

# An ongoing global revolution in business is transforming 'the secrets of competitive success'. Control is now strategically more important than ownership

## A new competitive landscape

OVERVIEW

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Since the 1980s there has been an explosion of mergers and acquisitions in retailing, and, for the first time, the appearance of global firms in industry.

Nothing more powerfully symbolises this transformation than the rise of Wal-Mart to the position of number one in the *Fortune* 500 in 2001. Wal-Mart has 1.4 million employees, sales revenue of US\$220 billion in 2001, profits of almost US\$7 billion, and occupies a leading position in such important international markets as Mexico and the UK, while expanding at high speed in key developing country markets such as China. Giant retailers account for 49 of the global *Fortune* 500 companies.

This "globalisation" of retailing is both a cause and an effect of far-reaching strategy changes among leading players in consumer goods industries. Just as Wal-Mart's performance highlights the rewards of "getting it right", so the

collapse of K-Mart and the current travails of Ahold illustrate the intensity of today's competition – and the risks of "getting it wrong".

It's all the more important, therefore, that we understand the context and direction of this great trend towards globalisation – it adds up to a new global business revolution.

At the heart of this revolution is a new form of "separation of ownership and control". Encouraged by advances in IT, core firms within the value chain are increasingly exercising tight control over firms across the whole value chain, both upstream and downstream.

The winners in this process are establishing competitive advantages with high global market share, global brands, high R&D and IT expenditure, and core business focus which should sustain their momentum well into the 21st century.

Firms wishing to be selected as

**Exhibit: Reported market shares for various industrial sectors**

Firm	Business activity	Market share
<b>Complex equipment</b>		
Heidelberger Druckmaschinen	printing presses	20
Xerox	printing presses	15
MAN Roland	printing presses	9
KBA	printing presses	5
CNH (Case/New Holland)	farm equipment	31
Deere	farm equipment	26
Agco	farm equipment	12
<b>Aerospace</b>		
Boeing	commercial aircraft over 100 seats	70
Airbus	commercial aircraft over 100 seats	30
Rolls-Royce	aero-engine orders	34
GE	aero-engine orders	53
Pratt & Whitney	aero-engine orders	13
Pechiney	aluminium aerospace products	40

Note: Market share figures for all tables in this exhibit are approximate, and by various measures (volume, sales etc). Sources include *Chemical Market Reporter*, Morgan Stanley Dean Witter, *New Straits Times*, *Frankfurter Allgemeine Zeitung*, *Financial Times* and *Ward's Auto World*

“aligned” or “partner” suppliers to these leading systems integrators must agree to co-operate, opening their books, planning their new plants, organising their R&D, preparing their production schedules and delivering their products to the core firms.

This is a new form of industrial planning which extends across the boundaries of formal ownership structures and radically undermines old ideas of the size and nature of the firm. It amounts to nothing less than a comprehensive transformation in the supply chain which sits at the heart of ECR, including not only fast-moving consumer goods (FMCG) firms, but also all the surrounding industries, including packaging, materials – steel, aluminium, glass, plastics – transport, logistics, the media, financial services, and, especially, information technology.

It also presents a fundamental challenge for mainstream economic theory, especially the theory of the firm, for competition policy in the high-income countries, for industrial policy in developing countries, and, indeed, for international relations.

#### A global business revolution

In the 1990s, several forces interacted to drive forward the global big business revolution. They included the liberalisation of trade and capital flows, privatisation, the collapse of communism,

advances in information technology and migration.

First, the 1990s saw a significant widening of the scope of trade liberalisation measures, including trade and foreign investment in services. By the late 1990s, 47 per cent of service sectors in industrialised countries and 16 per cent in developing countries had been liberalised<sup>4</sup>. The vast bulk of FDI flows were between the advanced economies.

Developed countries have consistently accounted for more than 90 per cent of outflows of world FDI – 93 per cent in 1987/1992, and 92 per cent in 1998 – and their share of inflows is typically around three-quarters of the world total<sup>3</sup>.

The US has been much the largest recipient of FDI inflows, accounting for 30 per cent of the world total in 1998<sup>3</sup>.

Second, privatisation and the collapse of communism have opened up huge areas of the economy to private capital in large parts of Europe, the former communist countries and developing countries. This provided an important stimulus to the “animal spirits” of Western investors.

Third, information technology is central to stimulate institutional change of global firms in the epoch of the big business revolution. And finally, a key feature of the global business revolution is that a significant proportion of the most highly skilled workers in developing countries has migrated to work in the

## Large firms have narrowed their business activities, selling off 'non-core' businesses in order to develop 'core' businesses. Their goal: global market leadership



knowledge-intensive industries of the high-income countries.

Successful firms have secured their competitive advantage through a number of inter-related mechanisms.

- *Core business* The global business revolution witnessed a widespread narrowing of the range of business activity undertaken by the individual large firm. A massive restructuring of assets took place, with firms extensively selling off "non-core businesses" in order to develop their "core businesses".

The goal for most large capitalist firms became the maintenance or establishment of their position as one of the top two or three companies in the global marketplace. The mantra for globally successful business became, "If you're not number one, two or three in the world, you shouldn't stay in the business".

- *Brand* This epoch has seen for the first time the emergence of truly global brands. Their penetration of consumers' consciousness across the world has been facilitated not only by the global spread of production centres but also by a globalised mass media.

Successful brands spend billions of dollars on marketing. This includes not only the obvious forms of brand-building – notably advertising – but also less-obvious forms, such as building a global network of marketing machinery to distribute branded goods in close

proximity to customers.

Moreover, in their search for ever-more effective brand-building, some of the world's most successful branded goods companies are sharply narrowing their range of products to obtain greater impact from their marketing outlays. The first-movers in this race are able to shape the consumption habits of the world's population for a long period to come.

- *R&D* Spending on R&D by the world's leading firms rose at high speed alongside the acceleration in mergers and acquisitions. From a plateau of around \$160 to \$170 billion in the early 1990s, R&D spending by the world's top 300 firms accelerated to more than \$240 billion in 1998<sup>1</sup>, growing at 13 per cent per annum from 1995 to 1998.

However, this data fails to capture the full extent of the real increase. A large fraction of the increased expenditure was on information technology hardware to facilitate R&D which was dramatically falling in price in terms of the functional capability being purchased for a given investment. The technical capability of the world's leading firms advanced at high speed in this epoch. Large multinational companies are the chief repositories of the world's stock of economically useful knowledge and skills.

- *IT expenditure* The period of the big business revolution saw a massive increase in expenditure by the world's leading

Exhibit (cont): **Reported market shares for various industrial sectors**

Firm	Business activity	Market share
<b>Trucks</b>		
Daimler-Chrysler	trucks	15
Navistar	trucks	8
Volvo	trucks	8
General Motors	trucks	8
<b>Auto components</b>		
Bosch(Zexel)	diesel fuel injection pumps	52
Delphi	diesel fuel injection pumps	21
Kelsey Hayes	ABS brake systems	16
ITT	ABS brake systems	25
Bosch	ABS brake systems	31
Bridgestone	tyres	19
Michelin	tyres	18
Goodyear	tyres	14
<b>Chemicals/petrochemicals</b>		
BP Amoco	PTA	37
BP Amoco	acetic acid (technology licences)	70
BP Amoco	acrylonite (technology licences)	90

firms on IT hardware, software and services. For globally successful firms, the ability to undertake larger investment in IT systems allows numerous competitive advantages. These include deeper and more-effective interactions with suppliers and consumers, centralised global procurement, downsizing of the number of employees, more effective interactions between remaining employees, deeper research using data that can be analysed by new IT systems, better and more effective R&D programmes, and better monitoring of performance of complex equipment installed by customers.

In sectors from soft drinks through to complex aerospace machinery, a striking common characteristic of competitive advantage for the world's leading systems integrators is their ability to use information technology to integrate the entire value chain, binding together whole swathes of business activity within their sphere of influence.

This is a modern form of planning, guided by the market and the pursuit of profit, and encouraged by technical progress in information technology.

- *Financial resources* The big business revolution coincided with the largest and most prolonged boom ever seen in Western, and especially US stock markets. This process was fed by – and in turn fed – the explosion in mergers and acquisitions. Investors, especially the fast-rising

institutional investors, increasingly shifted their portfolios to the world's leading companies, with high global market share, global brands, high R&D, and core business focus that enable the businesses to be transparently analysed.

The lift in share values facilitated further mergers by enabling mergers to take place by offering shares in the dominant partner's company. Companies with a global competitive edge were able to support their growth through bank borrowing at lower rates of interest than are available to smaller competitors, and through large-scale corporate bonds.

#### **Industrial concentration**

By the late 1990s, there was a high degree of firm level concentration on a global scale in a wide range of sectors. In sector after sector, a handful of leading players accounted for one-half or more of the total value of the global market.

The process of concentration was most visible at the level of the global system integrators. By the end of the 1990s, there was a high degree of concentration at a global level in numerous consumer goods categories as well in a wide range of industries which constituted the upper reaches of their extended value chain, including industries as diverse as packaging, metals, trucks, aerospace, packaging equipment, power equipment, farm equipment, printing equipment, IT

## Systems integrators use information technologies to integrate the entire value chain, bringing whole swathes of business within their sphere of influence



hardware and software, oil and petrochemicals, mining, paper, financial services and advertising. (The exhibit running through this article presents some rough and ready data on this issue).

- *Merger frenzy* Mergers played a central role in the growth of the large capitalist corporation. Merger activity has typically intensified in the final phase of a bull market on the stock exchange, as firms use their increased stock market “wealth” to finance takeovers.

Transnational mergers and acquisitions increased at an extraordinary rate. From US\$156 billion in transactions in 1992, the global total soared to at least US\$3,300 billion in 1999. This extraordinary chapter in the history of capitalism is over for the time being. However, it will shape the fundamental features of the global business structure for a long period ahead, as did the US merger boom of the 1890s.

- *Cascade effect* The process of concentration through simultaneous de-merger of non-core businesses and merger of core businesses cascaded across the value chain at high speed. Leading firms, with powerful technologies and marketing capabilities were actively selecting the most capable among their suppliers, in a form of “industrial planning” to select “aligned suppliers” which could work with them across the world.

This created intense pressure for first-tier suppliers of goods and services to

consolidate. And they, in turn, passed on intense pressure to their own supplier networks. The result of this process was a fast-developing process of concentration at a global level in numerous industries supplying goods and services to the systems integrators. In sector after sector, high levels of global concentration began to emerge among the first-tier suppliers. Of course, in the lower reaches of each of the supply chains there was typically a large number of small and medium-sized firms.

In the extended supply chain around the FMCG and retail industry, this process was visible in a wide range of supplier industries, including trucks, shipping companies, packaging, IT hardware and software, advertising, accountancy, and investment banking. The process was driven by the same remorseless logic across all sectors among the first-tier suppliers to these industries.

After Rexam’s takeover of American National Can Company, to push the company into the top tier of the global packaging companies, its chief executive, Rolf Borjesson, commented: “We were driven by consolidation in the market. Our customers are becoming bigger and bigger and they want fewer and larger suppliers – it makes life easier for them<sup>5</sup>.”

But the cascade effect did not stop at the first-tier suppliers. For example, around the truck industry, the process of

Exhibit (cont): **Reported market shares for various industrial sectors**

Firm	Business activity	Market share
<b>Fast-moving/branded consumer goods</b>		
Coca-Cola	carbonated soft drinks	51
Unilever	ice cream	18
Nestle	ice cream	18
Reckitt Benckiser	wash fabric care	23
Reckitt Benckiser	dish washing powder	38
Procter & Gamble	tampons	48
Gillette	razors	70
Nike	sneakers	36
Fuji	camera film	32
Kodak	camera film	35
Konika	camera film	11
Japan Tobacco	cigarettes	7
Imperial Tobacco	cigarettes	4
Philip Morris	cigarettes	14
BAT	cigarettes	12

concentration has led to the emergence of a tiny number of giant leading suppliers of key components. Around the packaging industry, there is now a small number of leading global suppliers of high-quality steel, aluminium, paper and plastics, and machinery builders.

**'The external firm'**

If we define the firm not by the entity which is the legal owner, but rather by the sphere over which conscious co-ordination of resource allocation takes place, then, far from becoming "hollowed out" and much smaller in scope, the large firm can be seen to have enormously increased in size during the global business revolution.

As the large firm has "disintegrated", so has the extent of conscious co-ordination over the surrounding value chain increased. In a wide range of business activities, the organisation of the value chain has developed into a comprehensively planned and co-ordinated activity. At its centre is the core systems integrator.

This firm typically possesses some combination of a number of key attributes. These include the capability to raise finance for large new projects, and the resources necessary to fund a high level of R&D spending to sustain technological leadership, to develop a global brand, to invest in state-of-the-art information technology and to attract the

best human resources.

Across a wide range of business types, from FMCG to aircraft manufacture, the core systems integrator interacts in the deepest, most intimate fashion with the major segments of the value chain, both upstream and downstream.

**Effects upstream**

Increasingly, leading first-tier suppliers across a wide range of industries have established long-term partner or aligned supplier relationships with the core systems integrators.

These relationships have many common characteristics. First, leading first-tier suppliers plan in minute detail the location of their plants in relation to the location of the core systems integrator.

Second, increasingly, the case that the aligned supplier produces goods within the systems integrator itself. It is common for leading suppliers of specialist services, such as data systems or even travel agents, to physically work within the premises of the systems integrator.

Third, leading first-tier suppliers plan their R&D in close consultation with the systems integrator. Fourth, product development is intimately co-ordinated with the systems integrator. This can apply as much to the development of a new packaging design such as a bottle or can, as to the design of an aircraft engine for an airliner.

## First-tier suppliers' production and supply schedules are comprehensively co-ordinated with systems integrators across many areas of business activity



Finally, precise product specifications are instantaneously communicated to the leading suppliers through newly developed information technology. The production and supply schedules of leading first-tier suppliers are comprehensively co-ordinated with the systems integrator to ensure the required inputs arrive exactly when they are needed and the inventory of the systems integrator is kept to a minimum.

### Effects downstream

Planning by systems integrators also extends downstream. Manufacturers of complex capital goods, from aircraft and power stations to autos and earth-moving equipment, are increasingly interested in the revenue stream to be derived from maintaining their products over the course of their lifetime.

New information technology is increasingly being used to monitor the performance of complex products in use, with continuous feedback to the systems integrator in order to construct optimum servicing schedules. Through this pervasive process, systems integrators deeply penetrate a wide range of firms which use their products.

However, penetration of the downstream network of firms is not confined to complex capital goods. Systems integrators in the FMCG sector increasingly co-ordinate the distribution

process with specialist logistics firms in order to minimise distribution costs. They work closely with grocery chains and other selling outlets, such as theme parks, movie theatres, oil companies – petrol stations have become major locations for retailing non-petrol products – and quick-service restaurants, to raise the technical efficiency in the organisation of the selling process. And the FMCG systems integrators often have their own experts working within the retail chain.

Moreover, a large corporation might have a total procurement bill of many tens of millions of dollars. The total procurement could involve purchases from firms that employ a much larger number of full-time equivalent employees “working for” the systems integrator than are employed within the core firm itself.

There is typically a large sphere of downstream business activity which is co-ordinated by the systems integrator. A leading systems integrator with 100,000 to 200,000 employees could easily have the full-time equivalent of a further 400,000 to 500,000 employees working for the systems integrator, in the sense that their work is co-ordinated in important ways by the core firm.

In this sense, we may speak of an “external firm” of co-ordinated business activity that surrounds the modern global corporation and is co-ordinated by it.

Exhibit (cont): **Reported market shares for various industrial sectors**

Firm	Business activity	Market share
<b>IT/electronics hardware and software</b>		
Lucent	ATM carriers for ISPs	34
Cisco	ATM carriers for ISPs	20
Alcatel/Newbridge	ATM carriers for ISPs	15
Nortel	ATM carriers for ISPs	15
Alcatel	DSL	41
Lucent	DSL	16
Intel	micro-processors	85
Microsoft	PC operating systems	85
Microsoft	word processing applications	90
Microsoft	business desktop computer applications	90
Cisco	computer routers	66
Cisco	high end routers	80
Corning	optical fibres	50
Hynix	DRAMS	17
Samsung Electronics	DRAMS	29
HP	notebooks and desktop PCs	11
Dell	notebooks and desktop PCs	9

**Effects on employment**

It is widely thought that the average size of large corporations has declined since the late 1980s due to the impact of downsizing and the relentless pursuit of cost reduction. However, this is far from clear.

What appears to have happened is that the impact of mergers and acquisitions has frequently stimulated an increase in the total number of employees within the entire merged company, alongside considerable corporate downsizing within each of the merged entities.

The functions of the core systems integrator have changed radically away from direct manufacturing towards “brain” functions of planning global development of the firm. The proportion of employees working outside the home market has sharply increased. However, the world’s leading firms remain very large entities, not only in terms of their revenues, but also in terms of direct employment. Employment remains large, but slow-growing or even declining somewhat alongside rapid acceleration of revenues.

**Internal structure**

Within the old “Fordist”, vertically integrated large corporation, the different departments had considerable autonomy and the problem of monitoring performance of subordinate units was a serious and widely discussed issue. Even

more difficult were the problems involved in monitoring performance in foreign branches of multinational companies.

National branches of major multinational corporations typically developed a high degree of operational autonomy. Leading multinational firms often likened their structure to a feudal system, within which local chiefs had high degrees of independence.

But new information technology has drastically increased the possibilities for close monitoring of performance within the firm, even across the entire globe. The “business unit” structure adopted by many firms typically involves constant monitoring of performance in a way that was quite impossible even a few years ago.

**Planning and co-ordination**

Through the hugely increased planning function undertaken by systems integrators, encouraged by recent developments in information technology, the boundaries of the large corporation have become significantly blurred. The core systems integrators across a wide range of sectors have become the co-ordinators of a vast array of business activity beyond the boundaries of the legal entity in terms of ownership.

In order to develop and maintain their competitive advantage, the systems integrators deeply penetrate the value chain both upstream and downstream,

Thanks to the increased planning undertaken by systems integrators, the boundaries of the large corporation have become significantly blurred



becoming closely involved in business activities that range from long-term planning to meticulous control of day-day production and delivery schedules.

Competitive advantage for the systems integrator requires that it must consider the whole value chain in order to minimise costs across the whole system.

Frequently, the same first-tier supplier is part of the supply chain of many industries. For example, the leading aluminium producers, such as Pechiney, are part of the external firm of both the world's leading beverage makers, through their relationship to the aluminium can industry and other packaging uses, as well as being a key part of the world's aerospace industry.

The world's leading steel firms, such as Usinor, are part of the external firm of the world's leading truck and auto makers, the leading packaging firms – notably metal cans – as well as the leading construction companies which make the giant shopping emporia across the world.

The world's leading plastic makers, such as BP, are part of the external firm of both the leading global auto and truck makers – cars and trucks increasingly use plastic components – as well as the packaging industry, for example, through the supply of resins to the packaging industry. The respective external firms can be conceived of as a series of “overlapping sets”, which extends the

realm of “conscious co-ordination” across different supply chains.

#### **A new inequality?**

Regions containing a small fraction of the world's population have massively dominated the global big business revolution. The high-income economies contain just 16 per cent of the world's total population. Yet in 1997, they accounted for 91 per cent of the world's total stock market capitalisation, 95 per cent of the *Fortune 500* list of companies (ranked by value of sales), 97 per cent of the *FT 500* (ranked by value of stock market capitalisation), and 99 per cent of the world's top 300 companies by value of R&D spending.

In sharp contrast, developing countries are massively disadvantaged. The starting points in the race to dominate global markets could not be more uneven. The whole of the developing world, containing 84 per cent of the world's population, contains just 26 *Fortune 500* companies, 16 *FT 500* companies and 15 competitive edge companies<sup>2</sup>.

There is also a deeply uneven distribution of business power – US firms are dominant. US-based companies have been at the forefront of the acceleration of foreign direct investment since the mid-1980s. American FDI outflows rose from an annual average of US\$25 billion in 1986-1991 to US\$115 billion in 1997, and the USA's

Exhibit (cont): **Reported market shares for various industrial sectors**

Firm	Business activity	Market share
<b>IT/electronics hardware and software (cont)</b>		
Palm	hand-held computers	32
Compaq	hand-held computers	16
Sony	electronic games	67
Nintendo	electronic games	29
Ericsson	mobile phones	15
Nokia	mobile phones	23
Motorola	mobile phones	20
<b>Metals and mining</b>		
Arcelor	steel	7
	flat stainless steel	11
	flat carbon steel	13
Alcoa	free market alumina supplies	50
Alcoa	primary production smelted aluminium	15
Alcan	primary production smelted aluminium	8

share of total world FDI outflows rose from 14 per cent in 1986-1991 to 27 per cent in 1997<sup>3</sup>.

Moreover, the process had a powerful element of cumulative causation, with successful investment generating further investment – around 60 per cent of US outflows of FDI in 1994-95 was financed out of reinvested profits<sup>3</sup>. In the period 1986-91, Japan's outflows of FDI were 28 per cent greater than those of the US, but by 1997, the outflows of direct FDI from Japan had declined to only 23 per cent of those of the US<sup>3</sup>.

The leading US-based companies have led the way in the resurgence of big business investment in R&D. In 1997 no less than 135 of the top 300 companies by R&D spending were based in North America<sup>4</sup>, compared with 93 in Europe, 69 in Japan and only three in developing countries.

The pace of growth of US companies' investment in R&D was much faster than across the rest of the world, rising by 15 per cent in 1997 and 19 per cent in 1998<sup>5</sup>. Moreover, the US dramatically dominated the high-technology sectors. The IT hardware sector is much the most important single category of R&D expenditure, with no less than 57 of the top 300 companies by R&D spending in 1998<sup>5</sup>. Of these, 37 are US-based companies.

Furthermore, the role of the state is also crucially important in the overall

technical progress of the US economy. Thirty-six per cent of total US expenditure on R&D is funded by the Federal Government. For fiscal year 2001, 51 per cent (\$44 billion) of Federal Government outlays on R&D will be allocated to the civilian sector and 49 per cent (\$42 billion) to the military sector, according to the White House web site. A large fraction of this funding for R&D is channelled to the giant corporations which dominate private R&D spending.

In 1996, the US had 28 of the top 100 companies ranked by value of overseas assets<sup>3</sup>. By 1998, North American firms accounted for 37 per cent of the *Fortune* 500 ranking of the world's leading firms, ranked by sales value.

US dominance of the big business revolution is reflected also in the *Competitive Edge* studies published by Morgan Stanley Dean Witter<sup>6</sup>. These studies ranked companies by their capacity to have a sustainable competitive edge in the global economy, which is closely linked to global market share. In 1998 MSDW identified a total of 238 companies which were "world leaders". Of these, 134 were North American, compared with 18 from Japan. In the *FT*'s ranking of the world's top 500 companies, ranked by market capitalisation, North America had 254 companies in 1998, accounting for more than one-half of the total.

The USA's dominance of world stock

## Today, there is a deeply uneven distribution of business power – US firms dominate. Even the largest European companies have struggled to match them

market capitalisation is crucially important in the epoch of explosive concentration through merger and acquisition. In a virtuous circle of growth and concentration, firms with high stock market capitalisation can more easily take over and merge with those with lower stock market capitalisation.

Well-focused mergers further enhance stock market capitalisation, paving the way for further expansion through merger and acquisition. Even the largest European companies have often found it hard to match the merger and acquisition capability this provides for leading US firms.

For Japanese companies, to be seriously lagging in stock market capitalisation in this period of explosive restructuring of international big business was a deep disadvantage for the long-term positioning of large Japanese firms in the global economy in the 21st century. For the vast majority of firms from developing countries, with trivial market capitalisations compared with the global giants, it is inconceivable that they can participate in the global merger explosion in a serious fashion.

### **Where next?**

The big business revolution has produced a dramatic transformation in the nature of the value chain, resulting in a comprehensive change in the nature of

the firm itself. The very existence of ECR reflects this revolution.

This transformation has proved immensely effective at meeting consumers' wants. It has stimulated a period of dramatic lowering of costs across the whole value chain. This has been achieved through an immensely improved co-ordination within the ECR value chain. The main agents of co-ordination have been the leading manufacturers within each sector, rather than the retailers, which have far too broad a spread of products to enable them to assume this function. They "delegate" it to their suppliers, but push them intensely to do so in order to meet customers' demands.

This revolutionary process has been encouraged by an explosion of technical progress in the wide range of industries which feed into the value chain. These involve, above all, the information technology industries, but include also the industries which produce the wide range of materials that compose the inputs into the packaging industry, as well as the machine-building industries which manufacture, transport and deliver final products to consumers.

Like all revolutions, this one contains many apparently contradictory and often ill-understood aspects that present challenges from many angles. The most complex concerns the enormous change in the nature of industrial structure. The

Exhibit (cont): **Reported market shares for various industrial sectors**

Firm	Business activity	Market share
<b>Pharmaceuticals/life sciences/cosmetics</b>		
GSK	prescription drugs:	7
	central nervous system	12
	anti-infection	17
	respiratory	17
	anti-asthma	31
	anti-herpes	49
Merck	prescription drugs:	5
	• statin anti-cholesterol	40
	• angiotension converting	30
	• enzyme inhibitors	
L'Oreal	mass-market hair colorants	32
Procter and Gamble	mass-market hair colorants	13
IFF	chemical flavours/fragrances	17
Givaudan	chemical flavours/fragrances	15

period has seen greatly increased industrial concentration within global markets for high value-added goods and services. This has applied not only to systems integrators but through the impact of the cascade effect, has flowed down across large swathes of the supply chain.

The outcome of market competition has been quite different from that which was predicted by the main body of “mainstream” economists. Not only have a wide range of markets within the global value chain become far more concentrated but at the same time, competition has intensified enormously.

As firms have grown in scale so they have increased their expenditure on research and development, marketing, procurement, human resource acquisition and training. Microsoft is close to being a global monopoly, but it spends close to US\$5 billion a year on research and development in order to keep ahead of potential rivals.

For a wide range of products, the consequence of greatly intensified competition between giant firms has been a falling real price alongside improving product quality. This period has challenged fundamentally the notion that the level of “competition” is directly related to the number of firms in an industry. Instead, it can be seen that measures of the level competition must take into account its intensity –

competition between a small number of highly-trained sports teams can be far more intense than that between thousands of small, Sunday afternoon teams.

Thus, the period of the global business revolution presents deep challenges both for orthodox economics and for competition policy. This challenge can be seen most vividly in ongoing confusion over competition policy within the EU.

The transformation of the industrial structure during this period also presents challenges for businesses that are expanding their activities within developing countries, and for policy makers and the general public within those countries.

The blunt reality is that the advances in business capability of firms across the length of the whole value chain, from the furthest upstream reaches of the mining industry to the furthest downstream reaches of retailing, mean the competitive challenge for firms based in developing countries has become much stronger.

Firms based in high-income countries encounter numerous bureaucratic obstacles to their expansion in developing countries. Also, there are some notable examples of large firms from developing countries which are able to compete on the global level playing field. However, the predominant story is one of retreat by firms from low-income countries in the

Exhibit (cont): **Reported market shares for various industrial sectors**

Firm	Business activity	Market share
<b>Packaging</b>		
Toray	polyester film	60
Sidel	PET plastic packaging machines	55
Alcoa	aluminium	24
Alcan	aluminium	16

face of the greatly intensified international competition within the high value-added markets.

Even though the global giants are able to offer consumers in poor countries the opportunity to buy more and better things, more cheaply, the reality of the inequality of the global level playing field (ie, a playing field in which everyone plays according to the same rules, but in which the players have very different strengths) presents a serious challenge to local business people and to strongly-held national sensibilities.

It also presents a deep challenge to orthodox economics, which predicts that firms from developing countries can respond to the “challenge” of competition on the global free market by increasing their efficiency and “catching-up”.

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