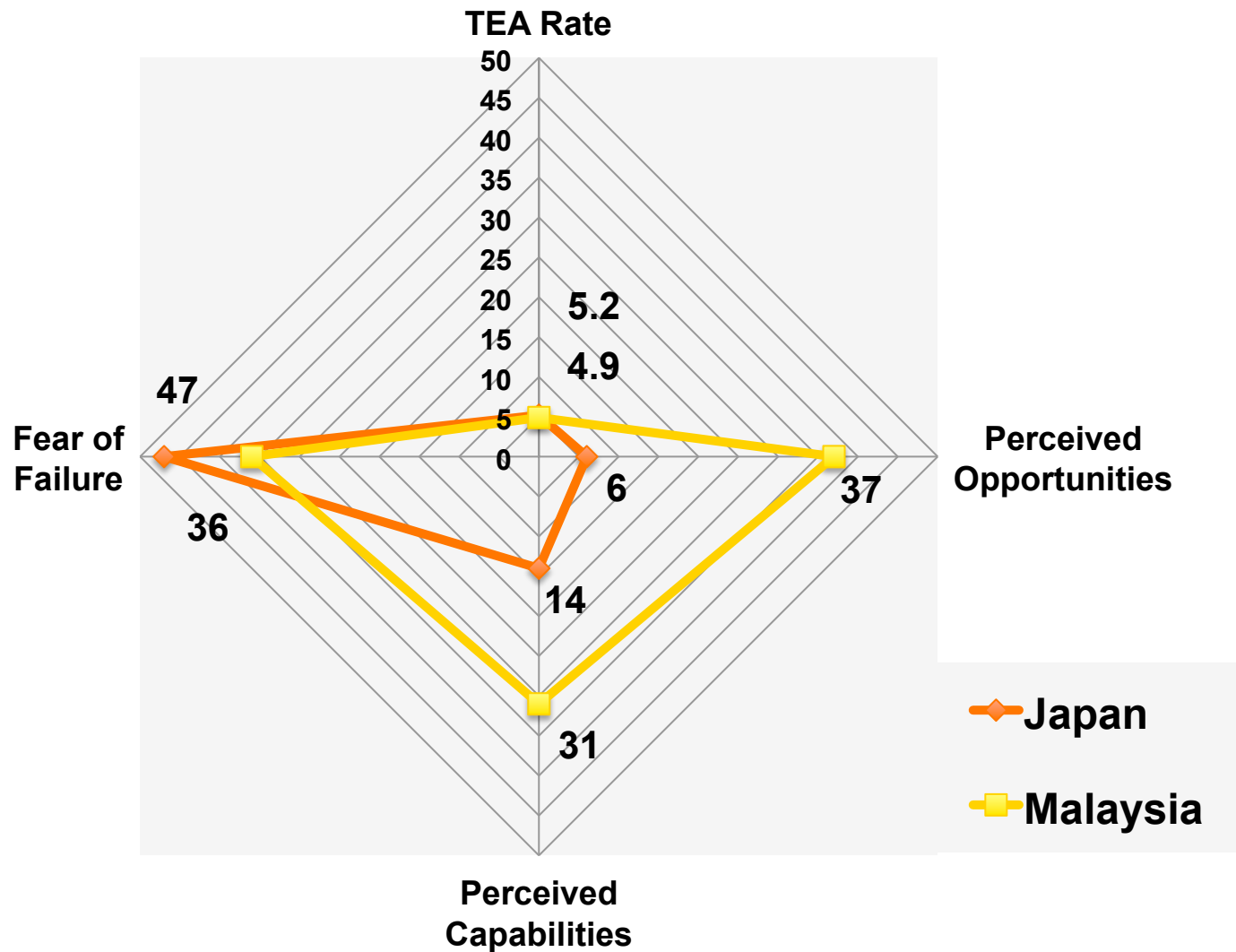
2011 Entrepreneurship Attitude Profile – China and Thailand



2011 Entrepreneurship Attitude Profile – Taiwan, S. Korea, Singapore



2011 Entrepreneurship Attitude Profile – Japan and Malaysia





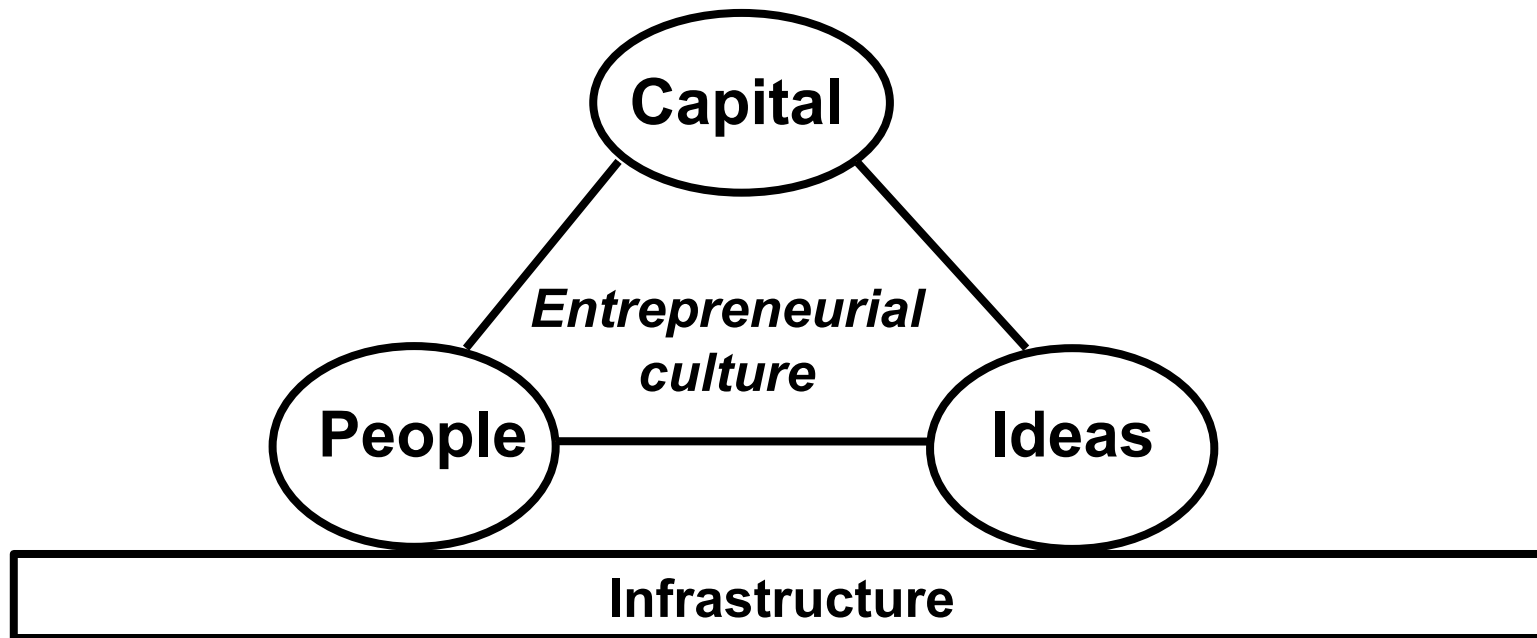
**The current environment for
entrepreneurship in select Asian
economies**



Entrepreneurial behavior (previous section) – related to the environment for entrepreneurship

- ◆ **Attitudes and behavior affected by**
 - ◆ **Presence or absence of career alternatives**
 - ◆ Related to entrepreneurship of necessity – *discussed already*
 - ◆ **Economic structure & dynamics**
 - ◆ E.g., availability of capital and conditions for accessing it
 - ◆ **Labor market**
 - ◆ Fluidity – If I quit my job & start a company, what will happen to me if it doesn't work out?
 - ◆ Availability of other necessary human resources (workers who will take risk of joining a start-up)
 - ◆ **Political, legal, regulatory, physical infrastructure**
 - ◆ **Cultural or societal expectations**
 - ◆ “I'd like to be an entrepreneur, but my mom is against the idea.”
- ◆ **First examine the structure and dynamics of a habitat for entrepreneurial innovation**

Basic elements of an entrepreneurial ecosystem



Framework (elements) of an innovation-based, entrepreneurial economy

Capital

- R&D funding
- High risk investment capital
 - “Friends and family”
 - Individual “angels”
 - Venture capital
- Revenue sources for start-up co’s

People

- Knowledge workers
- Entrepreneurs
- Investors
- Bizdev & managers
- Experts (supporting infrastructure)
- Other workers willing to take risk

Ideas

- From R&D activities across multiple disciplines
- Creativity:
 - New applications
 - How to make money with new idea
 - How to obtain resources

Infrastructure: Legal (e.g. IP protection), physical facilities, governments friendly to new business

Entrepreneurial culture: provides the dynamics of the ecosystem

Motive and opportunity for people, ideas, capital to come together in new combinations

- ◆ Common interest in the “next new thing” and “How can I play?”
 - ◆ Not everyone starts their own company, but entrepreneurs should have good social standing
 - ◆ Widespread community knowledge that distinguishes between good and bad entrepreneurs, ideas, capital (funding patterns)
 - ◆ Willingness to think big (change the world), or risk is not worth it
- ◆ Companies or markets to be customers of start-up companies
- ◆ Repetition: pipeline to refresh supply of people, ideas, capital
 - ◆ Interaction with sources: universities, existing (large) companies
 - ◆ “Exits” of start-up companies (successful and unsuccessful)
 - ◆ Movement of people in and out of region: immigration

Capital



◆ **Different types**

- ◆ **Sale of stock (equity) versus taking loan versus government grant**
- ◆ **Individual investor (angel) versus investment company (e.g. venture capital firm)**

◆ **Different stages**

- ◆ **Friends and family**
 - ◆ **Seed**
 - ◆ **Early stage**
 - ◆ **Expansion / mezzanine**
 - ◆ **Late stage**
 - ◆ **Exit (via IPO or M&A)**
- ◆ **Difficult to obtain clear data on angel investor activities, so will focus on VC**

Baseline: 2011 Venture capital in the U.S.

2011	Number of deals	Amount (\$ billions)
TOTAL Invested	3,673	28.425
Seed	396	.919
Early	1,414	8.300
Expansion	999	9.711
Later stage	864	9.494

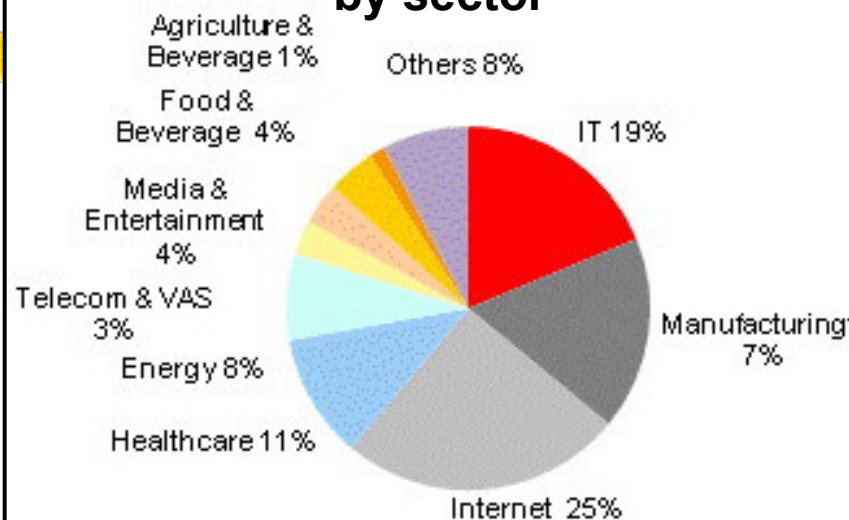
Top 10 industries by amount	Number of deals	Amount (\$ billions)
Software	1,004	6.714
Biotech	446	4.733
Indus / Energy	303	3.517
Med devices	339	2.807
IT services	361	2.423
Media / entertain	440	2.317
Consumer prods / svcs	122	1.246
Semicon'dtrs	116	1.177
Electronics / instrumenta.	66	.691
Telecom	130	.678

NVCA / PWC. *The MoneyTree*, National aggregate data

2011 Venture Capital Investments in China

- ◆ **Total \$6 billion in 2011, with 332 deals**
 - ◆ **Comparable to Europe (\$6.1 billion)**
 - ◆ **#2 country in world behind U.S. (and ahead of U.K.)**
- ◆ **But, median deal size \$12.4 million**
 - ◆ **\$5 million (U.S.), \$2.7 million Europe**
 - ◆ **\$763 million went to seed, start-up, and early stage deals**
 - ◆ **\$10.7 billion went to expansion and growth stage investments**

2009 VC investment amounts by sector



CV Source Jan. 2010

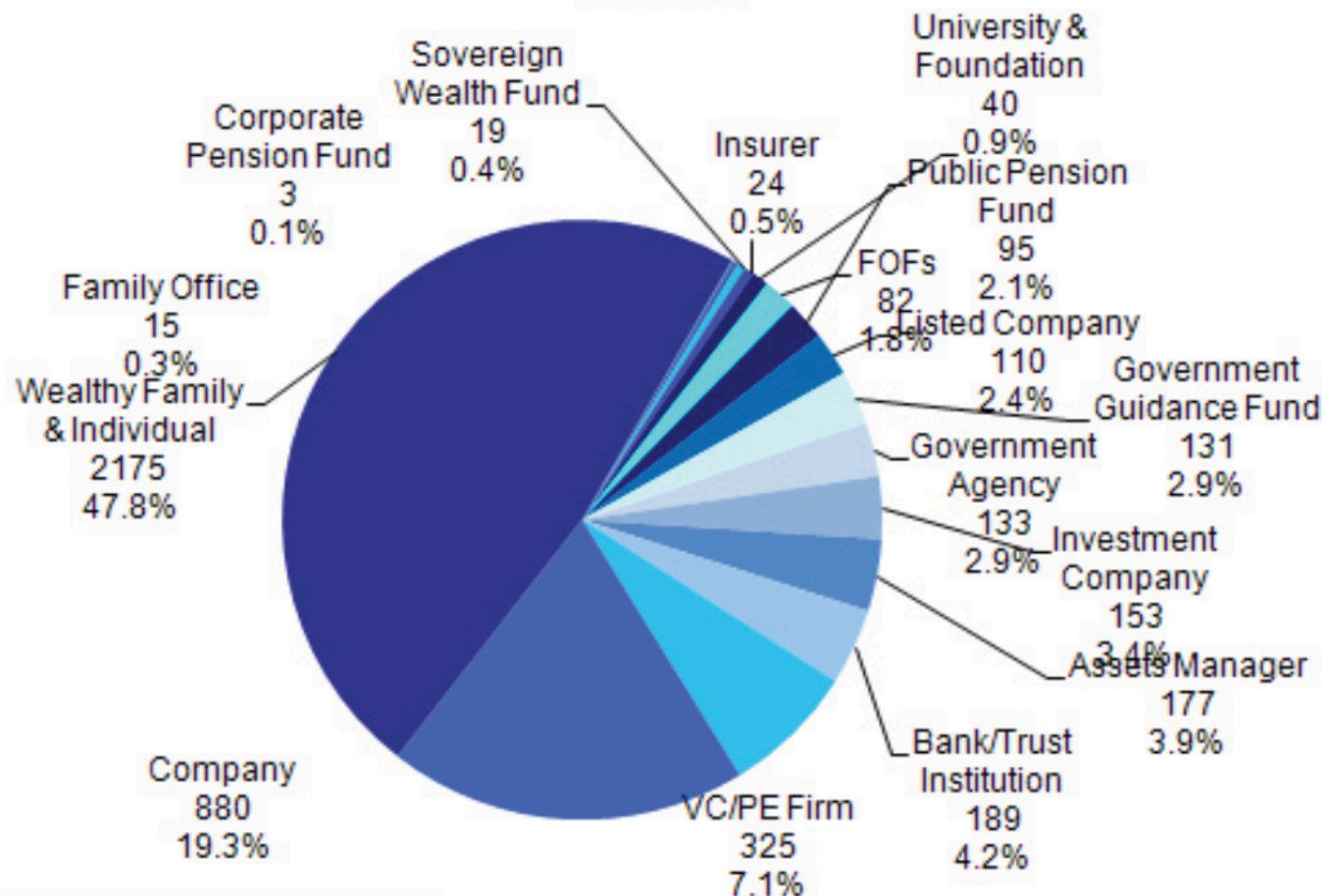
<<http://www.ChinaVenture.com.cn>>

Venture capital in China looks more like PE in the U.S.

Aiming at immediate market opportunities more than new technologies

Composition of Limited Partners of China VC funds also differs from U.S. funds

Comparison of LPs in China's VC/PE Market in Q3'11 by Type (By No. of LPs)



Source: Zero2IPO Research Center, Oct. 2011

www.zdbchina.com

2011 Venture capital in Japan

	Deals	Amount billion yen	%
TOTAL	509	29.436	100
Seed	16	0.652	2
Start-up	35	1.428	5
Early	150	7.962	27
Expans	140	8.500	29
Later	168	10.894	37

Total is equal to about \$368 million
(@ 80 yen/dollar)

Data from Japan Venture Capital Assoc

	Deals	Amount (billion yen)	%
Telecom	37	2.651	9
Computers, IT svc	42	1.956	7
Software	50	2.264	8
Semicond.	39	2.068	7
Bio-pharma	60	3.080	10
Med devices, health svcs.	38	1.939	7
Indus. energy	123	5.381	18
Media, entertain	84	6.239	21
Fin., Real estate	36	3.858	13

Other aspects of capital availability



- ◆ **Revenue from customers**

- ◆ **Hard for a start-up to get its first customer -- everywhere**
- ◆ **But U.S. benefits from “open innovation” practices that encourage technology licensing and more**

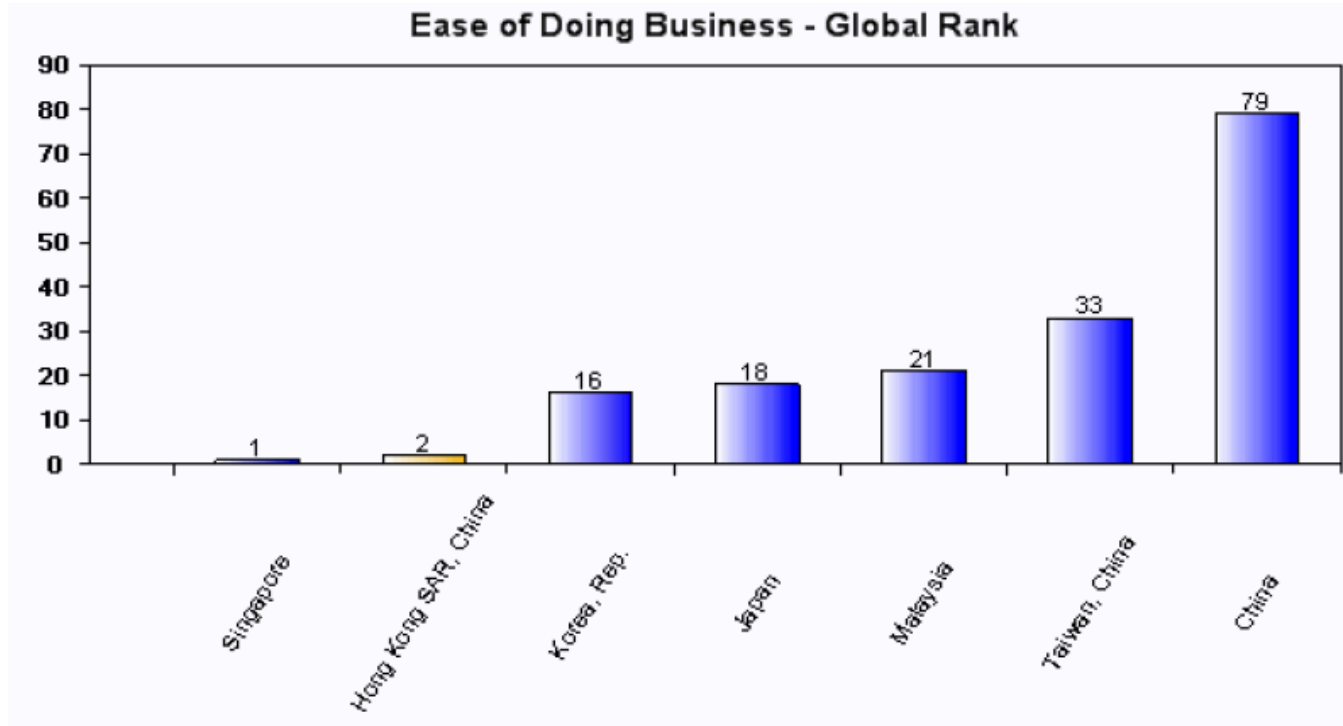
- ◆ **“Exit”**

- ◆ **M&A is most common path, IPO is also important**
- ◆ **Funds that go back to high-risk investors (and owner-managers) tend to be channeled to next round of high risk investments**
- ◆ **Throughout Asia, entrepreneurs tend not to think about exit (expect to stay with company and leave it to children)**

Labor market fluidity

- ◆ **Difficult to measure**
 - ◆ **Number of times someone changes jobs**
 - ◆ **Long-term survey in Beijing, Wuxi (Jiangsu Prov.) and Zuhai (Guangdong) found:**
 - ◆ **1970's -- people changed jobs 1x / 15 – 20 years**
 - ◆ **1980's – people changed jobs 1x / 10 years**
 - ◆ **1990's – people changed jobs 1x / 5 years**
 - ◆ **Similar research in China found that on average, Chinese person changed jobs 2.3 times in career, but in Japan 4 x in career**
 - ◆ **Likely to be counting company-internal promotions**
- ◆ **May be seen in increase in number of entrepreneurship education programs, entrepreneurial networking associations**

Infrastructure



D&B ranking, cited by IFC “Doing Business in Hong Kong 2011”

- Lower score = easier

- ◆ Noticeable trend: increase in number of incubators that focus on providing more advising, mentoring – e.g. from March 2012:
 - ◆ Tokyo (“Venture Generation” by JSeed Jeffrey Char)
 - ◆ Kerala, India “Start-Up Village” -- first public-private partnership telecom incubator – aims to house 1,000 student start-ups

Change in cultural as well as systemic factors improves environment for entrepreneurship in Asia

Problem	Background	Old way results	Changes
Lack of fluidity in labor market	Lifetime employment, sense of loyalty	No turning back if one becomes an entrepreneur	Fading away of lifetime employment
“Bigger company = better status”	Post-depression desire for stable, salaried jobs	Best people went to work for biggest companies	Dissatisfaction, lack of trust toward big co’s
Apprentice-based learning	Confucian: great for some types of jobs (even manufacturing)	Does not promote radical creativity or thinking outside the box	Disjunction between young & middle-aged people’s culture
“Leadership comes with age”	Confucian: maintains systems	Entrepreneurs tend to be older than in other countries	Very slow to change, but active entrepreneur education in univs.
Financing: favors low risk over high reward	Still reflects capital shortages after WW2; asset-based thinking	Underfunded start-ups; investors don’t mentor	Growth of venture capital (still need angels)
Lack of “exits” (M&A, IPOs)	Entrepreneurs hold onto their companies, leave them to children	Insufficient flow of knowledge, people, capital back into system so as to create better new ventures	M&A on the rise, big companies interested in open innovation



**Trends among start-ups: indirect
evidence of what's hot**



To see what is next ... Types of evidence for forecasting technology-business trends

- ◆ **For very long term view: look at university research**
 - ◆ **Not just Stanford and UC Berkeley: inventions may come from university research anywhere**
- ◆ **For medium-term view: look at patterns of venture capital investment**
 - ◆ **Most VCs probably intend to cash out with large capital gain in about five years, so their investments tend to hit the market from three to seven years in the future (but some domains, e.g. medical applications, take longer)**
 - ◆ **Technical focus of start-ups tends to be complementary to applied research in large companies – start-ups aim at disruptive change**
- ◆ **For near-term view: look at M&A, patterns of technology licensing by big companies**

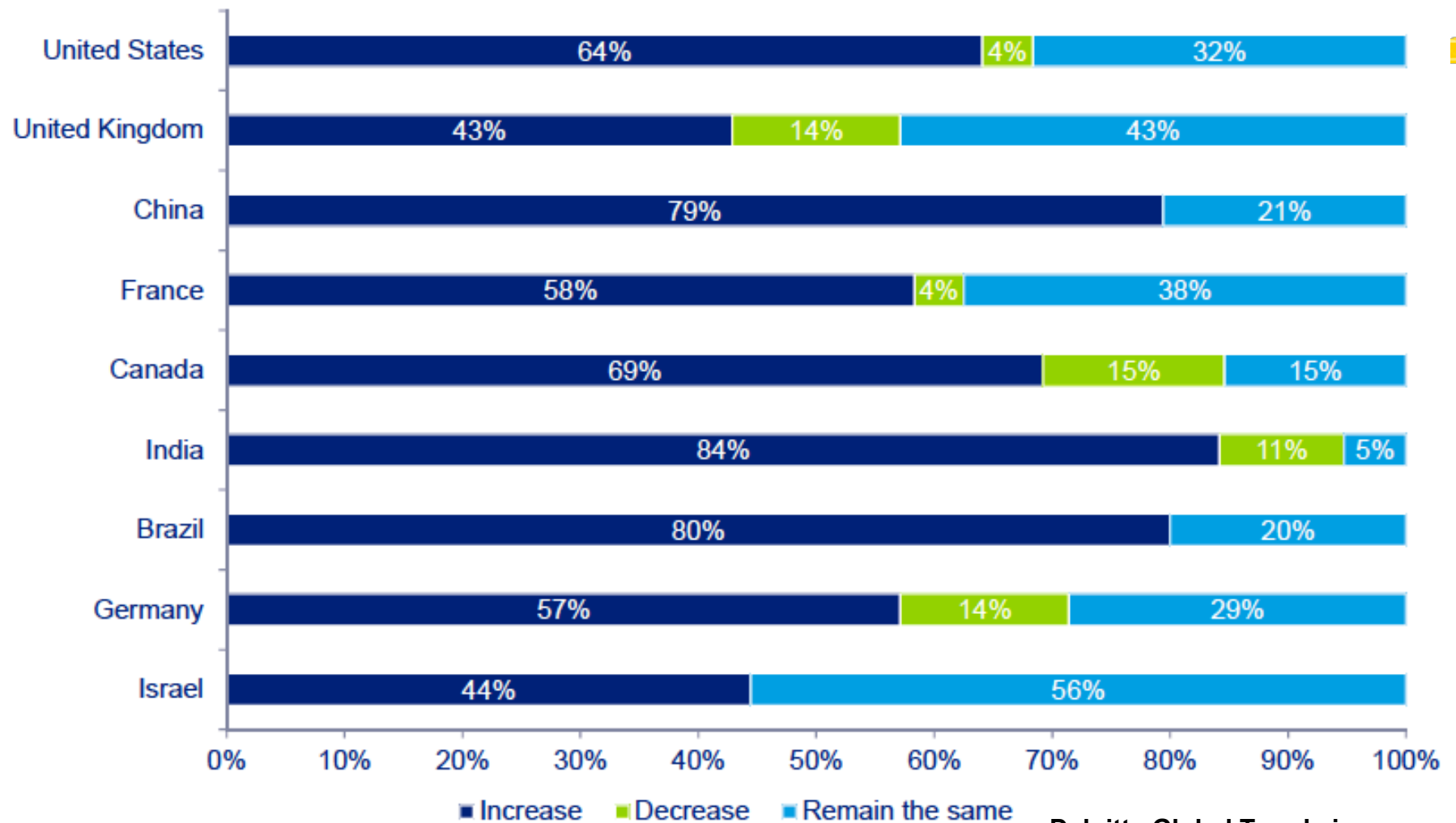
Silicon Valley: Emerging Waves

- ◆ **Near-term: Cloud computing is a hot area**
 - ◆ A new platform for IT: disruptive for business as well as tech
 - ◆ Especially hot topics at present: social networking, analytics, cloud infrastructure, mobile platforms
- ◆ **Mid-Term: Cleantech (energy and environment technologies)**
 - ◆ New application area for information technologies, advanced electronics, nanotechnology
 - ◆ Combined with efforts in materials, chemistry, biotech
- ◆ **Long-term: Healthcare and wellness**
 - ◆ New application area for advanced electronics, etc. Merger of engineering and medical sciences (and related bio-chemistry)
 - ◆ Stanford: BioX research center (1998), new academic department (2002), new building for bio-chemistry under construction

Global venture capital views: what's hot

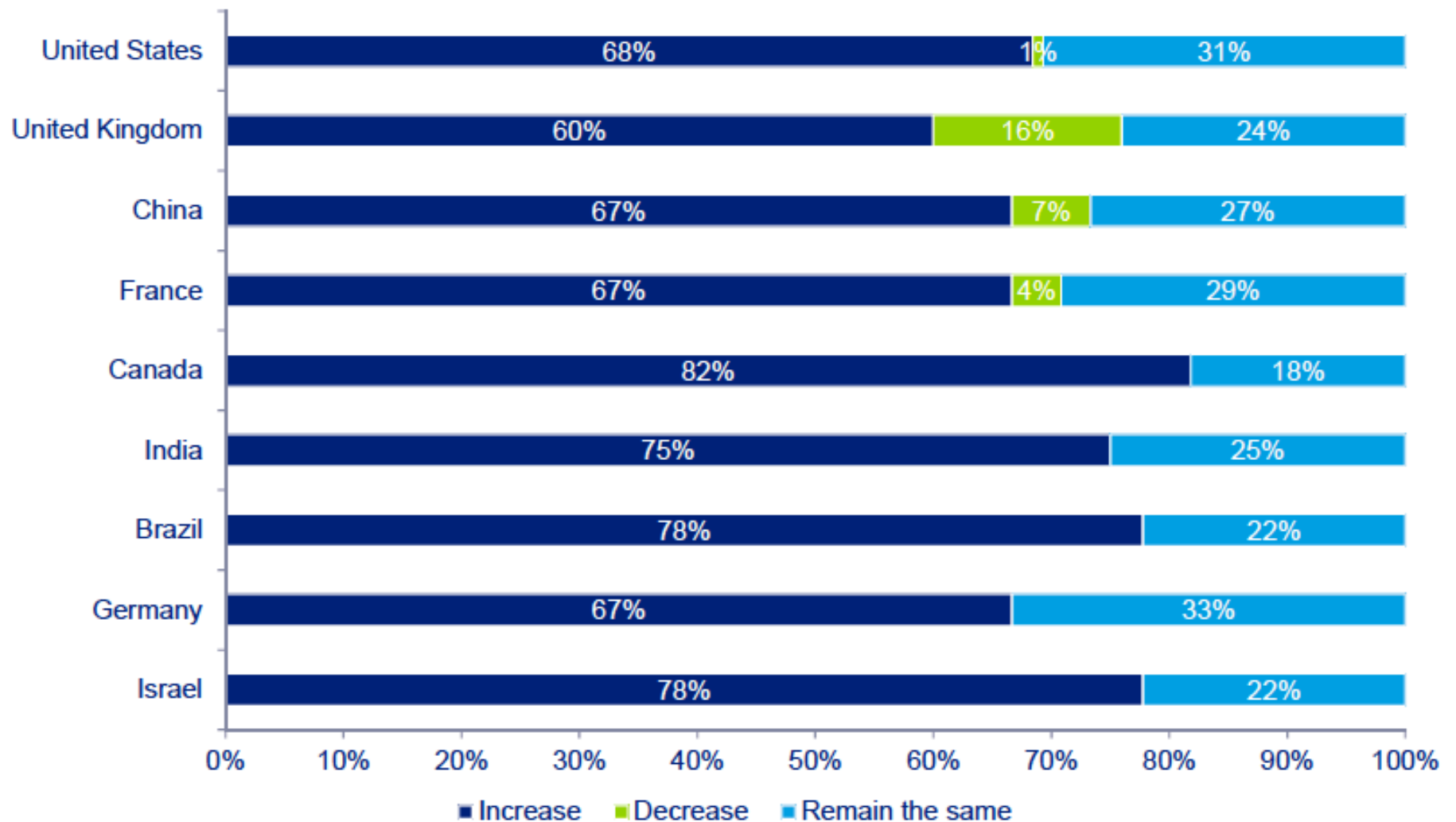
- ◆ **Following slides from survey conducted by Deloitte & Touche LLP and NVCA in February and March 2011**
- ◆ **Surveyed venture capitalists in Brazil, Canada, China, France, Germany, India, Israel, United Kingdom, and the United States**
 - ◆ **347 responses: 48% from U.S., 52% from non-U.S. countries**
 - ◆ **Respondents: general partners with assets under management ranging from less than \$100 million to greater than \$1 billion**
 - ◆ **Survey accepted returns from more than one GP in a firm**
- ◆ **Richard's observations:**
 - ◆ **Almost universal excitement around IT and cloud computing**
 - ◆ **More interest in BRICs than in U.S. in bio-pharma, med devices, etc. and cleantech / energy**
 - ◆ **Generally lower interests in semiconductors, hardware**

Anticipated investment levels in terms of total capital over the next five years - New media/social networking

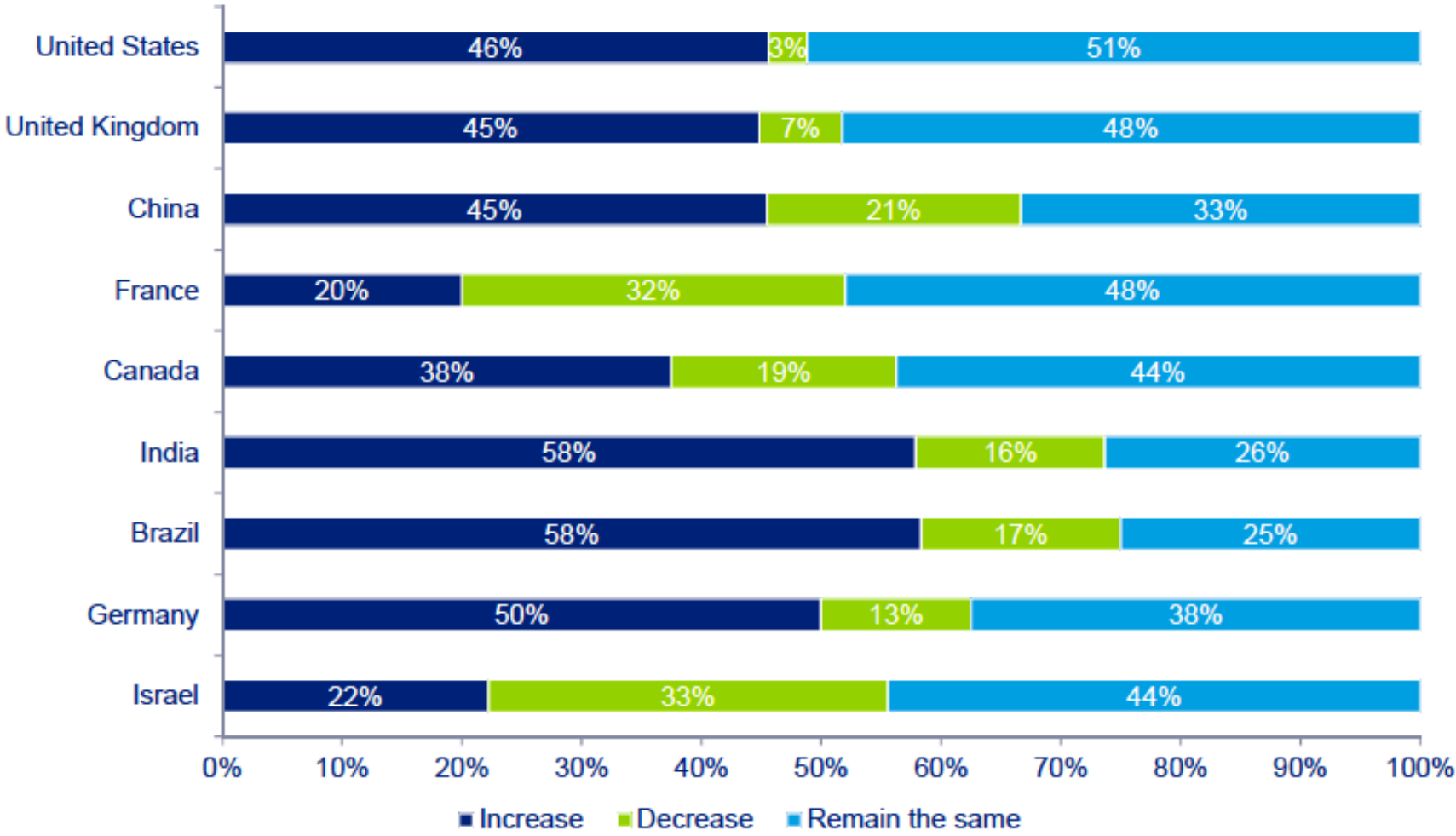


Deloitte Global Trends in VC, June 2011

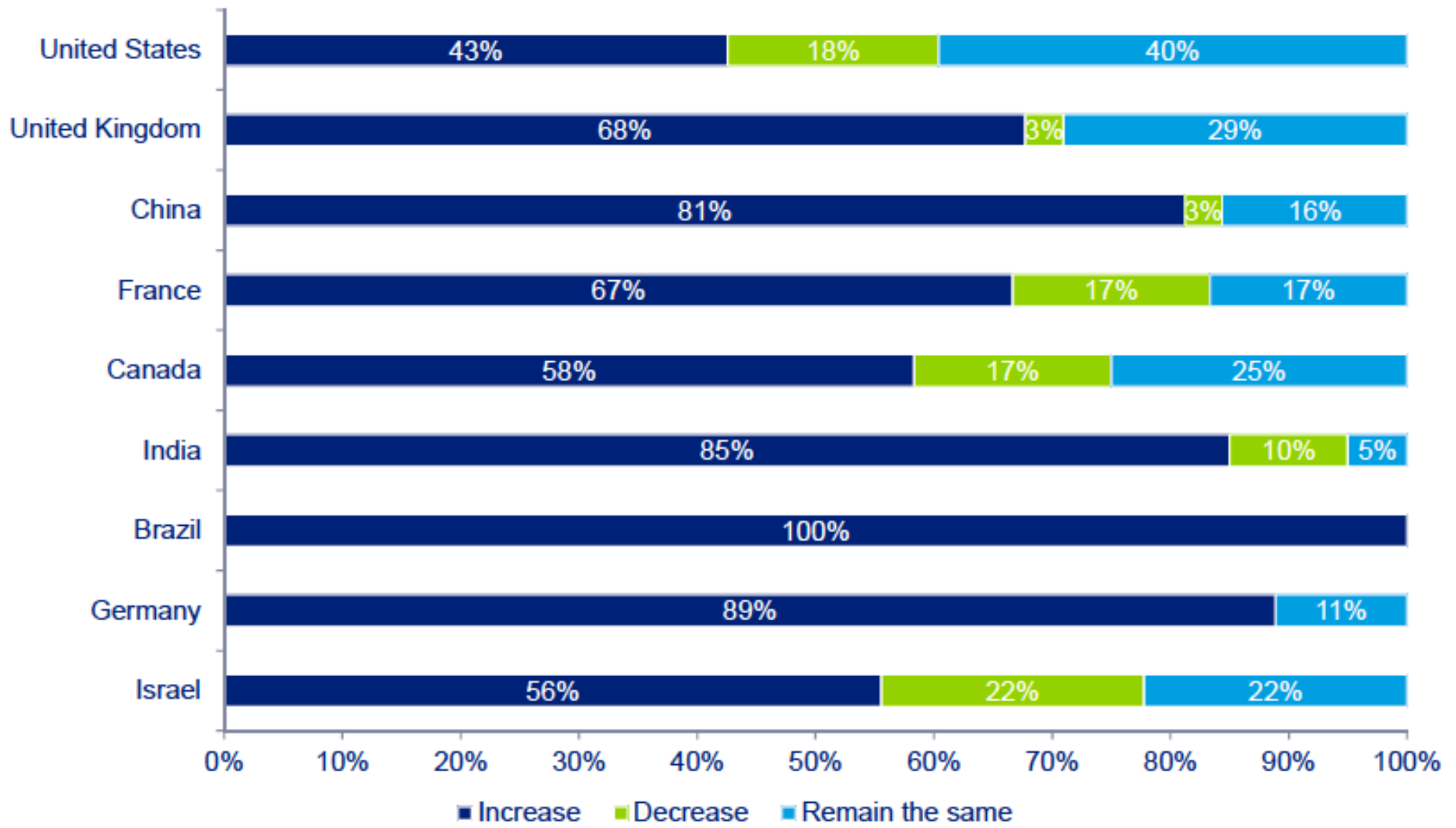
Anticipated investment levels in terms of total capital over the next five years - Cloud computing



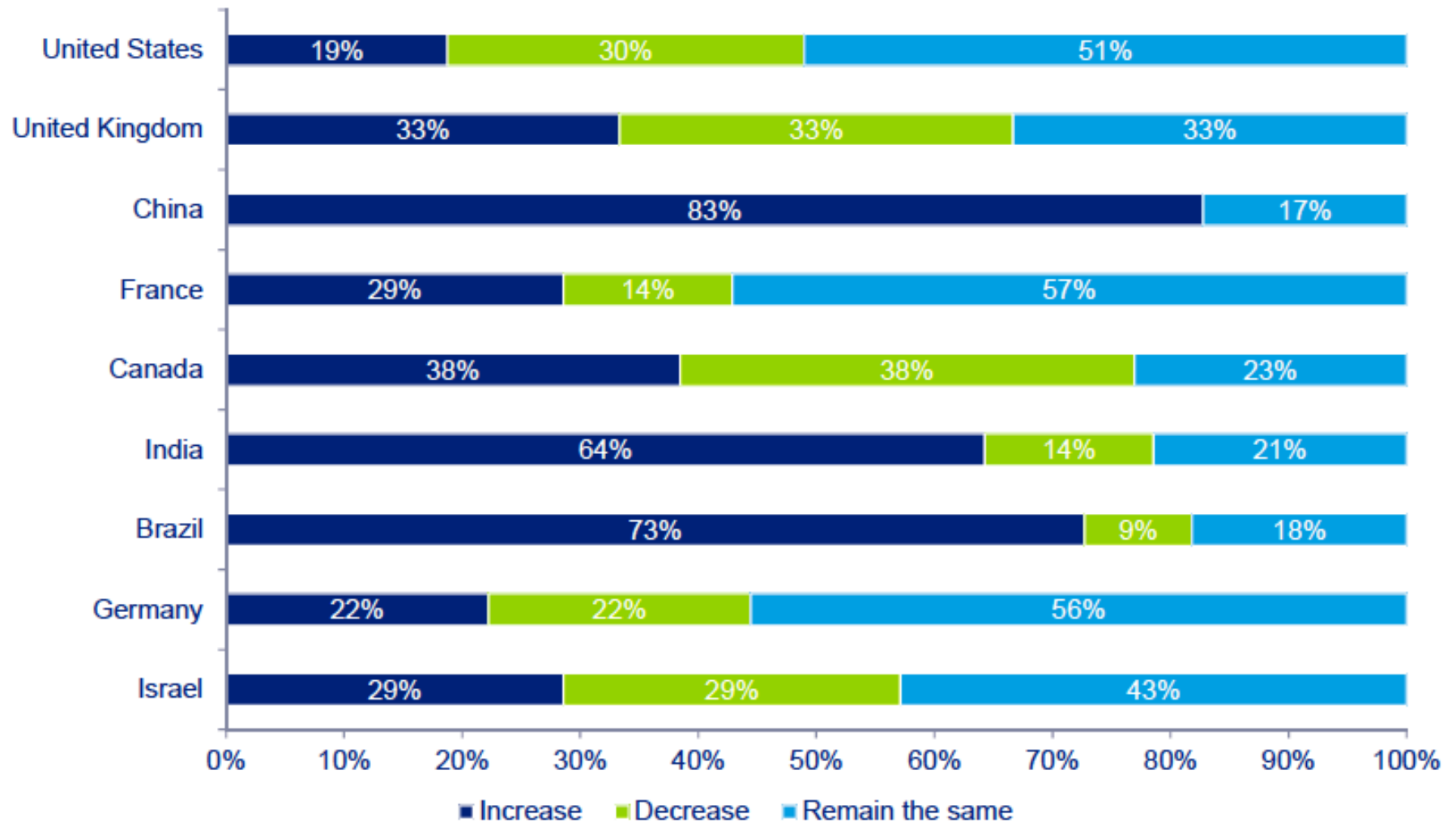
Anticipated investment levels in terms of total capital over the next five years - Software



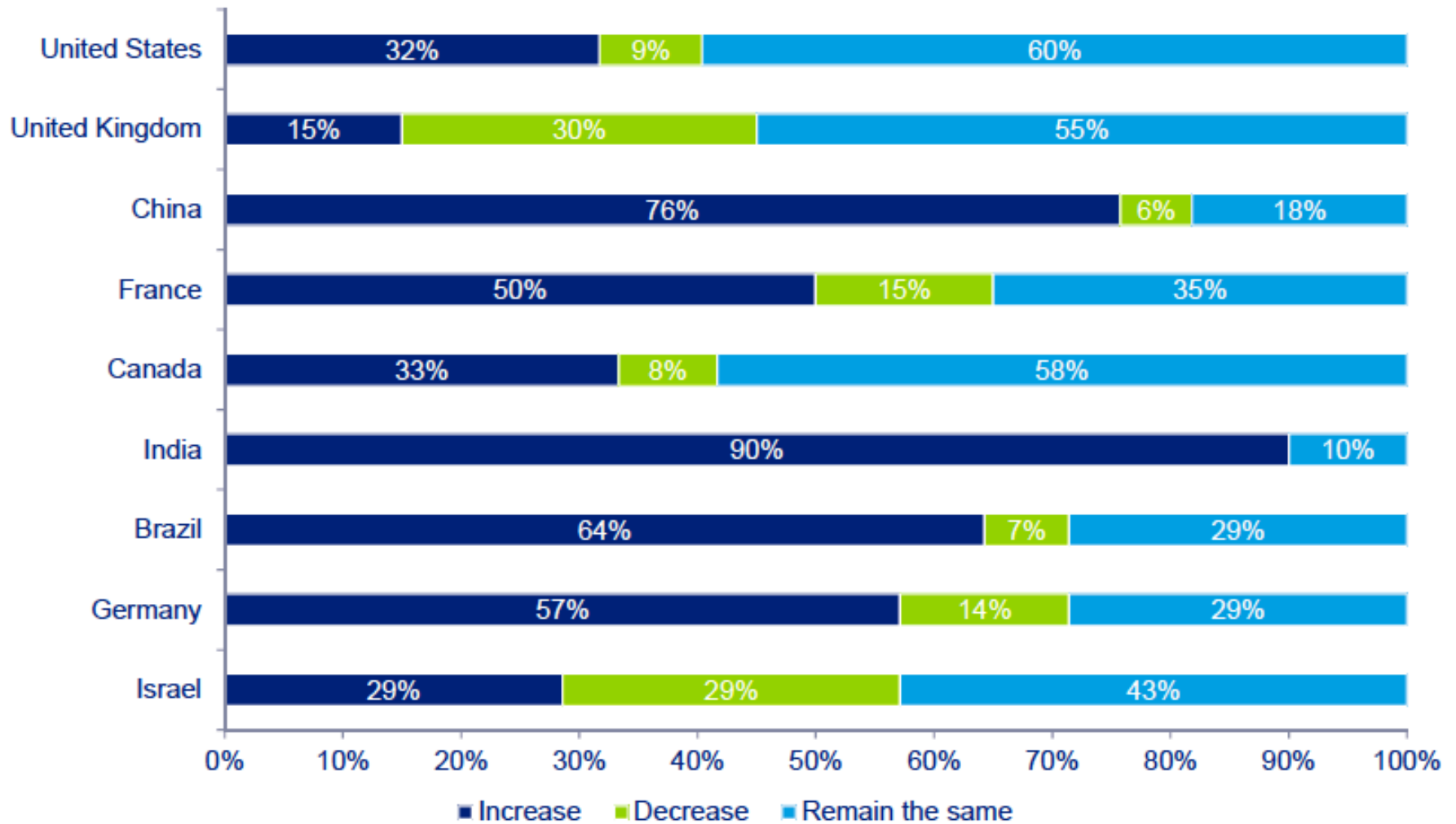
Anticipated investment levels in terms of total capital over the next five years - Clean technologies



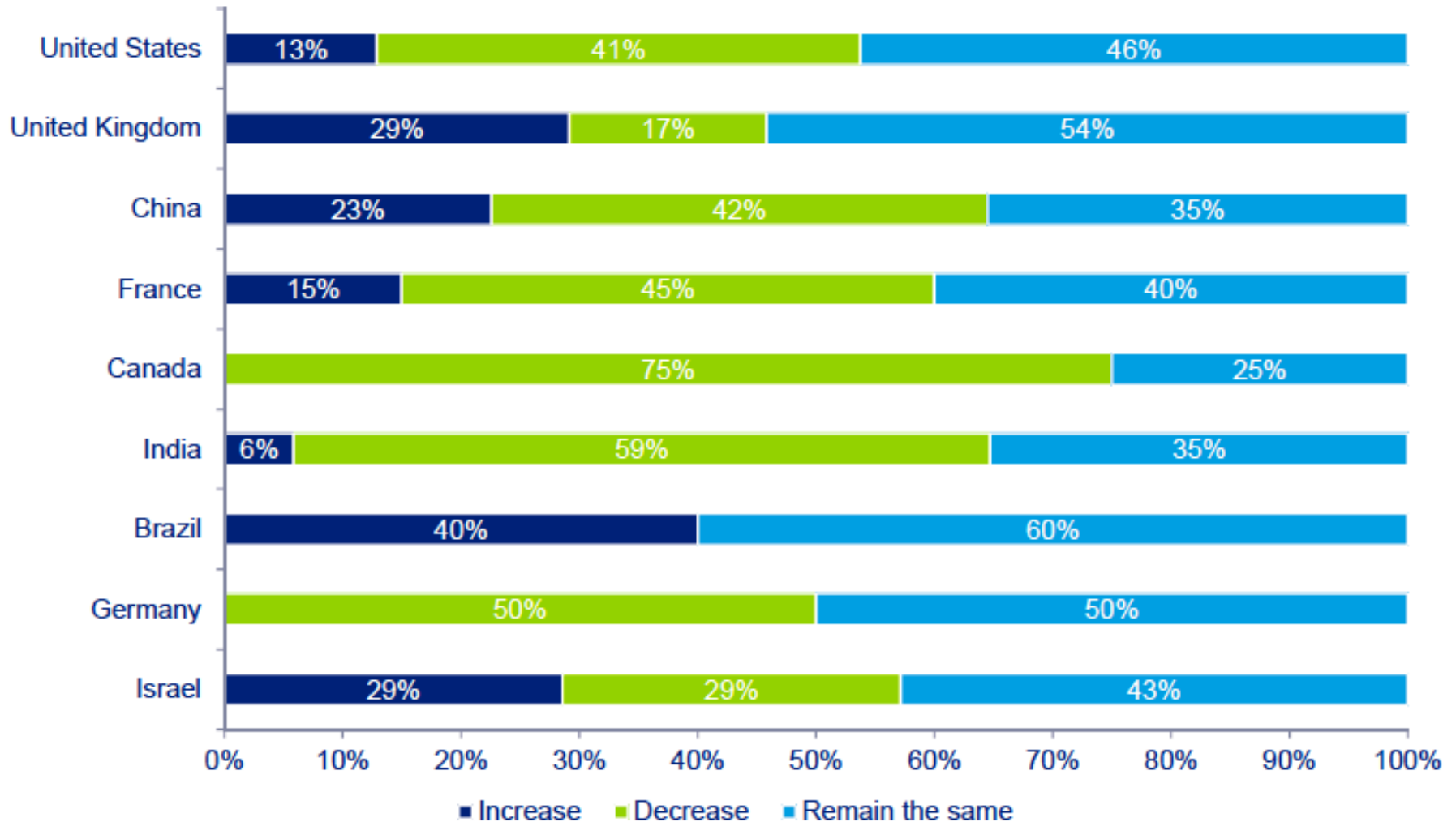
Anticipated investment levels in terms of total capital over the next five years - Biopharmaceuticals




Anticipated investment levels in terms of total capital over the next five years - Consumer business



Anticipated investment levels in terms of total capital over the next five years - Semiconductors including electronics



Summary – main points



- ◆ **This presentation has introduced 2011 data on entrepreneurial activity and attitudes in the U.S. and key Asia markets**
- ◆ **The environment for entrepreneurship is affected by**
 - ◆ **Economic structure (availability of high risk financing)**
 - ◆ **Labor market dynamics (mobility)**
 - ◆ **Infrastructure (physical, legal, regulatory)**
 - ◆ **Cultural attitudes**
- ◆ **All of the above are becoming more positive toward entrepreneurship in Asia**
- ◆ **VC expectations about levels of funding probably reflect where they think good start-up companies will be found**
 - ◆ **Universal interest in cloud computing, Asia interest in cleantech**