

THE RECENT HISTORY OF JAPANESE INVESTMENT IN THE UK

By

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FOREWARD

This document is the current working draft of the research project on the Post-1990 History of Japanese Investment in the UK.

By attracting comments and corrections, the intention is to expand this 19,000 word draft about once a quarter to the point where it can be published as a book.

Please feel free to comment as freely and as widely as you like, sending your comments to jpukinvest@aptn.org

I would hope to have the next, expanded draft up on this site before the end of January.

Acknowledgements

I will expand these with each version of this draft. For the moment, I would like to acknowledge the drive of Sir Hugh Cortazzi who was the original driving force behind the idea for such a study. Paul Dimond, Robert Guy and Andrew Fraser have come the closest to forming the advisory group on whom I could most call for help.

This work has been made possible by a grant from the Great Britain Sasakawa Foundation, and I am grateful to Stephen McEnally for being an understanding funder.

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Beyond these individuals and institutions, I have been interviewing and corresponding with a wide range of individuals, but I don't yet have a full list in place. Therefore, rather than offend people by putting up a partial list, I will leave these acknowledgements to a later version of this draft, though you will find some of them acknowledged in footnotes.

How to cite this document

Once this draft has been loaded on to the web, I will maintain its integrity, and any changes will be incorporated into a subsequent draft, which will be given a different unique identifier. So, when citing, please refer to this document as www.aptn.org.uk/JFDI/drafts/draft101108.

Obviously, since this is a working document, please use your commonsense when citing. I will have a page on the website headed "Errors and Corrections", in which I will indicate where parts of this draft will need significant correction.

Louis Turner
Falmouth, Cornwall
8 November 2010

Chapter 1

Introduction and Themes

Background

In 1992 Toyota opened its first European auto plant in Derby, marking the culmination of a remarkable couple of decades for the British economy. During these years, the cream of Japanese companies had put down factories in the UK, following in the tracks of YKK's 1969 pioneering zipper factory in Runcorn.¹

During the 1970s, the electronic giants such as Sony, Hitachi, Toshiba and Matsushita had led the way with a series of television and video recorder plants. During the 1980s, Fujitsu and NEC put down large semiconductor plants, while Japanese financial institutions moved heavily into the City of London.

However, it was the automotive companies which seemed most strategically important. Honda reached a collaborative arrangement with British Leyland/Rover, which was complemented by the 1986 opening of Nissan's factory in the North East. This led the way for both Honda and Toyota to open their own British factories in 1992.

Throughout this period, Japanese companies made the UK the dominant site for their investment in Europe. As late as 2000, around 40% of this investment was still coming to the UK.

In many ways this surge of Japanese investment was surprising. Japan was a manufacturing-intensive economy which was breaking into the global arena. In contrast, the UK had a history of low productivity and appalling labour relations, which had given it the reputation in the 1970s as being the Sick Man of Europe. As a result, the UK did not seem to be the logical first choice as Japan's preferred investment site in Europe. However, a combination of intelligent British diplomacy, the attractions of the English language, and some sophisticated protectionism encouraged the first wave of consumer electronic investments.² These 1970s investments worked smoothly, with dedicated Japanese engineers winning the trust of British labour forces. The latter responded well to managers who contrasted with the average British executive, by being both technically highly proficient and respectful of their employees. The consumer electronic success thus gave reassurance to the auto manufacturers who were encouraged to put down their even bigger wave of greenfield plants over the [1986-1992] period.

These investments were generally welcomed. There had been a few protests in the late 1970s when the last of the independent British television manufacturers fell into Japanese hands. Later in 1990, when Fujitsu formally acquired ICL, Britain's national champion in the computing sector, there was

¹ I work very heavily out of the trade press, and it becomes pointless to footnote every single reference I take from such sources. If you need to follow up some point I make in the text and you can't see a reference, it is worth resorting to Highbeam Research (<http://www.highbeam.com/>) which is a cost effective search service drawing on 6,500 trade-oriented publications from all round the world.

² Not all the investments in the 1970s were in electronics. Firms like NSK in ball-bearings and Yamazaki {Mazak} in machine tools were other early investors.

some unease, but the media coverage was reasonably neutral. In general, though, over the 1970s and 1980s, the majority of media coverage was positive.

The 1990s

It is much harder to generalise about how Japanese investment has developed since the early 1990s. For one thing, the collapse of Japan's Bubble Economy in 1990 meant that Japanese companies ran into increasing financial problems, so that the era of massive greenfield investments came to an end.

The picture also became more complex. As the 1990s progressed, the consumer electronics companies came under increased competitive pressure and started to relocate plants in favour of East Europe. Japanese banks were imploding back in Tokyo, so, they also reduced their involvement in the UK. In contrast, the auto plants deepened their roots into the British economy. However this no longer involved massive new factories but, rather, incremental expansions and the encouragement of their traditional suppliers to invest in the UK as well.

Then, in contrast to the relatively smooth relationships of the 1970s and 1980s, there was an uncharacteristic row after New Labour's 1997 electoral victory when the new government decided not to enter the Euro. Voices were raised and threats were made to relocate or block new investments if Britain did not change its policy.

Issues in The Late Noughties³

Over 2009-10⁴, Japanese companies faced the most serious British economic slow-down that most of them had experienced, as Britain's over-exposure to the financial sector meant that it was hit relatively brutally by the global economic crisis. Honda shut its Swindon plant down for [four] months, withdrew support for its Formula 1 team, and negotiated across-the-board wage cuts with its work-force. Nissan laid off 1,200 employees⁵, while Toyota cut working hours and negotiated a 10% cut in pay for its work force.

Given the fact that many of the Japanese investors in the UK were losing serious sums of money on their global operations, concern was growing about how soundly based the remaining investments actually were. Might the auto giants, for instance, shift their production away from Britain towards cheaper labour sites, as the television and video-recorder manufacturers had done a decade earlier?

However, before examining such possibilities, we need to look at how Japanese investment actually evolved in the UK once the initial wave of greenfield plants had been laid down. Accepting that there was some divestment in the electronics sector, how has investment in other sectors evolved?

³ I don't particularly like this term for the years 2000-2009, but it is shorter than the alternatives I am aware of so, somewhat reluctantly, I will use it elsewhere in this text.

⁴ In this draft, I am aiming to take the story up to the May 2010 General Election. This has not always been possible since some of my writing was done last autumn. However, in subsequent versions of this text, I will make this the main breakpoint, putting developments since then into a separate chapter.

⁵ 400 non-extension of temporary contracts, plus 800 permanent staff who left on a voluntary redundancy scheme. (Nissan source)

Chapter 2

1990: The Transition

Why 1990?

1990 is a good year with which to start this study. The Japanese Bubble Economy peaked that summer and ushered in the years which came to be known as the Lost Decade. In November, Mrs Thatcher resigned, having been a good friend of Japanese investors. Finally, the drive to complete the European Single Market in 1992 loomed large.

In many parts of the world, Japanese investment was still controversial. A wave of Japanese investments in the US culminated in the 1989 Sony takeover of Columbia Pictures, which triggered considerable controversy. In Brussels, there was a determination that Japanese industrialists should not be able to use the coming Single Market as a way of getting the product of their "transplant" factories in the UK (particularly the auto ones) unfettered access to the rest of the EU..

In Britain, though, attitudes were different in that Japanese investments were generally welcomed. In 1990, the Queen's Award for Exports was awarded to Sony for the third time since 1980, along with Sharp for its first time. In the month before he succeeded Mrs Thatcher as prime minister, John Major visited Tokyo and stressed how the UK was fighting the Continental Europeans' attempts to control the flow of autos manufactured in Japanese factories in the UK. "This is a battle that we are fighting on behalf of the Japanese manufacturers in the UK and I think we will win those battles."^{6 7 8} The Department of Trade and Industry even had a unit, the Invest in Britain Bureau, which complained that the UK wasn't attracting enough Japanese investment.⁹

That complaint seemed a little unfair, given the way the major Japanese auto investments were progressing, and the fact that 1990 was the year when Fujitsu took a major step forward in its acquisition of ICL (International Computers Ltd), Britain's national champion in the computer sector. In this £700 million deal with STC, the company which owned ICL, Fujitsu offered to take 80% control of ICL, leaving the British management substantially in place.

This deal was the culmination of a relationship which went back to 1981, when Fujitsu and ICL had signed a technical cooperation agreement. Under this, the Japanese company would provide advanced semiconductor chips and other key components to allow ICL to develop new generations of small- and medium-sized computers, which they could market in Europe as a range which included Fujitsu's large-scale models. This deal had allowed ICL to rebuild itself as a company with considerable strengths in computer systems – though remaining dependent on Fujitsu for hardware.

In the 1990 offer, Fujitsu was careful to take British sensitivities into account. The Japanese management explicitly stated that they had no intention of turning ICL into a mere production or sales base for the Japanese parent. Rather, they intended to use ICL as a springboard for attacking

⁶ Japan Economic Journal became the Nikkei Weekly sometime around Feb/March 1991

⁷ "British leader backs Japan in EC", Nikkei Weekly, Dec 1 1990.

⁸ Andrew Fraser argues that the British authorities led this campaign, with very little supporting diplomacy from their Japanese counterparts.

⁹ "Less Japanese investment providing more employment", Nikkei Weekly, Oct 6 1990

the computer systems business in Europe, where ICL was strong. The deal involved an offer for only 80% of ICL's equity. The British management team was to be left in place. The goal was to float ICL on the London Stock Exchange within five years, thus keeping British investors involved with the company.¹⁰

On balance, this careful approach seems to have paid off. Sir Peter Bonfield remembers a certain amount of hostile comment in Parliament, but contemporary Japanese press reports specifically contrast the generally positive British response to what Japanese investors were finding elsewhere. Commenting a couple of months later, the *Nikkei Weekly* said "The move did not raise the "selling of our soul" outcry that burst out in the U.S. when Sony Corp. purchased Columbia Pictures Entertainment Inc. last year. This was partly due to good damage-control by Fujitsu But the main reason for the lack of fallout was the general feeling in the UK that the nation will eventually benefit from the buyout."¹¹

1990 was also a year in which Honda was seeking to deepen its relationship with a British collaborator, this time Rover (then owned by British Aerospace). As with ICL-Fujitsu, the Honda-Rover relationship went back over a decade to 1979 when joint new car development projects started between Honda and what was then known as British Leyland. During the 1980s, a series of models (Ballade, the Legend (Rover 800 in Britain) and the Concerto (R8)) came out of this collaboration. During 1989-1990, Honda and Rover made several moves which ended with a capital link-up agreement whereby Honda took a 20% stake in Rover, with the latter taking a 20% stake in Honda UK Manufacturing Ltd,¹² the subsidiary through which Honda managed its British operations.

This was another case in which a strong Japanese company was being careful about how it deepened its relationship with a British National Champion. However, other Japanese companies were starting to acquire less sensitive British companies without any particular trouble. During 1990, a ball-bearing manufacturer, United Precision Industries Ltd was bought by Nippon Seiko for roughly £145 million¹³; Mitsubishi Electric bought Apricot, the personal computer manufacturer for £39 million; and Renown, Japan's largest clothing manufacturer, bought the classic British clothing company, Aquascutum, for £74 million.¹⁴

Japanese companies were finding that they could move on from greenfield investments and complex collaborations to relatively uncontroversial acquisition of British companies. Since 1990 was the year in which the Japanese Bubble peaked, Japanese companies were well-financed, thus making acquisitions a logical route forward.

¹⁰ "Long-term success seen for Fujitsu UK purchase", *Nikkei Weekly*, August 11, 1990

¹¹ "Nation views takeovers as strictly business", *Nikkei Weekly*, October 6, 1990

¹³ Creating NSK-RHP? Back in the 1970s, Ransome Hoffman Pollard had once been viewed as a National Champion, which needed protection from potential foreign acquirers, in those days taking the form of Sweden's SKF.

¹⁴ Allegedly influenced by the fact that Mrs Thatcher was supposed to have shopped there.

Chapter 3: Autos – The Key

The Early 1990s

The Automotive sector is the most impressive part of the Japanese investment story.

The Japanese came late to this sector which was apparently dying. British auto production had peaked in 1972 at around 1.8 million vehicles per annum, but, by the late 1980s, that level had halved. Attempts to create a British “national champion” had left a thoroughly uncompetitive industry. British Leyland, which became the Rover Group, failed to rationalise a sprawling set of outdated plants. Even with the help of a cooperation arrangement with Honda, the company failed to produce a coherent set of models, and its underlying technology failed to close the gap with world’s best practice.

Japanese investment was to turn the tide.

Nissan’s plant in Washington¹⁵ in the North East of England came on stream in 1987, ramping production up from an initial 28,797 to 205,195 units in 1994¹⁶. The company was simultaneously increasing local content from an initial 40% to 80% by 1992, a development symbolised by the opening of Nissan European Technology Centre with a staff of 350.¹⁷

In 1989, responding to the fact that the European Single Market was due for completion in 1992, Toyota announced plans for what became its plant in Burnaston near Derby, with a related engine plant in Shotton in Wales. Both plants were to come on stream in the magic year, 1992. Burnaston would produce 200,000 cars, with Shotton initially producing about half the necessary engines.

Honda was the third of the major Japanese producers to announce a greenfield plant in the UK, but this only came after serious internal debate. Like Nissan and Toyota, it was worried about growing European protectionism, and one managerial group believed that the company should form a joint venture with Austin Rover, with which it had a decade-long collaboration. Ultimately, Honda decided to turn an engine plant in Swindon into a fully-fledged auto manufacturing plant which would also come on stream in 1992¹⁸. In parallel, Honda took a 20% stake in the Rover Group, while the latter took 20% in Honda UK Mfg. Ltd, the company which would actually own and manage the Swindon plant.

¹⁵ Nissan's plant is technically in Washington, but is sometime referred to as being in the nearby, but better known, Sunderland.

¹⁶ Nissan Source, June 2010

¹⁷ Relevant literature

¹⁸ “Politics outweigh business concerns in Honda strategy on EC expansion”, Japan Economic Journal

These three assembly plants were to provide the foundations on which the British automotive sector was to be rebuilt over the next 20 years. They had problems in the mid-1990s as Sterling was valued too highly, but the capacity of these plants was steadily increased.¹⁹ By 2009, they were producing 338,000 vehicles, which was roughly 30% of overall British production.²⁰

In the early days of these plants, their managements realised they were working in a hostile European environment and so paid a lot of attention to increasing local content up to the 80% figure which was deemed necessary for their cars to be counted as “European” for the purposes of the Single Market. Although Nissan & Toyota²¹ set up centres to develop relations with European suppliers, the bulk of increase in local content seems to have come from Japanese component suppliers investing to set up their own transplant factories to supply the Japanese assembler giants (Nissan, Honda, Toyota) whom they had traditionally supplied back in Japan.²²

The most striking aspect of these pioneering plants was how well they seemed to run, particularly given the appalling labour relations reputation which the British auto sector traditionally had. The companies took the precaution of siting their plants (Washington, Burnaston, Swindon) away from traditional auto manufacturing regions, and Honda certainly had a policy of not recruiting employees who had previously worked in the industry, saying that they thought it would be difficult for them to accept the Honda style.²³ They dealt with the Trade Union movement by signing single union deals - in Nissan's case with the Amalgamated Engineering Union.²⁴ Both Nissan and Toyota achieved their successes with predominantly British work forces, led by British top managers, working alongside smallish cores of Japanese liaison executives and key engineers. This allowed British executives²⁵ who still had the scars from managing in old-style companies such as Ford and the Rover Group to help implement best-practice Japanese management practices within a British context.

It wasn't inevitable that these plants would be so productive. Dan Jones tells me that the American management of Nissan's initial plant in the US produced a mediocre record. In the case of Nissan's Washington plant, the company put a lot of effort into recruiting good quality employees, then sent significant numbers to Japan for exposure to Nissan's management practices. Dan Jones also claims that the competition between Nissan's and Toyota's British plants meant that neither of them felt they could relax their drive to improve standards continuously.

Ultimately, this was to prove massively important to the overall British economy. Initially, Nissan introduced its Cogent project to take its standards down into their suppliers. In 1996, as the Japanese presence matured, the SMMT²⁶ created an Industry Forum to spread Japanese Lean

¹⁹ I need to add the main decisions

²⁰ Nissan source June 2010

²¹ Was that true of both?

²² I would be interested in a more detailed account of how this improvement in local content was achieved.

²³ ""Britons run the show at Toshiba-owned plant; Honda Imposes style as strategies vary widely" Nikkei Weekly, 7 December 1991

²⁴ Now called Unite. Such single union deals had been pioneered by the Japanese consumer electronics companies in the 1970s.

²⁵ Mike Carver and his colleagues in Rover have written a book about their relationship with Honda. (Mike Carver, Nick Seale and Anne Youngson, *When Rover Met Honda* (2008 London. CSY Publishing)). It would be good to get the reminiscences of other executives from around this era.

²⁶ Society of Motor Manufacturers and Traders

Manufacturing principles through its members. Then in 2002, the Department of Trade and Industry created a National Supply Chain Programme to spread these principles through wider sectors of British industry.

- [Nissan is playing a leading role in a government-backed initiative to improve design and development skills in the motor components industry. Nissan and Cranfield University are in charge of the initiative, with support from the Society of Motor Manufacturers and Traders and the government-backed Innovative Manufacturing Initiative (IMI). This new programme, which could cover hundreds of small and medium-sized component producers, is an extension of the just-ended three-year £3 million Cogent programme, set up by Nissan, Cranfield and the IMI to improve the performance of more than 100 Nissan main suppliers. Cogent focused on producing technical drawings, trial components and test results right first time, using workshops which brought Nissan managers and suppliers' engineers together. ²⁷]

Dan Jones argues convincingly that the impact of Nissan's and Toyota's demonstration of Lean Production techniques has had a very wide impact on the British economy, to the extent that he has argued that the official encouragement of Nissan to invest in the UK was one of the biggest triumphs in the whole history of British industrial policy. ²⁸ He can list the movement of key personnel and their ideas into other sectors such as Health and Construction. He argues that major construction jobs such as Heathrow's Fifth Terminal, the St Pancras Station renovation and the related High Speed train line from the Channel Tunnel and the whole Olympic Games venue are now routinely being brought in on budget and on time - and that this can be linked directly back to the Nissan investment. I find his arguments compelling, and I fully second his claim for the importance of the Washington plant in history of British industrial policy.

Nippon Sheet Glass and Pilkington

Accepting that the Japanese auto companies came into the UK on the back of vastly superior production engineering expertise, the relationship between Pilkington and Nippon Sheet Glass suggests that British executives may have other strengths which Japanese companies can lack..

Both these companies specialised in selling glass into the auto industry. Back in the 1950s, Pilkington had pioneered the float glass technology which had revolutionised the world's glass industry. The company had used its technological leverage to develop a global spread. In Japan, Nippon Sheet Glass was a smaller company, which had been forced to go international in the slipstream of the big Japanese auto assemblers, which were pressuring their Tier 1 suppliers such as NSG into becoming true global players. In 2000 NSG took a minority stake in Pilkington, a decision which then triggered plenty of debate within NSG's top management as they pondered on what to do next. In 2006, having achieved consensus, they put in a full bid for Pilkington worth £2.2bn. At the time this happened, Pilkington was much more internationally minded than NSG and had twice the sales.

²⁷ JCCI Rev #8, Summer 99]

²⁸ Dan made these arguments and that claim in a combination of personal conversation and a public lecture which he gave on "The impact of Japanese automobile investments on the wider British economy" to the Asia-Pacific Technology Network on 24 February 2009.

However, once NSG started to consider how this new genuinely global company was going to be managed, it became clear that the Japanese executives, coming from a company which had roughly 80% of its sales in Japan, just did not have the experience to manage a company which now had three quarters of its sales outside Japan. Instead, it became clear that it was the British Pilkington executives who had the necessary international experience. As a result, in 2008, Stuart Chambers, Pilkington's CEO at the time of the acquisition, was appointed President and Chief Executive of NSG, becoming one of only three non-Japanese executives to be heading a major Japanese company (the others being Nissan's Carlos Ghosn and Sony's Howard Stringer). He brought in a British Chief Financial Officer and new reporting patterns, sometimes devolving power to global centres outside Japan. He also took some hard, un-Japanese-style decisions such as making 200 senior Japanese executives redundant. As of Autumn 2009, the heads of four of NSG's top five divisions were non-Japanese, coming from Pilkington networks, while fewer than half the next layer of 28 executives were Japanese. Japanese employees were down to 20% of the total, while overseas sales had jumped to 70% from 20% before the acquisition.²⁹

This process was not without its tensions. Technically, it was a Japanese takeover of a British company, but in practice it had many characteristics of a reverse takeover. Given the number of redundancies amongst Japanese staff there was a certain amount of hostility within more traditional parts of the Japanese business establishment. Over 2008-9, NSG was also hit by the global slowdown. Then in September 2009, Chambers stood down for what seem to have been genuinely family reasons (he had spent seven years flying between the UK and Japan). He handed over to a Japanese colleague, but the policies he had put in place seemed to remain in place. As one of NSG's Japanese executives put it in a blog, "there is no "quick fix" in developing Japanese managers to be global. Most of our managers were recruited as new college graduates to work for a "Japanese company", not a "global company". We needed to start from changing their mindset. global management development programmes might be helpful but the most importance is their intrinsic motivation and [their ability to learn] from their real experiences."³⁰

I've devoted space to this NSG-Pilkington relationship for several reasons. Firstly, it was a big investment by most measurements. However, it has brought into the open the possibility that there is an underlying win-win relationship between technically very-focused, rather inward-looking Japanese management, and a more internationalist, collaborative and profit driven British management culture. This is a bit like the argument that we find in the R&D sector, where it is argued that the Japanese are good at commercialisation, while the British are good at creative innovation. These are two arguments suggesting that there is a strong win-win potential when British and Japanese managements work together.

For the moment, though, the verdict is out on the NSG-Pilkington relationship.

Europe, Euro and Sterling

At the beginning of the 1990s, the Japanese could have no complaints about Britain's role in Europe. At a time when continental Europeans were hostile to Japanese autos, regardless of where they

²⁹ "Radical change is UK chief's legacy at NSG", Financial Times, September 6 2009

³⁰ Since the etiquette of citing from the blogosphere is a grey area, I'll refrain from a more precise citation until I've checked with the author.

were produced, the British consistently fought battles within Brussels to have the products of transplant factories accepted as “European”, thus qualifying to be sold throughout Europe once the Single Market came into force in 1992. However, in doing this, the British were not giving the Japanese *carte blanche*, in that the latter were still expected to hit substantial local content standards.³¹

Once the three major plants were in place in 1992, the relationship of Sterling to the rest of Europe went crazy. First, in 1992, Sterling was kicked out of Europe's Exchange Rate Mechanism and fell drastically on a trade-related basis (from 100 to 85). This meant that these companies benefited from an unexpectedly low sterling rate over 1993-1996. Then, totally against expectations, Sterling started to rise, moving from 85 to 110 on a trade weighted basis between 1997 – 2000, thus ending up roughly 10% higher than when these companies originally planned their investments back in the late 1980s.

Understandably, Japanese managements were not amused. Nor did they appreciate the fact that the New Labour administration, which came into power in 1997, decided to keep Sterling out of the Euro when that currency was activated in January 1999. Toyota's President warned the UK that there would be no new investment if Britain did not enter the Euro. In 2000, with Britain consciously staying out of the Euro and with Sterling at a fourteen year high, Carlos Ghosn, Nissan's new Renault-linked President, visited Prime Minister Tony Blair and warned him of the need for currency stability. In the same year, Toyota asked suppliers to quote in Euros.

In subsequent years, the auto producers partially came to terms with the high value of sterling. British officials worked with them to help them understand the role of currency hedging and the role that relatively simple treasury functions could play.³² They all went in for major cost-cutting drives, with Nissan for instance targeting a 30% cut in costs. Finally, by 2004 the three auto producers were all profitable, with Honda's Swindon plant becoming the most profitable in the UK. However, this did not stop Honda from remaining a public critic of Britain's policies. In 2007, Honda's President went on record to say that there would be no new Honda investment in the UK as long as the country remained outside the Eurozone.³³

The Honda-Rover Affair

In 1994, Honda's relationship with Rover suddenly blew up into a crisis.

These two companies had been dealing with each other since 1979 when Honda formed a broad alliance with what was then called British Leyland. In 1983, they formalized a Joint Development Project, in which Honda took a 20% equity stake in Rover, while Honda's Legend model was also sold as the Rover 800. Rover then came to be owned by British Aerospace, and Honda developed a twin-track strategy. While working with Rover on the joint development of models, Honda also decided to develop a stand-alone plant in Swindon, in which Rover had a 20% stake.

³¹ I need to be more specific about the precise proportions (60%? 80%?) which were required. Are there any such formal requirements still active in 2010?

³² Communication from William Pedder, former Chief Executive of Invest UK

³³ I need more information on the trends in the profitability of the key Japanese subsidiaries in the UK.

By 1994, British Aerospace wanted to sell its 80% of Rover. Honda obviously was going to be interested in this, but so was BMW which valued the extra production capability which Rover's UK plants could bring. British Aerospace talked to Honda, which didn't come up with a satisfactory offer, being apparently unwilling to take 100% control of Rover because of worries about how British public opinion might react to such a national champion falling fully under Japanese control. In addition, Honda was not willing to value Rover highly enough. In contrast, BMW was willing to take British Aerospace's 80% holding and valued Rover more highly. British Aerospace lost patience with Honda and accepted the offer from BMW.

In public, Honda's reaction to these developments was anger, and there were a number of British observers who argued that British Aerospace had not shown loyalty to a company which had been a good friend of the Rover Group. On the other hand, Honda had not responded at the speed which British Aerospace was dictating. This may have been because Honda's decision-making could not react fast enough to a very "Anglo-American" ultimatum. It may also have been that Honda, whose sales were falling at that time, was not financially in the position to put in a high bid. Whatever the reactions of Honda's top management, Dan Jones argues that Honda executives based in the UK were actually quite happy to cut their links with Rover. Despite serious input from Honda, Rover's management had failed to turn its Longbridge and Cowley plants around. If Honda had taken full control of Rover, the demands on the Honda management team would clearly have been massive, so some would argue that Honda was well rid of Rover. BMW certainly failed to revitalize the company, effectively writing Rover off in 2000, though keeping Mini production in the Cowley plant as the one small jewel in Rover's former empire.

Wider European Issues

Questions about the relative strengths of each other's managerial traditions make up one set of issues, which are worth considering. On this, the Japanese automotive investment clearly brought very immediate benefits to the efficiency of the British economy. On the other hand, the NSG-Pilkington story suggests that internationally-experienced British executives could improve the effectiveness of some relatively inward-looking Japanese companies.

But there are wider policy issues which are worth considering as well.

One of the more intriguing questions is why the UK seems to have attracted and held on to a relatively high proportion of Japanese automotive investment which came to Europe. In 1992, the UK attracted the bulk of this investment. Fifteen years later, despite the emergence of East Europe as an alternative location, Japanese automotive stock in the UK was still relatively high.³⁴ Obviously, this situation looked potentially fluid in the midst of the 2008-9 economic crisis, but this achievement is still impressive, particularly given the extent to which Japanese electronics companies shifted investments out of Britain from the late 1990s.

The initial decisions were made for a variety of reasons – the attractions of working in the English language, the need to find a friendly location on the right side of Europe's protectionist barriers and positive wooing by the British diplomatic establishment. It also seems that they preferred to invest in a country (Britain) with a weak auto industry, rather than invest in a country like Germany where

³⁴ Precise statistics needed.

they would have to go head-to-head with a strong local one. Once the OEMs set their factories down in the UK, then their related component suppliers invested to supply these assembly plants.

Of the three, Toyota most gave the impression that its British plant was conceived as part of a significant wider European strategy. In 1990, it set up Toyota Motor Europe Marketing & Engineering SA (TMME) in Brussels to act as an integrated European sales and engineering headquarters. TMME was also charged with sourcing components from 100 European suppliers, building on the fact that they would be stronger on small car components than their US counterparts.³⁵ In 1993, it opened up a plant in Turkey. In 2001 it set up a state-of-art small car plant at Valenciennes in France, and added a design centre in Sofia Antipolis near Nice. In 2005, they joined with PSA to build a plant in the Czech Republic, and built an engine plant in Poland. Then, in 2007, they added a small plant in St Petersburg. In that year, one of their senior executives said that this mix of plants gave the company an "ideal" mix of production. Around 75% of their sales in Europe would be locally produced, leaving 25% to be imported.

During this post-1990 period, Toyota reinforced its investments in the UK. However, at the time of 2008 slowdown, there was a feeling that Burnaston was not particularly well located within a Continent whose centre of gravity was moving eastwards, and that its mix of medium-sized models might not be the best in an era which in which the emphasis on small cars might be growing.

Despite this, in 2009, Toyota chose Burnaston to produce its first hybrid vehicle in Europe, the Auris HSD (Hybrid Synergy Drive). This was a decision which came with minimal advance speculation³⁶ and no sign of any significant negotiations with the British authorities. The decision may have been influenced by the fact that the Labour government had been building an ambitious clean technology strategy during the spring with, amongst other things, the goal of "making the UK a global leader in the development and production of low carbon vehicles"³⁷ Toyota's decision was clearly an impressive decision which suggested that this goal could be plausible. It certainly was a mark of confidence in Burnaston.

Nissan, in contrast, has been unable to build such an extensive network of facilities across Europe. After its substantial British and Spanish investments in the 1980s, it became one of the biggest victims of Japan's lost decade in the 1990s. It was too intent on surviving in Japan to worry too much about rolling out other plants across Europe and, in 2000, it fell into an alliance with Renault. The French company effectively took control, but the alliance was loose enough that the Washington plant continued to report back to Tokyo, not Paris, and Nissan built a plant in St Petersburg which opened in 2009.

As mentioned earlier the President of Nissan, Carlos Ghosn, made it clear to Prime Minister Tony Blair that Nissan would expect much greater currency stability. He also made it clear that he expected all the plants in the Nissan/Renault alliance to attract the maximum amount of subsidies,

³⁵ "EC a hard drive for Japan automakers" Japan Economic Journal, January 12, 1991

³⁶ The earliest speculative piece on a British-built Auris hybrid seems to have been on 25 June 2009 ("Toyota to launch Auris hybrid." Auto Business News (ABN). M2 Communications Ltd. 2009. HighBeam Research. 5 Nov. 2010 <<http://www.highbeam.com>>). By the end of July, the decision was confirmed. The accounts leave the impression that this was a Toyota decision, which did not turn on any intervention from the British authorities.

³⁷ "[UK launches Low Carbon Strategy. \('Low Carbon Industrial Strategy: a Vision'\)](#)." [Mondaq Business Briefing](#). Mondaq, 17 March 2009

and that new models would be assigned to plants strictly on the basis of which one made the best financial case.

Despite the fact that Washington continued to win new models, such as the Qashqai and Note in 2005.³⁸ there were still some worries in the North East around 2006 that the Washington plant could be closed in favour of cheaper-labour locations.³⁹ However, this plant has in fact maintained its position reasonably well. Partly, it benefits from a location which is 8 kilometres from a deep water port, from which it was exporting to 47 countries round the world, including Russia, the Baltic States, Germany, Benelux, France, Spain and throughout the Mediterranean. However, above all else, its management has maintained a drive to keep the plant as one of, if not, the most productive plants in the Nissan network. Despite British worries that it might lose out as Renault took control of Nissan, it has consistently been successful in winning mandates for new models. At the time of writing, it had picked up funding from the British government to support the building of a £200m (\$330m) battery production facility employing 350 people near to its plant in Washington. Despite a parallel investment in Portugal, this was to become Nissan's prime battery production site in Europe. This battery decision then helped Sunderland win the LEAF electric car, with production due in 2013.⁴⁰

Of the three majors, Honda is the one which has relied most heavily on its British plant, which it has balanced, not with other plants in Europe, but with its plants in USA and Japan. Unlike Toyota, it based its European Headquarters in the UK and, despite its strictures about Britain staying out of the Euro, added a second line to its Swindon plant in 2002. However, as the strength of Sterling caused competitive problems in the late 1990s and early 2000s, the company diversified its component purchase away from UK suppliers. Not only did it quite deliberately seek to increase the proportion of components coming from the Euro-zone, but it started importing components such as transmissions from Indonesia and the Philippines, as part of a programme to cut vehicle costs by 20-30%.⁴¹

Design and Development Centres

In the run-up to the late 2008 financial crisis, these British plants seemed to be being granted even more serious mandates by their Japanese bosses. Nissan's Washington plant became the only centre outside Japan for developing and overseeing production and quality standards in large parts of Nissan's global networks. Toyota's Burnaston plant was awarded a European – Global Production Training Centre, with the responsibility of providing production and maintenance training for Toyota's wider operations. Honda's Swindon plant was assigned the role of being a "mother" plant as the company expanded into Turkey

The evolution of Nissan's design capabilities gives a good sense of how increasing responsibility has been shifting from Japan to the UK. In the early days of Nissan's investment, there had been a technical centre which was shifted from Washington to Cranfield. This did jobs like tweaking

³⁸ Nissan source June 2010

³⁹ Conversation with OneNorthEast employee.

⁴⁰ I discuss this in more depth in the final chapter.

⁴¹ "Honda to export to U.K. parts made in Southeast Asia" Nikkei Weekly, 24 March 2003

Japanese designs for the British environment, moving on to slightly greater modifications such as producing variants with a fifth door at the rear. In 1992, Nissan created Nissan Design Europe to focus on styling and design from a base close to Munich. In 2003, the design studios in Munich and Cranfield were merged and moved to the Paddington Waterside complex in London, where their 70 or so employees⁴² were increasingly integrated with the 1000-plus⁴³ in Nissan's global design community. During the course of the noughties, the NDE had design responsibility for the Qashqai which sells in Asia and Australia as well as Europe. In 2010, another of their design products, the Juke went into production in Washington for sale in Japan, the US and Europe, this being a combination of a sports car and a SUV, aiming at the more adventurous and style-conscious car buyer.⁴⁴

Conclusion

By 2008, the automotive sector had been substantially rebuilt with the Japanese Big Three at its core. Production in 2008 was back up to 1.45 million cars and 203,000 commercial vehicles. Nissan's plant in Washington was now the largest auto plant in the UK, and the Japanese giants were responsible for around 50% of total production. Obviously, there were other players such as BMW, Ford, GM, the British motor racing cluster and, towards the end of the decade, Tata with its investment in Jaguar Land Rover.

However, looking back a mere 20 years, it is clear that this sector could not have been rebuilt without the central role played by the Japanese. If one looks into the future, then the picture becomes even more rosy. The fact that they are now bringing their hybrids and electric vehicles at a relatively early stage to the UK, means that the sector is moving steadily up the innovation chain. Britain was one of the pioneers of the auto industry. It could be that, through a constructive relationship with the Japanese giants, the British auto market could rediscover much of the excitement which the corporate disasters of the 1960s, 1970s and 1980s had seemed to extinguish.

⁴² Mixture of permanent and freelance staff. 2008 figures

⁴³ Figures from around 2005.

⁴⁴ "Nissan's latest crossover car is poised to take the UK by storm ; Juke launched at Geneva Show as Qashqai enjoys huge success in Europe" Derby Evening Telegraph, 5 March 2010

Chapter 4: Electronics - Partial Retreat

Pre-1990

The Japanese consumer electronics companies – Sony, Toshiba, Hitachi, Matsushita, Sanyo, Mitsubishi Electric and Sharp – were the pioneer Japanese investors in the UK.⁴⁵ They initially focused on television manufacturing, though they then diversified into other consumer electronic products such as video recorders and microwave ovens. At the start, they were responding to European protectionism and they moved cautiously, often forming joint ventures with existing British TV producers such as GEC, Rank and Thorn.

Probably the most publicised investment was Sony's greenfield plant in Bridgend in Wales, which was helped by the personal relationship between the charismatic Akio Morita and Prince Charles. That was 100% owned by Sony and by 1990 was employing 1800 people, of whom 47 were Japanese, and was exporting 80% of its output.⁴⁶

By 1990, Japanese television production dominated the British scene. The Japanese plants had become the backbone of the British consumer electronics industry.⁴⁷

Once these companies showed that it was possible to run effective factories in the UK, then other decisions followed. First, in 1981, the British government formally worked with the Japanese authorities to bring Fujitsu, Japan's largest computer company, into a collaborative alliance with ICL, the floundering British national champion.

Then, other capital-intensive ventures followed, most notably with NEC and Fujitsu deciding to build two large semiconductor plants in Scotland (NEC) and the North East (Fujitsu). These attracted a great deal of attention, because they seemed to signify that Britain was becoming a force right across the electronic food chain. This belief was reinforced by the decisions of Sharp, Toshiba and Hitachi to put down research operations in the university towns of Oxford and Cambridge.

Chronology 1990-1998

The story of the early 1990s was almost entirely one of continued expansion or consolidation. Sony, for instance, was sufficiently happy with its Welsh operations that it added a second Welsh plant, the Sony Technology Centre at Pencoed, and, by the end of the decade, Sony was employing 2,700 people in Wales. . It also started to invest in British computer games companies, taking over the Liverpool-based Psygnosis, which had had a Japanese hit with its "Formula 1" computer game. Up in Scotland, NEC added a second fabrication plant to its operations in what was becoming known as "Silicon Glen". In 1998, NEC, through a joint venture with Packard Bell, announced a further factory in Scotland to produce personal computers.

⁴⁵ With the exception of YKK

⁴⁶ Nikkei Weekly, October 6, 1990 " For Sony, Wales and Queen Elizabeth"

⁴⁷ I need to add more precise figures

This period saw other investments which marked the growing ambition of the Japanese investors. One company, Sumitomo Precision, responded to the semiconductor developments, by purchasing Surface Technology Systems, a Welsh-based company, which designed and built high-value machines used by cutting edge electronic manufacturers. In 1997, Matsushita joined News Corp.'s British Sky Broadcasting Group in a pioneering joint venture to provide digital broadcasting services to the UK. Matsushita was due to produce the necessary hardware.

This decade also saw the culmination of Fujitsu's long-drawn out campaign to take control of ICL. In 1990, Fujitsu bought an 80% stake in ICL from the latter's then owners, STC, saying that they wanted to use ICL's software skills to push into the new business of systems integration.⁴⁸ The ultimate goal was to list ICL on the London Stock Exchange, so that it would be a semi-autonomous member of the Fujitsu family.

However, for the sector as a whole, the period 1996-1998 was the high-point of the involvement of Japanese electronics companies in the UK. In 1996, Sony built its first television plant in Eastern Europe. Then, in 1998, Mitsubishi Electric closed down the Scottish television plant it had owned since 1979, and Fujitsu closed its semiconductor plant in the North East of England, which it had opened in 1991 but then could not afford to upgrade to the next generation of microchip technology.

The Dark Days (1998 - 2002)

Starting in 1998, the Japanese electronics community in the UK was decimated. The Fujitsu and Mitsubishi Electric decisions were followed by three blows to Wales with Matsushita transferring small and mid-sized televisions from Cardiff to the Czech Republic (2000); Sony transferring some operations from Pencoed to Barcelona and Slovakia (2000); and Hitachi closing its Hirwaun television plant (2001). Elsewhere, Sumitomo Electric and Sumitomo Wiring transferring part of their facility for making automotive wire harnesses to East Europe (2001); Matsushita Industrial closing its East Kilbride transformer plant (2001); Fujitsu calling off the ICL flotation (2000) and announcing job losses (2001); Sanyo stopped making microwave ovens in Newton Aycliffe (2001); and this rout culminated with NEC closing down its Livingston semiconductor plant in 2002.

About the only good news to come out of the sector during this period was that Toshiba added a second research lab to the Cambridge laboratory it had opened in 1991. This latest one was to be based in Bristol, was called the Telecommunications Research Laboratory, and was to focus on next-generation mobile phones.

This was a sobering set of decisions brought on by developments both in Japan and the UK. At the Japanese end, companies were finally having to face economic reality some eight years after the collapse of the bubble economy in 1990. Some of them had simply over-invested.⁴⁹ This meant that NEC and Fujitsu could no longer afford to keep ploughing money into their semiconductor divisions as the technological cycle of memory chips demanded continuous reinvestment. Quite simply, they could not keep up with the spending of competitors such as Korea's Samsung or the the USA's

⁴⁸ August 11, 1990, "Fujitsu plans to use ICL to enter systems integration", Nihon Keizai Shimbun

⁴⁹ Geoffrey Sheppard has told that Panasonic put 26 manufacturing plants around Europe during the 1970s and 1980s.

Micron. In the case of the less capital-intensive consumer electronics companies, some of the same pressures were still at work. As financial pressures built back in Japan, there was a growing need to rationalise their global operations. In addition, consumer electronics was shifting from analogue to digital technologies⁵⁰ which meant the complete refitting of factories. Since many of the British plants from the 1970s were small and, often, poorly located, the odds were stacked against them.

These developments back in Japan came at a time when the UK authorities were progressively tightening their rules on the use of regional aid. This meant that when it came to re-investment, plants which had initially attracted generous grants were no longer eligible - or not to the same extent as was permitted in E European countries (including the former E Germany).^{51 52}

At the same time, the rise of Sterling against the Euro was becoming a significant factor. During the first half of the 1990s, Sterling had fallen against other Continental European currencies, reaching a nadir over 1995-6. Then, just as Japanese companies found themselves under financial pressure back in Japan, they found Sterling markedly increasing in value against the Euro over the next four years, at a time when the New Labour government made a conscious decision not to enter the Euro. On the technical front, cathode ray tube televisions and video recorders were mature products, so price competition was increasingly important, at a time when Central and East European economies, which had just come out from Communist rule, were being perceived as promising destinations for investments needing cheap labour. Also, since there was a trend towards larger screen sizes, plants built to assemble smaller TVs became redundant.

Although the electronics companies were not the only Japanese companies to protest about the strength of sterling, they were among the most vocal in warning the British about the consequences of staying out of the Euro-zone. In 2000, Matsushita's President, Kunio Nakamura, was quoted as saying, "Relocation is a possibility, if the U.K. makes no effort to resolve the (currency) problem." Around the same time, Norio Oga, chairman of Sony Corp., was warning "If the pound continues to appreciate, we may need to review production in the U.K."⁵³

The Legacy

The major wave of disinvestments came to an end around the time of the NEC withdrawal from its Livingston semiconductor venture in 2002, though Panasonic slimmed itself down from around 4000 people to 500 over 2006-9, involving yet more plant closures in Wales. There was continued attrition amongst the rest of the first generation of television plants, with the last of these, Toshiba's Plymouth plant, losing its television production to Poland in 2009 as part of a global rationalisation of Toshiba's operations. The trade union, Unite, commented that this was the last British plant still to be mass producing televisions, and that this marked the end of an industry which had been

⁵⁰ Thanks to Andrew Fraser for this point.

⁵¹ William Pedder tells me that the British authorities supported this tightening, contrasting it with the beggary-neighbour grant escalation taking place between US states.

⁵² Communication from William Pedder.

⁵³ [JCCI Rev #13, Aut 00](#)

pioneered by the UK.⁵⁴ Elsewhere, there were other ventures which didn't quite take off, such as Matsushita Mobile Communications Development of Europe R&D centre which opened in 2001 and seems to have peaked at around 400 people, only to fall foul of a policy rethink three or four years later.⁵⁵

However, the loss of these assembly plants was compensated for by the continued survival of Fujitsu Systems which absorbed and built on the work of ICL, the old computing national champion of the 1970s and 1980s. Back then, the collaboration between Fujitsu and ICL primarily concerned computer hardware but, in 1990, when Fujitsu took its 80% stake in ICL, Managing Director Michio Naruto stressed that Fujitsu was primarily aiming to use the British firm's software technology to expand into systems integration. "I think ICL, as a member of the Fujitsu family will provide us with an opportunity to explore the systems integration business -- a field we have not yet begun pursuing."⁵⁶

In 1996, after running up losses, ICL got out of the personal computer and electronic manufacturing businesses (cutting over 2000 jobs in the process) to focus on software. In the words of Keith Todd, ICL's chief executive "ICL is now a much clearer proposition - a computer system and service company. We are focussing ICL firmly on its core business"⁵⁷ Despite this strategic focusing, ICL's finances remained disappointing and its long-promised flotation on the London Stock Exchange was finally dropped in 2000, when Todd and other directors resigned. Another 1500 British jobs were lost in 2001. In 2002, as part of a wider reorganisation, Fujitsu created Fujitsu Services to build on ICL's core strengths across IT infrastructure management; outsourcing across desktop, networking and data centre environments; and a full range of related services. Fujitsu Services was to be headquartered in London, and, over subsequent years, it took on added responsibilities. In 2007, Fujitsu EMEA⁵⁸ was created and was placed within Fujitsu Services in London. As part of this process, Richard Christou, who had become ICL's Chief Executive in 2000, and who then went on to nurse Fujitsu Services into life, was appointed corporate senior vice president of Fujitsu Limited and head of Europe, Middle East and Africa (EMEA) operations for the Fujitsu Group as a whole. Two years later, he had become President of Fujitsu's Global Business Group, and was actively involved in initiatives such as Fujitsu's drive into China.⁵⁹

As of 2007, Fujitsu Systems had 18,000 employees across 20 countries, which, for a UK-based subsidiary of a Japanese company, would seem to make it the biggest offshoot of all the Japanese investors in the UK.

It is very hard to pass a judgement on how Fujitsu's relationship with ICL has worked out. Certainly, going back to the 1980s, Fujitsu's manufacturing expertise played an important role in keeping ICL as a serious player in the computing world. During the 1980s and 1990s, Fujitsu's backing then allowed ICL managements to start the process of turning the company into a service-led operation. However.

⁵⁴ "Toshiba draws city's TV manufacturing to end", Western Morning News, August 28, 2009

⁵⁵ I would like to know more about this story.

⁵⁶ The Japan Economic Journal, August 11, 1990, "Fujitsu plans to use ICL to enter systems integration"

⁵⁷ "ICL to sack a further 1,000 workers" The Independent, March 9, 1996

⁵⁸ Europe, Middle East and Africa

⁵⁹ "China: Fujitsu invests US\$1.5 million in south China", TendersInfo, October 23, 2009

this was a relatively slow process, and one can argue that it moved significantly slower than IBM did when it was faced with much the same problem as ICL/Fujitsu Services. Both of them needed to move away from an over-reliance on mainframe computers to a service-oriented future.

⁶⁰

The other point which needs making is that, whatever Fujitsu Services' success in expanding globally, it has had a somewhat troubled recent history within the UK. In 2008, a massive contract for Fujitsu to upgrade National Health Service IT systems across the South of England was terminated after the company withdrew from contract renegotiations. This followed earlier well-publicised problems with a contract to produce a computer system for magistrates' courts (2006). On the other hand, it seems to have a reasonable relationship with the Ministry of Defence, being a key partner in a 10-year Defence Information Infrastructure project, and the company does continue to win substantial contracts, so the controversial ones listed above may not be representative of the company's overall performance.

I must admit that, of all the companies I mention in this study, Fujitsu Services is the one that leaves me most puzzled. I can't for instance get a firm sense of the relative input of the British and Japanese sides to the overall entity. Then, there is the question of how much of the current management actually have clear links back to the days of ICL. How much influence does Fujitsu Services have within the wider Fujitsu operation at a global level? Given the initial judgement that ICL was bringing software and service strengths to complement Fujitsu's hardware ones, would this judgement still hold? Who is actually driving this company? Is it a triumph of UK-Japanese collaboration ... or something less impressive?⁶¹

The Smaller-Scale Legacy

If Fujitsu Services is the biggest legacy of Japanese electronics investment, there is a range of smaller-scale legacy investments.

First, some of the first wave of consumer electronic plants have survived by moving up the technological food chain. So, Sharp's Wrexham plant for manufacturing microwave ovens has become a major centre for producing photovoltaic panels. As the British economy is becoming more focused on clean technologies, this is a development which was ahead of the game.

In Wales, although Sony moved cathode ray television assembly to East Europe, it maintained its slimmed down Sony UK Technology Centre at Pencoed, making high-definition professional camcorders, and has positively worked with the local authorities to develop a high-tech industrial park on the site of the initial Bridgend television plant.⁶²

Sometimes, the move up the technological chain has been convoluted. For instance, there is the case of Alps Electric which supplies components to the automotive sector. They put up a plant in

⁶⁰ Is this comparison with IBM fair?

⁶¹ As you can tell, I am genuinely interested in this particular case. I very much want to hear from people who know more about developments during the last decade-or-so.

⁶² I don't know with what success. I have been told that a lot of Panasonic's old factory (in Cardiff?) is now a housing estate. I can't yet confirm that this is true.

Milton Keynes and then a second one in Scotland. During the tough years of 2000-2002, the British management were instructed to close the Scottish plant and to transfer all their Milton Keynes' operations to East Europe, on the understanding that there would be new products to fill the gap which was left (though these new products were not identified). As the Milton Keynes plant was being scaled down, Peter Woodlands, Alps British Managing Director, found himself chatting to a Cambridge professor who was looking for backing for a Photonics centre in Cambridge. When Woodlands put this proposal back to Japan, he got an enthusiastic response from the company's research director. At this point, the Japanese headquarters started looking at the UK through new eyes, realising that the country was not just a location for classic assembly work, but had serious scientific strengths as well. As well as the Cambridge collaboration, a drastically slimmed down Milton Keynes plant was reequipped with cutting edge photonics equipment and started taking on specialised contract manufacturing work.⁶³ However, at the time of writing this, it seems that this plant has been closed.

On the scientific front, Toshiba's two research centres in Cambridge and Bristol remain as substantial units, along with Sharp's research centre in Oxford and Hitachi's in Cambridge (see next chapter for more details).

But the big disappointment has been in Mobile communications where the Japanese consumer electronics companies have underperformed, a failure which is rooted in strategic weakness back in Japan and has little to do with the UK. Toshiba's Telecommunications Research Laboratory in Bristol is the main exception. Elsewhere, in 2000, DoCoMo entered an alliance with Hutchison to coinvest to bring 3G technology (UMTS) to the UK, but the venture did not last and DoCoMo pulled out, despite the fact that was amongst the most innovating of the Japanese mobile comms companies back in Japan. Around the same time, Matsushita's Mobile Communications created a 400-strong R&D centre, but this also failed to put down long-lasting roots, as Matsushita/Panasonic rethought its mobile comms strategy. (In 2009, Panasonic put down a very different operation, the Panasonic Design Centre, which was to be located in London's Leather Lane with the mandate to initiate design concepts and research projects based on latest European market and consumer trends.)

The most substantial Japanese venture in this sector only touches Britain tangentially. This is the Sony-Ericsson joint venture, which was formed in 2001 when these under-performing players came together to try to join Japanese and European strengths. The new company, Sony Ericsson Mobile Communications (SEMC), is headquartered in the UK, but is perceived as a Swedish-Japanese company. This is thus an extremely interesting case of a company which seems to have no roots into the "real" British economy, but whose purpose is to provide global corporate functions to a global operation.

At the same time, Sony UK still employs around 4,500 people in Britain in centres which include its British headquarters, some residual manufacturing at Pencoed; a significant games software operation around Liverpool; Sony Professional, the roots of which go back to 1978, when Sony set up an operation in Basingstoke to service the BBC, and which became Sony's regional broadcasting HQ with sales responsibilities for EMEA and relevant Commonwealth nations. If one also considers a

⁶³ Interview with Peter Woodlands

central treasury operation placed in London to service Sony's global needs, one can get a sense of the organisational complexities of a leading Japanese high-tech company.

Canon is an exceptionally interesting company because its investment strategy for the UK virtually skipped the manufacturing stage, going almost straight to R&D and software development activities in the late 1980s, on the back of which it gradually added other high-level corporate functions until finally, after some 20 years, it relocated its European Headquarter functions from Amsterdam to Stockley Park near to Heathrow Airport in London. This was a major coup for the British authorities who have made the capture of Regional Headquarters one of their prime goals. The new HQ was initially due to employ around 500 people.

Elsewhere in this sector, in 2001, Sumitomo Chemical entered a relationship with Cambridge Display Technology, a pioneer in the development of polymer organic light emitting diode (POLED) displays, which culminated in a 2007 buyout of CDT for a reported \$285 million.

Finally, if one refers back to the original wave of television investors in the 1970s, two have led to a deepened relationship with the UK, but in very different sectors.

Hitachi's Welsh television plant was closed down in 2001, but the fundamental research laboratory continued in Cambridge, being joined there by Hitachi Software Europe in 2007. However, Hitachi Europe in Maidenhead coordinated a much wider range of ventures, the most striking being a push into the British rail market. In 2005, they won a small order (£240 million) to supply Japanese-built high-speed trains from Kent to London St Pancras, sourcing about a quarter by value of the components from the UK or wider Europe. These Javelin trains will be a very visible part of the 2012 Olympics operation. They were then, as leader of a consortium, chosen as preferred bidder for a £7.5 billion contract to supply and maintain a fleet of next-generation Intercity express trains. This would have involved putting down assembly and maintenance plants in the UK. However, this deal subsequently started to unravel for no fault of Hitachi's, as the British government ran out of money, and the technical specifications of what kind of trains were needed started to be re-thought.

In the case of Toshiba, whose original television plant in Plymouth closed down in 2009, there was the massive, but unusual, transaction in 2006 when Toshiba bought Westinghouse, British Nuclear Fuels' US arm, for \$5.4 billion (£3 billion). Technically, this shows up as a Japanese investment into the UK, even though it had hardly any impact on the real British economy,

Conclusions

The electronics sector is one where the Japanese contribution has declined in importance over the decades. In the 1970s and 1980s, the investments from the consumer electronics giants and the help that Fujitsu was giving to ICL were transformational. They showed that British managements and workforces could, under Japanese tutelage, perform well.

However, once the first wave of plants matured, the Japanese contribution seems to have tailed off. The British sectors of excellence such as broadcasting (BBC), mobile telephony (Vodafone), chip design (ARM Holdings) and games software do not seem to have been particularly influenced by any

particular Japanese investments. This probably reflects the strategic problems these Japanese companies have had back in their home economy, as they failed to turn their strengths in consumer electronics and memory chips into a serious role in the personal computer world or, despite the sophistication of the Japanese mobile phones sector, into a global role in mobile communications. So, while DoCoMo failed to globalise its i-mode phones, Britain's Vodafone was creating a global presence through a policy of aggressive overseas acquisitions.⁶⁴ Similarly, ARM Holdings was following a strategy which has turned it into a global force, with its CPU architecture now driving some 90% of the world's mobile devices.

This sector therefore contrasts quite markedly with the automobiles, where the Japanese players came to Britain as global players and have, if anything, strengthened their position. In electronics, the pioneering Japanese electronic investors initially seemed invincible, but for reasons which are to do with failed corporate strategies⁶⁵, failed to turn their strengths in consumer electronics into the dominance of computers and wider telecoms - a dominance which most observers in the 1980s assumed was almost inevitable.

What we have seen instead is a series of investments in which Japanese companies have invested in the UK to benefit from working with British centres of excellence. So, the research labs have come to Oxford, Cambridge and other good quality universities. Sony Professional seems to be attracted by Britain's cutting edge broadcasting scene, while Sony Computer Entertainment was helped by the British gaming tradition. However, the overall impression is that the major Japanese electronic players primarily value the UK as a centre of all the professional skills and international knowledge needed to support regional or, even, global headquarters. Britain's attraction is not just based on the English language, or being a taking off point for European markets. It is now often seen as the logical place from which to coordinate expansion into, not just Europe, but (as in the case of Sony Computer Entertainment and the marketing of the PlayStation) also into the Pacific, Africa and Latin America.

⁶⁴ Of course, one must note that Vodafone failed to break into the Japanese market, but that has not stopped it from becoming the leading global operator with one of the world's top ten brands.

⁶⁵ This is a personal view, which I can develop in future versions of this draft.

CHAPTER 5

Research and Development

Situation in the Early 1990s

In the early 1990s, JETRO and the Department of Trade and Industry both claimed that there were over 150 Japanese companies doing some kind of RD&D (Research, Development and Design) in the UK. However, such a figure was misleading since it included everything from advanced laboratories working with Nobel prize-winning University centres, to one-person technology scanning operations. Somewhere in the middle there would be fairly trivial market-driven development activities. There was also the problem that some of these initiatives were more collaborations with British institutions than classic investments.

The interest in locating R&D in the UK started to grow in the late 1980s, though Aisin Seiki, the auto component supplier, had put a lab down on the University of Sussex campus in 1977, and Canon was doing research on audio technologies from the mid-1980s. The major wave of enthusiasm then built up amidst the general euphoria created by the Bubble Economy. Japanese companies felt that they were on top of the world. They were attracted by the idea of "tripolar" research operations which would allow them to do research on a 24 hour basis, transferring problems from Japan, through Europe and USA, as the sun moves westward. There was also a trophy-gathering element in that there were attractions to putting down linked labs in world famous centres such as Cambridge in the UK, and Stanford in the US. This was also an era in which a steel company such as Kobe Steel could confidently hope that it could turn itself into a biotech company through a research-based diversification.

There is some anecdotal evidence that these early research projects in the 1980s and early 1990s often came about because of the personal enthusiasm of Japanese executives who had spent time in British universities. This seems to have been story of Canon Audio, which was set up in Guildford very much due to the personal enthusiasm of Prof. Hirokazu Negishi, who had done some of his early research as a graduate student in the UK.⁶⁶ The enthusiasm of a couple of researchers who spent time at the University of Edinburgh led to the 1989 creation of the Fujisawa Institute for Neuroscience. Similarly, Japanese researchers who had spent time at Cambridge University's Cavendish Laboratory played a part in the establishment of research investments by both Hitachi and Toshiba.⁶⁷

Development/Design Centres⁶⁸

Most companies going overseas initially complement their factories with some kind of design team initially charged with working with local suppliers to start substituting for bulkier components, before then moving on to adapting end products or models so that they better meet local consumer

⁶⁶ Needs checking.

⁶⁷ Again, needs checking

⁶⁸ For fuller details of all the cases up to the mid-1990s, please refer to *The British Research of Japanese Companies*, Louis Turner, David Ray and Tony Hayward London: Insight Japan 1997

preferences. This proved substantially true of the initial Japanese investors, though Canon and Kobe Steel put labs down without having local production.

Nissan is a classic example of this process. In 1988, the Nissan European Technology Centre was set up in Sunderland to be close to the Nissan plant in Washington. In 1991, development work was moved down to Cranfield, at least in part to be near to the University there. By 1997, NETC was employing 300 staff, with another 70 employed in Brussels. In the early 1990s, the Centre took the lead in developing the Terrano II, an up-market recreational model which was manufactured in Spain, and was good enough to export back to Japan. As far as mass-market models for British manufacture, the Centre started to take the lead in producing variants of models such as the Micra or Primera which were fundamentally conceived in Japan.

The ball-bearing company, NSK-RHP, was another company which had a well-established development operation in place, reflecting the fact that it was one of the first Japanese companies to put a plant down in the UK (1974 in Peterlee), and the fact that, in 1990, it absorbed what was left of RHP, the old British National Champion. With roughly 100 engineers in the mid-1990s, its European Technical Centre supported the company's operations across Europe, while working closely with NSK's other technical centres in Japan and the USA.

In the electronic sector, ICL's extensive development labs were strengthening their relations with Fujitsu's corporate Research Labs. At the same time, Fujitsu had five other RD&D operations in the UK focusing on information technology (Stockley Park), Telecommunications (Birmingham), Parallel Supercomputing (Imperial College), VLSI Design (Manchester) and Microelectronics (Newton Aycliffe). The range of these initiatives both indicated Fujitsu's interest in the UK as a research centre, and the relatively fragmented nature of the parent grouping.

Sony was another company in which a number of RD&D operations reported back to separate business units (10 in the mid-1990s) rather than to the company's formal central research organisation. In 1978, a small research group was formed to focus on Broadcasting and Professional Products. After originally going to the Netherlands, they relocated to Basingstoke in response to Britain's broadcasting reputation, and to be able to tap into the engineering pool around the engineering division of the old Independent Broadcasting Authority (IBA) which was located nearby. In 1996, the company then added a digital consumer product development group to the Pencoed factory. They then picked up a significant computer games development capability when they bought a high-flying Liverpoolian company called Psygnosis in 1993 (paying between £15-20 million for it). This company was important in providing some of the early hit games needed to establish the PlayStation with western gamers.

The North Star Labs⁶⁹

A handful of the first wave of laboratories were devoted to fundamental research, with no pressures to feed into short-term product development. Two of these were closely linked to the Cavendish Laboratory. In 1989, Hitachi, which had a history of welcoming international scientists to its Tokyo Research Labs⁷⁰ created the Hitachi Cambridge Laboratory, which was a collaboration between

⁶⁹ "North Star" is the Japanese version of "Blue Sky".

⁷⁰ Turner, Ray & Hayward, *ibid*, p33

Hitachi and the Microelectronics Research Centre at the Cavendish. By 1993, it was producing genuine breakthroughs, and, by 1997, it was well enough established that it could win EU funding (through the ESPRIT programme) for a Hitachi-led research consortium. In 1991, Toshiba set up the Toshiba Cambridge Research Centre, headed by Professor Michael Pepper from the Cavendish Lab.

An even bigger North Star investment came from Eisai which complemented a US research investment with an initial £15 million investment in a research unit within the University College, London campus to investigate disorders of central nervous system and the brain. Through the mid-1990s, they continued to invest £5-6 million per annum.

Other companies put labs down in university-linked science parks. Sharp Laboratories of Europe was created in 1990 and located in the Oxford Science Park with Dr Clive Bradley, former Science Counsellor in the British Embassy in Tokyo, as Managing Director. They mixed relatively long-term research in areas like 3-D electronic display technology, with development work on microwave ovens which fed into Sharp's Wrexham labs. Yamanouchi was a second company to put a lab down in Oxford doing relatively long-term pharmaceutical research.

Two other companies put labs down in Guildford, basing themselves in the Surrey Research Park. One was Canon, which had showed an interest in European technology dating back to 1981 when it created an Advanced Technology Department to focus on the European Community (as it then was). Canon Research Centre Europe was established there in 1988, working both on audio technology and computer software through a subsidiary called Criterion Software. The second company was Kobe Steel, which mixed university-linked research with support for Kobe's manufacturing plants round the world.

These were all serious operations, with Sharp, Kobe and Yamanouchi all employing over 30 researchers by the 1996/7 period.

What Happened to the First Wave?

Not all the first generation of RD&D Labs survived. The Kobe Steel labs got closed in the late 1990s as the financial pressures on their parent company got too great. Canon Audio was judged not to fit in with Canon's overall priorities and was closed, as was the Yamanouchi Oxford Laboratory. In the latter case, it was judged that the Japanese research headquarters had learned a great deal about western research culture and methodology from the Oxford operation and that they could therefore let it go.⁷¹

On the other hand, the Sharp Labs in Oxford, and the two Cambridge labs of Toshiba and Hitachi have developed as serious parts of their companies' global research infrastructure. The Nissan and Eisai operations have significantly expanded, while Toshiba has added a second major research lab in Bristol.⁷²

Nissan, Auto Design and Formula 1

⁷¹ Mike Minchin - seminar presentation

⁷² I am not clear what happened to the Aisin Seiki lab. I came across one cryptic reference that it might have been integrated into a wider European operation called something like IMRA.

During the Noughties decade, Nissan shifted Nissan Design Europe from Germany to London, ultimately basing it in London's Paddington, with the Nissan European Technical Centre remaining in Cranfield. By 2008, NDE had around 70 employees, of whom 30 were freelance. Nissan Vice-president Alfonso Albaisa claimed in 2008 that the Centre was increasingly being used by Japan as a creative centre, and was starting to take on non-European design assignments for the first time, as well as having a remit which stressed doing much more early developmental work, rather than the final engineering design assignments which characterised its early years. So, back in the 1990s, one of the first jobs given to the Nissan European Technical Centre was to redesign the rear of the Primera model to produce a five-door variant. By 2006, the Nissan Washington factory was producing the Qashqai, the design of which had been the responsibility of NDE. In August 2010, the company launched the Juke, a small cross-over model, which was created by the NDE and refined back in Japan. Both models were designed to be sold beyond Europe, with the Juke going to both Japan and the US.

Neither Toyota nor Honda have anything equivalent in the UK. Toyota does have a European design centre in Nice, which has produced at least one design for production in Burnaston. Honda has a research and design centre in Milan, which is certainly doing conceptual work. Depending on how one classifies Formula 1 racing, one can argue that Honda's investment in a British-based Formula 1 team was a form of (abortive) research and development. The company had been involved in Formula 1 twice before, and reentered in 2000 as an engine supplier to the British American racing team, which it bought outright in 2006. It invested heavily in this project, including in a state of the art wind tunnel which was launched by the Secretary of State for Trade and Industry (Alistair Darling) and Shigeru Takagi, President of Honda Motor Europe. In 2008, the team was employing 700 people in Brackley and were quoted as spending \$283 million. Despite the fact that this was one of the highest team budgets in 2008, their results were dire, finishing 9th out of the 10 teams which raced through the 2008 season (Toyota, with a Japanese-based team, did not do much better).

Citing financial pressures, Honda pulled out of the sport in December 2008, generously offering to support the team management while they looked for a new owner. Ross Brawn, their team principal, arranged a management buyout in the spring 2009 and then, much to the embarrassment of Honda, went on to win the first race of the 2009 season, finishing it with the championships for both driver and constructor. Obviously, Brawn was benefitting from all Honda's investment in the previous season, but such a dramatic turnaround seems to have significant lessons. The conventional wisdom in the British press is that Honda had held their employees back through "a cumbersome, corporate management structure that had no place in a sport requiring instant, pragmatic decisions."⁷³ⁱ - a judgement confirmed to me by someone who worked in the original Honda team.

The Electronics Sector

Although the early Noughties saw significant divestments by Japanese electronic companies, their R&D operations continued to move forward. In 2000, Toshiba opened a second research operation, the Telecommunications Research Laboratory (TRL), in Bristol with Professor Joe McGeehan becoming its Managing Director. He had been a conceptual pioneer of 3G technology and was in a position to develop a lab which drew synergies from both the Japanese (through Toshiba) and the

⁷³ "Brawn has the brains and grace to turn any formula one team into a world-beater" Guardian 18 April 2009

very strong British mobile communications community. This lab is now designated as Toshiba's global lead for research on wireless. By 2006, it had received \$45 million investment, and was employing 30 research engineers and 10 sponsored PhD students on cutting-edge wireless research.⁷⁴

Although TRL is fairly well publicised, Panasonic, Fujitsu, NEC and Sharp have all also been doing telecommunications research in the UK since the turn of the century.

Pharmaceuticals

One other research sector which started to attract new Japanese investment during this period was pharmaceuticals, in which Toyama, Takeda and Kowa Research joined Yamanouchi - though in 2001, the latter became the target of a rather nasty campaign by the Animal Liberation Front, which raised questions in Japanese minds as to whether such research could be safely done in the UK. A year later, the Oxford lab was closed down and its expertise was transferred to Japan, possibly because the parent company decided that increasingly important genomic research was best done from the company's central laboratories.⁷⁵ Later on in the decade, Astellas (formerly Fujisawa Pharmaceuticals) decided to close down the CNS relationship that it had opened with Edinburgh University in 1992.

However, as Yamanouchi (now known as Astellas) withdrew, other companies became more active. Japan's largest pharmaceutical company, Takeda, had a Takeda Europe R&D Centre Ltd active in 2000. Two years later, under a five year partnership deal, Takeda Chemical Industries donated £3.2 million to fund a new research facility at the Oxford Centre for Diabetes, Endocrinology and Metabolism (OCDEM), which is a collaboration between the University of Oxford, the National Health Service (NHS), and three partner companies, including Takeda and is a world-class centre for fundamental and clinical research on diabetes and endocrine and metabolic disorders. The donation was to finance a three-storey research building to be known as "the Takeda Wing". Takeda Europe Research & Development Centre is involved with this venture, which would involve researchers being sent from Japan to take part in collaborative research.

Over subsequent years, Takeda started to invest in early stage biotechnology ventures, which is a strategy that the pharmaceutical industry is using to complement traditional in-house research. In 2004, Takeda invested (through its American arm) in Lectus Therapeutics Limited of Bristol. A year later it entered an open-ended three year alliance with Paradigm Therapeutics Ltd to identify targets in the field of CNS (central nervous system) diseases. In 2007, Takeda formally acquired Paradigmm and renamed the company Takeda Cambridge. The integration of the British company would help to accelerate scientific processes such as the validation of drug targets derived from genomic research, the creation of animal models reflecting the human pathologic conditions, and the optimization of drug candidates. In 2008, it entered an agreement with CellCentric, a Cambridge University spin-out, to work on an undisclosed epigenetic target, in the form of a protein that seems could ultimately be worth \$200 million to take this work further forward.

⁷⁴ In a fleeting conversation with Joe McGeehan, I gather this laboratory is now also charged with working in the area of environmental technologies.

⁷⁵ "Yamanouchi to transfer research institute from the UK to Japan", AsiaPulse News, February 20, 2002

Takeda does not seem to have put down a significant in-house research operation down in the UK, but it is clearly integrating itself into the British scientific community. However, its initiatives are swamped by Eisai which has complemented its involvement with University College London by an £100 million investment in its 'European Knowledge Centre' (the EKC) in Hatfield, Hertfordshire. This involves the company's first ever manufacturing facility in Europe, the company's European headquarters, discovery research, clinical development teams, and UK sales and marketing operations. According to one report this investment has created 250 research jobs, though this seems high.^{76 77}

[The rest of this chapter has been finished in a hurry, and will need expansion in future versions of this draft]

Professorial Chairs, Fellowships and other Initiatives

Beyond the creation of classic research labs, Japanese companies have integrated themselves into the British research establishment in a number of ways

- Toshiba Fellowships
- Daiwa Anglo-Japanese Foundation
- Sumitomo/STS Professorial Chair
- London Centre for Nanotechnology (UCL)
- Nissan Institute, Oxford University
- Nomura Institute of Quantitative Finance (Oxford)

Collaborations to exploit University innovations

- Nikko Cordial and Imperial Innovations (NPI Ventures)
- Mitsui & Co and Isis Innovation - promotion of business opportunities in Japan (2004)

Reflections

British policy has increasingly focussed on attracting investment into higher-value-added activities such as RD&D. From the evidence of this chapter, this policy would have to be judged as being successful.

The variety of the relationships described in this chapter show that the RD&D relationship (broadly defined) has roots back in the 1980s, but has continued to expand and to develop in new directions. The emergence of pure Design centres is a reflection on the health of the British design tradition, and there are signs that some of these centres are starting to influence decisions back in Japan.

There is some evidence that R&D initiatives can lead to significant second-stage developments. The Eisai case is a very clear example. Institutions can matter

It is clear that R&D investment is drawn towards genuine centres of excellence, with Oxbridge doing well. It also looks as though the Japanese pharma industry is reacting to Britain's perceived strengths

⁷⁶ "Eisai Opens GBP100 Million European Headquarters Facility in the UK" PR Newswire Europe, June 26, 2009

⁷⁷ The Daiichi Sankyo story probably needs adding

in the biopharmaceutical area. The creation of UK Centre for Medical Research and Innovation (headed by Noble winner Sir Paul Nurse) should reinforce this reputation.

Such centres of excellence do not necessarily have to be Universities or world class scientific centres. In broadcasting, for instance, the BBC has built an international reputation for innovation, and the judgement of the BBC's Chief Engineer's team is attractive.

The presence of EMEA (European Medicines Agency) was an initial powerful draw for Japanese life science companies.

There are some areas where I'm unsighted

- How does competition with rest of Europe play out?
- How much genuine integration with R&D back in Japan?
- How much RD&D is going on in Toyota, Honda and the automotive supply chain
Compared with Nissan's story?
- The Software/Creative Industries picture

Chapter 6

Pharma

[Chapter to follow]

Chapter 7

Financial Services

[Chapter to follow]

Chapter 8 – Conclusions

- The Current Situation

Twenty years on from 1990, Japanese investment is no longer exceptional. In fact, over 2008-9, it was the Indians who were the most active Asian investors in the UK, out-investing the Japanese by a third when counting projects (108 against 81) and by nearly 300% when counting jobs created (4,139 versus 1,405).⁷⁸ Of course, the historic stock of Japanese investment was still vast when compared with that from the rest of Asia (making up just over two thirds of the Asian total) but the momentum seemed to be with the Indians.

However, towards the end of 2009 and the first quarter of 2010 a series of decisions came from companies such as Nissan and, Toyota which both showed the realities of how companies allocate projects between different national subsidiaries, but also showed that the Japanese automotive sector can still contribute transformational initiatives.

During the last 12 months of Gordon Brown's Labour government, British policy increasingly stressed the goal of turning Britain into one of the lead markets and production centres for Clean Transport. In the summer of 2009, Toyota decided to locate the production of its first hybrid auto in Europe in its Burnaston plant. As I've noted earlier, this decision seems to have been made with little overt lobbying from the British authorities. Burnaston already made conventional versions of the Auris, so adding a hybrid model to the line seemed a logical choice. Even so, it was a decision which seemed to signal Toyota's satisfaction with Burnaston as a factory, and the UK as an investment location.

There was more diplomatic activity around Nissan's Electric Vehicle decision.

As the decade had progressed, it became common knowledge that the Micra, one of the three⁷⁹ models being produced in Nissan's Washington plant, would need to be redesigned and, since it was a small car, it was likely that production would be allocated to plants elsewhere in Nissan's system. In March 2010 it was announced that the new Micra would initially be built in Thailand, Mexico, India and China - a clear indication of the global competition now facing established economies like Britain's.

The Micra was replaced by two new models. The first was a small sports utility vehicle named the Juke, which had been created by the London-based Nissan Design Europe. The second was a "trophy" investment, the Leaf electric car, which, in March 2010, was formally confirmed as coming to Britain.

This Leaf project combined the mutual self-interest of Carlos Ghosn, who had decided that Nissan should become a force in Electric Vehicles, with that of the British authorities who wanted to position the British economy as being at the forefront of Green technologies. The British prioritised winning the Leaf mandate for Nissan's British plant. As a first step, they persuaded Nissan in 2009 to locate a 350-person auto battery plant in Sunderland, and then they fought off competition from Nissan's Barcelona and Renault's Flins plants to win the even more important Leaf mandate.

⁷⁸ UK Trade and Investment, UK-Your Springboard for Global Growth: UK Inward Investment 2008/2009 p 3

⁷⁹ Qashqai and Qashqai + 2 (a seven-seater) were the other two. Nissan source June 2010.

There was a relatively small grant involved, but a good part of the British campaign turned on convincing the Nissan management that the British would proactively create the infrastructure needed to help electric vehicles win fast acceptance. So, by the start of 2010, Newcastle (Washington's bigger neighbouring city) was due to install 40 charging points, with over 600 due for installation across the whole North East region. One North East was also building a £10m training college near Nissan's plant for "green-collar jobs" in areas such as fuel-cell or battery development. In addition, a disused test track was made available as an open-access facility for low-emission vehicles. As Colin Herron of One North East put it, "We are trying to build an 'X' factor on top of what government can legally offer."⁸⁰

The battery plant and the Leaf mandate were part of a major British push to place the UK at the forefront of the new Green economy, and Japanese companies were amongst the initial targets, reflecting their strong reputation for cutting edge technology. Nissan was particularly attractive, but there were other targets such as Mitsubishi Power Systems, one of the world leaders in Wind Turbines. This company was persuaded to sign a non-binding Memorandum of Understanding signalling an intention to invest up to £100 million in a wind turbine R&D project, which could be expected to create up to 200 skilled jobs in the North East by 2014. Once again, the government was investing in supporting infrastructure, in this case both an £18.5 million offshore wind test site and a blade test facility in the North East that will enable the testing of blades up to 100m in length.⁸¹ In this case, the ultimate prize would be a factory to produce next-generation wind turbines for the offshore wind farms which are being built around the British coast. Such a plant could create up to 1500 jobs.

Another part of the Mitsubishi family, Mitsubishi Heavy Industry, made an equally significant commitment north of the border, in Scotland. In July 2010, they signed a deal with Scottish and Southern (SSE) to cooperate on the development of offshore wind farms and on the development of a smart grid to help the recharging of electric vehicles. The deal would create 100 jobs at SSE's engineering centre at Strathclyde University in Glasgow, with a belief that 1000 posts would be created by 2015. The project was brokered by Scottish Enterprise and should be seen in the context of Scottish aspirations to produce over half their energy needs from renewable sources by 2020. As SSE boss Colin Hood put it: "This agreement represents one of the most significant industrial partnerships in Scotland since the heyday of North Sea oil, and low-carbon energy represents Scotland's biggest economic opportunity since then."⁸²

These investments, involving four major Japanese companies, showed that Japanese investment in the UK had once again become a clear positive-sum game for both parties - the British and the Japanese. Whereas, in the 1980s and early 1990s, the Japanese valued Britain for the ease with which investments could be made and for the help that the British authorities gave in gaining European acceptance for them, these 2010 initiatives showed that Britain was becoming attractive to Japanese companies as a location with significant technological and lead market attractions. By getting involved in the UK, the Japanese would actually be strengthening their global capabilities. At the same time, the British knew that they were tapping into Japan's cutting edge technology, which was not available from newer competitors such as China or India. In particular, as plants such as Burnaston (Toyota) and Washington (Nissan) get involved with cutting-edge technologies, they become much less vulnerable to cheap labour competition elsewhere in Europe or in the wider

⁸⁰ "UK's north-east leads drive for electric cars" John Reed, Financial Times, January 28 2010

⁸¹ "Mitsubishi Power To Invest 100 Million Pounds In Uk Wind Turbine R&D Project", US Fed News Service, February 26, 2010

⁸² "Green Energy Deal Clinches 1000 New Jobs: Hi-Tech partnership boost for Scotland", Daily Record (Glasgow), 17 July 2010

world. Each of these recent investments makes it less likely that firms like Toyota and Nissan will engage in the kind of massive disinvestment from the UK as took place in the consumer electronics sector in the years on either side of the Millennium.

- **How effective has British policy been?**

On almost any measure, British policy has proved extremely effective in maintaining the Japanese investment which was first won back in the period from the 1970s through the early 1990s.

.....UK v Europe?

On average, the UK has attracted 37% of Japanese investment in the years from 1995, which was the first year when the Japanese statisticians started collating investment figures for the whole of Europe. These statistics are not definitive since there are very heavy flows through the Netherlands and, occasionally, Luxembourg - transactions which will almost entirely be an accounting device covering an inflow of funds which will then have been reinvested elsewhere around Europe. Since it is not clear where these "Dutch" funds ultimately end up, one has to be slightly careful about reading too much into the basic figures.

With this caveat, and realising that Japanese statistics sometimes diverge quite widely from those used by the British authorities, there has only been one year since records began when the UK was not the leading European destination for Japanese investment (in 2002, France came first). Moreover, there has not been a single year in which Germany has been in the lead - though provisional Japanese figures suggest that Germany and the UK were almost equally attractive in 2009, though statistics used within UKTI suggest that the UK was still out attracting Germany by a ratio of around 2:1.⁸³ In general, though, (and sticking with the Japanese figures) Germany has averaged 8.7% of European inflows from Japan, with France slightly behind at 7.6% - both well behind Britain's 37%.

Interestingly, despite the apparent Japanese interest in relocating significant investments to East Europe and Russia, the whole of this bloc has only attracted an average 3.8% of Japan's investments to Europe, with the years 2003-5 being the most recent high point, with another reasonably strong performance in 2009's provisional figures.

Although the UK's relative dominance of the European scene has shown some decline, it has been with significant variations, and it could be that the relatively disappointing years of 2007-9 may be followed by some more cheering ones as the big auto and energy companies respond to the opportunities in the British Clean Technology sector.

Even if there is some relative decline, Britain's ability to stay ahead of its immediate major economic competitors (Germany and France) is impressive. Obviously, the convenience of the English language has played a significant role, but there have clearly been other factors at work.

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⁸³ This disparity between the British and Japanese statistics only came to light on the final day of putting this draft in place. Clearly, I will need to do some hard work to see how these disparities can be explained.

[I need to add a potted history of British Inward Investment policy at this point. However, I hope to add a conference paper to the overall website, which was written by Andrew Fraser in the late 1990s. This gives an invaluable insider's history of developments up to that point.]

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Of course, there have been some problems, but they were handled adequately. There was, for instance, nothing the inward investment authorities could do to change New Labour's 1997 decision to stay out of the Euro, with all that meant in terms of currency fluctuations and periods of sterling over-valuation. However, what officials could do with concerned Japanese investors was explain to them that they could hedge against currency movements, so that the worst impact of currency fluctuations could be ameliorated - albeit at a cost. Gradually the issue of whether Britain should be in or out of the Euro slipped down the list of Japanese concerns until in 2010 some Japanese investors (Komatsu to the fore) were going on record to say that they realised that they might be better placed with the Pound being out of the Euro, during a time when the British economy needed to rebalance itself away from an over-dependence on financial services.

At the time of writing (Nov 2010), two other issues had emerged in the aftermath of the emergence of the Conservative-Liberal Democrat election in May 2010. Firstly, there was the tightening of the regime around the issuance of work permits for senior and other skilled employees of British-based companies. Japanese businesses, with their tradition of rotating Japanese managers into the UK for two- to five-year stints, were particularly affected by this tightening and the UK-Japanese business establishment lobbied hard behind the scenes. In addition, the new government's reorganisation of British regional policy, which involved a process which would lead to the abolition of the RDAs' (Regional Development Agencies) created uncertainty, because it was these bodies which had generally delivered local assistance to incoming investors and normally provided quite substantial after-care service, whereby they would help investors iron out post-investment problems.⁸⁴

Apart from these two or three issues, investment relations between the two countries have remained positive. Major Japanese purchases of British assets - Nippon Sheet Glass of Pilkington, Toshiba of BNFL's Westinghouse and Nomura's 2008 acquisition of the European and Asian operations of the bankrupt Lehman Brothers went ahead with minimum political controversy.

Given that the general environment surrounding Japanese investment has remained positive, there have been subtle changes in how Whitehall has treated Japanese investors. One senses that royalty and top level politicians are less involved in visiting potential investors in Japan or opening new factories in the UK. Instead, attention has turned to ensuring that existing investors are happy with their relationship with Britain. As Japanese factories have matured, officials have spent more time monitoring investors' micro-decisions on issues such as the replacement of ageing models or the development of new lines of business. The courting of Nissan regarding its electric vehicle, the Leaf, was a good example.

⁸⁴ At the time of writing, permit arrangements seemed likely to remain fairly relaxed for employee cross-border reallocation within multinational companies. The future of the regional dimension of inward investment policy remained opaque.

The Leaf decision was a particularly high profile one, but investment diplomacy has increasingly moved on to new targets. One set of officials is charged with working with foreign companies to persuade them to put research, development or design centres down in the UK. Others are charged with getting companies to locate their regional headquarters here, often focusing not just on Europe, but on EMEA ("Europe, Middle East and Africa"). Sometimes the two campaigns came together as when Eisai was persuaded to locate its European Knowledge Centre at Hatfield, which involved an European headquarters, discovery research, clinical development and manufacturing.

Despite these successes, the attraction of Japanese investors has now become relatively routinised, and has been subsumed within broader programmes to develop business across Asia and the other emerging economies. In 2005, a high-level Asia Task Force was created within UK Trade and Investment⁸⁵ In 2006, UKTI announced a new five-year strategy which demonstrated how official attention has moved on from Japan to take in high-growth emerging economies such as China, India, Brazil, Indonesia, Mexico, Russia, Saudi Arabia, South Africa, Turkey and United Arab Emirates. It is accepted that Japan can still produce game-changing investments such as the recent series in the Clean Technology area, but the UK has now switched its main focus to attracting first-generation investments from the next generation of emerging economies.

.....Domestic issues

Clearly, Japanese investment has contributed to the British economy, and it is easy to rattle off the figures such as there are 1400 Japanese companies with investment in the UK, employing over 100,000 people⁸⁶, led by the automotive sector in which Japanese companies are responsible for over 50% of production.⁸⁷

However, these bald figures only tell part of the picture.

Firstly, one can argue that certain key Japanese investments have had a catalytic importance which goes far beyond the bare statistics of the jobs created. The initial consumer electronics investments of the 1970s came at a time of severe national malaise in the UK, and were the first to show that foreign managements could get much more positive results out of British labour forces than the majority of British managements of the time. The automotive investments from the mid-1980s demonstrated this even more clearly, and I am convinced by Dan Jones' arguments that the lessons from the Lean Management practices of Nissan and Toyota have permeated into significant other parts of the British economy⁸⁸. In these cases, the direct jobs created are just part of the story. Whether it can be statistically proved or not, flagship Japanese investments from the 1970s onwards helped the British manufacturing sector to narrow the significant productivity gap with world best practice which was evident at that time.

That particular demonstration effect will have declined as West European managers have learned the lessons from Japan. However, the latest wave of Japanese investments in Clean Technologies look as though they will have another important, but different, demonstration effect. In this case,

⁸⁵ I have been told that Japan was originally not going to be included in this, but I still have to check that.

⁸⁶ "Lord Mayor's Speech, 28 May 2010", British Embassy Tokyo website, <http://ukinjapan.fco.gov.uk/en/news/?view=News&id=22294086>

⁸⁷ Ibid

⁸⁸ Personal communication.

they are signalling that cutting edge Japanese companies are convinced that the British shift towards Green Technologies is genuine. As a result, their investments are reinforcing the emergence of a competitive British Green Tech economy,

With only a slight overstatement, one can go further to argue that Japanese investment saved the British auto industry from almost certain extinction. Without the input of Honda during the 1980s, Britain's national champion, the Rover Group, would not have been worth BMW's attention, with probable loss of the Mini and the Cowley Plant. If the Rover Group had continue to disintegrate, and if Toyota and Nissan had not made their high profile investments, it is inconceivable that other countries' auto giants would have taken the UK's auto sector seriously. Perhaps Ford's transformation of its operations into a centre of excellence for auto engines would still have taken place, but the rundown of classic auto assembly by Ford and GM would almost certainly have occurred even faster since, since there would have been not one auto plant in the UK which came close to world best practice

Instead, the Japanese investments helped rebuild the sector until British officials could claim in 2010 that: "In the case of manufacturing, Britain leads Europe as the most diverse and productive vehicle manufacturing location and as a global centre of excellence for engine development and production. More than 40 companies manufacture vehicles in the UK – ranging from global volume car makers, van, truck and bus builders, to specialist niche players. The industry is supported by a dynamic supply chain including many of the world's major component manufacturers, technology providers, design and engineering consultancies; and it benefits from a world-renowned knowledge base. No other European country has anything like this range and number of automotive players high exports, equivalent to 13% of the UK's exports of goods180,000 jobs £10.2 billion value-added to the UK economy (6.4% of the total for the whole UK manufacturing sector) Europe's third biggest automotive market"⁸⁹

I am convinced that, without the Japanese investments, the British automotive sector would have withered away. Doubtless, other sectors would have expanded to have filled the gap, but, almost without dispute, they would have involved less productive activities and the British economy would have been a net loser (and that is before taking the impact of their Lean Management expertise into account).

Of course, it is possible to raise some questions about whether the impact of Japanese investment has been totally beneficial.

It is legitimate, for instance, to question just how deeply these Japanese investments are integrated into the British and wider European economy. given how easily the first wave of electronics investments seemed to melt away. Certainly, one can point to a reasonable range of Japanese auto component suppliers which have followed their end clients, Toyota, Nissan and Honda.⁹⁰ However, I find it difficult to pass a confident judgement about the overall importance of these investments,

⁸⁹ "Europe's most diverse and dynamic automotive industry", Department of Business Innovation and Skills website, <http://www.bis.gov.uk/policies/business-sectors/automotive> - downloaded 7/11/2010

⁹⁰ The following all seem to be active at the time of writing (Nov 2010): Calsonic Kansei, Hitachi Electric, Magna Kansei, Nippon Denso, Nippon Sheet Glass (through Pilkingtons), Nissin Showa, NSK Bearings, NSK Steering, Sumitomo Electrical Wiring, Takao, Toyoda Gosei, Tsubakimoto and Yuasa Battery

and there are at least two observers of the British auto scene ⁹¹ who are cautious about how secure a number of these investments actually are. There is evidence of some these companies occasionally relocating activities to other European locations ⁹², but at the time of writing there was a series of plant expansions or new investments, many of them focussed on Wales. Reflecting on the automotive component sector, a fair conclusion would be that the Big Three assemblers have been steadily building networks of plants in the UK which partly replicate the traditional relationships they have with suppliers back in Japan. These Japanese suppliers are subject to heavy price discipline so, inevitably, not all of them have found the UK the ideal location. However, the range of Japanese auto suppliers over here, and the steady flow of new investments suggests that the roots of the Japanese-led revitalisation of the British auto industry are continuing to deepen.

It is, though, wrong to focus purely on issues to do with downward integration (component supplies etc), because there is clear evidence that Japanese investors are increasingly integrating more deeply with the higher-value parts of the British economy. Thus, they have been investing or expanding their RD&D (Research, Development and Design) operations, and have been converting their British headquarters into European ones, which often also holding responsibility for EMEA - Europe, the Middle East and Africa.

Here, there is a steady flow of positive news items, with some initiatives, such as the one involving Eisai's Hatfield development combining both RD&D and a European headquarters.

But, if questions can be asked about developments at the level of component supplies (downstream integration), one can also see a deepening of integration in areas such as research, development, design and the growing sophistication of British-based local headquarters. Possible losses at the level of skilled and semi-skilled manufacturing jobs will have been in some way compensated for by the strengthening of Britain's graduate-intensive job sectors, ranging from academic scientists, through development engineers, to the bankers, lawyers, HR specialists needed in the regional headquarters operations which many of these companies have set up.

Of course, this process of trading up to higher value-added activities does lead to the delicate question of how one compares a 1,000 person Sony TV factory in Wales against a 500 person European corporate headquarters like Canon's outside London.

However, even if the overall economic impact of Japanese investment has been positive, one can still ask questions about whether British policy has been flawless.

Certainly, one can argue that the effort and financial support which went into wooing the big semiconductor investment from companies such as NEC and Fujitsu were, in retrospect, misguided. These capital-intensive projects promised significant employment, but were never seriously integrated into the British economy and were very vulnerable to changes in the global strategies of the parent company back in Japan. In the case of NEC, we can now see that its Scottish plant, the largest single Japanese investment of the 1980s, was part of a seriously misguided push into the

⁹¹ Dan Jones in conversation, Garel Rhys cited about the foreign dependence of the British engine industry in "Can electric cars reinvent Britain's motor industry?", *The Independent*, 15 December 2009

⁹² Sumitomo Electrical Wiring in 2000; Denso Manufacturing in 2009

global semiconductor market. When that strategy unravelled, so did the viability of 1800 jobs in Scotland's Silicon Glen, leaving virtually nothing behind as a legacy.⁹³

However, this over-emphasis on "Big Box" projects was more a characteristic of the 1980s than the post-1990 period we are analysing here. Lessons were learned, and today's emphasis is much more on steering the evolution of existing investments in directions beneficial to the UK economy, than on seeking high-profile investments which do not have a strong strategic logic behind them.

A more subtle set of questions can be asked about the use of regional incentives in attracting Japanese investment.

During the 1970s and 1980s, there was a strong use of such incentives to attract the early waves of investment into less-prosperous parts of the UK, such as Wales, Scotland and England's North East. The results were projects such as the Sony factories in Wales, the NEC semiconductor plant in Scotland and the investments by Nissan, Fujitsu, Komatsu etc in the North East.

As argued earlier, a high proportion of the initial electronic plants failed to survive the Noughties. Some of this was the result of technological change, and some was because of flawed corporate strategies back in Japan, which were exposed during Japan's Lost Decade. However, part of the problem was that, as Sterling strengthened, the logic of maintaining semi-skilled TV and Video Recorder assembly plants in the UK made less and less sense. As a result, the plant closures of the early Noughties particularly hit the less-prosperous regions which had been the earliest beneficiaries of Japanese investment.

However, this did not make these investments a failure. Some of them evolved, such as Sharp's plant in Wrexham which had started as a producer of microwave ovens, but has now become the company's European manufacturing base for photovoltaic panels, exporting 98% of its output. Some of them have drastically slimmed down and moved into more specialist areas, such as the Sony operation in Wales.

However, even if they closed, most of them survived for 20-30 years, which is a reasonable life-span for any investment. In addition, it was these electronic investments which first demonstrated to the rest of Japan that Britain was a viable investment site, and that Japanese managers, taking advantage of Mrs Thatcher's labour relations reforms could work constructively with both British executives and manual workers. Finally, even though the closure of a number of those television, video recorder and microwave plants seemingly left little behind in their immediate vicinity, they often actually paved the way for other investments in other parts of the UK.

Viewed from a national perspective, this picture is reassuring. However, viewed from a regional perspective, the picture is more complex.

Putting it bluntly, the North East of England is really the only less prosperous part of the United Kingdom which has clearly won long-term benefits from Japanese investment, as the Nissan investment has steadily deepened its roots (alongside Komatsu). Now, with the interest from

⁹³ Someone has argued to me that, even if many of these electronic "Big Box" investments did not leave much behind them, what they did do was raise morale in some regions which had been battered by industrial decline, and also gave the workforce a temporary insight into what modern working conditions could be like.

Mitsubishi Power Systems in the region's wind power ambitions, it could be that the North East could build a new strand of Japanese investment which links strongly with the region's comparative strengths.⁹⁴

In general, though, the long-run beneficiaries of the initial wave of Japanese investments have not been the peripheral regions, but, increasingly the "Golden Triangle" of London, the South East, the M4 corridor and Oxbridge - with another centre round the West Midlands with its Toyota plant. For instance, London accounts for 30% of FDI coming into the UK from all sources, with the Japanese providing 9% of all the inward investment projects which have involved Think London.⁹⁵

This may seem unfair, but this reflects the evolution of the British economy, away from unskilled and semi-skilled manufacturing towards supporting knowledge-intensive service activities, which most naturally migrate towards London and Heathrow Airport. If anything, the pull of London is increasing. In 2008, I talked to someone involved with attracting investment to East of England, which includes Cambridge. I was told that potential investors flying into the UK with the blessing of the British authorities increasingly did not step outside the M25 belt. This was because investors wanting to put a European corporate headquarters down would find all the necessary expertise within London. In addition, London was competing increasingly seriously for Research and Design centres being able to draw on two of the World's (Top Ten) scientific universities (Imperial College and UCL), as well as a highly cosmopolitan fashion and design tradition, which is being continuously invigorated by the sheer cosmopolitan nature of London as a City.

What does it tell us about the UK?

The challenge of the last two decades was to persuade the manufacturing giants of Japan to make the UK their prime European base of operations. This challenge has been substantially met, despite the fact that Britain's industrial record was appalling for much of the 1970s and early 1980s, and despite the fact that between 1995-2002 sterling rose massively in strength, and the Japanese could not understand why the UK was staying out of the Euro.

Given these handicaps, the post-1990 history of Japanese investment is a remarkable tribute to the robustness of the British economy, the tolerance of British culture and the effectiveness of British officialdom (defined broadly).

British tolerance was important in reassuring the first wave of Japanese investors in the 1970s, and it has continued as positive factor right up to now. Japanese acquisitions of British companies (Fujitsu/ICL, Japan Tobacco/Gallaher, Nippon Sheet Glass/Pilkington) have been attracted minimal controversy. In fact, there was even the case of BAe Systems selling Rover to BMW, when the British company came under some criticism for treating Honda badly. Above all, what this tolerance has meant is that the interaction of Japanese managers with their British executive colleagues and wider work-forces has been remarkably smooth - even when managements were calling for wage restraint and were laying workers off during the crisis months after September 2008.

⁹⁴ Wales may be starting to make up lost ground as it seems to be attracting increasing investment in auto components.

⁹⁵ Think London statistics at the time of the opening of Canon Europe's headquarters in September 2009. <http://www.london.gov.uk/media/press_releases_mayoral/vote-london-canon-opens-its-new-european-hq-capital>

There has then been the efficiency of the whole of the British Establishment (Royalty, politicians, ministerial officials, Tokyo Embassy staff, local politicians and officials out in the British regions) in what I can only call the "love-bombing" of Japanese investors. The Queen, Prince Charles and (during her life-time) Princess Diana continued to do things like open strategically important plants. Prime Ministers and Ministers routinely give their blessing to key events such as Nissan's announcement that it would be going ahead with an electric car battery plant.

However, this level of attention to potential Japanese investors could only be justified over the 1970-2000 period when the Japanese were relatively inexperienced investors, and it was important to show that the UK was open for business. Today, however, new challengers like China and India have moved into the position that Japan held in those earlier decades.

It is thus inevitable that official attention to Japan has moved to a more detailed level. So, Whitehall and Tokyo Embassy officials swing into major action when issues arise which concern the Japanese business community as a whole. In the case of the over-valuation of Sterling in the early part of this century, that involved arguing the case for currency hedging and the diversification of component purchases to cheaper parts of Europe. Over 2009/10, as the work-permit system for non-Europeans was steadily tightened, the British authorities both in London and Tokyo worked hard to work out a compromise so that Japanese companies could maintain the practice of bringing Japanese executives over to the UK for 2-3 year tours of duty.

In general, though, these kinds of temporary mini-crises have been rare. Officials still monitor the potential investment decisions of Japanese companies which could involve the UK. These decisions are less and less likely to involve first-time greenfield investments from Japan⁹⁶, but, increasingly will be incremental in nature - a new design centre here, a new regional headquarters there or a forthcoming automobile model which is not guaranteed to be assigned to a British plant. There are now serious limits to the financial incentives which can be used to sway such decisions, so officials now have to focus much more closely on the specific needs of companies - introductions to appropriate university research centres, advice on supplies of skilled workers etc.

This points to one controversy which is raging as I write in November 2010. The coalition government has decided to dismantle the Regional Development Agencies, which have been the prime mechanisms for helping investors fit suitably into local economies. It does not look as though the administration has lost its enthusiasm for encouraging inward investment but, while politicians try to come up with an alternative structure, the UK is left with an efficient set of institutions for identifying potential investors - but a major vacuum where the RDAs once sat. The picture that I take away from this study is that current generation of investments are often calling for some very creative supportive local initiatives. How can an Embassy out in Tokyo know that there are regional assets such as a spare test track up in the North East which could be offered to Nissan as a site for testing its electric vehicles. Are civil servants in London the right people to steer potential investors to the educational establishments which will train the latter's labour forces?

In my opinion, the strength of the British approach to inward investment has been the way that potential investors have been able to call on official advice right through the chain which might start in the British consulate in Osaka and finish with officials in the home counties giving "after care"

⁹⁶ though I might need to modify this judgement as some of the potential wind power investments mature.

advice to a Japanese company which had insurance problems after one of its facilities has been virtually destroyed by Buncefield oil depot explosion. This chain of advice and support should be seamless, but, at the time of writing, the chain has been deliberately severed, and we wait to see how the links get put back together again.

Conclusion

The overwhelming picture which comes out of this story is that we are dealing with two very complementary industrial cultures. The points I made about the NSG/Pilkington story seem to be generally relevant. Japanese managers clearly tend to be masters of their technologies, but there are questions about their cultural ability to take full advantage of today's globalised world.

[In order to get this draft onto the web by my 9 November deadline, I am forced to break off at this point. I will spend another week of thought on conclusions and will put them up on the web before the end of November]

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