Policy ecosystem for strengthening innovation capacities – seeing the big picture

RJDDAL

Int'l conference on emerging technologies for achieving sustainable development goals

Kuala Lumpur, November 5, 2019

Key messages

Drivers of economic growth – the role of population, productivity and export, as well as the global macro environment overall

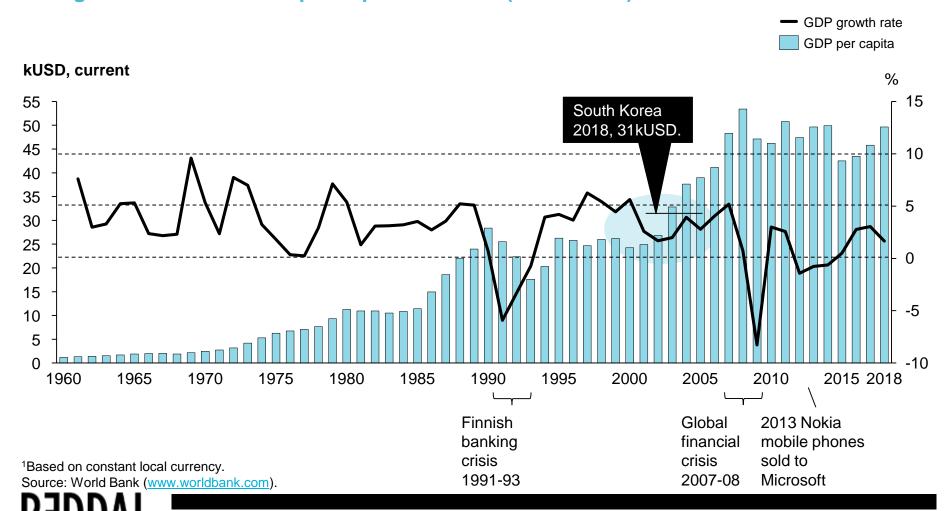
Development path of South Korea and Vietnam, and the role of national policy

Real life innovation and the opportunities for emerging Asian countries

Overview of policy ecosystem – key elements along the company development journey



Finland, as a sample Western country, is showing signs of stagnation



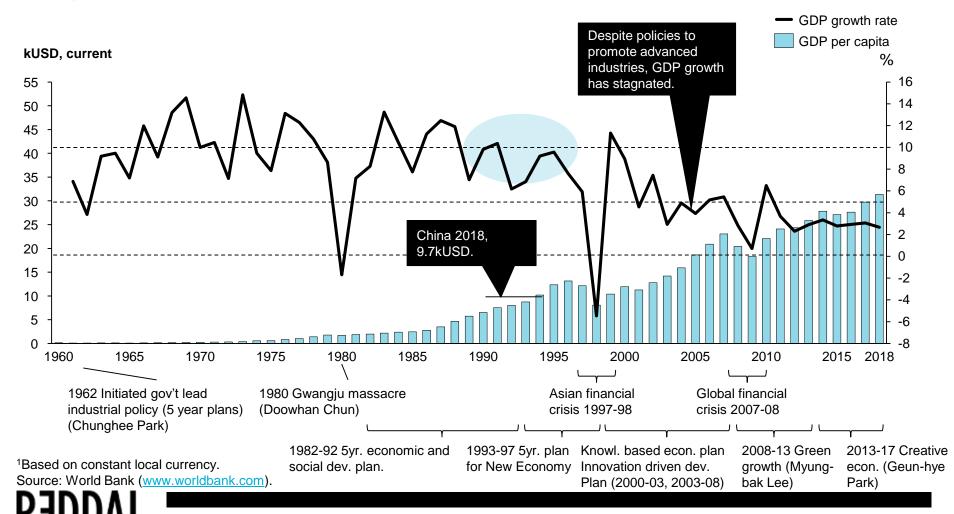
GDP growth rate¹ and GDP per capita – Finland (1960 - 2018)

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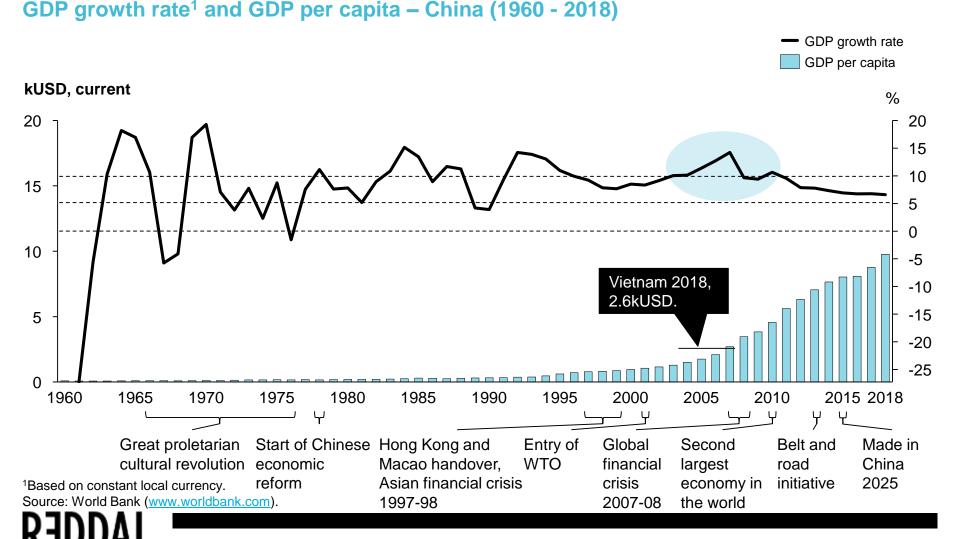
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South Korean growth is today only a shadow of what it used to be – the economy is facing significant challenges

GDP growth rate¹ and GDP per capita – South Korea (1960 - 2018)

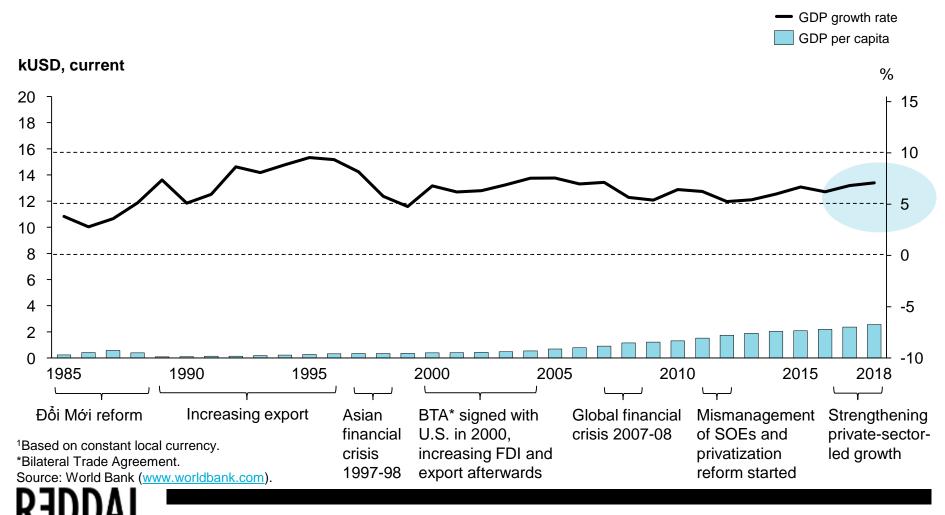


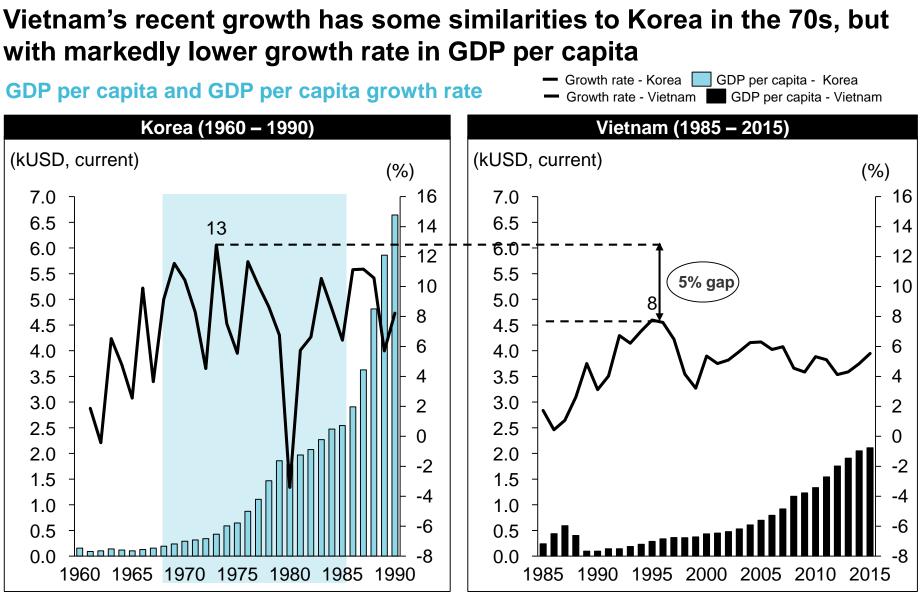
Growth in China is still good, but clearly slowing down



Vietnam is maintaining good growth, although the level of growth is clearly lower than China and South Korea at similar stage

GDP growth rate¹ and **GDP** per capita – Vietnam (1985 - 2018)

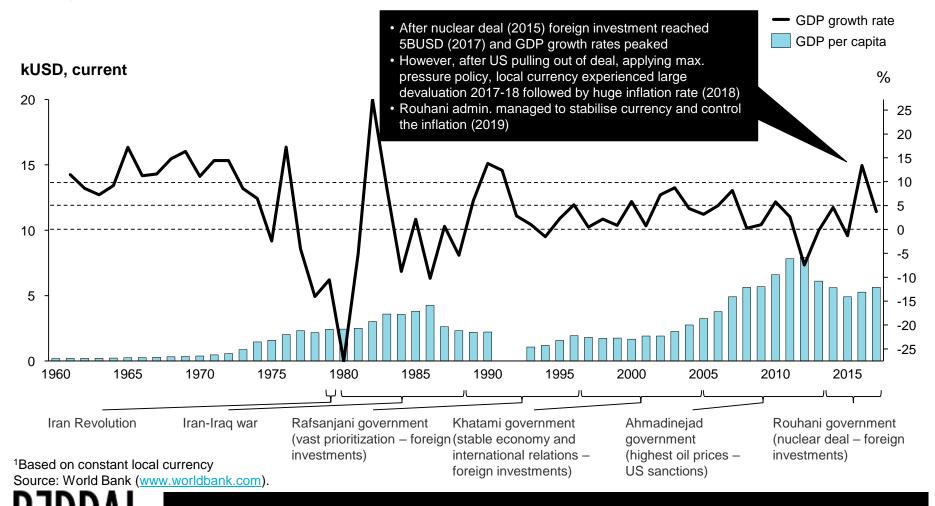




Source: World Bank (<u>www.worldbank.com</u>).

Iran is an aberration, due to high impact of global political environment, but has demonstrated rapid growth at times

GDP growth rate¹ and **GDP** per capita – Iran (1960 - 2017)



Population growth is a key additive term in GDP growth – it and GDP per capita growth is shrinking in many countries

The role of population and per capita GDP in real GDP growth

Percent, 1990 - 2000, 2000 - 2015

Table 5. Average Annual Percentage Growth of Population, Real Per Capita GDP, and Real GDP (2010 US\$), World Regions and Selected Countries, 1990 to 2000 and 2000 to 2015.

Region/country	Population 1990-2000	Per capita GDP 1990-2000	Real GDP 1990-2000	Population 2000-2015	Per capita GDP 2000-2015	Real GDP 2000-2015
Low-income	1.64	1.37	3.01	1.34	4.15	5.49
High-income	0.70	1.90	2.67	0.66	0.98	1.64
World	1.46	1.29	2.75	1.22	1.51	2.73
East Asia/Pacific	1.64	1.91	3.55	0.72	3.65	4.37
South Asia	2.02	2.86	4.88	1.53	5.00	6.53
Middle East/North Africa	2.14	1.08	3.22	1.97	2.13	4.10
Latin America	1.65	1.42	3.07	1.23	1.60	2.83
Sub-Sahara Africa	2.72	-0.67	2.05	2.70	2.29	4.99
North America	1.22	2.11	3.33	0.88	0.89	1.77
United States	1.20	2.18	3.38	0.86	0.90	1.76
EU	0.21	2.02	2.23	0.29	0.95	1.24
China	1.11	8.82	9.93	0.55	8.62	9.17
Brazil	1.60	0.95	2.55	1.11	1.64	2.75
India	1.90	3.54	5.44	1.46	5.47	6.93
Russia	-0.68	0.28	-0.40	-0.14	3.67	3.53
South Africa	2.29	-0.49	1.80	1.49	1.47	2.96
Japan	0.24	0.88	1.12	0.01	0.71	0.72
Germany	0.37	1.59	1.96	-0.01	1.11	1.10
France	0.33	1.75	2.08	0.63	0.45	1.08
United Kingdom	0.34	2.06	2.40	0.65	1.10	1.75
Norway	0.69	2.87	3.56	0.96	0.63	1.59
South Korea	0.89	5.44	6.33	0.54	3.32	3.86

Piketty finds that global long term values are 0.8% + 0.8% = 1.6%.

Solow studied US GDP growth, and stated that about 80% was driven by innovation, and and only 20% of factor inputs.

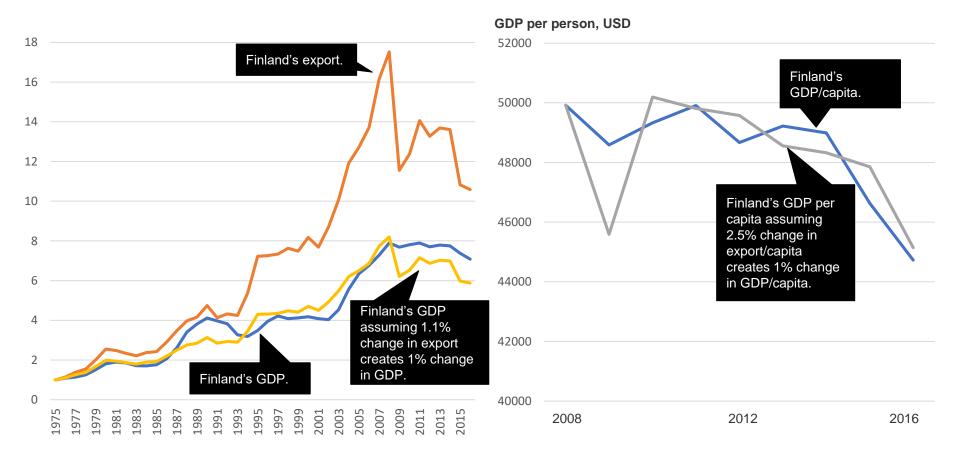
Source. Author's calculations using World Bank (2017) data.

Note. EU = European Union.

Source: Peterson, The role of population in economic growth, SAGE Open Oct-Dec 2017, https://journals.sagepub.com/doi/pdf/10.1177/2158244017736094.

Change in exports is a surprisingly accurate predictor of GDP change at least in the case of Finland

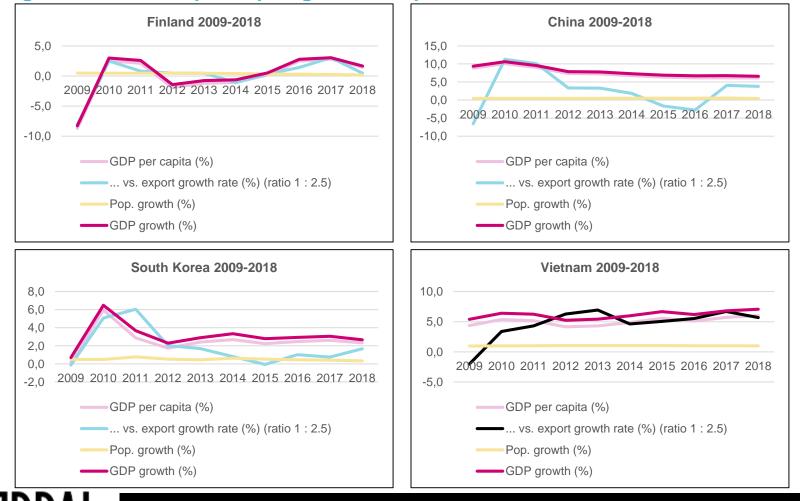
Change of GDP vs. change in exports (Finland)



Source: Eero Byckling, Vienti vetämään – näin luomme uusia menestyviä vientituotteita (2018).

These relationships hold well for our sample countries in general

GDP growth and GDP per capita growth vs. parameters



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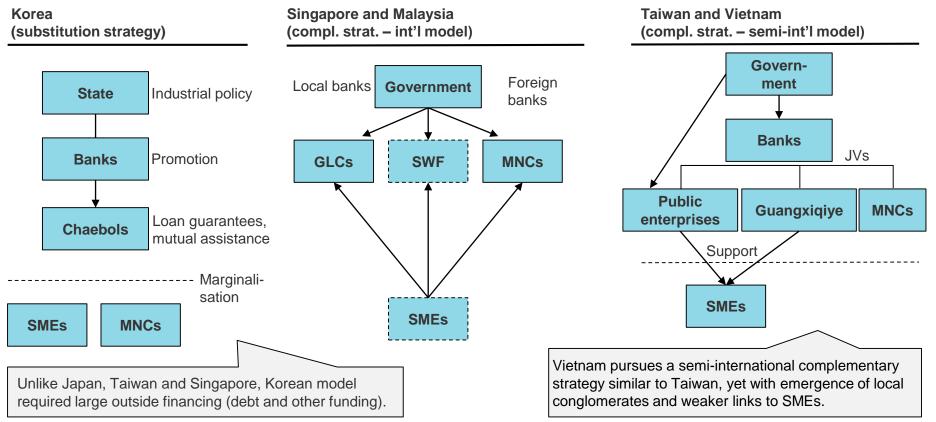
Real life innovation and the opportunities for emerging Asian countries

Overview of policy ecosystem – key elements along the company development journey



Korea pursued substitution, while Malaysia, Taiwan and Vietnam pursued complementary strategy – the choice had effects on SMEs

Comparison on national growth models



Note: MNC = multinational company, SME = small and medium sized enterprise, GLC = government linked company, SWF = sovereign wealth fund, SOE = 100% state owned enterprise, Guangxiqiye = local business groups; China applies a modified substitution strategy, leveraging JVs to expediate tech transfer process.

Source: Shin, Chang, Restructuring Korea Inc., pp. 11-22; Ha Thanh, Nguyen & Klaus Meyer (2004); Van Chung, Vu (2015); Reddal analysis.

Korea used interventionist/protectionist strategy to drive manufactured goods exports by subsidizing target industries and related chaebols

Rest of top 200 Korean growth and industrial policy Lotte Chaebols' assets as a share of top 200 corporate **Guided capitalism model** assets (1987-2012) 65%-Period Main policy direction 57% **5%**1 1950s Import substitution 5% 3% 100% -> Price stability 1962-1971 Policy shift to export promotion (EP) Expanding SOC³ 1972-1981 Heavy and Chemical Industrialization under FΡ 64% Administered credit allocation 73% Import substitution of parts and components 1982-1991 Industrial rationalization Initial liberalization and opening 1% 8% Shift to private sector initiatives 7% 8% 1993-1998 Deregulation 3% 6% 6% Globalization (capital and foreign exchange) 5% 12% 11% liberalization) 11% 11% Fairness and transparency in industrial and 12% 11% 8% trade policy 5% Technology based industrial policy 1987 1992 1997 2002

¹Includes LG, GS, LS and their affiliates; ²includes Samsung, Shinsegae, CJ and Hansol; ³Social overhead capital such as roads, schools and hospitals. Source: ERRI, 재벌 및 대기업으로의 경제력집중과 동태적 변화분석; Ahn, The outward-looking trade policy and the industrial development of South Korea.



SK

LG¹

51%

4%

9%

9%

13%

14%

2007

Hyundai

44%

5%

8%

10%

14%

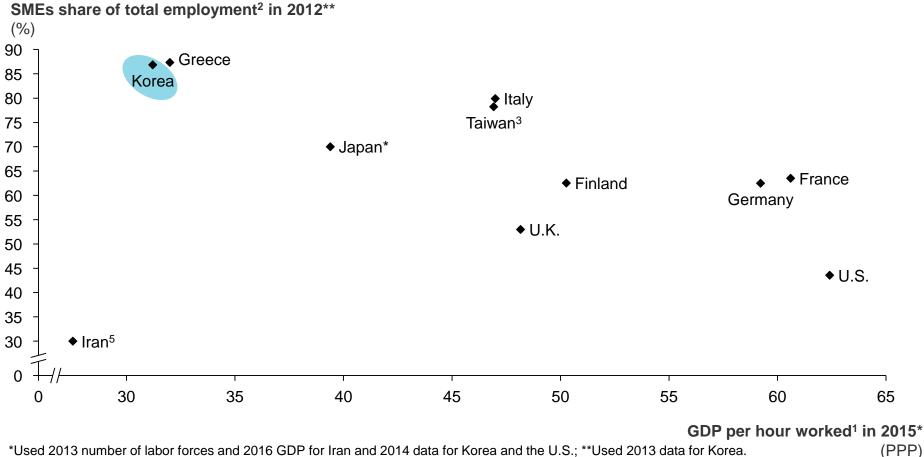
19%

2012

Samsung²

Yet a burning issue of Korean economy is that the SME sector is extremely inefficient and employs a large share of the population

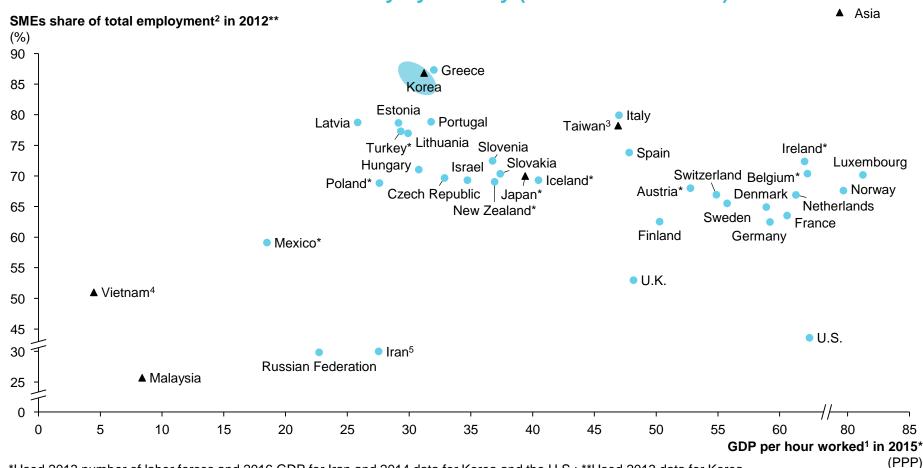
SMEs contribution to overall economy by country



*Used 2013 number of labor forces and 2016 GDP for Iran and 2014 data for Korea and the U.S.; **Used 2013 data for Korea. Source: ¹OECD, *Compendium of Productivity Indicators* (2016); ²OECD, *Entrepreneurship at a Glance* (2015); ³Ministry of economic affairs of the R.O.C and The conference board total economy database; ⁴General Statistics Office of Vietnam; ⁵ Statistical Center of Iran (<u>www.amar.org.ir</u>).

Even in global terms, Korean SMEs poor productivity and role in employment stands out

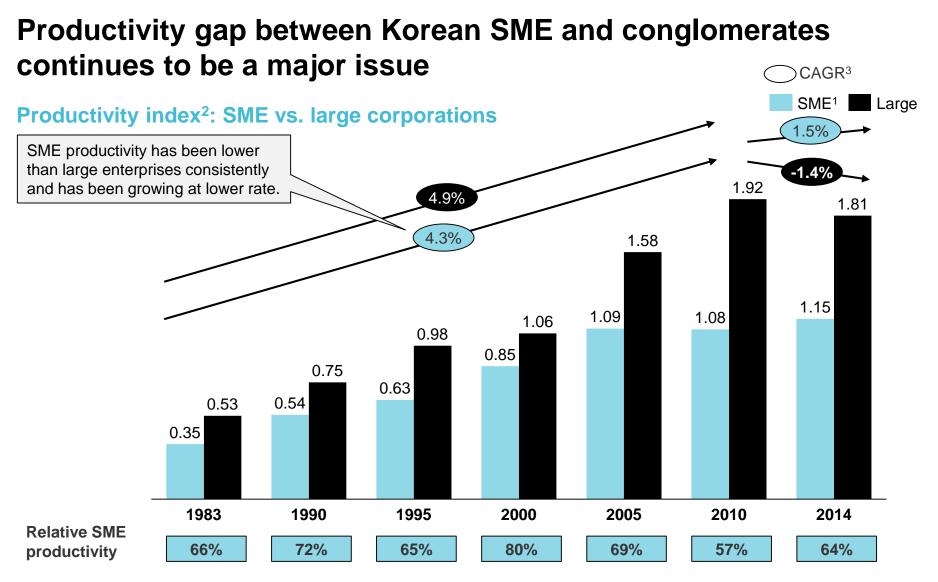
SMEs contribution to overall economy by country (full list of countries)



*Used 2013 number of labor forces and 2016 GDP for Iran and 2014 data for Korea and the U.S.; **Used 2013 data for Korea. Source: ¹OECD, *Compendium of Productivity Indicators* (2016); ²OECD, *Entrepreneurship at a Glance* (2015); ³Ministry of economic affairs of the R.O.C and The conference board total economy database; ⁴General Statistics Office of Vietnam; ⁵ Statistical Center of Iran (<u>www.amar.org.ir</u>).

BACK-UP

Other



Note: ¹SME includes companies with 10 – 300 employees; ² Total productivity index, including labor and capital; ³Compounded annual growth rate. Source: KEIT (2017).

Korean SMEs are often locked in vicious cycle, as SMEs are complacent with their role as supplier – transition to virtuous cycles requires internationalization

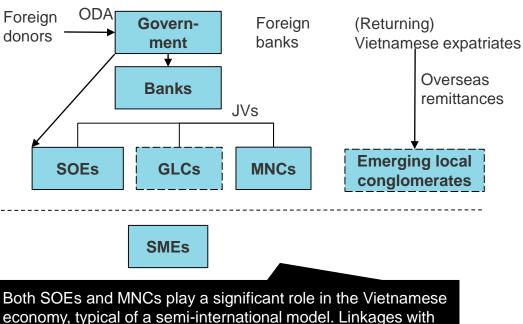
SME vicious vs. virtuous cycle "As local market is limited. Better diversifying the customer base "Price squeeze is competitive globally is key for growth" advantage, inevitable and comes Bargaining -CEO of local IT SME market position, power falls by direct price-cut Ability to ability to invest Operations reauest" command Acquire new centered around and attract -Head of gov. agency price customers. talent conglomerates premium expand further and Price squeeze "Working with chaebols often maintain provides SMEs with solid skills" profit -Manager of consulting firm Virtuous cycle Bargaining SME's dependence Vicious cycle of OEM trap (focus on internationally competitive power on (Korean) technology and products, and (focus on serving local conglomerates) increases conglomerates expansion abroad) Profit falls Increased Operations product/service Inability to invest based on differentiation Loss of in development market/ competitiveness and attract new competition Optimized talent, morale resource falls allocation Moving to virtuous cycle can be realized by providing SMEs with global-minded management capability, competitive talents pool, and network and insights in international market



Vietnamese growth model does not emphasize building strong local companies to substitute MNCs nor strong SMEs to complement them

Comparison on national growth models

Vietnam (compl. strat. - semi-int'l model)



SMEs are weak as their capabilities are not strong enough to participate in the value chains.

Comments

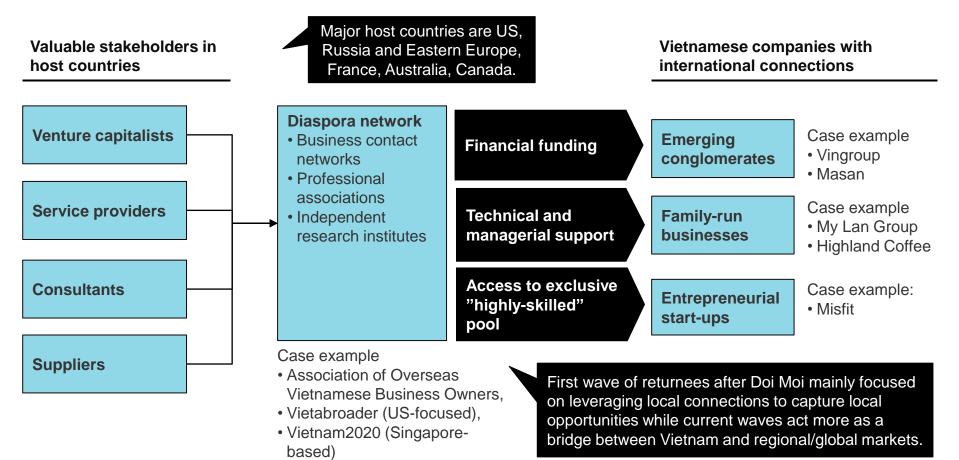
- The Vietnam model is closer to Taiwan, with JV between SOEs and MNCs a common practice because of government equity/license requirements in sensitive sectors and unique access to local knowledge and natural resources
- Vietnamese SOEs are not only owned but also managed by respective line industries/local governments with strong political patronage
- Recent privitization and restructuring efforts of SOEs are slowly turning them to GLCs, which are closer to the Singapore model
- Recent reforms since 1986 "Doi moi" and influx of overseas remittances from Vietnamese expatriates have also encouraged the emergence of a few local conglomerates

Note: MNC = multinational company, SME = small and medium sized enterprise, SOE = 100% state owned enterprise managed by respective line ministries or local governments, GLC = government linked company as result of SOE privatization.

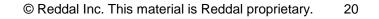
Source: Shin, Chang, Restructuring Korea Inc., pp. 11-22; Ha Thanh, Nguyen & Klaus Meyer (2004); Van Chung, Vu (2015); Reddal analysis.

Growing ties with returning "Viet Kieu" and Vietnamese diaspora networks overseas foster valuable "soft factor" spillovers in terms of knowledge, skill and human capital

Leveraging international connections for acceleration – Vietnamese diaspora networks

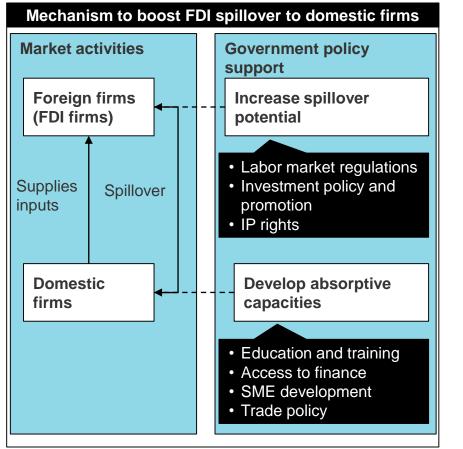


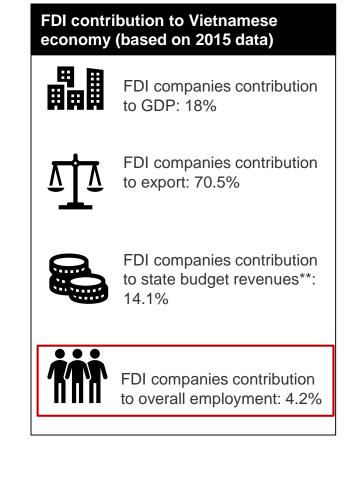
Source: Pham (2010), Reddal interviews (2017), Reddal analysis.



Government policy aims to help local SMEs to become supplier to MNCs

FDI spillover framework and policy implications

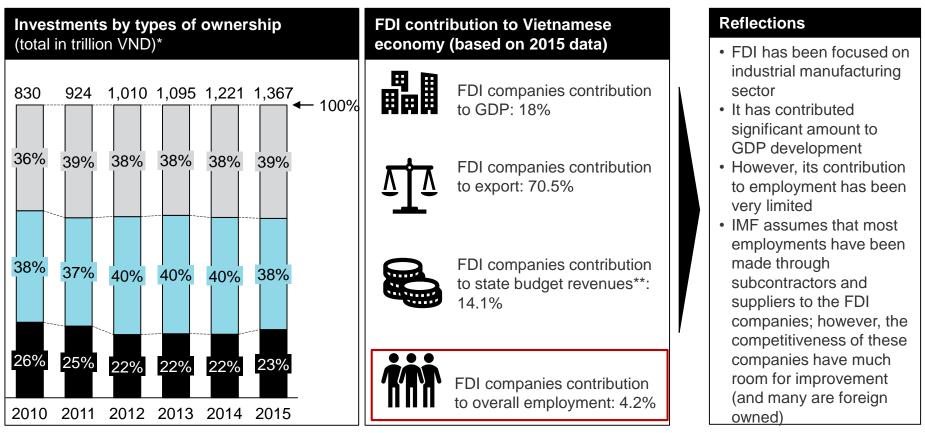




Source: Newman et al., European Economic Review 76 (2015), Reddal analysis.

Foreign conglomerate led FDI has been a major contributor to Vietnam's national level indicators, but its spill over effect is limited

FDI investments and spillover effects in Vietnam



*As of 12/31/2015; **As of 2014.

Source: Vietnamese General Statistics Office, Ernst and Young, *Private equity briefing: SEA* (2016); OECD, *Investment Policy Review of Vietnam* (2016); IMF (2002).



Non-state

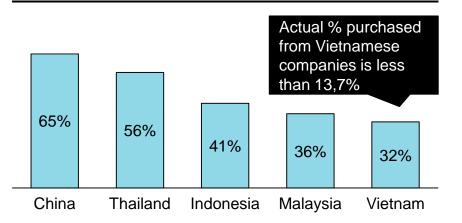
State

FDI

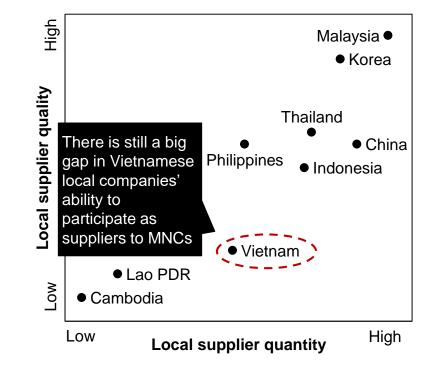
Localization rate and local (Vietnamese) supplier quality assessments highlight the competitiveness issue of Vietnamese players

Competitiveness of Vietnamese suppliers

Localization rate* of Japanese-invested manufacturers by country, 2015

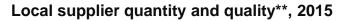


- Out of 32% Japanese local sourcing in Vietnam, 45% was sourced from Japanese companies operating in Vietnam and 14% from Taiwanese companies operating in Vietnam
- Low localization rate has directly affected Japanese invested companies' profitability in Vietnam
- Vietnam has been cooperating with Japan since 2000s to build supporting industries but have failed to realize two planned supporting industrial parks after 14 years



*Localization rate is defined as % of raw material and intermediary goods sourced locally, **Based on OECD ranking of 140 countries. Source: JETRO annual survey, OECD, press articles.

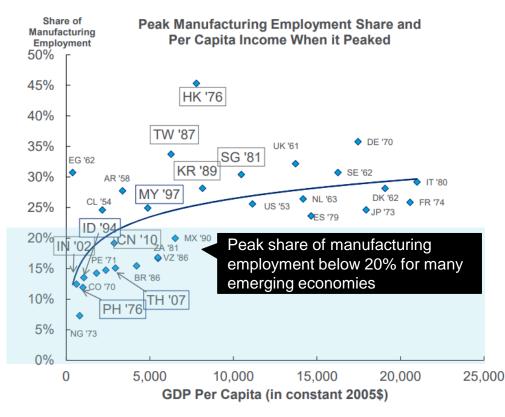




Avoiding OEM trap is even more critical for SMEs in developing nations – advantage in manufacturing, arising out of cheap labor will diminish

Peak manufacturing employment share and GDP per capita when it peaked

Percent, constant 2005 USD



Observations

- Trade has induced productivity gaps to close faster than gap in income as manufacturers must follow similar international standards
- Manufacturing is becoming less labor-intensive also in developing economies; thus peaked share of manufacturing employment has declined
- Automation coupled with additive manufacturing making OEMs from developing economies risk becoming redundant

Source: GGDC-10 Sector database, World Bank Development Indicators, Citi Research in "Technology at work v2.0: The future is not what it used to be."

Key messages

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Misfit combined local capabilities across multiple countries in a unique way to fuel its growth

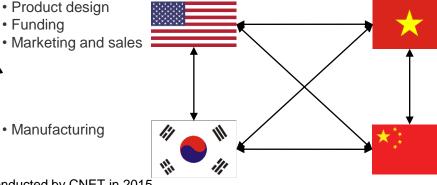
Leveraging international connections for acceleration: Misfit Wearables

About Misfit (now part of Fossil Group) On organizing international operations in Vietnam* Founded in 2011 by Sony Vu (CEO and M Q: What prompted the decision to have so many employees here MISFIT President), Sridhar Lyengar and former Apple [in Vietnam], aside from your background? **CEO John Sculley** Vu: "So we have to get the best talent at the best price. So what Offering: health tracker wearables we've done is optimized our hiring to be in places where we have an unfair competitive advantage". Available in 20 countries (US, Canada Mexico, Brazil, UK, Germany, Italy, France, Switzerland, Spain, Sweden, Russia, Australia, China, Hong Vu: "If you just come here with a mentality, I'm going to get cheap Kong, Japan, Singapore, Taiwan, South Korea

outsourced labor, then that's exactly what you're going to get cheap we really give them [the Vietnamese staff] a lot of authority...And people rise up to the challenge".

- Logistics and supply chain, operations, finance
- Customer service
- Data science and algorithm development
- Firmware engineering
- Graphic design
- Commercial product development

Leverage the best of each world to gain competitive advantages and scale internal capabilities development fast.



*Interview with Sonny Vu conducted by CNET in 2015. Source: Company website, press articles.

and India)

November 2015

Acquired by Fossil Group at 260MUSD in

Uber's struggles to scale in China, Russia and SEA illustrate that global success of digital services still require local know-how

Lessons learnt from some of Uber internationalization journey

UBER

Uber expansion timeline in selected markets

Feb 2013 – Uber launched in Singapore, starting its expansion in South East Asia (SEA).

Jul 2014 – Uber officially launched in China. Also in Russia.

August 2016 – Uber China merged into Didi Chuxing. Uber China would own 20% of the new entity. Didi to own \$1bn share in Uber global.

July 2017 – Uber merged its operations in Russia, Azerbaijan, Belarus and Kazakhstan with Yandex. Uber would own 36.6% of the new entity.

March 2018 – Uber sold its operations in SEA for 27.5% stakes in Grab – a Singapore based competitor.

Uber Slayer: How China's Didi Beat the Ride-Hailing Superpower

"We felt like the People's Liberation Army, with basic rifles, and we were bombed by airplanes and missiles."

By Brad Stone and Lulu Yilun Chen | October 6, 2016 Photographs by Ka Xiaoxi From **Bioomberg Businessweek**

Uber stages retreat in Russia as it merges with rival Yandex

Ride-hailing company makes second embarrassing climbdown after selling its Chinese operations last year

Technology

Grab Vanquishes Uber With Local Strategy, Billions From SoftBank

By <u>Yoolim Lee</u> March 26, 2018, 10:00 PM GMT+3

Uber's defeat in Southeast Asia calls into question its "barge in" expansion strategy worldwide



Grab focused on building "segmented, localized and tailored service" to foster customer experience and loyalty

Grab localization strategy to succeed in regional expansion

South East Asia special characteristics



Traffic congestion make motorbike a more convenient and faster choice



 GrabBike was launched in 2014, two years ahead of Uber Motor

How Grab cater to local needs and tastes



 Cash payments are still prevalent in many South East Asian cities



 Grab has traditionally accepted cash payments, long before Uber began to pilot it, first in India in 2015



 SEA is a fragmented region with different languages; many still do not speak English



• Grab launched GrabChat in 2016 with template messages and auto translation for quick communication between drivers and riders



 Durian is a special and popular local fruit in many parts of SEA



• Grab organized special campaigns/ redeem offer for special treats of highquality durian



Without a dedicated entry strategy, many young companies fell to the pitfalls of relying on the "sales" approach only for short-term gain

Entry strategy approach versus "sales" approach to international markets

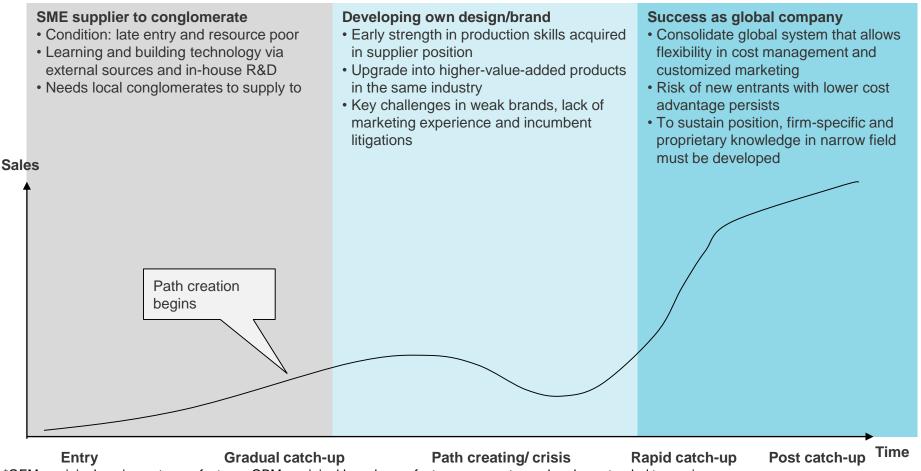
	"Sales" approach	Entry strategy approach (go-to-market system)		
Time horizons	Short-run.	Long-run (say, 3 to 5 years).		
Target markets	No systematic selection.	Selection based on analysis of markets/sales potential.		
Dominant objectives	Immediate sales.	Build permanet market position.		
Resource commitment	Only enough to get immediate sales.	What is necessary to gain permanent market position.		
Entry mode	No systematic choice.	Systematic choice of most appropriate mode.		
New product development	Exclusively for home market.	For both home and foreign markets.		
Product adoption	Only mandator adaptions (to meet legal/technical requirements) of domestic products.	al Adaption of domestic products to foreign buyers' preferences, incomes, and use conditions.		
Channels	No effort to control.	Effort to control to drive market objectives/goals.		
Price	Determined by domestic full cost with some ad hoc adjustments to specific sales situations.	Determined by demand, competition, objectives, and other marketing policies, as well as cost.		
Promotion	Mainly confined to personal selling or left to middlemen.	Advertising, sales promotion, and personal selling mix to achieve market objectives/goals.		

Without a go-to-market system with entry strategy for a product/target market, a company only has a "sales" approach.

Source: Franklin R. Root, Entry strategies for international markets (2008).

SMEs in developing nations require a unique path creation strategy, where internationalization is an integral part of success

Path creation strategy for SMEs: from OEM to OBM*



*OEM = original equipment manufacturer, OBM = original brand manufacturer; concepts can be also extended to services Source: Lee, *Economic catchup and technological leapfrogging*



Young technology companies need to build internal R&D capabilities and leverage digital technologies and service platforms to drive growth

Tips on internationalization for technology SMEs



Avoid the OEM trap – being complacent in playing the role of part manufacturers in the global value chain.



Invest in internal R&D to develop internationally competitive technology and products, and expansion abroad.



Over-rely on low-cost advantages without realizing other value-adding advantages from local resources.



Digital technologies make cross-border collaboration more easily, which young companies can leverage to build optimal teams.



Overly ambitious expansion plan, risk stretching themselves too thin over mass expansion without a clear go-tomarket strategy/strategies.

 \checkmark

Digital and service platforms make scaled internationalization more feasible for young companies with local resources – but local know-how essential for success.

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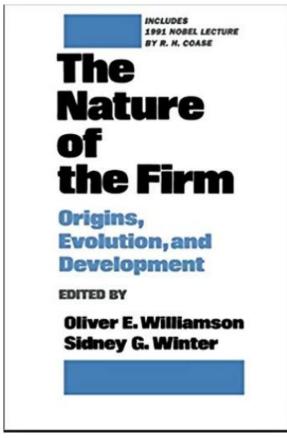
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Coase developed a basic theory of a firm, and this can partially be extended to nations as well

Ronald Coase main theses on the nature of the firm



"As long as there is a cost of using the pricemechanism, it is advantageous to organize within a firm and reduce uncertainty by making a promise of loyalty to a certain extent. Within a firm, an unsustainably large number of contracts is replaced by one."

"A firm stops growing at some point due to the law of diminishing returns to management: the cost of organizing rises with additional transactions due to inability to place resources effectively, and at some point surpasses the costs of carrying out the transaction in the open market. A firm therefore tends to be larger

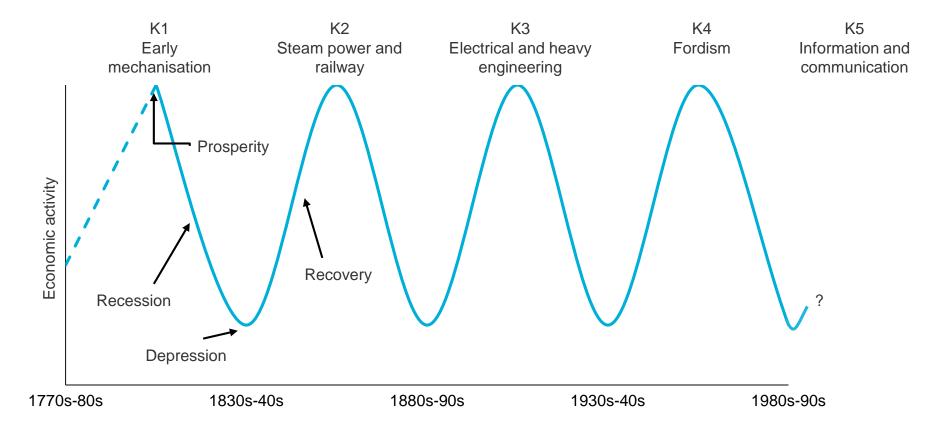
- The less the cost of organizing is and the slower the cost grows with expansion
- The less likely is the entrepreneur to make mistakes and the smaller the probability of being inefficient grows with accepting additional transactions
- The less the supply price of factors of production rises as the firm grows larger"

Source: https://www.scribd.com/doc/156497850/Summary-Coase-1937-the-Nature-of-the-Firm.



Earlier Kondratieff presented the notion of long-term waves in global economy and Schumpeter "creative destruction"

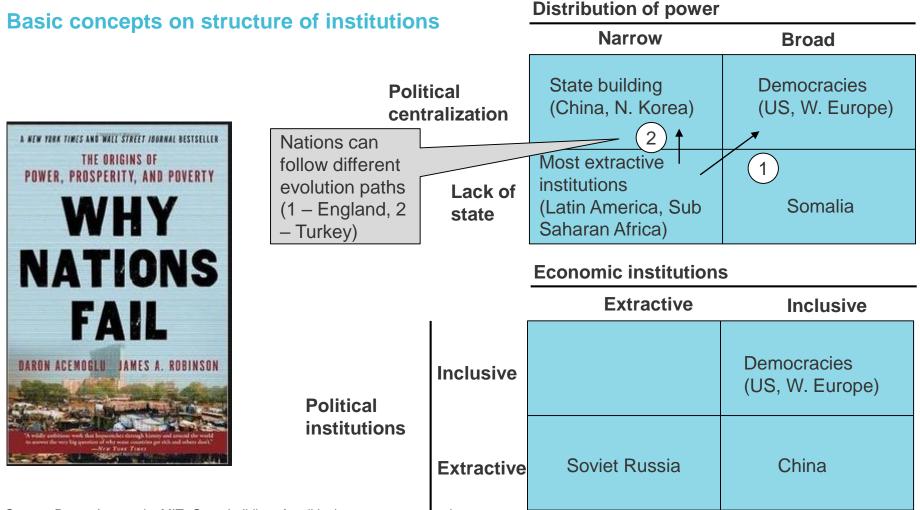
Kondratieff waves of growth and their main features



Source: Trott, Innovation Management and New Product Development, 5th ed., pp. 6-8, 54-55; see also Shin, The Global Financial Crisis and the Korean Economy



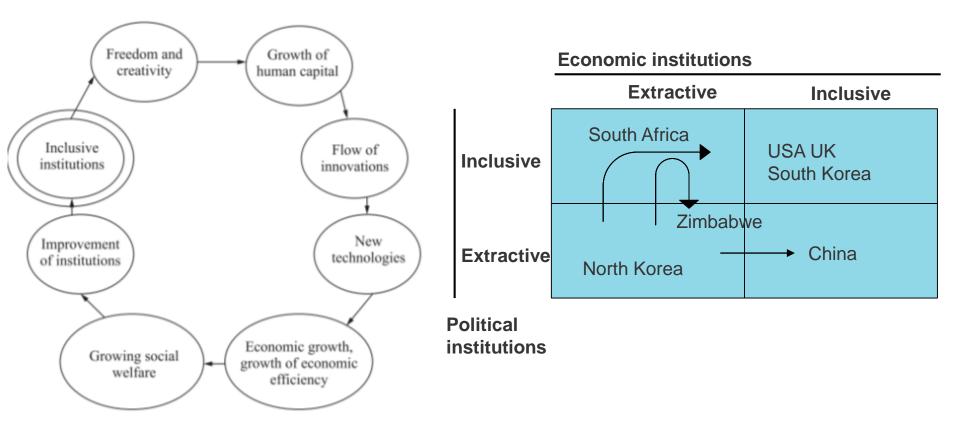
These can now be connected to a theory of nations and their success – and it lends itself perhaps also back to ventures



Source: Daren Acemoglu, MIT, State building: A political economy perspective.

The basic idea is that innovation is driven by freedom and creativity; institutions can improve that by incentivizing everyone to participate

Rents and economic development



Source: Daren Acemoglu, James A. Robinson, Rents and economic development: the perspective of Why Nations Fail.



FOR DISCUSSION

Inclusiveness is a key element in the early part of development, but the overall policy ecosystem must also meet requirements down the line

Growth development path and role of environment

Role of Creating unique ideas environ- • High quality education • Inclusiveness • Global talent • High quality research			ngel community Dal and local	 Value adding owners Listed in stock market (functioning market) Part of larger corporation (ecosystems of good corporate owners) 	 Industrial leadership Significant contribution to home country (attractive regulative environment and stability)
	Idea	Prototype or concept (MVP*)	Growth company	Export company	Global/regional corporation
Tasks	Capturing market changes • Technology evolution • New services • Changes in demographics • Changes in wealth	Establishing a foothold • Deliveries to first customers • Customer feedback	 Expanding the base Supply chain Sales channels Marketing in multiple markets Access to top notch talent 	 Scaling up to high volume operations Deliveries to multiple markets Expanding presence Attractive employer in home country 	 Domain leadership Acknowledged brand Presence in multiple markets Attractive employer in multiple markets

*MVP = Minimum viable product.

Source: Adapted from Eero Byckling, Vienti vetämään – näin luomme uusia menestyviä vientituotteita (2018).



We can learn from the past, and from others, but the future we face brings fresh challenges – new holistic solutions are needed

Conclusion

- Growth is becoming increasingly difficult the past does not provide clear recipes for the future, nations must forge their own paths
- Population growth is a clear driver for GDP growth, but needs to be combined with productivity growth avoid the low labor cost trap that has both negative effect on productivity as well as potentially inequality
- Korea is a lesson in that state run industrial policy that favors only a small number of large corporations is not sustainable (compare to German industrial ecosystem, and the strong role of "Mittelstand" companies)
- Vietnam may be a cautionary lesson in the excessive dependence on FDI, and failure to build the country's own industrial ecosystem
- As a base rule, Asian companies can innovate if they leverage their inherent advantages in a creative way
- Inclusiveness is critical to success it implies seeking to get the most of all members in the society (also immigrants in the country and diaspora abroad)
- However, in order to develop a growing economy, the nation's policy ecosystem must address the needs of the entire company development path piecemeal solutions do not work (see also Josh Learner, *Bulevard of Broken Dreams*)





