Corporate Strategies under Pressures of Globalization:

Globalfocusing

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March, 2009

Abstract

On the global stage, competitive advantages are gained by creating, transferring and exploiting competences across operations and locations internationally. In consequence, conglomerates are redesigning their strategies to focus on core businesses, yet with a global scope. De-diversification and internationalization thus complement each other in a process of "globalfocusing". This discussion paper outlines the shifts in the relative barriers to entry to countries and industries that have been driving these processes of change in corporate strategies on the global stage. On this basis, implications of the change in global strategy are derived for decision makers in both business and politics, reflecting the challenges of the global financial crisis.

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Introduction

Businesses across Europe face a continuously shifting and increasingly open competitive environment. In the 1980s, many companies focused on their national markets, but served a variety of different industry segments. In the new millennium, such domestic focus has become rare as European integration and globalisation have changed the nature of competition. On the global stage, competitive advantages are gained by creating, transferring and exploiting competences across operations and locations internationally. Businesses thus face enhanced opportunities for international growth, while the benefits of expanding into other industries domestically have diminished.

In consequence, conglomerates are redesigning their strategies to focus on narrowly defined core industries with a global scope. Thus, they simultaneously accelerate their internationalization while reducing their product diversification. De-diversification and internationalization thus complement each other in a process of "globalfocusing" (Meyer, 2006). This process is driven by shifts in the relative transferability of resources and capabilities across industries and countries due to the globalisation of markets, resources, supply chains and business models.

These changes in corporate strategies create new challenges for business leaders and policy makers. Business leaders not only have to manage international competition, but to pursue strategies that create and exploit complementarities and linkages in the global net of their operations. This requires changes of corporate strategies that involve new capabilities and may be risky to implement. Policy makers face businesses that are operating at supra-national levels, and thus less likely to react to national policies. Yet, national resource endowments, especially human capital, continue to attract business operations and thus national competitiveness.

Case Examples

The process often of globalfocusing evolves over many years, even decades. Nokia is renowned as a leading brand for mobile headsets, yet as recently as two decades ago, the mobile phone business generated merely 10% of the revenues of what was then an industrial conglomerate in Finland (Figure 1a, Table 1). Nokia quite literally 'hit gold' with its mobile handset design and marketing and then focused its resources on exploiting this goldmine, selling its other business units along the way. The main restructuring occurred in one major wave in the early 1990s, and since then Nokia has grown its competences in mobile telephony and is exploiting these competences increasingly by developing and marketing other communications devices. While focusing its product scope, Nokia has established its brand globally, backed up by global operations.

The phenomenon is equally common among medium-size companies, especially in business-to-business markets. For example, Danisco A/S was established in 1989 by a merger creating a Danish conglomerate integrating businesses loosely related to the food industry. Over the next two decades, it has gone through several phases of restructuring in which peripheral business units were sold, while businesses were acquired to strengthen the core business (Figure 1b, Table 1). Waves of rapid restructuring were followed by periods of organic growth, until such growth necessitated reconsideration of what is core, and what is periphery. In consequence, in March 2009 Danisco completed the sale of its erstwhile largest business unit, Danisco Sugar.

Figure 1a and 1b, and Table 1 approximately here

Change in a similar direction can be observed in major European conglomerates, though rarely as radical as in these two case examples. While strengthening the international operations of its core business, for example BASF divested its pharmaceuticals business, Siemens divested many of its IT-related businesses, while Philips divested 25 businesses in 1998 alone. In Spain construction conglomerates like FCC, ACS and Ferrovial have created a sharper focus while growing their service units internationally, and bank BBVA and Santander have divested their investment portfolios in industrial firms while growing their core banking business internationally. Other conglomerates, such as British Cadbury-Schweppes have split themselves into two independent companies.

These companies engaged in long-term restructuring from a conglomerate to a focused but highly international strategy over the past two decades. This process has created global players in single industries that have left those industries where they could not achieve market leadership. However, implementing such a strategic change is subject to substantial risks, as illustrated by the failure of the Daimler-Chrysler merger.

Competitive Advantages of the Global Specialist

Operating on the global stage provides companies with opportunities to create competences that may provide competitive edge over domestic firms. These opportunities arise from the exposure to a diversity of markets, resources and regulatory regimes. By linking operations across the different locations, multinational firms can develop unique competitive advantages:

1. ***Global scale***. Greater economies of scale can be attained by supplying multiple national markets from one site, thus reducing costs of, for instance, product development, production and distribution networks. Global scale moreover enhances bargaining power vis-à-vis suppliers and other business partners.
2. ***Global supply chains***. Firms can exploit comparative cost advantages across locations by disaggregating production and sourcing operations across different locations. This allows them to arbitrage even small differences in costs, especially for labour and raw materials.
3. ***Global R&D***. Integration of research and development (R&D) sites round the world allow access to a diversity of talent and knowledge clusters, and interaction with the most innovative customers, suppliers and researchers. Recently, the annual '*Global Innovation 1000*' report by Booz & Company (Jaruzelski and Dehoff, 2008) highlighted these contributions of global R&D. Notably, the report suggests that international linkages, rather than increased R&D spending per se, contribute to improved corporate performance.
4. ***Global knowledge management.*** The exchange of operational knowledge, experience and competences linkages across operations and locations are a potential source for innovations and new competencies. By creating and sharing databases and human capital across operations firms thus create a global knowledge pool that can support each individual operation.
5. ***Global customers***. Businesses serving other businesses often work with customers that themselves have a global scope of operation, and expect delivery of the same product or service at multiple sites. Firms with global distribution networks and

production sites in many business hubs are often better positioned to supply these key account customers, for example in the automotive sector.

Any of these international linkages provides multinational enterprises with opportunities to create and exploit resources. Compared to domestic competitors, they thus have potentially stronger operational capabilities, and more markets in which to apply them. Single country operations cannot realistically replicate the cost and dynamic advantages of an operation integrating multiple locations. Thus, even medium-size firms, such as the infamous German Hidden Champions, develop strategies aimed to dominate global niche markets (Simon, 1996; Venohr and Meyer, 2009).

Why?

Half a century ago, Edith Penrose (1959) argued that the growth of firms is driven by their resource endowments, particularly their managerial resources. Firms continuously develop new resources and seek applications for them, thus accumulating resources in a dynamic process. However, resources are typically bundled and thus indivisible and difficult to sell separately, which results in 'slack' resources that are not required for current operations, but can be a source of internal growth. The growth of a firm thus is a process of resource accumulation and redeployment. Firms expand when they have resources that they can share with new operations to strengthen existing market positions, to expand into new industries (i.e. product diversification), or to go international.

However, the nature of a firm's resources shapes the path of its growth (Figure 2). In particular, resources shape the relative merits of growth by domestic diversification, or by internationalization of the core business. Some capabilities may be specific to a country, but may be profitably transferred to other industries within this country. For example, the in-depth knowledge of consumers and marketing practices may enable strategies of 'brand extension' to loosely related products. Other resources are more specific to an industry but may be exploited in this industry in other countries. For example, technological expertise for product development can be a foundation for international growth.

****** Figure 2 approximately here ******

Resources drive growth, yet lack of resources can be a key constraint to corporate growth. Resources, especially managerial resources, can only be build a limited pace, known in the literature as 'Penrose constraint'. Rapid growth of any particular business thus may require firms to free resources elsewhere, for instance by divestment of peripheral activities and the acquisition on complementary resources external to the firm. The implementation of an acquisition however requires scarce managerial resources in the acquiring firm, while acquired management teams often cannot be readily integrated with the existing top management. Divestments would free managerial resources and thus enable new growth.

These processes of corporate growth are normally continuous over long periods of time, yet they are disruptive at times of strategic shifts. Periods of organic growth may be followed by waves of acquisitions and divestments. Once a firm exceeds its optimal size, after a period of growth, it may spin-off or sell a division to free managerial and financial resources for reinvestment into more profitable activities. Even when it has been profitable to use resources to develop a new operation, this operation may in the long run generate more revenues outside the governance of the founding firm. Resource sharing that was important during the establishment phase may become less important relative to, say, linkages of distribution channels. Thus when synergies with another firm outweigh the costs of the transaction, then a divestment is appropriate. Such divestments are a natural part of corporate growth that has become more common in the 21st century as markets for corporate assets have become considerably more efficient.

Divestments allow the reallocation of resources to new activities. Thus when opportunities for profitable international growth of one unit exceed the potential of another existing business unit, the latter may be divested. The divestment then generates human and financial resources that allow overcoming the Penrose constraint, and thus enable faster internationalization.

The relative merits of alternative corporate growth paths, and hence the optimal scope in terms of product diversification and internationalization, are grounded in the transferability of the firm's resources across industries and countries. With the globalisation of markets and supply chains, global operations may offer higher resource rents. At the same time, conglomerates lose their relative competitiveness. These shifts in the competitive landscape are likely to induce firms to globalfocus, as indicated by the diagonal arrow in Figure 2.

In the language of economics, this process may be described with the concept of barriers to entry (BTE). Traditionally, high BTE into countries constrained international growth. In recent decades, such technological and administrative barriers have been reduced, while BTE to industries gained in relative importance as a result of increasing complexity of technologies and supply chains. The relative height of BTE to respectively industries and countries thus determines the relative merits of diversification and internationalization strategies. Shifts in the relative BTE can trigger shifts in the international and product scope of firms.

Drivers of Change

The shifts in the competitive landscape that change the transferability of resources across industries and countries arise from complementary external and internal forces: market liberalization, financial markets, dynamics of global competition, and managerial leadership.

Market Liberalization

The institutional framework of a country encompasses all the formal and informal rules according to which firms act, it thus moderates how firms compete, grow, and survive or fail. When these rules fall short of securing efficient functioning of markets, firms may organize transactions within a conglomerate. For example, human capital may be developed internally rather than externally, with career paths within a conglomerate rather than individuals switching jobs frequently. Thus, reputable conglomerates benefit from access to the best university graduates, which then are allocated across business according to needs. Other resources that can be shared across businesses include network relationships and bargaining positions vis-à-vis state bureaucracies or national retail chains. Domestic growth based on sharing such resources may thus be a suitable growth strategy in weakly transparent and network-intensive contexts.

The institutional context changes with legal changes aimed to make markets more efficient, for example by reducing tariffs or non-tariff barriers to international trade. Such liberalization reduces BTE and thus makes it easier for importers or foreign investors to compete. Moreover, information on potential partners and employees becomes more readily available, which reduces incumbents' advantage from their country-specific knowledge and networks. Liberalization thus lowers costs of moving goods and people across borders, and thereby creates opportunities to create capabilities grounded in global operations. In a liberalized environment, it is easier to attain competitive advantages with business models that coordinate and integrate geographically dispersed operations.

If product diversification is motivated by the need to overcome inefficiencies in the domestic business environment, then changes in the institutional framework would be expected to trigger changes in the scope of companies. Foreign entrants are likely to create competitive pressures on local firms to adapt organizational structures suitable for the new environment. In the EU, union-wide gradual liberalization created such pressures in many industries, notably "Internal Market 1992" program. Consequently, corporate growth, which in the 1970s may have occurred by entry into related or even unrelated industries within a domestic market, may now focus on internationalization. The liberalisation thus encourages focused strategies in global or at least Europe-wide niche markets. For instance, Danisco's aforementioned sale of its sugar division has in part been triggered by changes in the EU sugar market regime.

The effects of liberalisation extend beyond the focal industry. For example, legal changes in a customer industry would change that industry's sourcing strategies, and thus in turn, create pressures on its suppliers to increase their efficiency and to focus on those activities that they are best in.

Liberalization initially often led to national mergers and acquisitions as some governments aimed to promote domestic mergers that create 'national champions' operating across multiple sectors and thus, supposedly, are big enough to withstand tougher competition. Yet this policy misunderstands how international competition works. In the long-run, in open markets industry specialists are likely to gain competitive advantages over national conglomerates, thus national champions created by political motives are likely to eventually face restructuring. Market liberalization thus is likely to trigger globalfocusing, albeit possibly with considerable time lags.

Industry Dynamics

On the global stage, technological and organizational capabilities are benchmarked against competitors worldwide, rather than nationally, and their business models designed exploiting global linkages and integration. Globally operating firms thus create pressures on their competitors to investing to stay ahead in core business where they can achieve market leadership, and thus to globalfocus.

These competitive pressures move up and down the value chain, especially when customers move towards global sourcing or global marketing. International operations become essential when markets transcend national borders, competitors operate globally, and customers seek delivery at multiple sites around the world. Globalfocusing thus can be come a self-reinforcing process within an industry.

These industry dynamics create different pressures for competitors and for customers. If competitors lower their costs through global integration, this creates pressures to strengthen operational capabilities or to exit. If customers adopt global sourcing, suppliers may have to expand their international scope to retain their internationally operating customers. Many firms in business-to-business markets may thus be induced to invest overseas by the internationalisation of their customers. Globalfocusing is particularly astute in business-to-business industries. Consumer goods manufacturers face different consumers in each country and may find it easier to extend their brand to related products and thus to prosper with diversification strategies.

Financial Markets

Financial markets are an important mediator between competitive pressures and corporate change. A widespread belief in the financial investment community suggests that conglomerates trade at a discount. Corporate communications thus often point to financial market pressures when explaining changes of strategy. Recent research sheds doubt on the prevalence of such a discount controls for antecedents of diversification appear to eliminate any statistically significant discount (Campo and Kedia, 2002); in fact some studies outside Anglo-American countries find group affiliated firms to benefit from a 'diversification premium' (Kogut et al., 2002; Khanna and Yafeh, 2007). Such scientific evidence may have eased pressures to focus in recent years, the belief is still widespread and can influence managerial decisions, especially in contexts of highly imperfect information.

The liberalisation of financial markets in recent decades has made it easier for financial investors to cross national boundaries, while many once privately held business groups have been floated on the stock markets. Financial investors, especially international financial investors, thus play an increasing role in shaping managerial objectives. This impacts on strategies because, firstly, investors with a large portfolio of financial assets are less interested in the risk diversification that conglomerates may offer because they can diversify risk better by diversifying their own financial portfolio. Secondly, international investors are more aware of development outside the company's home market, and may thus prefer investing in companies that are more focused and more international.

Financial markets thus reinforce the effects of competition on the design of corporate strategy. They are likely to be particularly vigilant when the stock market performance is weak. Thus, divestment of peripheral activities is more likely to be initiated when a company has been underperforming on the stock market.

Corporate Leadership

Corporate change is initiated and implemented by leaders at the helm of an organization. The competences, experiences and mental models of these decision makers thus play a crucial role in shaping corporate strategies. In particular, the educational and experiential knowledge-base of business leaders influences their assessment of existing resources and the potential value that these resources may create in alternative business strategies.

Globalization has changed this knowledge-base of top managers. The new generation of business leaders has often been trained in business schools outside their own country, and thus has wider experience horizons and better understanding of international business opportunities while facing lower cognitive barriers. They are thus better equipped to recognize business opportunities for efficiency improvements and growth through integrated global operations, or by entering markets in other locations.

Changes in strategy thus are often associated with changes the top management, especially with generational change. Cognitive barriers and lack of experience that have inhibited internationalisation in the past no longer apply in the 21^{st} century. New leaders may thus initiate or facilitate major shifts in the global strategy of a firm, and its associated strategic and organizational changes. In this way, globalisation thus influences the competences of top managers, and thus indirectly their assessment of alternative opportunities to leverage their resources.

Management Challenges

The globalfocusing trend challenges how managers have to conceptualize their business. *In the 1980s, companies may have had a choice between being a big fish in a small pond, and being a small fish in a big pond. They do not have that choice any longer*, at least not in Europe. Globalisation has created one big ocean, where (almost) every firm competes with any other firm that happens to offer similar products or services. Thus, the competitive challenge is to observe the industry worldwide, and to recognize threats and opportunities on that level.

New business opportunities often arise with new business models that integrate operations at different locations worldwide. To recognize and implement such opportunities, firms need *new organizational structures and capabilities throughout the organization that make interaction across borders a way of life* for individuals in many functional departments, not only in the top management. Often, such a global organization will be build through mergers and acquisitions, which presents leadership challenges of integration management in cross-border, cross-cultural contexts. Thus, the leadership challenge is to create corporate capabilities, especially human capital and communications infrastructure, that can create and exploit global linkages. This requires managers with a global mindset, and with the linguistic and cross-cultural competences to operate across large distances.

The implementation of a globalfocusing strategy is subject to substantial risks, and some companies fail during the implementation.

- Firstly, businesses competing globally need a very good understanding the global industry, its competitive dynamics, and potential entrants originating from other countries. The complexity is likely much higher than in a purely domestic industry, which makes in more challenging for business leaders to be well informed and to take appropriate action.
- Second, on the global stage, firms face coordination challenges (and thus costs) between businesses based in different countries. This is likely to be of concern especially when it involves cross-cultural management challenges for companies that hitherto have not operated internationally.
- Third, globalfocusing often involves acquisitions of other businesses abroad. Yet, many corporate acquisitions are set to fail to reach their strategic objectives; in particular the operational integration of the acquired unit often fails to realize the synergies envisaged at the time of the acquisition deal. Yet, these synergies are the essence of acquisitions motivated by globalfocusing strategies.

Thus, the risk management challenge is to recognize and assess new forms of risk, not only in the external environment, but in the implementation of complex tasks within a global organization.

Implications for Policy

Corporate strategies integrating operations and leveraging resources on the global stage diminish the scope for national industrial policy. Societies may feel attached to high profile companies domiciled in their midst, yet this is only partly economically justified. Most companies keep most of their high value added activities close to home, and it is in the interest of home government to keep it that way. Yet these operations will only be able to realize their full potential if they can interact with operations elsewhere with a minimum of friction. Since business models depend on the effective integration of operations, any government policy that directly or indirectly causes frictions to cross-border activities, such as the movement of goods and people, may negatively affect the competitiveness of such firms.

Thus policies aiming to induce companies to pursue a particular strategy are likely to have counterproductive side effects. In particular, a national champion policy aiming to create big domestic firms expected to withstand the challenges from foreign competition may be misplaced. Rather, firms that are best able to utilize the variations across the world are most likely to survive and prosper; thus, policies that support the international competitiveness of the home based firm may yield stronger long-term impact.

Host governments aiming to attract and retain activities may rather focus on creating an attractive environment for selected types of high-value added activities and specializations. The location of different operational units of a global specialist is determined by the comparative advantages of different host countries. Hence, host country policies designed to improve dynamic comparative advantages can act as a magnet for multinational firms to locate economic activity. On the other hand, policies aiming to attract all the stages of a value chain are bound to fail (Buckley, 2009).

Globalfocusing during the Global Financial Crisis

How is the global financial crisis of 2008 likely to affect the trends outlined in this paper? In the short term, the reduced efficiency of financial markets and higher borrowing costs may impede firms' ability to engage in acquisitions. On the other hand, opportunities may arise for cash-rich firms acquire businesses that struggle financially due to the slump in demand, or due to rising costs of capital. Moreover, the relative inactivity of private equity businesses during the crisis may enhance the bargaining position of strategic investors in the 'real economy'. However, in the short term, we may see less of the systematic and long-term restructuring of organizations aimed at building a globally integrated organization according to a strategic design, as in the cases of Danisco and Nokia. This type of visionary, radical change requires efficient financial markets.

In the long term, two scenarios are conceivable. I expect that the financial crisis of 2008 to follow the pattern of the Asian crisis of 1997 or the burst of the IT bubble in 2000. They caused a severe but temporary effect, leaving the broad trends of globalization in tact. Thence, firms with a global organization able to benefit from global supply chains, global market access, or global product development are likely to enjoy competitive advantages over those competing only in their domestic market. Thus, international growth will continue to be the preferred option, rather than domestic diversification.

However, another scenario is possible. If the financial crisis leads to a substantive revival of protectionist policies, then the costs of international operations may well outweigh their benefits. This could conceivably lead to a reversal of the trends outlined in this paper. Both consumers that appreciate broad choice and low prices and forward-thinking businesses that developed integrative business models would suffer.

Acknowledgements: I thank Päivi Karhonen (Helsinki School of Economics) for help with the Nokia case, and Friedrich Kalle Strödter (Deutsche Bank, Frankfurt) for a stimulating discussion of an earlier draft of this document. Any error and views remain the author’s sole responsibility.

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Figure 1a: Nokia OY 1990-2007

1990

- **Consumer electronics**
  - Colour TV
  - Satellite receivers
  - Video recorders
  - Audio equipment
  - TV tubes and monitors
  - Car electronics
- **Nokia Data**
  - microcomputers
  - work station systems
  - larger systems
- **Mobile phones**
  - mobile phones
  - components
- **Telenokia**
  - public networks
  - mobile networks
  - closed networks
- **Cable & machinery**
  - Cables
  - Electrotechnical equipment
- **Basic industry**
  - Nokia Tyres
  - Nokia Chemicals
  - Nokia Voima (power company)
  - Horda (technical rubber)

1996

- **Telecommunications**
  - fixed networks
  - mobile networks
  - closed networks
- **Mobile phones**
  - mobile phones
  - wireless data products
  - interactive multimedia terminals
- **Industrial electronics**
  - audio systems
  - electronic control and display units
  - battery chargers
  - duplex filters

2002

- **Nokia Networks**
  - fixed networks
  - mobile networks
  - closed networks
- **Nokia Mobile phones**
  - mobile phones
  - wireless data products
  - interactive multimedia terminals
- **Nokia Ventures**

2007

- **Nokia Siemens Networks**
  - fixed networks
  - mobile networks
  - closed networks
- **Mobile phones**
  - mobile phones
  - wireless data products
- **Multimedia**
  - N-series
  - Internet services (Nokia maps, Nokia Music Store)
- **Enterprise solutions**

Figure 1b: Danisco A/S 1990-2008

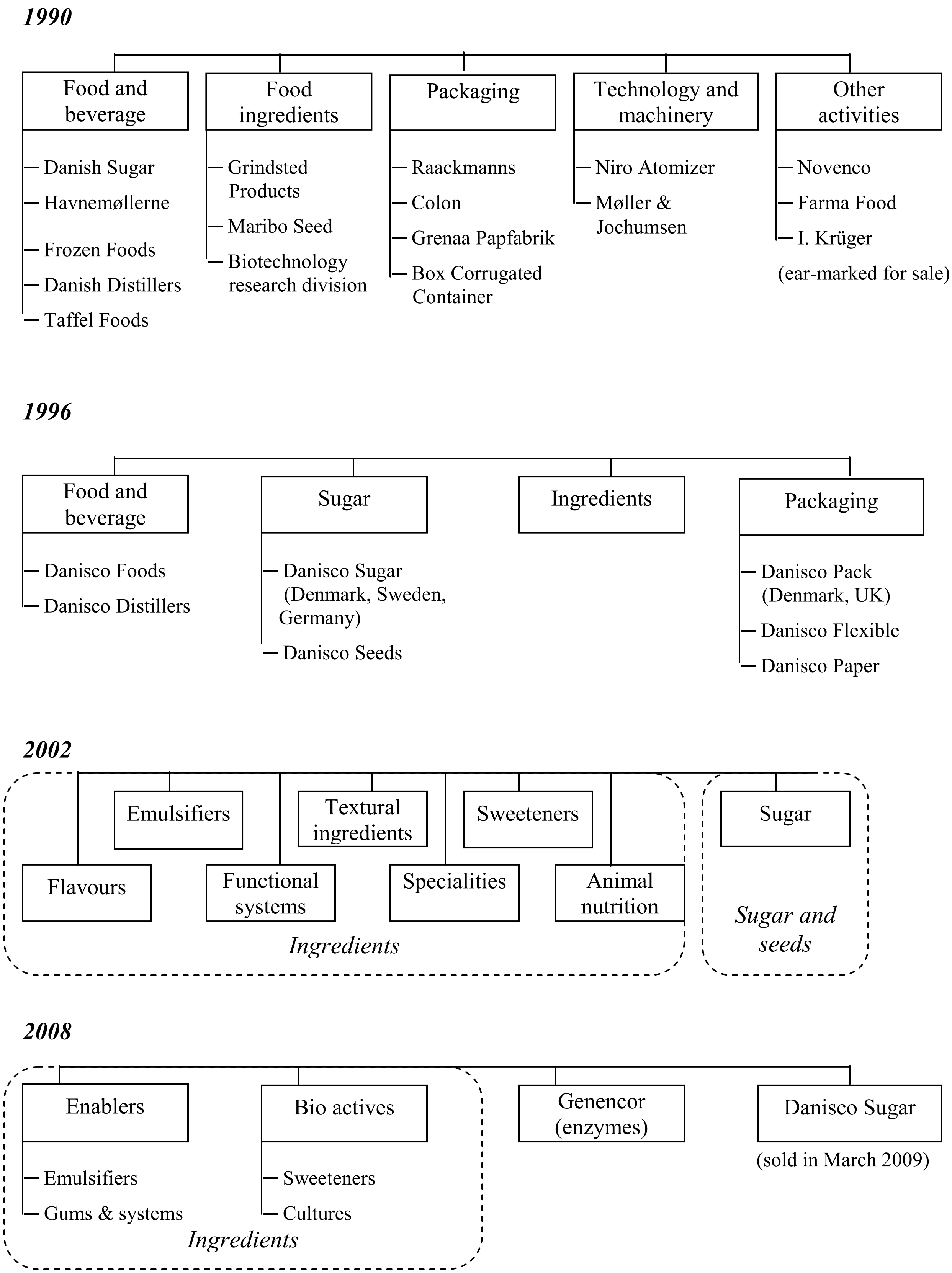
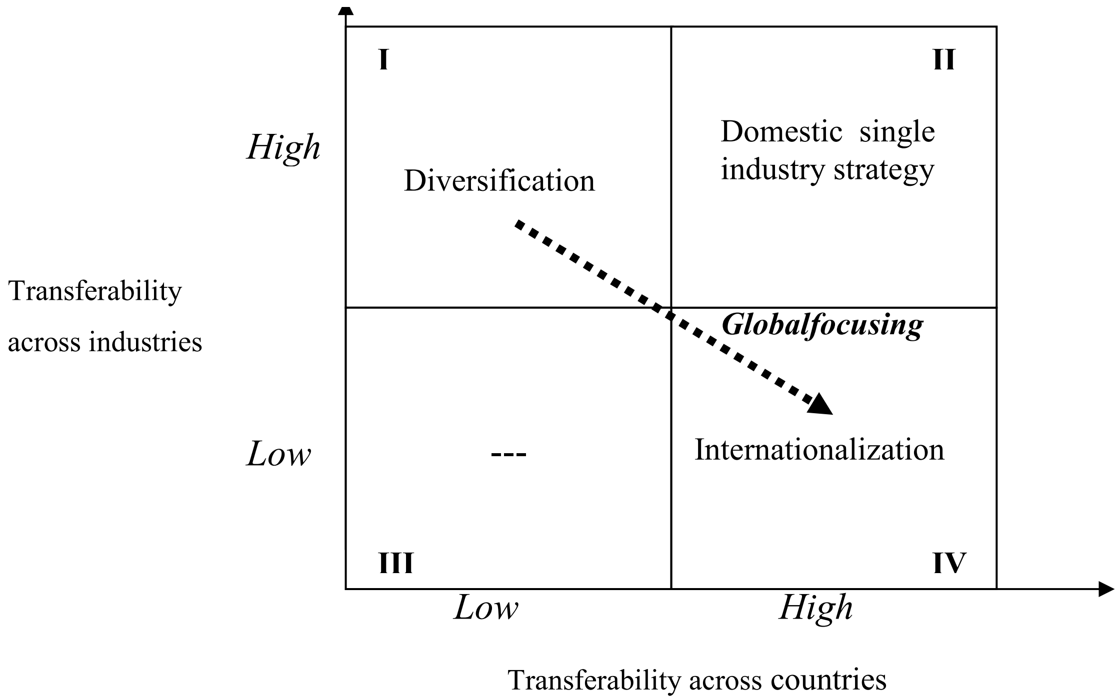


Figure 2: Country and Industry-specificity of Resources



Note: The arrow indicates change induced by liberalisation and globalisation of industries
Source: revised from Meyer, 2006

Table 1: Shifts in Corporate Strategies 1990 to 2008

	1990	2008
Nokia (Finland)	"Nokia is a European technology company, the turnover of which in 1990 was 22.1 mrd. Finnish marks. 84% of turnover comes from EFTA and EC countries. The group is divided into six divisions, …. Main products are colour TVs and monitors, micro computers and terminals, mobile phones, digital telephone exchanges and telecommunication networks, cables and cable machinery as well as tires and chemicals for forest industry." (1990) (a)	"We make a wide range of mobile devices with services and software that enable people to experience music, navigation, video, television, imaging, games, business mobility and more. Developing and growing our offering of consumer Internet services, as well as our enterprise solutions and software, is a key area of focus. We also provide equipment, solutions and services for communications networks through Nokia Siemens Networks." (2008) (b)
Danisco (Denmark)	"… the company wishes to be a first-class supplier to the international food and beverage industry on the global market and be a supplier of high-quality foods and branded goods on selected European markets. Danisco's activities have been divided into four sectors for the food-oriented area, … a sector has been established for activities outside this area." (1990) (c)	"We are the world's leading producer of food ingredients and among the strongest players in the biotech arena. Now we are reinforcing our Ingredients business by bringing stronger focus on health-promoting foods, and we will leverage our biotechnology platform to deliver bio-based solutions to the food industry and other industries" (2008) (d)

Sources:

(a) Nokia annual report 1990, translated by Päivi Karhunen, Helsinki School of Economics.
(b) Nokia website, accessed December 2008
(c) Danisco annual report 1989/1990
(d) Danisco website, accessed December 2008

Appendix: Shifts 1990 to 2008
Turnover by Business Segments

Company	1990	2007
Nokia (Finland) [a]	Nokia consumer electronics (colour TVs and monitors) - 29%	
	Nokia data (micro computers and terminals) - 22%	
	Nokia mobile phones - 11%	Mobile phones - 49%
		Multimedia - 21%
		Enterprise solutions - 4%
	Telenokia (digital telephone exchanges and telecommunication networks) - 11%	Nokia Siemens Networks - 26%
	Cables and cable machinery- 24%	
	Basic industry (tires and chemicals for forest industry)- 8%	
Danisco (Denmark) [b]	Food and beverages (incl. Danish Sugar, Danish Distillers, Frigodan, Taffel Foods) – 41%	Sugar – 36% [sold in March 2009]
	Food ingredients – 15%	Genencor (enzymes) – 20%
		Food ingredients: Bio actives – 18%
		Food ingredients: Enablers – 27%
	Packaging – 12%	
	Technology and machinery – 19%	
	Other activities – 14%	
Novo Nordisk (Denmark) [c]	Health Care – 71%	Diabetes Care – 73%
		Biopharmaceuticals – 23%
	Bioindustrial (enzymes) - 26%	
	Other – 3%	
BASF (Germany) [e]	Raw materials and energy (15%)	Oil & Gas – 18%
	Chemicals (19%)	Chemicals - 25%
	Plastics (18%)	Plastics – 23%
	Dyestuffs and finishing products (18%)	Performance products – 20%
	Agricultural chemicals (11%)	Agricultural products – 6%
		Fine chemicals – 3%
	Consumer products (21%)	Other – 5%

Cadbury formerly Cadbury-Schweppes (U.K.) [d]	Beverages 42% Confectionary 58%	Confectionary 100%
Philips (Netherlands) [f]	Lighting (2%), Consumer products (46%), Professional products and services (23%), Components (15%), Miscellaneous (4%).	Lighting – 27% Consumer lifestyle – 43% Healthcare – 30%
Siemens (Germany) [g]	Power generation (9%), Power transmission and distribution (8%), Industrial and building systems (12%), Drives and standard products (10%), Automation (9%), Data and information systems (12%), Private communication systems (8%), Public communication systems (14%), Defence electronics (2%), Transportation systems (2%), Automotive systems (3%), Medical engineering (10%), Semiconductors (3%), Passive components and electron tubes (3%), Electromechanical components (1%), Audio and video systems (<1%), Osram (4%), Hell (2%).	Power generation (1%) Power transmission and distribution (11%) Industrial solutions and services (20%) Siemens building technologies (2%) Automation and drives (32%) Siemens IT solutions and services (26%) Transportation systems (1%) Medical solutions (1%) Osram (<1%)

Sources to Appendix 1:
(a) Nokia annual reports 1990 and 2007.
(b) Danisco annual report 1989/90 and 2007/08 (pro-forma figures under new reporting structure)
(c) Novo Nordisk annual report 1990 and 2007
(d) Cadbury Schweppes annual report 1990 and website 2008
(e) BASF annual report 1990 and 2007
(f) Philips annual report 1990 and 2008
(g) Siemens annual report 1990 and 2007

Notes:
- Data refer to respectively 1990 and 2007 unless otherwise indicated.
- Percentages may add to more than 100% due to intra-segment sales, dependent on firm reporting practice.