

Sourcing Innovation From Emerging Markets:

What Can We Learn From China?

**Innovation in India and China: How to Create
Value from Emerging Markets**

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Today China is a Significant Base for Multinationals' R&D

China is close to surpassing Japan in total research spending

- From almost nothing a decade ago

China's corporate R&D is almost on par with Europe as a % of GDP

Over 300 multinationals have established R&D centres in China

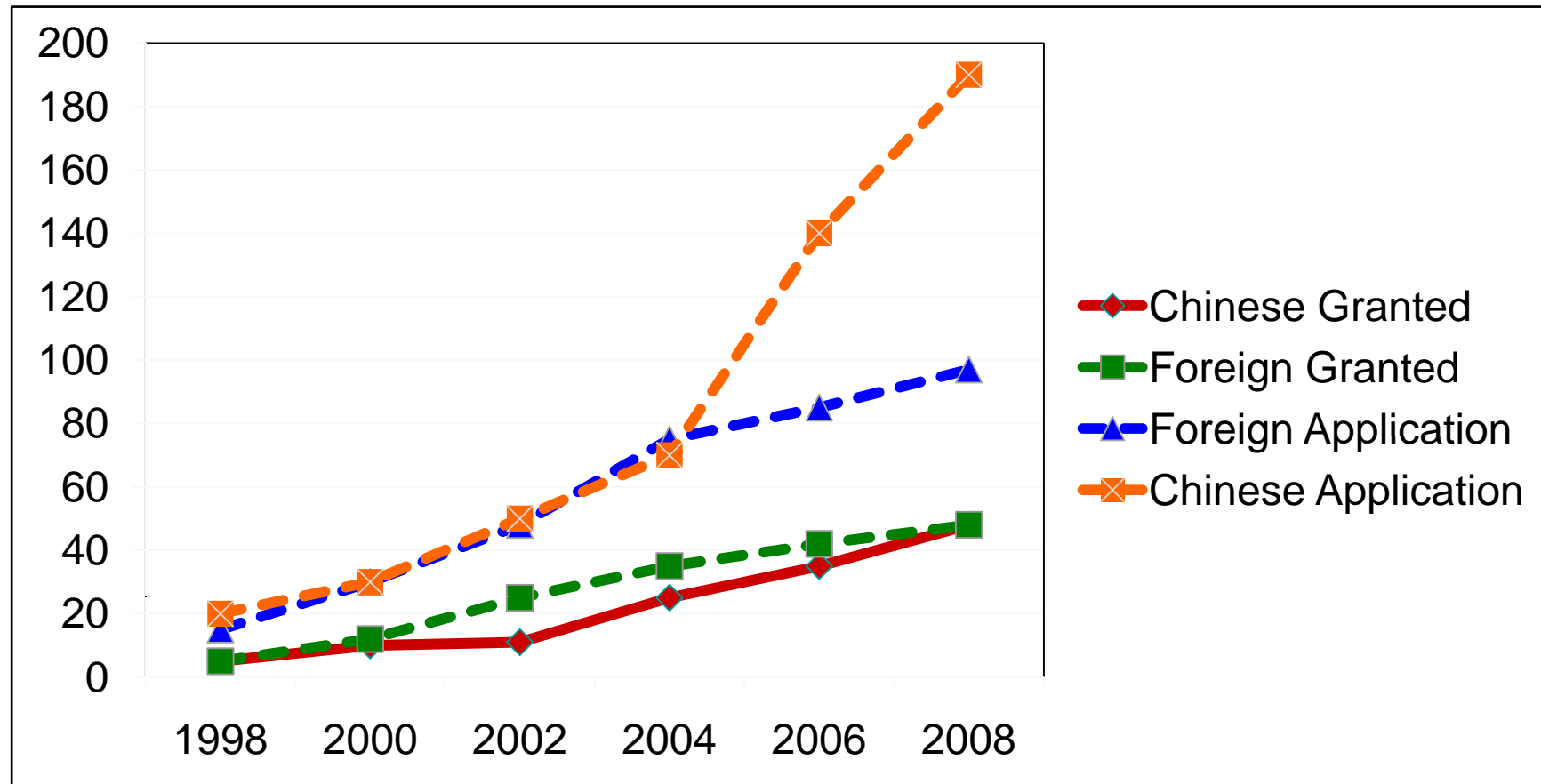
Multinationals account for 25-30% of all R&D in China

- Similar % to Europe (OECD 2007)



... And the Results are Showing Up in Patent Data

Chinese Invention Patents '000s



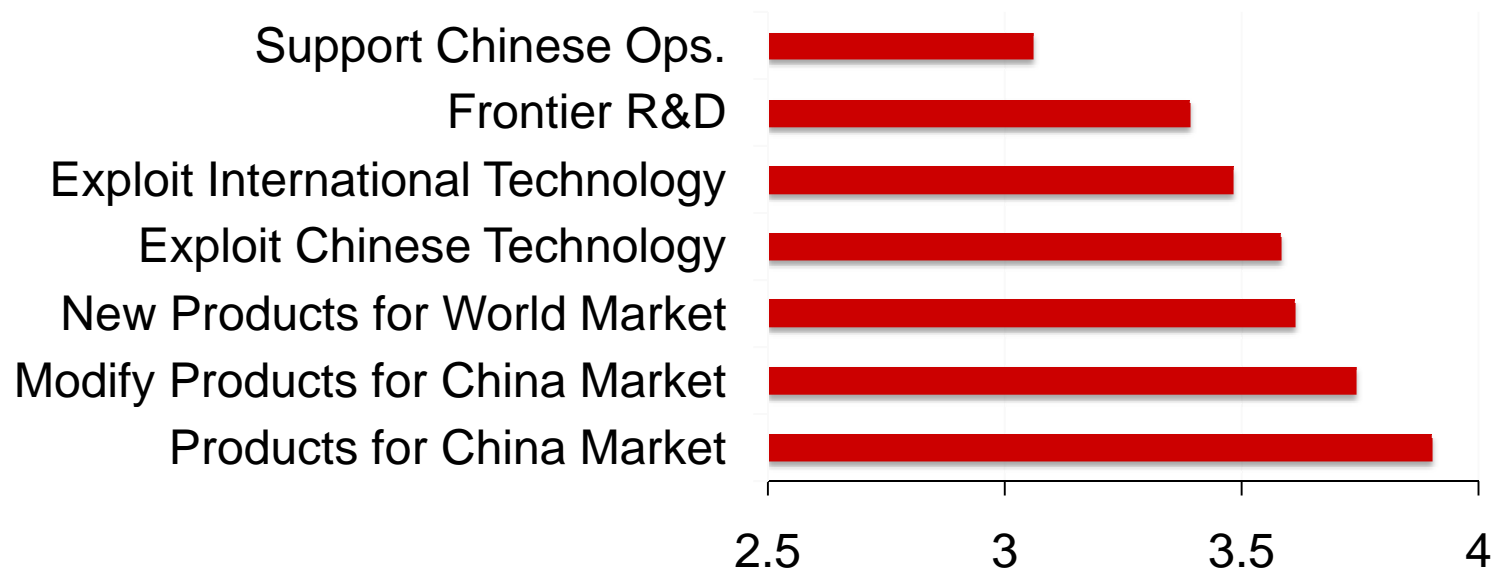
Source: State Intellectual Property Office China



R&D For Most Multinationals Began With Local Adaptation But Has Developed

Taking advantage of costs of engineers and scientists of only 20-25% of the equivalent cost in the US or Europe and tapping into the volume of total graduates (6 million last year)

Objectives of MNC's R&D Centres in China



Source: Xue Lan, 2007



So What Can We Learn From China?

“Innovate”

Origin: Mid 16th Century Latin innovare,
from *in-* “into” + *novare* “make new”

In the business world we often make the (implicit) assumption that this means new technology, extended functionality, and higher specification

But innovation can also be about novel ways of achieving lower cost and better value for money!

“Cost Innovation”: *“Focusing innovation on delivering a step-change in value-for-money”*



The Three Faces of Cost Innovation

Challenging existing business models:

Conventional Wisdom	Cost Innovation Challenge
High technology for high-end products and segments	Technology rapidly applied to mainstream markets
Variety and customisation comes at a price premium	Variety at low cost penalty
Niche products are low volume, high price	Niche products re-engineered for the mass market





Technology for the Mainstream Zhongxing Medical (X-Ray)



Digital Direct X-ray Equipment (DDX)

- Global market dominated by GE and Philips who use DDX for high-end applications (eg heart scans)
- Foreign machines cost \$400,000
- Zhongxing obtained the base technology from its parent: Beijing Aerospace
- Decided to apply the DDX technology to every-day applications like chest X-rays





Technology for the Mainstream: Zhongxing Medical (Continued)

By re-engineering the technology and ancillary equipment, Zhongxing's machine cost just \$20,000 to build

- Plug compatible with hospitals' existing IT systems
- Functionality optimised for mainstream applications
- Compared to \$150,000 for GE and Philips models

Zhongxing took 50% of Chinese market

- Philips withdrew from segment
- GE cut prices by 50%

Zhongxing now aggressively expanding into overseas markets, already largest in Asia



BYD Brings Lithium-Ion Batteries to the Mass Market



In the late 1990s Lithium-ion batteries offered much better performance (longer time between charges, quicker charging time, no “memory effect” etc)

But they were much more expensive and so equipment manufacturers only used them in high-end products

BYD’s cost innovation:

- Worked out how to replace expensive raw materials with cheaper substitutes
- Learn how to manufacture at ambient temperature and humidity, eliminating the need for expensive “dry-cool” rooms
- Cost was reduced from \$40 per unit to under \$12

Became a world-leader by bringing high technology to the mass market



Today BYD is Bringing Advanced Batteries to the Electric-Hybrid Car



Launched at the Detroit Motor Show 2009

Proprietary 20 kWh lithium-ion pack capable of 60 miles of range

Expected to retail at US\$6,000





Variety and Customization at Low Cost: ZPMC

Started by assembly (Initially half of the components were imported)

Re-engineered the design process and hired 800 design engineers

Launched a wider and more customized product line than any global competitor

- GPS system for RTG auto-steering and container management, failure displaying and monitoring system, intelligent spreader, automatic positioning system and anti-collision systems

52% of the world market in harbour cranes!



Exploding Niches: Haier's Wine Coolers vs Niche Competitors

La Sommelière

\$1,600



Haier

\$704



**Haier grew market 10,000% over two years
and has 60% of US Market (by value)!**



Cost Innovation is Increasingly Important to Win Globally

Growth will come to those who thrive in supplying emerging markets

- By 2005 the GDP of emerging economies move above 50% of total world GDP measured at PPP

The “value for money” segments in developed markets are becoming more important

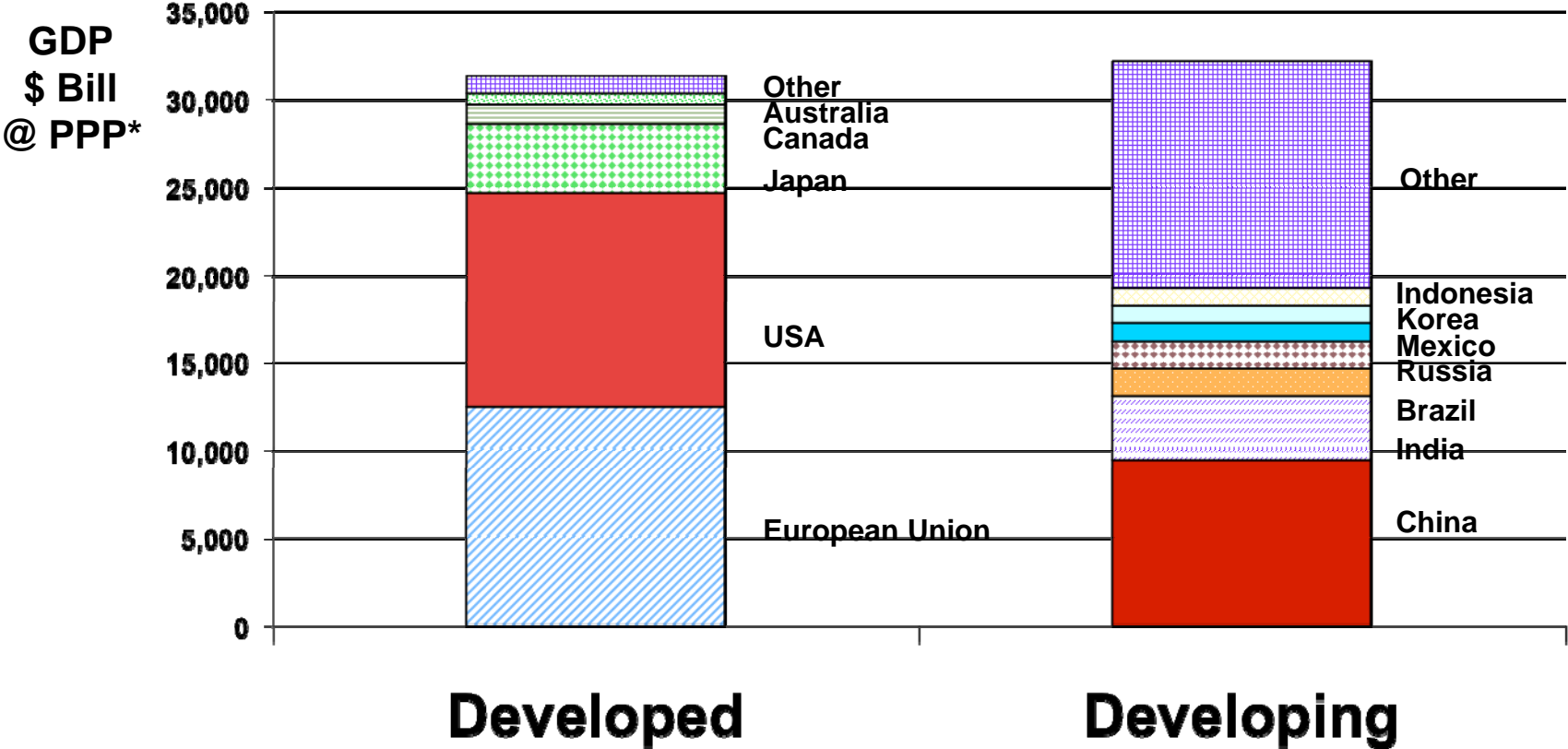
- Real incomes of significant sectors of the population have stagnated or declined with shifts in global labour

Global retailing is becoming increasingly concentrated

- Eg Wal-Mart, Tesco, Carrefour



Total Demand in the Developing World Surpassed the Developed Markets by 2005

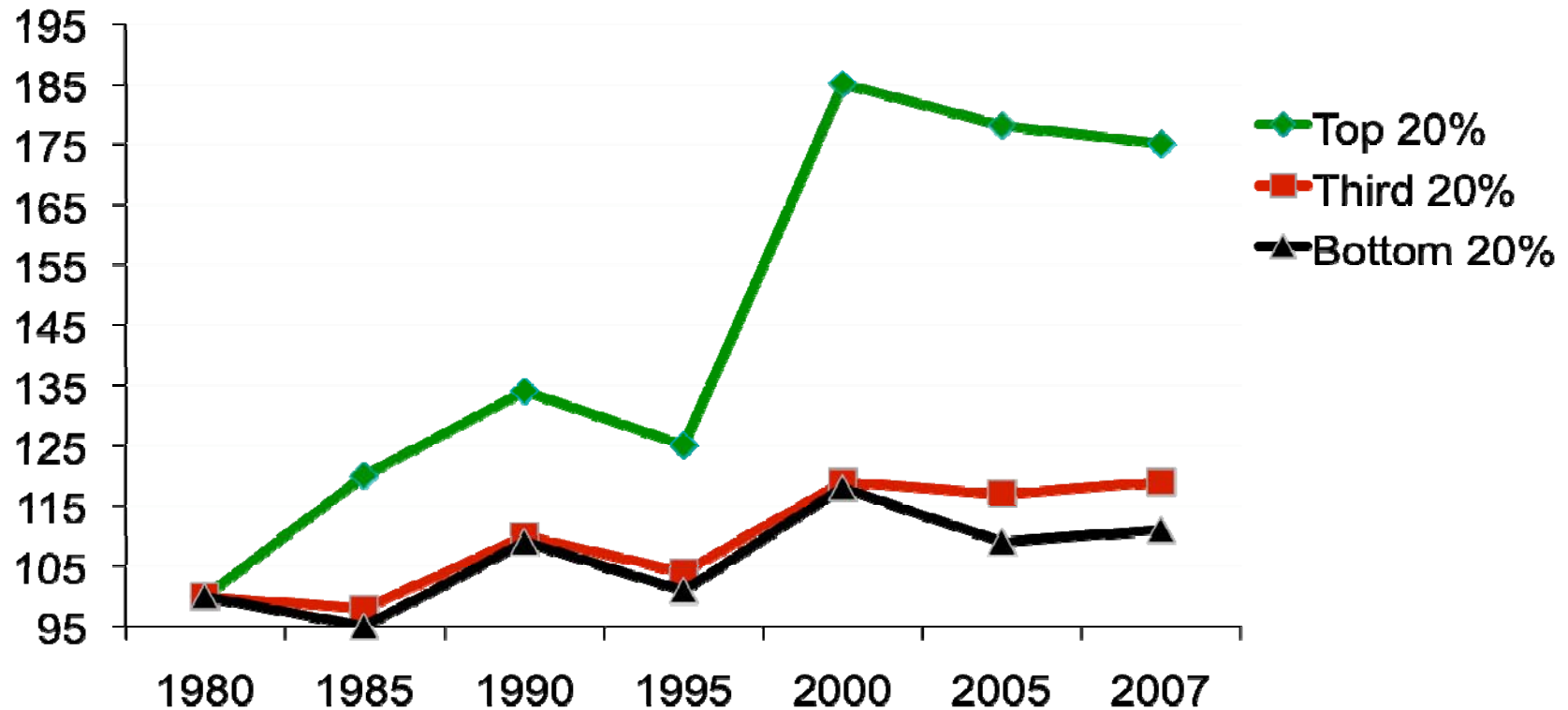


* Purchasing power parity Data Source: International Monetary Fund

Large Value-For-Money Segments Are Emerging in Developed Markets, Eg USA

Index
1980 = 100

Shifts in US Real Incomes



Data Source: Piketty & Saez



What Are the Options for Western Incumbents?

- 1** Match cost innovation
 - Reconfiguring their global value chain to leverage low Chinese costs across a broader range of activities (Engineering, R&D, service and support)
 - Learning from China
- 2** Acquire or ally with the Chinese to improve global competitiveness
 - But potential and the pitfalls



Learning Cost Innovation By Giving China a Global Mandate

Extent Of Cost Advantage	Broad	China Hand	China Global Mandate
	Narrow	China Market	China Source
		Local	Global

Role of China



Giving China A Global Mandate For Certain Product Lines

In August 2005, when Intel announced that global responsibility for its Channel Platforms Group (CPG) would be shifted to Shanghai. This was the first time Intel had ever transferred the global leadership of one of its five major strategic business units outside the United States.

Philips has taken the step of giving its Chinese subsidiary the global mandate for supplying TV sets—from R&D through design, manufacture, and global marketing.

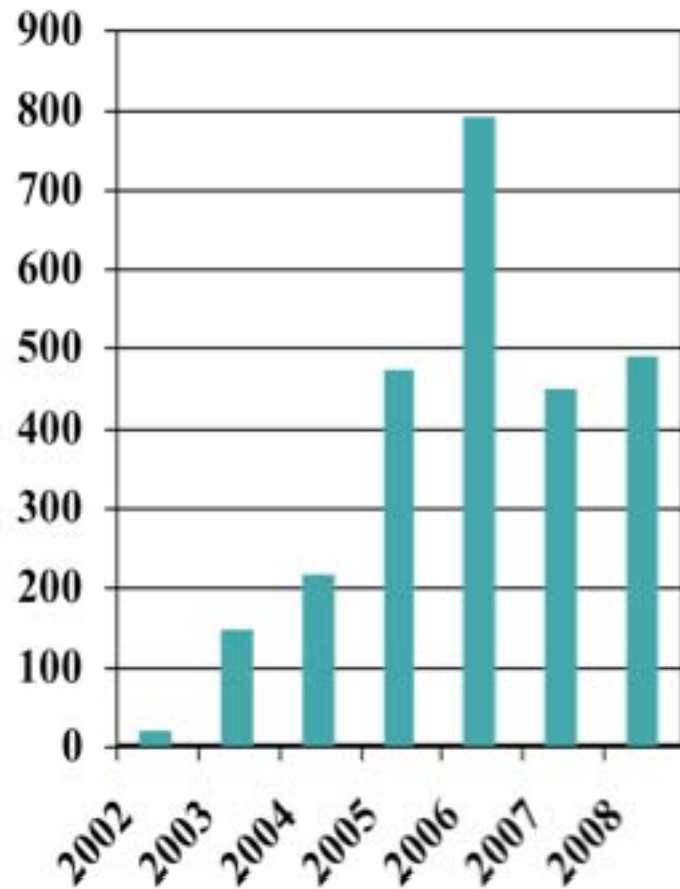
GE Medical's Chinese subsidiary is responsible for the bulk of GE's global business in CT medical scanners.



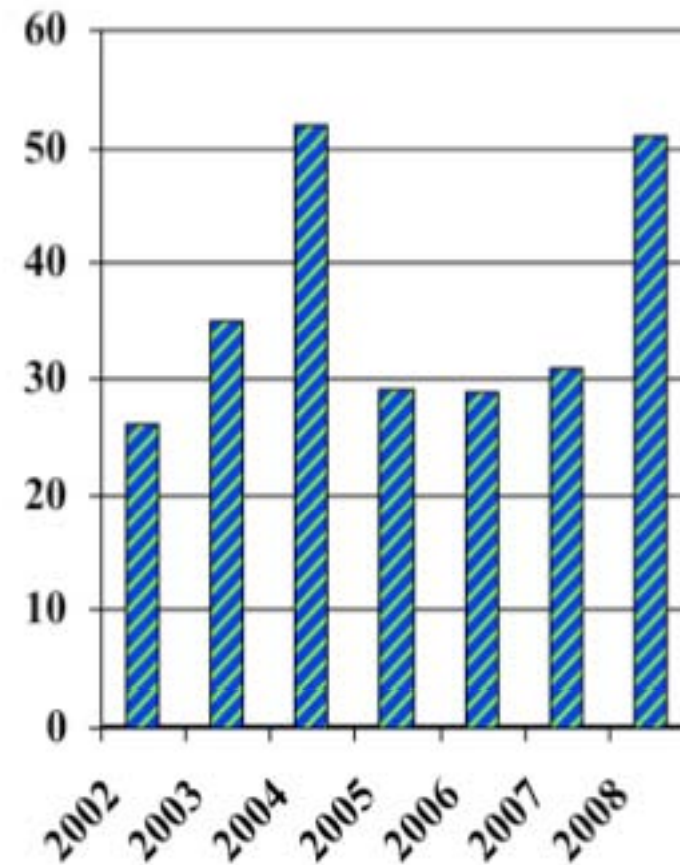
M&A in China is Another Option

Acquisitions in China by Foreign Companies

No. of Deals



Value \$Bill



Source: M&A Asia



Alliances Targeted Globally May Be Powerful in Winning This New Race

“Thinking about winning in China
is not thinking big enough”

Chairman of Toshiba, 2003

3Com and Huawei joint venture to fight Cisco's dominance

- Huawei-Bain Capital attempt to buy 3Com

Chery in alliance with Fiat

- Fiat-Chery JV to manufacture 175,000 cars p.a. from 2009
- Joint marketing agreement for Alfa-Romeo

Cummings Inc and Beiqi Foton joint development of new engines for the global market





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