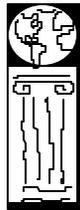


Why the Japanese Economy is not Growing: micro barriers to productivity growth



**McKinsey
Global
Institute**

with assistance from our Advisory Committee

**Masahiko Aoki
Alan Garber
Paul Romer**

**Washington
July 2000**

This report is copyrighted by McKinsey & Company, Inc.; no part of it may be circulated, quoted, or reproduced for distribution without prior written approval from McKinsey & Company, Inc..

McKinsey Global Institute

The McKinsey Global Institute was established in 1990 as an independent research group within McKinsey & Company, Inc. to conduct original research on important global issues. Its primary purpose is to develop insights into global economic issues and reach a better understanding of the workings of the global economy for the benefit of McKinsey clients and consultants.

From time to time the Institute issues public reports. These reports are issued at the discretion of the Institute's Director and its McKinsey Advisory Board, when they conclude that the Institute's international perspective and its ability to access McKinsey's knowledge of industry economics enable it to provide a valuable fact base to policy debates. The McKinsey Advisory Board is made up of McKinsey partners from Europe, the Pacific Basin and the Americas.

The staff for the Institute are drawn primarily from McKinsey's consultants who serve 6-12 month assignments and then return to client work. The Institute also commissions leading academics to participate in its research. The Institute's Director is William Lewis, a McKinsey partner. The Institute is located in Washington, D.C.

Contents

EXECUTIVE SUMMARY

CHAPTER 1: OBJECTIVES AND APPROACH

CHAPTER 2: SYNTHESIS AND IMPLICATIONS

CHAPTER 3: AGGREGATE ANALYSIS

CHAPTER 4: SECTOR CASE STUDIES

- . Retailing
- . Food processing
- . Residential construction
- . Health care

Preface

This report is an end product of a nine-month long project by the McKinsey Global Institute, working in collaboration with McKinsey's Tokyo Office, on the economic performance of Japan.

McKinsey undertook this project as an important step in developing our understanding of how the global economy is working. The stagnation of the Japanese economy for the decade of the 90s, after four decades of extremely rapid growth and convergence with the US, is one of the most important problems of today's global economy. Japan has the world's third largest economy (after the US and China), and traditional macroeconomic policy remedies have failed to generate growth. In our project, we wanted to find out whether structural barriers at the microeconomic level were now limiting Japan's growth potential.

This project builds upon the previous work of the McKinsey Global Institute in assessing economic performance among the major economies of the world. Our early reports addressed separately labor and capital productivity, and employment¹, the fundamental components of economic performance. Later we combined these components to address the overall performance of Sweden, Australia, France, Germany, the Netherlands, Brazil, Korea, the UK, Russia and Poland². In all countries, economic performance is compared with the US and other relevant economies. This study continues our efforts to assess economic performance at the country level.

As before, the core of our work is conducting sector case studies to measure differences in productivity, output and employment performance across countries and to determine the reasons for the differences. This work provides the basis for

¹ *Service Sector Productivity*, McKinsey Global Institute, Washington, D.C., October 1992; *Manufacturing Productivity*, McKinsey Global Institute, Washington, D.C., October 1993; *Employment Performance*, McKinsey Global Institute, Washington, D.C., November 1994; *Capital Productivity*, McKinsey Global Institute, Washington, D.C., June 1996.

² *Sweden's Economic Performance*, McKinsey Global Institute, Stockholm, September 1995; *Australia's Economic Performance*, McKinsey/Australia and McKinsey Global Institute, Sydney, November 1995; *Removing Barriers to Growth in France and Germany*, McKinsey Global Institute, March 1997; *Boosting Dutch Economic Performance*, McKinsey Global Institute and Max Geldens Foundation for Societal Renewal, September 1997; *Productivity-The Key to an Accelerated Development Path for Brazil*, McKinsey Brazil Office and McKinsey Global Institute, Sao Paulo, Washington, March 1998; *Productivity-led Growth for Korea*, McKinsey Seoul Office and McKinsey Global Institute, Seoul, Washington, March 1998; *Driving Productivity and Growth in the U.K. Economy*, McKinsey London Office and McKinsey Global Institute, October 1998; *Unlocking Economic Growth in Russia*, McKinsey Global Institute, October 1999; *Poland's Economic Performance*, McKinsey Global Institute, March 2000

our conclusions about how to improve economic performance in Japan.

This report consists of four chapters and an executive summary. Chapter One describes our project objectives and approach. Chapter Two presents the Synthesis of our findings including our overall conclusions about the economic performance of Japan and how to improve it. Chapter Three describes our analysis and conclusions at the aggregate level.

Chapter Four contains the four sector case studies: retailing, food processing, residential construction, and healthcare. Each case starts with a short executive summary, and then gives the results of our productivity calculations and growth prospects and discusses the reasons for the differences we found between Japan and benchmark countries.

A core group of three consultants from McKinsey's Tokyo Office and two consultants from the McKinsey Global Institute made up the working team for this project. The Tokyo based consultants were James Kondo, Makiko Shinoda and Naoko Shozuzawa. The Global Institute consultants were Angelique Augereau and Ali Rowghani. Administrative assistance was provided by Emi Kusaka, Masae Taniguchi and Leslie Hill Jenkins.

James Kondo was responsible for day to day management of the project. This project was conducted under the direction of Yoshinori Yokoyama and myself with assistance from Vincent Palmade and Shinichi Ueyama.

In carrying out the work we were fortunate to have an external advisory committee. The committee members were Masahiko Aoki, Alan Garber and Paul Romer, all of Stanford University. The working team had three meetings with the advisory committee to review progress during the course of the project and benefited from many written comments and individual discussions.

Throughout the project we also benefited from McKinsey consultant's unique worldwide perspective on knowledge of the industries investigated in our case studies. This knowledge has been developed through work with clients and investment in understanding industry structure and behavior to support our client work. McKinsey sector leaders provided input to our case studies and reviewed our results. McKinsey's research and information department provided invaluable information and insight under very tight time constraints.

Finally we could not have undertaken the work without the information received in our numerous interviews with corporations, industry associations, government officials and others. We thank all individuals concerned for their time and help, but stress that we are solely responsible for the results. We should also emphasize that our work is independent and has not been commissioned or sponsored in anyway by any business, governmental or other institution.

Bill Lewis

Director of the McKinsey Global Institute
July, 2000

Executive Summary

Since 1990, gross domestic product per capita—the single most important measure of a country’s economic health and standard of living—has grown by a meager 0.6 percent in Japan, compared with 1.7 percent in the United States. As a result, the gap in GDP per capita between Japan and the United States widened from 10 percent in 1990 to over 20 percent in 1999 (Exhibit 1). Japan’s unemployment rate rose from 2.3 percent in 1990 to 4.9 percent in 2000. In mid-1998, the unemployment rate surpassed that of the United States. Japan’s government, once lauded for its masterful management of the economy, has only exacerbated the country’s problems with futile attempts at a Keynesian stimulus. The country’s debt-to-GDP ratio grew from 60 percent in 1990 to nearly 120 percent in 1999—twice the level of the United States and Germany. In short, the past decade has seen the Japanese economy go from model to muddle.

Yet as the failed government programs show, the real causes of Japan’s decline are not well understood. In fact, there is a real lack of detailed information about the performance of the Japanese economy at the micro level. To fill this information gap and to measure performance at the individual-company and industry level, the McKinsey Global Institute recently completed a yearlong study of the Japanese economy. The resulting detailed understanding of that economy not only provides unique insights into the causes of Japan’s spectacular decline but also lays the groundwork for policies that would reverse the slide and cause Japan to grow again.

Overall, we found that Japan’s once-vaunted workforce is actually 31 percent less productive than that of the United States. The country’s capital productivity is worse still, trailing that of the United States by 39 percent (Exhibit 2). These aggregate numbers, telling as they are, hide the true explanation for Japan’s woeful performance. Surprisingly, we found that the Japanese economy was never as strong as it appeared to be during its glory days. In fact, today’s woeful economic performance is not so much a reversal of fortune as a revelation of the hollowness of Japan’s success in the 1980s. Even then, Japan suffered from a “dual economy”: a small group of world-beating exporters that everyone knew about and a large group of laggardly locals hidden from public view. The performance of the locals is so poor that it swamps the excellence of the high-profile exporters.

Today, the dual economy remains. The world-beating portion—autos, steel, machine tools, and consumer electronics—is thriving, bettering any and all competitors’ productivity by 20 percent. Yet these Toyotas and Sonys, accounting for only about 10 percent of all economic activity in Japan, are the exception and not the rule. The remaining 90 percent of economic activity takes place in companies that do not export products, instead providing domestic manufacturing and services. Save for their national origin, these

companies share nothing with Toyota. They are subscale, poorly managed, antiquated, insulated from competition, and woefully unproductive. The productivity of this portion of the Japanese economy stands at a mere 63 percent of US levels (Exhibit 3). It is the source of Japan's ills, and the Japanese economy will not rebound until the performance of these companies begins to turn around.

WHY IS PRODUCTIVITY SO LOW?

To understand why the productivity of the domestic sectors is low, we studied four of the largest: retailing, health care and construction (in the service sector) and food processing (in the manufacturing sector). Together, these four sectors account for 18 percent of Japan's GDP and 22 percent of employment. Their productivity averaged only 56 percent of US productivity (Exhibit 4).

Unfortunately, the four sectors, with their subscale operations and poor product and service offerings, typify Japan's domestic economy. In retailing, for example, tiny, archaic mom-and-pop stores still account for 55 percent of employment, compared with 19 percent in the United States and 26 percent in France (Exhibit 5). Located in *shotengai*, or town centers these stores are usually family owned and employ two or three family members. Because the stores lack the buying power and merchandizing savvy of larger retailers, prices are high while product ranges and service levels are poor. In fact, some stores sell the same set of products year after year.

Similarly, the food-processing industry has six times as many establishments per capita as does its US counterpart, and each establishment produces only one tenth of the value added (Exhibit 6). These plants are far too small to automate their operations. Packaging and processing are generally done by hand. Processors, despite their small size, go to great lengths to produce a huge variety of products to meet consumer tastes. However, in an unfortunate reversal of Henry Ford—who made only black cars that everybody wanted—Japanese companies produce a huge variety of products that hardly anyone wants. One midsize milk producer, for example, had seven separate storage tanks, one for the milk from each of the small regions it serves. At great cost and complexity, it processed each regional batch separately into a distinct line of dairy products for the region where the milk originated. Yet the producers have no evidence that consumers from the different regions even notice subtle distinctions in taste or that they would not prefer the lower prices that would result from consolidated operations.

The health care industry mimics the dual nature of the Japanese economy as a whole, with a small number of state-of-the-art hospitals and a huge number of local ones that provide outmoded medical care. Because demand for the services of the state-of-the-art hospitals is so high, they commonly force patients to wait hours and hours for routine care. When patients finally see doctors, the visits are rushed and cursory because of the huge volume of

patients each doctor must see. Meanwhile, the remaining hospitals—which serve only their immediate locales—extend patient stays well beyond any reasonable standard in an effort to raise their occupancy rates, thereby shoring up their faltering economics. In both cases, patients get poor treatment, and productivity suffers.

Finally, residential construction is still dominated by small, self-employed carpenters. Using traditional methods of construction and hand tools, these carpenters achieve only 30 percent of the average US productivity level because they lack project-management skills and don't work from standardized designs. Japanese consumers ultimately pay for this inefficiency in high prices and the small variety of housing options the market provides for them.

A DEARTH OF DOMESTIC COMPETITION

In a more open economy, this poor performance would provide an open door for more able competitors to enter and drive all these inefficient domestic players out of business. Yet the Japanese economy is far from open. In fact, it is rife with protection for the inefficient players, and competition is nearly nonexistent. In a misguided effort to protect jobs and maintain stability, the government subsidizes the inefficient players and blocks the entry of competitors.

A sea of subsidies

In retailing, for example, the tiny mom-and-pop stores remain in business because the government has lavished subsidy after subsidy upon them. They have been given guaranteed loans of over \$40 billion with almost no credit evaluation. The government has also given these shops another \$10 billion in rent subsidies, grants to buy computers, and infrastructure programs for the shopping districts where the mom-and-pop stores are located. In addition, the Japanese tax code provides large incentives that keep owners of small stores from liquidating them and selling the valuable land on which they sit.

So too in health care, where the government—in an effort to keep hospitals from closing—simply reimburses hospitals for *any* length of stay by a patient, regardless of whether there is a medical justification for it. As a result, patient stays far exceed levels for other countries in the developed world (Exhibit 7). In addition, Japan also has a startling overcapacity of hospital beds in its health care system: fully three times as many beds per capita as the United States, which has far higher levels of disease and injury.

New competitors: “Keep Out”

In addition to shortening the track for old-fashioned businesses, the Japanese government also puts ankle weights on any new entrants—Japanese or not.

Zoning laws make large-scale residential real-estate development nearly impossible. In retail, the Large-scale Retail Location Law limits the entry of large-scale stores by requiring the development of stores of over 1,000 square meters to be approved by local committees that include owners of mom-and-pop stores who would be put out of business by the new competition. Even though the criteria for exclusion has shifted to environmental and planning concerns, such a shift in UK allowed mom-and-pop stores to continue to block large retail stores.

Besides the direct effects on the retail sector, the resulting lack of large-scale food retailers slows down the growth of large food processors. These players are not only more productive than the existing subscale players but also would bypass food wholesalers, thereby reducing the cost of the entire food chain. Outmoded food processors are also protected by high tariffs. Pork prices for example, are set by a government-owned body. Tariffs are levied at the differential between the import price and the domestic controlled one, so that all imported pork is priced at the same level as domestic pork. As a result, there is no price competition among Japanese processors or between them and imports. Similar tariffs exist for other meats and for vegetables.

The government bureaucracy has a similar, if unintended, effect in health care, where new and innovative treatments are either slow to reach the market or don't make it at all. For example, five (including Prozac and Lipitor) of the global top-ten selling drugs are currently not available for purchase in Japan. By the time laparoscopic cholecystectomy—a huge innovation and a key driver of productivity in the treatment of gallstones—gained approval for reimbursement in Japan, it was already commonplace in the United States and in Europe.

No information = no competition

Further squelching competition is the paucity of information on price and quality available to consumers. Robbed of the ability to comparison-shop, consumers cannot reward the best competitor with their business. This again serves as a prop to the unproductive, entrenched local players. While there are examples of price transparency in Japan—the Ministry of International Trade and Industry's successful standardization of the machine tool industry allowed Japanese producers to become the world's most productive—they are the exception and not the rule.

The residential-construction industry suffers from a lack of both price and product quality information. The Japanese government, unlike that of other developed countries, does not release price information on housing sales. The lack of price information allows builders to sell overpriced, feature-laden houses to consumers who have no objective way of determining if they are a good value, in part because housing construction materials and methods are not standardized as they were in the US in the 1920's and 30's. Compounding the problem is the fact that in the absence of information, many consumers associate low cost with low quality. In addition, the secondary housing

market—which acts as a substitute for new houses and also provides useful price information—is severely underdeveloped because of disincentives in the tax code and the absence of a standardized appraisal system for sales of existing houses (Exhibit 8). As a result, cost comparisons—an essential factor in US housing markets—play a minor role in their Japanese counterparts.

Similarly, in health care, the rigorous third-party appraisals offered by the US Joint Commission on Accreditation of Health Care Organizations (JCAHO) and other bodies are completely unavailable in Japan. As a result, patients simply crowd into subsidized hospitals that have better equipment, without any idea of whether they actually offer care. The long waiting times and low service levels in these hospitals result in some of the lowest patient-satisfaction levels in the developed world (Exhibit 9). Yet if better hospitals existed or old hospitals improved, consumers would have no way of finding this out and modifying their behavior.

Conventional wisdom is amiss

Contrary to what many people believe, the banking crisis and idiosyncratic consumer tastes were *not* important in explaining Japan's poor performance. The banking crisis and the resulting government support to banks have promoted continued lending to bad-debt retail conglomerates. However, they account for only 2 percent of employment in the retail sector, which is dominated by unproductive mom-and-pop stores that remain in business because of the exit and entry barriers mentioned above, not because of the banking crisis.

The belief that idiosyncratic consumer behavior in Japan hampers productivity is a myth as well. Japanese consumers, on those few occasions when they are given the chance, react en masse to low-priced goods from productive retailers such as Toys'R'Us and Japan's own Uniqlo. When Uniqlo, for example, put its fleece jackets on a 50 percent-off sale and launched a focused marketing campaign to sell them, eight million jackets moved in one season. The problem is that entry and exit barriers prevent such productive retailers from expanding. The prevalence of under-the-table payments to get better treatment from doctors and hospitals is also a clear indication that Japanese consumers are indeed willing to pay more for higher-quality services in health care.

CAN JAPAN TURN AROUND?

If the impediments to competition are removed, our analyses suggest that productivity can grow by as much as 4.7 percent a year for the next ten years. Assuming that the workforce will decline by 0.5 percent a year because of the aging of Japan's population, GDP per capita will then increase by a robust 4 percent a year.

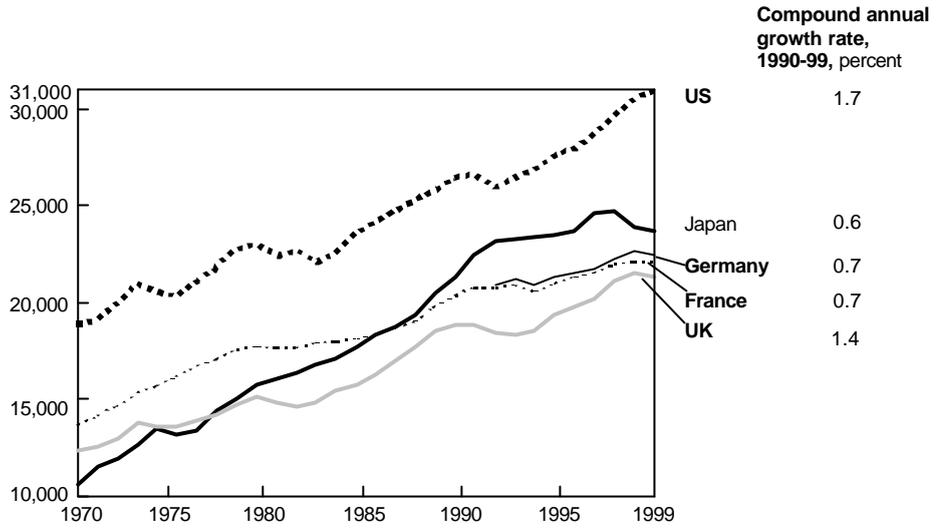
How can GDP per capita grow at such a rapid rate? The ineffectiveness of the local economy in meeting consumer needs has created tremendous pent-up demand. The GDP will boom because reform will cause the Japanese to consume more of many products. Japanese consumption levels are much lower than those of the United States, for example: Americans consume 60 percent more clothes, twice as much at restaurants and hotels, and about 2.5 times more cars, books, and magazines. Furthermore, the reforms will cause capital productivity—and thus the return on savings—to rise. And like the people of the United States, the Japanese will be able to consume more because their savings will be earning higher interest.

Importantly, our work also shows that productivity improvements will not create long-term unemployment. GDP growth will therefore come with far less social dislocation than is commonly feared. To be sure, in the first years after the reforms are enacted, there will be a period when job losses are not yet matched by job creation. During this period, the government may have to increase unemployment benefits, which now stand at about US levels.

But this period will be short-lived because of a potential boom in underdeveloped consumer sectors such as health care. While retailing, food processing, and construction will experience job losses, our case study shows that the health care sector can create over one million jobs even after inefficiencies are removed. These jobs can come as the result of staffing up to deliver higher service levels, new treatments, and care for the aging population. All told, we believe that the Japanese economy will be able to absorb a 50 percent increase in productivity over ten years with no increase in unemployment.

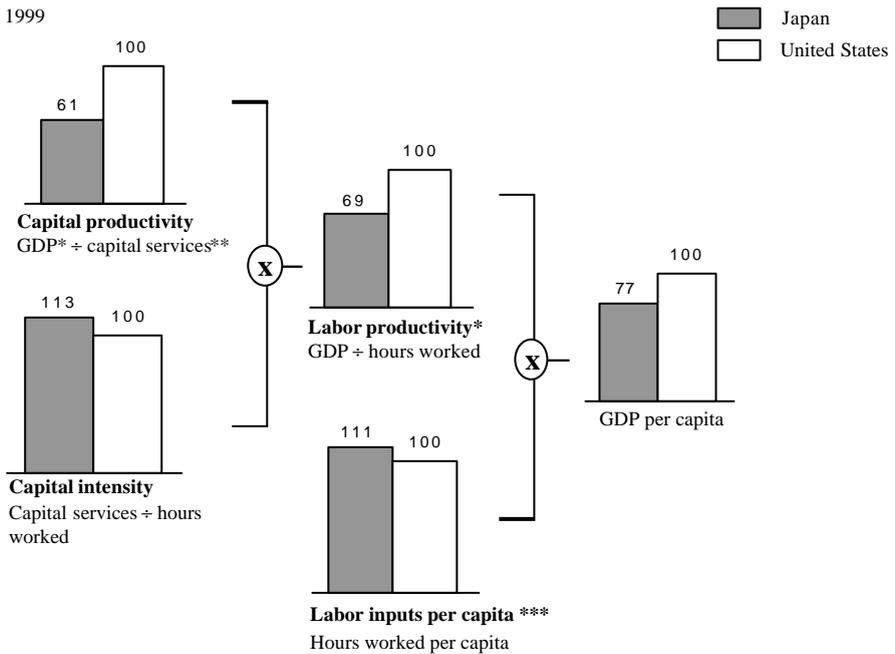
Despite the poor economic performance of the Japanese economy over the last decade, and the failure of recent economic policy, we believe that Japan can turn itself around *if* the government begins a systematic program of reform aimed at increasing competition in all of the country's local markets. While the Japanese economy will never regain the false luster it had during the years of the bubble economy, it does have the potential to return to a position of leadership and influence in the global economy.

Exhibit 1
THE WIDENING GAP IN REAL GDP* PER CAPITA
 1990 US dollars**



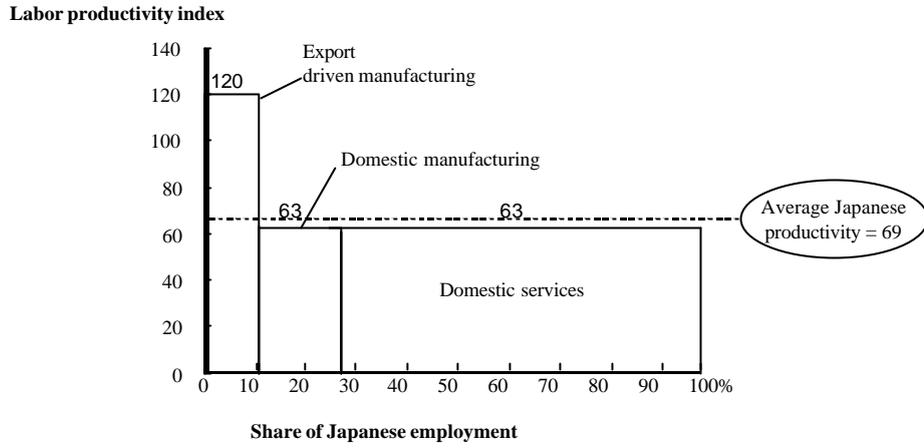
* Gross domestic product
 ** At purchasing power parity (PPP)
 Source: OECD

Exhibit 2
LOW MARKS FOR JAPAN
 Index: United States = 100 in 1999



* Gross domestic product, at PPP
 ** 1997
 *** Labor hours for 1999 based on trend measured over the past 10 years.
 Source: OECD; O'Mahoney, Britain's Productivity Performance 1950-1996: an international perspective; Japanese Ministry of Labor; Bureau of Economic Analysis

Exhibit 3
JAPANS DUAL ECONOMY



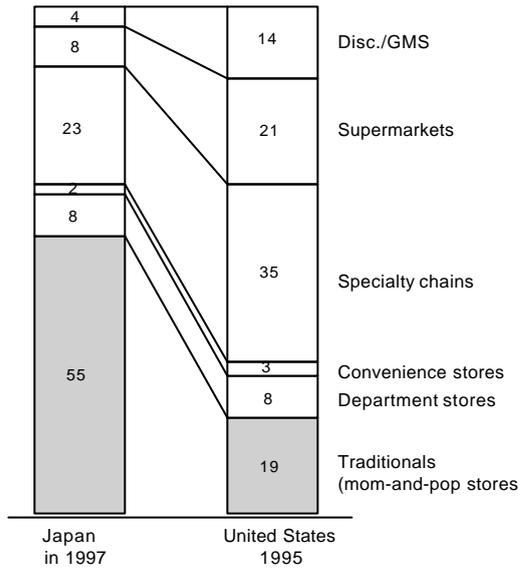
* Index: United States = 100 in 1999
 Source: OECD; O'Mahoney, Britain's Productivity Performance 1950-1996: an international perspective; McKinsey analysis

Exhibit 4
LABOR PRODUCTIVITY IN SECTOR CASE STUDIES

	<u>Share of GDP</u> Percent	<u>Share of employment</u> Percent	<u>Labor productivity</u> Indexed to US = 100 in 1998
Retail	5	12	50
Food processing	5	2	35
Housing construction	5	4	45
Health care	3*	4	93 **
Total for sector case studies	18	22	56
	┌ Total for these 4 sectors ─┐		┌ Average for these 4 sectors ─┐

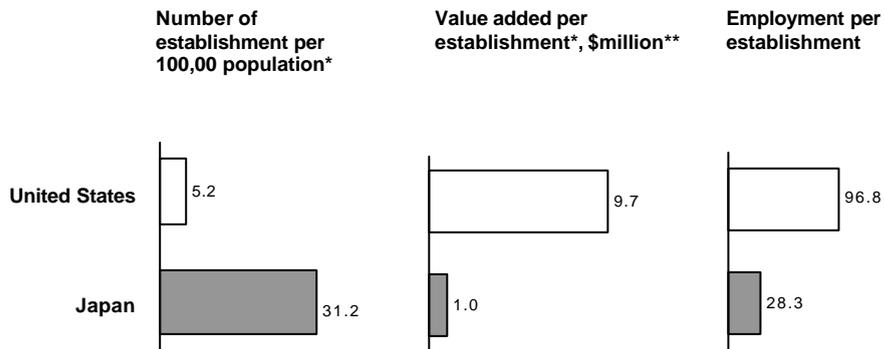
* 8% of final expenditure
 ** Total factor productivity equals 75% of US
 Source: National Accounts; McKinsey analysis

Exhibit 5
SMALL STORES ARE BIG IN JAPAN
 Share of total hours worked in retailing sector, percent



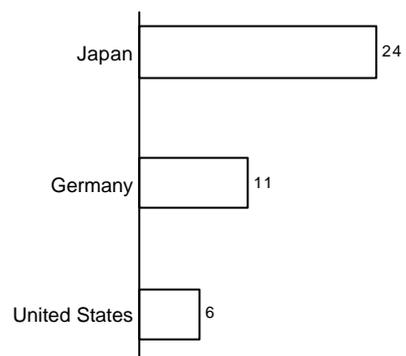
Source: Census of Commerce; Census of Retail Trade; company reports; Nikkei, McKinsey analysis

Exhibit 6
MORE IS LESS: FOOD PROCESSING INDUSTRY, 1997



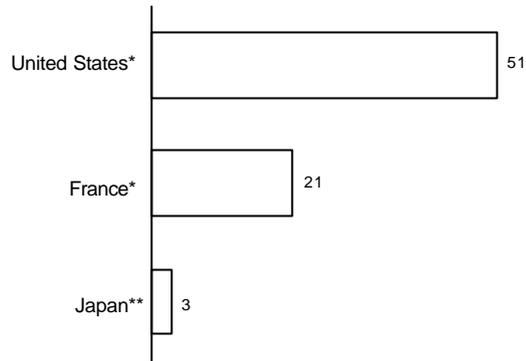
* Number of establishments for US as of 1992
 ** 1993 dollars at purchasing power parity
 Source: Japan Census of Manufacturers; US Annual Manufacturing Survey; Norinsuisan Tokei Yoran

Exhibit 7
BAD MEDICINE FOR JAPAN'S ECONOMY
Average length of stay for acute care, 1996, days



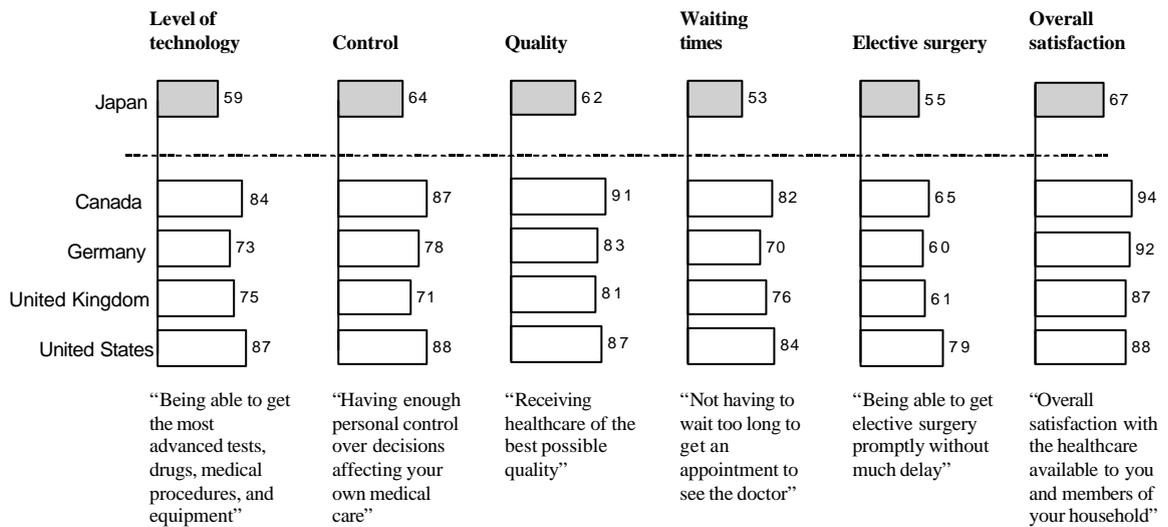
Source: Ministry of Health and Welfare; American Hospital Association; Statistisches Bundesamt, Provider interviews, McKinsey analysis

Exhibit 8
SECONDARY HOUSING: UNDERDEVELOPED
 Number of existing houses sold per thousand dwellings



* 1999
 ** 1992
 Source: Databook on housing economics Ministry of Construction (Housing Industry Newspaper 1999); interviews

Exhibit 9
JAPANESE PATIENTS ARE NOT SATISFIED



Source: Survey of 1000 patients in each country conducted by Louis Harris and Associates for the Harvard Community Health Plan

Objectives and Approach

Since the burst of the bubble in the early 1990s, Japan's economy has shown little sign of recovery. Throughout the 1990s Japan's real GDP growth averaged only 0.6%, leaving GDP per capita in Japan at 77% of the US level in 1999 (Exhibit 1). Aggregate demand has remained low despite enormous fiscal injections by the government resulting in a debt level of almost 120% of GDP in 2000 in Japan compared with around 60% in the US and Germany. Savings remain high despite near zero interest rates, presumably driven by anxiety relating to employment conditions and worries about the pension system and elderly care. Although the government made announcements of serious deregulation in the mid 1990s, its commitment to following through on these plans is increasingly being questioned.

OBJECTIVE OF THE STUDY

The purpose of this study is to understand the reasons for Japan's dismal economic performance in the 1990s and help policy makers prioritize reforms. To do this, we analyze Japan's output and productivity gap relative to the US.

The main focus of our work is to build a microeconomic understanding of performance differences through four detailed sector case studies. We first benchmark the productivity performance of Japanese industries relative to the best performing economies in the world. Then we seek to understand the main barriers to productivity improvements and productive investments. By synthesizing the case studies, we draw conclusions on the actions needed to improve Japan's economic performance in the future. In doing this, we will focus on the policy actions needed to start Japan's growth without incurring unsustainable levels of unemployment.

Productivity growth is the key determinant of GDP growth. More efficient use of resources to create value allows the economy to provide lower cost goods and services relative to the income of domestic consumers and to compete for customers in international markets. This in turn raises the nation's material living standards. Productivity growth is also a key determinant of higher profitability (see Box 1: Productivity and Profitability). To start the virtuous circle leading to higher standards of living and improved profitability, we seek to identify concrete actions that the Government and businesses can undertake to raise productivity in different industries.

Japan's economic performance has long been a focus of attention for both academic literature and the press. The main debates center on the role of restructuring, the effect of disruptions in the financial system on the economy and the potential for growth of aggregate demand. But these debates have focused on Japan's aggregate performance and have failed to reach a conclusion. Given this failure, we believe that a systematic analysis of the barriers to productivity improvement in a representative set of sectors is likely to be key to understanding the nature of Japan's economic problems. This report aims to fill this void.

The emphasis of our work is on factors that determine Japan's economic potential in the medium and long term. We do not address the short-term macroeconomic factors that may affect the degree to which Japan achieves that economic potential. Given the failure of traditional macroeconomic remedies to start sustained growth in Japan, our starting hypothesis is that structural barriers, most likely microeconomic in nature, must be limiting Japan's economic potential. While we recognize that higher material living standards are only one of many policy goals that a government can have, the policy implications which we draw from our findings reflect our belief that higher productivity and output levels provide the opportunity to use resources to address social challenges more effectively.

APPROACH OF THE STUDY

The approach used in this study is based on the methodology used in previous McKinsey Global Institute (MGI) reports. First, we review the data on the country's aggregate performance as well as the existing literature. Second, we use industry case studies to highlight economic barriers that explain the performance of different sectors. Finally, by looking at common patterns across our industry case studies, we identify the main barriers preventing Japanese managers/owners from increasing productivity in their sectors.

Aggregate analysis

The first chapter is an evaluation of Japan's past economic performance based on aggregate data and relevant literature. This analysis of the main factors that have contributed to Japan's past productivity, output and employment performance coupled with a comparison of the US, provides a point of departure for our case studies.

Sector case studies

The core of the research project is four detailed industry case studies. In each we start by measuring the productivity gap between Japan and the benchmark country. We then analyze the sector to understand how Japanese

operations differ from world benchmarks and the reasons for the different choices Japanese managers have made. By developing a deep microeconomic understanding of industry operations, we are then able to draw conclusions on the relative importance of the external factors affecting managers' decisions. In doing this, we focus on the barriers that are preventing productivity growth in the use of existing assets as well as the factors that are limiting investment in new productive capacity.

Our sectors are selected to represent a significant share of the economy (Exhibit 2). They cover 22% of total employment in Japan. More particularly, they are all chosen from the domestically oriented part of the Japanese economy. It is unlikely that structural micro economic barriers are limiting Japan's economic potential in the sectors of the economy where Japan leads the world in export performance. The food processing case is an example of a light manufacturing industry. Residential construction represents a domestic sector with a large employment component. In the service sector, we studied retailing and healthcare.

Each of the sector cases follows the same sequential analytical process that starts with a measurement of the Japanese industry's current productivity level relative to world benchmarks (see Box 2: Interpreting Global Productivity Benchmarks). Then we generate and test hypotheses on the causal factors that explain the observed gap.

¶ **Measuring productivity.** Productivity reflects the efficiency with which resources are used to create value in the marketplace. It is measured by computing the ratio of output to input. We first define each industry in a consistent manner in Japan and the comparison countries, making sure that our industries include the same parts of the industry value chain. We then measure the sector's output using measures of Purchasing Power Parity adjusted value added or physical output. The labor inputs are measured as number of hours worked, and capital inputs (used in the food processing and healthcare cases) as capital services derived from the existing stock of physical capital (see Appendix A: Measurement of Output and Productivity).

Given the lack of reliable statistical data in some sectors, we complemented official information with extensive interviews with customers, producers, and regulators (see Exhibit 3). This methodology was particularly helpful in deriving bottom-up productivity estimates in residential construction and healthcare, where traditional sources of information are particularly unreliable and incomplete. Finally, we also conducted interviews in different cities in order to account for regional performance differences.

¶ **Generating and testing causality hypotheses.** To explain why levels of productivity in Japan differ from the benchmarks, we start by generating a set of hypotheses on the possible causes. In this

phase, we benefit from McKinsey's expertise in many industries around the world, as well as from the expertise of industry associations and company executives in both Japan and the comparison countries.

We use a systematic framework to explain productivity differences across countries that captures the major possible causal factors. This causal framework has three hierarchical layers of causality (see Appendix B: Framework Definition):

- Differences observed at the production process level
- Factors arising from industry dynamics
- External factors that explain why the choices of Japanese companies differ from those in the comparison countries.

The hypotheses are tested with further fact based analyses and plant visits that allow us to conclude with an assessment of the relative importance of the causal factors in explaining the productivity difference in each sector.

Synthesis

Having identified the causal factors for each industry, we compare the results across industries. The patterns that emerge allow us to draw conclusions about the causes of the aggregate productivity gap between Japan and the comparison countries, as well as about the level to which productivity can rise when the external factors are changed. We then use this information to estimate the potential rate of productivity growth that would occur in different sectors if these external factors were removed as well as the foreign direct investment that would result from it. Simultaneously, we also assess, based on the actual experience of other countries, the future potential rate of output growth of Japan's main economic sectors. Finally, we combine these labor productivity and relative output growth estimates to derive the employment implications of sector economic reforms, suggesting which ones should be tackled first to start economic growth without incurring unsustainable levels of unemployment.

Appendix A: Measurement of Output and Productivity

Productivity reflects the efficiency with which resources are used to create value in the marketplace. We measure productivity by computing the ratio of output produced in a year to inputs used in that production over the same time period.

Output (Value Added)

For a given industry, the output produced differs from the traditional notion of sales. Sales figures include the value of goods and services purchased by the industry to produce the final goods or services. In contrast, the notion of value added is defined as factory-gate gross output less purchased materials, services, and energy. The advantage of using value added is that it accounts for differences in vertical integration across countries. Furthermore, it accommodates quality differences between products, as higher quality goods normally receive a price premium that translates into higher value added. It also takes into account differences in the efficiency with which inputs are used.

GDP can be seen as a value added concept of output. In many cases, output is not homogeneous; the GDP of a country is made up of many thousands of different goods and services. The GDP of a country is the market value of the final goods and services produced. It reflects the market value of output produced by means of the labor and capital services available within the country.

In case studies for retailing and food processing we used the value added measure of output. One complication arises from the fact that value added is not denominated in the same currency across countries. As a result, this approach requires a mechanism to convert value added to a common currency using Purchasing Power Parity (PPP) exchange rates, a topic which is discussed separately below. In residential construction where value added data was not available, we used the adjusted physical production as a measure of output.

Purchasing Power Parity (PPP) exchange rate

To convert value added of different countries to a common currency, we use PPP exchange rates rather than market exchange rates. PPP exchange rates can be thought of as reflecting the ratio of the actual costs of purchasing the

same basket of goods and services in local currencies in two countries. The PPP exchange rates are constructed 'bottom up' by comparing the actual market prices of comparable goods and services across countries, and then aggregating the individual prices up to a 'price' for sector-specific baskets and finally the total GDP.

The reason for not using the market exchange rate is because it reflects international transactions alone; it cannot reflect the prices of non-tradable goods and services in the economy. Furthermore, comparisons made on the basis of market exchange rates would be affected by fluctuations in the exchange rate resulting from, say, international capital movements.

For our aggregate survey, retailing and food processing cases we use PPP exchange rates reported by the OECD. However, these PPPs are unreliable for healthcare therefore we constructed our own. Details of this calculation can be found in Appendix C of the healthcare case.

Finally, we adjusted our PPPs to exclude sales tax and we accounted for different input prices in order to obtain a Double Deflated PPP which is the PPP exchange rate ultimately used in our value added comparisons.

Inputs

Our inputs consist of labor and capital. Labor inputs are the most straight forward to measure: we seek to use the total annual number of hours worked in the industry by workers at the plant site. When actual hours are not available, we estimate labor inputs by multiplying the total number of employees by the best available measure of average hours of work per employee in the sector.

In the food processing and healthcare cases we also measured capital inputs. The heterogeneity of capital makes measuring capital inputs more difficult. Capital stock consists of various kinds of structures (such as factories) and equipment (such as machines, trucks, and tools). The stock is built up incrementally by the addition of investment (business gross fixed capital formation) to the existing capital stock. Each piece of capital provides a flow of services during its service life. The value of this service is what one would pay if one were leasing this piece of capital and this is what we use as our measure of capital inputs.

Once we have measured capital stock, we construct our capital service measures using the Perpetual Inventory Method (PIM). We based our estimates on US service lives for structures and equipment. Although ideally we would have liked to measure the capital inputs in each of our case studies, we concentrated on the food processing due to data availability. For the remaining case studies, capital was treated as a causal factor in explaining labor productivity.

Appendix B: Framework Definition

The framework for synthesising the explanatory factors for the productivity performance in each industry is summarised in Exhibit B1. The various elements of the framework are further described below. Illustrations of possible barriers are also presented under some of the subheadings, both in order to facilitate the understanding of the relevance of each point and in order to introduce some of the barriers that are presented in the later discussions.

Production process

The first set of factors affecting productivity arises at the production process level. These can be grouped into product mix/marketing, production factors and operations. Production process factors in the framework are jointly determined by elements of a firm's external environment beyond its control and decisions made by its managers.

¶ **Product Mix/Marketing.** Countries may differ in the categories of products they demand or supply, and a productivity penalty can arise if a country's output consists of a higher share of inherently less productive product or service categories. Within product categories, countries may differ in the quality of products they produce. Production of higher value added products or services using similar levels of inputs is reflected in higher productivity. Another source of productivity differences within product categories is differences in product proliferation. A wide range of product or service lines can reflect a sub-optimal product mix that reduces productivity. Finally, both within the manufacturing sectors and in services, design can influence which technology might be applied. Design changes might simplify the production process and improve productivity.

¶ **Production factors**

- **Capital intensity/technology.** We use capital in the sense of physical assets and their embodied processes (e.g., machines, plants, buildings, and hardware). Capital can influence labor productivity in two ways. First, if an industry works with a higher capital intensity, i.e., uses more capital in combination with each unit of labor, we expect that this industry would show higher labor productivity. Second, a more technologically advanced stock of capital should also enhance labor productivity.

- **Scale.** Higher production scale is generally expected to lead to increased productivity.
- **Labor skills and trainability.** This refers to the current and potential skill exhibited in the pool of labour from which a company chooses employees. Firms can either train employees from scratch, which takes time, or employ ready trained workers.

¶ **Operations**

- **Organization of functions and tasks.** This is a broad category encompassing the way in which production processes and other key functions (product development, sales, marketing) are organized and run. It reflects managerial practices in most areas of the business system as well as the structure of incentive systems that employees and companies face.
- **Design for manufacturing (DFM).** DFM is the adoption of efficient building design by using an optimal site layout, then using standard, interchangeable and cost competitive materials
- **Supplier relations.** Suppliers can contribute to industry productivity by efficient delivery processes, by collaborating in product development or by providing products or services that facilitate production (e.g. special trade in residential construction). It also includes productivity penalties due to lower quality and fluctuations in the delivery of inputs.

Industry dynamics

The competitive pressure in the industry influences the pressure on management to adopt best practices in the production process. We include two types of factors: domestic competitive intensity, and exposure to best practice.

- ¶ **Domestic competitive intensity.** Differences in the industry structure and the resulting competitive behavior of domestic players. Other factors being equal, more competitive industries will put more pressures on managers to adopt more productive processes.
- ¶ **Exposure to best practice.** Includes competitive pressures from foreign best practice companies either via imports or through foreign direct investment.

External factors

The external barriers on managers can be divided product market, capital market, labor market, land market/taxes, related industries and consumer

preferences. These factors are mainly outside the control of firms but influence how they operate.

¶ **Product market.**

- **Product regulations.** Regulations prohibiting or discouraging certain products or service offerings (including regulations on pricing) can reduce or eliminate high-productivity production. Product market regulations can also limit or distort competition by protecting or favoring incumbent companies.
- **Trade/FDI barriers.** Tariff and non-tariff barriers to trade or foreign direct investment (FDI) can reduce the competitive pressure on an industry and allow low productivity to persist.
- **Product pricing information.** Comprehensive information on prices is a very basic requirement for any market to function well. To ensure the availability of this data, the government must sometimes intervene by requiring public disclosure.
- **Standardization.** Although many firms and consumers benefit from standards, individual firms often do not have a sufficient private incentive to take action to promote a standard. On the grounds that there is a socially insufficient amount of investment in standardization, government intervention is often required.

¶ **Capital market**

- **Corporate governance rules.** The extent to which management is exposed to pressure from owners, shareholders or creditors can influence the rate at which productivity is improved.
- **Financial system.** Inefficient allocation of resources across sectors and firms will distort the ability of the market mechanism to reward productive firms.

¶ **Labor market.** Labor regulations may influence the possibility of implementing productivity improvements (e.g. strict immigration policies make it difficult to import skilled labor).

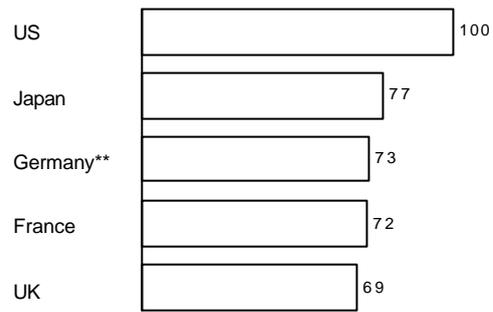
¶ **Land market/taxes.** Distortions resulting from the tax system or regulations relating to land use can prevent efficient use of land.

¶ **Related industries.** Supplier or downstream industries can hamper productivity by reducing the competitive pressures on the industry players. An underdeveloped upstream industry can also impose significant productivity costs on its clients by not providing products or services that facilitate production or by delivering outputs with lower quality and/or at high fluctuations.

¶ **Consumer Preferences.** Japan and its comparison countries may differ in the structure of consumer demand they face as a result of

varying climate, income distribution, or traditional consumption patterns. This influences the product mix demanded in the marketplace, which in turn can affect the value of the total output and thus productivity.

Exhibit 1
GDP PER CAPITA OF SELECT G-7 COUNTRIES
1999 at PPP



* Converted at GDP purchasing parities
** Unified Germany (former West Germany and former East Germany)
Source: OECD

Box 1

PRODUCTIVITY AND PROFITABILITY

Within any given market, a firm that is more productive will enjoy higher profitability, unless it suffers from some other source of cost disadvantage. A more productive firm will either produce the same output with less inputs and thus enjoy a cost-advantage, or produce better output with the same inputs and thus enjoy a price-premium.

Over time, the higher profitability of productive firms will attract competition. As competitors catch up in productivity, profitability will tend to converge. In such an environment, the only way a firm can enjoy higher profitability is by pushing the productivity frontier beyond its competitors. If, as a result, the firm achieves higher productivity, it will enjoy higher profitability only until its competitors catch up again. In another words, profitability, in a dynamic world, is a transient reward for productivity improvements.

While a more productive firm will enjoy higher profitability within a given market, this may not be true for firms operating in different markets, for two reasons. First, higher cost of inputs may deem a productive firm in one market unprofitable, while a less productive firm in another market with lower cost of inputs may be profitable. For example, a US firm may be more productive but less profitable than a Japanese firm because US wages are higher. Second, competitive intensity may differ across markets so that a productive firm in a highly competitive market may be less profitable than an unproductive monopolist or oligopolist in another market. For example, in the 1980s European airlines enjoyed higher profitability than their more productive US counterparts because they faced much less price competition.

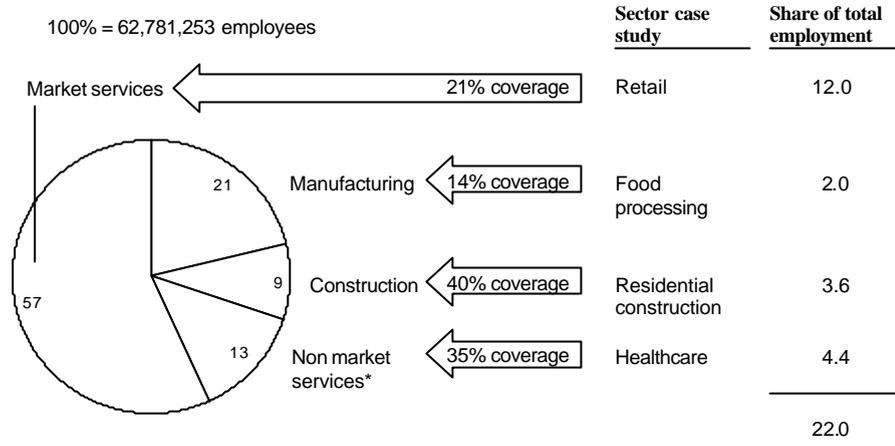
However, deregulation and globalisation are eliminating distinctions between national markets. As barriers are removed, productive firms will enter markets with unproductive incumbents. This could take the form of exports if the goods are traded. While cheap input prices may temporarily shield unproductive incumbents in the importing country, those input price differences are not sustainable in the long run. The cost of capital (a key input price) is converging internationally, and wages (the other key input price) will eventually catch up with productivity (so that no country can enjoy both low wages and high productivity in the long-run). The other form of market entry for productive firms is foreign direct investments. In this case, productive transplants will face the same input prices as unproductive incumbents, and will therefore enjoy higher profitability.

In sum, as markets liberalise and globalise, the only sustainable source of higher profitability for a firm will be to continually raise productivity higher than its competitors.

Exhibit 2

SECTOR COVERAGE OF JAPANESE ECONOMY: 1996

Percent; share of total employment



* Government services, education, healthcare services

Source: Management and coordination agency

Exhibit 3

**McKINSEY GLOBAL INSTITUTES INDUSTRY STUDIES IN JAPAN:
NUMBER OF INTERVIEWS**

Industry	Interviews
• Food processing	26
• Retail	20
• Residential construction	41
• Healthcare	50
Total	137

Source: McKinsey Global Institute

Box 2**INTERPRETING GLOBAL PRODUCTIVITY BENCHMARKS**

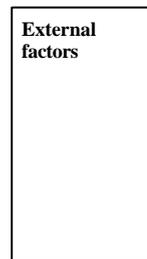
To assess the performance of Japanese industries, we compare their labor productivity with those of the best performing countries in the world. This benchmark allows us to measure how efficient Japanese companies are in the production process relative to their potential. The use of comparison countries allows us also to identify the reasons for the productivity gap through a detailed comparison of production process and other business practices between Japan and the benchmark country.

The global benchmarks should not be perceived as a measure of maximum possible productivity level however. At any moment of time, there are individual companies with productivity levels above the average of the best performing country. And over time, the global benchmark rises as individual companies continuously improve their productivity. So while the benchmark productivity level can be interpreted as a realistically achievable level of efficiency, it should not be seen as a limitation.

Independent of the global benchmark for any specific sector, we have chosen to express all of our productivity measures in consistent units defined relative to the US average productivity level. The US has the highest real income level among large countries, which makes it the benchmark for the level of total GDP per capita. While there may be some exceptions to this rule at the level of specific industries, we believe that using a consistent benchmark unit helps the interpretation of productivity gaps in individual industries and facilitates performance comparisons across them.

Exhibit B1

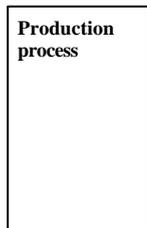
CAUSALITY FOR PRODUCTIVITY DIFFERENCES



- Product market
 - Product regulations
 - Trade/FDI barriers
 - Product pricing information
 - Standardization
- Capital market
 - Corporate governance rules
 - Financial system
- Labor market
- Land market/taxes
- Related industries
- Consumer preferences



- Domestic competitive intensity
- Exposure to best practice



- Product mix/marketing
- Production factors
 - Capital intensity/technology
 - Scale
 - Labor skills and trainability
- Operations
 - Organization of functions and tasks
 - Design for manufacturing
 - Supplier relations

Synthesis

INTRODUCTION: WHY A MICROECONOMIC STUDY OF JAPANESE PRODUCTIVITY IS NEEDED

Japan's poor economic performance in the 1990s

Japan's economic performance in the 1990s was dismal. During the decade, its GDP per capita grew by a meager 0.6%, compared with 1.7% in the US. As a result, the gap in GDP per capita between Japan and the US widened from 10% in 1990, to 20% in 1999 (Exhibit 1).

Reflecting this sluggish growth rate, Japan's unemployment rate rose from 2.3% in 1990, to 4.9% in 2000. In mid-1998, the unemployment rate surpassed that of the US.

Extensive fiscal spending and loose monetary policy have failed to put Japan's economy back on a growth path. The general government debt to GDP ratio increased from 60% in 1990, to nearly 120% in 2000 – twice the level in the US and Germany (Exhibit 2).

Japan needs to establish a sustainable path to economic growth. Only through such growth can the nation contain unemployment and debt, and increase its standard of living.

Productivity as the engine of growth

What must Japan do to achieve sustainable growth?

The material standard of living in a country is measured by GDP per capita. This figure is determined by the volume of input into the economy and productivity, which is defined as the efficiency with which those inputs are used to create goods and services (ratio of value added to inputs).

Japan still ranks second among G7 countries in terms of GDP per capita because its input level is high. Even with declining working hours, the Japanese still work 11% more and use 20% more capital per worker than Americans. However Japanese productivity is mediocre. The Japanese are 31% less productive than Americans in terms of labor and 39% less productive in terms of capital (Exhibits 3 to 4).

The input-driven development path of Japan is clearly illustrated in Exhibit 5. Japan's labor and capital inputs have grown at a steady pace, surpassing those of the US by 25% and that of European countries by 30% to 50%. Japan's lower productivity offsets this high input level, resulting in per capita GDP that is lower than that of the US but higher than that of Germany, France and the UK. This is reflected in the flatter slope of Japan's development path.

The challenge for Japan is thus to increase its productivity. This is particularly important given the aging population. Labor inputs in the economy will decline as the population ages (population of 15 to 64 year olds will decline by 0.5% per year between 2000 and 2010). The working population will thus need to improve its labor productivity by at least 0.5% per year simply to keep the output from labor constant. In addition, as the population ages, the importance of returns on savings and pensions – determined by capital productivity – will increase. The Japanese household savings rate is 13% compared to 2% in the US and 11% in Germany. Since consumption equals GDP minus savings, the gap in consumption per capita with the US (25%) is larger than that in GDP per capita (20%). The lower consumption and higher savings would not be an issue if capital productivity and the returns from savings were high. However, the low capital productivity (and hence low return on savings) in Japan poses serious threats to the living standards of those who rely on savings. The degree of urgency for Japan to improve its labor and capital productivity is high.

A common misbelief is that higher productivity leads to higher unemployment. This argument misses the dynamic impact of higher productivity leading to higher output and more employment. With higher productivity, a specific good becomes less expensive and/or better goods become available at the same price. In both cases, demand is stimulated, leading to higher output and employment (Exhibit 6). Productivity in the developed world has grown twentyfold this century but has not led to greater unemployment. As agricultural productivity improved, freed-up farmers produced industrial goods, and as manufacturing productivity increased, freed-up factory workers produced services. In Japan in 1950, 45% of employment was in agriculture, 15% in manufacturing and 40% in services. By 1995, employment in agriculture had declined to 7%, while in manufacturing it had increased to 23% and 70% in services. During this enormous sector transition, output per capita increased by 750% while unemployment remained constant.

To raise employment levels, Japan needs to grow – this requires increasing its productivity.

“Micro-based macro approach” to identifying productivity barriers

Why is productivity low in Japan?

This question is too broad to be answered at the macro level. Microeconomic studies of actual sectors are required if tangible barriers to productivity growth are to be identified.

In seeking economy-wide conclusions from micro findings, we employed a “micro-based macro approach.” We followed four steps, outlined below, to identify the specific external factors that have led to less competitive industry dynamics and unproductive production processes. It is these external factors that must be changed if productivity is to improve.

First, we measured the productivity of specific sectors and compared it with that in benchmark countries (e.g., the US and France). Second, we analyzed the cause of the productivity gap between Japan and the benchmark country at the production process level (i.e., what managers are doing differently). Third, we compared the different levels of pressure exerted on managers by different degrees of competition. Finally, we compared external factors, such as product market, labor market and capital market characteristics, and linked them to specific differences in industry dynamics and production processes.

After identifying the external barriers to productivity in the industries studied, we synthesized the results across cases. Through synthesis, we then identified the recurring barriers to productivity improvement in Japan.

We end our report by recommending how these barriers should be reformed, in particular addressing genuine social concerns, and describing the potential economic benefits of productivity improvement.

DOMESTIC SECTORS LOWER OVERALL JAPANESE PRODUCTIVITY

Importance of studying domestic sectors

Which sectors should be examined to understand Japan’s low and stagnating productivity?

To identify the target sectors, we divided the Japanese economy into three groups of sectors. The first group, global and productive manufacturing sectors, accounts for about 10% of employment overall, or slightly less than half of manufacturing employment. Sectors in this group include automotive, consumer electronics, steel and machine tools. Japan represents world best practice in these sectors, where average productivity (both labor and capital) is 120% that of the US¹. The second group consists of largely domestic and unproductive sectors, such as food processing, textiles and furniture

¹ See previous productivity studies by McKinsey Global Institute – e.g., “Manufacturing Productivity” (1993) and “Capital Productivity” (1995).

manufacturing. This group accounts for 15% of total employment, with average productivity at 63% that of the US². The third group comprises domestic services, such as retailing, construction and health care, and accounts for 75% of employment. This group is equally unproductive, with average productivity at 63%³ that of the US (Exhibit 7).

If Japan is to improve its overall productivity and thereby grow its GDP per capita, it must raise the productivity of domestic manufacturing and services.

Low productivity of four domestic sectors examined

We studied four large domestic sectors: food processing (representing domestic manufacturing) and retailing, residential construction and health care (representing domestic services). Together, these four sectors account for 16% of GDP and 22% of employment in Japan.

We indexed labor productivity in these sectors against that of the US (set at 100). The resulting figures were: 35% for food processing, 50% for retailing, 45% for residential construction, and 93% for health care (Exhibit 8). Capital productivity was calculated for food processing (45%) and health care (82%), which gave us total factor productivity of 39% for food processing and 75% for health care. (Total factor productivity in health care includes all inputs: labor, capital, drugs, and medical supplies. Drug productivity is only 43%⁴).

Productivity was not just low, but stagnating. During the last decade, the productivity growth rate was almost nil in food processing and residential construction, and only very slight in retailing. No dramatic change was observed in health care either.

SUB-SCALE DOMESTIC OPERATORS WITH WEAK PRODUCT OFFERINGS AND INSUFFICIENT ORGANIZATIONAL SKILLS

Given the situation described above, what are managers at the production process level in Japan doing differently that is leading to lower productivity?

The majority of jobs in domestic sectors are in unproductive sub-scale operations. The operators cannot reap economies of scale and have weak product offerings. They also tend to lack organizational skills. This situation is summarized by industry in Exhibit 9.

² Calculated as a plug using productivity and employment in overall manufacturing (O'Mahony, 1999) and global manufacturing (MGI case studies from the past).

³ Calculated as a plug using aggregate productivity and the other two productivity estimates.

Sub-scale operators

In retail, food processing and residential construction, sub-scale operators provide the majority of jobs. These operations lack the economies of scale necessary for automation and investment in technology or marketing, and thus suffer productivity penalties.

- ¶ **Retail.** Small mom-and-pop stores still account for 55% of retail employment in Japan, compared with 19% in the US and 26% in France (Exhibit 10). Being unchained, they lack the scale to invest in information technology or advertising. The dominance of mom-and-pops in Japan translates into a lack of large-scale retailers (discounters, supermarkets and hypermarkets). The employment share of large-scale retailers is 12% in Japan, compared with 35% in the US. The difference is even more stark in the food retailing segment, which accounts for 40% of retail sales: the market share of large-scale stores is 30% in Japan, compared with 59% in the US, 65% in the UK and 64% in France.
- ¶ **Food processing.** There are six times as many food processing establishments per capita in Japan than in the US. Each of these players produces only one tenth of the value added of a US counterpart (Exhibit 11). Lack of scale inhibits the introduction of technology (e.g., extended-shelf-life technology for milk introduced in new large plants) and the automation of various processes, such as packaging. Lack of scale and automation explains 56 points of the 65-point gap between Japanese and US food processors.
- ¶ **Residential construction.** In residential construction, substantial economies of scale are reaped from building more than 20 houses at the same construction site. Large-scale developments of single-family homes account for less than 10% of the total housing market in Japan, compared with 60% in the US (Exhibit 12). This lack of scale is responsible for 15 points of the 55-point gap between Japan and the US.

Weak product offering

In food processing, retailing and residential construction, Japan suffers from product proliferation and weak merchandizing. Many more products are offered, only for most to fail within a short period of time. In these sectors, the result is low productivity for the producer and a weak product offering for the consumer. The health care industry faces the opposite problem: no differentiated high value added services. While the lack of services does not dampen productivity, it reduces the much needed output and employment in Japan.

- ¶ **Retailing.** Weak merchandizing plagues Japanese retailing formats, especially mom-and-pop stores, department stores and specialty chain

stores. Weak merchandizing leads to less throughput per hour and higher inventory levels, which hamper productivity. Mom-and-pop stores in the US are three times as productive as those in Japan because only stores that provide distinctive services for customers (often product specialty) have withstood competition from newer formats (Exhibit 13). Weak merchandizing is responsible for 18 points of the 49-point gap with the US. Very few retail groups in Japan, such as the convenience store Seven-Eleven and clothing chain Uniqlo, have overcome this weakness to reach best-practice productivity levels.

- ¶ **Food processing.** Since Japan has six times as many processors per capita as the US, Japanese processors could have the same product variety per establishment only if they were to produce one-sixth the number of products. Instead, they produce many more products than their US counterparts. For example, a leading confectionery manufacturer in Japan achieves \$566 million in sales with 100 products, compared with Hershey Foods, which achieves \$4,436 million in sales with 80 products. The difference in sales per product is tenfold. New products are frequently introduced only to fail and be replaced with others. Product proliferation inhibits automation because volume per product is so low. Most products need to be produced on more labor-intensive flexible lines that have frequent downtime and low utilization. In addition, since marketing expenses are spread thinly across many products, strong new brands are rarely developed. Product proliferation explains another 9 points of the 65-point gap between Japan and the US.
- ¶ **Residential construction.** Product proliferation is quite evident in residential construction. The share of custom-made single-family houses is 79% in Japan, versus 25% in the US. In Japan these custom homes are either sold by traditional carpenters who rely on reputation and word-of-mouth or large housing companies that use large sales forces to push sales of these customized houses at model home parks. In contrast, in the US many houses are built simultaneously by a developer and then sold using one of the on-site houses as a model house.
- ¶ **Health care.** High levels of patient dissatisfaction signify low output (service) in the sector (Exhibit 14). The Japanese health care industry lacks services and products (i.e. output) that are offered in other countries. The lack of output does not lower productivity but limits GDP and employment in the sector. In outpatient settings, patients complain about long waiting times (up to three hours) for very short doctor visits (less than five minutes) and about the lack of privacy and courtesy from medical staff. In inpatient settings, Japanese patients endure low service levels in four- to six-person hospital rooms. Japanese patients endure length of stays that are four times higher than

the US and do not have the option to leave sooner. Furthermore, Japan has been slower than other countries to adopt new technology and drugs with superior health outcomes, including less invasive laparoscopic technology for cholecystectomy procedures and anti-depressants (Exhibits 15-16). More advanced medical technology and breakthrough drugs are clearly benefits that Japanese patients would desire. However, the Japanese health care system does not provide them as readily as do the American or European systems. These are direct output barriers (as opposed to productivity barriers) that reduce employment opportunities in the sector.

Insufficient organizational skills

Although less important than small scale and weak product offering, a lack of organizational skill also affects the residential construction and health care sectors.

- ¶ **Residential construction.** Most Japanese supervisors lack construction management skills. As a result, scheduling is poor, leading to uncoordinated and delayed work. Furthermore, the incentive structure is not conducive to an efficient work process (workers are paid by the day as opposed to by output as in the US), mobilization of materials and equipment on site is badly handled and organized teams of specialized laborers are not commonly used. This explains 17 points of the 55-point gap with the US.
- ¶ **Health care.** The average length of a hospital stay in Japan is four times that in the US, even after adjustments have been made for long-term care patients (Exhibit 17). The few best-practice hospitals in Japan with the ability to attract new patients easily have instituted “critical pathways” – i.e., management of standardized work processes -- for each disease. As a result, they have been able to reduce average length of stay by 60%. In most cases, the problem is not that critical paths and other operational improvements are difficult to make. Japanese hospitals have just shown very little interest in making them.

In this section, we have examined the reasons behind low productivity in domestic sectors at the production process level. In the next two sections, we seek to understand why these processes remain unproductive. The first section examines the low competitive intensity of the domestic sectors and the second evaluates the key external factors that shape root economic incentives. Specifically, we seek to understand why low-scale operators with weak product offerings and insufficient organizational skills remain in the market place.

LITTLE NATIONWIDE OR FOREIGN COMPETITION WITHIN DOMESTIC SECTORS

Since some larger operators with strong product offerings and organizational skills exist (or could in theory enter the market), why have they not expanded their share further and driven the unproductive players out of the market?

Competitive forces are extremely weak in domestic sectors. The market share of productive national players is low and static. Most small local players are thus shielded from competition with productive national players. Foreign entrants are marginal. Intense price competition is rare. In sum, domestic sectors lack the competitive dynamics to force unproductive operators to improve or exit the market.

Weak domestic competitive intensity

Domestic competitive intensity is low in all four sectors studied. Small local operations account for at least half of, and in most cases almost all, employment. The market share of productive large-scale players is low and stagnant. Price competition is rare in residential construction, and completely absent in health care.

- ¶ **Retail.** When in direct competition, large-scale retailers (supermarkets and hypermarkets) drive most mom-and-pops out of the market with wider product choice and lower prices. However, there are not enough large-scale retailers in Japan to pressure unproductive traditional stores to exit or evolve. As a result, mom-and-pops still account for 30% of retail sales and 55% of employment. Market share of large-scale stores in Japan is low at 20%, compared with 39% in the US. The gap is even wider in food retailing, where the share of large-scale stores is 39%, compared with 71% in the US, 66% in the UK and 70% in France.

Within the large-scale store category, national chains collectively hold only a 5% share of the market in Japan. This situation stands in stark contrast with that in the US, where Wal-Mart alone holds a 9% market share. In addition, the market shares of national retailers have remained almost unchanged for 15 years in Japan, while dynamic shifts have occurred in the US (Exhibit 18). Furthermore, national retailers in Japan operate multiple competing formats, thereby creating internal conflicts of interest, which in turn hamper competition. In contrast, best practice US and European operators focus on and compete in one format.

- ¶ **Food processing.** Japan has only a handful of national processed food companies. These processors sell their products to an equally small number of national retailers. For example, in the milk segment, large retailers prefer to deal with a few large processors who provide high quality branded milk, instead of dealing with multiple small local

processors who provide lower quality non-branded milk. Since the price of branded milk (from large processors) sold by large retailers is 20% cheaper than non-branded milk (from small processors) sold by mom-and-pops, large retailers are the most competitive channel for selling milk. However, mom-and-pops can survive selling their more expensive lower quality milk because the share of large retailers is low in Japan. Large processors do not go after the mom-and-pop channel because they would have to rely on local wholesalers to reach local markets, which would put them at a cost disadvantage against local small processors who deliver direct to the stores. A similar pattern of local processors selling to local retailers holds across a large majority of food processing segments. In addition to having low competitive intensity among existing players, there is no active consolidation or new entry in the industry. In contrast, large national food processors in France, Germany, the UK and the US compete nationally to supply equally large national retailers. They actively acquire other companies and consolidate production facilities to achieve greater scale.

- ¶ **Residential construction.** The residential construction industry in Japan is quite static – the shares of different housing types have been quite constant over time and the shares of particular producers roughly constant. For example, the share of the “Big 8” prefab producers has remained at about 15% for 15 years. Competition in this industry generally takes place within small regional markets. In Japan, this competition is based not on price but on product offerings, servicing and reputation (Exhibit 19). Some of the large producers themselves admit that they charge customers according to their income, suggesting that they enjoy higher profitability from the price umbrella offered by unproductive players.
- ¶ **Health care.** Healthcare is a complex system composed of three principle markets. In Japan, the law prohibits competition in two of these markets: the market for health insurance (between consumers and payors) and the market for healthcare provision (between payors and providers). As a result, the pressure to improve productivity that competition provides is completely absent in these markets, contributing to many of the inefficiencies observed. Although competition exists in the third market between providers and patients, patients are forced to choose between two sub-optimal segments: the high-technology but low-service segment (public and university hospitals) versus the low-technology, medium-service segment (private hospitals). Patients with even minor ailments crowd into the high-tech centers because these centers cost no more than the low-tech centers. As a result, these hospitals are always full to capacity and do not face any real competition that would force efficiency or service level improvements.

Exposure to global best practice

Exposure to global best practice, whether trade or foreign direct investment (FDI), is very low in domestic sectors. While some foreign best-practice players compete in retail and food processing, they are marginal. The residential construction and health care industries have little exposure to world best practice. The lack of exposure to competition from foreign players exacerbates the low domestic competitive intensity.

- ¶ **Retail.** Of the 91 foreign retail entries into Japan since 1962, 77 occurred in the 1990s. However, apart from Toys'R'Us, which has gained a 10% market share in the toy market, they typically have a market share of less than 1% in each category (Exhibit 20). Lack of exposure to foreign best practice is serious, especially in food retailing. The first large-scale foreign food retailer, the US wholesale club Costco, opened its store in 1999, followed by the French hypermarket chain Carrefour in 2000. Combined, these multinationals operate only a few stores.
- ¶ **Food processing.** Commodity food is the only segment subject to import pressures (Exhibit 21). FDI is significant only in limited product categories, such as soluble coffee. Even the largest FDI producer, Nestlé, ranks only 21st in the Japanese market.
- ¶ **Residential construction.** US and Canadian residential construction firms have experimented with exporting two-by-four houses or building them in Japan. These experiments have been mostly unsuccessful to date. Only 1% of new houses was imported in 1998, and the share of foreign builders remains negligible.
- ¶ **Health care.** In all countries, the provision of health services is a domestic industry. Japan is no different. In fact, apart from a handful of clinics for foreigners, there are no international hospitals or clinics in Japan. Nor are there any foreign payors.

As we have seen, the low competitive intensity of domestic industries allows unproductive local operations to stay in business, thus reducing overall productivity. In the next section, we review the external factors that lead to this low competitive intensity and unproductive production processes.

PRODUCT, LAND AND CAPITAL MARKET DISTORTIONS STIFLE COMPETITION AND HAMPER PRODUCTIVITY

Distortions in the product, land and capital markets, in that order, are responsible for the lack of competition and unproductive production processes.

We have observed that in Japanese domestic sectors these distortions can be further sub-divided into the following three categories:

- ¶ Entry barriers (companies or products/services)
- ¶ Exit barriers and subsidies for unproductive players
- ¶ Lack of price and product information for the buyer

Together, these three distortions severely limit market mechanisms and competition in domestic sectors. Many of the distortions have been introduced in recent years. Exhibit 22 summarizes market distortions by industry. Exhibit 23 is a summary of distortions by type and market affected.

Interestingly, we did not find that the labor market, consumer preference, troubled banks or macroeconomic factors were important in explaining the low productivity of domestic sectors in Japan, as we will explain later.

Product market distortions

Product market distortions exist in all the industries studied. Entry barriers and lack of price and product quality information distort product markets in Japan.

- ¶ **Retail.** In recent years, entry and exit barriers in the retail industry have become higher, thus preventing the industry from moving toward a more productive format mix.

- *Large Scale Retail (Location) Law:* High throughput allows large-scale retail formats, such as hypermarkets and category killers, to achieve low costs and intensify price competition in the retail market. In Japan, the market share of such formats is negligible because the Large Scale Retail Law limited the entry of stores larger than 1,000 square meters until 2000. Despite some relaxation of the law in the early 1980s, mom-and-pop store owners who served on the approval committee had the right to veto the entry of more productive stores into their neighborhoods.

This law will be replaced by the Large Scale Retail Location Law, in June 2000 (Exhibit 24). Again, stores over 1,000 square meters will need to be approved subject to opinion papers submitted by local mom-and-pops. The difference is that instead of directly limiting large stores as did the Large Scale Retail Law, the new Large Scale Retail Location Law will indirectly limit their entry through “social” screening criteria related to the environment (e.g., traffic, noise and trash levels). By nature, these social criteria are difficult to enforce objectively. As a result, the countries that have adopted them (e.g., the UK and Germany) have encountered a rapid decline in the rate of large store penetration. A blatant entry barrier has simply been

replaced with one that is trickier under the guise of environmental protection.

The other complication of the new law is that the final decision-making body for appeals has been transferred from the central government to prefectural governments. Since prefectural governments receive most of their funding from the center and receive only 10% of their revenues on taxes from local businesses, they have little incentive to fight the local mom-and-pop lobby and attract large-scale stores. In addition, although newly-developed suburban “bed towns” would be likely candidates for attracting large-scale stores, if the decision-making unit is as big as a prefecture, there are bound to be stores in the prefecture that would oppose the entry.

- *Town Center Revitalization Law*: Enacted in 1998, this law provides for a budget of one trillion yen a year to subsidize small stores in town centers. For example, this budget covers the free construction of what will be high-revenue parking spaces in the center of Tokyo. It also subsidizes improvements in pavements and other constructions that make shopping streets (“shotengai”) more attractive.

¶ **Food processing.** The root cause of low productivity - low-scale, lack of technology and product proliferation - for non-commodities lies in the lack of consolidation in the retailing industry. As stated earlier, apart from a few national food processors that supply the small number of national retailers, food processors are local players and supply mostly to local retailers. Since local retailers are small, the food processors that supply them have little incentive to become larger (as discussed in the section on domestic competitive intensity). As a result, large processors cannot grow and thus do not invest in new technology. Retail fragmentation also encourages product proliferation in two ways. First, since nationwide marketing that targets the “average” consumer is less effective for fragmented retailers (who each face different local clientele), food processors are encouraged to test their products in actual stores. Second, without retail consolidation, the share of best-practice retailers who can narrow their product range is low (with 10,000 dry grocery items, best-practice retailers achieve the same sales as mediocre retailers who stock 16,000 items). For commodities, tariffs and quotas continue to restrict imports, such as flour and processed meat and frozen vegetables. As a result, the productivity of these products is lower than that of less protected products (Exhibit 25). If these import restrictions were removed, the productivity of commodities (currently at 60% of the US figure) would catch up with that of the US.

¶ **Residential construction.** Low productivity in residential construction is primarily due to the lack of price-based competition and

the lack of standardized construction methods and materials. Price competition for new housing is impeded by an underdeveloped secondary market (Exhibit 26), the lack of large scale SFH and the lack of suitable MFH, which could all provide cheaper alternatives to new housing. The lack of standardization is largely a result of the lack of government involvement. We have found various other regulations to be marginally important.

- *Lack of a price based competition.*
 - The secondary market is underdeveloped owing mostly to the lack of price and quality information, and to financial disincentives (discussed in the land and capital market sections). The government in Japan does not publicly disclose house sales price information. In addition, there is no widely accepted government sponsored method of appraisal. As a result, it is very difficult for consumers to accurately assess housing values or gauge the fairness of a particular price. This creates a “lemons” problem in which buyers shy away from the market because only those with sub-quality products (who can profit even with a low price) are willing to sell their houses.
 - Lack of large scale SFH. Being potentially much cheaper to build houses in large scale developments, this segment would also put pressure on the market thereby inducing price competition. Product market distortions which prevent diffusion of this segment are the urban development law and the large scale retail law. The urban development law makes it hard to accumulate large land plots from fragmented owners. The large scale retail law is a barrier to the development of edge cities where large scale housing developments are likely to occur.
 - Lack of suitable MFH. Increasing the supply of MFH could further spur price competition in the market. The combination of expensive land with unproductive builders of single family houses should have opened the door wide for productive large scale MFH. However, two external factors have hindered development of this market. Large rental apartments are not readily available due to the land and building lease law. Although this law has recently been changed, strict zoning codes will continue to limit the supply of floor space and maintain the high cost of housing.
- *Lack of government intervention to encourage standardization:* Standardization facilitates the diffusion of best practice across an industry. While government-led standardization in construction methods has resulted in substantial benefits in the US, such

standardization is unlikely to be introduced in Japan. This is because the housing construction market lacks any of the key factors that generally encourage standardization -- few large players on the demand or supply side and/or powerful network effects. Indeed, the Japanese housing industry is localized and fragmented, with a large number of entrenched players who make it difficult for a standard to emerge on its own despite the potential for substantial cost savings through coordination on materials, design and construction methods. Intervention of a body such as the GHLC may be the only way to quickly introduce standardization into the market.

Japan has been successful in imposing standards in other markets. From the 1950s to 1970s, the Japanese government encouraged industry consolidation and product standardization in the machine tool industry. This resulted in a fiercely competitive industry with standardized products in Japan. On the contrary, the US machine tool industry remained characterized by numerous standards. As a result, even today, the US machine tool industry continues to suffer a 20% productivity penalty versus that in Japan.

- *Other product market regulations:* Building codes have hampered the productivity of the residential construction industry in the past, but these are about to be changed. The technical standards for ensuring the structural safety, fire resistance and environmental sanitation of buildings were prescriptive of the materials to be used, as opposed to being performance based. Prescriptive standards discriminated against imported materials and discouraged innovation.

¶ **Health care.** Inefficiency (productivity issue) and lack of services (output issue) in the Japanese health care industry are caused by the reimbursement method, weak payors and the lack of an effective accreditation system, in that order of importance.

- *Reimbursement method:* The long length of hospital stays, overusage of prescription drugs and low service levels that hamper health care productivity are all driven by the reimbursement system. A hospital is reimbursed approximately 5,000 yen per patient day – above the marginal cost of a patient stay -- with no cut-off in terms of the number of days. The obvious incentive for underutilized hospitals is to increase the length of stay (Exhibit 27). This situation stands in sharp contrast to that in the US where a lump sum reimbursement is made for a particular disease (DRG method) or payors monitor care decisions carefully. Since the revenue is capped in the US, hospitals have a strong incentive to minimize length of stay. The reimbursement levels are too low to allow many Japanese hospitals to invest in the information technology needed to capture patient information in the first place. However, even if hospitals invest in

information technology they are prevented from advertising, and therefore cannot promote better health care provision – whether shorter lengths of stay, higher service levels or better treatment outcomes.

The service level in Japan is lower than that in the US partly because the reimbursement level is not very high, but also because the long length of stay increases the cost for the patient per stay. Although private rooms are available at a personal cost, most patients cannot afford to use them for the duration of a lengthy stay. When a best-practice hospital reduced its average length of stay to 15 days (as opposed to the Japanese average of 43 days), its private room usage increased to the point that its private room service now accounts for 30% of profit.

- *Lack of payor pressure:* Payors play a much more passive role in the Japanese health care system than in the US and German systems. The result has been less pressure for improvement and less information disclosure from the providers. Since US consumers are free to choose their payors, and since the majority of payors are private (except for Medicare and Medicaid), payors actively compete with each other for members. They make money by closely supervising the actions of hospitals and forcing them to be both productive and honest. They also play an active role in forcing the collection of cost and sometimes outcome data. The data is used to monitor provider performance and to communicate the strong performance of affiliated providers to customers. Many providers gather data on their own initiative (e.g., on patient satisfaction, outcome data on procedures) since they need to compete for payors. In addition, Medicare requires all health care providers to submit their claims online, thereby creating a wealth of provider information that they make public. The German payor system, while being closer to the Japanese system, is also much more active. German payors demand performance data from providers, benchmark providers, and set reimbursement rates that push underperformers to improve.
- *Lack of an effective accreditation system:* In the US, independent accreditation and licensing organizations, with the government's support, have played a crucial role in ensuring and disclosing uniform high quality among hospitals, clinics and doctors. The US Joint Commission on the Accreditation of Health Care Organizations (JCAHO) has existed for 70 years as an independent, non-profit organization with the express purpose of monitoring and accrediting the operational performance of healthcare providers, from hospitals to clinics and even clinical laboratories. To maintain JCAHO accreditation, hospitals must undergo extensive on-site reviews of

their operational performance by multi-disciplinary committees, including physicians, nurses, hospital administrators and healthcare policymakers.

In Japan, the MHW maintains some regulations and guidelines for the hospital sector. These regulations, however, are superficial in nature and do not delve into a hospital's operational performance. The main requirements pertain to necessary staffing levels and sanitation requirements, such as the disposal of medical waste. Theoretically, if hospitals fail to meet these requirements, they can be closed by the MHW. However, the MHW does not have the staff needed to monitor hospitals and clinics in a meaningful way. In fact, according to recent estimates, as many as 40% of Japan's hospitals fall below the MHW's required nurse-patient ratios.

As a result, any doctor can open and operate a hospital with minimal scrutiny of operational performance and disease outcome by the MHW, Japanese payors or independent evaluators. As such, it is no wonder that Japanese patients are concerned that the quality of hospitals is not uniformly high. In the US, on the other hand, patients have more confidence in the uniformly high quality of hospitals. As a result, they routinely choose the hospital that is most convenient to them rather than crowding into the most prestigious academic medical center within driving distance. The lack of an effective accreditation system thus reduces competitive pressure for subsidized hospitals which don't need to improve performance to attract customers. This leads to low productivity and less output (services).

Land market and tax distortions related to land

Although land is a scarce resource in large cities, some blocks of undeveloped land are available even in the metropolitan areas, and the potential for better utilization of land already developed is high. Efficient allocation of this resource is hampered by regulations and taxes that limit the efforts of productive enterprises to obtain land and/or discourage unproductive enterprises from releasing their land. This issue is particularly pertinent for retail (and thus indirectly for food processing) and residential construction.

¶ **Retail.** In retailing, land-related tax incentives act as exit barriers for mom-and-pops. In addition, the de facto consensus required among residents by the Urban Development Law constrains large-scale developments in city centers.

- *Land-related tax incentives as exit barriers for mom-and-pops:* Land-related tax incentives are an exit barrier for traditional players. The low property tax imposes little pressure to exit, while the high

capital gains tax deters the sale of land and inheritance tax deductions make it preferable to hold onto land.

Exhibit 28 shows the NPV calculations on land-related taxes for a typical mom-and-pop store in Japan and the US. The calculation confirms two conclusions for mom-and-pops: 1) the cost of holding land is low; and 2) land is more tax efficient than other financial instruments.

We calculated the NPV of the property tax, capital gains tax, and inheritance tax for the following two scenarios:

- Scenario 1: A mom-and-pop holds the land and store for 25 years. When the owner dies, the spouse and two children inherit the land and store.
- Scenario 2: A mom-and-pop store owner sells the land and store (for cash) in year 25. When the owner dies later in year 25, the spouse and two children inherit the cash proceeds from the sale of the land and store.

A comparison of NPVs under scenario 1 in Japan and the US shows that the cost of holding land in Japan is only about one fifth that in the US, due to the low property tax. Inheritance tax is not a differentiating factor in this comparison because for an asset of this size, the beneficiaries are exempt from the inheritance tax in both Japan and the US.

When we compare scenarios 1 and 2, land is a more tax efficient financial tool than holding cash in both countries. However, land is even more tax efficient in Japan, as the magnitude of difference is larger in Japan at 300%, versus only 48% in the US. In the US, only the portion of the land on which the owner operates a business incurs a capital gains tax, while the residential portion is exempt. However in Japan, the capital gains tax is levied on both the business and residential portions of the land. Actually, the tax levied on the business portion is lower in Japan, but the tax on the residential portion pushes the total capital gains tax above that of the US. The inheritance tax is also a differentiating factor: in the US beneficiaries are exempt from the tax whether they inherit in the form of land or cash, while in Japan they are only exempt when they inherit in the form of land.

Following is a detailed discussion of each of the land-related taxes:

- *Low Property tax*: The average effective property tax rate for mom-and-pops is estimated to be 0.3% in Japan, compared with an average of 1.7% in the US. With a very low property tax,

mom-and-pops in Japan face little pressure to exit even if they are unproductive. If property tax were increased to US levels, approximately 65% of an average mom-and-pop's cash flow would go to paying property tax.

- *High capital gains tax:* The maximum rate for the national capital gains tax for land in Japan is 40%, compared to 20% in the US. The high tax rate discourages transactions, thereby further reducing the supply of land.
- *Inheritance tax:* For land only, there is a special provision that allows small-scale land owners to deduct 80% of the value from the taxable amount. Many Japanese mom-and-pops qualify for this special provision (privately-owned commercial property below 330 square meters). Land, therefore, becomes the most tax-efficient asset for inheritance. As a result, many mom-and-pops hold onto land and store. The deduction was 40-50% until 1999 when it was increased to the current 80%. Meanwhile in the US, there is no such special deduction that applies only to land within inheritance tax.
- *Urban Development Law:* The current Urban Development Law stipulates that the local government “can” give approval for large-scale developments (e.g., large shopping malls) in urban areas if two thirds of local residents agree. In practice, though, the local government does not give approval unless a consensus is reached. Unless the law states that the local government “must” approve if two thirds of local residents agree, large projects will be stalled for decades.

¶ **Residential construction.** Residential construction occupies more land, and thus land issues affect this industry more acutely than retail construction. Ample land could be obtained for residential construction in metropolitan regions if it were permissible to convert agricultural land there for such use. Land market regulations affect the residential construction industry in two ways. First, tax incentives both limit the supply of land on which housing can be built as well as constraining the secondary housing market. Second, zoning laws restrict the scale of MFH that can be built on a particular land plot.

- *Tax incentives:* The high capital gains tax and high transaction taxes deter ownership of multiple houses in a lifetime, thereby constraining the secondary market. As in retail, the special treatment of land for inheritance purposes and the low property tax restrict liquidity in the property market, thereby making land acquisition difficult for large-scale developers. In addition, agricultural land, on which large-scale development could be

conducted, receives a variety of preferential tax treatments that deter sale to a developer. In the Tokyo Metropolitan area -- comprising Tokyo, Kanagawa, Chiba and Saitama Prefectures -- 19% of land is still used for agricultural purposes (Exhibit 29).

- *Zoning laws:* High-rise multi-family housing is difficult to build in Japan because of various zoning codes, such as floor area ratios, building coverage ratios and sunshine laws that restrict the height and shape of buildings. The average number of floors for buildings in Tokyo is 2.3 – far below that of major cities around the world – due to these zoning codes.

Capital market distortions

Capital market distortions hamper productivity in retail, residential construction and health care industries.

- ¶ **Retail.** There are three capital market exit barriers in the retail industry, one affecting mom-and-pops and two affecting debt-ridden retail conglomerates. The exit barrier for mom-and-pops is far more important than that for debt-ridden retail conglomerates. Since the productivity of the handful of retail conglomerates is already quite high (around 80% that in the US) and since their share of total employment is so low (around 2%), the impact of restructuring on the overall industry is limited. On the other hand, format mix change from mom-and-pops (with productivity at 19% of the US average and accounting for over half the employment) to more productive formats will have a large impact.
- *Government loan guarantees:* Since 1998, the government has provided thirty trillion yen in loan guarantees to small businesses with almost no credit evaluation. Small retailers (mom-and-pops) account for 13%, or 4 trillion yen, of this windfall. By providing loans preferentially to small retailers, the government is slowing the exit of unproductive retailers. Some people argue that the exit of mom-and-pops is not important as long as the Large Scale Retail Location Law is repealed and the market share of small stores declines. However, from a political-economy perspective, the Large Scale Retail Location Law will not be repealed if local mom-and-pops (which lobby for the law and sit on the evaluation committee) do not exit. Therefore, the removal of the government loan guarantee is important.
- *Continued lending to troubled retailers:* The government has indirectly kept large debt-ridden retail groups afloat by protecting the banking sector. Banks have increased their lending to sectors with bad debt

problems – mainly construction, real estate and retailing, all of which invested in land during the bubble economy. Within retailing, banks have increased their lending to debt-ridden retail groups (Exhibits 30 and 31). However, the banks would have no choice but to collect if the government did not support them through unlimited deposit guarantees and re-capitalization. If banks with substantial bad debt went bankrupt and their assets were sold off, many retail groups would be on the market for more productive domestic and foreign retailers to purchase. Greater competition among banks will force them to adopt better credit skills, relying less on land-based collateral and valuing businesses and land through discounted cashflows.

Recent events – Nagasakiya filing for bankruptcy filing and Sogo announcing that it would write off debt and restructure – suggest that capital market pressure has finally started to affect debt-ridden retailers. However, such restructuring would have occurred much earlier and on a larger scale had the banks not been protected.

However, as discussed above, the impact of restructuring large retail conglomerates – even considering the increased competition it will bring to surrounding stores -- is limited. Indeed much greater impact would result from the exit of mom-and-pops or the entry of large-scale retailers on new sites.

- *Direct lending by state banks:* The government-owned Development Bank of Japan has started directly supporting large debt-ridden retail groups in recent years. This lending helps keep these groups from bankruptcy and thus hampers “restructuring from the outside”, which is typically more radical in nature than “restructuring from within” the company.

¶ **Residential construction.** The Government Housing Loan Corporation, which provides mortgages for 32% of new construction, discriminates against used homes. Ninety-six percent of their loans are for new homes, although around 20% of houses sold are used. In addition, their terms for used homes are much less attractive. This behavior constrains the growth of the secondary housing market, a critical input to price competition.

¶ **Health care.** Government subsidies to public-sector and university hospitals create a non-level playing field among hospitals that reduces competitive intensity and leads to less efficiency and lower service levels. In addition, hospital ownership restrictions have hampered the diffusion of best management practices throughout the industry.

- *Government subsidies:* Government subsidies to finance capital expenditures or fund operations allow public-sector and university

hospitals to dominate high-technology care. These hospitals also receive indirect subsidies in the form of property tax breaks. In Tokyo, the total level of subsidies, direct and indirect, can be as high as \$4000 per bed, per month. Since reimbursement levels are set below marginal cost for many high-end procedures, most hospitals have a difficult time making money by practicing high-tech medicine. To compensate for the limitations that low reimbursement rates place on high-tech medicine, the government pays subsidies to public and university hospitals to allow them at least to remain close to the cutting edge of technology. Higher levels of technology allow these hospitals daily to attract thousands of outpatients who associate high technology with better outcomes, even for primary care. In this way, government subsidies distort competition among providers by giving subsidized hospitals an insurmountable technological edge over most private hospitals, thereby removing the competitive pressures that would force them to care about and improve their service levels. These hospitals represent roughly 20% of the hospital sector in Japan.

- *Hospital ownership restrictions:* Currently government restrictions require doctor ownership and management of hospitals and forbid investor-owned, for-profit hospitals. While the US experience suggests that hospitals do not have to be investor-owned or be for-profit in order to be efficient, the current ownership restrictions in Japan certainly have not helped efficiency improvements. These restrictions have contributed to the poor management skills in Japanese hospitals.

External factors which were not important

Interestingly, we did not find that the labor market, consumer preference, the troubled banking sector or macro factors were important in explaining Japan's low productivity.

- ¶ **Labor market issues.** Addressing labor market issues in residential construction is a nice to have, but not necessary. In health care, labor market issues affect productivity, but not in any major sense. Labor market distortions were not important in retailing or food processing.
- *Residential construction:* There is no national accreditation system for builders in Japan. Although a system for nationwide training exists in the US, only 10% of US workers receive this accreditation (through union associations). In addition, labor accreditation appeared long after building methods were standardized. Labor accreditation is, therefore, nice to have but not essential for standardization and better management.

- *Health care:* In Japan, medical schools control the supply of hospital doctors. When a hospital needs a doctor, they must appeal to a medical school to transfer someone to their hospital. As a result, hospital physicians are more loyal to their medical school professors than to the hospital where they work and hospital administrators have difficulty convincing them to accept efficiency improvements or incentive-based pay. These labor market irregularities explain some of the inefficiencies and service problems we have observed in Japan.

¶ **Consumer preference.** Some argue that the Japanese do not react to low prices and that their idiosyncratic tastes negatively affect productivity. We did not find this to be the case. When a reasonably priced, superior product is made available, consumers react en masse. For example, when clothes manufacturer Uniqlo managed to reduce the price of its fleece jacket by half and focused its marketing efforts to sell the jacket, it sold 8 million jackets in one season. The number of Uniqlo stores has increased three-fold in the past five years, making it the largest casual wear retailer in Japan (Exhibit 32). During the last decade, Toys'R'Us became Japan's largest toy manufacturer owing to its low prices. The problem is that barriers in product, land and capital markets hamper the expansion of such productive players. Consumers cannot buy things that are not offered, and what is offered is not desirable. The problem is on the supply-side, not the demand-side. Some people also argue that particular Japanese tastes, such as an obsession with freshness and product variety, hamper productivity. However, taking the milk-processing example, even with just-in-time delivery to maximize freshness, the top three manufacturers' productivity is already at par with the US. Milk processing productivity is low in Japan because there are too many sub-scale milk processors (that survive because they are not subject to pressure from large processors or large retail chains; see Food Processing Case for details), not because Japanese consumers demand freshness. France can be a model for what Japanese food processors may become once higher productivity is achieved. The French food processing industry has two clear segments: the large-scale mass producers; and the high-quality, niche producers. The small food processors that have survived competition from large, world-class manufacturers are equally productive, producing a small amount of high value-added products at high productivity.

Japan today has many mediocre food processors who are too small to enjoy scale benefits but not sufficiently differentiated. Retail consolidation and the resulting competitive pressures will force food processors to improve their productivity by pursuing scale or niche

markets. The problem, again, is not with the consumers, but with the producers.

- ¶ **Troubled banks.** The only evidence of the troubled banking sector lowering sector productivity is in its continued lending to debt-ridden large retail groups. However, as discussed in the retail section of “Capital Market Distortions”, this barrier was of secondary important – and much less important than other barriers in retail. Once other barriers are removed, the banking sector might play a more active role in enforcing discipline for exit (especially if they can build credit evaluation skills and move away from collateral-based lending). However, our microeconomic analyses indicate that sorting out the troubled banking sector is not a priority in terms of improving Japanese productivity and GDP per capita.
- ¶ **Macro factors.** Productivity in domestic sectors studied was low, but not because of macro issues. Unlike traded sectors, domestic sectors are little affected by exchange rates. Interest rates in Japan are at historically low levels and do not hamper investment. Japanese savings and investment levels are still high, and any investment that is not made is because of slow growth expectations. These slow growth expectations, in turn, are caused by the micro market distortions studied in this report.

External factors: domestic sectors versus global manufacturing sectors

Interestingly, whereas unproductive domestic sectors are weak, the productive global manufacturing sectors are strong. Past research on global manufacturing sectors – i.e., auto, consumer electronics, steel and machine tools – reveals several characteristics that are key sources of strength and higher productivity. These lie in their scale, strong product development skills and world-class operations at the production process level; extremely high domestic and global competitive intensity at the industry level; and low market restrictions at the external level⁴. Interestingly, these characteristics are precisely the opposite of those of domestic sectors.

In fact, in other countries, the productivity of these global manufacturing sectors lags that of Japan because they suffer from exactly the same issues as the domestic sectors in Japan. For example, the labor productivity of the UK auto industry is only 49% that in Japan because of very weak operational skills shielded by import barriers and government subsidies⁵.

⁴ “Manufacturing Productivity” (1993), McKinsey Global Institute

⁵ “Driving Productivity and Growth in the U.K. Economy” (1998), McKinsey Global Institute

Japan needs to extend the application of the very principles that allowed its global manufacturing sectors to become productive into its domestic sectors.

POLICIES FOR GROWTH

To remove barriers to growth in domestic sectors, the government needs to deeply reform the domestic sectors. Based on our sector sample there are three types of reforms that should be undertaken (Exhibit 33).

- ¶ *To remove exit barriers: Provide incentives to exit and support the unemployed in transition.* When unproductive firms are protected and subsidized, the result is a non-level playing field that distorts competition. In addition, lobby groups of unproductive players use political pressure to enact entry barriers, further reducing competitive intensity.

Instead of supporting unproductive firms, the government should provide incentives for their exit and support individuals. In retail, for example, land-related taxes should be reformed (reduce capital gains tax, increase property tax and eliminate the special deduction for land in inheritance tax) to provide incentives for unproductive stores to exit. For example, mom and pops on average own property worth 50 million yen which they would be prompted to turn into cash if the capital gains tax were (temporarily) reduced to facilitate their exit.

The government should make a concerted effort to protect individuals during the transition period when job destruction increases and is not simultaneously matched with job creation from reform (see Employment Outlook section below). Unemployment benefits in Japan are at about the same level than the US (Exhibit 34) but may need to be temporarily extended in duration during this transition period.

Interestingly, the number of people in our cases who will be in desperate conditions from long-term unemployment is expected to be low. There are three reasons for this. First, as we will illustrate in the Employment Outlook section, we expect job creation to almost match job destruction over the 10 year period. Second, many who lose jobs as a result of shutdowns can retire and receive pensions; the share of the population over 65 will increase from 17% today to 22% in 2010. Third, many others (e.g. a large majority of mom and pops) have assets that they can convert into cash and live on (if the proper exit incentives are in place). For example, mom-and-pops on average own land worth 50 million yen.

- ¶ *Deregulation for entry barriers:* Many laws and regulations prevent the entry of productive companies or the introduction of better products in

domestic markets. Of the 12 market distortions listed in Exhibit 23, five were in this category (the Large Scale Retail Location Law, tariffs, reimbursement system, Urban Development Law, zoning codes). By stifling innovation, these entry barriers cap the potential for productivity growth. These laws and regulations need to be removed.

- ¶ *Market- enabling interventions for market failures:* Deregulation alone may not stimulate sufficient competition and innovation. Domestic sectors are plagued with market failures that require active interventions by the government. We found severe market distortions in residential construction and health care. Without market-enabling interventions, builders will not adopt an open standard, price information for homes sold will not be released, proper appraisal for secondary houses will not emerge, and hospitals will not disclose outcome data. The government needs to see its role as an enabler of the market mechanism.

Piecemeal reforms will not work. As illustrated by case studies in this report, market distortions are systemic. For example, in retailing, the removal of exit barriers will be ineffective in increasing the presence of large-scale retailers unless entry barriers are removed at the same time. On the other hand, if entry barriers for large scale are removed but exit barriers for traditional are maintained the result will be little change in sector wide productivity. In residential construction, price and product quality information (appraisal through the GHLC) should be made available simultaneously if the secondary market is to develop rapidly.

The areas of reform can cross many markets and ministries, even for one sector. For example, reform of the residential construction industry would encompass the product market (standardization and appraisal), the land market (taxes and zoning) and the capital market (GHLC). The ministries involved would include the Ministry of International Trade and Industry, the Ministry of Construction and the Ministry of Finance. Strong coordination across ministries, such as that provided by Housing and Urban Affairs in the US government, would be needed to implement change.

Despite the practical difficulty of reform, the challenge is to reform as many sectors as possible simultaneously. By doing so, overall economic growth would be enhanced by spillovers. For example, reform of the retail sector would lead to reform of the food processing sector, as already discussed. The resulting reduction in the price of food would allow people to spend more on other goods (for example, houses and health care) – thereby increasing output in other sectors and the overall economy.

SIZE OF THE PRIZE

The size of the prize for reform is large. The Japanese economy has the potential to grow its GDP per capita by 4% over the next 10 years if all the barriers identified are removed.

Productivity growth potential

If the market distortions identified in the cases were removed, we estimate that productivity growth potential would be 6.3% (Exhibit 35). Needless to say, this is far above the productivity growth rate of the 1990s (1.2%) or the potential given no reform (1.5%) for the cases. Given the higher productivity of the overall domestic sector (63%) compared to that of the three sectors analyzed for the estimate (47%), applying the same growth rate to the latter would be an overestimate. We therefore make a conservative assumption that the overall domestic sector will reach the US productivity of today 10 years from now. This generalization translates into a productivity growth rate of 4.7% for the overall domestic sector.

Output growth potential

With Japan's demographic trends, labor inputs are expected to decline by 0.5% per year between 2000 and 2010. When this is combined with the labor productivity growth potential of 4.7%, the output growth potential becomes 4.2%. That is to say that Japanese GDP per capita has a 4.2% growth potential (given accommodating monetary policies and capital investment). The 4.2% growth in GDP per capita comes from a fundamental increase in the productive potential of the economy, as opposed to macroeconomic adjustment in its (cyclical) capacity utilization (Exhibit 36). Since the impact of the latter is smaller policy makers should focus on the structural reforms identified in this study to realize the 4.2%.

Some may wonder whether output can grow by so much. Even if productivity improvements lead to lower prices and better products, what more would the Japanese consume? The answer is that they would consume more of many products. At higher income levels (which is equal, in effect, to lower prices) the Japanese consume more clothes, cars, publications, restaurants, hotels and recreational equipment (Exhibit 37). Looking across countries, the Japanese consume only two-thirds in terms of clothing and cars, half in terms of publications, restaurants and hotels, and a third in terms of recreational equipment of that which Americans consume (Exhibit 38). From our case studies, we also know that consumption is constrained by: high prices (all cases), weak products (retail and food processing), unavailability of products (health care) and the need to save more (residential construction). However, once productivity improves and better products are made available cheaply, Japanese consumers

will react en masse (e.g., Uniqlo, Toys'R'Us). The potential for more consumption is definitely high given productivity improvements.

Employment outlook

With output growth potential to match the productivity growth potential, the overall employment would remain constant. Unemployment should come down since labor inputs will decline as the population ages over the next decade.

As Exhibit 39 illustrates for the sectors we studied, the net effect of a 5.5% increase in productivity on employment is neutral (no additional unemployment). Due to higher competitive intensity there will be higher levels of job destruction but this will be offset by equally high levels of job creation. For example, healthcare alone can create over one million jobs even after inefficiencies are removed, offsetting the reductions in retail, food and housing employment (Exhibit 40). Because reforms in these sectors have been overdue, the initial displacement from restructuring will be high and therefore the government should consider temporarily extending unemployment benefits to provide enough security until people can find their next job. However, as mentioned earlier, we expect the job creation (as in health care) to match the job destruction over the long run. Refer to Appendix A for assumptions behind these calculations.

For specific individuals, the transition required during reform could be painful. People in Japan, of all developed countries, should be most familiar with such pains – the Japanese economy in the post-war period underwent the fastest shift from a society where almost half the people were employed in agriculture to one with a large manufacturing sector, to one that is service dominated (Exhibit 41). The perception of a less mobile society for Japan is a myth. This transition – like the ones before – will be painful but necessary to adapt, evolve and grow. The introduction of a universal social system will help make the transition less painful. Increased GDP per capita from reform will help finance such social systems.

After ten years of stagnation, bold steps are necessary to reform the domestic sectors and put the Japanese economy on an accelerated growth path. The size of the prize warrants the courage.

Appendix A

Employment change estimates

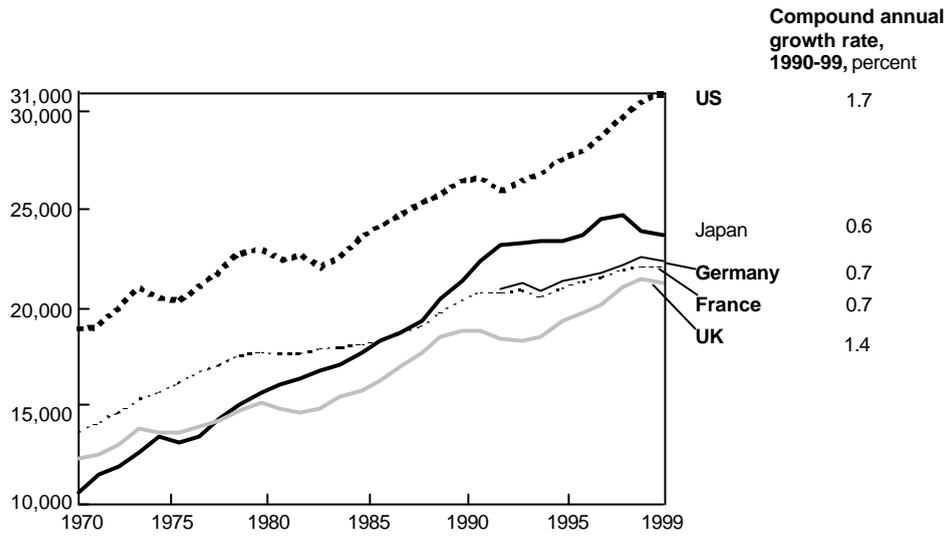
For each of our cases we estimate productivity and output changes with reform (Exhibits A1-A4).

- ¶ Our measure of employment changes resulting from productivity improvements came directly from the potential increases in productivity estimated in each case.
- ¶ We estimated changes in output using the current US level in each case as a reference point and making adjustments for possible US-Japanese differences. Output in Japan should approach the US level today because:
 - We expect economy wide output growth to be 4% over the next ten years, which will result in output levels slightly above that of the US today.
 - Convergence in relative prices across products (due to productivity catch-up in domestic sectors) should yield convergence in output across products.

Change in job destruction and creation

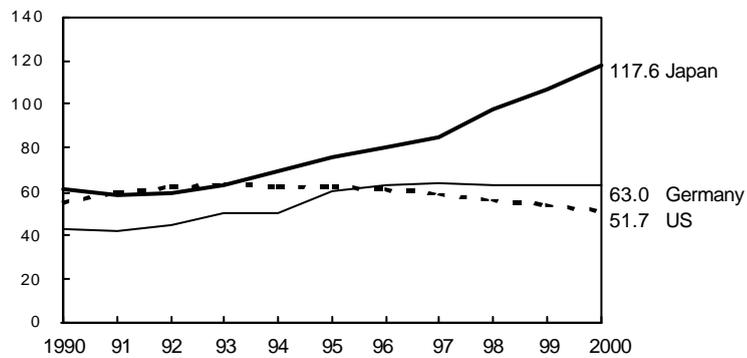
We expect to see an increase in job destruction and creation in Japan. First, moving to the US level of competitive intensity should induce an increase in job destruction toward the US level. In addition, more destruction will result due to the overdue shut downs of subscale operations that cannot compete with productive firms once competition is introduced. For example, the majority of mom and pops, small local food processors, independent traditional carpenters and underutilized hospitals are likely to exit their industry (Exhibits A5 and A6). An offsetting level of creation will result from the increase in both output and services made possible by higher productivity (lower prices and more innovation in services) as well as the elimination of direct regulation of services as in health care. Implementing all the reforms simultaneously, as opposed to gradually, will increase output and thus job creation more dramatically due to positive spillovers between sectors. The government will want to make sure that sectors which will yield job creation (e.g. health care) should be included as a priority.

Exhibit 1
THE WIDENING GAP IN REAL GDP* PER CAPITA
 1990 US dollars**



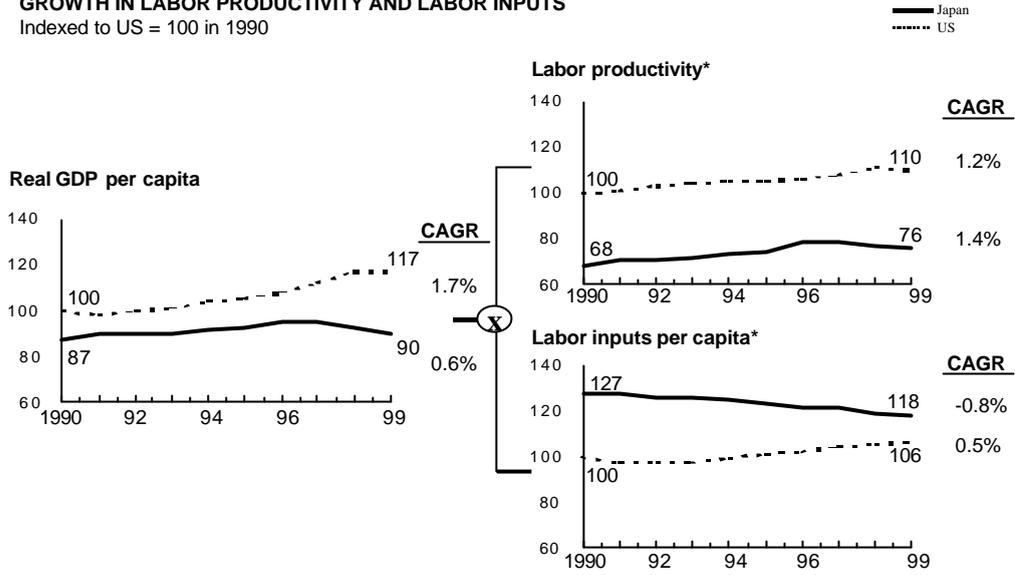
* Gross domestic product
 ** At purchasing power parity (PPP)
 Source: OECD

Exhibit 2
GENERAL GOVERNMENT DEBT AS A PERCENTAGE OF GDP
 1990 - 2000



Source: OECD

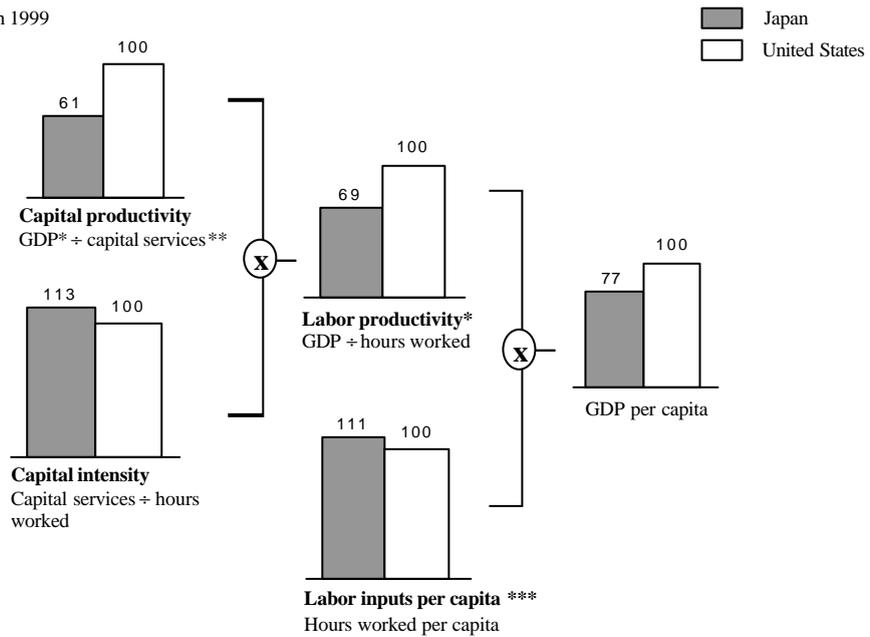
Exhibit 3
GROWTH IN LABOR PRODUCTIVITY AND LABOR INPUTS
 Indexed to US = 100 in 1990



* Labor hours for 1999 estimated based on trend over past 10 years
 Source: OECD; O'Mahony; Ministry of Labor (Japan); Bureau of Economic Analysis (US)

Exhibit 4
CAPITAL PRODUCTIVITY

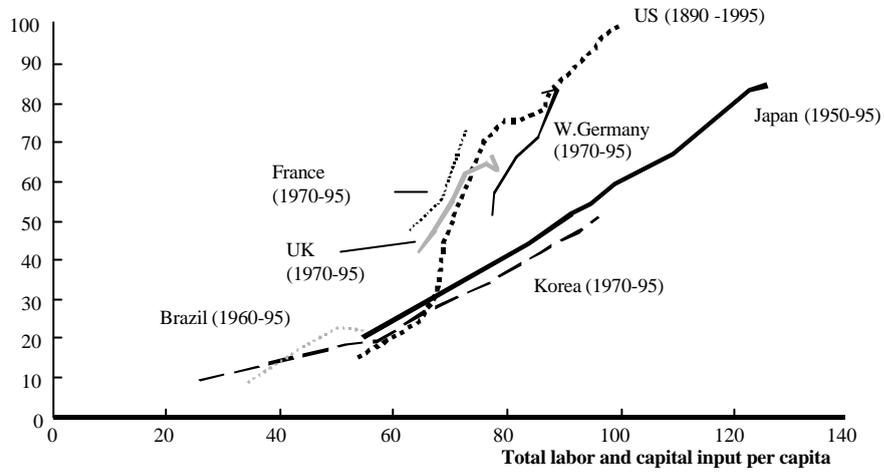
Index: United States = 100 in 1999



* Gross domestic product, at PPP
 ** 1997
 *** Labor hours for 1999 based on trend measured over the past 10 years.
 Source: OECD; O'Mahoney, Britain's Productivity Performance 1950-1996: an international perspective; Japanese Ministry of Labor; Bureau of Economic Analysis

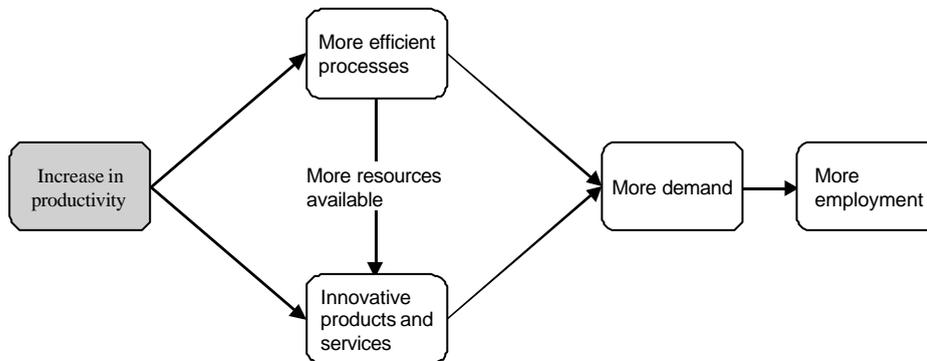
Exhibit 5
ECONOMIC DEVELOPMENT PATHS
 Percent of US; 1995

Per capita GDP



Source: OECD; O'Mahony; McKinsey analysis

Exhibit 6
PRODUCTIVITY-LED GROWTH



Source: McKinsey analysis

Exhibit 7
PRODUCTIVITY DISPARITY IN THE JAPANESE ECONOMY

	<u>Share of employment</u> Percent	<u>Labor productivity</u> Index; US = 100; 1999	
Export-driven manufacturing	10	120	<ul style="list-style-type: none"> • Automobile (145) • Electronics (115) • Machine tools (119) • Steel (120)
Domestic manufacturing	15	63	<ul style="list-style-type: none"> • Food processing (35) • Textile • Furniture
Domestic services*	75	63	<ul style="list-style-type: none"> • Retail (50) • Construction (45) • Health care (93) • Business services
Total	100	69	

* Includes agriculture and construction
 Source: OECD; O'Mahony; McKinsey analysis

Exhibit 8
LABOR PRODUCTIVITY IN SECTOR CASE STUDIES

	<u>Share of GDP</u> Percent	<u>Share of employment</u> Percent	<u>Labor productivity</u> Indexed to US = 100 in 1998
Retail	5	12	50
Food processing	5	2	35
Housing construction	5	4	45
Health care	3*	4	93**
Total for sector case studies	18	22	56
	┌ Total for these 4 sectors ─┐		┌ Average for these 4 sectors ─┐

* 8% of final expenditure
 ** Total factor productivity equals 75% of US
 Source: National Accounts; McKinsey analysis

Exhibit 9

SUMMARY OF PRODUCTION PROCESS CASUALITY ACROSS CASES

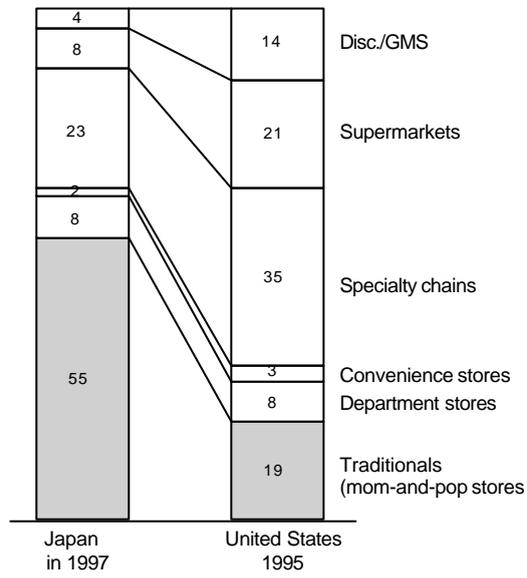
Index; US = 100

● Primary (≥10 points)
○ Secondary (5-9 points)
— Undifferentiating (<5 points)

	<u>Retail</u>	<u>Food processing</u>	<u>Housing construction</u>	<u>Health care</u>	<u>Total</u>
• Product mix / market	●	○	○	●	●
• Production factors					
– Capital intensity / technology	—	●	—	—	—
– Scale	●	●	●	—	●
– Labor trainability	—	—	—	—	—
• Operations					
– Organization of functions and tasks	—	—	●	●	○
– Design for manufacturing	—	—	●	—	—
– Supplier / buyer relations	—	—	—	—	—
Productivity	50	35	43	75*	

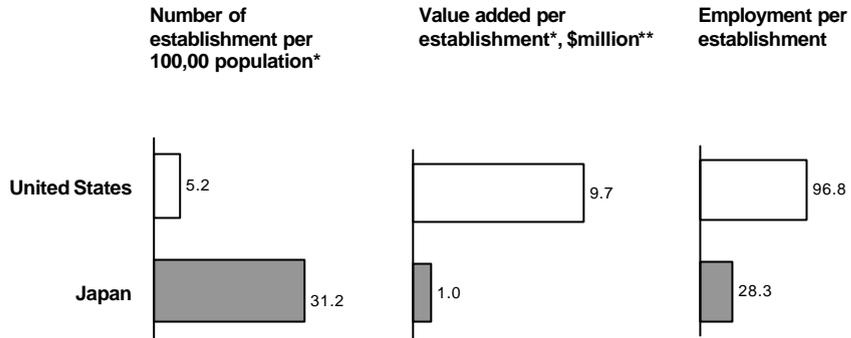
* Total factor productivity
Source: McKinsey analysis

Exhibit 10
SHARE OF HOURS WORKED IN RETAIL
 Percent



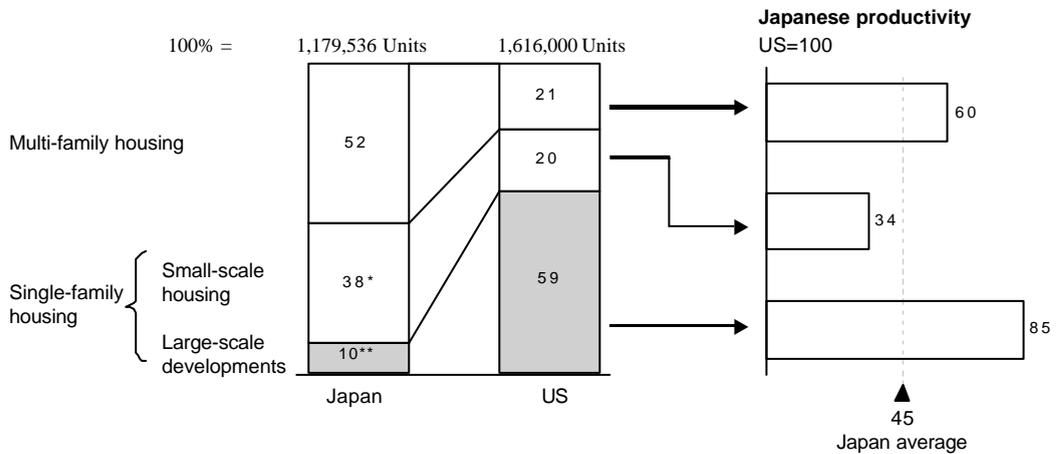
Source: Census of Commerce; Census of Retail Trade; company reports; Nikkei, McKinsey analysis

Exhibit 11
SCALE OF FOOD PROCESSING ESTABLISHMENTS
 1997



* Number of establishments for US as of 1992
 ** 1993 dollars at purchasing power parity
 Source: Japan Census of Manufacturers; US Annual Manufacturing Survey; Norinsuisan Tokei Yoran

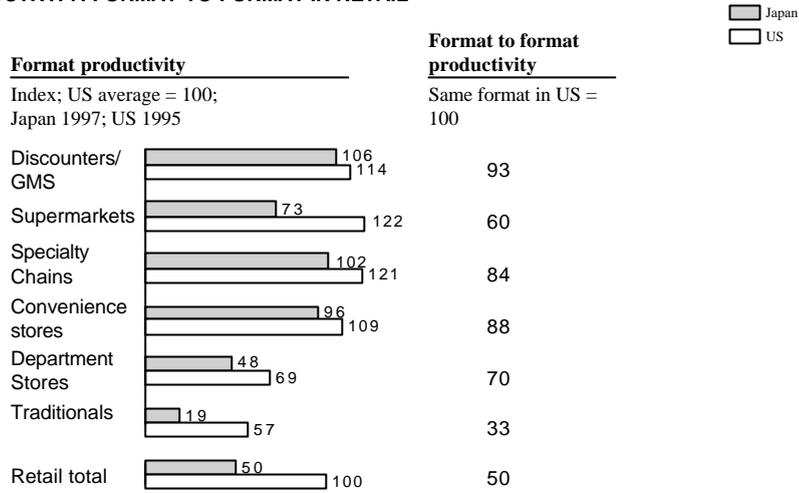
Exhibit 12
COMPARISON OF HOUSING MIX
 Percent; 1998



* Mostly post and beam
 ** 10% of total output is built by developers, therefore this is an upper boundary
 Source: MGI France/Germany report; Ministry of Construction; McKinsey analysis

Exhibit 13

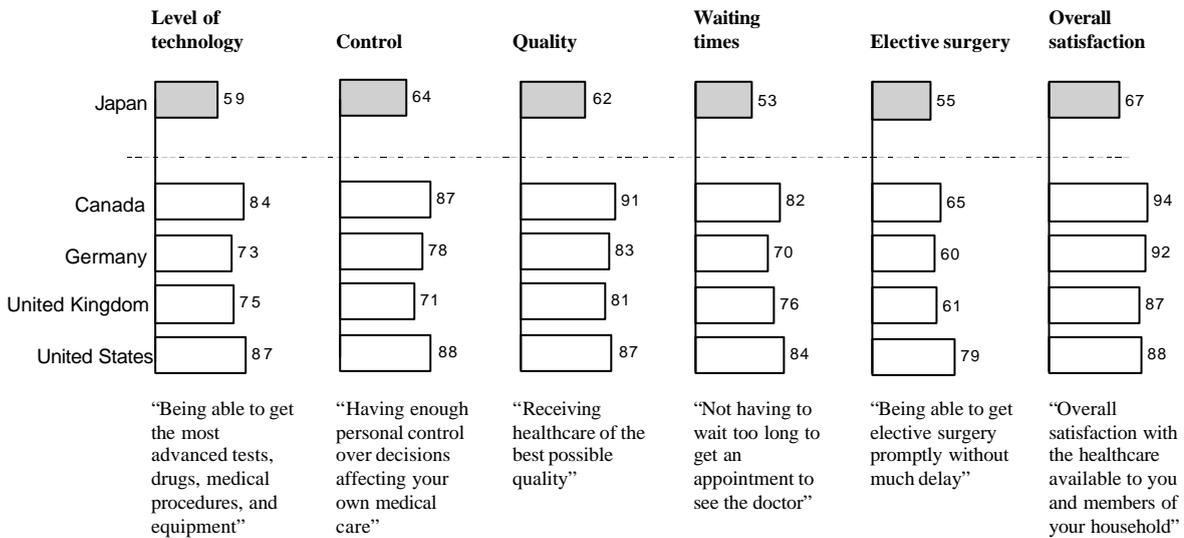
LABOR PRODUCTIVITY: FORMAT-TO-FORMAT IN RETAIL



Note: Used double deflated OECD final consumption PPPs for relevant products
 Source: Census of Commerce; Census of Retail Trade; Compustat; Labor Statistics; Nikkei Needs; Interviews; McKinsey analysis

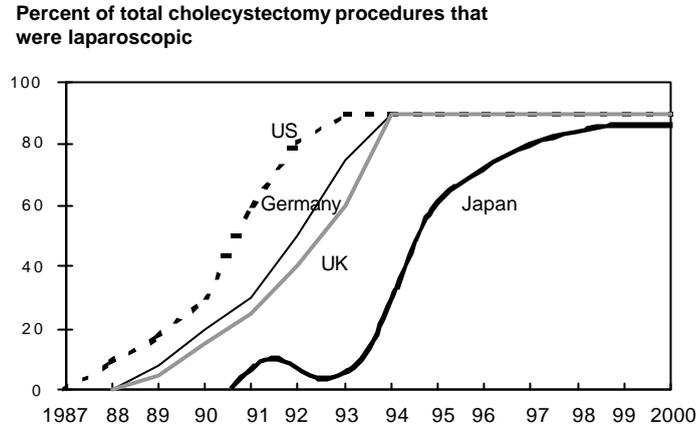
Exhibit 14

JAPANESE PATIENTS ARE NOT SATISFIED



Source: Survey of 1000 patients in each country conducted by Louis Harris and Associates for the Harvard Community Health Plan

Exhibit 15
RATE OF ADOPTION OF LAPAROSCOPIC TECHNOLOGY



Source: R. Orlando III et al., 1993(US); NIH Consensus Development Panel on Gallstones and Laparoscopic Cholecystectomy, 1993; R. McCloy, 1992(UK); R.C.G. Russell, 1993(UK); industry interviews(UK); H.J. Kramling et al., 1993(Germany); clinician interviews(Germany); interviews in Japan

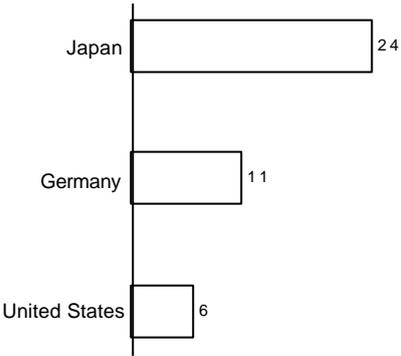
Exhibit 16
TOP-SELLING PSYCHIATRIC DRUGS ARE NOT AVAILABLE IN JAPAN

Top ten selling drugs worldwide	Description	Date approved in:		Time lag behind the US Years
		US	Japan	
1. Losec	Anti-ulcerant	1989	1991	2
2. Zocor	Anti-cholesterol	1991	1991	0
3. Prozac	Anti-depressant	1987	–	12+
4. Norvasc	Calcium antagonist	1992	1993	1
5. Lipitor	Anti-cholesterol	1996	–	3+
6. Renitec	Ace inhibitor	1986	1986	0
7. Seroxlat/Paxil	Anti-depressant	1992	–	7+
8. Zoloft	Anti-depressant	1991	–	8+
9. Augmentin	Broad spectrum penicillin	1984	1985	1
10. Claritine	Antihistamine	1993	–	6+

Not available in Japan

Source: IMS

Exhibit 17
AVERAGE LENGTH OF STAY FOR ACUTE CARE
Days; 1996



Source: Ministry of Health and Welfare; American Hospital Association; Statistisches Bundesamt, Provider interviews, McKinsey analysis

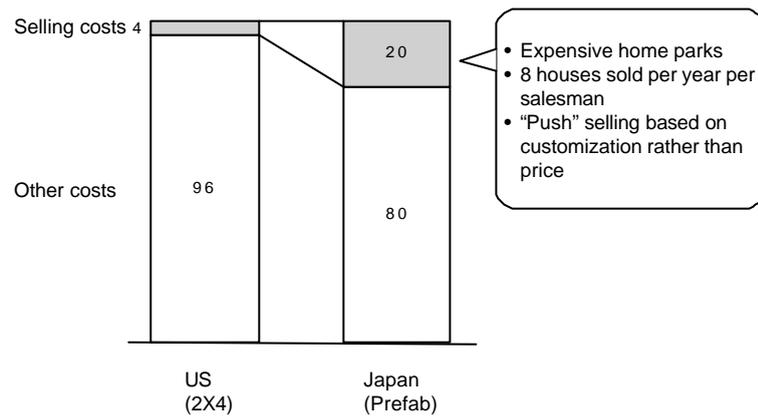
Exhibit 18
RANKING OF TOP RETAILERS

<u>Japan</u>			<u>US</u>		
<u>1983</u>			<u>1983</u>		
<u>98</u>			<u>93</u>		
1	1	Daiei	17	1	Wal-Mart Stores
2	2	Ito-Yokado	1	2	Sears Roebuck
4	3	Jusco	2	3	K-Mart
5	4	Mycal	12	4	Dayton Hudson
7	5	Takashimaya	5	5	J. C. Penney
3	6	Seiyu	-	6	Home Depot
10	7	Uni	4	7	Kroger
6	8	Mitsukoshi	3	8	Safeway
9	9	Seibu	-	9	Costco
13	10	Marui	9	10	American Stores

▼	▼
Little change in ranking	Dramatic change/ competition

Source: Fortune; NIKKEI

Exhibit 19
PUSH SELLING IN THE JAPANESE HOUSING SECTOR
1999



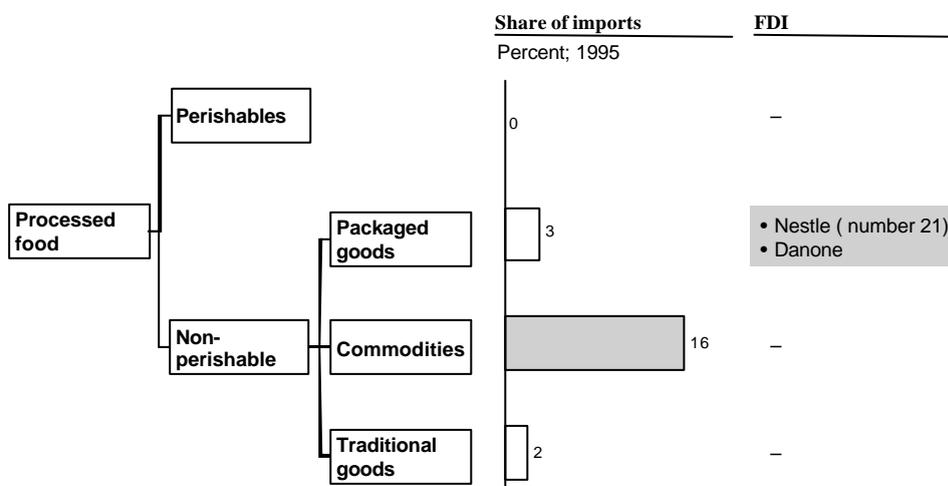
Source: Interviews

Exhibit 20
FOREIGN ENTRANTS – KEY EXAMPLES

	<u>Store</u>	<u>Year of entry</u>	<u>Market share within category</u>
Toys	• Toys'R'Us	1991	10%
Clothes	• Gap	1995	n/a
Interior goods	• Pier 1 Imports	1996	<1%
Sports goods	• Sports Authority	1996	<1%
Office goods	• Office Depot • Office Max	1997 1997	<1%
Discounter / hypermarket	• Costco • Carrefour	1998	<1%
Sports shoes	• The Athlete's Foot Group	1998	<1%

Source: NIKKEI

Exhibit 21
INDUSTRY DYNAMICS



Source: Input-output tables; Interviews

Exhibit 22
MARKET DISTORTIONS IN SECTOR CASE STUDIES

● Important (≥10 points of gap)
 ○ Secondary (5-9 points of gap)
 — Undifferentiating (<5 points of gap)

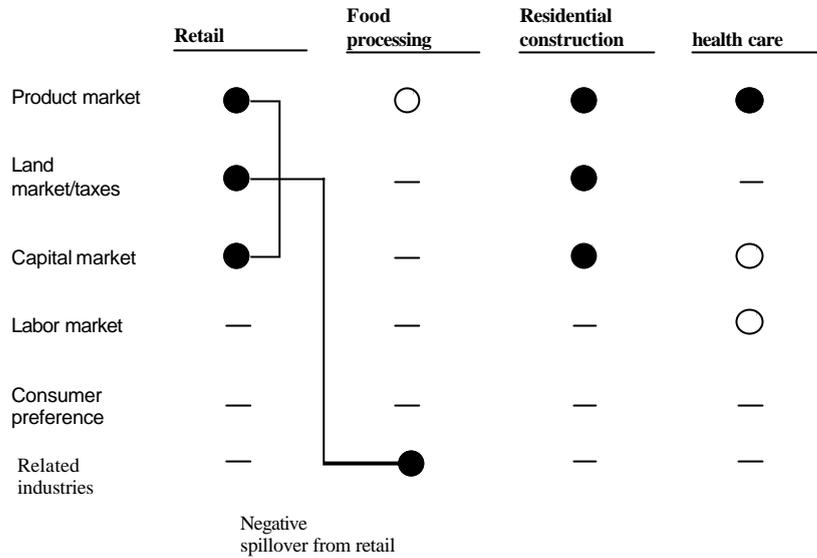


Exhibit 23
TYPES OF MICRO MARKET DISTORTIONS

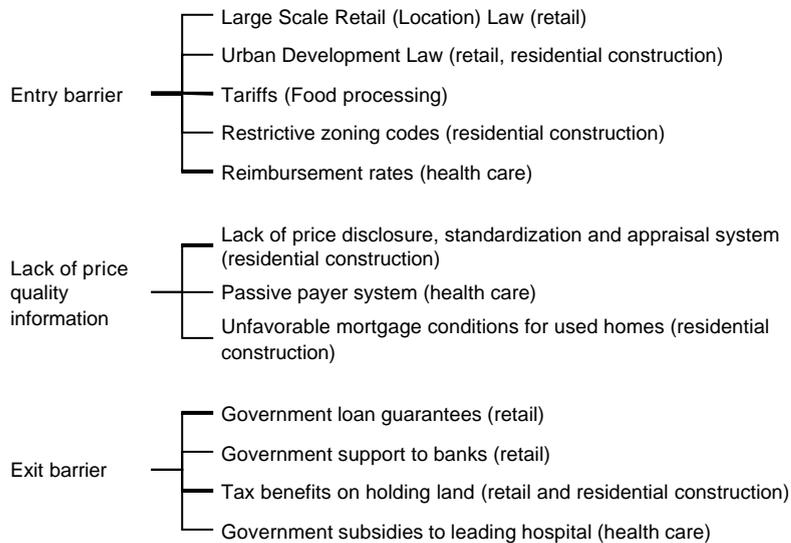
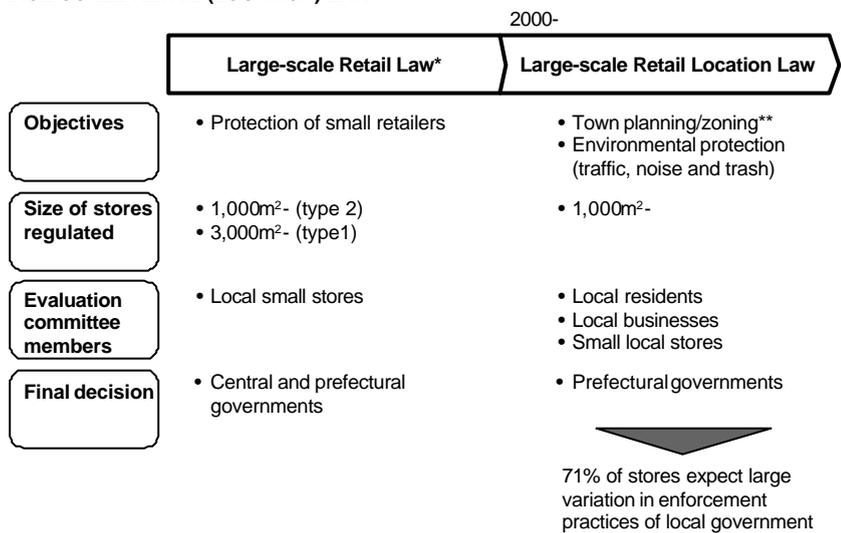


Exhibit 24
LARGE SCALE RETAIL (LOCATION) LAW



* Enacted in 1974 and gradually deregulated in 1990, 1992 and 1994
 ** Zoning regulated under revised City Planning Law
 Source: Nikkei; Goldman Sachs

Exhibit 25

PRODUCTIVITY AND IMPORT RESTRICTIONS ON COMMODITY FOOD PRODUCTS

<u>Productivity</u> Index; 100=U.S.; 1997	<u>Trade barriers in Japan</u> 1999			
	<u>Tariff rate</u>	<u>Other restrictions</u>		
Vegetable oil	86	0 - 5.3%	–	High productivity products generally have low trade barriers
Chicken	73	8.8 - 12.3%	–	
Flour	56	12.5 - 160%*	Rate depends on the purpose of imports	Low productivity products generally have high tariff and/or other restrictions
Meat processing	42	Beef: 40.4 - 50% Pork: 4.4-700%**	– Price differential/government supply adjustment	

* 12.5 - 25% applied to imports for specific purposes only. Most are subject to ad valorem rates and other duties; estimated to be 160% of market price.

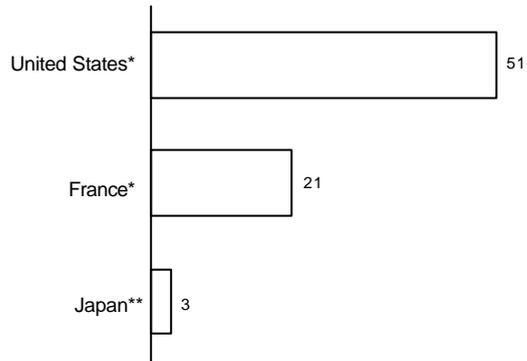
** Actual tariff is ad valorem rate of 371.67/kg yen. Rate calculated based on pork prices in the market.

Source: Census of Manufacture; Economic Census; *Agro-Trade Handbook*, JETRO (1999); *Trade Policy Review Japan*, WTO (1998); Interviews

Exhibit 26

SECONDARY HOUSING: UNDERDEVELOPED

Number of existing houses sold per thousand dwellings



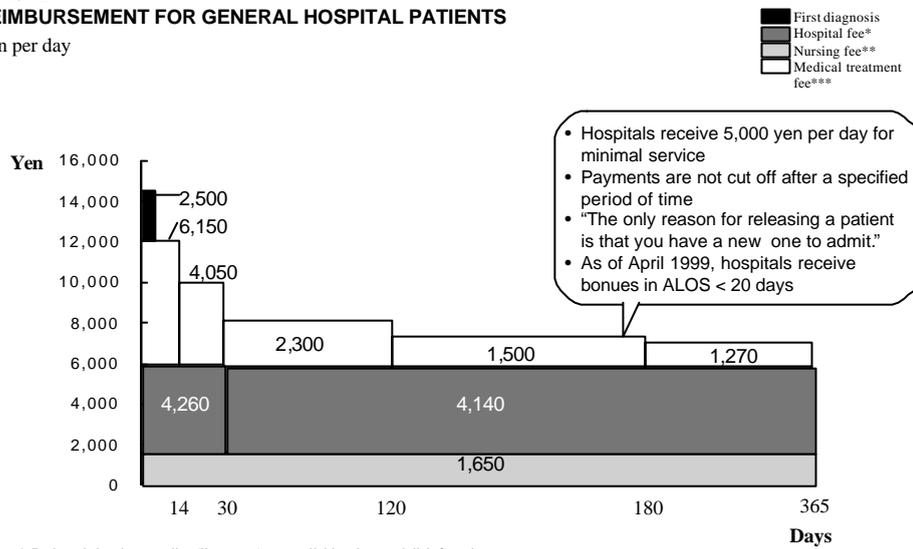
* 1999

** 1992

Source: Databook on housing economics Ministry of Construction (Housing Industry Newspaper 1999); interviews

Exhibit 27
REIMBURSEMENT FOR GENERAL HOSPITAL PATIENTS

Yen per day



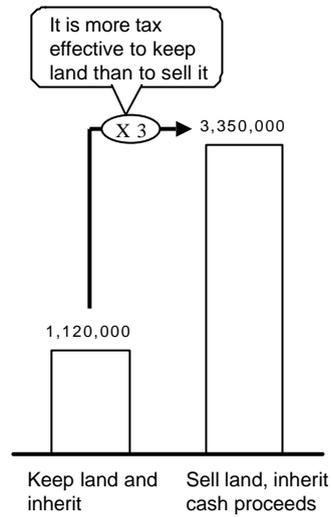
* Beds and sleeping supplies (linen, etc.) are available, clean and disinfected
 ** Nurse-patients ratio = 1:3
 *** Includes simple diagnoses, blood pressure measurement, hypodermic injections, intramuscular and intravenous injection, or simple physical remedies
 Source: MHW

Exhibit 28

TAX OBLIGATION FOR A TYPICAL MOM-AND-POP STORE

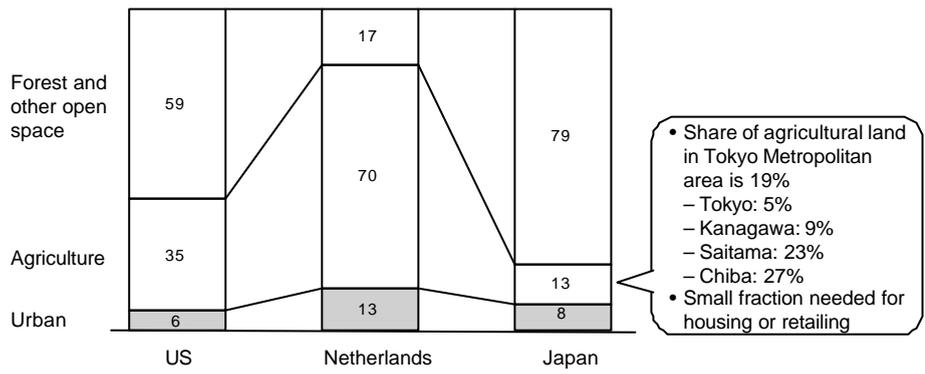
Yen; NPV of property tax, capital gains tax and inheritance tax at 3% over 25 years

- “Typical Mom and pops”
- Family operates a retail store and lives on the site
 - Owned land: 200m²
 - Market value of the owned land: 50 million yen (60% residence, 40% business)
 - Assets are inherited by 1 spouse and 2 children



Source: Interviews; McKinsey analysis

Exhibit 29
AVAILABILITY OF LAND
 Percent of total

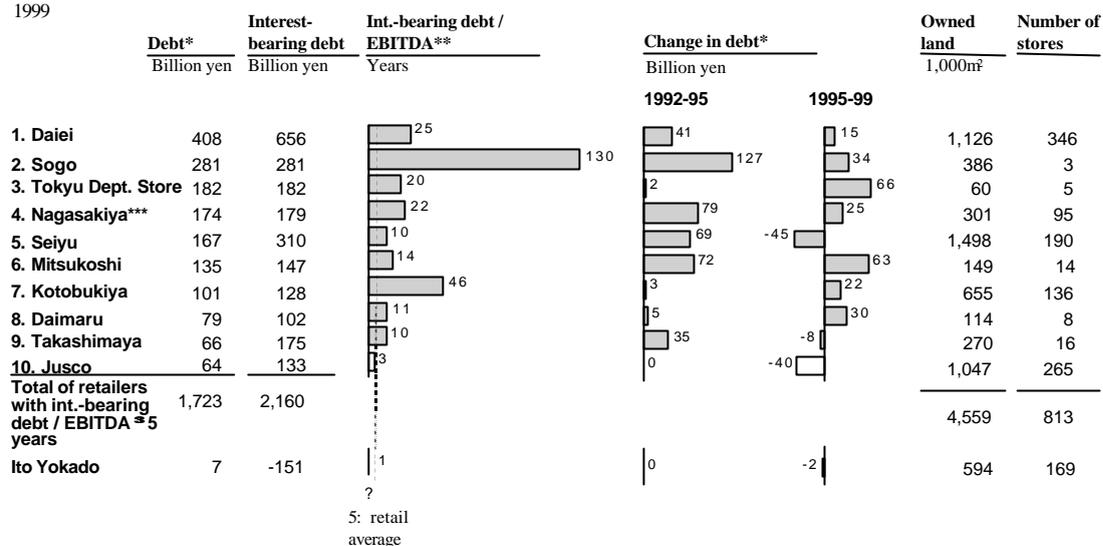


Source: US Department of Agriculture; CBS Bodemstatistiek; Land Agency of Japan

Exhibit 30

TOP 10 RETAIL GROUPS BY BANK DEBT AMOUNT

1999



* Long-term debt + short-term debt, excluding bonds

** Average (beginning and end of FY) net debt / (operating profit + depreciation): Years required to repay debt

*** Filed for bankruptcy on Feb. 13, 2000

Source: Annual reports; Nikkei; Daiwa Analyst Guide

Exhibit 31

BANK LOANS TO RETAILERS WITH LARGE DEBT

Million yen; 1999

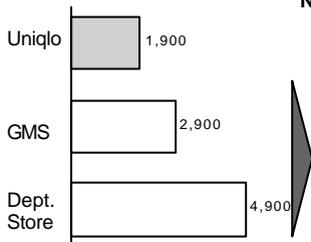
█ Main banks

Retailers with large debt	DKB	LTCB	IBJ	Tokyo-Mitsubishi	Fuji	Mitsui Trust	Sumitomo	Sakura	Norin Chukin	Sanwa	Other	Total
1. Daiei		21,570		14,655	33,744	14,238	33,744		24,211	33,744	232,283	408,188
2. Sogo		34,193	88,106		5,730			16,521		5,970	147,305	281,304
3. Tokyu Dept Store			5,932	34,701	15,919	34,451	2,500	23,564	3,500	2,500	65,607	181,631
4. Nagasakiya	67,603	20,920			1,320		5,000	5,365		1,000	54,657	174,064
5. Seiyu	21,355	14,904		15,192	10,684			10,499	10,794		88,314	166,608
6. Mitsukoshi	30,600				20,322	20,322	10,499				43,164	135,406
7. Kotobukiya	6,743	11,924	7,000						9,745		65,534	100,946
8. Daimaru	1,300	12,865		24,417			15,066	1,199	1,390		22,778	79,015
Total	127,601	116,376	101,038	88,965	87,719	69,011	66,809	57,148	49,640	43,214	719,642	1,527,163

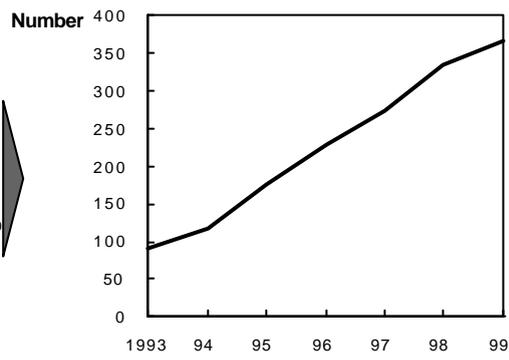
Source: Annual reports

Exhibit 32
UNIQLO'S PERFORMANCE

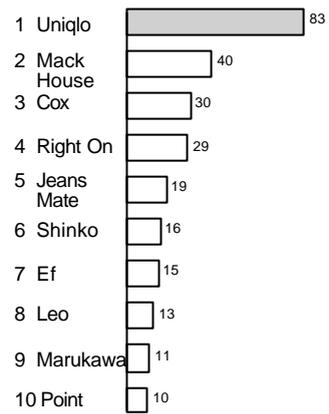
Price of fleece jackets
 Yen; 1999



Number of stores: Uniqlo



Sales of largest casual wear retailers in Japan
 Billion yen; 1998



Source: Company brochure; NIKKEI

Exhibit 33
POLICIES FOR REFORM

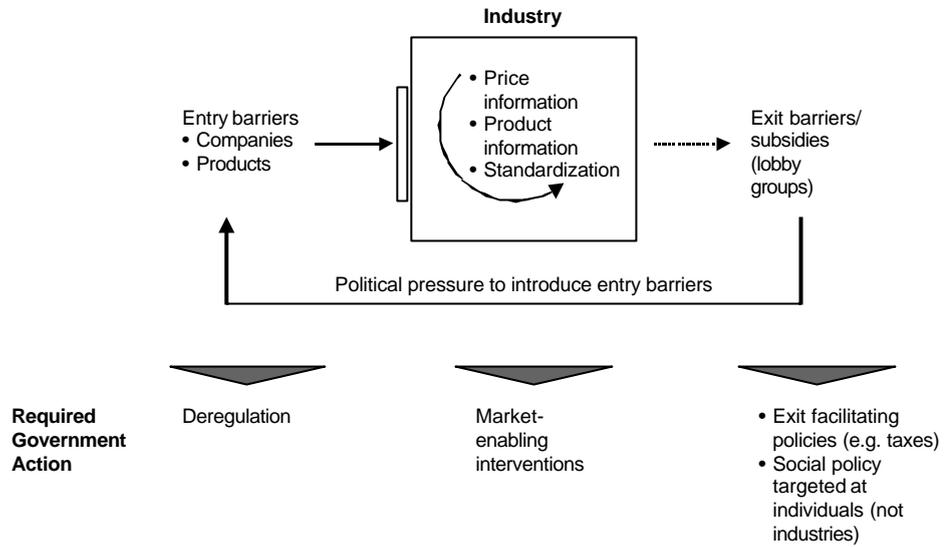
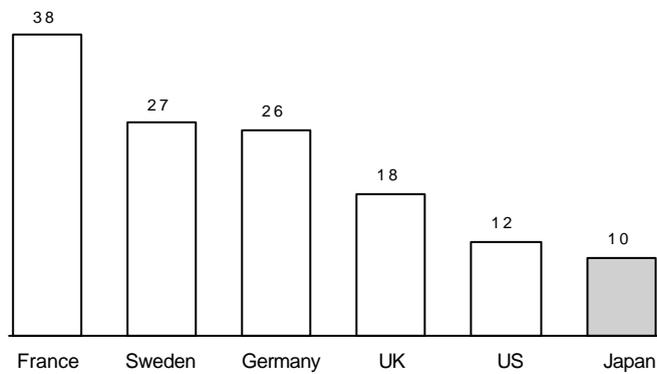


Exhibit 34
AVERAGE UNEMPLOYMENT BENEFIT COMPARED TO PREVIOUS INCOME*
 Percent; 1995



* Average calculated by various family compositions and lengths of unemployment for a 40 year old
 Source: Martin (1996)

Exhibit 35
PRODUCTIVITY GROWTH
 CAGR

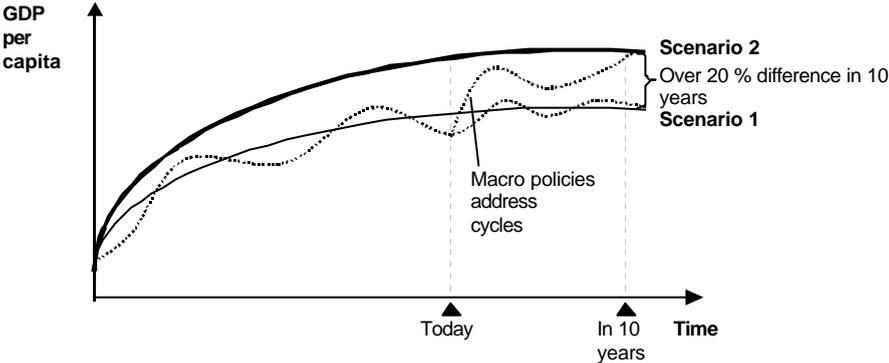
	<u>Last 10 years</u>	<u>Next 10 years – potential</u>	
		<u>Scenario 1*</u>	<u>Scenario 2**</u>
Retail	1.7	1.8	6.1
Food processing	-0.4	0	6.3
Housing construction	0.5	1.5	6.9
health care	n/a	n/a	n/a
Weighted average	1.2	1.5	6.3

* Base case; no reform
 ** Removal of barriers identified

Exhibit 36
PRODUCTIVITY FRONTIER

CONCEPTUAL

..... Actual GDP
per Capita

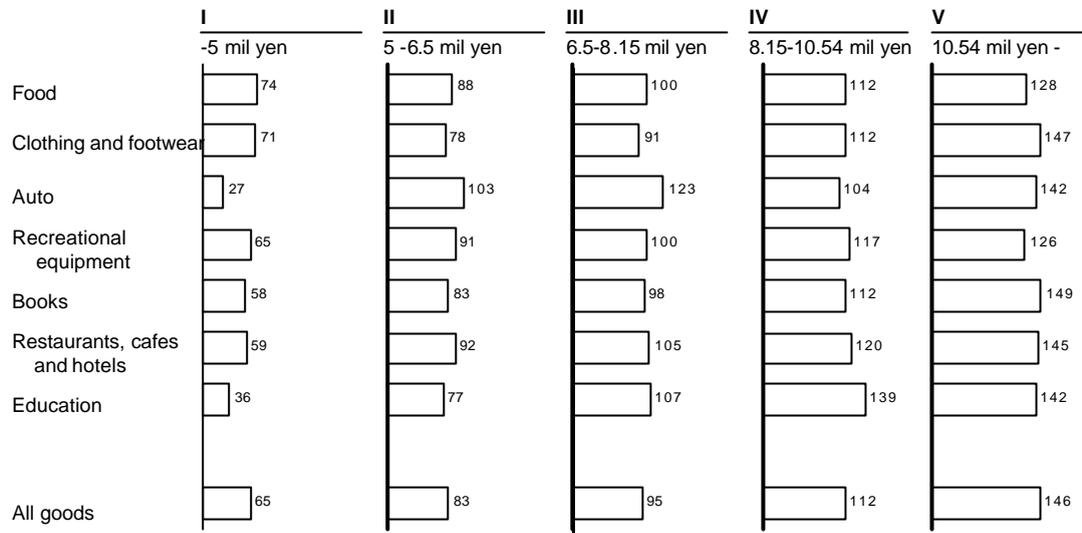


Source: McKinsey analysis

Exhibit 37

CONSUMPTION PER CAPITA: JAPAN BY INCOME QUINTILES

Index; Japan average by product = 100

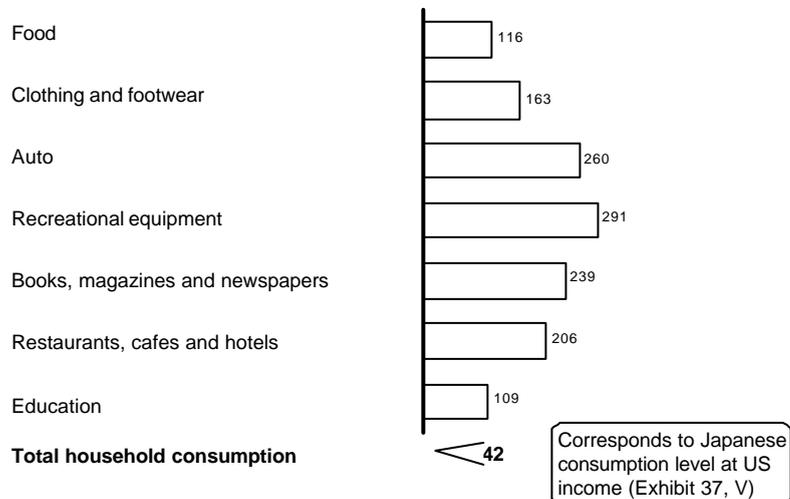


Source: National survey of income and expenditure

Exhibit 38

CONSUMPTION PER CAPITA IN THE US (vs Japan)

Index; Japan = 100 in each category; 1993



* Value added converted at individual product category PPP
 Source: OECO; INSEE; Baustatistisches Jahrbuch; CBS; Bureau of Census; McKinsey

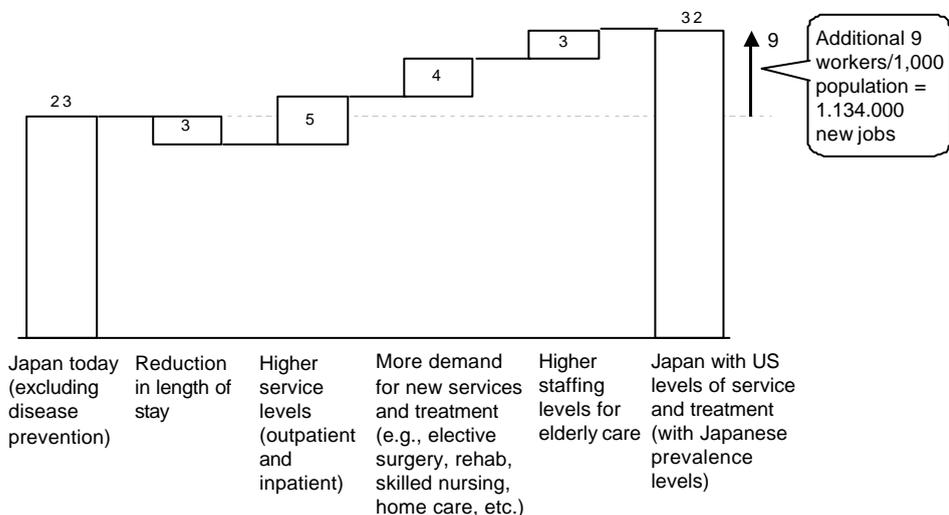
Exhibit 39
EMPLOYMENT CHANGE FROM REFORM OVER 10 YEARS
 Thousand employees

Section	Employment	Job destruction from productivity improvement	Job creation		Net job creation
			More output*	More services	
Retail	7,491	3,329	2,250	-	-1,079
Food processing	1,404	635	469	-	-166
Residential construction	2,440	1,193	275	288	-630
Health care	2,771	378	378	1,134	1,134
Total	14,103 (22% of total employment)	5,535	3,372	1,422	-741 -0.5% per year

No change in unemployment since working age population is declining at 0.5% per year

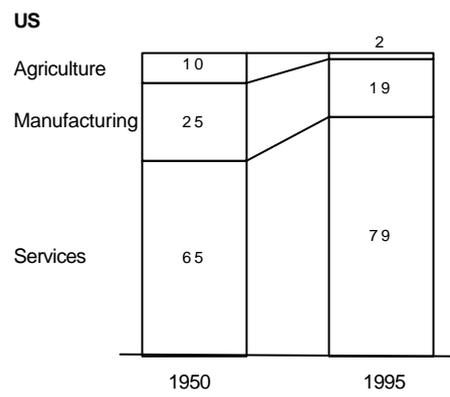
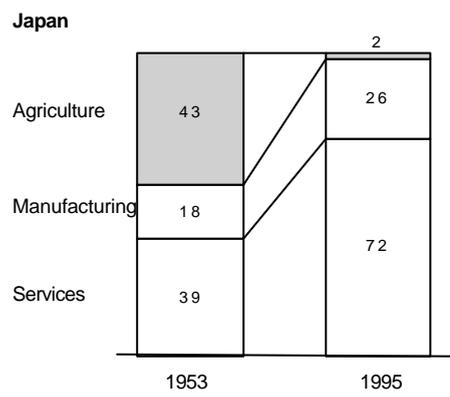
* Due to lower prices/higher income
 Source: McKinsey analysis

Exhibit 40
EMPLOYMENT POTENTIAL OF JAPANESE HEALTH CARE SYSTEM
 Workers per thousand population



Source: MHW, McKinsey analysis

Exhibit 41
CHANGES IN EMPLOYMENT COMPOSITION

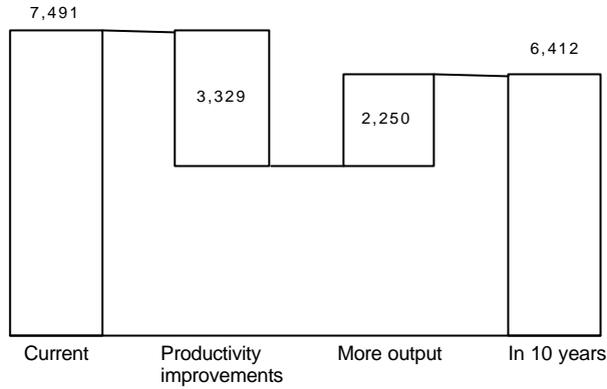


Source: O'Mahoney

Exhibit A1

RETAIL: EMPLOYMENT CHANGE FROM REFORM

Thousand employees



Rationale

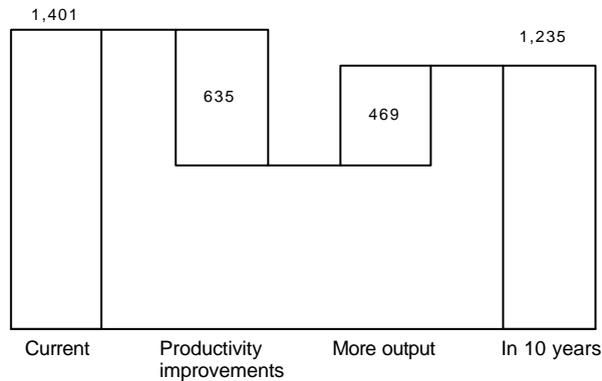
- Productivity improves from 50 to 90% of the US level in 1995
- Output grows from 74% to 114% of the current US level*

* We estimate aggregate output to increase by 50% (+4.2% a year), from 77% to 116% of the US today, with reform over the next 10 years. To be conservative we used a slightly lower estimate of 114
 Source: McKinsey analysis

Exhibit A2

FOOD PROCESSING: EMPLOYMENT CHANGE FROM REFORM

Thousand employees



Rationale

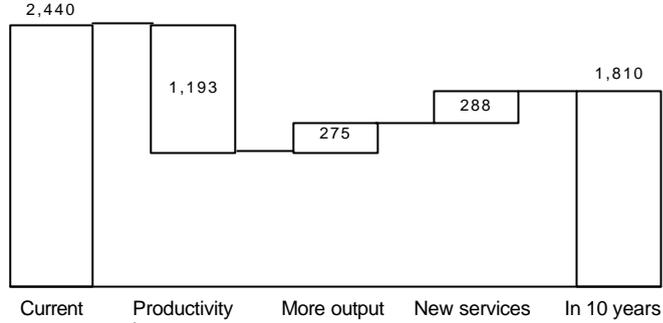
- Productivity improves from 35 to 64% of the US level in 1997
- Output grows from 62% to 100%* of the US level

* Even when aggregate output reaches 116 of the US level today, we do not expect food consumption to reach that level due to diet differences and slightly more imports, however, this is offset by a high income elasticity in Japan
 Source: McKinsey analysis

Exhibit A3

RESIDENTIAL CONSTRUCTION: EMPLOYMENT CHANGE FROM REFORM

Thousand employees



Rationale

- Productivity improves from 45 to 88% of the US level in 1999
 - Increase in total square meters (slightly less units, more sqm/unit)
 - More remodeling*
- Overall output grows from 62% to 90% of the US

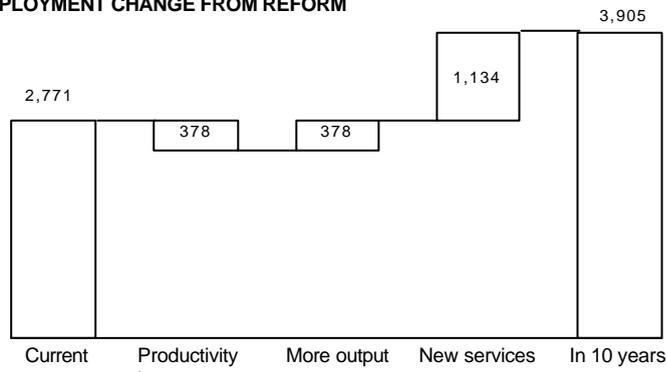
* Total square meters reaches the US level. Remodeling increases four-fold, but is still 70% of the US level

Source: McKinsey analysis

Exhibit A4

HEALTHCARE: EMPLOYMENT CHANGE FROM REFORM

Thousand employees



Rationale

- Reduction in length of stay
 - Higher staffing levels for elderly care
 - Higher service levels, more demand for new services and treatment
- Same service level per disease prevalence at the US*

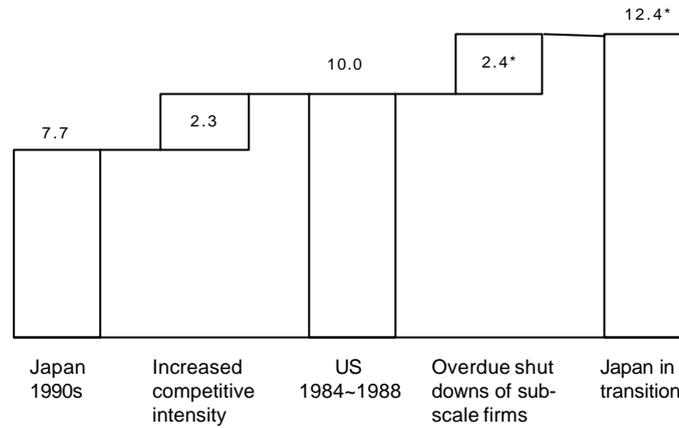
Note: Refer to exhibit 40 in the synthesis for more detail.

* Refer to exhibit 10 in the health care case for derivation of the explicit link from output to employment

Source: McKinsey analysis

}

Exhibit A5
CHANGE IN JOB DESTRUCTION RATE
 Percent of employment



* 24% over 10 years. One time destruction in 10 years. This is an upper bound as this estimate is made using particularly unproductive domestic sectors.

Source: OECD Employment Outlook 1994, Yearbook of labor statistics

Exhibit A6
JOB DESTRUCTION ABOVE THE NATURAL RATE

	Destruction above natural rate over 10 years resulting from overdue reform (estimate)		Explanation
	Thousand employees	Percent of employees	
Retail	2000	27	• Exit of mom-and-pops (down to the US per capita level)
Food	420	30	• Exit of subscale processors at a rate consistent with retail (and thus food processing) consolidation
Residential construction	730	30	• Exit of carpenters who build subscale traditional post-and-beam houses
Health care	250	9	• Exit of underutilized hospitals (hospitals that reduce utilization after length of stay has been reduced)
	3,400 (total)	24 (average)	

Source: McKinsey analysis

Aggregate

This chapter describes the economic performance of Japan over the past decade relative to that of other G-7 economies. Understanding past performance is necessary for identifying the barriers to growth in Japan and assessing Japan's future growth prospects if these barriers are removed. In the case studies that follow this section, we estimate the productivity growth potential under alternative policy scenarios for each sector. We then conclude by returning to the implications that productivity improvements at the sector level will have on the Japanese economy as a whole.

JAPAN'S ECONOMIC PERFORMANCE IN THE 1990'S

Measured in terms of GDP per capita at purchasing power parity (PPP), Japan is one of the richest countries in the world. As Exhibit 1 shows, Japan's GDP per capita is roughly 20% below US levels, but 4-8% higher than the levels of Germany, France, and the U.K. Differences in economic performance between countries are due to differences in the number of hours worked and in the productivity of these labor hours. Japan's GDP per capita lags behind the US because of low labor productivity rather than low labor inputs, as seen in Exhibit 2. Put another way, the Japanese are working longer than Americans, but getting 30% less in return for each hour they work.

After decades of very rapid growth that made its economy the envy of the world, Japan's economic growth slowed dramatically in the 1990's. As Exhibit 3 illustrates, Japan's GDP per capita was rapidly converging to the US level from 1970 until 1991, when it reached 89% of the US level. Since 1991, however, the gap between Japan and the US has steadily widened, to the point that Japan's relative GDP per capita level in 1999 was only 77% of the US. As Exhibit 4 shows, Japan's real growth rates in the 1990's have been well below its average annual growth rates in the previous decades and below the growth rates achieved by the U.S. and U.K. over the same period. In this light, Japan's economic performance in the 1990's has been quite dismal, both compared to its own historic growth rates and the growth rates achieved by other industrialized countries in the same period of time.

As Exhibit 5 illustrates, Japan's relative growth slowed in the 1990's because labor productivity did not increase enough to compensate for declines in labor inputs. In fact, the gap in labor productivity between Japan and the US remained virtually constant in the 1990's, despite the enormous capital investments that the Japanese made in the decade. Higher capital intensity in Japan has not increased labor productivity substantially, but merely led to lower capital productivity levels compared to the US, as shown in Exhibit 6.

These facts suggest that the barrier to higher growth rates in Japan (before, during, and after the bubble economy) has been low productivity rather than low inputs. Hence, Japan's most pressing growth challenge is to increase productivity, especially as evidence mounts that its traditional input-driven growth model may no longer be viable. As Exhibit 7 shows, working hours between Japan and the US have been converging for the past 30 years, suggesting that the Japanese today are making a tradeoff between work and leisure that more closely resembles that of Americans. Demographic realities will also make it difficult to grow faster simply by using more labor inputs. As seen in Exhibit 8, Japan's working age population has already begun to shrink.

As a consequence of slow growth in the 1990's, unemployment has grown to unprecedented levels in Japan. After hovering at around 2% during the 1970's and 1980's, Japan's official unemployment rate doubled in the 1990's to roughly 4.9% today, as Exhibit 9 shows. Today, Japan's unemployment rate is higher than the US rate, a fact that would have been unthinkable 10 years ago when the US unemployment rate was three times as high as in Japan. Official unemployment statistics, however, do not tell the whole story. Many recent studies have estimated that the Japanese unemployment rate would be twice as high as current levels if companies were to release all of their redundant employees. Currently, Japanese companies are deterred from doing so thanks to government subsidies intended to support excess employment and by perceived societal pressures against layoffs.¹

JAPANESE GOVERNMENT'S RESPONSE TO SLOW GROWTH

In order to restore economic growth and stem the tide of rising unemployment, the Japanese government has focused on fiscal and monetary stimulus. In fact, between 1991 and 1998, the government passed eight different fiscal stimulus packages worth an estimated 82 trillion yen (nearly \$800 billion). Some of this fiscal stimulus came in the form of subsidies, either direct or through loan guarantees given to banks, to prevent incumbent firms from going bankrupt and exacerbating the unemployment problem. Meanwhile, from 1991 to 1995, the government cut interest rates from 6% to 0.5%.²

Although a case can be made that Japan would have been worse off without the government's fiscal and monetary policies, it is clear that these policies have not restored strong and stable growth in Japan. On the contrary, they have created a new problem for the Japanese government. As shown in Exhibit 10, Japan is running larger and larger fiscal deficits in order to spend its way out of the current problem. As a result, Japan's general government debt has soared in recent years, to roughly 120% of its GDP, one of the highest levels in the world. US and German debt levels, by contrast, hover at around 60% of GDP (Exhibit 11). Even if Japan has successfully averted even worse

¹ For instance, see David Asher and Andrew Smithers, *Japan's Key Challenges for the 21st Century*, SAIS Policy Forum Series, April 1998.

² OECD Economic Survey of Japan, 1998.

economic performance, the government's current economic policies cannot continue much longer.

Although the government has tried to reduce unemployment using fiscal stimulus such as corporate subsidies and public works spending, it has failed to take necessary steps to strengthen Japan's social safety net. Rising unemployment, though still far below levels seen in many European countries, has concerned policymakers in Japan precisely because the social safety net is still quite weak compared to European countries and even compared to the US.³ As Exhibit 12 reveals, the average level of unemployment benefits in Japan is below that of all major European countries as well as slightly below that of the United States.

FUTURE GROWTH IN JAPAN: CONCLUSIONS AND IMPLICATIONS

The failure of Japan's policy of fiscal and monetary stimulus to return Japan to strong growth and employment rates suggests that the problems lie deeper in the Japanese economy. Only by examining the Japanese economy at the sector level can we identify the structural barriers to productivity growth in Japan.

In this report, we have focused on four domestic industries in Japan (retail, food processing, residential construction, and health care) which we know lag far behind US productivity levels and which could have much higher productivity potentials. The size of the productivity gap with the US in these sectors suggests that Japan could probably make rapid productivity gains. And since these sectors together employ 22% of Japanese workers, productivity improvements in these sectors could have enormous impact for the Japanese economy as a whole. Since these sectors are representative of the rest of Japan's domestic economy, we believe that our case study approach will allow us to draw broad conclusions about the barriers to productivity growth across all of Japan's domestic economy.

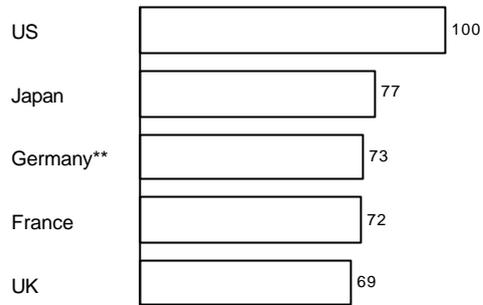
It is our intention to investigate the factors that could explain lower productivity in these sectors. We have considered an exhaustive list of possible explanations for the problem of low productivity in Japan, including poor fiscal/macro policy, different consumer preferences, weak corporate governance, troubled banks, and structural barriers, among others (for a complete description, please refer to the Objectives and Approach section). We have chosen to focus on large domestic sectors of the Japanese economy because we know that many of Japan's export-driven manufacturing sectors (e.g., automotive, machine tools, steel) have the highest level of productivity in the world. But even within manufacturing, the productivity of the domestic food processing sector is well below that of export-oriented sectors (Exhibit 13). Since the Japan's overall labor productivity is 30% below the US,

³ See, for example, Economic Strategy Council report.

other sectors in the Japanese economy must trail the US by substantial margins. Japan's productive sectors have been studied at great length. But why do some sectors lag so far behind others in Japan? What factors have allowed some sectors to excel and others to languish, creating a "dual economy" that is unique to Japan?

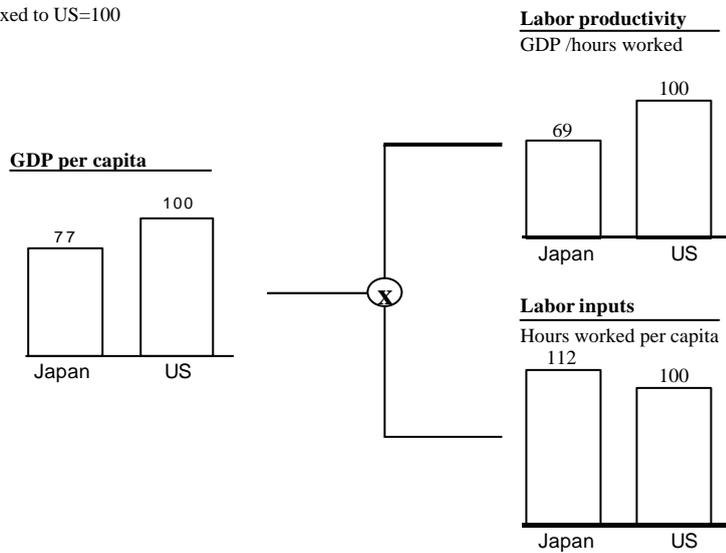
We aim to identify the specific barriers restraining productivity growth in each of these sectors and summarize our lessons from the cases to draw broader policy implications for Japan.

Exhibit 1
GDP PER CAPITA OF SELECT G-7 COUNTRIES
 1999 at PPP



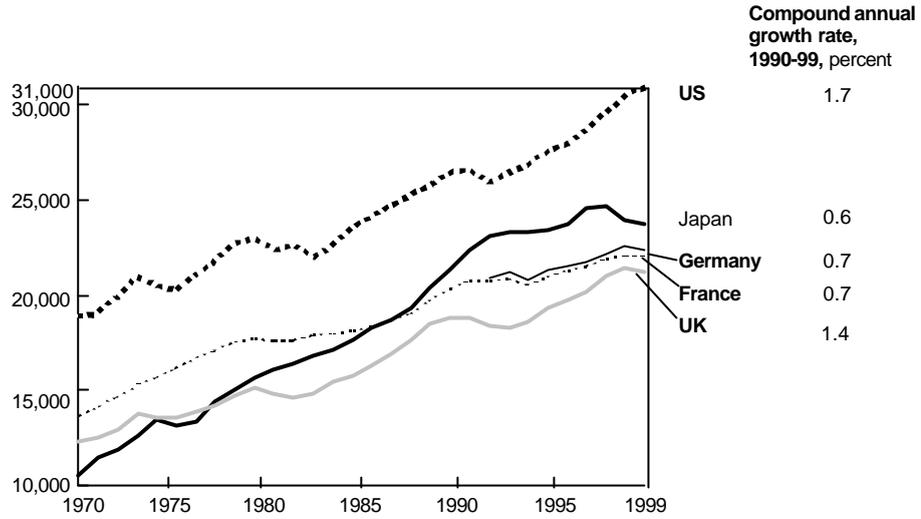
* Converted at GDP purchasing parities
 ** Unified Germany (former West Germany and former East Germany)
 Source: OECD

Exhibit 2
GDP DISAGGREGATION
 1999*; Indexed to US=100



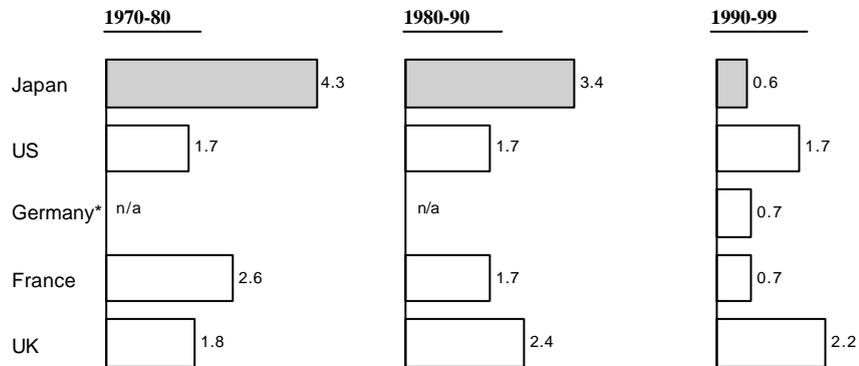
* Labor hours for 1999 estimated based on trend over past 10 years
 Source: OECD; O'Mahony; Ministry of Labor (Japan); Bureau of Economic Analysis (US)

Exhibit 3
THE WIDENING GAP IN REAL GDP* PER CAPITA
 1990 US dollars**



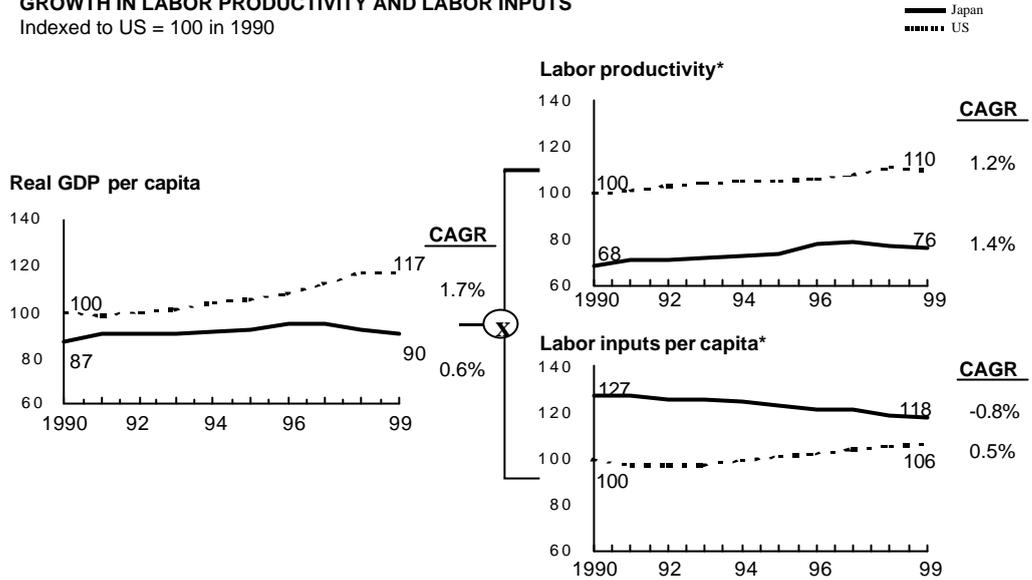
* Gross domestic product
 ** At purchasing power parity (PPP)
 Source: OECD

Exhibit 4
GDP PER CAPITA GROWTH RATES
 Cumulated annual real growth rate by decade



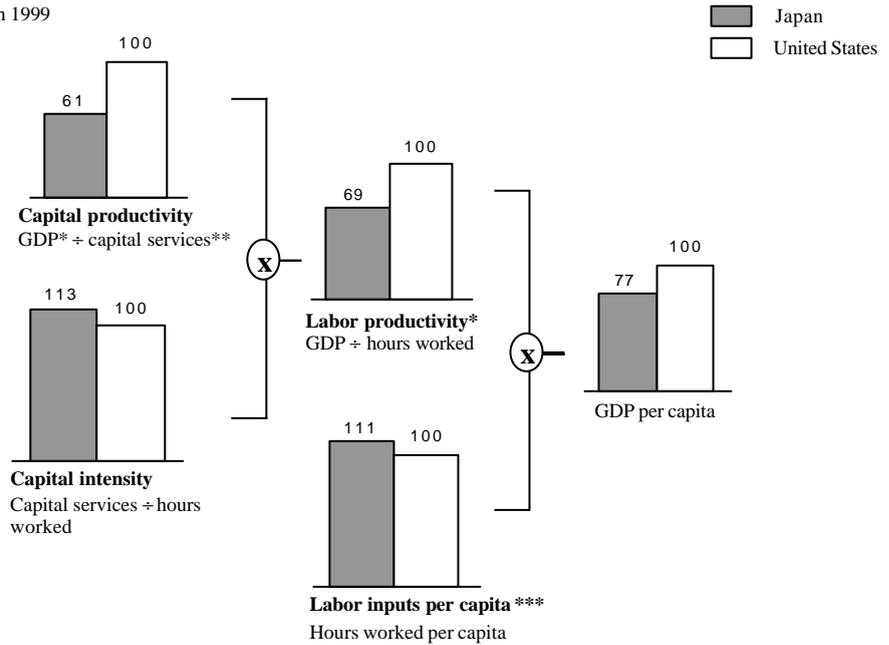
* Unified Germany
 Source: OECD

Exhibit 5
GROWTH IN LABOR PRODUCTIVITY AND LABOR INPUTS
 Indexed to US = 100 in 1990



* Labor hours for 1999 estimated based on trend over past 10 years
 Source: OECD; O'Mahony; Ministry of Labor (Japan); Bureau of Economic Analysis (US)

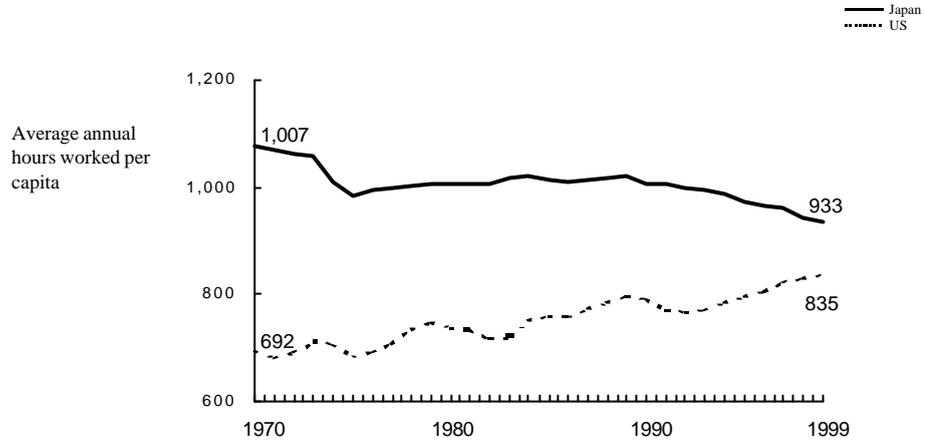
Exhibit 6
CAPITAL PRODUCTIVITY
 Index: United States = 100 in 1999



* Gross domestic product, at PPP
 ** 1997
 *** Labor hours for 1999 based on trend measured over the past 10 years.
 Source: OECD; O'Mahoney, Britain's Productivity Performance 1950-1996: an international perspective; Japanese Ministry of Labor; Bureau of Economic Analysis

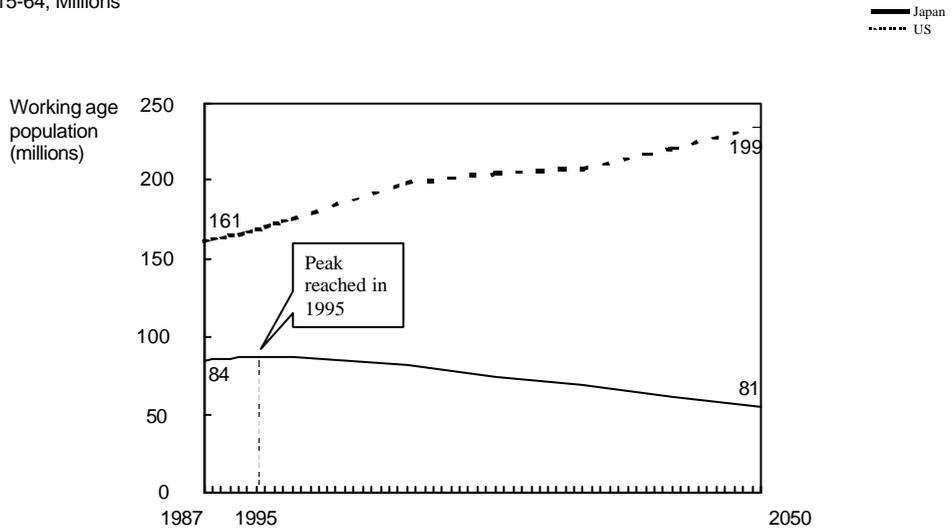
Exhibit 7
LABOR INPUT TREND, 1970-99

Hours worked per capita



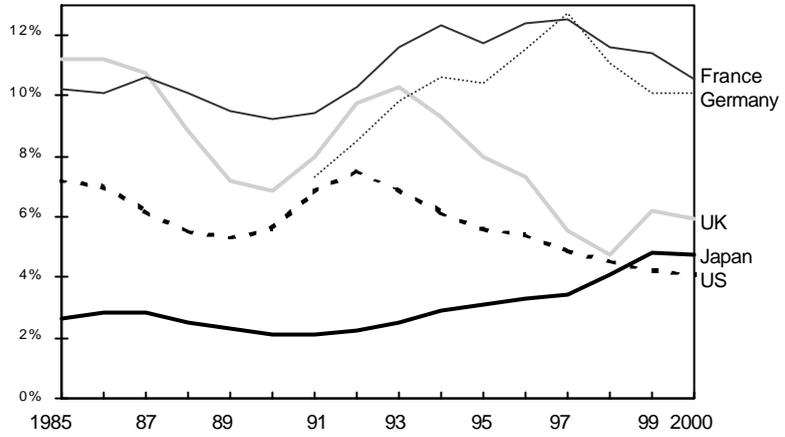
Source: O'Mahony; Japan Ministry of Labor; US Bureau of Economic Analysis

Exhibit 8
TREND IN WORKING AGE POPULATION, 1987-2050
 Population aged 15-64, Millions



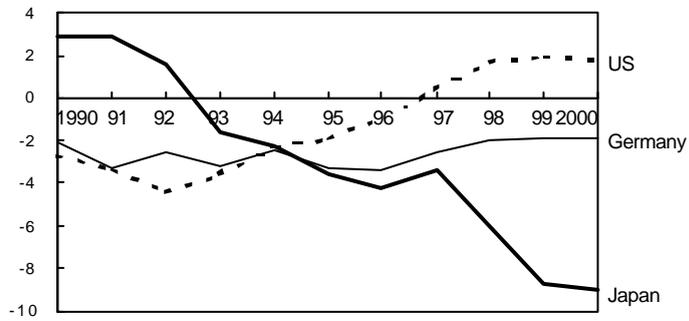
Source: OECD, U.S. Census Bureau, Japan Ministry of Labor

Exhibit 9
STANDARDIZED UNEMPLOYMENT RATES
 Percent; 1985-1999



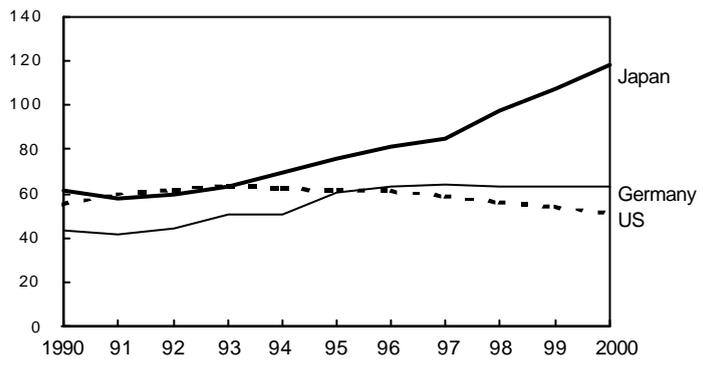
Source: OECD, The Economist, IMF

Exhibit 10
GENERAL GOVERNMENT DEFICIT AS A PERCENTAGE OF GDP
 1990 ~ 2000



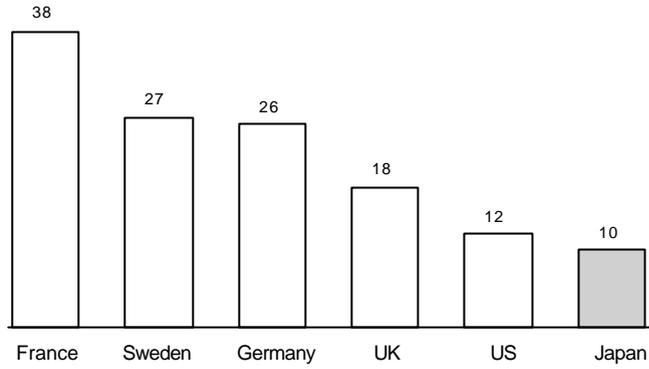
Source: OECD

Exhibit 11
GENERAL GOVERNMENT DEBT AS A PERCENTAGE OF GDP
1990 ~ 2000



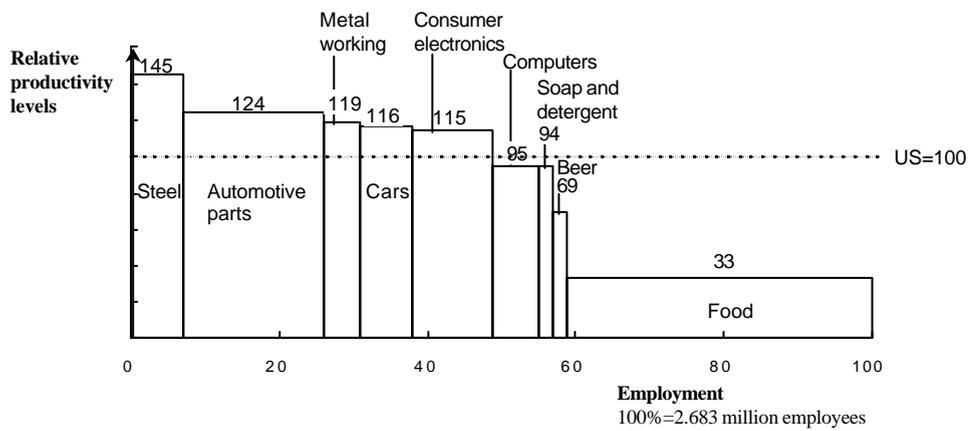
Source: OECD

Exhibit 12
AVERAGE UNEMPLOYMENT BENEFIT *
 Percent of previous income; 1995



* Average calculated by various family compositions and lengths of unemployment for a 40 year old
 Source: Martin (1996)

Exhibit 13
EMPLOYMENT SHARE AND RELATIVE PRODUCTIVITY LEVELS IN JAPAN 1990 FOR NINE CASE STUDIES
 Indexed to US=100



Source: MGI Manufacturing Productivity Report, 1992

Retail

EXECUTIVE SUMMARY

Industry overview. Due to its size and impact on consumption, retail is an important sector in the Japanese economy. Retail accounts for 12 percent of total employment, and 5 percent of GDP. Higher retail productivity can serve as a much-needed stimulus to consumption in Japan, by providing cheaper and better products to consumers.

Productivity performance. Overall retail productivity in Japan is 50 percent of that in the US. The productivity level of large-scale formats (discounters /general merchandise stores, and supermarkets) is 84 percent of that of the US retail average, whereas the level of traditionals (mom-and-pops) is only 19 percent.

Operational reasons for productivity gaps. Low productivity in the Japanese retail sector is mainly because large-scale stores have not replaced the extremely unproductive traditionals. Less productive traditionals account for 55 percent of retail employment (versus 19 percent in the US), while large-scale retailers account for 12 percent of employment (versus 35 percent in the US). The shortage of large-scale retailers is particularly acute in food retailing. Large-scale formats are more productive than traditionals – particularly in food retailing - because they offer more choice for lower price, and because they manage to serve many customers with relatively few personnel.

Industry dynamics. Particularly in food retailing, less productive traditionals lose market share when confronted with competition from highly productive large-scale retailers. However, most traditionals never face such competition, since large-scale retailers are comparatively rare in Japan. Large-scale foreign retailers have a negligible presence; furthermore, domestic retail conglomerates in Japan operate multiple competing formats, and do not compete intensely due to internal (inter-format) conflicts of interest. Market share among top players are much more stable than in the US.

Important external barriers to productivity growth. Entry barriers to large-scale retailers and exit barriers to traditionals are the most important external obstacles to productivity growth in the sector.

- ¶ *Entry barriers to large-scale retailers:* The new Large-Scale Retail Location Law imposes social/environmental criteria to limit the entry of large-scale retailers. Local traditionals sit on the approval committee,

and the prefectural government that handles appeals has little tax incentive to bring in large-scale retailers, since only 10 percent of prefectural revenues are derived from local businesses (the rest comes mainly from the central government).

¶ *Exit barriers to traditionals:* Exit barriers hinder the exit of less productive traditionals, who also form influential lobby groups supporting entry barriers for large-scale retailers. Low property tax, high capital gains tax, and inheritance tax deductions discourage traditionals from exiting and selling off their land. Government loan guarantees and subsidies also make it easier for traditionals to remain in the sector.

Less important external factors. Contrary to conventional wisdom, the bad debt problem and consumer preferences are not important in explaining the low productivity of the retail sector. Although bank lending continues to bad-debt conglomerates, since retail conglomerates comprise only about 2 percent of the total retail employment, restructuring would have limited impact on overall sector productivity. In addition, contrary to the conventional wisdom that Japanese consumers do not react to low prices, the success of retailers such as Uniqlo, Askul, and Toys 'R' Us shows that consumers respond en masse when reasonably priced, superior products are made available by productive retailers.

Future outlook and recommendations. Once all barriers are removed, the retail industry has the potential to boost its productivity by 6.1 percent per year (verses 1.7% in the past 10 years). In addition, retail restructuring will pressure upstream industries (e.g. wholesalers, manufacturers, and raw material producers) to improve productivity.

In addition, barriers to e-commerce development should be removed. Market will determine whether large-scale stores and/or e-commerce will replace unproductive traditionals. Neither path should be constrained.

Retail

This case study benchmarks the productivity performance of the Japanese retail sector against that of the US. We have also drawn on our analysis from previous studies of the sector in France, Germany, and the United Kingdom.

We start with an overview of the industry and then present productivity performance comparisons. The causes for the productivity gap with the US are then explained at both the operational and the external factor level. Finally, we discuss the future outlook and make policy recommendations.

INDUSTRY OVERVIEW

Importance of the industry

Retailing is an important sector due to its size and its impact on consumption. Retail's share of the Japanese economy is 12% in terms of employment and 5% in terms of GDP (Exhibit 1).

In addition, higher productivity in the sector can stimulate much needed consumption in Japan. When the retail sector has high productivity, retailers are able to offer cheaper and better products, which stimulates consumer demand.

We cover all retail sectors in Japan and the US, except those with strong product-specific regulations – i.e. motor vehicles, gasoline and pharmaceutical retailing.

Format definitions

For the purpose of this study, the sector has been segmented into following six formats, based on different value to consumers the format can offer -- choice, service, and price. Exhibit 2 summarizes the characteristics and shows company examples from each format.

- ¶ **Discounters/GMS.** Discounters and GMS (general merchandize stores) are large scale self-service stores that are chained. They offer a wide range of products to consumers at a low price. This category includes discounters selling a wide range of products, GMS, hypermarkets, and wholesale clubs. The product line comprises of mostly general merchandize, with some food. The share of discounters/GMS is lower in Japan than in other countries.

In Japan, GMS carry fresh food which their US counterparts generally do not. They tend to be multi-story, selling certain product range on each floor. In that sense, GMS in Japan are like low price department stores.

- ¶ **Supermarkets.** Supermarkets are large scale, self-service stores selling primarily food items (as opposed to primarily non-food items for discounters/GMS). Supermarkets offer a wide range of food items at a low price. In the US, supermarkets are dominated by large scale chains, and 10 largest supermarkets own more than 30% of the supermarket share. In Japan, supermarkets are also chained but tend to be smaller: 10 largest supermarkets in Japan constitute only about 10% of the market. There are many small regional supermarket chains.

Large-scale stores such as discounters/GMS and supermarkets are more competitive than traditional stores since they offer “one-stop shopping” -- consumers can pick up everything they need at one store for a low price. Large scale stores are particularly competitive in food retailing. For example, within food retailing, supermarkets have two to three times the market share of traditionals in countries such as France, the UK, and the US. However in Japan, supermarkets are underrepresented; the market share of supermarket is 30% lower than traditionals.

- ¶ **Specialty Chains.** Specialty chains focus on a narrow range of products. Some offer high service in small stores, while others (category killers) offer a broader variety within the same product range and compete on price.
- ¶ **Convenience stores.** Convenience stores are small stores selling primarily food items and some general merchandize products. Convenience stores open longer hours than traditional stores. In Japan, they are generally open 24 hours.
- ¶ **Department stores.** Department stores are large scale retail stores that offer a broad range of mainly general merchandize products. Japanese department stores also sell some food items. Department stores offer high level of customer service and charge high prices.
- ¶ **Traditionals.** Traditionals (or mom-and-pops) are usually family-owned and employ 2 to 3 family members. Since traditionals are small and non-chained, they offer neither product range or low prices. In Japan many traditionals are located in “shotengai”, or town center. The share of traditionals is higher in Japan, particularly in food, compared to other countries. In other countries, such as the US and France, the share of traditionals is much lower, and they are subject to more competition -- particularly from large-scale retailers. Surviving traditionals in the US and France generally have strong appeal to

customers; for example more specialized product line, such as gourmet cheese shop, or more service, such as longer opening hours.

PRODUCTIVITY PERFORMANCE

Approach for measuring labor productivity

We define labor productivity as value added per hour worked. Value-added is calculated as sales minus the cost of goods sold.

$$\begin{aligned} \text{Productivity} &= \frac{\text{Value added}}{\text{Number of hours worked}} \\ &= \frac{\text{Sales} - \text{Cost of goods sold}}{\text{Number of hours worked}} \end{aligned}$$

The Japanese value added measured in yen has been converted into US dollars using OECD final consumption purchasing power parity (PPP) exchange rate for relevant retail products. This exchange rate equalizes the value added of two identical stores in Japan and in the US (same products, similar service level, similar location and throughput). The overall sector labor productivity was then obtained by averaging the individual format productivity weighted by each format's share of employment.

Overall productivity and format productivity

Japanese retail sector labor productivity is at 50% of that in the US. Value added per capita is 74% of the US while hours per capita is 147% of the US (Exhibit 3).

Exhibit 4 shows the share of hours by format (share by sales is shown in Exhibit 5). Two main findings are: 1. Traditionals have very large share of labor hours and their productivity is extremely low and 2. Large scale stores (discounters/GMS and supermarkets) have very low share and supermarket productivity is low.

First, traditionals have over half of the share of labor hours -- 55% of total labor hours -- in Japan. This is in contrast with much lower share in other countries shown in the exhibit, 19% in the US and 26% in France. Also their productivity is extremely low at 19 compared to that of the US, 57 (indexed to the US retail average equals 100).

Second, large scale stores have much lower share of labor hours in Japan, 12%, compared to 35% in the US. In addition there is format-to-format productivity

gap between Japanese and US supermarkets, where Japanese productivity is only 60% that of the US.

The labor hours shares among remaining formats in Japan are not significantly different from those of the US. Format-to-format productivity gaps are also relatively small.

REASONS FOR THE PRODUCTIVITY GAP AT THE OPERATIONAL LEVEL

The main cause of the low productivity in Japanese retailing is that large-scale stores (GMS, discounters, and supermarkets) have not replaced extremely unproductive traditionals (Exhibit 4). This cause accounts for 43 points of the productivity gap of 50 between the Japanese and US retail sectors.

Gaps in format-to-format productivity and gaps in employment shares in the remaining formats are small and of secondary importance.

- ¶ **High share of extremely unproductive traditionals.** Traditionals' share of retail employment is 55% in Japan as opposed to 19% in the US. Traditionals are less productive than large-scale retailers who can reap economies of scale and are able to offer a wide range of products at a low price to consumers. In addition, traditionals are less productive than specialty chains by definition, because they are not specialty nor chained: Specialty chains have superior skills, such as strong merchandizing and better coordinated supply chains and inventory management. In addition, through chaining, specialty chains can reap substantial economies of scale - in purchasing, distribution and marketing.

Not only are there many more traditionals in Japan, they are extremely unproductive compared to their US counterparts. The productivity of Japanese traditionals is 19 compared to 57 in the US. Operationally, this can be explained mostly through weak merchandizing (28 points out of 38 point gap), and the rest through a lack of POS (point of sales information technology) usage and inefficient manning of stores by family members. Traditionals that have survived intense competition with (large-scale) chains in the US or France have done so mainly through focusing their merchandising. In France, for example, one can find gourmet cheese stores, fresh-from-the-farm vegetable stores, Arab ethnic grocery stores and cake stores – all family-run traditional stores – thriving right next to supermarkets. These traditionals provide niche merchandize that chains cannot match due to their broader focus. Other traditionals survive competition by improving their service offerings, for example, Korean corner grocery stores that stay open 24 hours in New York City. Unlike their US or French counterparts,

Japanese traditionals have not faced similar levels of competition from chains, especially from large-scale food discounters as discussed later. In fact, the share of traditionals in Japan is higher in food retailing at 45% than in non-food at 22% (Exhibit 6).

- ¶ **Low share of large scale stores, some of which are unproductive.** The flip side of large share of traditionals is the low share of chained stores – especially large-scale chains. Discounters, GMS and supermarkets combined account for only 12% of retail employment in Japan, as opposed to 35% in the US. Small-scale chains -- specialty chains and convenience stores -- are better represented; 25% in Japan versus 38% in the US. Increasing the share of productive large scale stores (reducing the share of traditionals) would lead to higher productivity in Japan.

In terms of productivity format-to-format among large scale stores, Japanese productivity is high except for some small local supermarkets. The gap in productivity between Japan and the US for discounters and GMS is negligible; 106 in Japan compared to 114 in the US. However, the gap in productivity for supermarkets is larger; 73 in Japan versus 122 in the US. Japanese supermarkets on the whole are unproductive because of the existence of unproductive small local supermarkets. Small local supermarkets have stemmed out of mom-and-pops and typically operate only in one locality. The small local supermarkets comprise 70% of supermarket employment in Japan and have productivity of 63. The other 30% of supermarket employment that are regional/national (such as Maruetsu supermarkets within Daiei group) have a productivity of 97. Although less productive than their US counterparts (at 122), regional/national supermarkets are quite productive. The issue is with small local supermarkets. The main operational causality for the low productivity of small local supermarkets is their low scale in terms of the number of stores and the size of stores. Other less important operational issues include weak merchandizing and less standardization in terms of store shapes and layout.

Other formats (specialty chains, convenience stores, and department stores) are of secondary importance in explaining the productivity gap between Japan and the US. The gaps in shares and productivity are not very large. For the interested reader, a detailed discussion of operational causality for productivity gaps among these formats can be found in the appendix.

INDUSTRY DYNAMICS

So why are there so many unproductive mom-and-pops and so few large-scale retailers in Japanese retailing? Why don't productive large-scale retailers drive

less productive mom-and-pops out of business? Such competitive dynamics are lacking because the number of mom-and-pops exposed to large-scale chains is limited.

¶ **Domestic competitive intensity.** Not enough large-scale retailers exist to pressure unproductive traditional stores to exit or evolve. Market share of large-scale stores in Japan are low at 20%, compared to 39% in the US (Exhibit 5). When in direct competition, large-scale stores drive unproductive traditionals out of the market leveraging both wider product selection and lower prices. This is particularly true in food retailing, as will be discussed below.

- **Food retailing.** Large-scale stores (supermarkets and hypermarkets) are particularly competitive in food retailing because of the three following reasons. First, consumers are knowledgeable – and thus tend to be more sensitive – about food prices due to repeated purchases. Second, since many basic staples remain unchanged (e.g. tomatoes are tomatoes), consumers need less advice or service when purchasing food. Third, consumers buy multiple categories of food at one time – therefore large-scale stores that can hold many different categories of food are more competitive.

As a result, the share of large-scale stores within the food retailing is very high -- 71% in the US, 66% in the UK, and 70% in France – in stark contrast with Japan where their market share is only 39% (Exhibit 6). Less market share means less traditionals directly exposed to these large-scale stores.

- **Non-food retailing.** Competitive intensity is stronger in non-food retailing compared to food retailing, because productive specialty chains have a sizable share in Japan. Traditionals are exposed to competition by specialty chains which either offer high value added services, or low price (e.g. in case of category killers, which focus on one product category). Despite the existence of specialty chains, Japan lacks low price large-scale formats such as discounters and hypermarkets.

Market share of major groups has changed little in the past two decades in Japan, in contrast to drastic changes in the US (Exhibit 7). This is partly because domestic large-scale retailers in Japan operate multiple competing formats, thereby creating an internal conflict of interest (avoidance of self cannibalization) which hampers competition (Exhibit 8).

¶ **Exposure to best practice.** Since domestic players are lacking in the large-scale formats, do multinationals have a large presence in the sector? The answer is no. Lack of exposure to foreign best practice is serious especially in food retailing. The first large-scale foreign food

retailer, US wholesale club Costco, opened its store in 1999, followed by the French hypermarket chain Carrefour in 2000. Combined, these multinationals operate only a few stores. While many non-food foreign retailers have entered in the 1990s, their share is negligible. Market entry is easier for non-food retailers who generally require smaller store space than large-scale food retailers. However, even the non-food foreign retailers' market share remains negligible -- less than 1% market share in their respective categories. The only exception is Toys 'R' Us which entered in 1991 and became the number one toy retailer in Japan with 10% market share. Their unusual success story is often linked to their alliance with McDonald Japan who gave them advice on land acquisition, as well as political pressures from the US government (USTR) to support their market entry.

So there are not enough large-scale retailers -- domestic or multinational -- to put pressures on traditionals. In the next section, we will look at the root causes why their number is limited.

EXTERNAL FACTORS EXPLAINING INDUSTRY DYNAMICS AND OPERATIONAL DIFFERENCES

The growth in retail productivity is restricted by both entry barriers for large-scale stores as well as exit barriers for traditionals. These barriers restrict the industry evolution toward a more productive format mix and higher format-to-format productivity. In addition, there are exit barriers for large troubled Japanese retailers, but since their employment share is small, their effect on overall productivity is limited. These external barriers to productivity growth are summarized in Exhibit 9.

Entry barriers for large-scale stores

In recent years, entry barriers have become stronger for large-scale stores. These entry barriers prevent the evolution of the industry toward a more productive format mix and inhibit higher productivity within each format.

- ¶ **Large-scale Retail (Location) Law.** With their high volume and low service levels, large-scale retail formats, such as supermarkets and hypermarkets, achieve low costs and intensify price competition in the retail market. However, their market share is low in Japan because until 2000, the Large-scale Retail Law limited the entry of stores larger than 1,000 square meters. Despite some relaxation of the law in the early '90s, mom-and-pop owners sitting on the local approval committee could veto entry to their neighborhood of more productive stores in their neighborhood. By limiting the entry of large-scale stores,

this law restricted the evolution of the Japanese retail sector toward more productive format mix. This law also inhibited price competition, thereby suppressing the incentive for each format to improve their productivity. This law is the most important entry barrier for large scale-retailers.

The current law will be replaced in 2000 by the Large-scale Retail Location Law (Exhibit 10). However, the new law does not offer an improved regulatory landscape, in fact, it may act to increase entry barriers for large-scale formats. Again, stores over 1,000 square meters will need to be approved and approval will be subject to opinion papers submitted by local mom-and-pops. The difference is, instead of directly limiting large stores as in the Large-scale Retail Law, the new Large-scale Retail Location Law indirectly limits their entry through “social” screening criteria related to the environment (e.g. traffic, noise and trash levels). The subjective nature of these social criteria makes objective enforcement difficult. As a result, the countries that adopted such criteria (e.g. the UK and Germany) encountered rapid decline in the rate of large-scale store penetration. A blatant entry barrier has simply been replaced with one more tricky under the guise of environmental protection.

The new law also changes the final decision making power for dispute resolution. Under Large-scale Retail Law, the final decision for appeals is made at the national level (MITI) for stores over 3,000 square meters. Under the new law, the final decision making body will be prefectural and local governments. Some argue that the change to the new law will enhance competition between local governments to attract large-scale retailers. However, incentives for this competition are low in Japan for two reasons: 1. Local governments rely very little on local tax revenues from firms; and 2. Prefectural level decision making unit is too large and includes too many incumbents for promoting competition.

First, for Japanese local governments, only a small percentage (about 10%) of revenues are raised from local businesses -- the bulk of revenues is transferred from the central government. Therefore, the tax benefits from soliciting a successful large-scale retailer are limited. On the other hand, the political cost is high because local chambers of commerce are strong lobbying groups with sizeable votes. What is important is to match the decision-making body with the beneficiary. The Large Retail Law, despite its restrictive nature, was better than the new law, because the national government made the final decision and collected most corporate taxes. The other model would be to have the local government decide and directly reap tax benefits. The design of the new law is flawed because it grants decision-making rights to prefectures although they reap very few tax benefits.

Second, although newly developed suburban “bed towns” would be likely candidates for attracting large-scale stores, if the decision making unit is as big as a prefecture, then there are bound to be stores in the prefecture which would oppose the entry.

Cases such as the Makuhari area, where Carrefour is opening its first store and Costco is opening its second store in Japan, are special exceptions, because these are newly developed government re-claimed land and does not have existing mom-and-pops nearby that would have to compete with them.

- ¶ **Urban Redevelopment Law.** The current Urban Redevelopment Law stipulates that the local governments “can” approve a large-scale development in urban areas (for example to build a large shopping mall) if two thirds of the residents agree. In practice, though, local governments do not approve unless a consensus is reached. Unless the law is changed to provide that the local government “must” approve if two thirds of the residents agree, large projects will be stalled for decades. The impact of this law is limited, though, because it only applies to urban areas.

Exit barriers for traditionals

While the above entry barriers deter the expansion of large-scale stores, there are three important exit barriers that prevent the exit of unproductive traditionals -- tax incentives, government loan guarantees, and the Town Center Revitalization Law. These exit barriers hamper the productivity growth of the sector by allowing many unproductive traditionals to remain in the sector. Some people argue that the exit of mom-and-pops is not important so long as the entry barriers for large-scale stores are removed and the market share (if not employment or stores) of traditionals declines. However, from political-economy perspective, entry barriers such as the Large-scale Retail Location Law will remain if local traditionals (which lobby for the law and can influence the evaluation process) do not exit. Therefore, removal of the exit barriers is important.

- ¶ **Tax incentives.** Land related tax incentives are an exit barrier for traditionals. The low property tax imposes little pressure to exit, while high capital gains tax deters sale of land, and the inheritance tax deductions favor holding onto land.

Exhibit 11 shows the NPV calculations on land related taxes for a typical mom-and-pop store in Japan and the US. The calculation confirms two conclusions for mom-and-pops: 1) cost of holding land is low; and 2) land is more tax efficient than other financial instruments.

We calculated NPV of property tax, capital gains tax, and inheritance tax for the following two scenarios:

Scenario 1: Mom-and-pops hold the land and store for 25 years. When the owner dies, a spouse and two children inherit the land and store.

Scenario 2: Mom and pop store owner sells the land and store (for cash) in year 25. When the owner dies later in year 25, a spouse and two children inherit the cash proceeds from the sales of land and store.

Comparison of NPVs under scenario 1 in Japan and the US shows that the cost of holding land in Japan is only about one fifth of the cost in the US, due to the low property tax. Inheritance tax is not a differentiating factor in this comparison, because for an asset of this size, inheritance tax is exempt in both Japan and the US.

When we compare scenario 1 and scenario 2, land is the more tax efficient financial tool than holding cash in both countries. However, land is even more tax efficient in Japan, as the magnitude of difference is larger in Japan at 300%, versus only 48% in the US. In the US, only the portion of the land that the owner operates business incurs capital gains tax, while the residence portion is exempt. However in Japan, capital gains tax is levied on both business and residence portions of the land. Actually, the tax levied on the business portion is lower in Japan, but the capital gains tax on residence portion is pushing the total capital gains tax above that of the US. Inheritance tax also is a differentiating factor: the tax is exempt in the US for inheriting as either land or cash, while in Japan it is exempt only when inheriting as land but not as cash.

Following is a detailed discussion of each of the land related taxes:

- *Low Property tax:* The average effective property tax rate for mom-and-pops is estimated to be 0.3% in Japan compared to an average of 1.7% in the US. With a very low property tax, mom-and-pops face little pressure to exit even if they are unproductive. If property tax were increased to US levels, approximately 65% of an average mom-and-pop's cash flow would go to paying property tax (as opposed to the current 12%).
- *High Capital gains tax:* The maximum rate for national capital gains tax for land in Japan is 40% compared to 20% in the US. The high tax rate discourages transaction thereby further reducing the supply of land.
- *Inheritance tax:* For land only, there is a special provision that allows small-scale land owners to deduct 80% of the value from taxable amount. Many Japanese mom-and-pops qualify for this special provision (privately-owned commercial property below 330 square

meters). Land, therefore, becomes the most tax efficient asset for inheritance. As a result, many mom-and-pops hold onto land and store. The deduction was 40-50% until 1999 when it was increased to the current 80%. Meanwhile in the US, there is no such special deduction that applies only for land within inheritance tax.

- ¶ **Government loan guarantee program.** From 1998, the government has started providing thirty trillion yen in loan guarantees to small businesses with almost no credit evaluation. Small retailers (mostly mom-and-pops) account for about 13%, or 4 trillion yen, of this package. By providing loans preferentially to small retailers, the government is slowing the exit of these unproductive retailers.
- ¶ **Town center revitalization law.** Enacted in 1998, this law has a budget of one trillion yen a year to revitalize town centers (Exhibit 12). The budget helps small stores, for example by building large parking spaces for free in the center of Tokyo (which many large stores cannot afford). It also subsidizes pavements and other constructions to enhance the attractiveness of main shopping streets (“shotengai”).

The national government approves the subsidy based on proposals submitted by either the local government or the town management organizations (TMOs) set up by local chambers of commerce or non-governmental organizations. Out of 200 or so proposals approved so far, about 40 are directly organized by local chambers of commerce or associations of small local stores.

Less important external factors

Exit barriers exist not only for traditionals, but also for debt-ridden retail conglomerates. Government protection of the banking sector has enabled banks to continue (and increase) lending to debt-ridden retail groups, thereby indirectly slowing the restructuring of the sector. However, since the productivity of the handful of retail conglomerates is already quite high (around 80% of the US retail average) and since their employment share is so low (around 2%), the impact of restructuring on the overall industry would be limited. On the other hand, the productivity impact of format mix evolution from mom-and-pops – which have 17% productivity and account for over half the employment -- to more productive formats, would be large.

- ¶ **Continued lending to troubled retailers.** The government has indirectly kept large debt-ridden retail groups afloat by protecting the banking sector. Banks have increased their lending to sectors with bad debt problems – mostly concentrated in construction, real estate and retailing -- which invested in land during the bubble economy. Within retailing, banks have increased their lending to debt-ridden retail

groups even in recent years (Exhibit 13). During the bubble era, many of these retail conglomerates borrowed from banks using land as collateral. Now that land prices have gone down, and the economy has entered as a recession, they are unable to pay back these loans.

One explanation for continued lending is that the banks are in a “grid lock”. Since lending by banks is intertwined across all retail conglomerates, banks cannot pull loans from their less important accounts for fear of provoking retaliations on their more important accounts (Exhibit 14). Another explanation for continued lending is the banks’ conflict of interests: banks are often shareholders as well as lenders to the same entity. For example, Sogo’s main bank, the Industrial Bank of Japan (IBJ), is also the second largest shareholder for Sogo with 4.99% of the shares. The bank may not want to extend credit to a risky retailer as a lender, but as a shareholder, it may have an interest in extending loans to avoid bankruptcy.

Despite the grid lock, banks would have no choice but to collect if the government did not support them through unlimited deposit guarantees and re-capitalization. If banks with substantial bad debt were bankrupted and assets sold off, many retail groups would come onto the market for more productive domestic and foreign retailers to purchase. More competition among banks would force them to adopt better credit skills relying less on land based collateral and valuing businesses and land through discounted cashflows.

Recent events such as Nagasakiya’s bankruptcy filing and Sogo’s debt write-off and restructuring announcement suggest that capital market pressure has finally started to affect debt-ridden retailers. However, such restructuring would have occurred much faster and to a greater extent if the banks were not protected.

Nevertheless, the impact of restructuring large retail conglomerates – even considering the increased competition they will bring to surrounding stores -- is limited due to their already high productivity and low employment share. According to our future growth calculations, when we only fix the troubled banking sector and encourage the conglomerates’ restructuring (as opposed to overall restructuring of the sector), the annual productivity growth rate will only improve to 2.2%. This is not much more than 1.8% growth under the base scenario where no reform is implemented, and is certainly much less than 5.6% estimated annual growth rate to be brought by the exit of mom-and-pops and format evolution. (Our growth calculations will be discussed more later with Exhibits 19-24.)

¶ **Direct lending by state bank.** In recent years, the government-owned Development Bank of Japan (DBJ) has begun to provide directly

support to large debt-ridden retail groups (Exhibit 15). Such lending has helped protect these groups from bankruptcy thus hampering “restructuring from the outside”, which is typically more radical in nature than “restructuring from within” the company. In 1999, retail conglomerates turned to DBJ for assistance, and DBJ extended loans to some, but not to the supermarket chain Nagasakiya. Partly as a consequence, Nagasakiya went into bankruptcy in February 2000. If DBJ withheld loans to other retailers, the restructuring of other retail groups would occur more quickly.

Consumer preference not found to be a barrier to productivity

Interestingly, we did not find consumer preference to be important in explaining low retail productivity in Japan. Some argue that the Japanese do not react to low prices, or that differences in their tastes negatively affect productivity. We did not find these to be the case. When a reasonably priced superior product is available, consumers react en masse. For example, when the clothing manufacturer Uniqlo managed to reduce the price of its fleece jacket by half and focused their marketing efforts to sell the jacket, they sold 8 million jackets in one season. In the past five years, the number of Uniqlo stores has increased three-fold to make it the largest casual wear retailer in Japan (Exhibit 16).

Office supplies retailing is another example in which best practice retailers benefited consumers with lower prices. Before 1996, the Japanese office supplies retailing industry was a stagnant sector with more mom-and-pops than in other categories. The productivity of office supplies retailing was a mere 20% of the retailing average. Then in 1996, Office Depot and Office Max from the US entered the market. At around the same time, domestic stationary manufacturers downward integrated into retailing. For example, Plus started its mail-order retailing group Askul, while Kokuyo started direct order-taking and distribution. Prices offered by these new entrants were 40% to 50% lower than previous levels. Sales rapidly grew: for example, Askul’s sales grew three-fold between 1996 and 1997 (Exhibit 17).

Another well known example of a retailer that succeeded by offering lower priced better products is Toys ‘R’ Us, which has become the largest toy retailer in Japan within ten years, holding 10% of the toy market share.

In all these cases, productive retailers were, in one way or another, able to get around productivity barriers. Neither Uniqlo nor Askul required large-scale stores and were thus not affected by the Large-scale Retail (Location) Law. Toys ‘R’ Us required large-scale stores, but managed to obtain land through its clever alliance with McDonald’s (a best-practice land acquirer in Japan) as well as support from the US government for its entry. The problem is that such success stories are exceptions. Entry and exit barriers limit such success stories. And the

problem is not with the consumers. Consumers cannot buy things that are not offered, and what is offered is not desirable. The problem is in the supply-side, not the demand-side.

The causes of productivity differences between Japan and the US discussed above are summarized in Exhibit 18.

FUTURE OUTLOOK AND IMPLICATIONS

Future productivity growth rate

Based on our causality analysis, we developed four scenarios for the Japanese retail sector for the next 10 years (Exhibit 19). The estimated productivity growth rates in these scenarios were compared with the 1.7% compound annual productivity growth rate of the last decade (Exhibits 20-24). Under scenario 1 (“no reform”), the productivity growth rate was estimated at 1.8%. As noted in the above discussion of capital market productivity barriers, the interesting finding was that fixing the troubled banking sector alone (scenario 2B) would have only a small impact on retail sector productivity growth. Removing all the barriers identified would lead to maximum productivity gains and a productivity growth rate of 6.1% (scenario 2C), while reforming everything but the troubled banking sector would yield a productivity growth rate of 5.6% (scenario 2A). Exhibits 20 to 23 explain the rationale for these growth rates in terms of potentials for format mix evolution and productivity improvements in each format.

Employment implications

The net impact on retail employment from removing the barriers to productivity growth will depend on the output growth rate in the retail sector. Although retail output should benefit from more productive (cheaper and/or more innovative) stores, it will also crucially depend on the growth of private consumption and thus, on the overall growth rate in the Japanese economy:

- ¶ We argue in the Synthesis chapter that removing micro market distortions in the Japanese domestic economy could spur overall economic growth of about 4% a year. Given higher growth prospects and higher income, the Japanese will need to save less, and can consume more. This means that consumption could easily grow at 5%. Furthermore, labor inputs in retail should decline as old mom-and-pop workers retire. In the next ten years, 15% of mom-and-pop workers, or 8% of total retail employment (0.8% a year) are expected to retire. With

5% increase in consumption and 0.8% reduction in labor inputs, the 6% increase in productivity is almost exactly offset so the industry as a whole does not suffer unemployment. The fact that the US has the same share of total employment in retail as does Japan (12%) shows that it is possible to keep employment levels constant with double the productivity.

- ¶ On the other hand, if Japan was to reform only the retail sector, then there would be serious job losses in the sector. Without broad reforms of its domestic sectors, Japan will keep growing at less than 2% a year, meaning that employment in retail could decrease by as much as 4% a year.
- ¶ It should be noted that under any scenario, employment would most likely decline in food retail, where the share of traditional stores is higher and where future food consumption will grow at a slower rate than GDP. Workers in traditional food stores will have to seek new job opportunities in the new hypermarkets, general merchandise specialty chains or other sectors.

Policy implications

To reap the benefits of reform, the Japanese government needs to remove entry and exit barriers simultaneously.

To reap the benefits of reform, the Japanese government needs to remove entry and exit barriers simultaneously. Removing only entry or exit barriers would result in far less productivity improvement than the simultaneous removal of both types of barriers.

At the same time, the government needs to assist those who are truly in need, by introducing demand-side social policies targeted at needy individuals rather than supply-side policies targeted at stores.

In addition, any barriers that prevent future evolution of the sector – e.g. telecom pricing and Resale Law for books and CDs for e-commerce development – should also be removed.

Retail sector reform is important not only for the sector productivity growth but also to promote productivity improvements among players upstream (e.g., wholesalers, manufacturers, and raw material producers). For example, as discussed in the Food Processing Case, retail consolidation is the No. 1 driver of food processing consolidation and productivity gains.

- ¶ **Key for productivity growth is to remove the important barriers simultaneously.** We have identified that important productivity barriers in the Japanese retail sector are entry barriers for large-scale retailers and exit barriers for unproductive traditionals. Both of these

important barriers, not just one or the other, need to be removed in order to achieve the maximum impact on productivity.

If one removes only the exit barriers for traditionals, productivity gains will be small. With entry barriers for large-scale stores still remaining, discounters/GMS and supermarkets, whose productivity is at 100 or more, cannot enter the market and challenge the traditionals. Although some traditionals may convert themselves into small local supermarkets, as we discussed above, because such small supermarkets lack the necessary scale, their productivity will be limited to about 60. Competitive pressures, especially fierce price competition from large-scale stores, will remain limited. Even under an aggressive scenario where many traditionals convert themselves into small supermarkets and the remaining traditionals improve their productivity two-fold, the overall productivity gain is only about 15 points in 10 years. This is much less than the 40 point gain under scenario 2C.

If one removes only the entry barrier to large-scale retailers, the productivity gain from reform will also be much lower than overall reform. With the entry of lower-priced large-scale stores, market share of traditionals will decline. However, employment will decline by less due to ongoing exit barriers (tax incentives to hold onto land, loan guarantees and subsidies). With very little reduction in labor, there will be almost no improvement in overall productivity, because labor will not be reallocated to more productive jobs.

Only when one removes both the entry and exit barriers does one reap full productivity benefits.

- ¶ **Remove exit barriers, which will allow entry barriers to be removed.** When weak players are protected and subsidized, it creates a non-level playing field that distorts competition. In addition, as discussed above, lobby groups of weak players form political pressures to enact entry barriers, further reducing competitive intensity. The problem is that the government protects companies or lobby groups and not individuals. For example, despite government protection, retailers earn much less than the national average due to their low productivity. This creates a negative cycle whereby: retailers are protected, are thus unproductive, thus earn low wages, thus become vocal as a lobby group, gain public/political sympathy because of their low wages, and are further protected. Lobby groups thrive on real or perceived social problems. The government needs to acknowledge that the life of the retail worker is getting worse as a result of protective measures.

As barriers are removed and competition is introduced in the sector, traditionals will divide into four groups. The first group will retire due to old age. In Japan, 15% of current mom-and-pop retailers are

estimated to retire in 10 years (out of which about 4% of stores will exit from retailing due to the lack of store successor.)

Second, some will innovate. For example, in France, many traditionals began to focus on a niche – traditional bakery, high quality cheese, etc – and are thriving right next to supermarkets (e.g. at rue de Montorgueil in Central Paris). Competition from large-scale retailers in France has increased sector productivity and increased the overall choice for consumers (low price standard goods at large-scale stores as well as more expensive niche products).

Third, many will transform themselves into specialty chains. This is ongoing in Japan where many traditionals have become franchisees of chains, especially of convenience stores. Some will also transform themselves into other businesses such as restaurants and cafes.

Fourth, some will exit altogether. The role of the government will be to provide an incentive to exit. For example, by exempting capital gains tax from mom-and-pops that are selling their stores and land, the government can make the exit profitable for the retailer. The government should also provide a social safety net for the truly weak (individuals as opposed to stores) to address major social pain in the transition period.

Once the social concerns behind the exit barriers are addressed, the government will be in a better position to remove the entry barriers – Large Scale Retail Location Law and Urban Development Law.

As for the bad debt problems of the banking sector, well documented models for restructuring exist in the US (RTC) as well as in Korea. However, the impact of the banking restructuring on retail productivity is limited, as discussed above.

- ¶ **Remove barriers to future evolution of the sector.** It is important to remove any barrier to the future evolution of the sector. In terms of future opportunities for e-commerce, two issues are particularly restricting: high telecom price; and book resale regulation that prevents discounts on books and music (the most popular e-commerce products today as attested by the success of Amazon.com). Such barriers should be removed. Market will determine whether large-scale stores and/or e-commerce will replace unproductive traditionals. Neither path should be constrained.

Cross sectional spill-over of reform in retail

Reform in the retail sector is important not only to improve productivity performance within the sector, but also to promote productivity improvements

in up-stream sectors. For instance, productivity improvements and consolidation in the retail sector would put pressure on wholesalers, manufacturers, and raw material producers to reduce costs.

Pressures on wholesalers could be particularly strong, because some retailers may not see the necessity to go through wholesalers once they re-examine their supply chain.

Pressures on manufacturers are also large. As discussed in the Food Processing Case, the evolution of the food processing industry is dependent on retail consolidation. If the retail sector consolidates, food processing would have no choice but to consolidate because large retailers prefer to be supplied by large processors who provide national coverage and marketing. However, since the retail industry is fragmented, small processors can survive by supplying small local retailers. Mainly due to a lack of scale, the productivity of the Japanese food processing industry is at only 35 indexed to the US as 100. With retail consolidation, this productivity could double.

Spillovers from the retailing sector to up-stream sectors is large. As such, the government should not delay the comprehensive reform of the industry.

Appendix A: Format to format productivity gap

Within each retail format, Japanese labor productivity is lower than that of the US. The following analysis explains the format-to-format productivity gap.

¶ **Discounters/GMS and supermarkets.** Discounters/GMS and supermarkets face a similar set of factors that explain the productivity gap. The gap is magnified in supermarkets because most Japanese supermarkets are small local chains while discounters/GMS's are larger in sales and operate more at national level. For example, even the biggest supermarket chain Maruetsu under Daiei group is a regional chain specializing in the Kanto area. The 49 point gap in supermarket productivity and the 8 point gap in discounters/GMS can be explained by, respectively: 24 points and 4 points lack of economies of scale, 12 points and 2 points less effective merchandizing and marketing, 7 points and 1 point because of more labor for stocking and warehousing, and 6 points and 1 point because of more labor due to less standardized store shapes and layouts (Exhibits A1 and A2).

- **Economies of scale.** The main reason for productivity gap in these two formats is the economies of scale, accounting for 24 points of the supermarket productivity and 4 points of the discounter/GMS productivity. Both in terms of number of stores per chain and individual store size, Japanese discounters/GMS and supermarkets are smaller, which cost them more in terms of fixed costs.

In terms of number of stores per chain, the biggest GMS chain in the US, Wal-Mart, has 1,993 stores (1996), while the biggest retailer in Japan, Daiei, has only 346 stores (1999). The difference is more stark in supermarkets, while the US leader in sales, Kroger, has 1277 stores (1995); Japanese leader Maruetsu has only 186 stores (1999). Store size is also smaller in Japan.

Fixed labor for chain operations (chain management, marketing, logistics) as well as store operations (store management, warehousing, loading) is used more efficiently in larger chains and larger stores.

- **Merchandizing and marketing.** Weak merchandizing and marketing lead to less throughput per hour. This explains 12 points of the productivity gap for supermarkets and 2 points for

discounters/GMS. National chains in the US have the scale to analyze consumer behavior in depth and to conduct large scale marketing.

- **Product proliferation.** Product proliferation leads to more labor required for stocking and warehousing, which carries productivity penalty of 7 points for Japanese supermarkets and 1 point for Japanese discounters/GMS. Only a few best practice large-scale retailers, for example Ito-Yokado, limit the number of products. Japanese GMS's on average carry 12,000 to 20,000 dry grocery items, while the number of items that best practice GMS such as Ito-Yokado carries is estimated at only 10,000 items.
- **Less standardization and multi-floor operation.** This factor explains 6 points of the productivity gap with the US for supermarkets and 1 point for discounters/GMS.

Standardization of store layout induced standardization of chain management, thereby increasing efficiency. All aspects of store operations can be standardized, for example, from where products should be loaded, to how should they be stored, to where they be placed at store front. However, Japanese supermarkets and discounters/GMS are not standardized because land is difficult to acquire – and land that can be acquired does not come in the same shape (external constraints leading to a lack of land supply will be discussed in more detail later). Lack of land also leads to multi-floor layouts in Japan, as opposed to the predominantly single floor layout in the US. Multi-floor operations require more labor for stocking and enjoy less throughput per floor space because a portion of customers cover less floor space when the building is multi-floored given the store size.

¶ **Specialty chains.** The productivity of Japanese specialty chains is 19 points lower than that of the US. The break down of the 19 point gap is: 9 points because of less throughput per hour due to ineffective merchandizing; 4 points because of ineffective supplier and inventory management; 3 points because of less efficient/standardized operations; and the remaining 4 points due mainly to lack of marketing and scale (Exhibit A3).

- **Product mix and product proliferation.** Most Japanese specialty chains suffer from a lack of merchandizing skills. Too many products are carried as inventory and removed in clearance sales. Only a handful of Japanese retailers – such as Uniqlo, the largest casual wear retailer - have developed best-practice merchandizing skills that allows them to narrow the product range into fewer best-selling variants that they promote heavily. Uniqlo enjoys a 50%

productivity advantage over its domestic rivals, of which 20% is due to stronger product mix skills.

- **Supply chains and inventory management.** A lack of sound supply chains and inventory management skills accounts for 4 points of the gap in productivity with the US. Very few Japanese specialty chains actively manage the whole supply chain from product development, raw material selection, manufacturing, quality control, distribution and logistics, to retail sales – continuously adjusting the supply to match fluctuating demand. The SPA (specialty retailer of private label apparel) model where retailers (as opposed to manufacturers) develop the products and control the supply chain, is still an exception in Japan although a norm in the US.
 - **Standardization of operations.** Operations are less standardized among Japanese specialty chains compared to their Japanese counterparts. For example, Gap's store formats and operations are standardized across the globe. In contrast, Japanese chains, a majority of which are smaller and domestic, suffer from lack of standardization in store layouts and employee manual between stores. This explains 3 points of the productivity gap with the US.
 - **Other reasons.** The remaining 4 points of the productivity gap is explained by less effective marketing, lack of economies of scale, and inefficient and less automated warehousing. For example, Office Depot, the number one US stationery retailer which entered the Japanese market in 1997 has fully-automated warehouses, compared to typical Japanese stationary retailers who operate warehouses that are less automated.
- ¶ **Convenience stores.** The average productivity for Japanese convenience stores is 13 points lower than that in the US. Although Seven Eleven Japan, the best practice Japanese convenience store chain, enjoys a 50% productivity advantage over its US counterparts, more Japanese employment is tied up in small local convenience stores whose productivity is 60% lower. As a result, the overall productivity ends up as less for Japan (Exhibit A4). These small local convenience stores lack economies of scale, branding and standardization
- **Economies of scale.** A handful of Japanese convenience store chains – like their US counterparts – have thousands of stores per chain (for example, Seven Eleven Japan has 7,732 and Lawson 7,016 as of 1999). However, many small local chains have less than 50 stores. As a result, they carry more fixed costs in chain management and logistics. Lack of scale explains 70% of the gap.
 - **Branding.** Top players are able to achieve high productivity by advertising more, establishing their brands and achieving higher

throughput per hour. This factor accounts for 20% of the productivity gap.

- **Standardization.** The rest of the gap is explained by a lack of standardization in small local chains. Many small local convenience stores are “voluntary chains” that coordinate only a part of their operations (often purchasing). Top players that are able to standardize store formats and all aspects of operations enjoy a higher productivity.

¶ **Department stores.** Department stores productivity is 48 in Japan and is 69 in the US (indexed to the US average = 100). Less effective merchandizing skills (both in terms of their own merchandizing and store tenant mix management) is the most important differentiating factor accounting for 18 points of the gap. Ineffectiveness of Japanese department stores in building customer loyalty retention explains the remaining 3 points of the gap (Exhibit A5).

- **Merchandizing skills.** Japanese department stores have lower productivity because they have less effective merchandizing skills, both in terms of their own merchandizing and tenant mix management. Japanese department stores rely on *haken ten-in* – sales clerks dispatched by wholesalers and manufacturers. These *haken ten-in* often provide merchandizing and sales functions to department stores, which results in weakening of department stores’ own merchandizing skills. Japanese department stores also have failed to conduct effective tenant mix management, since they have failed to recognize these wholesalers and manufactures as “tenants” and failed to evaluate each players’ product mix to create attractive portfolio of products to consumers.
- **Sales skills.** Japanese department clerks have less effective sales skills to build customer loyalty. Part of the reason is the lack of incentive systems; unlike US sales clerks who are paid according to their performance, Japanese clerks are salaried.

¶ **Traditionals.** Japanese traditionals’ productivity is very low at 19 indexed to the US average. The 38 point gap is explained by 28 points of poor product mix and merchandizing, 5 points of low capacity/worker utilization, and 5 points of little use of IT/POS. (Exhibit A6).

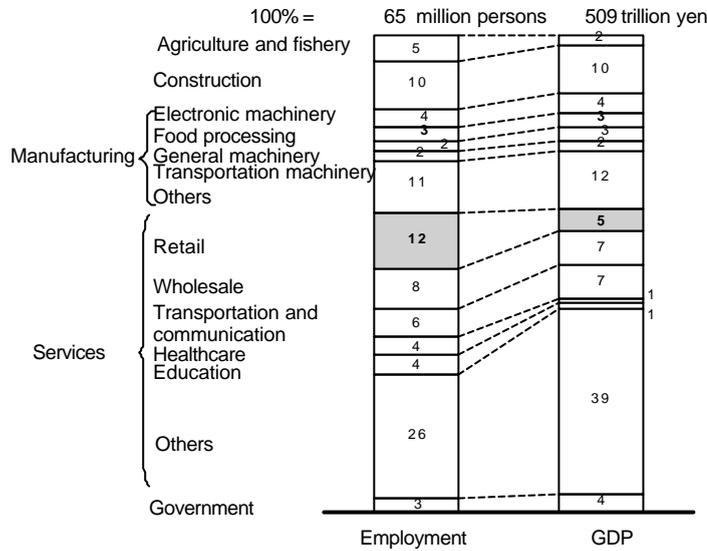
- **Poor product mix and merchandizing.** Traditional stores in the US are much more productive and focused because only those stores whose value propositions (often product specialty) were distinct could withstand the competition from the entry of newer formats, who have a much larger market share. Sales per employee at Japanese mom and pop stores are much lower than that of the US

(about 60% lower), reflecting poor product mix and insufficient merchandizing skills. Traditionals cannot compete with large-scale stores in terms of product range and price offerings, while they cannot compete with CVS's in terms of convenience.

- **Capacity utilization.** Labor capacity is underutilized in traditional stores since these mom and pop stores typically use family workers who live on the site and keep the stores open even when customer traffic is low.
- **IT/POS.** The use of IT and POS technology is limited among Japanese traditional stores (only 20% of stores use these technologies as opposed to the majority in the US), which results in more labor time.

Exhibit 1
SECTOR SIZE
 Percent; 1998-1999

■ Retail



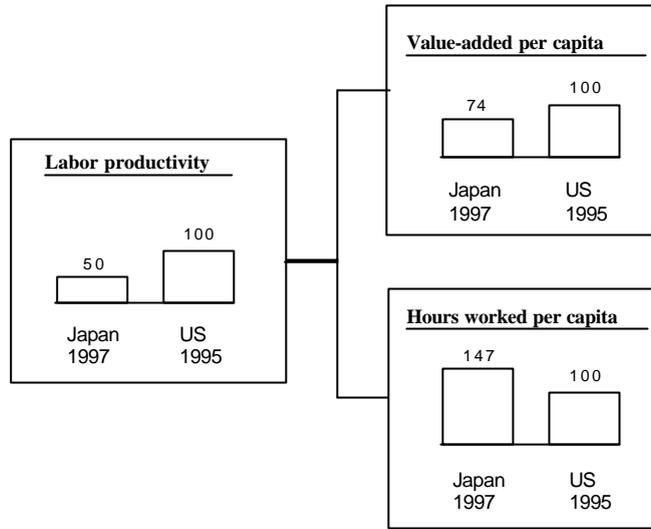
Source: Annual Report on Labor Force Survey; Annual Report on National Accounts

Exhibit 2
RETAIL FORMAT DEFINITION

	Definition	Value propositions			Examples	
		Large selection	High service	Low price	Japan	US
Discounters/ GMS	• Large scale retail format selling a wide selection of general merchandize (and some food) for a low price	✓		✓	• Ito-Yokado, Daiei	• WalMart, Costco
Supermarkets	• Large self-service stores selling majority food	✓		✓	• Maruetsu, Tokyuu Store	• Kroger, Safeway
Specialty chains	• General merchandize chains focused on particular segment/product. Includes category killers.		✓*		• Uniqlo, Kojima, Aoyama	• GAP, Limited, Toys'R'Us
Convenience stores	• Small stores with long opening hours selling primarily food		✓		• Seven-Eleven, Lawson	• Seven-Eleven
Department stores	• Large general merchandize store with high price and high servicing levels	✓	✓		• Mitsukoshi, Takashimaya	• Saks Fifth Avenue, Macy's
Traditionals	• Non-chained small stores often managed by a family		✓		• Neighborhood mom and pops	• Neighborhood mom and pops

* Except category killers

Exhibit 3
LABOR PRODUCTIVITY FOR RETAIL
 Index; 100 = US*

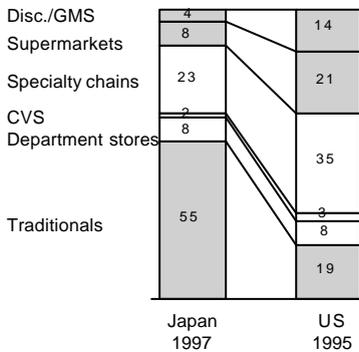


* Used double deflated OECD final consumption PPPs for relevant products
 Source: Census of Commerce (Japan); Census of Retail Trade (US); Current Business Reports

Exhibit 4
LABOR PRODUCTIVITY BY FORMAT

Share of hours worked

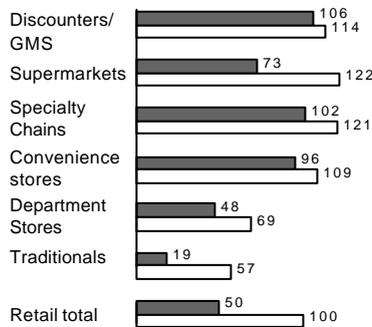
Percent



26% in France* (1995)

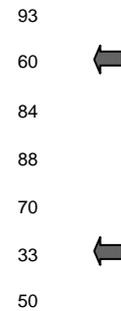
Format productivity

Index; US average = 100;
 Japan 1997; US 1995



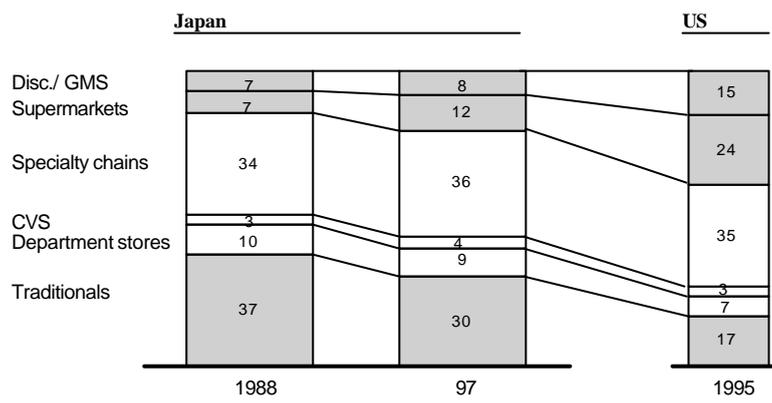
Format to format productivity

Same format in US = 100



* Estimate; share of employment
 Source: Census of Commerce; Census of Retail Trade; Labor statistics; Current Business Reports; NIKKEI; McKinsey analysis

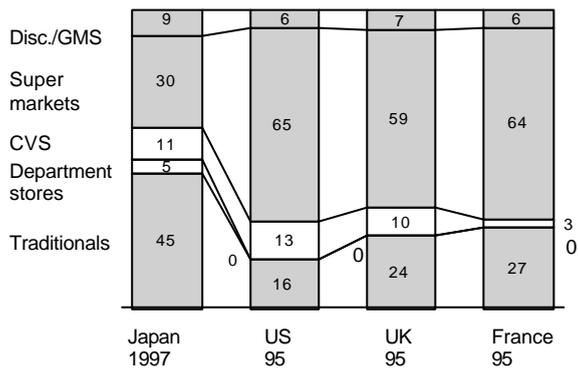
Exhibit 5
SHARE OF RETAIL SALES BY FORMAT
 Percent



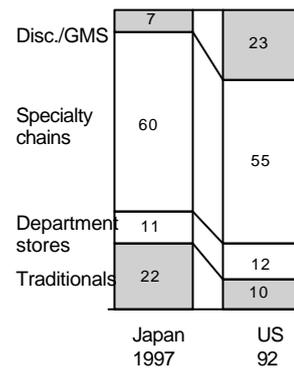
Source: Census of Commerce (Japan); Census of Retail Trade (US); Current Business Reports (US); McKinsey analysis

Exhibit 6
FOOD AND GENERAL MERCHANDISE SALES BY FORMAT
 Percent

Food



Non-food



Source: Census of Commerce (Japan); MGI UK Report; MGI Capital Productivity Report

Exhibit 7
RANKING OF TOP RETAILERS

<u>Japan</u>			<u>US</u>		
<u>1983</u>	<u>98</u>		<u>1983</u>	<u>93</u>	
1	1	Daiei	17	1	Wal-Mart Stores
2	2	Ito-Yokado	1	2	Sears Roebuck
4	3	Jusco	2	3	K-Mart
5	4	Mycal	12	4	Dayton Hudson
7	5	Takashimaya	5	5	J. C. Penney
3	6	Seiyu	-	6	Home Depot
10	7	Uni	4	7	Kroger
6	8	Mitsukoshi	3	8	Safeway
9	9	Seibu	-	9	Costco
13	10	Marui	9	10	American Stores

 Little change in ranking

 Dramatic change/competition

Source: *Fortune, Nikkei*

Exhibit 8
FORMATS OPERATED BY MAJOR RETAIL GROUPS

	<u>Daiei</u>	<u>Jusco</u>	<u>Ito-Yokado</u>	<u>Mycal</u>
Discounter/GMS	<ul style="list-style-type: none"> • Daiei • Topos • Bandoll • Kou's • Hypermart 	<ul style="list-style-type: none"> • Jusco • Megamart • Bigburn 	<ul style="list-style-type: none"> • Ito-Yokado • The Price • Daikuma* 	<ul style="list-style-type: none"> • Saty*** • Sporisium* • Bibros* • Elza* etc.
Supermarket	<ul style="list-style-type: none"> • Maruetsu* 	<ul style="list-style-type: none"> • Max Value • Well-Mart* 	<ul style="list-style-type: none"> • York Mart* • York Benimaru* 	<ul style="list-style-type: none"> • Pororoca
Specialty chains	<ul style="list-style-type: none"> • Robert* • Roberta* • Marche* etc. 	<ul style="list-style-type: none"> • Mega Sports* • Talbots* • Office Max* etc. 	<ul style="list-style-type: none"> • Mary Ann* • Steps* • Oshman's* 	<ul style="list-style-type: none"> • Sporisium* • Bibros* • Elza* etc.
CVS	<ul style="list-style-type: none"> • Lawson* 	<ul style="list-style-type: none"> • Mini Stop* 	<ul style="list-style-type: none"> • Seven-Eleven* 	<ul style="list-style-type: none"> –
Department store	<ul style="list-style-type: none"> • Printemps** 	<ul style="list-style-type: none"> • Bon Belta* 	<ul style="list-style-type: none"> • Robinson's* 	<ul style="list-style-type: none"> • Vivre

 Formats are often selected to match the type of land obtained

* Operated by subsidiaries

** Some shops operated by subsidiaries

*** "Saty" the company says that "Saty" is "Lifestyle-oriented Department Store", but in general, it is considered as GMS format

Source: Annual Reports

Exhibit 9
PRODUCTIVITY BARRIERS IN RETAIL
 Index; US = 100

- Important (≥10 points)
- Secondary (5-9 points)
- Undifferentiating (<5 points)

	<u>Explanation of gap</u>	<u>Specific productivity barrier</u>	<u>Market affected</u>
	Japan vs. US		
Entry barriers for large-scale stores	● ○	<ul style="list-style-type: none"> • Large Scale Retail (Location) Law • Urban Redevelopment Law 	<ul style="list-style-type: none"> • Product market • Land market/taxes
Exit barriers for traditionals	● ● ○	<ul style="list-style-type: none"> • Tax disincentives to selling land/store • Government loan guarantees • Town Center Revitalization Law 	<ul style="list-style-type: none"> • Land market/taxes • Capital market • Product market
Exit barriers for large troubled retailers	○ - / ○	<ul style="list-style-type: none"> • Bad-debt grid-lock of the banking sector • Government bank loans 	<ul style="list-style-type: none"> • Capital market • Capital market

Exhibit 10
LARGE SCALE RETAIL (LOCATION) LAW

	2000 -	
	Large Scale Retail Law*	Large Scale Retail Location Law
Objectives	<ul style="list-style-type: none"> • Protection of small retailers 	<ul style="list-style-type: none"> • Town planning/zoning** • Environmental protection (traffic, noise and trash)
Size of stores regulated	<ul style="list-style-type: none"> • 1,000m² - (type 2) • 3,000m² - (type1) 	<ul style="list-style-type: none"> • 1,000m² -
Evaluation committee members	<ul style="list-style-type: none"> • Local small stores 	<ul style="list-style-type: none"> • Local residents • Local businesses • Local small stores
Final decision	<ul style="list-style-type: none"> • Central and prefectural governments 	<ul style="list-style-type: none"> • Prefectural and local governments
		 71% of stores expect large variations in enforcement by local government

* Enacted in 1974 and gradually deregulated in 1990, 1992 and 1994

** Zoning regulated under revised city planning law

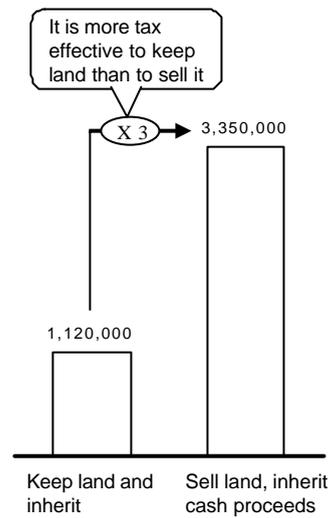
Source: Nikkei, Goldman Sachs

Exhibit 11

TAX OBLIGATION FOR A TYPICAL MOM-AND-POP STORE

Yen; NPV of property tax, capital gains tax and inheritance tax at 3% over 25 years

- “Typical Mom and pops”
- Family operates a retail store and lives on the site
 - Owned land: 200m²
 - Market value of the owned land: 50 million yen (60% residence, 40% business)
 - Assets are inherited by 1 spouse and 2 children



Source: Interviews; McKinsey analysis

Exhibit 12
TOWN CENTER REVITALIZATION LAW
1998-

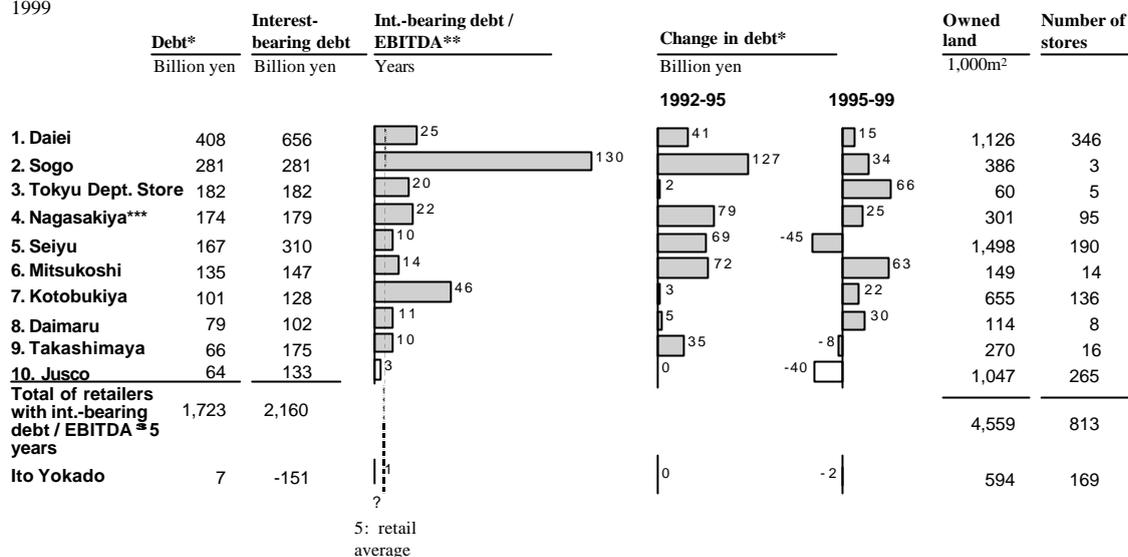
Purpose	<ul style="list-style-type: none">• To revitalize retail activities in town centers which have diminished with suburban development
Origin	<ul style="list-style-type: none">• Offered by LDP to small retail store lobby in exchange for abolishing large-scale store law in year 2000
Administrators	<ul style="list-style-type: none">• 13 ministries and agencies led by MITI and Ministry of Construction will evaluate proposals by local governments
Budget	<ul style="list-style-type: none">• 1 trillion yen made available each for 1998 and 1999 budget year<ul style="list-style-type: none">– Funding to be continued as long as local government submit proposals
Subsidies	<ul style="list-style-type: none">• Up to 50% of construction cost for commercial buildings, high streets and garages• Interest subsidies to stores• Rent subsidies

Source: *Nikkei*; interview

Exhibit 13

TOP 10 RETAIL GROUPS BY BANK DEBT AMOUNT

1999



* Long-term debt + short-term debt, excluding bonds

** Average (beginning and end of FY) net debt / (operating profit + depreciation): Years required to repay debt

*** Filed for bankruptcy on Feb. 13, 2000

Source: Annual reports; Nikkei; Daiwa Analyst Guide

Exhibit 14

BANK LOANS TO RETAILERS WITH LARGE DEBT

Million yen; 1999

■ Main banks

Retailers with large debt	DKB	LTCB	IBJ	Tokyo-Mitsubishi	Fuji	Mitsui Trust	Sumitomo	Sakura	Norin Chukin	Sanwa	Other	Total
1. Daiei		21,570		14,655	33,744	14,238	33,744		24,211	33,744	232,283	408,189
2. Sogo		34,193	88,106		5,730			16,521		5,970	147,305	281,304
3. Tokyu Dept Store			5,932	34,701	15,919	34,451	2,500	23,564	3,500	2,500	65,607	181,631
4. Nagasakiya	67,603	20,920			1,320		5,000	5,365		1,000	54,657	174,064
5. Seiyu	21,355	14,904		15,192	10,684			10,499	10,794		88,314	166,608
6. Mitsukoshi	30,600				20,322	20,322	10,499				43,164	135,406
7. Kotobukiya	6,743	11,924	7,000						9,745		65,534	100,946
8. Daimaru	1,300	12,865		24,417			15,066	1,199	1,390		22,778	79,015
Total	127,601	116,376	101,038	88,965	87,719	69,011	66,809	57,148	49,640	43,214	719,642	1,527,163

Source: Annual reports

Exhibit 15
RETAILERS AND DEVELOPMENT BANK OF JAPAN
 End of FY 1998

	<u>Total debt* of retailers</u>	<u>Debt to Development Bank of Japan (DBJ)**</u>	<u>DBJ's ranking among debt holders</u>	<u>Share of DBJ debt out of total debt</u>
	Billion yen	Billion yen		Percent
Daiei	408	31	5	8
Sogo	281	6	4	2
Tokyu	182	0	—	—
Nagasakiya	174	5***	7	3
Seiyu	167	5***	9	3
Mitsukoshi	135	0	—	—
Kotobukiya	101	4	7	4
Daimaru	79	13	3	16

* Long term debt + short term debt

** All debt except noted were made by Japan Development Bank; Japan Development Bank and Hokkaido-Tohoku Development Finance Public Corporation merged to become Development Bank of Japan in October 1999

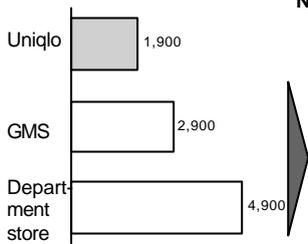
*** Debt to Hokkaido-Tohoku Development Finance Public Corporation (then)

Source: Annual reports

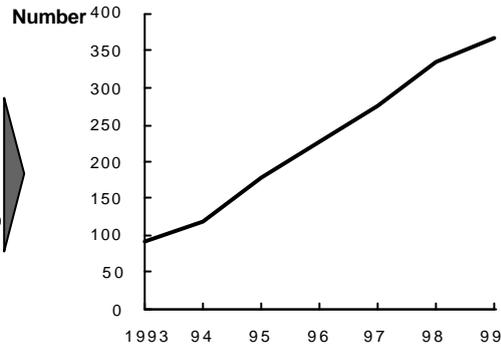
Exhibit 16
UNIQLO'S PERFORMANCE

Price of fleece jackets

Yen; 1999

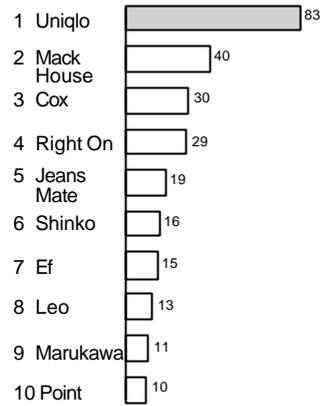


Number of stores: Uniqlo



Sales of largest casual wear retailers in Japan

Billion yen ; 1998



Source: Company brochure; Nikkei

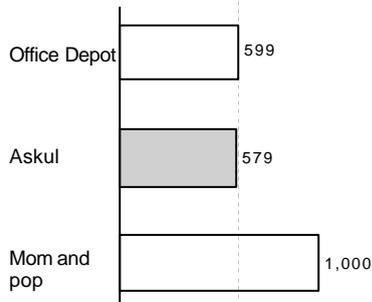
Exhibit 17
NEW ENTRANTS IN OFFICE SUPPLIES RETAILING: PRICE AND SALES

Price comparison

Yen

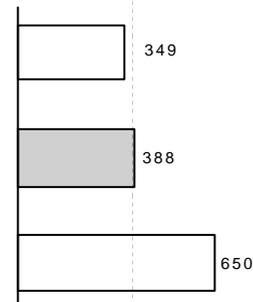
Hybrid ballpoint pen

Package of 10



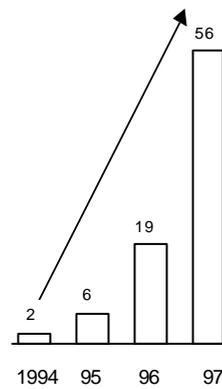
Kokuyo notebook

Package of 5



Sales: Askul

Billion yen



Source: Company brochure; Nikkei Business

Exhibit 18

CAUSALITY FOR LABOR PRODUCTIVITY DIFFERENCES

Index; US = 100

- Primary (≥ 10 points)
- Secondary (5-9 points)
- Undifferentiating (<5 points)

		Japan vs. US	Description of issue
External factors	• Product market	●	• Large Scale Retail (Location) Law hampers development of stores larger than 1,000m ²
	• Land market/taxes	●	• Town Center Revitalization Law subsidizes small stores • Property tax, capital gains tax, and inheritance tax discourage mom-and-pops to sell land
	• Capital market	●	• Urban Redevelopment Law limits large scale developments • Government provides 4 trillion yen loan guarantee package for small and medium retailers • Banks continue lending to debt-ridden retailers • Government bank provides loans to large incumbents
	• Labor market	—	
	• Consumer preference	—	
	• Related industries	—	
Industry dynamics	• Domestic competitive intensity	●	• Large scale retailers too few to expose most mom-and-pops to competition
	• Exposure to global best practice	●	• Share of large scale best practice is low
Production process	• Product mix/market	●	• Merchandizing skill is low (format-to-format)
	• Production factors		
	– Capital intensity/technology	—	
	– Scale	●	• Share of large scale retailers is small, while share of traditionals is large
	– Labor trainability	—	
	• Operations		
	– Organization of functions and tasks	—	
	– Design for manufacturing	—	
– Supplier/buyer relations	—		
Productivity performance (indexed to US = 100)		50	

Exhibit 19

SCENARIOS FOR THE NEXT 10 YEARS: RETAIL

	Scenario 1: base case	Scenario 2: accelerated growth		
		2A	2B	2C
Product market	<ul style="list-style-type: none"> Enact Large Scale Retail Location Law Provide subsidies and loan guarantees to mom and pops 	<ul style="list-style-type: none"> Abolish Large Scale Retail Location Law Eliminate subsidies and loan guarantees to mom and pops 	<ul style="list-style-type: none"> (same as scenario 1) 	<ul style="list-style-type: none"> Abolish Large Scale Retail Location Law Eliminate subsidies and loan guarantees to mom and pops
Capital market	<ul style="list-style-type: none"> Continue to provide government loans to large incumbent retailers Extend deposit guarantees and maintain recapitalization of banks 	<ul style="list-style-type: none"> (same as scenario 1) 	<ul style="list-style-type: none"> Eliminate government funding to incumbent retailers Limit deposit guarantees and withdraw capital from banks 	<ul style="list-style-type: none"> Eliminate government funding to incumbent retailers Limit deposit guarantees and withdraw capital from banks
Labor market	<ul style="list-style-type: none"> Mom and pop owners retire at historical rates by age group 	<ul style="list-style-type: none"> (same as scenario 1) 	<ul style="list-style-type: none"> (same as scenario 1) 	<ul style="list-style-type: none"> (same as scenario 1)
Land market	<ul style="list-style-type: none"> Same property tax, capital gains tax, inheritance tax, Urban Redevelopment Law 	<ul style="list-style-type: none"> Raise property tax, lower capital gains tax, value land equally for capital gains tax, reform Urban Redevelopment Law (see land) 	<ul style="list-style-type: none"> (same as scenario 1) 	<ul style="list-style-type: none"> Raise property tax, lower capital gains tax, value land equally for inheritance tax, reform Urban Redevelopment Law (see land)
Fiscal / macro	<ul style="list-style-type: none"> (see land) 	<ul style="list-style-type: none"> (see land) 	<ul style="list-style-type: none"> (see land) 	<ul style="list-style-type: none"> (see land)

Exhibit 20

PRODUCTIVITY GROWTH RATE UNDER SCENARIO 1

Index; US average = 100

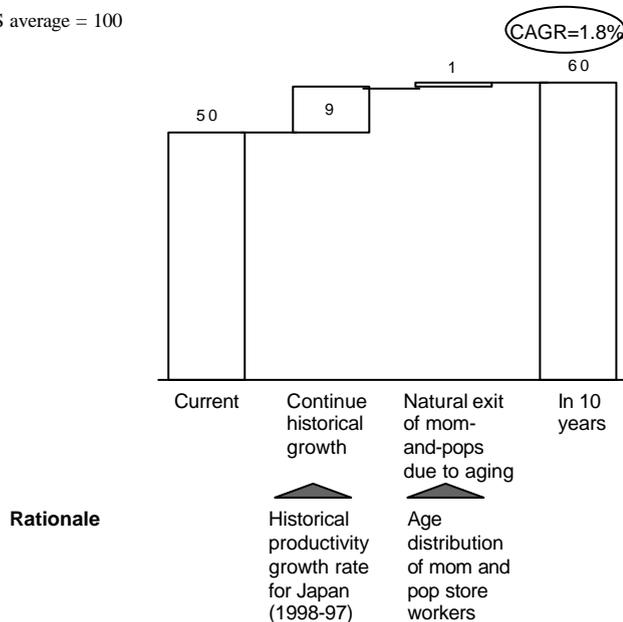


Exhibit 21
PRODUCTIVITY GROWTH RATE UNDER SCENARIO 2A

Index; US average = 100

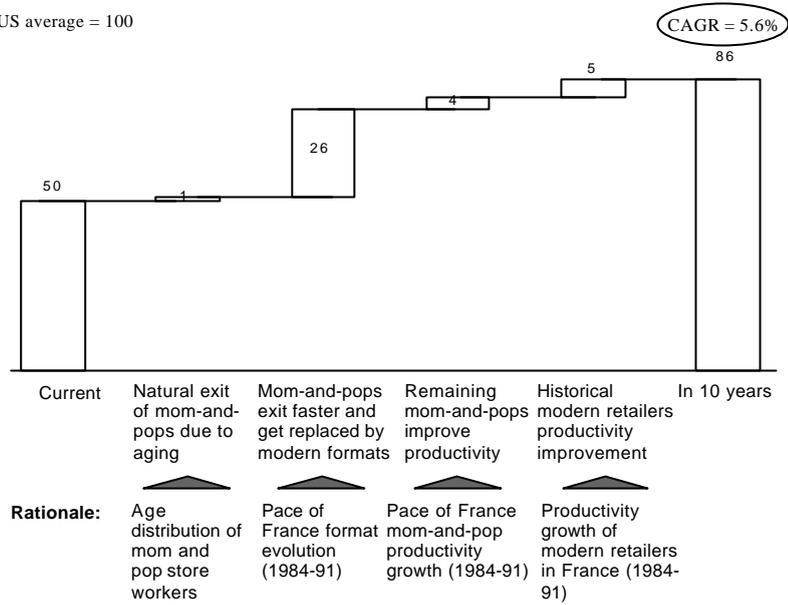


Exhibit 22
PRODUCTIVITY GROWTH RATE UNDER SCENARIO 2B

Index; US average = 100

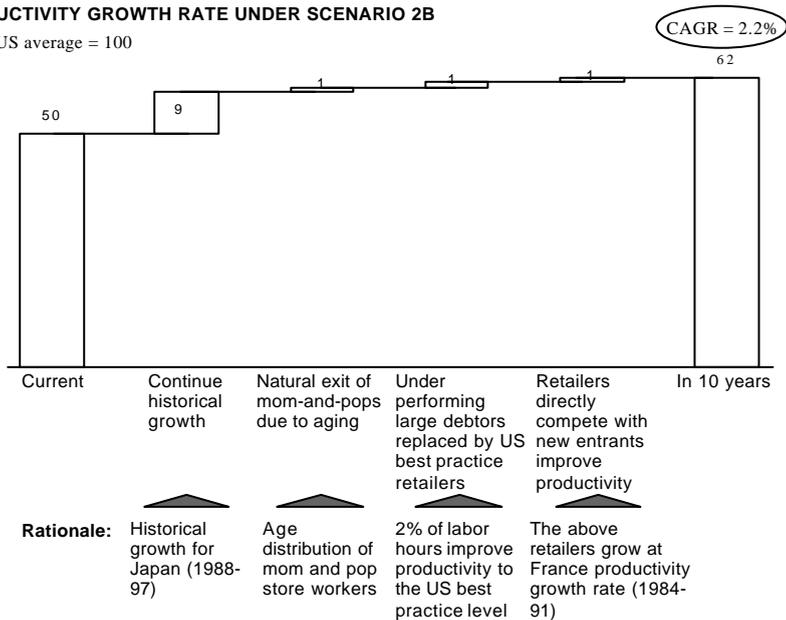


Exhibit 23
PRODUCTIVITY GROWTH RATE UNDER SCENARIO 2C

Index; US average = 100

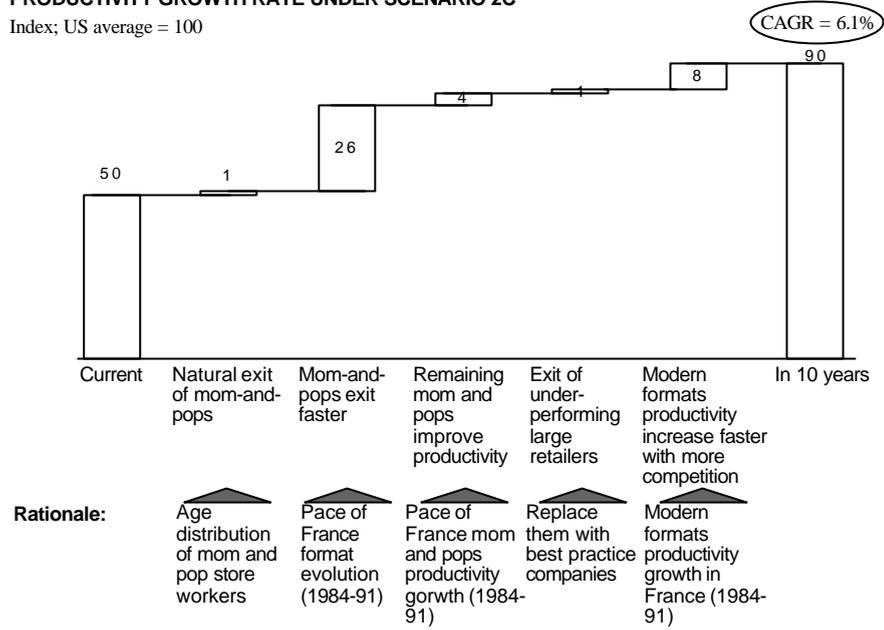
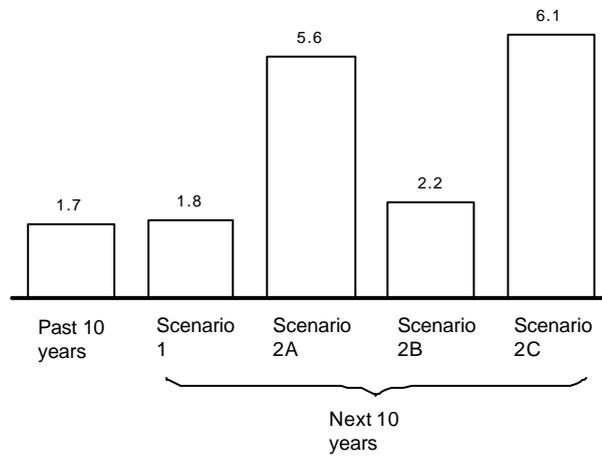


Exhibit 24
PRODUCTIVITY GROWTH RATE: RETAIL

CAGR



Food Processing

EXECUTIVE SUMMARY

Industry overview. Food processing is one of the largest manufacturing sectors in Japan, employing 11 percent of manufacturing labor. The industry is characterized by its small establishment size. Value added per establishment is one tenth that in the US, and employment per establishment is one third that of the US.

Productivity performance. Productivity is low compared to the US and France. Labor productivity is 35 percent of US productivity, and capital productivity is 45 percent of the US. As a result, total factor productivity (TFP) is 39 percent of that in the US. Productivity in France is nearly equal to the US.

Due to the heterogeneity of processed food products, we categorized the industry into four segments. Productivity was measured and causality analyzed for each of the four segments: perishables (such as milk) – 32 percent; packaged goods (such as confectionery) – 37 percent; commodities (such as pork processing) – 60 percent; and traditional goods (such as rice vinegar) – 18 to 38 percent.

Operational reasons for productivity gaps. The main source of the productivity gaps is small scale. All categories in the industry suffer from lack of scale, leading to less automation. A less important reason for the productivity gap is product proliferation. This is chiefly a packaged goods phenomenon. Since so many items are produced for a plant of a given scale, many cannot achieve minimum efficiency and thus some processes cannot be automated.

Industry Dynamics. There is little competition with global best practices as observed by protective trade barriers in commodities and lack of FDI in packaged goods. Domestic competitive intensity is generally low in all categories. There are many small, local processors that do not compete nationally.

Important external barriers to productivity and output growth. The most important barrier is fragmentation in the retail industry. If the retail industry were consolidated, large retail chains would demand that processors supply throughout Japan and provide marketing support. Only processors with sufficient scale would be able to respond to such demand. Some small processors may survive by producing highly value-added goods; if not, they would be forced to exit from the market. In the absence of such retail pressure,

there is little incentive for processors to consolidate, sell, or exit. Fragmented retailing encourages product proliferation, since nationwide marketing that targets the “average” customer is less effective for fragmented retailers who each face a very different clientele.

Another external barrier to labor productivity growth is the high trade and price/volume controls for some commodities. Since commodities are internationally traded, it would be expected that imports would generate competitive pressure; however, import barriers allow domestic processors to remain unproductive.

Future outlook and recommendations. The food processing industry has the potential to improve its productivity to 64 percent of US levels in ten years, that is, grow productivity by 6.3 percent annually, as opposed to -0.4 percent today.

The Japanese food processing industry has the potential to achieve higher productivity without sacrificing consumer demand for freshness or product variety. We found that the best practice milk processors, who have sufficient scale, are as productive as the US average. Even without addressing product proliferation, industry consolidation would double productivity in packaged goods.

Experiences in the French food processing industry suggests what the Japanese industry may look like when high productivity is achieved. The majority of the French market is dominated by large processors that supply large retail chains. Small processors and retailers have survived competition from large players by carving out a high-end niche -- being equally productive by being high value-added.

For such healthy competition and productivity growth to take place, government reforms of the retail sector (detailed in the Retail Case) need to be pursued. This will improve productivity in perishables, packaged goods, and traditional goods. In addition, removing import barriers, and other price/volume restrictions will improve productivity in commodity goods. Furthermore, removing subsidy will improve productivity in perishables.

Food Processing

INTRODUCTION

The purpose of this case study is to identify policy recommendations for improving the performance of the food processing industry in Japan. To do so, we benchmark the performance of Japanese food processing against the US, the best practice country, and draw examples from France and UK where appropriate. We then seek to understand the main barriers to productivity improvements by analyzing the causes of productivity gaps between Japan and US. We do this on three levels: production process, analyzing the causes at the operational level; industry dynamics, analyzing the competitive situation; and external, covering causes outside the industry. We ultimately draw conclusions on the actions needed to improve the sector's economic performance in the future.

Importance of the sector in the economy

The food processing industry is important in the economy for two main reasons. First, it is one of the largest industries within manufacturing, employing 11.2 percent of manufacturing labor (Exhibit 1). This case represents the domestic manufacturing sectors in Japan, generally characterized by low productivity. The food processing industry case will show the sources of low productivity. Second, food processing has an immediate and direct effect on the everyday lives of the people in Japan. Productivity improvement in this sector will mean lower prices and/or more value for the same price to consumers.

INDUSTRY OVERVIEW

Industry definition and characteristics

We based our definition of food processing on the Japan Census of Manufacture, which includes all manufacturing activities that produce edible products, but excludes ice, beverages, and animal feed.

An important characteristic of food processing in Japan is its small establishment size. Compared to the US, population per establishment is one sixth, value

added per establishment is one tenth, and employment per establishment is less than one third (Exhibit 2).

PRODUCTIVITY PERFORMANCE

We calculated labor productivity as value added per hour of labor input. Capital productivity is calculated as value added per unit of capital input. Total factor productivity (TFP) is a combination of labor and capital productivity, using the Cobb-Douglas function¹. Value added is defined as value of shipments minus cost of goods sold, following the US Economic Census definition. Labor input includes both production and non-production workers. Capital input is a measure of capital service consumed. We used Purchasing Power Parity (PPP) for each product to convert local currency units into comparable physical measurements. Appendix A details the definitions and methodology.

Overall food processing productivity

In 1997 (the most recent year for which census data are available), Japan's total factor productivity in the food processing industry was 39 percent of that of the US, and lagged behind that of France by a similarly wide margin (Exhibit 3).

Such low productivity in Japan is a result of low value added per capita and high inputs per capita (Exhibit 4). Value added per capita is only approximately sixty percent of that of the US, while labor and capital inputs are 75 percent and 38 percent higher, respectively.

It is interesting that France, which is known for its strong tradition in fine food, maintains a productivity level almost as high as the US.

Another important point to note is that productivity in Japan has been stagnant over the past five years (Exhibit 4). Labor productivity has improved only one point in five years, while productivity in France and US has improved eight and nine points, respectively, during the same period. Capital productivity has decreased by seven points.

Productivity by category

Food processing encompasses a wide range of products, from traditional pickles to flour to frozen prepared food, that differ in product characteristics, production processes, and the environment surrounding them. To capture the full spectrum of the industry, we categorized it into four groups (Exhibits 5, 6). We first

¹ Total Factor Productivity = $Y(L^s)(K^{(1-s)})$, where s is share of income to labor. $s=0.63$ in US and 0.58 in Japan; the average of the two were used.

separated perishables from non-perishables, then further broke down non-perishables into packaged goods, commodities, and traditional goods. Description and labor productivity of each category are as follows:

- ¶ **Perishables** are products with short product life, usually less than a week. Examples would be milk, bread, and lunch boxes. Labor productivity of this category is 32 percent of that of the US.
- ¶ **Packaged goods** are products in which brand becomes a key differentiating factor. Examples include confectionery, canned food, and seasonings. Labor productivity is 37 percent of the US level.
- ¶ **Commodities** are products that are usually uniform and can be traded globally. They are often used as raw material for more processed food products. Items such as flour, frozen meat, and sugar are included in this category. Labor productivity is 60 percent of that of the US.
- ¶ **Traditional goods** are products unique to Japan, such as soy sauce, miso, pickled vegetables, and various fish products. We used two methods to measure labor productivity. The first method is the standard method, which is the same as other categories, and results in labor productivity of 18 percent of the US level. The second method uses domestic relative prices, which results in a productivity level of 38 percent.
 - The standard method measures productivity of the same products, such as vinegar, in Japan and US, using PPP to make them comparable. The strength of this method is that it is consistent with other product categories. The weakness of using this method to measure productivity in traditional goods is that the products included in this category are not “traditional,” or may not even exist, in the US. Production processes and consumer preference for these products will be very different between the two countries, making it difficult to compare.
 - Using domestic relative prices is an alternative method that attempts to overcome the weakness of the first method. Productivity is measured relative to that of Japanese commodity goods. Using relative domestic prices allows us to incorporate Japanese consumers’ preference for traditional goods. We anchored productivity measurement to commodities because it is subject to the most price competition.

For example, if labor productivity is 3800 yen per labor hour for traditional goods and 6000 yen for commodities, productivity of traditional goods is 63 percent of commodities. To standardize productivity measurements with other categories, we then convert this to US at 100 percent. Since productivity of commodities in

Japan is 60 percent of US, traditional goods productivity is 63 percent x 60 percent = 38 percent that of the US.

REASONS FOR DIFFERENCES IN PRODUCTIVITY PERFORMANCE

In this section, we analyze causalities of labor productivity gaps for each of the four categories at the production process level, industry dynamics level, and external level, using examples from each category.

Perishables: milk processing example

We have chosen milk processing as an example of perishable food. Processes covered include receiving raw milk, pasteurizing, homogenizing, packaging, warehousing and shipping. There are 718 milk processing establishments in Japan; the number of establishments per population is almost four times that of the US.

Labor productivity, measured as physical amount processed per hour of labor input, is 48 percent that of the US (Exhibit 7). Physical productivity improved on average 2.3 percent annually in Japan in the past ten years, and 3.8 percent in US.

We also broke out the top three processors' productivity, which is almost equivalent to that of the US – between 94 and 109 percent of the US. These top processors, operating about 60 milk processing plants, employ 17 percent of the total labor in milk processing – the rest are employed at less productive establishments.

Production process causalities

Average processors suffer from small scale that leads to lack of automation relative to the US. The large processors bear a productivity penalty for lack of technology and marketing skills.

- ¶ **Lack of scale inhibits automation.** Exhibit 8 shows the lack of scale of Japanese milk processors. 358 out of the 718 plants process less than 2 tons per day. Since many plants are small, processes with high minimum efficient scale, such as boxing and warehousing, cannot be automated. Lack of scale accounts for 36 points of the 52 point gap.
- ¶ **Lack of technology and marketing skills.** Top milk processors sell two thirds of their milk to large retail chains (Exhibit 9), which order shipments two or three times a day with only a few hours lead time, each at different times of the day. They only accept milk produced that day, because most milk in Japan has only seven days of shelf life, compared to 14 days or longer in the US (Exhibit 10). Supermarkets maintain this order pattern to avoid spoilage. To accommodate the

demand, processors must produce, package, and ship milk just-in-time (JIT). Production lines are run more than once a day for each retail chain. The lines stop for ten to twenty minutes to switch over as much as 20 times a day. Long down time caused by JIT penalizes productivity. See Appendix B for further discussions on JIT.

Technology to extend shelf life (ESL) to 14 days has only been introduced in the past two to three years in large plants, and penetration of ESL milk is low. Consumer and retailer education is necessary to ensure acceptance of ESL milk, but processors lack sufficient marketing skills. For example, a top manufacturer does not have a quantitative understanding of consumer trade-off between freshness and price. Lack of technology and marketing skills account for 16 points of the 52 point gap.

Industry dynamics

Competitive intensity is low, as observed by stagnant market share and some small, unproductive processors not exiting.

- ¶ **Domestic competitive intensity.** Competition is not intense. Market share of the top three processors is stagnant at approximately 45 to 50 percent between 1991 and 1997. In addition, the school meal program keeps some small unprofitable processors in business.
- Large processors supply mainly large retailers such as supermarket chains and convenience stores, while small processors mainly serve small retailers such as mom-and-pops (Exhibit 9).

Large retailers prefer purchasing from large, national processors because they can maintain an advantage over competing mom-and-pops by selling higher quality, branded milk at lower prices than milk of lesser quality in mom-and-pops (Exhibit 11). Nationally branded milk processed by large processors is more sanitary and uniform in quality than that processed by many small processors. Large retailers achieve lower price than mom-and-pops with scale benefits such as distribution efficiencies and higher store productivity. Introduction of ESL milk, which can be produced more cheaply than regular milk, will bring even greater advantage to large retailers (Exhibit 12).

Large retailers purchase private label milk from small processors. Private label is priced lower than national brands to cater to customers who are very price sensitive. They select processors that can meet certain quality standards at a lower cost than national brands to produce private label milk. Small processors can process milk more cheaply, as shown in Exhibit 12, because they do not bear additional costs to maintain brand and quality like large processors

do. If small processors were to increase scale to supply large retailers with their own brand, they need to incur these additional costs and will lose their cost advantage.

In the mom-and-pop channel, processors can command higher prices than in the large retail channel because mom-and-pops have less bargaining power. However, large processors do not expand into the mom-and-pop channel even though it is more lucrative. The main reason is because attempting to increase share by cutting prices will result in lower prices without volume increase. Small processors produce milk at lower cost. Therefore, if large processors reduce prices in an attempt to gain market share, small processors can always undercut large processors and maintain their share. Furthermore, such price war is even less preferable when profitability is low as it is for both large and small processors (operating income is less than two percent of sales). Another reason for the small share of large processors in the mom-and-pop channel is that they are at a disadvantage in distribution costs. Small processors who sell only in their regional market can sell directly to mom-and-pops in the area. Large national processors generally need to use wholesalers to reach mom-and-pops, and this will incur additional cost.

- **School meal programs allow some small processors to stay in business.** School meal programs procure milk at a government-set price, which is higher than the average price a small processor receives from other retailers. Small processors rely more on school meal programs: they sell 11 percent of their shipment, while large processors sell only four percent. Profitability of small processors is at par with large processors if they do not receive the premium from school meals: the earnings to sales ratio is less than two percent. In other words, small processors are made more profitable than large processors thanks to the school meal programs. However, since this is an average, it is likely that some small processors are less profitable and rely on school meal programs to stay in business.
- ¶ **Exposure to global best practice.** Exposure to best practice is similar in the US and Japan. The average productivity of the top three Japanese processors is at par with US average. The best milk processing plant in Japan is approximately twice as productive as the US average. Imports are low in both countries.

External causalities

Retail fragmentation is the root cause of lack of scale, stagnant market share, and lack of technology. The school meal program is a minor cause; it is a barrier for unproductive, regional processors to exit.

- ¶ **Retail fragmentation.** Lack of consolidation in retail is the root cause of lack of scale, stagnant market share, and lack of technology. First, retail fragmentation causes lack of scale because it provides small processors with a channel that does not require large supply volume and marketing support. Retail consolidation will pressure processors to pursue scale. Second, since retail consolidation has been slow as detailed in the Retail Case, there has been no impetus to break stagnation in market share between large and small processors. If large retail chains were to increase market share, large processors would be able to increase their share, too. This point leads to slow penetration of ESL technology. With retail consolidation, large processors can expand production, and in so doing, will invest in ESL technology (ESL technology is easier to introduce in new plants compared to upgrading old plants).

ESL penetration and retail consolidation will lower per unit cost for large processors (Exhibit 12). First, the cost per liter for large processors will fall to slightly above the small processors level when ESL is fully implemented. Next, retailers will demand ESL because the technology ESL allows easier inventory control. This will increase the large processors' market share in supermarkets. The volume increase will cause the per unit cost to fall below that of the small processors. The cost advantage allows large processors to increase market share in the mom-and-pop segment, too. Finally, when retail consolidates, large processors will dominate the market, and achieve the cost as low as 174 yen per liter.

- ¶ **Pricing and procurement for school meal programs is an exit barrier.** The government sets the price of milk for school meal programs. Furthermore, there is no competitive bidding for the contract, as the local government decides which processor will supply local schools. This process tends to favor certain local processors, that often win the contract over many years. If the process becomes competitive, some of the processors that rely on the subsidies will exit, making room for larger, more productive processors. The subsidy is an exit barrier for small regional processors, as described in the Industry dynamics section, and is a cause of lack of scale, stagnant market share, and lack of technology.

The Ministry of Agriculture, Forestry, and Fishery (MAFF) is attempting to remove the barrier. It plans to introduce competitive

bidding from Fall, 2000, at the earliest. In addition, sanitary guidelines for school meal suppliers were introduced, thereby increasing competitive pressures on small scale processors, as they are unlikely to be able to comply with these guidelines.

Packaged goods: confectionery

The example we use for packaged goods is confectionery manufacturing, which includes candy and chocolate. The process involves mixing the ingredients, molding, and packaging. There are 1,667 confectionery manufacturing establishments in Japan; the number of establishments per population is over twice as much as that of US.

Productivity defined as value added per hour of labor input is 32 percent that of the US (Exhibit 13).

Production process causalities

The most important causality is the combination of the small production scale per plant and product proliferation relative to scale, leading to lack of automation and low utilization. In addition, there is excess labor at the warehouse for “picking,” or assembling sub-palette unit orders for small retailers.

¶ **Product proliferation.** Each manufacturer produces a large range of products relative to the scale of the operation, making it difficult for any item to achieve minimum efficient scale. For example, a major confectionery manufacturer sells 101 items of chocolates and candies with a sales volume of 85 billion yen² in 1998, or 566 million dollars converted with PPP; Hershey, the US confectionery manufacturer, has 78 items with sales volume of 4,436 million dollars in 1998. Product turnover is high in Japan, with some products sold for as little as three weeks. Marketing budgets are spread across many products; therefore it is difficult for a strong brand to emerge. In instant noodles, a major packaged good category in Japan, only five out of approximately 500 new products launched annually survive for over a year. In contrast, major food processors in the US responding to a McKinsey survey indicated that their success rate for launching a substantially new product is 25%.

Product proliferation inhibits automation. Some processes such as packaging cannot be automated because production volume per product is too low for many products. Production lines dedicated to high-volume products are fully automated, from mixing and coating

² The figure includes chocolate, candy, and biscuit sales.

chocolate to packaging, boxing, and warehousing. Low-volume products are produced on flexible lines, which require some manual labor to change packaging material for each product, and to box and warehouse finished goods. Furthermore, flexible lines are inherently lower in productivity than dedicated lines because they need frequent changeovers and have longer down time, forcing their labor utilization down. Due to product proliferation, the share of high-volume products that can afford a dedicated line is smaller in Japan than in the US.

Product proliferation at each plant accounts for 36 points of the 68 point gap.

- ¶ **Low scale.** The confectionery industry is quite fragmented and each plant much smaller than the US. The number of establishments per capita is more than twice in Japan, and value added per establishment in Japan is only 23% of the US. The industry in Japan is such that, with the exception of a few national manufacturers, most are small manufacturers producing a similar range of products for their own regional markets. Small plant scale exacerbates the lack of automation described above. Small scale accounts for 21 points of the 68 point gap.
- ¶ **More warehouse labor.** There is extra labor at the warehouse for “picking,” or assembling sub-palette unit orders for small wholesalers and retailers. Many Japanese manufacturers accept orders in small units, sometimes as small as one box. It is difficult to automate this process of filling sub-unit orders; labor must be retained to do this manually. For example, in a multinational yogurt factory, 100 out of 130 employees are devoted to warehousing. Extra warehouse labor accounts for 11 points of the 68 point gap.

Industry dynamics

Competition is not very intense, either against domestic manufacturers or against global best practice.

- ¶ **Domestic competitive intensity.** Domestic competition is generally low compared to the US. There are a handful of national scale processors, and many small processors competing in their own local markets. There are very few consolidations or new entrants. The only major merger in the food industry in the past decade was Japan Tobacco’s 25 billion yen acquisition deal of Asahi Chemical’s food processing business in 1999. This is in stark contrast with multi-billion dollar mergers in the US, such as Philip Morris acquiring Kraft Foods and RJR merging with Nabisco.
- ¶ **Competition with global best practice.** Most products compete very little against global best practice. Global best practice confectionery manufacturers such as Nestle and Mars are dominant in a few

categories such as soluble coffee or pet food, but not significant in other categories such as confectionery. Upon entering Japan, these companies focused on categories that were new to Japanese consumers and had no significant incumbents. They have focused less on products such as confectionery where competition from incumbents expected.

External causalities

Retail fragmentation is the single most important cause for product proliferation, small scale, and lack of global best practice entrance. Prevalence of family ownership is a barrier to consolidation, but it is undifferentiating relative to other countries. We have not analyzed differences in consumer preferences and its effect on productivity, but we have demonstrated that productivity can be improved despite these differences.

- ¶ **Retail fragmentation encourages product proliferation.** National marketing is not effective when retail is fragmented. Marketing research and promotion by manufacturers is based on a national average consumer profile of the target segment. This is effective when the retail chain and each store has sufficiently large scale so that the profile of its customers matches the average profile used in the marketing research. However, when retail is fragmented and each retailer has a small customer base, there is less chance for the actual customers that each retailer faces to be consistent with the assumed consumer profile. In this situation, a national-scale marketing effort is not effective. Manufacturers therefore produce a large variety of products and test them in the market without providing them with full-scale marketing support. Regional retail chains will also choose to carry more items because they are uncertain which products will appeal to their local clientele. They carry approximately 1.5 time more items, and are less profitable, than the best practice national chain (Exhibit 14).
- ¶ **Retail fragmentation causes the low scale of processors.** Fragmented retail allows small local food processors to stay in the market. Large processors supply tend to large retailers such as supermarket chains and convenience stores, while small processors tend to serve small retailers such as mom-and-pops. Large retailers operating nationally demand processors to supply nationally and provide marketing support. Only processors with sufficient scale would be able to respond to such demand. Some small processors may survive by producing highly value-added goods; if not, they would be forced to exit from the market. In the absence of such retail pressure, there is little incentive for processors to consolidate, sell, or exit.
- ¶ **Retail fragmentation inhibits significant global best practice entry.** Global best practice confectionery manufacturers such as Nestle or Danone generally enter new markets by acquiring a large local player,

instantly gaining large market share, and profit from improving its operations. When the industry is fragmented as it is in Japan, there are few local players large enough to be an attractive target. Retail fragmentation leads to processor fragmentation, which in turn deters significant entry of global best practice.

Product proliferation may remain even after consolidation of the industry. Experience in the UK biscuit industry was that product proliferation was solved only when global best practice entered the market. Nabisco – the leading US biscuit manufacturer – exposed the UK to best practice marketing skills and operations in the 1980s. For example, upon acquiring Huntley and Palmer (the number two UK biscuits manufacturer), within one year, Nabisco UK eliminated 150 products, reduced labor and capital by 25% and doubled profitability while keeping sales constant. However, after increasing their market share to 18%, Nabisco exited the UK market in 1989 for reasons unrelated to its strong performance in the UK biscuits market³. This has left a void in the UK market in terms of exposure to best practice marketing skills. As a result, the industry retains excess product variations and suffers from a lack of exciting new product launches. In 1999, Nabisco made a take-over bid for United Biscuits, the largest biscuits manufacturer in the UK. The UK may see product rationalization in the near future. In sum, retail consolidation was a necessary but not a sufficient condition, to solve product proliferation and full-scale entry of global best practice.

¶ **Family ownership is undifferentiating.** Prevalence of family ownership is a barrier to consolidation, but it is undifferentiating relative to other countries. A global food processor in Japan has learned it the hard way: it made numerous attempts to acquire local family-owned food manufacturers over the past ten years, but has been constantly blocked in the end by the owner family for non-business reasons. However, this is not unique to Japanese family businesses – small family owned businesses are generally reluctant to sell for non-economic reasons in other countries as well. They sell only when they can no longer stay in business. In the US and UK, retail consolidation increased pressure on food processors so that they had no choice but to exit or consolidate. In France, large processors such as Danone and Nestle existed early on, creating competitive pressure on family businesses. Japanese family businesses can block acquisition pressure

³ RJR Nabisco sold off its European operations (including the UK biscuits business) to the French conglomerate BSN (current Danone) for \$2.5 billion as a part of an effort to repay \$5.5 billion of the \$25 billion in debt incurred in its leverage buyout (LBO) of 1989.

because they face no serious threat yet – however as small retailers disappear, they may have little choice.

- ¶ **Consumer preference differences are not a necessary condition for productivity improvement.** We have not analyzed differences in consumer preferences, and its effect on productivity. There are arguments that Japanese consumers prefer a large product variety, thereby generating the causes of low productivity. However, we have demonstrated that at least a portion of the productivity gap with the US is explained by small scale, which can be overcome regardless of consumer preferences.

Commodities: pork processing

For our commodities category, we studied pork processing. Productivity defined as value added per hour of labor input is 40 percent of the US level (Exhibit 15).

Overall productivity for commodities is sixty percent that of the US, much higher than other categories of processed food. However, because of the nature of commodities, their productivity would be closer to best practice if there were no artificial barriers such as import tariffs or domestic price controls. Commodities are highly tradable; domestic production can always be substituted with imports. Therefore, only those that are produced as efficiently as global best practice should be sustainable. Sixty percent productivity level signifies a significant barrier to productivity.

Pork processing suffers from high tariffs and domestic price controls. It includes processes that occur immediately after slaughtering, such as parting and freezing. Further processing such as curing is excluded.

Production process causalities Pork processing is small scale compared to the US. Value added of an average pork processing plant in Japan is only 17 percent that of the US. The small scale of establishments hampers automation. Most processing in Japan is still done manually in batches, with butchers carving pork carcasses one by one. In the US, this is done in automated lines by robots.

Industry dynamics Pork processing has very little competition domestically and globally. Pork processing establishments are owned by local governments, and prices are set by a government-owned body. Tariffs are levied at the differential between the import price and the domestic controlled price, so that all imported pork is priced at the same level as domestic pork. As a result, there is no price competition among Japanese processors or with imports.

External causalities. Import tariffs and government price controls are the main cause of low productivity in pork processing because they remove the competitive incentive for processors to pursue scale, introduce better technology,

and improve productivity. By contrast, commodity products which have lower or equivalent trade barriers compared to best practice countries, such as vegetable oil processing, have higher productivity (Exhibit 16). If import restrictions were removed, the productivity of commodities would likely catch up to the US.

Traditional goods

Traditional goods are the least likely to improve productivity. It is difficult to expect large-scale competition due to weak competitive pressure from global best practice, and weak domestic competition.

However, competitive pressure may come from other food products. If productivity reaches best practice levels in other products, their price relative to traditional goods will fall, making them potential substitutes for traditional goods. Some products may respond to this pressure by improving their production processes, achieving higher productivity, and maintaining their market share. On the other hand, products that cannot be produced more efficiently will see their market share fall since their price relative to substitutes will be much higher. They will remain as local products.

Even today, some traditional products have improved production processes and productivity. For example, Mitsukan, the top vinegar manufacturer, successfully introduced productive Western production technology to produce Japanese rice vinegar. Innovation is occurring even in miso, a product that is uniquely Japanese and has many regional varieties. Miso is produced by fermenting soy beans with yeast. Yeast production has undergone consolidation, and miso manufacturers now outsource this process.

Summary for the industry

The productivity gap causalities for the whole industry are drawn from the analyses of the four categories, taking into account the relative weight of each category (Exhibit 17).

Production process causalities. Two important causalities stand out from the four cases: small scale and product proliferation.

- ¶ **Small scale.** All categories in the industry suffer from small scale, leading to lack of automation.
- ¶ **Product proliferation.** Product proliferation is predominantly a packaged goods issue, but is nonetheless important due to the magnitude of its impact on productivity. Since so many items are produced at a plant, many cannot achieve minimum efficiency and thus some processes cannot be automated.

Industry dynamics. Overall, there is little competition domestically or with global best practice. Domestic competitive intensity is low with small, regional processors not subject to competition from productive, national players. In addition, there are no active consolidations or new entrants in the industry. Competition with global best practice is generally low, except in low-tariff commodity goods where imports are significant (Exhibit 18). Foreign direct investment from global best practices generally does not have a significant position in the market.

External causalities. The most important external causality is the retail industry. Fragmentation in retail causes small scale and inhibits better technology in perishables and packaged goods. Retail fragmentation also encourages product proliferation in packaged goods. Another, less prevalent, external causality is high import tariff rates and government price controls in commodity goods. These protective measures shield products from competition and remove incentives to improve productivity. In addition, milk procurement for school meal programs at a government-set price is a barrier for some unprofitable small processors to exit.

FUTURE OUTLOOK AND POLICY IMPLICATIONS

In this section we will analyze the productivity growth potential of the Japanese food processing industry over the next ten years, depending on reform scenarios. It is followed by a discussion on consumer taste and productivity improvement. We conclude with policy implications for the government.

Productivity growth rates by reform scenarios

Productivity growth in the food processing industry between 1992 and 1997 was -0.4 percent. We analyzed the productivity growth potential for two scenarios for the next ten years (Exhibit 19):

- ¶ **Maintaining the status quo.** This scenario takes into account the changes in external causalities that are taking place or are known to take place today, but nothing more. Retail will consolidate slowly at the current rate, according to the base case scenario in the retail case. Import tariffs will be reduced according to WTO agreements, but this will have very little impact on productivity, because they will fall by only 15%, and it will remain prohibitive for imports to enter the market. As a result, the productivity growth potential will be zero percent annually over the next ten years – a slight improvement over the past five years, but still weak compared to past performances in US or France.

¶ **Overall reform.** We assumed potential productivity growth for the next ten years as detailed below. Productivity could rise from the current 35 percent to 64 percent of US today; that is at an annual growth rate of 6.3% over the next ten years (Exhibit 20).

- In perishables, productivity will improve from 32 to 67 percent of the US level. Scale improvement through industry consolidation, penetration of better technology such as ESL, and exit of unproductive producers that were relying on subsidy contribute to the productivity growth.
- In packaged goods, retail consolidation and subsequent food processor consolidation brings productivity from the current 37 percent to the current UK level of 64 percent of US level. (UK packaged goods-type food processing consolidated as UK retailing consolidated. However, the sector will still suffer from product proliferation.)
- Commodities' productivity improves from 60 to 100 by lowering import barriers and other domestic price/volume restrictions to global best practice level.
- We assumed that productivity growth rate in traditional goods will be lower than packaged goods by a constant historical differential. As productivity improves in other segments, we assume the productivity in this segment will also improve – although by a lower margin due to less exposure to (foreign) best practice. Productivity, which is between 18 and 38 percent, will be around 19 and 40 percent of US level.

After weighting by labor hours, labor productivity would improve by 29 points from 35 to 64. The contribution of each category to this increase is as follows: perishables – 11 points; packaged goods – 6 points; commodities – 11 points; and traditional goods – 1 point.

Given some constraints, such as the difficulty in solving product proliferation and the prevalence of traditional goods, Japan's best case productivity would still be lower than the US. Even so, the productivity growth potential is great.

Consumer taste – not a barrier for productivity improvement

Many in the industry link low productivity to Japanese consumer tastes. Their argument is that the preference of Japanese consumers for freshness or variety in food inhibits consolidation, automation, and reduced product offerings. The US experience, in which high productivity have been derived from consolidation,

reduced product offerings, and automation, is therefore, not applicable to the Japanese consumer environment. However, we have demonstrated in this case that significant productivity improvements can be achieved even before taking into consideration any strong preference Japanese consumers may have.

For example, in perishables, the top three manufacturers' productivity is already at par with the US. Productivity issues at the operational level were related to the scale of smaller players, and government subsidy to small players. The external causality was retail fragmentation. Therefore, freshness would not be sacrificed by resolving these productivity issues. In packaged goods, we demonstrated productivity would double just by improving scale, and without even addressing the product proliferation issue. Consumers would still see a large variety of products in shops as they do today. When these changes are implemented, Japanese consumers can continue to enjoy the food quality they do today, be it freshness, product variety, safety, or general quality; and reap the fruits of higher productivity (lower price) at the same time.

France can be a model for what Japanese food processors may become once higher productivity is achieved. Productivity in France, a country where consumers are very demanding on food, is at par with the US as mentioned earlier in the case. The key to achieving best practice productivity and meeting the demands of picky consumers at the same time is that the French food business has two clear segments: the large-scale, mass-producers, and the high-quality, niche producers. Large food processors such as Danone and Nestle supply large scale retail chains such as Carrefour and Auchan. These large food processors and retailers dominate the market. The second group consists of highly differentiated, specialized food processors supplying focused traditional retailers. The small processors that have survived competition from large, world-class manufacturers are equally productive, producing a small amount of highly value-added goods. To take the wine industry as an example, a clear segmentation has taken place between mass packaged goods producers supplying supermarkets, and small high-end niche players selling through exclusive wine stores (Exhibit 21).

Japan today has many mediocre food processors who are too small to enjoy scale benefits and are not differentiated enough to be high value-added. Retail consolidation and the competitive pressure imposed upon food processors from consolidation will force processors to become productive by pursuing scale or high value-added. The outcome and mix of large and small processors will differ by product category. Most likely, commodities will experience the most consolidation; large processors will dominate perishables and packaged goods, and both will experience competition from differentiated niche players; traditional goods will have the highest share of niche processors.

Implications for the government

To realize the full productivity growth potential in the food processing industry, the government should take the following steps:

- ¶ **Remove barriers to retail consolidation.** The government should implement measures to remove barriers to retail consolidation as detailed in the retail case. The retail industry has a huge impact on the food processing industry's performance.

Today, large retailers tend to source from large processors, and small retailers do business with small processors (Exhibit 22). For example, a top-tier milk manufacturer ships two thirds of its production to large supermarkets and convenience stores, while a mid-tier manufacturer ships only one third. Looking from the retailers' side, large retail chains choose manufacturers that can support marketing with strong brands. For example, convenience store chains set minimum requirements for marketing support, and only the best selling packaged goods can get shelf space in convenience stores. These large retailers are increasing market share, but only slowly due to barriers analyzed in the retail case. Once these barriers are removed, large, high productivity retail will further increase market share, and small processors who cannot do business with large retail will have to exit.

Consolidation in retail and food processing is not a new phenomenon in Japan (Exhibit 23). Retail and food processing have been consolidating hand-in-hand over history both in Japan and the US. The consolidation trajectory seems to be on the same line as that of the US. The population per establishment in Japan today for both food processing and retail is twice as high (i.e. half as consolidated) as the US in 1963.

- ¶ **Remove import barriers and other price/volume restrictions.** The government should also remove import barriers and other price/volume restrictions to improve the competitive environment, leading to productivity improvements in commodity goods. It should for similar reasons, remove the subsidy on perishables. These protective measures in Japan have been set to achieve various policy goals such as maintaining food security. Japan relies much more on imports (compared to the US and France) for many basic foodstuffs, which become ingredients of processed food (Exhibit 24). Another goal is protection of the agricultural industry.

Protection on agriculture should not spill over to food processing. Protection on agriculture is a politically sensitive issue for the government. However, these protective measures have an adverse economic effect when anti-competitive measures such as subsidies and import tariffs are extended to processed foods to avoid loopholes in

agricultural protection. First, it becomes a barrier to productivity growth, as we demonstrated in our analyses. Second, it becomes a cap on output. Because most protective measures result in higher domestic prices, consumers are likely to consume less than they would have. Finally, importers look for creative but sub-optimal ways to avoid import barriers or to profit from them. For example, ingredients are pre-mixed to avoid import tariffs on sugar, flour, or powdered milk. If meat is imported in bulk, it can be levied a low import tariff, and can then be slit and sold domestically at a high price, providing excess profits to the importer. The government should understand these costs of protection.

- ¶ **Introduce competition in milk procurement for school meal programs.** Finally, the government should introduce competition in milk procurement for school meal programs, so that unprofitable processors would exit from the market. Currently, the price is set by the government, the local governments arbitrarily decide which processors win the contract. The current system favors certain regional processors, who may not be able to stay in business without the subsidy. This prevents productive processors expanding market share. The government should fully implement its plan to introduce competitive bidding without delay.

Appendix A: Productivity – Definition and Methodology

Productivity reflects the efficiency with which resources are used to create value added in the marketplace. We measure productivity by computing the ratio of output produced in a year to inputs used in that production over the same period.

Output

For output, two measures were used in this case: physical units and value added. Physical output is the preferred measure if we can compare comparable output. However, it is not always feasible to compare physical output due to product variety and quality differences. We used physical output in the milk processing analysis.

An alternative approach to using physical output is to use value added. This is the approach taken in the overall industry, the four industry categories, and the pork and confectionery analyses. Here, value added is defined as factory-gate sales less cost of goods sold. The advantage of using value added is that it accommodates quality differences between products, as higher quality goods normally receive a price premium which translates into higher value added, and that it is easily additive for various products.

Inputs

Our total factor inputs consist of labor and capital inputs.

¶ **Labor input** is defined as the total annual number of hours worked in the industry, for both production and non-production workers at the production establishment. For example, labor hours of administration workers at the factory is included in labor inputs, but administration at headquarters is not. We estimated labor inputs with the total number of employees multiplied by the best available measure of average hour of work per employee in the industry or category.

¶ **Capital input** is defined as the sum of capital services used in the industry at the production site. Capital stock consists of various kinds of structures (such as factories) and equipment (such as machines, trucks, or tools). The stock is built up incrementally by the addition of investment to the existing capital stock, and each piece of capital

provides a flow of services during its service life. We constructed our capital services measure using the Perpetual Inventory Method (PIM), based on US service lives for structures (31years) and equipment (17 years).

Purchasing Power Parity (PPP)

Instead of using market exchange rates to convert value added of different countries to a common currency, we used PPP exchange rates. They can be thought of as reflecting the ratio of the actual costs of purchasing the same basket of goods in local currencies in two countries. We used product-specific PPPs for outputs, and gross fixed capital formation PPPs for capital input in this case.

Appendix B: Sources of JIT

Insufficient retail demand forecasting and short product shelf life calls for JIT production.

JIT production is necessary today because retail cannot make accurate demand forecasts in circumstances where tight inventory control is required, as with short shelf life products such as milk.

The shelf life of most milk in Japan is only seven days, and the product is sellable for only three days. This requires tight inventory control. Therefore, retail only accepts milk produced on the same day so it can capture the window of opportunity to sell at full price.

Supermarkets and mid- and low-tier convenience stores are poor at demand forecasting because of their small scale. They observe how well products sell in the morning, and wait until the last minute to confirm orders. There are two reasons for poor demand forecasting. First, small scale makes demand forecasting difficult. Many supermarket chains are sub-scale in terms of both the IT investment necessary and the amount of customer data collected. This is also true for mid- and low-tier convenience stores. Only a few best practice convenience stores and supermarkets forecast demand, place orders, and control inventory sufficiently. Second, a special sale at a competing store is the largest, and most unpredictable factor, in demand fluctuation.

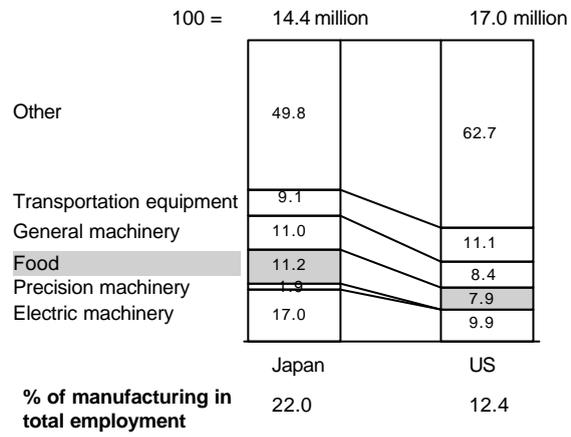
Poor demand forecasting has a huge impact on the productivity of products with short shelf life, such as milk. Most retailers need JIT production to tightly control inventory and avoid the risk of spoilage.

In addition, processors also cannot risk spoilage. One might think that a logical solution for processors would be to forecast demand and produce the quantity necessary for the day in a single run. However, predicting demand accurately is very difficult given their lack of customer information (especially when even the retailers they supply to often do not have such information).

A product with longer shelf life would be a solution to the JIT problem.

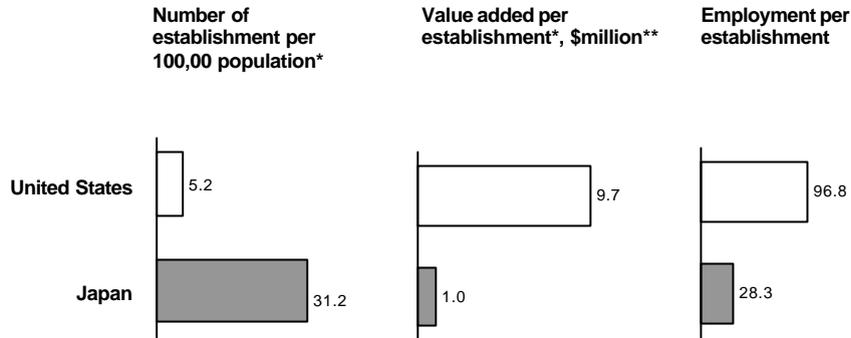
Exhibit 1
MANUFACTURING EMPLOYMENT BREAKDOWN

Percent; 1997



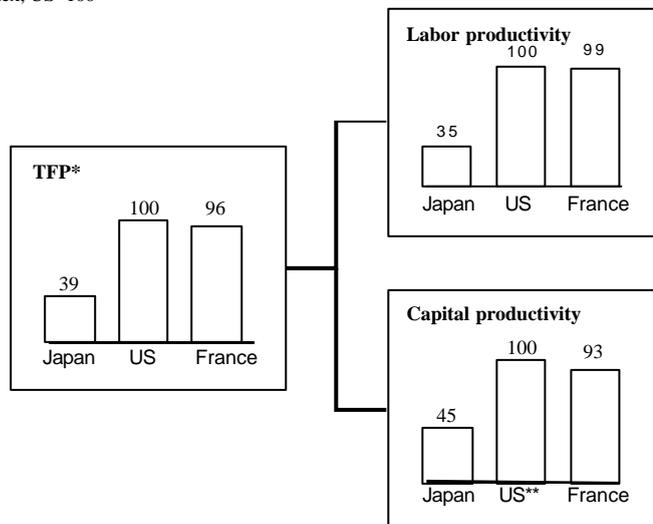
Source: Japan: Annual Labor Statistics; Census of Manufacture
 US: BLS webpage; Economic Census

Exhibit 2
SCALE OF FOOD PROCESSING ESTABLISHMENTS
 1997



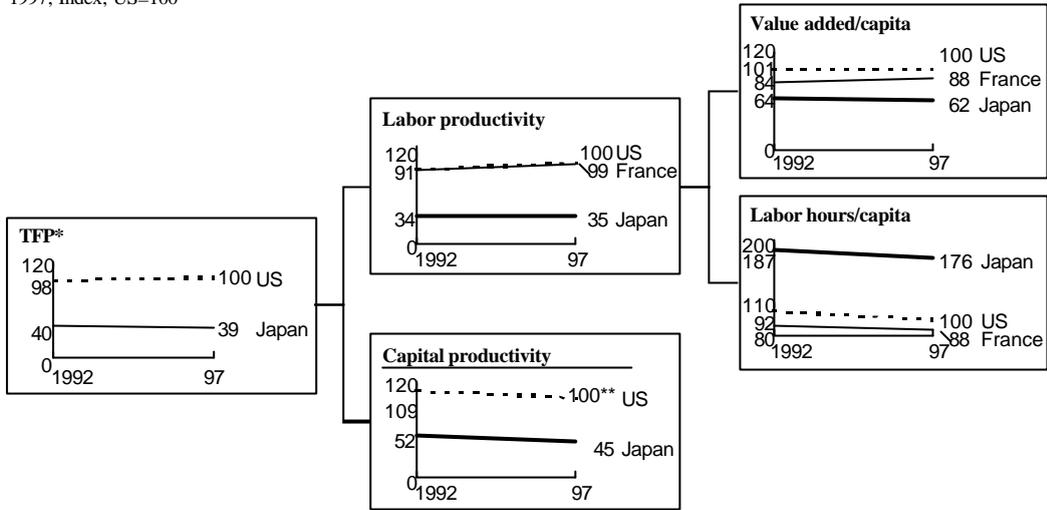
* Number of establishments for US as of 1992
 ** 1993 dollars at purchasing power parity
 Source: Japan Census of Manufacturers; US Annual Manufacturing Survey; Norinsuisan Tokei Yorau

Exhibit 3
FOOD PROCESSING PRODUCTIVITY
 1997; Index; US=100



* Total Factor Productivity
 ** 1996
 Source: Census of Manufacture; Economic Census; Annual Manufacturing Survey; AGRISTE

Exhibit 4
CHANGE IN PRODUCTIVITY IN FOOD PROCESSING
 1997; Index; US=100



* Total Factor Productivity
 ** 1996
 Source: Census of Manufacture; Economic Census; Annual Manufacturing Survey; AGRESTE

Exhibit 5
CATEGORIZING FOOD PROCESSING BY PRODUCT CHARACTERISTICS

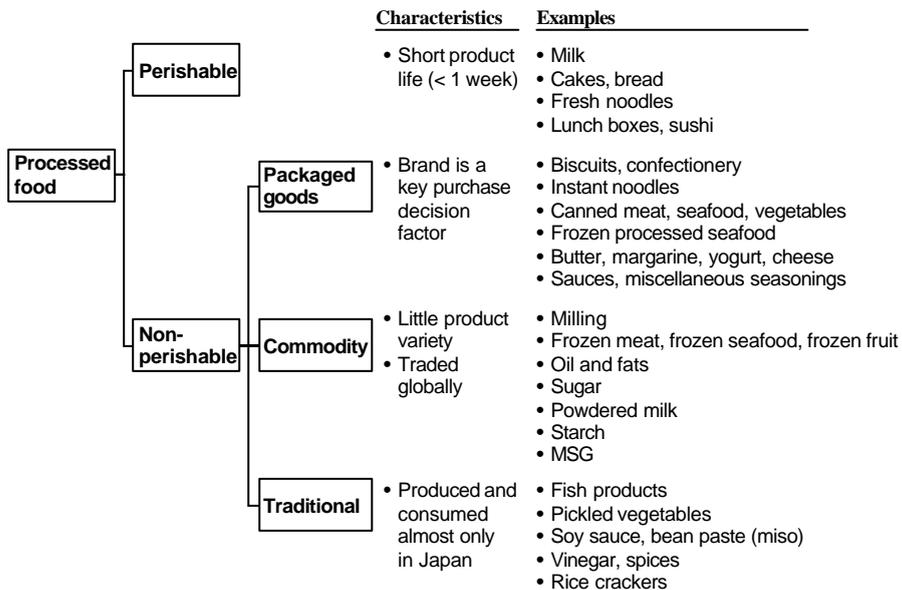
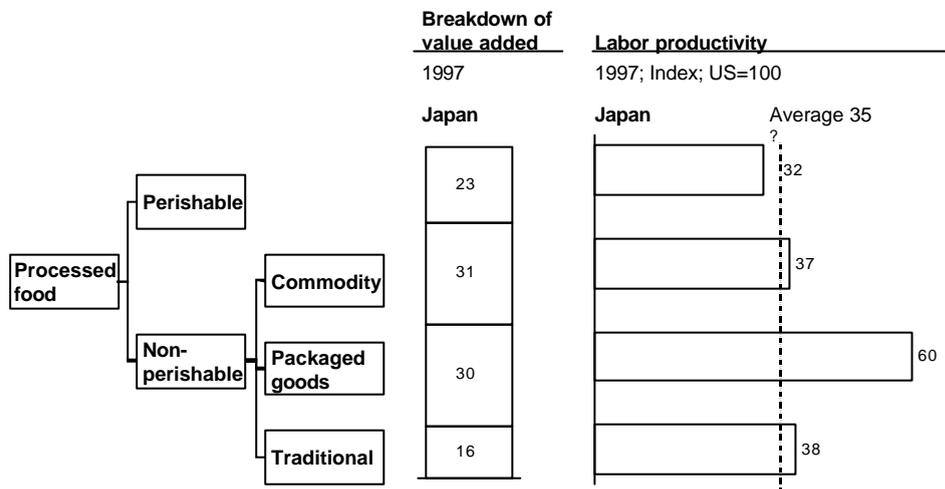


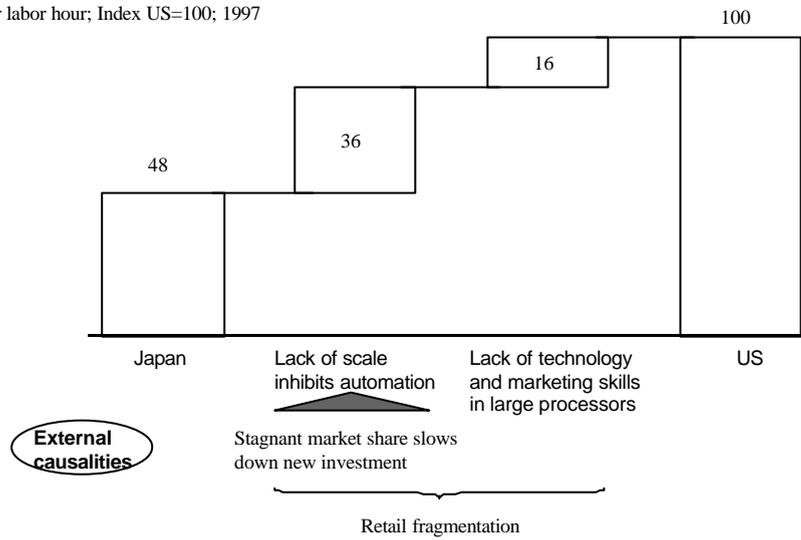
Exhibit 6
PRODUCTIVITY BY TYPE OF PRODUCT

ESTIMATE



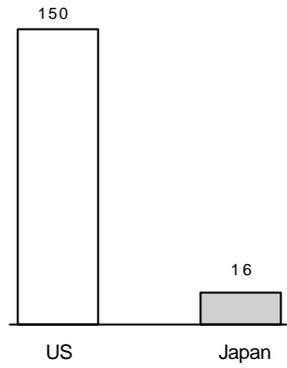
Source: Input-output tables; Census of Manufacture; Economic Census; AGRESTE

Exhibit 7
PRODUCTIVITY GAP BREAKDOWN – MILK PROCESSING
 Shipment per labor hour; Index US=100; 1997



Source: Census of manufacture; Economic Census; Dairy products statistics(MAFF), Milk facts, 1997(US Milk Industry Foundation); Financial statement; interviews

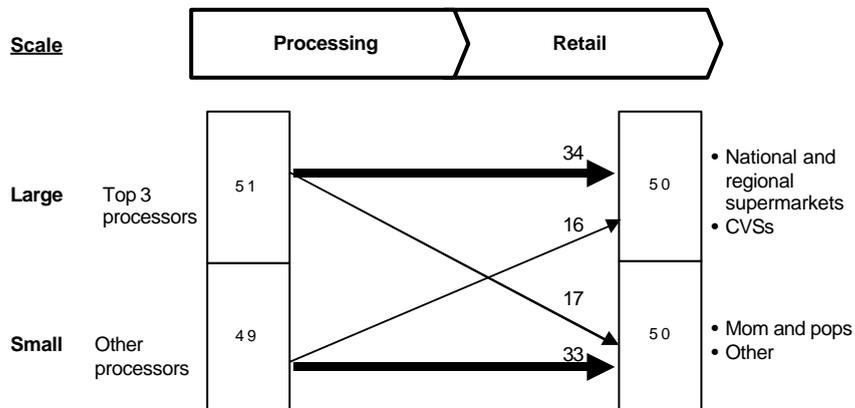
Exhibit 8
AVERAGE DAILY MILK PRODUCTION PER ESTABLISHMENT
 Tons; 1997



Source: Dairy Products Statistics(MAFF); Milk Facts(US Milk Industry Foundation)

Exhibit 9
BREAKDOWN OF MILK DISTRIBUTION BY MARKET SHARE
 Percent

ESTIMATE

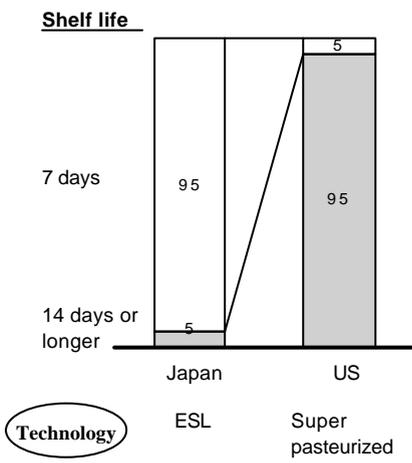


Source: Liquor/Food Market Share Encyclopedia; 1994 National Survey of Family Income and Expenditure; Interviews

Exhibit 10
MILK WITH LONGER SHELF LIFE

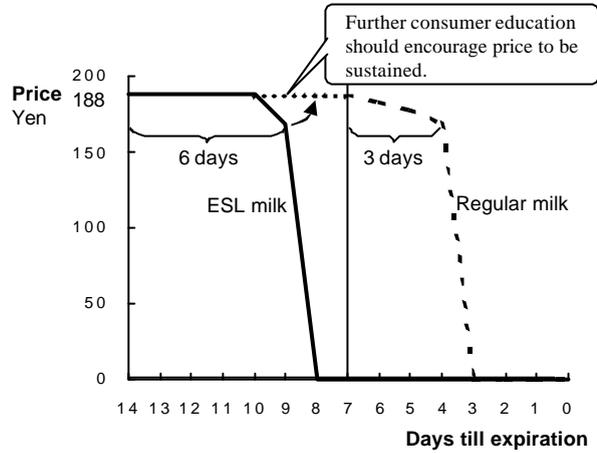
ESTIMATE

14-day shelf life/ technology adoption
 Percent



* Extended Shelf Life
 Source: Interviews

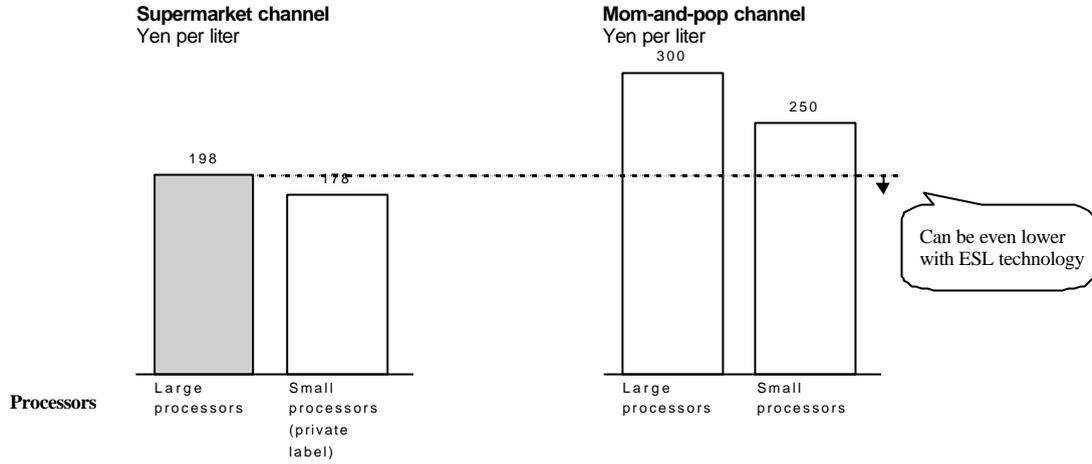
Milk price at supermarkets by days until expiration



- No price deterioration for an extended period
- Daily delivery will be sufficient
- Rapid price decrease requires tighter inventory control
- Needs multiple deliveries per day

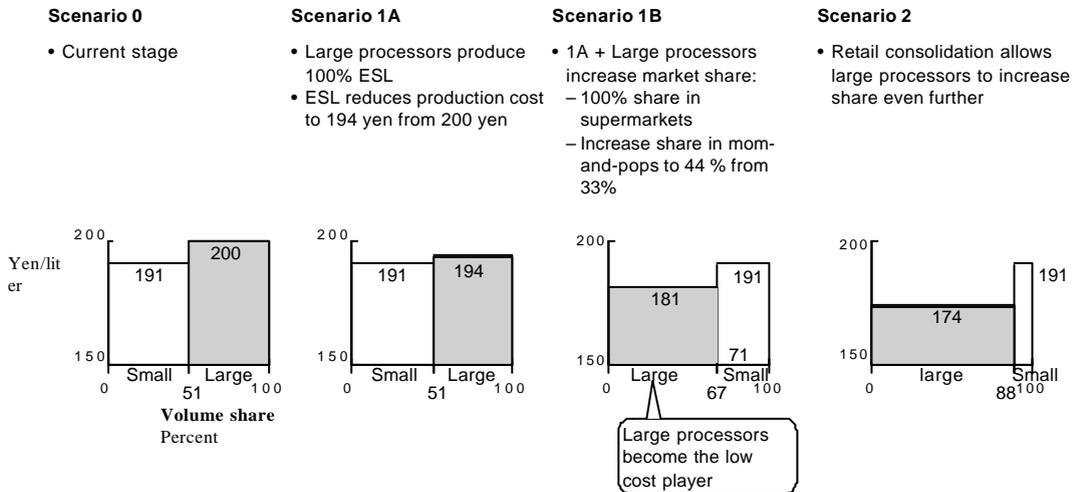
Exhibit 11
RETAIL PRICES OF MILK BY CHANNEL

ESTIMATE



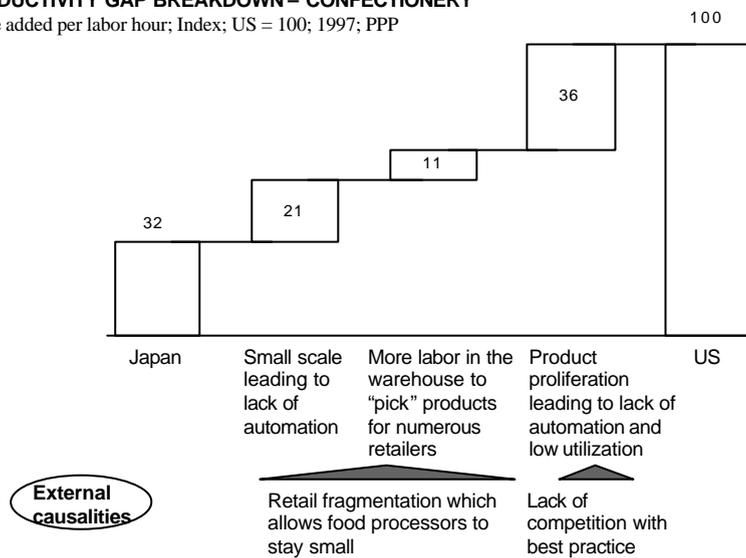
Source: Census of manufacture; Economic Census; Dairy products statistics(MAFF), Milk facts, 1997(US Milk Industry Foundation); Financial statement; interviews

Exhibit 12
MILK INDUSTRY COST CURVE BY SCENARIO



Source: Census of manufacture; Economic Census; Dairy products statistics(MAFF), Milk facts, 1997(US Milk Industry Foundation); Financial statements; interviews

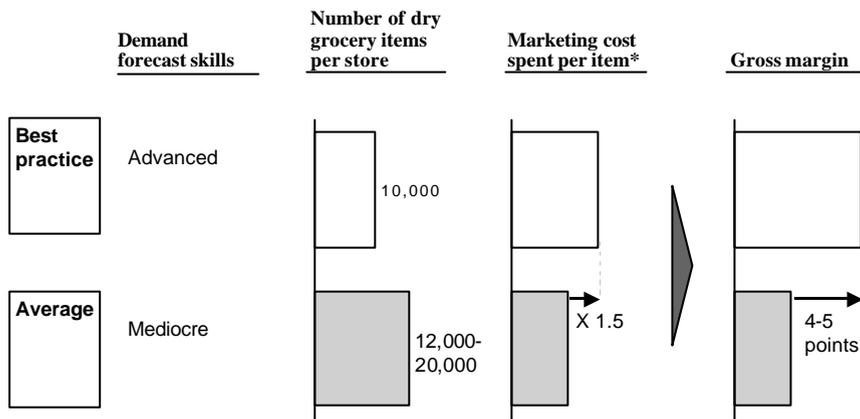
Exhibit 13
PRODUCTIVITY GAP BREAKDOWN – CONFECTIONERY
 Value added per labor hour; Index; US = 100; 1997; PPP



Source: Census of Manufacture; Economic Census; interviews

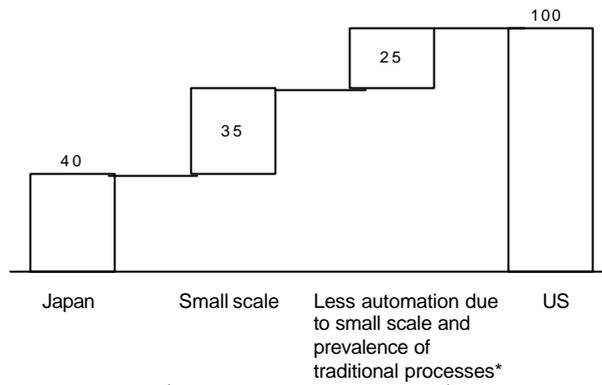
Exhibit 14
NUMBER OF ACCOUNTS AND ITEMS IN GMS's

ESTIMATE



* Marketing costs include commercials, trade promotion and consumer promotion, and are generally proportionate to sales volume
 Source: Interviews; Nikkei Business

Exhibit 15
PRODUCTIVITY GAP BREAKDOWN – PORK PROCESSING
 Value added per labor hour; Index; US = 100; 1997; PPP



External causalities

- High tariff and government price control
- Government ownership of some slaughtering plants

* May apply less to other commodity products
 Source: Census of Manufacture; Economic Census; interviews

Exhibit 16

PRODUCTIVITY AND IMPORT RESTRICTIONS ON COMMODITY FOOD PRODUCTS

Productivity	Trade barriers in Japan			
	Tariff rate	Other restrictions		
Value added per labor hour; Index; 100=US; 1997; PPP	1999			
Vegetable oil	86	0 - 5.3%	—	High productivity products generally have low trade barriers
Chicken	73	8.8 - 12.3%	—	
Flour	56	12.5 - 160%*	Rate depends on the purpose of imports	Low productivity products generally have high tariff and/or other restrictions
Meat processing	42	Beef: 40.4 - 50% Pork: 4.4-700%**	— Price differential/government supply adjustment	

* 12.5 - 25% applied to imports for specific purposes only. Most are subject to ad valorem rates and other duties; estimated to be 160% of market price.
 ** Actual tariff is ad valorem rate of Yen 371.67/kg. Rate calculated based on pork prices in the market.
 Source: Census of Manufacture; Economic Census; *Agro-Trade Handbook*, JETRO (1999); *Trade Policy Review Japan*, WTO (1998); Interviews

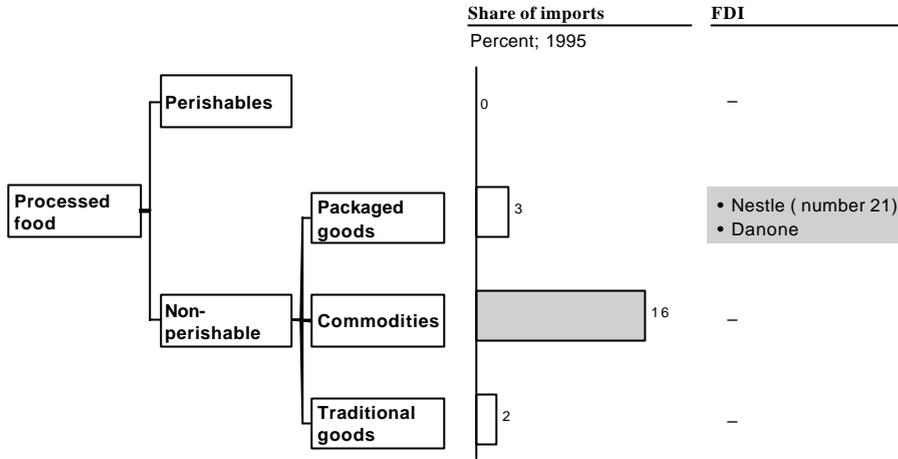
Exhibit 17

CAUSALITY FOR LABOR PRODUCTIVITY DIFFERENCES IN FOOD PROCESSING

	Perishables	Packaged goods	Commodities	Traditional goods	Total
External factors					
• Fiscal and macroeconomic environments	—	—	—		—
• Product market					
– Trade / FDI barriers	—	—	●		○
– Product regulations	—	—	—		—
• Labor market					
• Capital market					
– Corporate governance	—	—	—		—
– Government subsidies	○	—	—		—
• Other external factors					
– Other industries / up and down stream	●	●	—		●
– Country specific factors	—	—	—		—
Industry dynamics					
• Competition with best practice	—	●	●	n.a.	●
• Domestic competitive intensity	●	●	●		●
Production process					
• Product mix / marketing					
– Product category mix	—	—	—		—
– Value added within category mix	—	—	—		—
– Product proliferation	—	●	—		○
– Price structure / marketing	—	—	—		—
• Production factors					
– Capital intensity / technology	●	—	—		●
– Scale	—	●	●		—
– Labor trainability	—	—	—		—
• Operations					
– Organization of functions and tasks	—	—	—		—
– Supplier / buyer relationships	—	●	—		○
Productivity (US = 100)	32	37	60	18-38	35

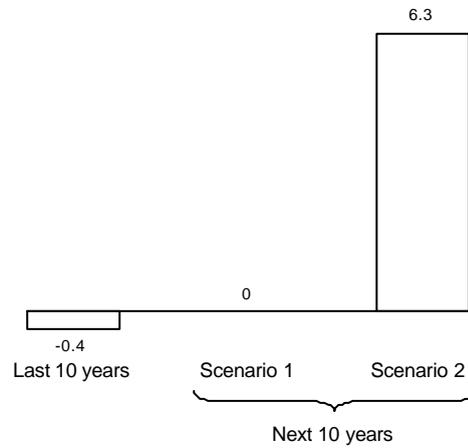
● Important (≥10 points of gap)
 ○ Secondary (5-9 points of gap)
 — Undifferentiating (<5 points of gap)

Exhibit 18
INDUSTRY DYNAMICS: FOOD PROCESSING



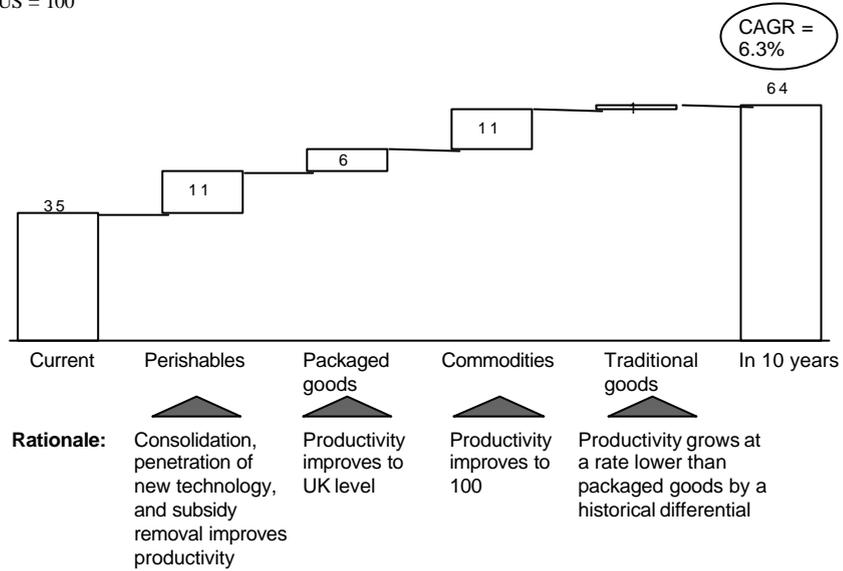
Source: Input-output tables; Interviews

Exhibit 19
PRODUCTIVITY GROWTH RATE: FOOD PROCESSING
 CAGR; %



Source: McKinsey analysis

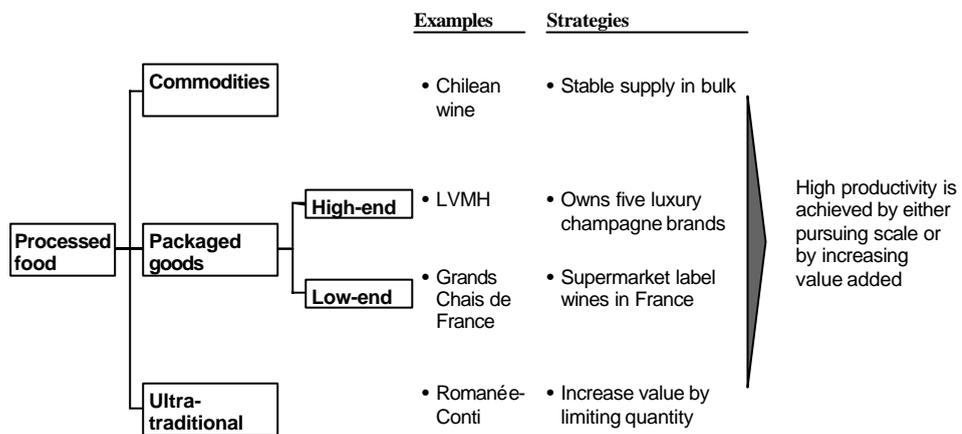
Exhibit 20
LABOR PRODUCTIVITY GROWTH RATE UNDER BEST CASE SCENARIO: FOOD PROCESSING
 Index; US = 100



Source: McKinsey analysis

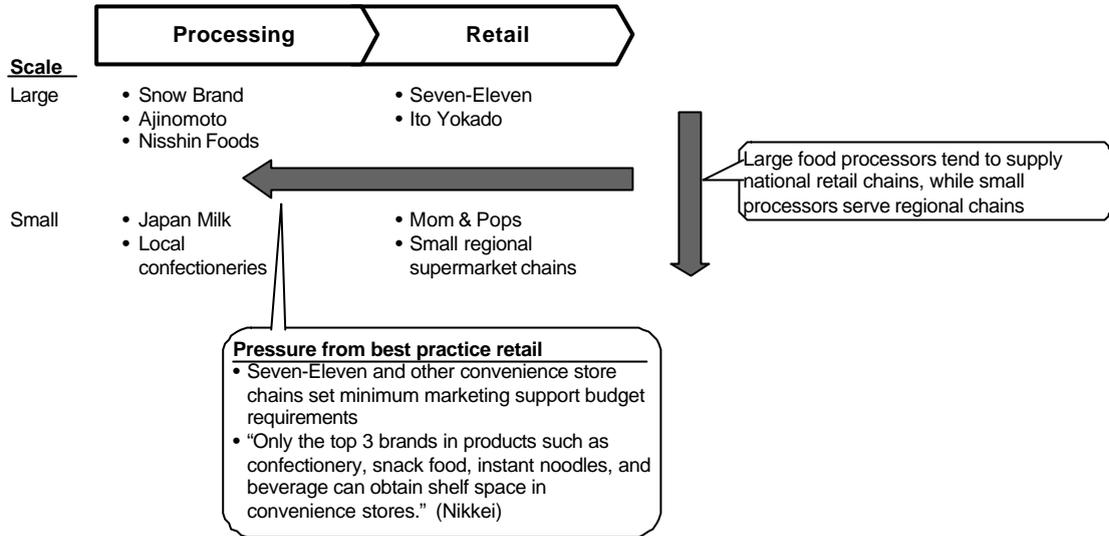
Exhibit 21

POSITIONING AND STRATEGY OF FOOD PROCESSORS - WINE EXAMPLE



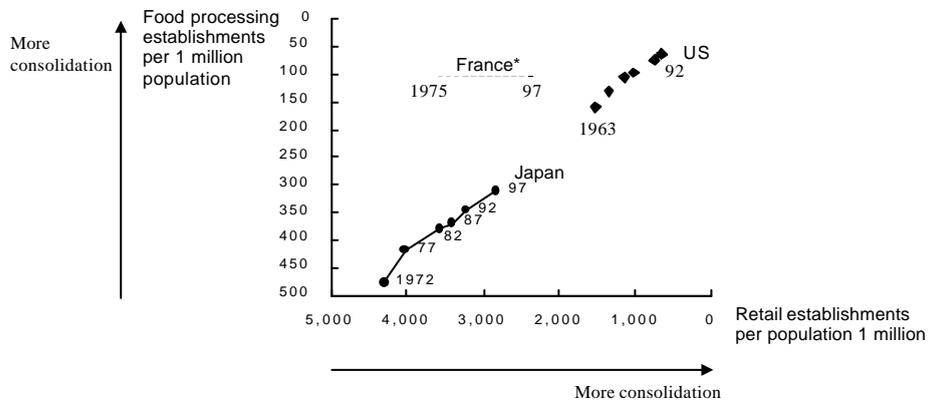
Source: The Economist, December 18, 1999

Exhibit 22
CONSOLIDATION AND RATIONALIZATION ACROSS THE FOOD BUSINESS CHAIN



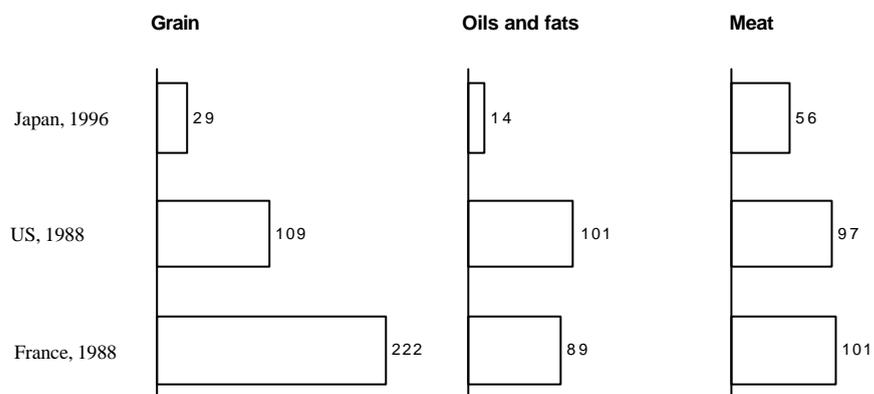
Source: Interviews; Nikkei Sangyo

Exhibit 23
FOOD PROCESSING AND RETAIL CONSOLIDATION



* Estimate
 Source: Census of Manufacture; Economic Census; Census of Commerce (Japan); Census of Retail Trade (US); AGRESTE

Exhibit 24
SELF SUFFICIENCY RATIO OF SELECTED AGRICULTURAL PRODUCTS
%



Source: "Japan Agriculture Handbook, 1999" (MAFF)

Residential Construction

EXECUTIVE SUMMARY

Industry overview. Residential construction is one of the largest economic sectors, accounting for about 4% of Japanese employment. The market consists mostly of very small rental flats (34% of output) and single lot family homes (38% of output), as opposed to the US where 59% of output consists of houses built as part of large scale developments. Low productivity, high land costs and the lack of a secondary market are forcing Japanese to save more and longer before they can enjoy owning single family houses (smaller than their US counterparts).

Productivity performance. The overall productivity of the sector is estimated at 45% of the US level. Productivity in single family housing (SFH) is at 33% of the US level compared to multi family housing (MFH) at 60%.

Operational reasons for productivity gaps. The main sources of the productivity gaps across all segments are the lack of large scale developments and the lack of standard designs, methods and materials. The comparatively lower productivity in SFH is due primarily to poor organization of functions and tasks (OFT) particularly in the traditional “post and beam” segment which accounts for 80% of employment in SFH. In addition, most SFH uses very inefficient sales techniques. For MFH land acquisition is slow and difficult.

Industry Dynamics. The residential construction industry in Japan is very static with little change in market share across construction types or players. Companies are reasonably profitable and wages are relatively high so there has been little pressure to change. There have been very few new productive successful entrants either foreign or domestic. Price competition is quite limited; instead firms compete on customization and reputation.

Important external barriers to productivity and output growth. The lack of price based competition and the lack of standardization of construction materials and methods are the main causes of low productivity. The lack of price based competition is the result of a missing secondary housing market, the small proportion of large scale developments and the lack of suitable MFH. The key factors restricting growth of these markets are the lack of public transaction information, the Government Housing Loan Corporation’s lending policies (which favor new housing), the tax system (which increases the cost of transacting in the housing market and decreases the cost of holding land) and the zoning codes (which hinder development of MFH).

Residential construction

The purpose of this case is to derive policy implications for improving the performance of the residential construction industry in Japan. To do so, we benchmark the productivity performance of Japanese residential construction against the US, the best practice country in residential construction. We then seek to understand the main barriers to productivity improvements and ultimately draw conclusions on the actions needed to improve the sector's economic performance in the future.

We start with an overview of the industry and then present productivity performance comparisons. The causes for the productivity gap with best practice are then explained at both the operational and the external factor level. Finally, we discuss the future outlook for the industry and make policy recommendations.

INDUSTRY OVERVIEW

The construction industry is a very significant part of the Japanese economy; in 1998 it accounted for approximately 10% of GDP and employment. The construction industry consists of three sectors: residential, commercial and non-residential public construction. This study focuses on residential construction, which accounted for a third of total construction output.

Industry output

Output in residential construction in Japan is very different than in the US. We discuss these differences across three separate categories: new construction, housing stock, and housing quality.

¶ **New construction.** Until recently, output in residential construction, in terms of new construction units, has been quite high (Exhibit 1). In fact, new construction units per capita are over 50% higher in Japan than the US. There are four factors which contribute to this high level of output: low interest rates, government support, high savings and the lack of a secondary market (explained later), which results in a lot of scrap and rebuilds as opposed to remodeling (a very small segment in Japan). However, from 1996 to 1998 the number of new residential construction units declined by 30%. This was due in large part to the sluggish economy, fear of losing jobs, uncertainty of future land prices and the rise in the consumption tax. Despite this drop, Japan built more dwellings per capita than the US in 1998, but this measure does not provide the full picture. We estimate that total output, in terms of

square meters per capita, in Japan is only at 62% of the US level (Exhibit 2). To make this comparison two adjustments must be made:

- The first is to take account of the relative size of dwellings. The average size of new dwellings is almost twice as large in the US.
- The second is to adjust for remodeling. In Japan homes are not maintained or remodeled, they are knocked down and rebuilt whereas remodeling is a large part of the US market.

¶ **Housing Stock.** Another way to compare US and Japan is housing stock per capita. Here we see an even wider gap, with Japan at 55% of the US level. This reflects two things; first, the number of dwellings per capita is 9% higher in the US than Japan, second, the size of housing in Japan is much smaller (Exhibit 3). Both owner occupied and particularly rental housing are significantly smaller in Japan than in the US. The impact on quality of life is quite noteworthy when you combine the poor quality and small size of rentals with the fact that the age at which people move into (smaller) owner occupied housing is much later in Japan than in the US (Exhibit 4). A view over time of the housing stock and the average size of newly built units combine to tell us that the narrowing of the gap in terms of stock per capita has slowed substantially. Firstly, the stock of SFH is unchanging (despite a high volume of new construction which means these are mostly rebuilds). Secondly, the stock of MFH is increasing but as we have seen, the size of these units is very small (Exhibit 5). Thirdly, the average size of units for both SFH and MFH has stopped growing (Exhibit 6).

¶ **Quality.** The 1998 Survey on the Demand for Housing conducted by the Japanese Ministry of Construction found that 48% of households were dissatisfied with their housing conditions; the primary reasons were concern for elderly, soundproofing and insulation, inadequate space, general wear and tear and inadequate air conditioning and water facilities. This dissatisfaction is partly reflected by the average age of housing demolished in the first half of the 1990s; around 26 years in Japan compared to 44 in the US (this also reflects the lack of a secondary housing market and home maintenance in Japan). However, there has been a marked improvement in the quality of housing built after the early 1980s. In 1983 the building code was revised forcing an increase in quality and durability of housing and in 1996 the Government Loan Housing Corporation implemented a program to provide preferential interest rates on loans for high quality housing. These two changes when combined with the dramatic demonstration of poor housing structure by the Kobe earthquake in 1995 has provided strong incentives for the industry to improve the quality of new construction.

Housing mix and industry structure

When we compare the mix of new residential construction in Japan with the US we find two notable differences (Exhibit 7). First, in Japan construction starts are evenly split between single family and multi family housing as opposed to the US where about 80% of starts are SFH. Second, large scale developments account for approximately three quarters of single family housing built in the US vs. at most 20% in Japan. In the US these developments are typically built by medium sized developers (building on average 100 houses a year). In contrast in Japan, the majority of single family homes are custom built one by one using the highly inefficient traditional post and beam method (discussed later).

To gain a better understanding of the structure of the industry, it is helpful to split output in Japan by construction methods (Exhibit 8). For our analysis we use four major groups as follows:

- ¶ **Traditional wooden post and beam single family houses.** Almost 70% of single family housing is built using the traditional post and beam method. The size of this segment has been decreasing slowly over time. Companies in this segment are quite small; individual carpenters building less than ten houses a year produce half of the output. These companies are generally family owned and passed down from generation to generation.
- ¶ **Prefabricated single family houses.** Prefabricated SFH is partially built in a factory assembly line process and then transported to the construction site for final assembly. In Japan the majority of this housing is built with steel as opposed to wood. The demand for prefabricated housing comes primarily from urban areas; three quarters of total prefabricated housing is built in the three largest metropolitan areas (Tokyo, Osaka, and Nagoya). Unlike the other segments, the prefabricated housing segment is quite concentrated with the top five companies holding a 73% share of the market.
- ¶ **2X4 single family houses.** The 2x4 construction method is widely used in the US, accounting for the large majority of new housing built in 1998. Introduced in the 1970s in Japan, it is still a small share of the Japanese market at 9% of single family housing.
- ¶ **Multi family housing.** Multi family housing starts in Japan consist of 69% rental units, 29% condominiums and 2% employee housing. Rental buildings are on average very small with 2 floors and 2 units per floor. Condominiums tend to be somewhat larger averaging over 5 floors per structure. Rental units are generally built by construction companies contracted by landowners whereas condominiums are built by developers who buy the land and then sell all the units.

APPROACH AND PRODUCTIVITY PERFORMANCE

We will now benchmark the performance of the Japanese residential construction industry against that of the US. To gather the necessary data we conducted extensive interviews and a comprehensive literature search. We then segmented the industry (as described above) into four different groups to allow us to capture the nuances relevant to each one; we also made adjustments for relative quality levels between these groups and their US equivalents. Finally, we calculated productivity gaps across groups; the breakdown of these gaps will be discussed in the next section. We will now explain these steps in detail.

Data source

It is difficult to accurately measure productivity in this industry using value added per hour worked, since reliable data are not published specifically for residential construction. We therefore use a physical productivity measure defined as output in square meters per hour worked. Our primary source of productivity estimates is from twenty one company interviews. In addition, we confirmed these numbers with aggregate data from the Management and Coordination Agency and various studies done in both the US and Japan (see Appendix B for bibliography).

Quality adjustment

Clearly this square meters (sqm) measure does not capture quality differences between Japanese and US housing. Coming into this study we expected to make a large quality discount for Japanese housing because in engineering terms there remain differences in terms of insulation, heating, structural integrity and so forth. However, the market test of people's willingness to pay shows that people are trading off these features to get Japanese style customized homes. An average US style house (e.g. 2x4) sells for 180,000 yen /sqm in Japan which is close to the average price for post and beam (Exhibit 9). In fact, the average price of prefab and 2x4 in Japan are above this level; we have therefore adjusted productivity measures up slightly for these segments in Japan compared to the US (thereby adjusting for the added benefit to the consumer provided by more customization in Japan).

Productivity results

We estimate labor productivity in the Japanese residential construction industry to be on average at 45% of the US level (Exhibit 10). This average is weighted by employment across segments. Productivity performance varies widely across different types of construction methods, with post and beam being the lowest at 30% of the US and multi-family housing the highest at 60% of the US. There has

been very little change in these productivity levels over the past ten years. In fact we estimate the yearly growth rate to be less than half a percent on average with a maximum rate of 1.5% in the post and beam segment.

REASONS FOR THE PRODUCTIVITY GAP AT THE OPERATIONAL LEVEL

The 55 point productivity gap is caused by the combination of several operational factors, the most important of which are poor organization of functions and tasks, low scale at the construction site, the lack of design for manufacturing, and inefficient selling techniques. Exhibit 11 shows a summary of the operational causality across segments; Exhibit 12 breaks down the key issues by segment. Appendix A provide details of the operational causality for each type of residential construction separately. Please refer to these exhibits if interested in detailed, segment specific explanations of the productivity gaps. Below we discuss each of these operational factors (in decreasing order of importance).

Poor organization of functions and tasks (OFT)

The lack of OFT, primarily in the form of project management, accounts for 17 points of the productivity gap. There is a lack of sophisticated management techniques in residential construction in Japan, particularly in single family housing. Most managers have backgrounds in architecture or engineering and are not trained in management techniques.

The lack of construction management in Japan manifests itself in four ways. First, there is very little scheduling done which means that the crews and supervisors work without a firm deadline. This in turn implies that individual tasks aren't assigned a specific duration resulting in uncoordinated and delayed work. In fact, builders often increase their staff by three fold in the last two weeks of the job to make a deadline. Second, the incentive structure is not conducive to an efficient work process. Workers are paid by the day instead of by output providing little incentive to work hard. Thirdly, mobilization on the site is poorly handled. Building materials and equipment are placed on the construction site without thought of their future use resulting in a need to relocate materials multiple times before they are actually used in construction. Fourth, organized teams of specialized laborers are not commonly used. As a result, workers tend to take on many different tasks as opposed to the US where teams of specialists are put together so that each task is done with optimal quality and speed.

An OFT issue which applies only to prefabricated housing companies is over staffing at the factories. This low capacity utilization accounts for 5 points of the

productivity gap (Appendix A2). The sharp drop in demand over the last couple years has resulted in over-capacity at some of the factories. These companies have not yet found it necessary to adjust their staffing levels downward.

Low scale

The low scale on the construction site explains 15 points of the productivity gap. It also indirectly contributes to other problems (design for manufacturing (DFM), some aspects of OFT, and selling). Almost 80% of single family homes in Japan are built on a stand-alone basis, i.e., only one house per construction site, and are custom-designed. In contrast, 75% of homes in the US are built on large scale developments with many similar houses per construction site. The US approach can generate significant economies of scale through more efficient construction site management (in particular, less idle time due to careful scheduling of tasks and special trade and better utilization of equipment), more efficient material flow, reduction of overhead costs such as architect fees and supervisory salaries and more efficient labor as a result of task repetition and increased specialization. In fact savings of 15% can be achieved by building 20 houses/site and savings of 25% are achieved by building 50 houses/site (Exhibit 13). This is also true for the MFH segment where buildings are generally smaller in Japan than in the US.

Lack of design for manufacturing (DFM)

The lack of design for manufacturing accounts for 14 points (i.e. 25%) of the productivity gap. DFM involves the adoption of standard designs, methods and cost competitive materials. Benefits from DFM come from changes both at the construction company as well as from the materials suppliers. There is very little implementation of DFM in Japan; this is most apparent through the inefficiency of design and the lack of standardization.

¶ **Inefficient design.** The large majority of housing in Japan is customized which requires enormous numbers of designers and architects. In fact, the large prefab companies which produce tens of thousands of homes a year have 2000-3000 designers and architects on-staff which accounts for around 20% of total employees. These designers spend most of their time accommodating requests for customization (including constantly changing preferences from the customer), as well as bi-annual design changes. In addition, the structural systems used for construction are quite complicated and not conducive to optimizing the cost and efficiency of designs. For example, the post and beam method uses an intricate joint system which requires a long time to assemble.

¶ **Lack of standardization.** At a broad level there are three different SFH construction methods in Japan: post and beam, prefab and 2x4. However, within each of these methods there are enormous variations (Exhibit 14). In the post and beam segment, there are more than 150 different dimensions for posts and beams, which tend to vary by region. In the prefabricated housing segment each different company has its own proprietary construction system. In the 2x4 segment there is the US style 2x4 method as well as a Japanese style, which is essentially a modification of the US system. This is in sharp contrast to the US where wood frame construction techniques are standardized on the 2x4 method, allowing workers to develop efficient techniques as well as permitting a fluid labor market across the country.

These different systems require both different skills and materials reducing the fluidity and competitive intensity of the labor market and standardization in the materials market. The lack of standardization in the materials market reduces the potential for economies of scale in component manufacturing as so many different types of components are required to suit different methods. This also affects the repairs market (and indirectly the secondary housing market, discussed later) by complicating acquisition of the correct materials for a particular system.

There have been some efforts to streamline the construction process; however, they have had limited impact. Firstly, approximately 40% of small carpenters are now using precut wood which they either buy from factories or cut themselves in their own factory. Secondly, franchise chains (FCs) are emerging. These companies provide traditional post and beam franchisees with standardized design plans, savings on materials purchasing, and training seminars. However, the success of these franchise chains hinges on the ability of the franchiser to coordinate large numbers of fragmented players and the multitude of systems effectively limits the number of companies a FC can target. Thirdly, the Ministry of Forest and Fisheries and the GHLC cooperated to reduce the number of different sizes for post and beams. But they only managed to reduce it from 300 to around 150.

Inefficient selling

The use of inefficient selling techniques accounts for 4 points overall (15 points of the gap for prefab, Appendix A2). The main method of marketing for the large housing companies in Japan is the use of large sales forces and expensive model home parks. Homes in these parks are never sold and on the contrary are knocked down and rebuilt every few years to keep up with the latest designs. These model parks consist of builders showcasing very lavish versions of their homes with a large sales staff at hand to push the consumers to buy these homes. The sales staff spend their time convincing the consumer to add more and more

expensive features to replicate the extravagant model home. This staff is very inefficient, selling only around 8 houses a year, and use less than salubrious techniques. In fact, they spend a large part of their time making house calls to convince the owners they should have their house knocked down and rebuilt even if their house is in perfectly acceptable condition. This is in stark contrast to the standard US method of build to sell. Sales and marketing accounts for only around 4% of the house price in the US vs around 20% in Japan.

The post and beam segment is slightly more efficient in terms of sales techniques. The market for traditional homes is very local, as a result, prospective buyers often ask their neighbors and friends about local builders' reputations. Therefore, much of the business for traditional builders comes from word of mouth and trust (built over many generations).

In the condominium market, sales techniques are also quite inefficient. Model rooms are often built off site and staffed with a large amount of sales people, as opposed to having a modestly staffed show room using one of the units on the construction site as in the US.

Inefficient land acquisition

This accounts for 4 points of the gap and is mostly relevant for the MFH segments (Appendices A5 and A6). Land acquisition for condominium developers is quite difficult. They generally seek prime locations in city centers or conveniently located lots near train stations. There is fierce competition for these lots and as a result a large amount of resources are committed to acquiring this land.

The issue for rental construction companies is somewhat different. The competition in this segment is for commitments from landowners to build on their site. Rental companies often spend up to six months to acquire a contract from one landowner.

Poor skills

This accounts for 1 point of the productivity gap overall as it is relevant only to the 2x4 segment (where it accounts for 10 points of the gap, Appendices A3 and A4). Specialization for tasks required by the 2x4 method, such as framing and drywalling, lead to markedly greater efficiency. However, in Japan carpenters often take on all these tasks resulting in many inefficiencies. For example, carpenters do not possess the required skills for hanging, taping or finishing interior walls, skills which are critical to successful drywalling. As a result, Japanese interior walls are often poorly finished and therefore covered with vinyl wallcovering. The core of the problem is the lack of a supporting system for efficient use of 2x4. Part of this system, in the US, consists of a fluid and well-trained labor force. In other words, the existence of a large pool of workers with

skills which are applicable across the country and across different companies. The system also requires industry norms for construction methods and provision of materials. The lack of this supporting infrastructure hinders growth of this potentially very productive segment in Japan. However, a few very large 2x4 companies (e.g. railway companies) have managed to build and retain most of these skills internally (through the development of training schools) over the years and thus achieve productivity level close to the US at around 85% (Appendix A3).

INDUSTRY DYNAMICS

Competition among existing players in the residential construction industry in Japan is based largely on factors other than price. In this environment, pressures to cut costs and improve efficiency are weakened. Firms with high prices and low productivity are not driven from the market, or forced to improve their performance, which leads to low aggregate productivity.

Single Family Housing

Competitive intensity in the single family housing segment is minimal. This is the result of both a low level of competition between domestic firms as well as very little foreign direct investment. However, the lack of domestic competitive intensity is the central issue, as residential construction tends to be a domestic industry around the world. These two issues are discussed below in turn.

¶ **Domestic competitive intensity.** The single family housing industry in Japan is very static; productivity growth is very small (i.e. less than 0.5% CAGR over the last ten years); shares of different housing types have been quite constant over time; likewise market shares of particular producers have remained roughly constant. Productivity is only growing (albeit slowly, i.e. 1.5% a year) in the traditional post and beam segment. This is because of the increased use of precut wood, more the consequence of aging carpenters than of competitive pressure. In some cases productivity even went down as large prefab companies suffered from the drop in demand in 1998, with their factories and sales force operating at well below capacity. None have yet consolidated production levels nor reduced staffing.

Competition in the residential construction industry generally takes place within small regional markets. In Japan this competition does not take place on price but rather on product offerings, servicing and reputation. In fact, some of the large scale SFH developers are price discriminating based on income, a compelling sign of strong market power and little price competition.

Sales in the large traditional post and beam segment are commonly based on long term relationships with the builder or a good reputation in the local community. In stark contrast, competition for customers in the prefabricated housing segment takes place through the use of a large push sales force. Despite the inherent inefficiency of this sales method, these companies face little reason to change. In fact these large housing makers are currently quite profitable, and it is not clear whether moving from a heavy push sales force selling features and customization to streamlined selling techniques based on price competition would be profitable. Whether or not these firms would become more profitable is dependent on how sensitive consumers are to price changes. Dropping their prices and reducing their margins would require a large increase in sales volume to maintain the current level of profitability. This would therefore be somewhat of a risky strategy to pursue; given their current level of profitability, these companies see no need to start a price war.

A new format in the form of franchise chains (in the post and beam segment) has emerged in the last ten years. The franchisees consist of local traditional home builders. The purpose of these franchise chains is to save on materials purchasing, standardize designs and provide training seminars. Houses in this segment are priced significantly below the price of independent traditional builders; however the quality of these homes is perceived to be significantly below that of independent builders. Output in this segment accounts for only 4% of SFH.

- ¶ **Exposure to best practice.** There is very little FDI in this industry in Japan. US companies were interested in the market in the 1980s and early 1990s but faced many difficulties. Firstly, land acquisition for large scale developments proved to be very difficult without the right connections. Subsidiaries of railway companies have been the only significant developers of very large scale SFH and have in fact reached quite high levels of productivity in doing so. Secondly, these US companies found it hard to find the skills they needed in the local work force and therefore needed to import labor. This was costly and difficult to coordinate in terms of integrating the mix of US and Japanese crews required to satisfy various regulations. For example, it was previously illegal for non-Japanese workers to pour concrete. Thirdly, US companies found it difficult to break into the cozy supplier structure. Lastly, the rigid regulatory environment complicated (until recently) the use of imported materials and foreign labor. Although some of the barriers have been relaxed, few US companies have shown renewed interest in returning to Japan due certainly in part to the current construction boom in the US.

Multi Family Housing

Competition in the large MFH market is somewhat stronger than in SFH. But it is based mostly on “courting” unsophisticated and small landowners (rentals) or acquiring land (condominiums). Because condominiums are constrained to expensive city center areas, they tend to be sold based on design rather than low price. In addition, the condominium market has enjoyed little competition from the rental segment which supplies mostly small and unattractive units. As a result, the condominium market is quite stagnant; the top players have changed very little over the recent past.

EXTERNAL FACTORS LEADING TO LOW PRODUCTIVITY

In this section we discuss how the external factors (i.e., regulations that could be changed by the government) interact to result in low and stagnant productivity in the Japanese housing industry. To relate the external factors to the operational causality, we look at the sources of potential productivity improvements. Exhibit 15 shows that the large majority of the improvement will come from improvements within each format as opposed to a change in the mix of formats. We will therefore focus our discussion on productivity improvements within each format. The main levers to accomplish this increase in productivity are stimulation of price competition (all formats), standardization of construction methods and materials (mostly post and beam) and relaxation of the zoning codes affecting MFH (Exhibit 16). Various other factors discussed briefly (building codes, labor market, consumer preference) do not contribute much to low productivity. Exhibits 17 and 18 summarize the relative importance of all these factors.

Factors leading to the lack of price based competition

There are three main reasons we do not see price based competition in this industry in Japan. First the lack of a secondary housing market, second, the lack of large scale SFH developments, and third, the lack of suitable MFH. Builders of new SFH, being protected from the lack of these potentially cheaper alternatives, are under no pressure to keep prices down. Instead, they entice consumers to buy expensive new customized SFH.

- ¶ **Lack of a secondary housing market.** The secondary housing market in Japan is very small. There are seventeen times fewer transactions per dwelling in Japan than in the US and 7 times less than in France (Exhibit 19). These numbers are reflected in the fact that Japanese consumers buy only one house only in a lifetime as opposed to the US where it is common to live in 5 or 6 different houses (Exhibit 20). The problems in this market are highlighted by the actions of one of the

large prefabricated housing companies, which offers to buy back their homes in exchange for the purchase of a new home. They then renovate the old house and sell it themselves.

The presence of the secondary market would have two major benefits. First, it would put direct price pressure on new home builders by increasing the supply of cheaper (used/remodeled) houses. Second, the increased number of transactions would enlarge the amount of information available to buyers. It would therefore make it easier for consumers to make judgements on the value and price trade off between the primary and secondary market. The lack of this market increases the difficulty for new low priced entrants to gain market share as customers don't trust the low price and cannot effectively evaluate the tradeoff between price and quality.

The small size of this market in Japan is due primarily to the lack of price/quality information, tax disincentives and less favorable financing terms. These factors are more important than the low quality of the housing stock and low mobility.

- **Lack of price/quality information.** The government in Japan is unwilling to make housing information readily available. It does not disclose housing sales price information (on the sales deed) and it only publicly releases property assessment records every 3 years despite making yearly updates. This lack of information combined with no standardized and widely accepted method of appraisal makes it very difficult for consumers to accurately assess housing values. In contrast, in the US, data on new and used houses is freely available and regularly reported in the media, in addition, there are well established industry norms for appraisals based on price comparisons. This lack of information in Japan has two major consequences.
 - Comprehensive information on prices and quality are a basic requirement for any market to function well. Without it, buyers and sellers will be reluctant to participate in the market and the supply of high quality goods will be constrained. If buyers in Japan cannot distinguish between low and high quality homes, they will not be willing to compensate sellers of high quality homes with a quality premium. In addition, since no price information is available, the appropriate premium is not obvious. As a result, sellers of high quality homes will not be willing to sell at what they consider an unfair price. The direct consequence of this lack of information is therefore a preponderance of low quality houses for sale and low transaction volumes.

This situation differs drastically from the US, a well functioning and thick market with freely available information. In these circumstances, price itself can play a very important role as a signal of quality.

Standardization of appraisal methods in the US was largely the result of the strong position held by Fannie Mae in the secondary mortgage market. Fannie Mae was established in the 1930s by the US federal government to expand the flow of mortgage money by buying Federal Housing Administration (FHA) insured mortgages. In the 1970s Fannie Mae's buying authority was expanded to conventional mortgages. Fannie Mae's can dictate standards for mortgages through its power as a large buyer. For example, the housing value appraisal forms created by Fannie Mae are commonly used throughout the industry, setting an industry norm and resulting in a standardized and widely accepted appraisal valuation method.

- The lack of pricing information makes it very difficult for banks to base their house valuation on the sales of comparable homes (they use this valuation to determine the size of the mortgage). They therefore primarily use a cost plus fixed depreciation approach (which does not take into account home maintenance) to valuing homes where wooden houses are devalued at a rate which assumes the home is worthless after 35 years. As a result, the banks often value used homes substantially below their market value thereby imposing an artificial limit on the price the borrower is able to pay for the house. This in turn distorts pricing in the secondary housing market.
- **Tax disincentives to buy and sell existing houses.** Another important barrier to the development of the secondary market is the capital gains tax. It is very high in Japan for short holding periods resulting in a lock-in effect (a minimum rate of 40% if the property is held for less than a 5 year period, as opposed to 14% for more than 10 years vs. the US with a maximum rate of 20%). In other words, a higher tax rate for shorter holding periods encourages people to hold their property longer before sale. This contributes to the disincentive to sell used homes. Transaction taxes are also very high, providing a disincentive for many housing purchases and sales over a lifetime. In addition, the rate is substantially higher for existing homes than new homes (i.e. registration tax is 5% vs. 0.3% of assessed value).
- **Less favorable financing by the GHLC.** The GHLC provided public funding for 32% of new housing built in 1998. Interest on these loans is generally lower than that of commercial financial institutions. The GHLC favors lending for new homes; 96% of the loans it provided

for the purchase of owner-occupied housing were allocated to new homes as opposed to used homes. It provides a higher upper limit on loans for new housing, and houses over 20 years old are not eligible for loans. It also charges a higher interest rate on loans for used homes and gives a shorter repayment period. In comparison in the US, terms for new and used homes are identical. This bias towards new housing by the GHLC restricts the growth of the secondary housing market. The GHLC has announced plans to equalize these conditions for used homes in “excellent” condition.

- **Less important factors restricting the size of the secondary market.**

- **Low labor mobility.** A comparison with the US proves the relative unimportance of this factor. The US has a very high turnover of housing; however, 66% of moves in 1998 were within the same area (Exhibit 21). Furthermore, only 10% of moves into an owner occupied residence in the US were due to a new job or job transfer. This is confirmed by the fact that France manages to combine a large secondary market with low population mobility.
- **Low housing stock quality.** Half of the stock was built after 1980 when quality had improved markedly, thereby providing a good size supply of tradable housing (Exhibit 22).

¶ **Impact of lack of large scale SFH on price competition.** Being potentially much cheaper (see Exhibit 13) to build houses in large scale developments, this segment would also put pressure on the market thereby inducing price competition. Large scale SFH accounts for only 5% of output in Japan as opposed to 50% in the US because of the following three reasons (Exhibit 23). First, the share of large scale developments (as opposed to small scale new developments) is much smaller in Japan. The supply of large land plots is limited because of tax disincentives to sell property (property tax and inheritance tax), land fragmentation (urban development law) and the barriers to edge cities. Second, the share of new houses built on new development as opposed to rebuilds is lower in Japan because of the lack of a secondary market. Third, the share of MFH is higher in Japan because SFH is relatively more expensive as a result of higher land costs. We will discuss each of these factors in turn.

- **Property tax.** The effective property tax rate in Japan is very low compared to the US. This low rate encourages people to treat land as an asset (even if grossly underutilized) by reducing the cost of holding low return land. This reduces liquidity in the land market and increases the price of land. The range for this tax is set nationally averaging 1.7% of the “assessed value” of the property. However, this assessed value is determined by the prefectures and is

generally substantially below the market value. Thus we see rice fields and run down SFH in the middle of Tokyo. These assets have a high “emotional” value to their (older) owners who are not forced to sell (i.e. low property tax) and who would have little use for a cash lump sum, as opposed to holding on to assets which are also an efficient vehicle for inheritance tax purposes.

- **Inheritance tax.** The structure of the inheritance tax encourages individuals to hold on to their land to reduce their descendant’s tax burden. This is due to two reasons. First, land is undervalued for the purpose of determining the inheritance tax as opposed to other assets which are fully valued. Second, small properties (less than 200 m²) qualify for large exemptions to the tax. This tax system contributes to a lack of liquidity in the market for land. As a result, in Japan land accounts for a much higher proportion of total bequests (67%) than in the US (25%).
- **Urban development law.** The current urban development law stipulates that the local government can give an approval to a large scale development in urban areas if two thirds of the residents agree. In practice, though, the local government does not approve unless a consensus is reached making it hard to amass a large land plot.
- **Barriers to edge cities** reduce the demand for large scale housing developments outside of city centers. There are three main barriers.
 - First, there are few financial incentives for the local government to participate in the development of edge cities. This is primarily due to the extremely low property taxes which would not be of much help in financing land acquisition (which are high due to fragmentation) or infrastructure investments which need to be made to undertake such a project (e.g. schools and sewage).
 - Long distance telecom pricing in Japan is very high. This provides a strong disincentive for companies to move out of the city center. For example, the prefectural government in Okinawa, the large island in the south of Japan, has had to pay 80% of telecom fees to attract companies out of large Japanese cities.
 - The large scale retail law is a barrier to large scale retail development. This is one of the key elements of an edge city. In the US the sequence of development generally consists of building roads, then retail developments, then residential areas. Therefore, the lack of these retail areas in Japan inhibits development of a fully functional edge city (housing, retail, commercial).

¶ **Impact of lack of suitable MFH on price competition.** Increasing the supply of MFH could further spur price competition in the market. The combination of expensive land with unproductive builders of single family houses should have opened the door wide for productive large scale MFH. However, two external factors have hindered development of this market. Large rental apartments are not readily available due to the land and building lease law. Although this law has recently been changed, strict zoning codes will continue to limit the supply of floor space and maintain the high cost of housing.

- **Zoning codes.** The zoning codes regulate the use, density and form of a building. Specifically, maximum floor area ratios (FAR) and building coverage ratios (BCR) impose severe restrictions on the height and size of buildings. The average floor area ratio in Tokyo is 247% and the average number of stories is very low at 2.3.

In addition, sunshine laws require that houses in residential areas receive a certain period of sunshine each day thereby further restricting the height of buildings for new construction. This prevents full use of the already strict zoning codes. Only 53% of the available FAR is utilized in Tokyo (47% and 86% for SFH and MFH respectively). One of the results of this law is to require the acquisition of larger plots of land to build taller buildings, thereby contributing to increasing the costs associated with building condominiums.

- **Land and Building Lease Law.** Until March 2000, this law stated that if tenants wanted to continue living in their rental units then the landlord could not refuse to renew the contracts without having an appropriate reason for doing so (such as moving into the apartment themselves). This in turn made it very difficult for landlords to raise rent since they had very little recourse (i.e. they could not kick the tenant out) if the tenant chose not to pay. Landlords therefore purposely built low quality, small rentals to discourage tenants from staying very long, thereby restricting the availability of large good quality rental accommodations in Japan (see Exhibit 3). The main target in the rental market, therefore, has been high turnover tenants such as students or young couples who only want an apartment for a short period. Nonetheless, as a result of this law, renters in Japan have tended to stay in their units for far longer than in the US.

A fixed-term rental system was approved by the Diet for new contracts and took effect on March 1, 2000. Under this new system landlords can terminate the contract when it expires without having to state their reason for doing so. The change in the law is expected to radically change the rental market in Japan. Landlords will now have an incentive to build higher quality larger apartments which

will compete both with condominiums and single family housing. Nonetheless, the law will not apply to current tenants who will still have no motivation to cut short their rental agreement.

Standardization of construction methods and materials

The lack of standardization will slow down the diffusion of best practice across the all-important post and beam segment, even once price competition is introduced. The lack of standardization in the prefab segment will also limit productivity improvements (by reducing competitive intensity and fluidity in the materials and labor markets). In the US, government led standardization in construction methods has had substantial benefits which have not been realized in Japan. Standardization in the Japanese housing construction industry is unlikely to be a market outcome because none of the key factors which generally encourage standardization -- few large players on the demand or supply side and/or powerful network effects -- are present. Rather, the Japanese housing industry is localized, fragmented and there are a large number of entrenched players making it difficult for a standard to emerge on its own despite the potential for substantial cost savings through coordination on materials, design and construction methods.

¶ In the early 1900s the US was in a similar situation to present day Japan in the sense that each geographic region had slightly different sizes and grades of lumber as well as different construction methods. In 1922 the US Department of Commerce met with large purchasers of lumber in order to standardize sizes and grades of lumber. Publication of this standard was the key first step to allowing development of standardized construction methods across the country. Following this initial thrust, many associations were created both by the government and by private interests to study and implement efficiency and standardization throughout the construction industry. These efforts had a remarkable influence on the market; for example brick went from forty-four sizes to one. Another example is the development of a modular measure as a metric for materials and all building components developed through coordination of the American Standards Association, the American Institute of Architects, the Producers' Council and the National Association of Home Builders. The FHA (Federal Housing Administration) was also involved by setting guidelines for home design. Developers have an incentive to satisfy FHA guidelines both to increase the willingness of banks to provide them with financing as well as increasing their set of potential customers. Therefore these guidelines quickly became the norms for the home building industry. In addition, the FHA was instrumental in reducing housing production costs and weeding out substandard products through the establishment of ratings procedures. Although

government intervention served its purpose well in the US, it took place at an early stage in the development of the industry. Imposing standards on a mature industry is quite a different challenge. An additional difficulty in Japan is gaining acceptance of the standard by a large number of small custom home builders who are likely to resist standardization. In the US, the challenge was lessened by the large proportion of speculative builders with much stronger incentives to adopt the standard.

- ¶ Designing a system with strong enough incentives to encourage adoption will be quite challenging in Japan. One way could be through the GHLC, which currently provides mortgages for 32% of new construction. Japan does have some successful experience in imposing standards on the market. Prior to the 1960s, the metalworking industry in Japan had numerous small producers with highly differentiated products and markets and a resulting low level of competition. However, beginning in the 1950s and continuing into the 1970s, the Japanese government encouraged industry consolidation and product standardization resulting in a fiercely competitive industry with standardized products. On the contrary, the US machine tool industry remained characterized by numerous, small producers with highly differentiated products and little pressure to consolidate or standardize. These companies believed that standardization would destroy the value in their customized products and the government was unaware of local or product monopolies. However, unlike in residential construction, the metalworking industry came under the pressure of powerful downstream players, for example the auto industry, which also contributed to acceptance of these standards.

Direct productivity impact from removing barriers to large scale MFH/SFH

In addition to increasing price based competition, and encouraging standardization, removing the barriers to large scale MFH and SFH would directly increase aggregate productivity by increasing the productivity of MFH and by increasing the share of large scale SFH, the most productive SFH segment.

- ¶ Relaxed zoning codes would allow an increase in the scale of MFH projects and make land acquisition more efficient. This would increase the productivity of the 36% of construction workers involved in MFH by 30% (see Exhibit 16, Appendices A5 and A6).
- ¶ Removing the barriers to large scale SFH development (property and inheritance taxes together with urban development law and barriers to edge cities) would directly increase productivity. A four fold increase

in the size of the large scale SFH (raising its share to 20% from 5% as opposed to 50% in the US) would increase the overall sector productivity by more than 5% (see Exhibit 15). The lack of land is not an insurmountable obstacle, the Netherlands, also a very small country in terms of land area per capita, has successfully managed to build 70% of its houses within large scale programs.

Non important factors

- ¶ **Building codes.** Building codes consist mostly of technical standards to ensure the structural safety, fire resistance and environmental sanitation of buildings. In the past, these codes served to unnecessarily increase the cost and difficulty of construction as well as complicate foreign entry. However, these codes were revised in 1998 from prescriptive to performance based and changes will take effect in 2000. This change may favor large housing companies in the sense that they have more resources to get the performance approvals needed (e.g. testing centers). It may also provide an increased incentive for carpenters to join franchise chains to jointly pursue design approvals.
- ¶ **Labor market.** The labor force in residential construction is aging rapidly. These older workers are harder to retrain (e.g. in new construction methods – to facilitate foreign entry, or in new management techniques – to improve on-site productivity), particularly since high existing salaries provide no financial motivation to do so. In addition, there is no national accreditation system for builders in Japan. Although the US does have such a system, most of the training is offered by union associations to which only 10% of the workforce belong. Therefore we do not think this is the solution. However, if price based competition is introduced, it will force some workers to adopt new techniques and the others to exit the market thereby solving the problem without any intervention.
- ¶ **Consumer preference.** It is commonly believed that Japanese consumers have an inherent preference for traditional custom homes and prefer to live in one or two highly customized houses in a lifetime. It is often said therefore, that as a result of these preferences, consumers are not price sensitive, which is why we don't see much price competition in the market. However, their attitude is more the result of the lack of price transparency and the lack of cheaper alternatives (used houses, large scale SFH and MFH) to expensive new homes.

FUTURE OUTLOOK AND POLICY IMPLICATIONS

Future outlook

If the government follows the policy recommendations outlined below, we think that dramatic changes in productivity will ensue. We believe that the key drivers will be price competition across all segments, standardization of construction methods and materials (particularly in post and beam) and the removal of the zoning codes constraining productivity in MFH. The specific mechanisms through which these productivity improvements will primarily occur are more design for manufacturing, better on-site management, more efficient selling techniques, and less customization (Exhibit 16). We also expect to see a format mix shift away from rebuilds, and small scale SFH towards large scale SFH and MFH.

In sum, we believe that productivity growth could be much higher over the next ten years (as opposed to 0.5% over the last ten years). In fact, Japan could reach the overall productivity level of 88% of the US in 2010 (see Exhibit 15). Productivity growth should be very high in the segments dominated by large construction companies (Prefab, 2X4 and MFH), where the sources of improvements are quite straightforward (i.e. marked downsizing of sales force and design departments and increased scale of construction). In the fragmented post and beam segment, productivity growth will rely on the rapid diffusion of cost effective design and construction methods. We have seen a successful example through the introduction of franchise chains of carpenters, who managed to increase their productivity at a rate of approximately 6% a year. The combination of these factors would amount to 7% productivity growth over the next ten years.

We would now like to consider future output and employment trends. The changes mentioned above will have two major effects. First an increase in productivity and therefore decrease in housing prices will increase demand for new construction. Second, an improvement in the secondary housing market will increase the demand for remodeling despite decreasing the demand for new housing. The growth potential in the remodeling market is quite high. Currently, the remodeling market in Japan accounts for only 8% of housing investment vs. 30% in the US. These factors would increase output markedly, limiting the possible decline in employment.

Policy recommendations

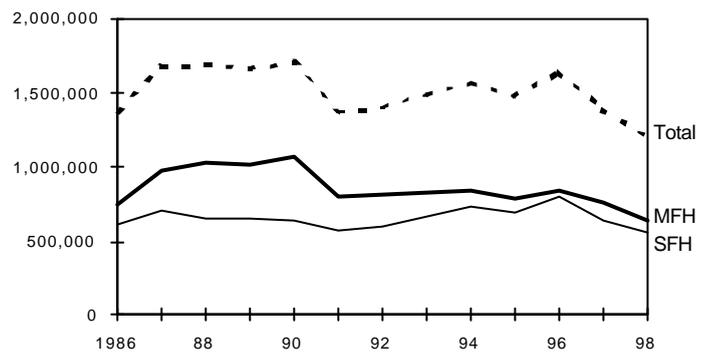
The main policy actions to stimulate productivity growth (thereby improving housing conditions) are listed below. It is important to note that our suggestions essentially have no social tradeoffs, these regulations are in place mainly to serve special interests.

- ¶ Make price information publicly available to increase price competition. This would be quite easy to implement operationally since the government already collects this information for tax purposes. While claims of violation of privacy could be made, it should be recognized that the US, the Netherlands and France – all of which have strict privacy laws – make this information publicly available.
- ¶ GHLC should promote the secondary market to increase price competition.
 - The GHLC should stop discriminating against used houses in its lending policies
 - The GHLC should also develop a standard appraisal method which is accepted by private banks. This would allow the seller to have an appraisal done before putting his/her house for sale. Then when the buyer looks at the house they can see the report thereby getting both quality information and a price that the bank is willing to use as a basis for the mortgage.
- ¶ Reform the tax system to further promote the secondary market and increase the land available for large scale SFH developments.
 - Reduce the capital gains tax. The high capital gains tax, which decreases over the holding period, is an obstruction to short to medium term changes of housing. The motivation for this scheme is to deter speculators (a legacy from the bubble economy).
 - Promote housing transactions by reducing the transaction tax. These taxes are an obstruction to promoting more frequent house purchasing. These high taxes are also in place to deter speculators.
 - Equalize the inheritance tax across assets so as to deter excessive land holding and thereby promote liquidity in the property market.
 - Increase the property tax to increase cost of holding underutilized land thereby promoting liquidity in the property market.
- ¶ Relax the zoning codes and include current contracts into the new land and building lease law to facilitate the development of large scale multi family housing.
- ¶ Promote standardization of construction methods and materials. This will facilitate diffusion of best practice and increase economies of scale in materials and components manufacturing. This could be done by the GHLC through requirements on building specifications for loan approval. We have recently seen the success of GHLC requirements; for example, in 1996 they set higher funding ceilings for thermally

efficient and structurally durable homes, which has had a significant impact on the quality of recent construction.

APPENDIX A

Exhibit 1
DEMAND FOR HOUSING IN JAPAN
New residential construction, units

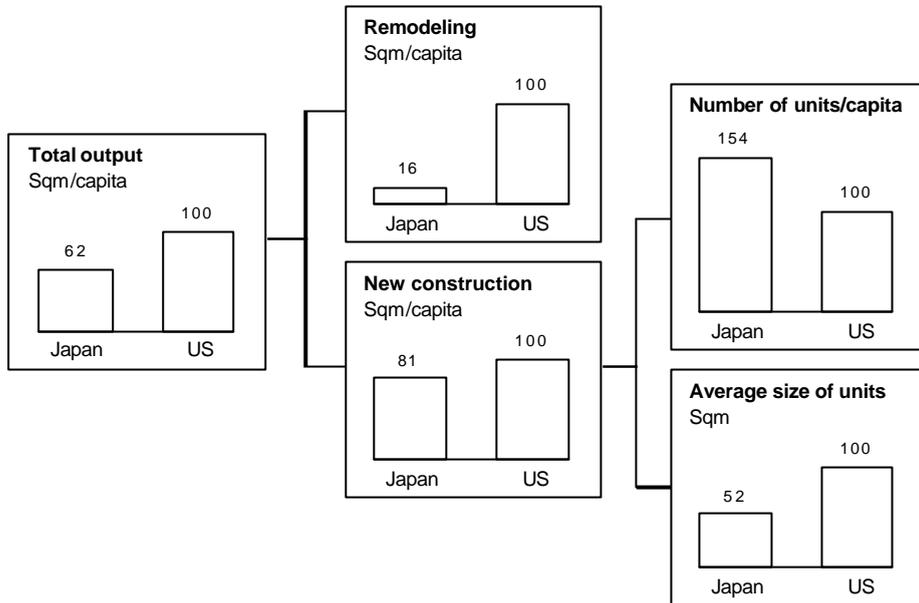


Source: Ministry of Construction

Exhibit 2

SOURCES OF OUTPUT DIFFERENCES BETWEEN JAPAN AND THE US

Indexed to US=100 in 1998

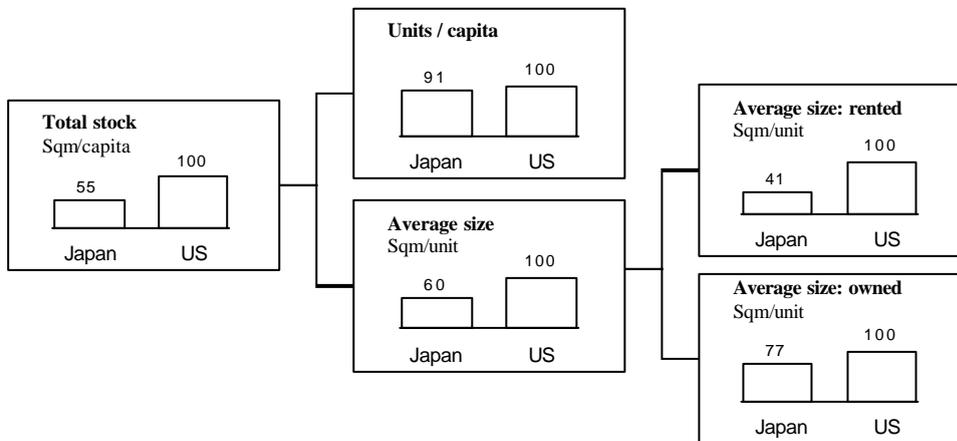


Source: Ministry of Construction; McKinsey analysis

Exhibit 3

COMPARISON OF HOUSING STOCK

Indexed to US= 100 in 1998



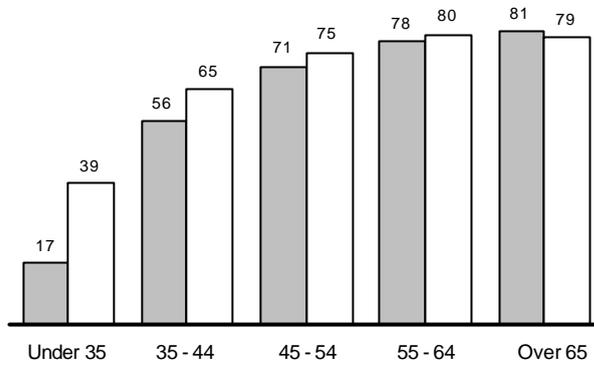
Source: American Housing Survey; Ministry of Construction

Exhibit 4

HOME OWNERSHIP RATES

Percent of owned dwellings; Japan 1998, US 1997

■ Japan
□ US

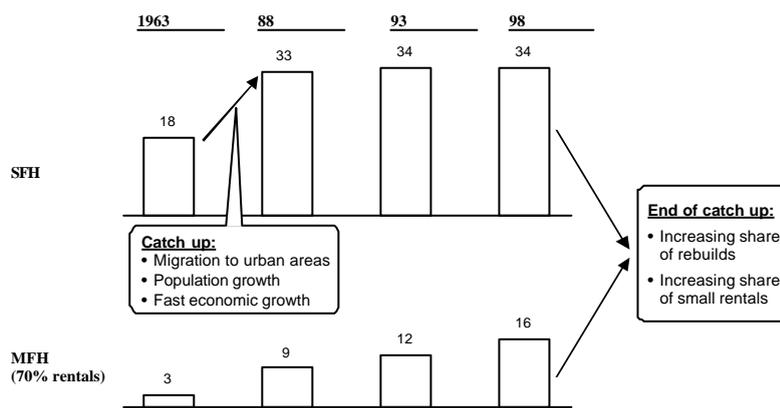


Source: Harvard Joint Center for housing studies; Housing and land survey of Japan

Exhibit 5

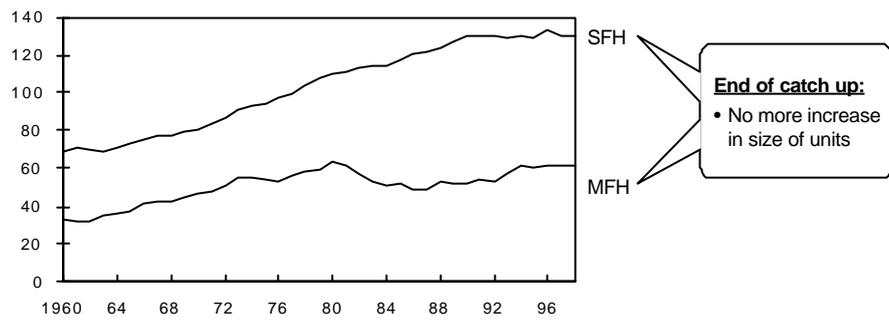
EVOLUTION OF JAPANESE HOUSING STOCK

Millions of dwellings



Source: Management and Coordination Agency; Ministry of Construction

Exhibit 6
AVERAGE SQUARE METERS OF NEW RESIDENTIAL CONSTRUCTION IN JAPAN

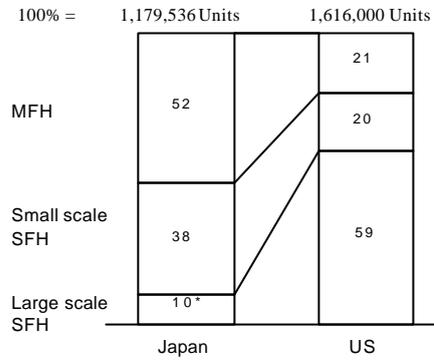


Source: Ministry of Construction

Exhibit 7

COMPARISON OF NEW RESIDENTIAL CONSTRUCTION MIX: 1998

Percent



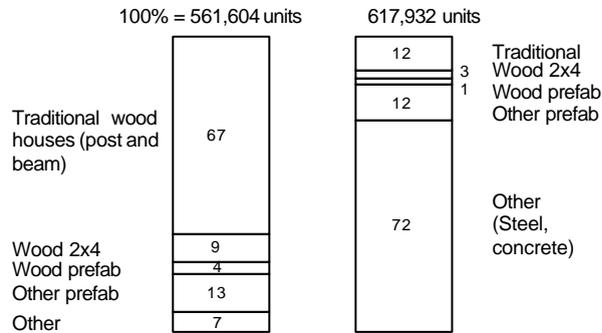
* 10% of total output is built by developers, therefore this is an upper bound
 Source: MGI; Ministry of Construction; US Census

Exhibit 8

HOUSING STARTS: 1998

Single Family Homes

Multi Family Homes

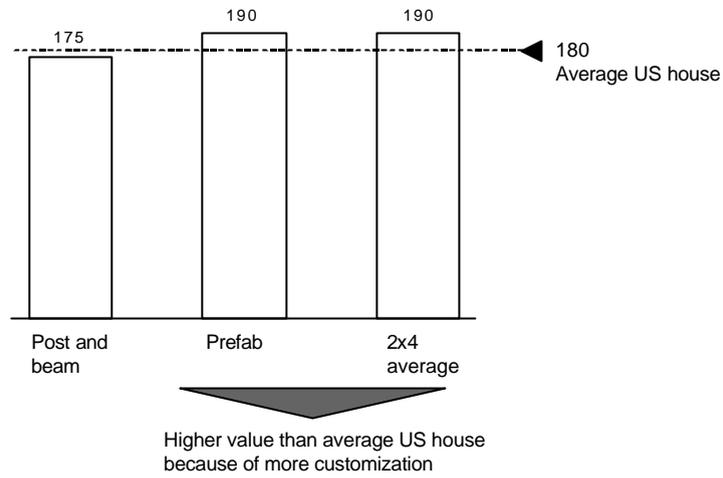


Source: Ministry of Construction

Exhibit 9

QUALITY DIFFERENCES BASED ON MARKET PRICES FOR SINGLE FAMILY HOUSING

000 yen /sqm

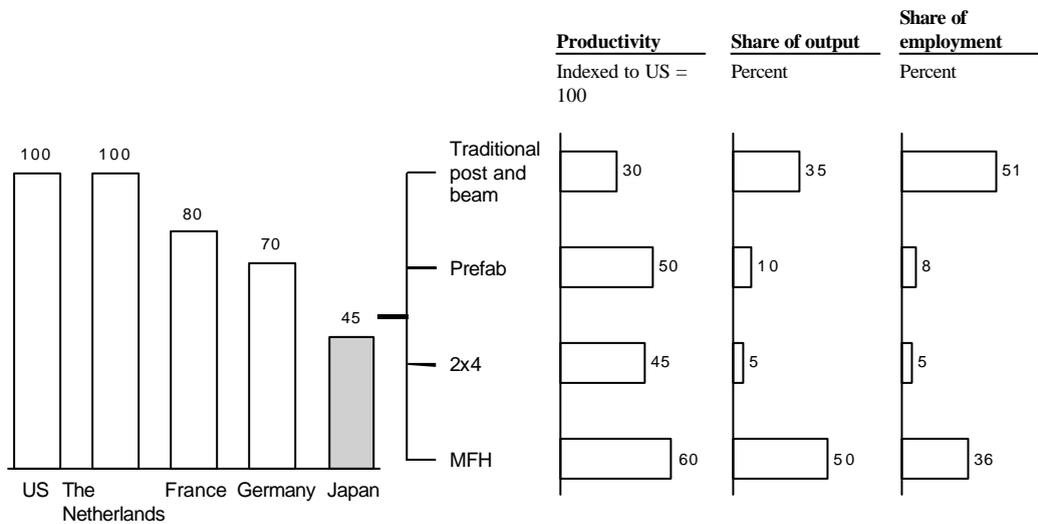


Source: Interviews; Government Housing Loan Corporation

Exhibit 10

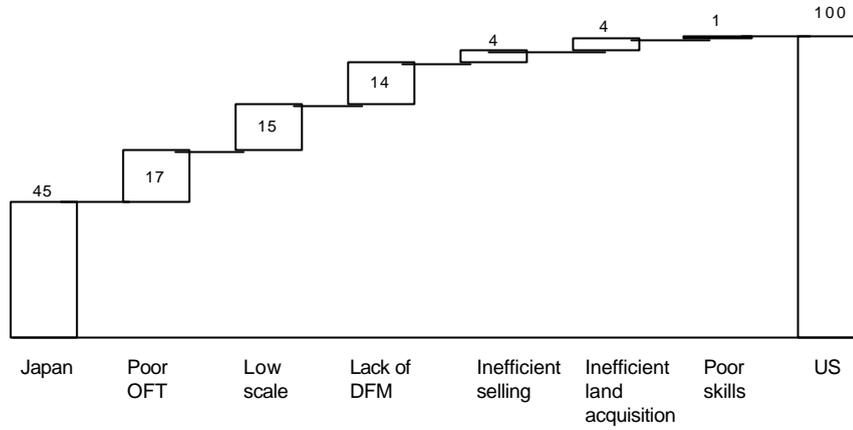
LABOR PRODUCTIVITY

Indexed to US = 100 in 1999



Source: Interviews; Surveys

Exhibit 11
PRODUCTIVITY GAP – OVERALL
 Indexed to US = 100 in 1999



Source: Interviews

Exhibit 12
SUMMARY OF PRODUCTIVITY GAP SOURCES

	Post and Beam	Prefab	2x4	MFH	Overall
Poor OFT	●	○	●	○	●
Low scale	●	●	●	○	●
Over engineering /DFM	●	●	●	●	●
Inefficient selling	—	●	●	○	○
Inefficient land acquisition	—	—	—	●	○
Poor skills	—	—	●	—	—
Productivity	30	50	45	60	45

● Important
 ○ Secondary
 — Undifferentiating

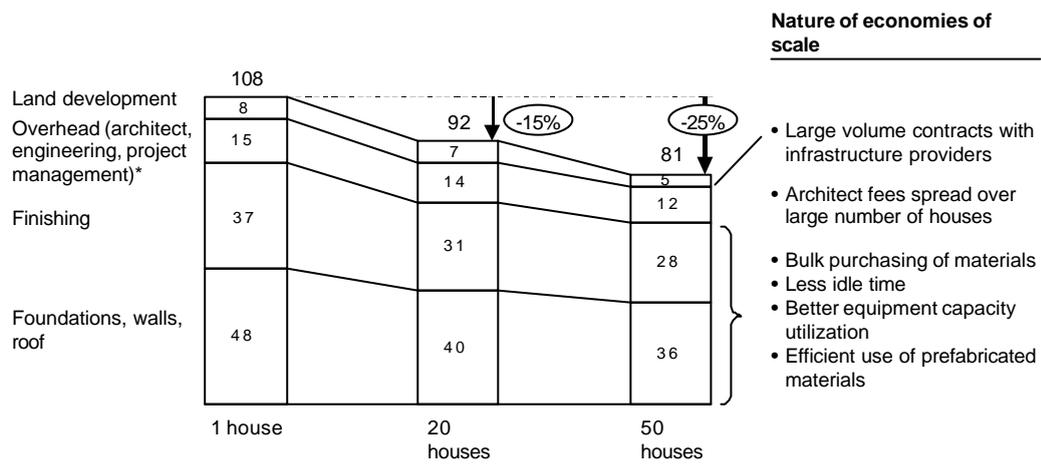
Source: Interviews

Exhibit 13

SOURCES OF ECONOMIES OF SCALE IN LARGE SCALE SFH

EXAMPLE

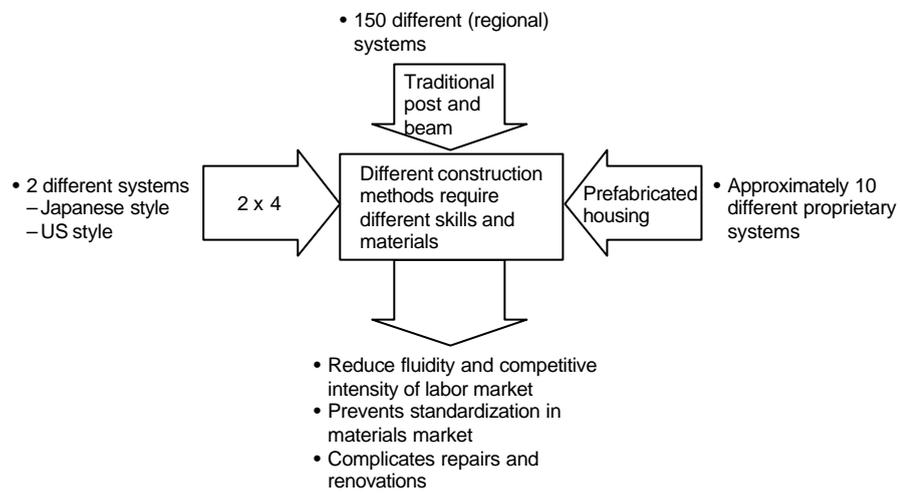
Housing construction cost; Row house, 110 sqm,
000 US\$



* Architect, engineering, project management
Source: Interviews; McKinsey

Exhibit 14

LACK OF DESIGN FOR MANUFACTURING



Source: Interviews

Exhibit 15

SOURCES OF PRODUCTIVITY IMPROVEMENTS

Index to US = 100 in 1999

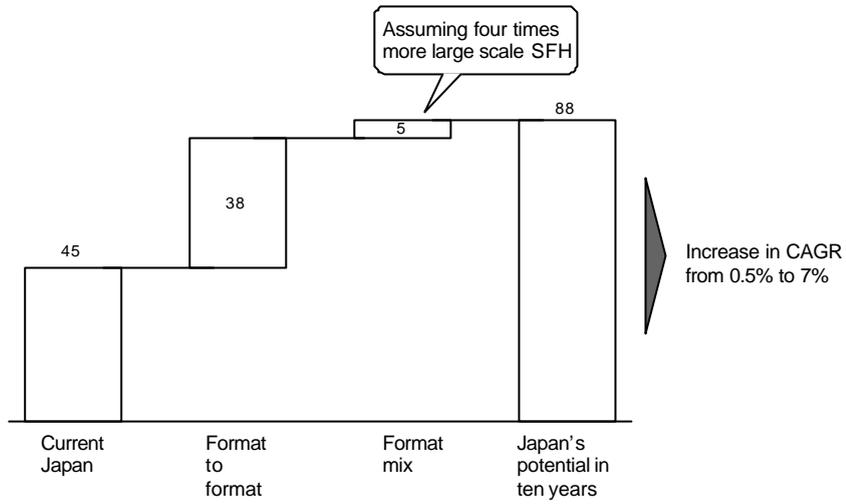


Exhibit 16

RELATIVE IMPACT OF EXTERNAL FACTORS PRODUCTIVITY BY SEGMENT

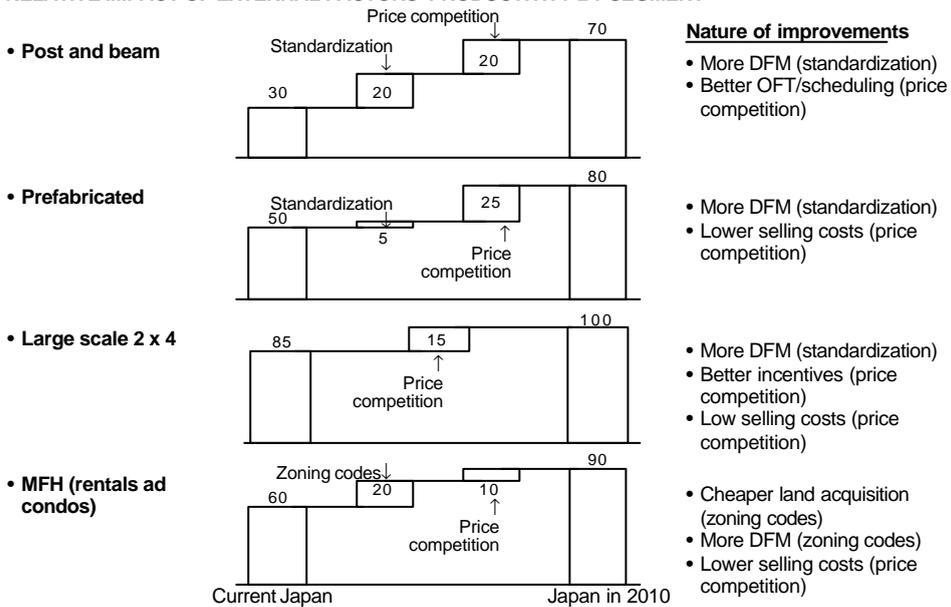


Exhibit 17

REASONS FOR LOW PRODUCTIVITY IN RESIDENTIAL CONSTRUCTION

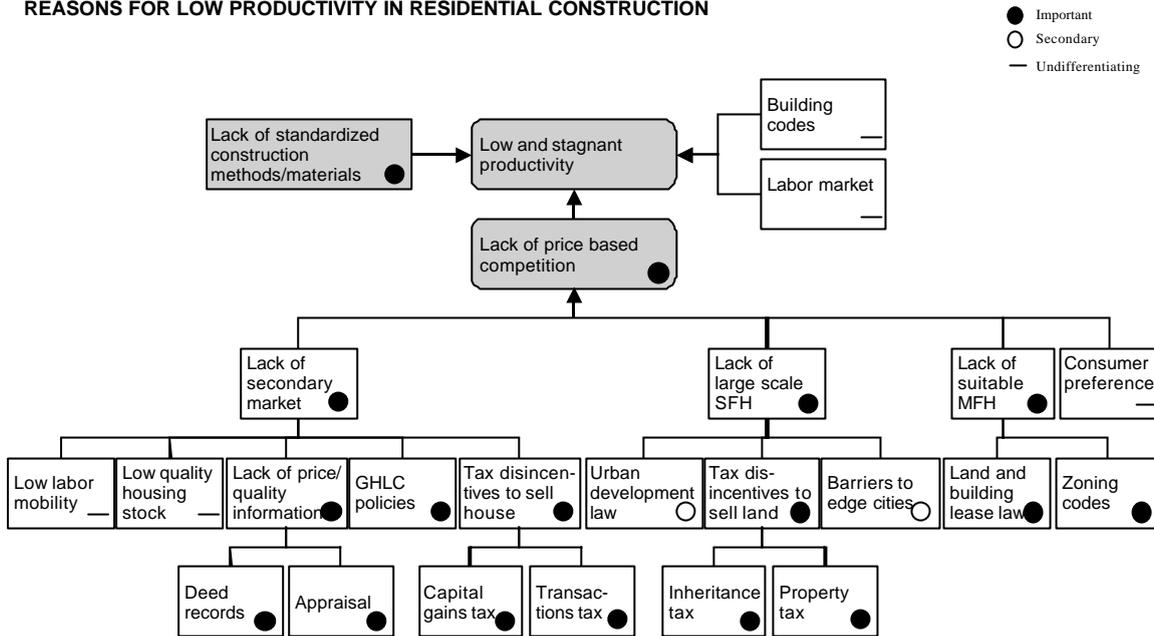


Exhibit 18

SUMMARY OF CAUSALITY

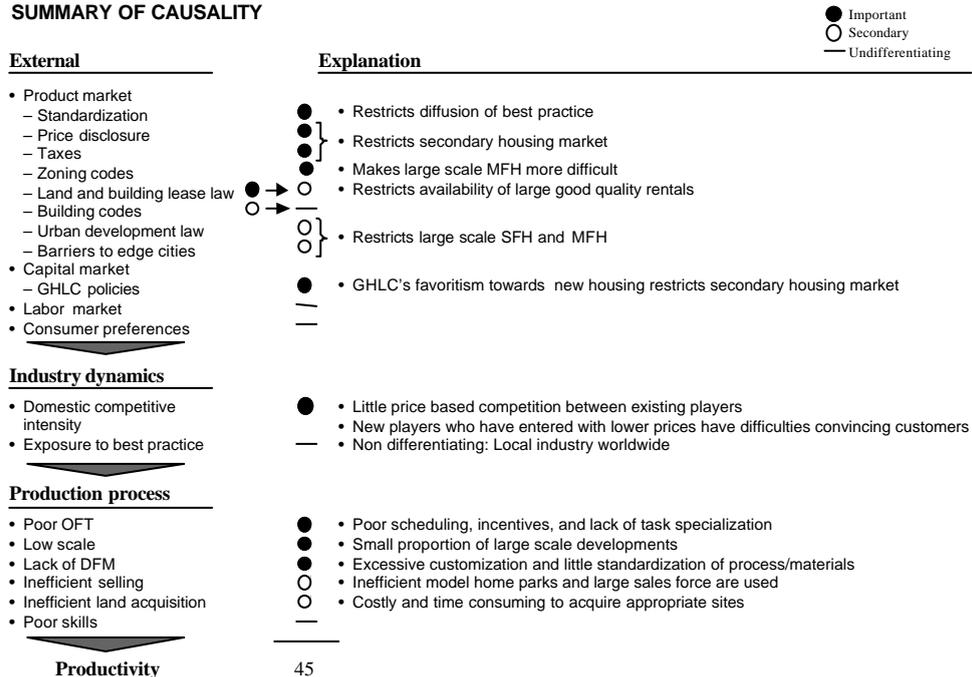
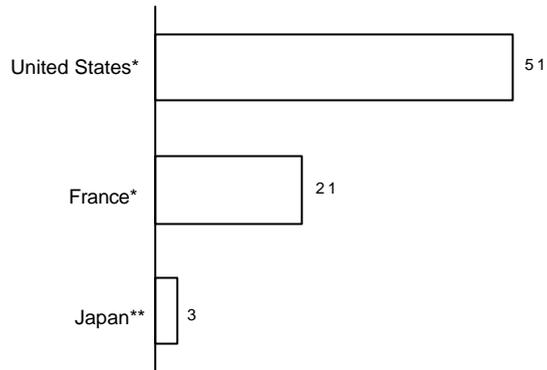


Exhibit 19
SECONDARY HOUSING: UNDERDEVELOPED
 Number of existing houses sold per thousand dwellings



* 1999
 ** 1992
 Source: Databook on housing economics Ministry of Construction (Housing Industry Newspaper 1999); interviews

Exhibit 20
HOUSING LIFECYCLES

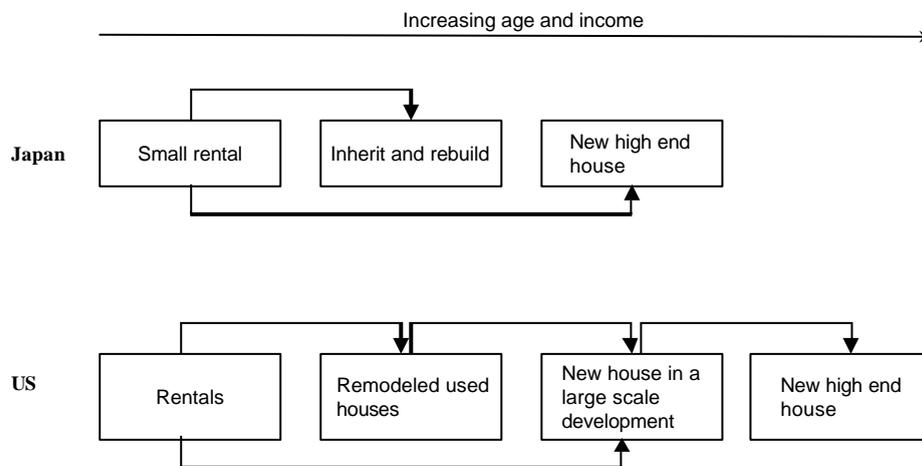
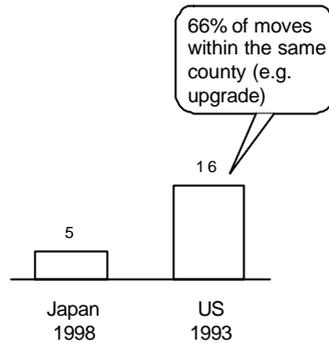
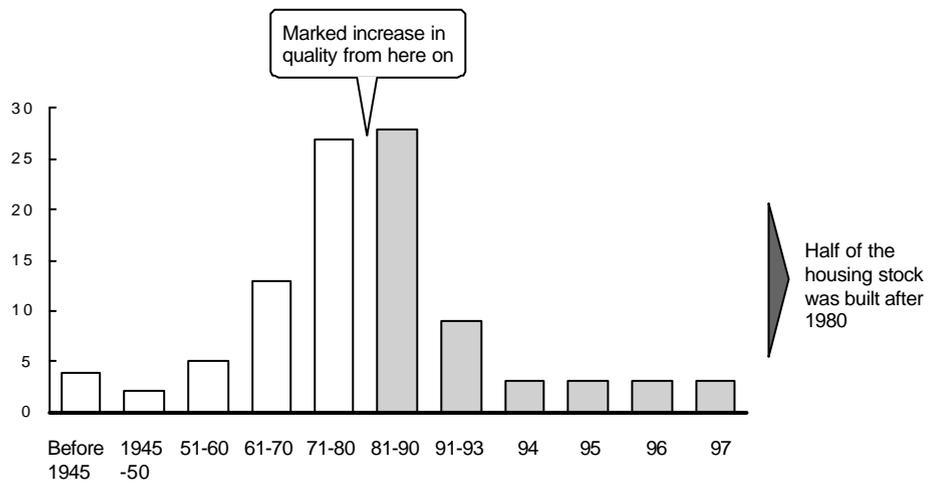


Exhibit 21
PERCENT OF POPULATION WHICH MOVED DURING THE YEAR
 Percent



Source: Management and coordination agency; US census

Exhibit 22
AGE OF HOUSING STOCK*
 Percent of units



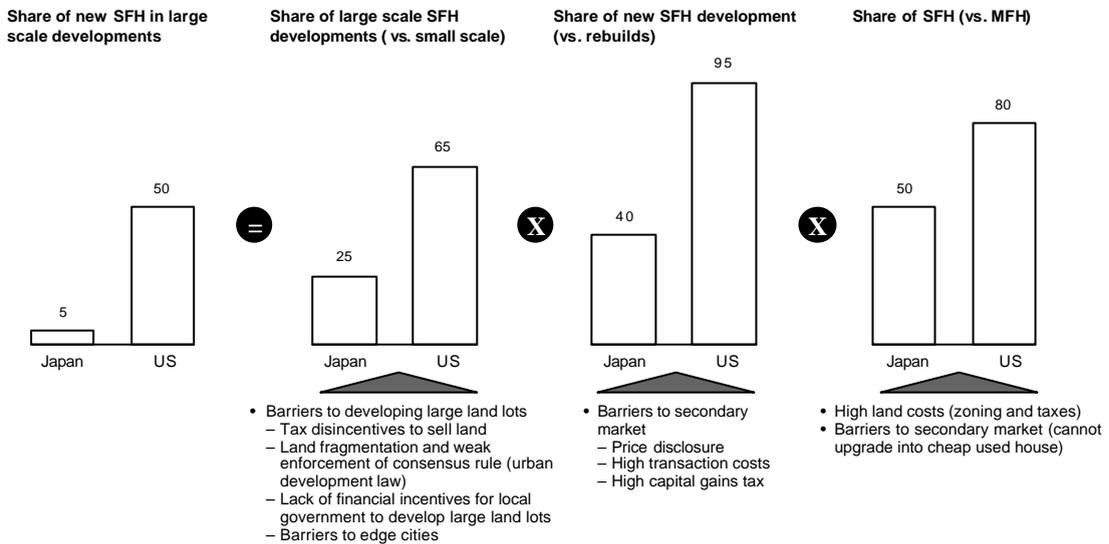
* Includes only occupied stock

Source: Management and coordination agency

Exhibit 23

REASONS FOR THE LACK OF LARGE SCALE SFH DEVELOPMENTS

Percent of dwellings built



Source: Management and Coordination Agency; US Census; McKinsey analysis

Appendix B: Bibliography

Housing markets in the US and Japan: National Bureau of Economic Research: 1994

Japan-US Comparison of Housing Prices: Japan Housing Synthetic Center: 1994

A comparative assessment of North American and Japanese 2x4 Residential Construction Systems: Center for International Trade in Forest Products: 1995

Housing report: Japan External Trade Organization: 1996

Survey on Promoting Improvement of On Site Productivity of Wooden Houses: Japan Housing and Wood Technical Center: 1996

Dropping Labor Productivity in the Construction Industry: Nippon Life Insurance Research Institute: 1997

Restructuring Vision of Wooden Construction Industry: Japan Federation of small-middle sized Construction Organizations: 1997

Survey on Promoting Skilled Workers contributing quality improvement of detached houses: Organization of Housing Quality Guarantee Registration: 1997

Magnetic Los Angeles: Greg Hise: 1997

A quick look at housing in Japan: Building center of Japan: 1998

White paper on construction in Japan: Ministry of Construction: 1998

Survey on the present state of housing productivity: Japan Federation of Housing Organizations: 1998

Innovation and restructuring of Komuten: Nippon Life Insurance Research Institute: 1998

Management Analysis of the Construction Industry: MOC: 1999

Report on Examination of Promoting Policy of Skilled workers of detached houses: Organization of Housing Guarantees: 1999

Report on New Development of Local Housing Industry: Organization of Housing Quality Guarantee Registration: 1999

Report on Government Housing Loan Corporation Housing: Government Housing Loan Corporation: 1999

Health Care

EXECUTIVE SUMMARY

Industry overview. Health care expenditures represent a significant portion of the GDP of industrialized countries, ranging from 7% in the U.K. to 14% in the U.S., and account for between 4% and 8% of total employment in developed economies. The health care industry is composed of providers (i.e., doctors, hospitals, and clinics) and payors (e.g., insurance companies or insurance societies). In many countries, employers (in addition to patients) play an important role as consumers of health coverage. The industry is typically regulated, with strong government involvement in pricing, accreditation, and health coverage.

Productivity and output performance. Despite being low cost, we estimate that the productivity of the current Japanese system is approximately 75% of the current US level. Furthermore, we estimate that the US provides 40% more output in the form of higher services as Japan at equivalent disease and injury levels. Therefore, we believe that with the same level of total factor inputs used today, Japan could reach the high level of service provided by the US health care system by reducing hospital capacity and drug inputs and creating one million new health care jobs.

Operational reasons for productivity and output gaps. Japanese productivity is lower than the US because average length of hospital stay is four times as long as in the US and the usage of prescription drugs is twice as high, despite less prevalence of disease and injury in Japan. The main output differences between Japan and the US are low outpatient service levels (e.g., long waiting times, short doctor visits), low inpatient staffing levels (e.g., few private hospital rooms), fewer available treatment options, and less availability of breakthrough drugs.

Industry dynamics and External factors. The Japanese system is characterized by low levels of competition in each of the markets that make up a health care system. Competition among payors for patients and among providers for payor contracts is banned by law. Furthermore, competition among providers for patients is distorted by government subsidies. These distortions have contributed to both the low productivity and low service levels in Japan by preventing competition on the basis of service and by limiting payor oversight of providers.

The most important external barriers to productivity and output are product market regulations, such as the fee-for-service payment system and payor restrictions. Capital market restrictions, in the form of government subsidies to public and university hospitals, and labor market practices, notably the

medical school influence over doctor career decisions, are of significant, but secondary importance.

Future outlook and recommendations. We believe that Japan can dramatically improve the productivity of its health care sector by replacing the current fee-for-service system with a case rate payment system modeled after Germany and the US and by banning provider ownership of pharmacies. Service levels can be improved by removing government subsidies in order to create a level and competitive playing field among hospitals and by creating credible accreditation and licensing bodies to guarantee provider quality. These changes will have dramatic results on efficiency and service levels without disrupting the fundamental egalitarian underpinnings of the Japanese health system. Moreover, they promise to create over one million new jobs without raising the level of total factor inputs used today. In fact, assuming that the absolute prices of health care inputs remain constant, this finding suggests that higher service levels can be financed by eliminating excess prescription drug inputs and reducing the number of hospitals.

Health Care

This case study assesses the relative productivity of the Japanese and US health care systems and identifies both efficiency and output improvement opportunities for Japan.

We begin with an overview of the Japanese health care system. We then present the methodology and results of our productivity comparison, followed by a discussion of the causes for productivity differences in terms of the specific actions taken by providers. We then explain how the competitive dynamics and external regulatory constraints faced by providers (i.e., hospitals, clinics, and physicians) lead to these behaviors. We conclude with a discussion of the future outlook for the Japanese health care system and make a set of recommendations to policymakers.

INDUSTRY OVERVIEW

Health care is a unique and vital sector in every economy, one whose considerable economic importance is heightened by its impact on social welfare. As Exhibit 1 shows, a significant portion of the GDP of industrialized countries, ranging from 7% in the U.K. to 14% in the U.S., is devoted to health care and between 4% and 8% of total employment in developed economies is in the health care sector.

In this section, we describe the broad outlines of the Japanese health care system, focusing on the key system participants. In a later section of the case study, we will explore the ways in which these system participants interact in the various markets that make up a health care system and how these interactions are shaped by regulation.

Participants in Japan's health care system

¶ **Payors:** Since 1961, Japanese citizens have enjoyed universal health coverage through a highly regulated multi-payor insurance system. Japan's Ministry of Health and Welfare (MHW) sets the reimbursement prices for every medical product and service covered by the national health insurance system under a detailed fee-for-service price schedule that it revises every two years. All payors in Japan must accept these government-mandated prices. Separate price or product negotiations between payors and providers are strictly prohibited by law.

The insurance system, consisting of roughly 5000 distinct payors, is segmented according to workplace. National and local governments

manage the insurance funds for over half of the population (employees of small firms, the self-employed, farmers, retirees, seamen, and the elderly). The remainder of the Japanese population is covered by so-called “insurance societies” and “mutual aid associations” that are often managed by the company or ministry to which they are affiliated. The entire system is financed through payroll taxes, with the burden shared equally between employers and employees, and through an elaborate system of cross-subsidization that redistributes funds from younger, healthier insurance societies to those burdened with a greater percentage of older and sicker members. Patient co-payments generally run between 10-30%, depending on employment status and age.

Despite the diversity of payor governance, all Japanese payors are non-profit entities. They do not compete for members, as consumers are not free to choose their insurance fund, but are assigned on the basis of their employment status. Furthermore, since the national fee schedule denies payors the freedom to define their product offering or negotiate prices with providers (i.e., clinics and hospitals), Japanese payors cannot compete on the basis of differentiated products or price. Nor can they restrict patient choice of provider, intervene in provider care decisions, or set limits on the amount of care that is sufficient for a given condition, as payors in both the US and Germany (to varying degrees) can do. Thus, Japan’s payors cannot take meaningful steps to reduce costs as they cannot force patients to choose efficient providers or force providers to make efficiency improvements.

¶ **Providers:** All providers in Japan must also accept these government-mandated prices in order to be eligible to treat patients covered by national health insurance. If providers choose to charge higher prices than those stipulated by the fee schedule and collect the balance from patients, they lose their right to treat any nationally insured patients.

- **Hospitals:** In 1997, there were 9,413 hospitals in Japan, roughly 80% of which were privately owned and operated facilities that had evolved from clinics in the post-war era, compared to 6,097 hospitals in the US. Hospitals in Japan account for approximately 55% of total health care employment, compared to roughly 45% in the US. Because only private practitioners are allowed to own health care facilities in Japan and investor-owned for-profit hospitals are prohibited, multi-hospital systems are very rare in Japan. In the US, on the other hand, 13% of hospitals are investor-owned for-profit facilities, many of which are part of multi-hospital chains.

High-tech medicine is dominated by larger and more prestigious public sector and university hospitals that receive subsidies for capital investments. Most hospitals in Japan, even those that

receive subsidies for high-tech medicine, remain functionally undifferentiated, and treat nursing, long-term care, and as many as 4000 outpatients per day for a full range of ailments. Unlike in the US, there are very few separate facilities that provide elderly, long-term, or rehabilitative care in Japan. These services, in addition to traditional acute care, are provided by hospitals in Japan.

All hospitals and clinics are paid exactly the same amount, inclusive of doctors' fees, for the same service, regardless of physician's expertise, the facility's characteristics, or its geographic location. Unlike the US and Germany, where case rate payments to hospitals have become common, Japanese hospitals are compensated purely on a fee-for-service basis for all of the consultation, procedures, tests, pharmaceuticals, and hotel services that they provide. Reimbursement levels for most inpatient procedures tend to be far below those in the US. Partly as a result, the financial state of Japan's hospitals is quite poor. For instance, nearly 31% of the private, un-subsidized hospitals who are members of the National Hospital Federation of Japan, lost money in 1998. The percentage of loss-making public sector hospitals was close to 80%.

- **Clinics/Physicians:** There are 230,000 professionally active physicians in Japan, more than 35% fewer on a per capita basis compared to the US and more than 50% fewer on a per capita basis compared to Germany. Half of these physicians are full-time, salaried employees of hospitals while the other half are private practitioners who often own their own clinics. A critical difference between the US and Japan is that Japanese clinic physicians do not have any hospital admitting privileges and thus must refer all patients requiring serious inpatient care to hospital-based physicians. As a result, rather than lose their patients to hospitals, many clinics have established limited inpatient facilities (e.g., 2-20 beds) to care for less acute cases themselves. At the same time, most hospitals have established large outpatient services to capture more of the outpatient market, which is generally seen as more lucrative. Clinics and hospitals have therefore come to view each other as competitors rather than partners, discouraging patient referrals to the most appropriate and cost-effective care setting.

In the US, on the other hand, very few physicians are employees of hospitals. The overwhelming majority, whether primary care physicians or surgical specialists, maintain clinics outside of the hospital where they see and examine patients. They use hospitals only to the extent that they need the hospitals' facilities in order to treat their patients. Therefore, nearly all American physicians manage their own independent medical practice (or group practice with other doctors) and contract for hospital services. As

such, American doctors are generally the clients of hospitals rather than their employees. In Japan, however, doctors are either employees or competitors of hospitals.

Despite the fact that all surgeons and other practitioners of high-tech medicine are employees of hospitals, hospital-based physicians make less money than their clinic counterparts who focus mainly on primary care. The Japan Medical Association (JMA), the powerful lobby group that represents primary care clinic physicians, strongly opposes pay differences based on expertise-levels of medical specialties because they fear that such changes would allow specialists to capture value from primary care physicians. All hospital-based doctors receive a fixed salary linked to tenure rather than specialty or level of expertise, although under-the-table payments by patients to leading specialists have become common.

¶ **Patients:** Government regulation of payors and providers leads to interesting benefits and problems for patients. In the first place, every Japanese citizen has access to health insurance that covers a comprehensive list of primary, secondary, and tertiary care needs throughout life. Moreover, the system is extremely egalitarian from the point of view of patients, as it allows them to select the provider of their choice with no difference in price and very low co-payment levels. In terms of both patient choice and access to health care, the Japanese system is ahead of the US system.

On the other hand, because prices and co-payments are identical at all hospitals, patients crowd into large public and university hospitals that have invested in new technologies, largely because they are perceived to offer higher quality. As a result, patients routinely wait for several hours to see a physician for a few short minutes. The long waiting times for limited consultation tops the list of complaints that Japanese have of their health care system.

Strict regulations over standardized reimbursement have created a black market for patients seeking the care of highly regarded specialists. This takes the form of a monetary gift to the specialist through the referring physician (the "referral fee") and usually amounts to between ¥100,000 and ¥300,000. This practice is generally limited to patients seeking care in the most prestigious hospitals.

Moreover, because premiums that finance the insurance system are compulsory, consumers pay a high price if they choose to opt out of the system. Combined with the penalties on providers for two-tier pricing described above, these restrictions on patient choice have prevented the emergence of a private insurance and hospital system which, as in Germany, would allow some patients to enjoy higher quality medical benefits and better access than others.

Achievements of the Japanese health care system

Japan has contained health care costs more effectively than any other industrialized country with the exception of the U.K. But unlike the U.K., Japan has achieved low costs while providing comprehensive health coverage to all citizens and without resorting to overt forms of rationing. Partly as a result of improved quality and access to health care, Japanese life expectancy has improved dramatically in the post-war era (Exhibit 2). Today, the Japanese live longer than the citizens of any developed country, although numerous factors other than the effectiveness of the health care system have contributed to this result, as will be discussed below. These are tremendous achievements that should not be underestimated. Yet despite these achievements, there is strong evidence to suggest that the Japanese people are dissatisfied with basic elements of their health care system, as seen in Exhibits 3 and 4.

As explained below, we could not assess how medical outcomes compare between Japan and the US due to the lack of patient-level outcome data in Japan. Nevertheless, important questions remain about the quality and productivity of the Japanese health care system. In particular, we are interested in two questions: Does Japan use health care inputs such as labor, capital, and pharmaceuticals as efficiently as other countries? To what extent have quality and service been sacrificed in the pursuit of lower costs?

PRODUCTIVITY AND OUTPUT PERFORMANCE

Methodology

Our objective in this case study is to assess the relative productivity and output of the Japanese health care system compared to the US system. Although it may not be the only basis for policy decisions in health care, productivity is an important concept in this sector of the economy, as in others. Failure to achieve high productivity, for instance, means that there are ways to produce more health services using the same amount of resources. Since output in this sector is largely driven by government policy, we have also systematically analyzed the reasons for output differences between these two countries.

Measuring productivity in health care poses significant challenges which, in the case of Japan, have been exacerbated by severe data limitations. To measure productivity in an economically rigorous way requires tracing the links between health service and health outcomes at the disease level. For example, it requires a measurement of the number of physician hours, pharmaceuticals, supplies, etc. that are consumed in the treatment of a disease like lung cancer and the improvement in patient health associated with the use of these inputs.

Unfortunately, the data do not exist in Japan to conduct this type of analysis. Data on medical outcomes, for instance, are rarely collected by Japanese hospitals, much less shared with researchers or aggregated into registries such as the National Cancer Patient registry in the US. As a result, we have no way to directly measure health outcomes in Japan. In fact, no one in Japan seems to possess the data necessary to assess the quality of health care intervention, either at the aggregate, disease, or individual provider level.

It is worth noting that the complete absence of outcome data in Japan does not speak well for the Japanese health care system. In fact, the quality of health data in Japan is far worse than in most other industrialized countries, such as Germany, the U.K., and the U.S. As a result, it seems virtually impossible to work towards productive efficiency in health care in Japan when there is no way to measure output.

In our study, however, we have simplified the issue by assuming that the impact of health care intervention across all diseases is the same in the US as in Japan. In other words, we assume that the average quality-of-life adjusted survival rates for newly diagnosed patients across all diseases (diabetes, lung cancer, etc) are the same in both countries.

But is this a fair assumption? Japan's very high and improving life expectancy figures could suggest that disease outcomes are actually far better in Japan than in the US. We deal with this issue in two ways:

- ¶ First, a closer look at measures of disease prevalence gives us some comfort that social, cultural, and dietary factors go quite far in explaining the difference in life expectancy between the US and Japan. (For a full description of the measure of disease prevalence we used, please refer to Appendix A). As seen in Exhibit 5, many of the top diseases and causes of injury in the US are less common in Japan due to cultural and social reasons (e.g., homicide and violence, motor vehicle accidents, HIV, and alcohol use). One could also argue that differences in the relative burden of heart disease and lung cancer in the two countries are largely attributable to differences in diet and lifestyle rather than differences in the quality of one health system over the other. This finding seems to support our assumption that, despite lower life expectancy in the US, the outcome of health intervention is not worse than in Japan. We also know that the steep improvement in life expectancy in Japan reflects a rapid recovery from the public health disaster of the immediate post war years.
- ¶ Second, Japan's life expectancy could also be higher because the Japanese have more extensive and effective disease screening and prevention programs. Again, there is no way to measure the relative productivity of disease prevention efforts in the two countries. But we can estimate the level of inputs associated with disease prevention in Japan and the US respectively and exclude these inputs from our analysis, as will be explained below.

On that basis, we can compare the physical inputs into the health care systems of both countries by making the three following adjustments:

¶ **Different levels of disease and injury:** One reason for higher health care costs in the US is higher levels of disease and injury, many of which are not common in Japan for cultural or dietary reasons, such as HIV, homicide and violence, and ischemic heart disease. These factors also help explain longer life expectancy in Japan. Using research done by the World Health Organization, the Harvard School of Public Health, and Japan's National Institute of Health Services Management, we compare the relative burden of over 80 major diseases and causes of injury in the two countries. We then estimate the cost impact of disease level differences by computing health care costs in Japan under the levels of disease and injury seen in the US. (Please refer to Appendix A for additional information on our disease-level adjustment methodology).

As seen in Exhibit 6, this analysis reveals that 27% more years of healthy life were lost to disease and injury in the US than in Japan. At current Japanese prices, Japan's health care costs would go up by 22% if Japan had the same levels of disease and injury as the US. We apply this 22% adjustment whenever we explain a gap in inputs between Japan and the US.

¶ **Different levels of disease prevention:** Disease screening and prevention efforts in Japan are more extensive than in the US. Most Japanese workers must undergo comprehensive half-day or full day health check-ups on a yearly basis as part of their job. Whenever they change employment, they must also complete a health check. These check-ups usually involve a series of blood and other tests that are meant to screen for major diseases. Similarly, Japanese children, from elementary school through university, must undergo yearly health checkups. In addition to these mandatory procedures, many Japanese also undergo voluntary screening for various types of cancer and other types of diseases.

Disease screening and prevention programs in the US are generally not mandatory and hence not as common. In both countries, however, health care inputs associated with disease prevention efforts represent a relatively small part of overall inputs. We estimate that there are three times as many preventative outpatient visits in Japan on a per capita basis. Using generous assumptions, we estimate that disease prevention and screening accounts for 6% of total labor inputs in Japan versus 1.5% in the US. Because we cannot measure the relative productivity of disease prevention in Japan versus the US, we exclude these inputs from our comparison entirely. This adjustment allows us to isolate and compare inputs related to the treatment of disease and injury. (Please refer to Appendix B for further details).

¶ **Different price levels of health care inputs:** Because we know that the relative prices of doctors and drugs vis-à-vis other products and services in the economy are much lower in the Japan than the US, we must make an adjustment that will allow us to consider these inputs in physical terms. We first classify inputs in health care into four broad types: labor, pharmaceuticals, capital, and other supplies/materials. For both the US and Japan, we have measured expenditures in nominal currencies for each of these inputs. We have converted these nominal expenditures to a common currency using input-specific purchasing power parities (PPP's). These conversion rates represent the exchange rates that normalize price differences between the two countries for each type of input. Thus, they allow a pure comparison of the volume of inputs into each health care system. (For a detailed explanation of the methodology used to derive input-specific PPP's, please refer to the Appendix C).

Having made these three input-related adjustments, we make one additional assumption about output. Although we do not know how medical outcomes compare between Japan and the US (and hence assume them to be equal), we do know that the level of service in the US system is higher than in Japan. Higher service levels in the US take several forms, including more private hospital rooms, higher nurse-patient ratios, more time spent with doctors, shorter waiting times, and greater availability of latest drugs and medical technologies. In this report, we have considered service to be an additional form of output of a health care system and have given credit to the US system for this additional service output by assuming that this increased output has the value of the inputs required to produce it.

Results

With the same level of total factor inputs used today, we believe that Japan could reach the high level of service provided by the US health care system and create a significant number of new jobs in the process. Japan can achieve this result by removing the inefficiencies that plague its health care system (such as over-usage of prescription drugs and long average length of hospital stay, as detailed below) and channeling these inputs into higher service levels for patients. As long as the absolute prices of inputs remain constant, our findings suggest that Japan can increase employment with the same level of expenditures as today.

¶ **Level and distribution of inputs:** Our analysis suggests that when adjusted for disease-level, prevention, and price-level differences, the total physical inputs into the Japanese health care system are less than 10% below the US level, as Exhibit 7 illustrates. But while disease-adjusted input levels are similar, the distribution of inputs is quite different. A breakdown reveals that the Japanese system favors pharmaceutical inputs at the expense of labor inputs (Exhibit 8). We do not know whether one distribution of inputs is superior in terms of health outcomes. However, the patient satisfaction surveys

cited above seem to suggest that the Japanese people are dissatisfied with labor-related aspects of their current health care system, ranging from service levels to the basic quality of care. This finding suggests that a shift to a more labor-intensive mix would result in higher patient satisfaction.

¶ **Productivity and Output Gaps in Japan:** As will be detailed shortly, we have observed significant productivity and output gaps in the Japanese health care system compared to the US. These gaps suggest that Japan has a tremendous opportunity to increase both the productivity and output level in its health care system. It should be noted, however, that while productivity improvements are always justifiable in health care (because they allow the same level of output to be produced with fewer inputs), it is by no means clear what the appropriate output level in health care should be. Nevertheless, as Exhibits 3 and 4 made clear, the Japanese people seem unhappy with the current level of service provided by their health care system. We are not arguing that Japan should strive for US levels of service output in health care. But if Japanese consumers do indeed seek higher service levels and if policy can be directed towards this end, we believe that higher productivity will allow Japan to reach US levels of service with no increase in total factor inputs. Exhibit 10 provides the details behind this argument.

- **Productivity gap:** In order to measure the relative productivity of Japan versus the US, we first define an optimally efficient health care system, taking the best aspects of the US and Japanese health care systems. As Exhibit 9 shows, the current Japanese health care system falls 29% below this optimal level. The US system likewise falls short, but by only 8%. Therefore, we estimate that the productivity of the current Japanese system is 75% of the current US level. Labor productivity in Japan is 93% of US levels while the productivity levels for capital and pharmaceutical inputs are 82% and 43% respectively. The causes of Japanese inefficiency are long average length of hospital stay and over-usage of prescription drugs. As we will detail in the coming sections, Japan can reduce current inputs significantly by eliminating these inefficiencies. The chief drivers of inefficiency in the US, on the other hand, are high administration costs due to the complexity of the system, lower capacity utilization in hospitals, and excessively high surgery levels. As the left-hand side of Exhibit 10 indicates, Japan can reach US levels of productivity by reducing the current level of health care inputs by 29%. Given the inefficiencies that we have identified, we feel that this input reduction can be made without sacrificing the quality of medical care or the level of service currently provided to patients (please refer to Appendix D for a detailed explanation of these figures).

- **Output gap:** At equivalent disease levels and productivity, Japan's input levels are still 40% below the US, as Exhibit 11 shows. Given the fact that we have already adjusted for price, prevention, and disease differences, we believe that this input difference is mainly explained by output differences between the two countries. The right-hand side of Exhibit 10 bears these facts out. As mentioned above, the main output gaps in Japan arise from lower staffing levels across all care settings compared to the US, including elderly nursing care, acute care, ambulatory care, etc. As a result, Japanese patients must wait longer than Americans, but get to see doctors and nurses for shorter periods of time. Moreover, they and their families have to endure more personal hardship (e.g., lack of privacy in four-person rooms, lower quality of other amenities such as food, TV access, more burden on families to provide custodial care, etc.) than American patients. Finally, Japanese patients do not have as many options as Americans do in areas such as home health services, elective surgery (e.g., cosmetic surgery), and rehabilitation/therapy services. We have systematically analyzed the reasons for the huge labor input difference between Japan and the US and determined how much of this gap is due to the lower levels of service described above (see Appendix D for details). Adding these incremental services to Japan's efficient input level, we conclude that Japan can reach US service levels without increasing total factor inputs above current levels, assuming that these additional outputs can be provided with the same efficiency as in the US. As Exhibit 10 summarizes, Japan can achieve this result by trading excess drugs and hospitals for more jobs.

As seen in Exhibit 12, our analysis also allows us to reconcile the difference in health care expenditures between Japan and the US. The difference in service levels, which we believe explains most of the employment gap between the two countries, explains the majority of the gap in health care spending.

- ¶ **Employment growth potential in health care:** On a net basis, after assuming that Japan achieves its productivity potential, we estimate that this additional service output would represent 1 million new health care jobs, a 25% increase over current employment levels (Exhibit 13). Many of the policy recommendations we make below will directly contribute to higher health care employment. But the overall rise in employment that we posit represents Japan's potential, assuming that it reaches US service levels and applies the same mix of inputs as the US, rather than a result of a specific policy intervention. But since the desire for more service has been expressed by Japanese people and since we have shown that Japan can reach US service levels without raising total factor inputs, there is no reason why increasing service levels in health care cannot be an explicit policy objective in Japan.

Since we do not have a comparison country that has gone through exactly the same changes that we are advocating, it is difficult to know how long it will take to add these jobs. But if we assume immediate implementation of the measures we are proposing, productivity gains in the form of shorter length of stay and less usage of prescription drugs should begin immediately. The improvement in service levels, however, will take somewhat longer to evolve, but we believe that Japan can reach US levels of service in 10-15 years creating one million jobs in the process.

OPERATIONAL REASONS FOR PRODUCTIVITY AND OUTPUT GAPS

The Japanese health system is less productive than the US system because it uses labor, pharmaceutical, and capital inputs less efficiently. It also provides a significantly lower level of service to Japanese consumers. In this section, we describe both of these issues at the operational level. We will then explain in the following two sections why it is that Japanese providers are behaving differently than their American and German counterparts.

Productivity issues in the Japanese health care system

- ¶ **Long average length of stay (ALOS):** The average length of hospital stay in Japan for acute care patients is 24 days compared to roughly 11 days in Germany and six days in the US (in 1996). As will be explained below, we believe that by reducing ALOS from the current 24 days to the current Japanese best practice level of 14 days, Japan can reduce employment levels in its hospital system by 13%. Although we are fairly certain that ALOS in Japan can be reduced further, we have conservatively chosen to reduce ALOS to a level of 14 days rather than to US levels for three reasons. First, we know that a 14 day ALOS is achievable in Japan, given the legitimate differences in both doctor and patient preferences as far as the proper or desirable length of stay. In fact, a handful of Japanese hospitals have already reached this level. As hospitals reduce ALOS, the intensity of care delivered per day must increase. At a certain point, care intensity may increase more than proportionately as ALOS declines, forcing hospitals to hire more people to reduce ALOS beyond a certain threshold. It is very difficult predict when (or if) ALOS reductions will require higher overall employment. To avoid this difficult issue, we have conservatively done our analysis assuming an ALOS of 14 because we know that Japanese hospitals that have cut ALOS to 14 days have done so without increasing employment.
- **Input difference due to long ALOS:** Japan has three times as much acute hospital bed capacity as the US and twice as much as

Germany, as Exhibit 14 shows. Since Japanese hospitals have roughly the same number of beds per facility as American hospitals, Japan's over-capacity in beds translates into three times as many hospitals per capita as well, despite lower levels of disease and injury, as we have calculated. Not surprisingly, as seen in Exhibit 15, Japan has a higher level of capital inputs in the form of structures. But excess capacity also leads to excess labor inputs in the form of both fixed and variable hospital employees who must care for patients for up to 24 days and who must administer hospitals that would not be needed if shorter ALOS prevailed.

- **Drivers of ALOS differences:** In Exhibit 16, we explain the gap between Japan's average ALOS versus both the best practice domestic level and the best practice international ALOS seen in the US.
 - **Average Japanese hospital vs. Japanese best practice hospital:** A handful of Japanese hospitals have successfully reduced their ALOS to 14 days, 10 days below the national average.

As will be described later, best practice private hospitals have an incentive to reduce ALOS in order to admit newer patients who require higher levels of care (and hence bring higher revenue). In order to reduce ALOS, these hospitals have studied critical path practices in US hospitals and implemented them in their own institutions, allowing them to reduce ALOS by five days from the average level. In ordinary Japanese hospitals, one does not find these critical path and care standardization methods common in the US that define a treatment schedule and discharge date for each patient. As a result, neither doctors, nor hospital administrators, nor patients have a strict timetable in mind for how long a patient has to be hospitalized for a given condition. Hence no effort is made to meet a pre-set schedule.

Moreover, best practice private hospitals in Japan have removed a number of other inefficiencies that plague the average Japanese hospital. For example, they have eliminated the 2-3 day pre-operative hospitalization that is common in most hospitals. They have improved the patient flow within the hospital, partly by investing in additional testing and diagnostic equipment to eliminate the long waits for these procedures common in average hospitals. They have rapidly adopted new technologies that allow procedures to be done in less invasive ways and hence reduce ALOS (e.g., laparoscopic technology). And unlike many of their peer institutions, they choose to discharge patients on Fridays, rather than keep them

needlessly over weekends. These efforts have amounted to an additional five days.

- **Japanese best practice vs. US average ALOS:** These efficiency-enhancing efforts have allowed a handful of Japanese hospitals to reduce their ALOS to 14 days. However, there is still a large gap between the best practice ALOS in Japan and the average ALOS in the US. We believe that the remaining gap is equally attributable to the following four factors (two days each):
 - . **Additional hospital inefficiency.** For instance, even the best practice hospitals in Japan generally do not admit or discharge patients on weekends. Also, even best practice hospitals are slower than their American counterparts when it comes to the adoption of new technologies enabling shorter ALOS (e.g., laparoscopic technology, as explained below).
 - . **Patient willingness to pay.** We found that Japanese patients are willing to bear additional out-of-pocket co-payment expenses to spend an extra few days in the hospital rather than to be sent home with stitches or other problems that would require them to return to the hospital.
 - . **More conservative treatment methods.** Japanese doctors tend to be more conservative than physicians in the US and prefer to keep patients hospitalized longer rather than send them home with stitches or catheters.
 - . **Lack of sub-acute facilities.** The growth of sub-acute facilities in the US over the past 10 years has allowed hospitals to discharge recovering patients to other facilities, thereby reducing hospital ALOS. It is not clear how the growth of sub-acute facilities has impacted the overall efficiency of the US system, as some evidence exists that they are leading to higher overall costs.
- **Benefits of cutting ALOS:** Cutting ALOS would have three positive results. First, it would increase the productivity of the Japanese health system by removing excess labor and capital inputs. Secondly, it would allow services like private rooms and private nurses to become more affordable for patients. Finally, it would help reduce the rate of hospital infection.
 - **Lower inputs:** Cutting ALOS would reduce labor inputs in two ways. First, it would reduce the variable labor that currently cares for patients in the extended portions of their stay. Secondly, assuming no changes to the current service levels (e.g., no additional private rooms, etc), it would force the closure of a number of hospitals and would thereby eliminate the fixed labor at these facilities. We assume that the

variable labor of hospitals that close would be re-hired by surviving (since we assume that the total number of patient admissions would not change). As Exhibits 17 and 18 illustrate, we estimate that a reduction of Japan's ALOS to 14 days would reduce labor inputs in hospitals by 24%, which represents a 13% reduction in overall labor inputs, due to the effects described above.

- **Better service levels:** It is important to note that Japan's long and unpredictable ALOS also has a negative impact on service output. Because Japanese patients are often hospitalized for long periods of time and are not told how long they can expect to be in the hospital, they are less willing to bear out-of-pocket expenses for private rooms. Best practice hospitals with well-defined critical path procedures have been able to generate as much as 30% of their revenue from out-of-pocket patient expenditures for private rooms precisely because they have reduced hospitalization time to shorter and more predictable levels.
- **Better disease outcomes:** Finally, longer ALOS leaves Japanese patients increasingly vulnerable to the threat of in-hospital infections. In fact, many studies have shown that when patients spend more time in hospitals, they are more likely to be exposed and infected by other patients. Unfortunately, there is no data to measure the in-hospital infection rate in Japan, but strong anecdotal evidence suggests that it is a serious issue. The fact that most Japanese hospital rooms house four patients in ward-style rooms further exacerbates the risk of infection.

¶ **Over-usage of prescription drugs:** At equivalent prices, Japan inputs about twice as many pharmaceutical products, both prescription drugs and over-the-counter medications, into its health system as the US, despite lower disease levels (Exhibit 19). Although legitimate treatment variations may exist between the two countries across a broad range of conditions, we do not believe that these variations explain the difference in drug inputs, as will be explained below.

The high level of drug prescriptions is a well-known fact with roots in the traditional practice of medicine in Japan. Even today, stories abound that outpatients go to the hospital, wait in line for two hours, see the doctor for five minutes, and come home with an armful of medication. Several years ago, a book telling Japanese patients about the medical effects of all the drugs they received and "which ones they don't really need to take," became a bestseller in Japan.

Output issues in Japan's health care system

- ¶ **Low outpatient service levels:** In the US, patients typically make appointments with doctors and spend an average of 20-30 minutes with them during each visit. Japanese patients, on the other hand, generally cannot make appointments and must often endure long waiting times to see physicians for less than five minutes on average.

This problem of long waits for short visits is most serious at large, prestigious hospitals where three hour waits are common. Since these prestigious institutions do not accept appointments, patients must take numbers and wait in large waiting rooms to be seen. Due to the tremendous volume of outpatients (especially among the elderly), doctors cannot devote much time to each patient. Therefore, visits average less than five minutes, and patients are often required to visit the doctor many times a year in order to renew routine prescriptions. The Japanese visit the doctor an average of 14 times per year. Americans, on the other hand, visit the doctor around 4 times per year, but still manage to spend more time with their physicians in a year than the Japanese (Exhibit 20).

Moreover, in order to process the flood of outpatients, most large hospitals resemble factories with patients lined up next to each other so that doctors can move quickly down the line. Care is often delivered in large, crowded examining rooms with only curtains serving as partitions between patients. In this way, patient privacy is often sacrificed in order to achieve higher patient throughput. Not surprisingly, long waiting times, short consultation, and lack of privacy are at the top of Japanese patients' list of complaints with their health care system (see Exhibits 4 and 5).

- ¶ **Low inpatient service levels:** Privacy is a concern for inpatients as well. The average hospital room in Japan holds four patients, compared to two or fewer in the US. Furthermore, due to low staffing levels in Japanese hospitals, hospitalization represents a greater burden for Japanese families. For instance, in many hospitals the family members must do the patients' laundry and provide more of the basic custodial care. In the past, many families were forced to hire private nurses to meet the needs of the patient because staffing levels in hospitals were so low, until the MHW effectively banned this practice in 1996.
- ¶ **Slow adoption of breakthrough medical technologies:** Many productivity-enhancing medical technologies, which allow the same treatments to be delivered less invasively and using fewer inputs, have been approved for reimbursement much later in Japan than in the US and Europe. Once approved, the actual penetration of these devices in Japan has also been slower. We have two examples of this phenomenon:

- **Laparoscopic cholecystectomy:** As was proven in the MGI Health Care Productivity Report (1996), this technology was the key driver of productivity in the treatment of cholelithiasis. This technology was approved for reimbursement in Japan in April of 1992. By this time, the technology had reached almost full penetration in the US and in Europe. Some Japanese doctors began experimenting with this technology as early as 1990 or 1991 and reimbursing it at the rates for open surgery. The MHW, however, disapproved of this practice and punished these hospitals by making them pay back the money they collected for laparoscopic surgeries. After the approval date, the penetration of the technology was quite rapid, although manufacturers estimate that excessive open surgeries are still done in Japan, especially in rural or less advanced hospitals (Exhibit 21).
- **Stents:** Stents represent a minimally invasive way to treat blockages in coronary arteries. The technology has been constantly improved over the years, but new generations of this technology have consistently been approved for reimbursement much later in Japan than in the US and Europe. In fact, the MHW approved stents for reimbursement three full years after they had been introduced in the US (Exhibit 22).

¶ **Less available treatment:** Part of the surgery gap with the US is explained by less availability and demand for elective (sometimes high-end) surgeries in Japan. Because national data on the numbers and kinds of procedures performed does not exist in Japan, we cannot systematically document the types of procedures that are not being performed in Japan. However, conversations with surgeons and other health care administrators who have experience in both countries have highlighted a number of important types of surgery that are not performed as commonly in Japan as in the US. Part of the reason may be differences in disease mix, disease prevalence, and treatment variations. But part of the reason has to do with less availability of these services in Japan and perhaps less demand for them. Examples include:

- Plastic and cosmetic surgeries
- Joint replacement surgeries for the old
- Organ transplantation (Exhibit 23). In the case of organ transplantation, ethical considerations (namely, whether brain death signifies true death) have retarded the growth of this practice in Japan. Despite these concerns, Japan has recently seen several notable transplant operations.

Furthermore, our interviews suggest that the Japanese health care system may also have lower output than the US system when it comes to providing for rehabilitative and mental care. In fact, aggregate data on health care employment seems to confirm this

fact, as there are nearly eight times as many trained physical, occupational, psychological, respiratory, and speech therapists in the US than in Japan. (Please see Exhibit 39 in Appendix D).

¶ **Slow approval of breakthrough drugs:** Despite the high levels of pharmaceutical inputs in the Japanese health care system, drug manufacturers complain that the bureaucratic drug approval process denies Japanese patients of access to breakthrough products. The facts bear this contention out. In fact, as Exhibit 24 shows, five of the global top 10 selling drugs, are currently not available for purchase in Japan. Furthermore, most of these drugs appeared in Japan 1-2 years later than they appeared in the US and Europe.

Exhibit 25 summarizes the production process issues we have identified using the same framework used in other cases.

INDUSTRY DYNAMICS

In this section, we provide a framework for describing the structure and dynamics of any health care system in terms of the economic interactions that occur among system participants and how these interactions are shaped by regulation. We then use this framework to describe some of the key differences between the Japanese, German, and American health care systems in terms of competitive intensity. In the next section we will refer to the regulations which both determine these different competitive dynamics as well as the regulations which directly influence provider behavior.

A framework for analyzing health care systems

As Exhibit 26 illustrates, the provision and payment for health care services in system is not the result of a single, simple market transaction between buyers and sellers. Rather, it can best be described as an interdependent set of economic interactions, explicit or implicit, for different health care-related products and services (including health insurance coverage and care provision services) that occur among various health care system participants. These participants include consumers and/or employers, payors or other intermediaries, hospitals and other institutions, and physicians. In many systems, the government or other central authority plays an active role either as one or more of these participants, or by regulating one or more of these interactions. Furthermore, government can directly regulate supply.

Government regulation in health care, unlike many other markets, serves an important purpose. Health care is somewhat unusual in that suppliers (i.e., doctors and hospitals) can generate their own demand. In other words, patients trust doctors to diagnose them and often have no choice but to listen to their doctor's recommendation. In most other markets, the most efficient players generate the highest returns. Without some form of price regulation and oversight in health care (usually provided by both government and

payors), there is a potential for abuse by providers who can make more money by delivering more care, even when it is not needed.

The specific interactions that exist in any health care system and the products or services that are exchanged include:

1. Interactions between consumers (or employers) and payors in the *health care coverage market*
2. Interactions between payors and providers (including hospitals or other institutions, physicians, and other providers) in the *care provision market*, including the guarantee of payment for care provision and possibly the guarantee for actual care provision services
3. Interactions between consumers (or patients) and providers in the *care delivery market*, including hospital and physician services

Although these markets are highly interdependent, each can be structured and regulated very differently in a health care system. The nature of these markets and their associated economic interactions collectively create specific incentives and constraints for providers, which in turn drive different care treatment approaches, which is the concern of this study.

Domestic competitive intensity

Weak competitive intensity in Japan's health care system helps to explain some of the operational issues we have identified above. However, weak competitive intensity does not explain all of these issues, as there are numerous regulations in Japan that lead directly to the inefficiencies and lower service levels we describe. These external factors, which we believe represent more significant causal factors for the issues described above, will be detailed in the following section of this case study.

Exhibit 27 summarizes the level of competitive intensity in Japan's health care system vs. Germany and the US. One of the key distinguishing characteristics of the Japanese health care system is the complete absence of competition in two of the three health care markets described above. As will be described below, low competitive intensity in each of these markets helps to explain some of the output and productivity issues we have identified.

Exhibit 28 shows both the causes and effects of low competitive intensity in the Japanese health care system. As can be seen in the Exhibit, low domestic competitive intensity, particularly in the two health care markets in which payors participate (i.e, markets for health coverage and health provision), contributes to long ALOS and over-prescription of drugs. As will be described in the External Factors section of this document, product market and capital market regulations are responsible for low competitive intensity in these markets. As far as output is concerned, distortions in competition among hospitals caused by government subsidies and poor accreditation requirements contribute to low inpatient and outpatient service levels, as described above. However, direct links from external regulations are more

important explanatory factors for the issues we have identified, as will be seen in the next section.

¶ **Causality for productivity issues**

Taken together, the lack of competition in the market for health coverage and the market for health provision makes it impossible for payors to pressure providers to reduce ALOS and excess drug inputs. In both the US and Germany, payors have begun to play a much more active role in monitoring provider behavior and forcing productivity improvements. Profit-driven payors have strong financial incentives to monitor provider behavior, reduce excess inputs, and thereby attract more customers through lower premiums. Providers who are forced to compete for payor contracts also have an incentive to be productive in order to attract payor business. In the MGI Health Care Productivity report (1996), differences in competition levels in these markets was a strong driver of productivity differences between the US, UK, and Germany. In Japan, however, this type of productivity-enhancing behavior is impossible due to product market regulations (described below) that essentially forbid competition in these markets.

- **Low competitive intensity in market for health coverage:** In this market between employers/consumers and payors, consumers cannot choose payors because they are assigned based on their place or status of employment. Even if they were to choose, they would find that it made no difference which payor they chose, since government regulations prevent payors from competing on price or on product offering. In Germany, on the other hand, consumers have been able to choose their own payors since 1996, although restrictions continue to block some consumers from choosing private payors. Consumers/employers in the US have even more freedom to select the payor of their choice, with a full list of price and product options to consider.
- **Low competitive intensity in market for health provision:** In this market between payors and providers, competition does not exist in Japan because all payors must cover the government-mandated list of benefits at government-mandated prices. Direct payor-provider negotiations on price are not permissible by law. In Germany, price negotiations occur between payor groups with individual providers, except in the case of private payors. While this practice limits competition in the German market, it is still more competitive than the Japanese market, in which price negotiations are banned. In the US health provision market, payors and providers are free to negotiate prices.

¶ **Causality for output issues**

- **Low competitive intensity in market for care delivery:** Competition between hospitals and clinics for patients does exist

in Japan, just as it does in the US and Germany. In Japan, however, the competitive dynamic in this market is distorted by regulations. These distortions are partly responsible for the low inpatient and outpatient service levels described above.

Because the MHW sets prices for all health care goods and services covered by the national insurance, there is no price-based competition among providers for patients. Competition based on superior medical outcomes is also severely hampered by regulations that limit providers' rights to advertise and promote their medical results, including the types of procedures in which they specialize.

As a result, competition does not occur based on price or documented outcome. Instead, competition is based on the *perception* of good outcome, which is tied to high technology and prestige. Government subsidies to university and public sector hospitals, combined with the generally low reimbursement levels for the entire hospital sector, force segmentation into two sub-optimal segments:

- High technology, low service hospitals that can attract patients based on the patients' perception of better care at these institutions
- Low technology, high service hospitals that have a difficult time attracting patients due to lower perceived quality levels

Very few private, un-subsidized hospitals manage to break through and become prestigious high tech hospitals. Those that successfully establish themselves as reputable high-tech hospitals have a difficult time expanding to new markets and winning market share outside of their own local communities.

What do these distortions in the market for care delivery mean for patients? They mean that Japanese patients have to sacrifice service if they want quality. They have to endure long waiting times and very poor service (i.e., short consultations, unkind doctors, etc) in order to get treatment at prestigious hospitals. These hospitals can afford to treat patients poorly because there is excess demand for their services. Patients will continue coming, no matter how poorly they are treated, because they believe that they would otherwise be sacrificing quality. In the words of one doctor, "Prestigious Japanese hospitals do not have to compete to find patients. They are drowning in patients. In the US, even the Mayo Clinic (considered America's most prestigious hospital) has to do some advertising to attract patients."

Exposure to international best practice

The provision of health service is, in all countries, predominately a local industry. Foreign entrants in the hospital industry are rare in every country, as in Japan. As a result, we do not feel that different levels of foreign competition represent an important explanatory factor for lower productivity in the Japanese health care system.

EXTERNAL FACTORS

Summary

As summarized in Exhibit 29, we found that product market, capital market, and labor market regulations were significant causal factors for the productivity and output issues we have identified. The fee system (product market) is the most significant barrier to productivity and output growth in the Japanese health sector. We found that payor regulations, government subsidies to some hospitals, and labor market practices, such as the University control on the doctor supply, to be of significant, but secondary importance. This section details the impact that these regulations have on the operational issues described above. First, we will describe the factors that lead to productivity issues we have identified. Then we will describe the factors that lead to the output issues we have discussed above.

EXTERNAL FACTORS FOR PRODUCTIVITY ISSUES

Product market regulations

¶ Payment system

- **Causality for long average length of stay:** The primary reason for long ALOS in Japan is that the fee-for-service payment system rewards long patient stays without limitation. As Exhibit 30 shows, hospitals can collect payment for at least one year for any patient they admit, regardless of the original reason for admission. The so-called hospital, nursing, and medical treatment fees can be collected with virtually no medical care being delivered. Therefore, hospitals receive what amounts to a room-and-board *per diem* for each hospital patient in addition to the fees they receive for procedures and medicines. In this way, the Japanese payment system combines the worst aspects of the both the fee-for-service and the *per diem* system by separately rewarding hospitals for each procedure they perform and each night of additional hospital stay they order. These payments are

high enough to cover hospitals' variable costs during the latter stages of patient stay.

As a result, hospitals have no incentive to discharge patients, at least until they have another, presumably sicker, patient to admit. As numerous Japanese health care professionals have confessed to us, the more troubling fact is that the current payment system rewards hospitals for prolonging sickness rather than treating patients efficiently. Given the fact that so many hospitals are in dire financial straits, many of them feel financial pressure to administer additional treatment to patients who do not need it because they can profit from each procedure they perform and each pill they prescribe. In this context, stories one hears about newly diagnosed diabetics being hospitalized for one week and subjected to x-rays and CT scans begin to make some sense.

In the US, unlike in Japan, the payment system rewards hospitals for being productive. Most US hospitals are reimbursed using case-based payments based on Medicare's Diagnosis Related Group Prospective Payment System (DRG/PPS). In other words, hospitals and physicians receive a flat fee for each patient based on his or her diagnosed condition. When a hospital knows that it will receive only \$3,000 for a patient with appendicitis, for instance, it has an incentive to treat the condition efficiently, using as few inputs as possible in order to capture the maximum amount of profit. As a result, the incentive to extend ALOS and over-use other inputs does not exist because hospitals capture more profit by reducing overall inputs.

In recent years, the German system has adopted many aspects of the US payment system for inpatient care. Since 1996, a growing number of diagnosis types have been reimbursed on a case rate basis in Germany. As a result of these changes, the ALOS in Germany has dropped consistently, from 12.1 days in 1995 to 10.7 days in 1998.

Japan's payment system, although less generous on a procedure-by-procedure basis compared to the US, has allowed thousands of small, inefficient hospitals to stay in business through long ALOS, at higher utilization rates than the average US hospital. These hospitals have little incentive to become more efficient, as efficiency improvements would simply leave them with idle capacity. As a result, they have no interest in adopting critical paths or other efficiency improvement programs because they simply do not serve their perceived financial interest.

However, a handful of private hospitals in Japan have reduced ALOS well below the national average to levels roughly equivalent to the ALOS for the average German hospital. These hospitals face fundamentally different incentives than most

hospitals in Japan. Through the achievements of outstanding management, they have built strong reputations for high quality care in their local communities, even without receiving government subsidies, which has allowed them to operate at full capacity with excess demand. These privately owned and operated hospitals have realized that, once they can attract enough patients, they have a financial incentive to reduce ALOS as much as possible in order to increase patient turnover. In other words, shortening ALOS has allowed these facilities to maximize their profit per patient day, since newer, sicker patients represent greater sources of profit than recovering patients in their 23rd or 24th day in the hospital, when they need few if any additional medical procedures. Thus, they have found that they can make more money with a short ALOS. However, this strategy is not viable for all private hospitals, as it would leave most of them with massive over-capacity. Moreover, these hospitals are betting that the days of the fee-for-service payment system in Japan are numbered, and are making productivity improvements in preparation for a new system that rewards productivity.

- **Causality for over-usage of drugs:** The problem of over-reliance on prescription drugs is also driven by the payment system. Traditionally, the MHW's drug pricing policy has allowed doctors and hospitals to capture a substantial margin between the price at which they purchase prescription drugs from wholesalers and manufacturers and the price at which they are reimbursed for these drugs, as defined by the fee schedule. Moreover, the MHW has never restricted provider ownership of pharmacies, as is the case in the US. Instead, the MHW has in recent years begun to force significant price reductions in pharmaceutical prices as a way to shrink margins and force clinic doctors to close their pharmacies. However, as Exhibit 31 illustrates, this period of shrinking drug margins in the 1990's has also witnessed a 60% increase in volumes, as doctors and hospitals try to make up in volume what they have lost in price.

Moreover, under the current system, doctors often have an incentive to choose a higher priced new drug over a cheaper generic drug. Not only do wholesalers generally give larger discounts for expensive drugs, but the prescription length for new drugs is also shorter than for old drugs, meaning that doctors can be sure to see the patient again in two weeks time. In addition, the government's bi-annual across-the-board price-reductions for prescription drugs have induced some drug companies to stop producing old, but effective medications for which the price falls below the average cost of production.

In one of the few serious studies of this problem in Japan, researchers report that the payment system is at the heart of the problem. This research, summarized in Exhibit 32, showed that a

long-term care hospital that shifted from the traditional fee-for-service system to a recently instituted all inclusive per diem system lowered its prescription drug costs by a whopping 78% per patient day. It is important to note that the only change in this hospital was the payment system. The type of patients, disease mix, and even the doctors were the same. The data also suggest that outcomes improved during this period, as the ratio of deceased patients dropped from 56% to 50% of total discharges in the same period of time. These findings are also consistent with an informal poll we conducted. In response to these findings, Japanese doctors and hospital administrators expressed no surprise at the magnitude of the difference in pharmaceutical inputs between Japan and the US, and estimated that Japan's prescription levels could be cut by 40-65% without adverse effects on patients.

To the extent that the payment system retards rather than accelerates the adoption of efficiency improvement efforts within hospitals, it further contributes to the over-prescription problem. For instance, hospitals that have implemented critical path procedures report 28% lower drug prescriptions for patients in these departments. This finding seems to confirm the anecdotes we have heard about excessive drug inputs in struggling hospitals. However, since inpatient drug inputs represent only 20% of total drug inputs and since critical paths are not applicable across all procedures, the impact of critical path adoption on drug inputs would be more modest than the 28% figure suggests. As seen in Exhibit 33, we believe that the difference in drug inputs between Japan and the US is entirely attributable to economic incentives, rather than legitimate treatment variations.

¶ Payor Regulations

- **Causality for long ALOS:** The lack of payor and/or regulatory oversight has allowed Japanese hospitals to extend ALOS well beyond levels considered reasonable in other countries. In the US, strict payor oversight has, in many cases, reduced ALOS more than has been achieved using case rate payments alone. In Japan, however, restrictions against payor intervention in care decisions and the lack of payor involvement in setting care limits have given providers free license to extend ALOS to lengths that are two to four times as long as other developed countries.

In Germany, despite the fact that hospitals were reimbursed purely on a *per diem* basis before 1996, closer payor oversight of provider behavior has played a role in keeping ALOS at levels below those seen in Japan. While they could not restrict patients from choosing inefficient hospitals, German payors could compare one hospital's performance against another and demand efficiency improvements. In cases when hospitals refused, they

could appeal to government arbitration. Furthermore, they could make life more difficult by blocking capacity expansions by inefficient hospitals while approving it for more productive hospitals. Fee-for-service payment for inpatient care, particularly in the absence of strict payor oversight, has virtually disappeared in the US in the past 15 years. Largely as a result, the ALOS has dropped from 12 to 5 days in the same period of time.

- **Causality for over-usage of prescription drugs:** The lack of oversight from payors also allows Japanese doctors and hospitals to prescribe medication without any need to justify or document their activities. In the US, payors define limits for the amount of prescription medication that they will for a given sickness. In Japan, payors have no rights to define these limits. They are decisions made by physicians only.

Capital market regulations

¶ Hospital ownership restrictions

- **Causality for long ALOS:** We expect that removing the product market regulations described above will foster significant efficiency improvements in Japan's hospital sector. We do not believe that the current restrictions requiring doctor ownership and management of hospitals and forbidding investor-owned for-profit hospitals will preclude these efficiency improvements. In fact, the US experience strongly suggests that hospitals do not have to be investor-owned or be for-profit in order to be efficient.

Nevertheless, the current restrictions certainly have not helped matters and may slow down the efficiency improvements that reform of the payment and/or payor system will trigger. The current ownership restrictions in Japan have contributed to the poor management skills in Japanese hospitals. They have hindered the emergence of a cadre of professional hospital managers, similar to what one sees in the US, and slowed the transfer of best practice thinking from other industries into the hospital sector. Some of Japan's best practice hospitals have hired COO's from other industries as a way to introduce better management skills into their institutions. As competitive pressures rise, we expect more hospitals to follow suit. But this process may be slower and more cumbersome than it would be if the current ownership restrictions were not in place.

Labor market regulations

¶ Medical school control of doctor supply

- **Causality for long ALOS:** In Japan, medical schools determine the course of doctors' careers long after they have graduated from school. When hospitals need a doctor, they call one of the prestigious medical schools in Japan and request that a doctor be assigned to them. Although the hospital then pays the doctor's salary, doctors feel more loyalty to the head of the medical school department (who will determine the location and position of the next assignment) than to the hospital administrator who is signing today's paychecks.

As a result, hospital managers complain that they cannot get doctors to implement efficiency enhancing programs (like critical paths). Under the current payment scheme, this may not be a major problem, since long ALOS benefits most hospitals. Under DRG's, however, it could prove more problematic by retarding productivity-enhancing activities. Currently, if hospital administrators fire the doctor, he or she will simply be re-assigned to another hospital by the medical school department. Moreover, they typically do not have the freedom to compensate doctors using incentive-based contracts, as such arrangements are not accepted by the medical school hierarchy.

Best practice private hospitals in Japan consistently cite their freedom from the so-called *Ikyoku* system as an important factor in the improvements that they have been able to make. These hospitals have gone to great lengths to hire doctors who were trained outside of Japan and hence have broken out of the system's hierarchy. Again, this is not something that all hospitals in Japan could do. As one hospital administrator, himself a doctor, told us: "The *Ikyoku* system really limits what you can do. If the medical schools don't like what you are doing in your hospital, they can just stop you. And you cannot do anything about it, because you know that you will need to call them for another doctor soon. We are really lucky not to be part of it."

EXTERNAL FACTORS FOR OUTPUT ISSUES

Product market regulations

¶ Payment system

- **Causality for low outpatient service levels:** The problem of long waiting times for outpatient care is primarily a result of the

payment system rather than a shortage of doctors in Japan. Historical evidence, summarized in Exhibit 34, confirms that the number of elderly outpatient visits jumped dramatically when the co-payment level was reduced to zero in the 1970's. Although co-payments were re-introduced in 1983 and raised consistently from 1983 to 1998, the real cost of outpatient visits relative to per capita income remains 10% lower in 1998 than in 1970, as Exhibit 34 shows. Thus, these changes did not dramatically alter the behavior of elderly patients who had become accustomed to visiting their doctors an average of 40 times per year. Similarly, Japanese doctors have also grown accustomed to frequent visits from their patients and have enjoyed the fact that more visits leads to more revenue for them.

The over-utilization of outpatient care by the elderly in Japan has created long waiting times for all patients. Regulations that prevent price-based competition among providers further exacerbate this problem. Differential pricing would allow large, prestigious hospitals to charge more and attract patients who are willing to pay more for perceived quality. Patients who were satisfied with lower levels of quality at a lower price would then choose smaller, more convenient providers, thereby helping to alleviate the most serious manifestation of the waiting time problem in large, prestigious hospitals.

Under current regulations, the most prestigious university doctors can charge no more than a young clinic doctor for a given service. Hence, patients can enjoy higher perceived levels of quality at university hospitals at no extra out-of-pocket charge, as long as they are willing to sit patiently in a waiting room. Higher service formats, especially within the hospital sector, have a harder time gaining hold because they must charge the same price as hospitals that are perceived by patients to offer much higher quality.

- **Causality for low inpatient service levels:** The generally low level of reimbursements for inpatient care leads to low inpatient service levels by making it difficult for hospitals to hire more staff, provide better food, and offer more privacy in rooms. In order to turn a profit, most Japanese hospitals believe that they have no choice but to pack each room with several beds and keep patients hospitalized for long periods of time. These practices not only reduce patient privacy, but also make private rooms unaffordable for patients who would be willing to pay for them if they knew how long they would be hospitalized.
- **Causality for slow technology adoption:** Two factors, both pertaining to the payment system, slow the adoption of medical technology in Japan. First, the fee schedule is updated every two years, meaning that new advances must often wait two years

before they are covered for reimbursement. In some cases, when the MHW is not ready to consider adding a new procedure to its list at the time of the fee update, the delay can be even longer. Secondly, when the reimbursement price is ultimately set, it is done without considering the marginal cost that the hospital incurs to perform the procedure. In fact, partly due to the lack of available cost data, the MHW never considers the marginal cost of a procedure when setting its reimbursement price. It is much more concerned with preventing the over-utilization of expensive procedures and ensuring that the total cost of the system remains below the levels set by the Ministry of Finance. Therefore, reimbursement levels are often set (consciously and unconsciously) below marginal cost, thereby deterring all but subsidized hospitals from investing in the technology.

¶ **Lack of credible provider accreditation and licensing**

- **Causality for low service levels (inpatient and outpatient):** In the US, independent accreditation and licensing organizations, with the government's support, have played a crucial role in ensuring the uniformity of high quality among hospitals, clinics, and doctors. The US Joint Commission on Accreditation of Health Care Organizations (JCAHO) has existed for 70 years as an independent, non-profit organization with the express purpose of monitoring and accrediting all types of health care providers (from hospitals to clinics and even clinical laboratories) based on their operational performance. To maintain JCAHO accreditation, hospitals must undergo extensive on-site reviews conducted by multi-disciplinary committees composed of physicians, nurses, hospital administrators, and health care policymakers. Although these reviews are voluntary, virtually every hospital in America has no choice but to pay for them because they realize that they could not survive without accreditation.

The JCAHO has no power to close hospitals that do not meet its quality standards. However, hospitals that fail to get accreditation face severe penalties. In the first place, they risk losing government money in the form of research grants, teaching subsidies, and even Medicare reimbursements. Secondly, they risk payor backlash, as many payors refuse to contract with hospitals that are not properly accredited. Finally, they risk losing credibility in their communities because the JCAHO results are always made public so that media and consumers at large have transparency into hospital performance. Moreover, any patient can freely check the accreditation status and performance of their local hospital on the JCAHO web site.

In Japan, the MHW maintains some regulations and guidelines for the hospital sector. These regulations, however, are

superficial in nature and do not delve into a hospital's operational performance. The main requirements pertain to necessary staffing levels and sanitation requirements, such as the disposal of medical waste. Theoretically, if hospitals fail to meet these requirements, they can be closed by the Ministry. However, the MHW does not have the staff needed to monitor hospitals and clinics in a meaningful way. In fact, according to recent estimates, as much as 40% of Japan's hospitals falls below the MHW's required nurse-patient ratios. If the Ministry were to monitor Japan's 9,500 hospitals and 80,000 clinics every three years, they would have to conduct over 125 inspections per day. This is a feat that they simply cannot accomplish, even if they had the JCAHO's skills and experience.

As a result, any doctor in Japan can open and operate a hospital with minimal scrutiny over operational performance and disease outcome by either the MHW, Japanese payors, or independent evaluators. As such, it is no wonder that Japanese patients have concerns that the quality of their hospitals is not uniformly high. In the US, on the other hand, patients have more confidence in the uniformly high quality of hospitals. As a result, they routinely choose the hospital that is most convenient to them rather than crowding into the most prestigious academic medical center within driving distance.

The absence of strict continuing education requirements for doctors in Japan is also a concern for Japanese patients. In the US, specialist boards require that practicing physicians complete coursework and take examinations to ensure that they are abreast of the latest knowledge and technique in their fields. If doctors do not comply, they can lose their specialist certification. Specialist bodies in Japan, however, do not force doctors to take such exams. Membership is voluntary, and doctors generally do not have to have formal certification to claim expertise in a given field.

¶ Advertising restrictions

- **Causality for low outpatient service levels:** Restrictions on the advertising of outcomes, specialties, and procedure volumes unduly hinder private hospitals from competing with large public and university hospitals on the basis of better service but similar outcomes. Thus, patients continue to crowd into large hospitals because they assume that these high technology centers have superior outcomes, even for minor ailments.

Capital market regulations

¶ Government subsidies

- **Causality for low service levels (inpatient and outpatient):** Government subsidies allow public-sector and university hospitals to dominate high-technology care. Besides direct government subsidies to finance capital expenditures or fund operations, these hospitals also receive indirect subsidies in the form of property tax breaks. Since reimbursement levels are set below marginal cost for many high-end procedures, most hospitals have a difficult time making money by practicing high-tech medicine. To compensate for the limitations that low reimbursement rates place on high-tech medicine, the government pays subsidies to public and university hospitals to allow them at least to remain close to the cutting edge of technology. Higher levels of technology allow these hospitals to attract thousands of outpatients per day who associate high technology with better outcomes, even for primary care.

In this way, government subsidies distort competition among providers by giving subsidized hospitals an insurmountable technological edge over most private hospitals, thereby removing the competitive pressures that would force them to care about and improve their service levels. These hospitals represent roughly 20% of the hospital sector in Japan.

Labor market regulations

¶ Doctors as hospital employees

- **Causality for low inpatient service levels:** Because doctors in the US are generally not employees but clients of hospitals, they have a great deal of power over hospitals. This power serves to amplify the complaints of patients about hospitals, whenever the doctor voices them. As one US hospital administrator put it, “We don’t want any of our patients to be dissatisfied with the service they receive in our hospital. But if a doctor complains on their behalf, we take it a lot more seriously because losing a doctor means losing lots of patients all at once.”

In Japan, because doctors are employees of hospitals without their own patients to please, they do not have the same incentive to advocate for patients. Nor do they have the same power over hospitals.

FUTURE OUTLOOK AND RECOMMENDATIONS

Reform of the Japanese health care system should have two overriding objectives. First, it should seek to improve the efficiency of the system by reducing ALOS and eliminating the over-usage of prescription drugs.

Secondly, it should seek to improve the level of service that the health care system provides to Japanese consumers.

As is detailed in the Appendix, we have quantified the extent to which improvements in service levels will require additional employment in Japan's health care system. This analysis suggests that the prize of reform could be 1 million new jobs in health care, even at current demographic and disease levels. This is a net estimate over a roughly 10 year time frame. The analysis also suggests that this dramatic improvement in service can be achieved without increasing the level of total factor inputs in the Japanese health care system.

In order to gain these benefits, however, Japan must first remove the current inefficiencies in its health care system.

Ways to improve the productivity of the Japanese health care system

We believe that Japan could dramatically improve the efficiency of its health system by taking three important steps, listed in order of importance:

- ¶ **Reform the reimbursement system:** Replacing the current fee-for-service system with a DRG-type case rate payment structure would have an immediate effect on ALOS and thereby on overall bed capacity in the hospital sector.
- ¶ **Ban provider ownership of pharmacies:** In order to solve the over-prescription problem for outpatient care, Japan should ban provider ownership of pharmacies.
- ¶ **Remove restrictions on payors:** By allowing payors to monitor and influence the behavior of providers (both for inpatient and outpatient care), Japan could create more effective oversight of providers

While we believe that payor reform will have a positive impact on efficiency, we feel that the efficiency problems we have identified can be addressed without payor reform. However, payor reform has the unique advantage of creating a dynamic system, capable of innovating and hence constantly improving productivity over time. Moreover, by enabling payors to monitor provider behavior and influence care decisions, Japan would ensure that other inefficiencies in the current health system beyond the ones that we have identified and quantified (particularly in outpatient care) would come to light and eventually disappear. Thus, payor reform represents the least important short-term change, but grows more important over the longer term.

¶ **Reform the reimbursement system:**

- **Impact on long ALOS:** The simplest and most direct way to solve the ALOS problem is to reform the payment system to reward productivity rather than inefficiency. Both the US and German experience prove that the case rate payment system, which gives hospitals (and doctors) a fixed payment for each diagnosed

condition successfully reduces ALOS. Since 1996, when Germany implemented a case rate payment system, ALOS has fallen from 12.1 days to 10.7 days in 1998. Although other reforms in 1996 (including some payor reforms) may have contributed to this 12% decline, most German hospitals cite the introduction of the case rate payment system as the most important factor driving them to change. One should also note that the adoption of the case rate payment system in Germany is still incomplete, as it applies to only 30-40% of inpatient procedures. But regulators are eagerly broadening the DRG list, encouraged by the early results.

If Japan implements a case rate payment system across all inpatient procedures, we would expect Japan's ALOS to drop swiftly and significantly. In fact, a hospital with an 18 day ALOS told us that if the government were to introduce a DRG-type payment system, it could reduce its ALOS to "10-11 days overnight." Within a year, they predicted that they could put efficiency improvement programs in place to reduce their ALOS by an additional 2-3 days.

As explained above, some hospitals would inevitably exit the market due to these changes. Others would reduce bed capacity by converting their current four person rooms to single or double rooms, as has happened in US hospitals that have reduced ALOS in the past 10 years. The creation of more private rooms would, in and of itself, improve the level of service given to Japanese patients.

The sensibility of a case rate payment system is not lost on MHW regulators. In fact, they strongly support such reforms, but are hamstrung by two factors. First, and most importantly, the powerful doctor's lobby (JMA) is strongly opposed to any meaningful changes to the current payment scheme which has allowed their core primary care physician membership to extract a great deal of value from the system. Ironically, there is no reason that such reform should directly damage primary care physicians who, even in the US, are usually compensated on a fee-for-service basis. But the JMA seems to oppose meaningful change of any kind, fearful that it will lead, one way or other, to less money in doctors' pockets.

Secondly, the MHW cannot collect basic treatment cost data from a representative sample set of hospitals in order to begin the arduous task of pricing the hundreds of medical conditions treated by hospitals. The MHW has asked 42 public hospitals to begin coding their procedures according to the DRG classification system. A uniform coding system is not only necessary for price-setting, but also for collecting and comparing outcome and efficiency data across hospitals. Early results from this trial suggest that there are wide differences in treatment cost and

outcomes for the same DRG codes across hospitals. Despite these trials, no hospital in Japan is being reimbursed on a case rate basis. Given the logistical difficulties, most observers believe that a DRG-type payment system would take three to five years to rollout in Japan, even if the MHW and the JMA were to put all of their muscle behind it.

The level at which DRG payments are set is also important. It is important that the DRG payments be set at a level so that, on average, the system will have to become more efficient. At the same time, the level should not be set so low that no hospital could afford to offer higher service levels and still turn a profit. The only way to achieve this outcome is to study the real costs (in terms of physical inputs) that hospitals incur across a broad range of procedures and set reimbursement rates accordingly. A recent study by Japan's Economic Planning Agency (EPA) tracking the physical input costs associated with a number of disease conditions in a handful of hospitals is a good start to this process.

- **Impact on over-usage of prescription drugs:** Adoption of a case rate payment system will also solve the over-prescription problem for inpatient care. When hospitals know that excess drug inputs will cut into their profits, they will act rationally to limit drug inputs as much as possible. But since they only apply to inpatient care (in all countries), case rate payments would not solve the drug over-usage problem in outpatient care.

¶ **Ban provider ownership of pharmacies**

- **Impact on over-usage of prescription drugs:** The only solution to this problem, in the absence of complete price liberalization, would be to forbid hospitals and doctors from owning pharmacies. By separating the drug prescribing and dispensing functions in this way (and ensuring that no side payments flow between pharmacies and providers), Japan can remove the perverse incentives currently at work. In other words, doctors and hospitals would no longer be able to create demand for a product that they also supply. As in the US, doctors would then make no money for prescribing drugs, and pharmacies would be unable, without a doctor's prescription, to sell drugs to patients.

¶ **Remove payor regulations**

As mentioned above, there is also a viable payor-driven approach to reducing ALOS and the over-usage of prescription drugs.

- **Impact on long ALOS:** Even in the absence of case rate payments, payor reform represents an alternate way to pressure providers to reduce ALOS. Specifically, five key reforms to current payor regulations are needed if Japanese payors hope to reduce ALOS and other inefficiencies:

- A large segment of the payor system should be privatized and consolidated. The current payor landscape is too fragmented to allow payors to have real bargaining power with providers.
- Payors should be able to compete with one another on price and consumers should be free to choose their own payors
- Payors should have the right to negotiate their own prices with providers
- Payors should be able to reject payment of excessive claims from providers
- Payors should be able to define treatment norms for given disease conditions

If granted all of these rights, Japanese payors could behave more similarly to US managed care companies. However, as the government could continue to provide health insurance or subsidize private insurance coverage for others, these changes would not deny Japanese citizens of the universal coverage they currently enjoy. Nevertheless, fundamental payor reform of this kind most likely represents a more complicated, more administratively costly, and more controversial approach to a problem that could be solved simply and elegantly by changing the current payment system to a DRG-type system.

However, it is worth noting that payor reform might have long term efficiency benefits that cannot be predicted today. For instance, managed care companies in the US have devised innovative ways to control costs that have been more effective than case-rate reimbursements. For instance, some managed care companies have realized that it is more efficient for doctors to spend all of their time in a hospital rather than run back and forth to their clinic to see patients in both care settings. Simply by reducing doctor transit time, some US payors have increased productivity. One would expect these efficiency enhancements to spread within the US health care system.

- **Impact on over-usage of prescription drugs:** As mentioned earlier, the adoption of a case rate payment system will solve this problem for inpatient, but not for outpatient care. The payor-driven approach could address this problem on the outpatient side if payors were given the right to reject payment for prescriptions deemed excessive and define drug prescription norms.

Ways to increase output in the Japanese health care system

As described in the Industry Overview section, Japan's health care system is extremely egalitarian. Unlike American, German, and even British citizens, the Japanese cannot pay more for better quality of medical care or better access to physicians. But when one looks below the surface, the Japanese system begins to look somewhat less egalitarian. In the first place, it is common practice for patients who want to see top specialists to make tacit side payments to these physicians (and sometimes to referring physicians) that are reported to run between \$1000-\$3000 per procedure. Moreover, because of poor hospital accreditation and oversight, many people justifiably believe that hospital quality varies tremendously in Japan. The limited availability of outcome data and the ban on hospital advertisement of procedure volumes, specialties, and outcomes make it impossible for consumers to be able to identify poor hospitals. And since there is no independent evaluation organization that subjects Japanese hospitals to a set of minimum standards (as has existed in the US for the past 70 years), patients are justifiably hesitant to choose hospitals with less-than-stellar reputations. As a result, they crowd into prestigious hospitals where they are forced to pay famous doctors thousands of dollars to receive top quality care. Seen in this light, the Japanese health system already has two tiers. One of them just happens to be underground and out of view.

Despite the gaps in health coverage in the US, American patients of all income brackets have more confidence in the high level of quality of all hospitals and doctors and do not have to make under-the-table payments to purchase acceptable quality. Therefore, American patients feel that they can receive high quality medical care, no matter which hospital they choose. Moreover, US law forbids hospitals from turning away any patient who needs emergency care. In these ways, the US system is somewhat more egalitarian than it may seem at first glance, despite the lack of universal coverage.

However one feels about the importance of egalitarianism in health care, the service level issues we have identified can largely be addressed without fundamentally disrupting the egalitarian underpinnings of the current system. In other words, Japan does not have to sacrifice egalitarianism for better service levels. It does not need to establish a two-tier health care system to substantially improve the level of service that patients receive. Specifically, we recommend that the government take the following steps, in conjunction with the adoption of case rate payments, as argued above:

¶ **Eliminate both direct and indirect subsidies for patient care given to public and university hospitals** (subsidies for true medical research excluded)

- **Impact on inpatient service levels:** In order to improve inpatient service levels, the government must level the playing field among hospitals in order to spark true competition among all hospitals for patients. Currently, public-sector and university hospitals

receive substantial subsidies that allow them to retain a technological edge over most private hospitals and free them from significant competitive pressure to make money. In the words of a leading doctor at one of these hospitals, “Instead of competing for patients, we compete for subsidies.” As a result, neither these hospitals nor their doctors care about service or efficiency because they know that they will always have more than enough patients and more than enough financial support from the government. At the same time, since the reimbursement level for some inpatient procedures is set below marginal cost, private hospitals have a very difficult time competing with subsidized hospitals or correct the impression among patients that only subsidized hospitals can provide high quality care.

As proven by the US example, competition among hospitals for patients creates strong incentives for hospitals to improve service levels, whether they are amenities like meals, more friendly nurses, private rooms, or higher staffing ratios to make patients more comfortable. Without competition, a case rate system alone would give hospitals incentives to cut service levels to the bone in order to capture as much profit as possible. Therefore, a case rate payment system and higher levels of competition must go hand in hand for Japan to enjoy both efficiency and higher service levels.

¶ **Raise the standard and quality of private hospitals by establishing a rigorous third-party accreditation board for all hospitals and requiring bi-annual on-site reviews in order for hospitals to qualify for reimbursements**

- **Impact on service levels (inpatient and outpatient):** The MHW should require hospitals that want to qualify to treat national health insurance patients to submit to bi-annual inspections by a third party accreditation group modeled after the US JCAHO. If hospitals fail to comply or fail to meet the accreditation body’s international standards, they should not receive any reimbursements from the government until all of the performance-related problems have been corrected.

Removing subsidies will go a long way to leveling the playing field among hospitals in Japan. In the short-term, we would expect public and university hospitals to struggle to make ends meet without government support, perhaps allowing private hospitals to catch up. Over the longer term, stricter accreditation and licensing of hospitals and doctors would give Japanese consumers more confidence in the uniformly high quality of medical service delivered by all providers. Thus, it would make patients more likely to make service level differences a more important factor in their choice of provider.

¶ **Establish stricter licensing and continuing education requirements for physicians**

¶ **Reduce the currently high utilization rates** (especially among the elderly) by:

- Eliminating the current prescription length limitations that force patients to return to the doctor at least once per month for refills. Up to 30% of outpatient visits in Japan are primarily for refills.
- Raising the co-payment levels for routine outpatient visits by the elderly
- Raising the co-payment levels for people choosing to get routine outpatient care at large hospitals, as opposed to local clinics, for minor ailments

In order to address the outpatient service problems, the government should reduce the frequency of outpatient visits, especially among the elderly, while seeking to increase their quality. To do so, the government should first repeal current laws limiting the length of prescriptions to two-four weeks. Doctors we interviewed confessed that such a change would reduce their outpatient volume by 20-30%.

Secondly, the government should increase co-payments for the elderly, especially if they choose to go to large hospitals for routine care. The goal should not be to make health care unaffordable, but to return Japan to international norms as far as outpatient visits are concerned. We believe that by making some of the changes mentioned above (e.g., stricter accreditation, case rate payments, banning provider ownership of pharmacies), the elderly can continue to receive high quality care, but visit the doctor half as often.

¶ **Expand treatments covered by health insurance**

- **Impact on elective surgeries and other treatment gaps:** Although some of the gap may be demand driven, an expansion of the kinds of treatments covered (e.g., organ transplantation) and the rates at which they are reimbursed increase the number of elective surgeries in Japan. Also, reimbursements for therapy, rehabilitation, etc. will likely lead to growth in these areas as well.

¶ **Increase staffing and priority for technology and drug approval process**

- **Impact on technology adoption:** By updating the fee schedule more frequently and allowing technology adoption to be driven solely by patient demand, the technology adoption gap with the US can be closed.
- **Impact on breakthrough drug approval:** The MHW has already recognized the need to streamline the drug approval process

and has given a number of assurances that it will successfully do so. However, many observers remain skeptical, as long as the MHW does not agree to accept more foreign clinical data and hire more staff to expedite drug approval process. We recommend that both of these steps be taken

- ¶ **Continue to expand coverage for elderly nursing care, including home care services**

Appendix A: Adjustment for different levels of disease and injury

As mentioned in the methodology section of this case, we have made three adjustments to convert nominal health care expenditures into comparable physical inputs. We first describe our methodology for adjusting for different levels of disease and injury in Japan versus the US. In Appendix B, we describe our adjustment for different levels of disease prevention. Finally, in Appendix C, we describe our adjustment for different price levels of health care inputs. These three adjustments, taken together, allow us to compare inputs for disease treatment in comparable physical terms.

In order to determine how much of the input difference between Japan and the US is explained by differences in disease prevalence, we rely on a measure of disease burden developed by the World Bank called the disability-adjusted life year (DALY). This measure was also used by the World Health Organization and the Harvard School of Public Health in their seminal work on differences in the impact of disease and injury across nations.¹

DALY's capture the impact of both premature death and disability in a single measure and in a single currency. This single currency is time: time (in years) lost through premature death and time (in years) lived with premature disability. In the words of the authors, "The DALY expresses years of life lost to premature death and years lived with disability of the specified severity and duration. One DALY is thus one lost year of healthy life. Here, a "premature" death is defined as one that occurs before the age to which the dying person could have been expected to survive if they were a member of a standardized model population with a life expectancy at birth equal to that of the world's longest surviving population, Japan." To calculate DALY's associated with lung cancer in a given population in 1996, therefore, one would sum the total years of life lost (YLL's) due to lung cancer and the total years lived with disabilities by people suffering from this disease (YLD's).

As they take both mortality and morbidity into account and cover a list of over 85 diseases and sources of injury, DALY's are considered a comprehensive measure of the burden of disease and injury in a society. Exhibit A1 summarizes the major disease groups for which DALYs have been calculated. Even a subset of these diseases, as seen in Exhibit A2, account for over 60% of total health care costs.

Exhibit A3 shows the top 15 causes of DALY's in the US versus Japan. As one can see, different diseases impact these populations in different ways. Heart disease, for instance, led to the loss of three times as many healthy years of life

¹ For more information, please see Christopher Murray and Alan Lopez, *The Global Burden of Disease*, 1996.

in the US compared to Japan. In Japan, on the other hand, stomach cancer and cerebro-vascular disease caused high levels of DALY's compared to the US. Overall, the comparison also shows that numerous conditions driven by different social conditions in the two countries (e.g., HIV, drug/alcohol use, motor vehicle accidents, homicide and violence) represent a significant source of the DALY difference between Japan and the US. As mentioned earlier, these social causes of DALY's explain some of the difference between the life expectancy of Japanese and Americans.

As mentioned in the body of this case study, US DALY levels across all diseases and sources of injury are 27% higher than Japan's DALY levels. In order to determine the impact of this difference in DALY's on overall health care costs, we calculate what Japan's health care costs would be at the level and mix of DALY's seen in the US. To make this estimate, we start with disease-level treatment cost data reported by *Kenporen*, one of Japan's largest payor organizations covering over 50% of the population. Since we know Japan's DALY levels for each disease, we can calculate a treatment cost per DALY for each disease in Japan today. Then, assuming the US DALY mix and DALY level, we can calculate what Japan's treatment cost *would be* at US disease levels (at current Japanese prices). As summarized in Exhibit 6 of the text, we conclude that Japan would have 22% higher costs at US disease levels.

Using DALY's to compare the levels of disease and injury across two countries does have limitations. In the first place, if the quality of disease prevention and treatment is far better in Japan than the US, then DALY levels would also be lower. However, as explained above, we have assumed that the effectiveness of disease treatment efforts are the same in the US and Japan. Also, as explained in Appendix B, we have adjusted for possible disease prevention differences by simply excluding prevention inputs from our comparison.

Secondly, DALY levels will naturally rise as a population ages, and overall mortality and morbidity rates go up. However, in the comparison years we have chosen (1993 for Japan vs. 1996 for the US), the percentage of the population over the age of 65 in both countries is nearly identical (13.5% in Japan vs. 12.8% in the US).² Therefore, demographics do not alter our results.

² OECD Labor Force Statistics, 1998 Edition.

Appendix B: Adjustment for different levels of disease prevention

To adjust for different levels of disease prevention, we first estimate the percentage of total outpatient visits that were purely preventive or diagnostic in nature. Using the US NCHS Survey of Ambulatory Care Visits to Physicians Offices, Hospitals Outpatient Departments, and Emergency Rooms, we estimate that 58 million, or 6%, of all outpatient visits in the US are preventive in nature, 95% of which occur in clinic settings. Using data on total clinic employment (and adjusting this figure slightly upwards to account for preventive visits outside clinics), we conclude that 1.5% of total health care employment in the US is devoted to disease prevention. We exclude these inputs from our comparison with Japan, as seen in Exhibit 7.

In Japan, we have data on the number of prevention checkups (*Ningen Dokku*) as well as other disease screening visits. Using MHW patient surveys on the total number of outpatient visits per year, we know that there are roughly 1.8 billion non-prevention outpatient visits per year in Japan, each of which lasts 5 minutes on average. Furthermore, we know that there are 39.7 million *Ningen Dokku* comprehensive health checkups per year, 30% of which are full-day visits while 70% of which are half-day affairs. We also know that there are roughly 36 million additional disease screening visits each year to check for stomach cancer and other diseases. Using these data points, we estimate that roughly 13% of all time spent on outpatients is for preventive medicine. 13% of outpatient inputs translates to 6% of total labor inputs for the overall health sector.

Appendix C: Adjustment for different price levels of health care inputs

In order to remove the effect of prices and allow a comparison of physical inputs, we calculated separate purchasing power parities (PPP's) for each input category (labor, drugs, capital, and other inputs). A summary of our results is found in Exhibit C1.

¶ **Labor inputs:** To calculate our labor PPP for health care labor, we used the following four steps:

- Measure the number of health care employees in Japan and the US in six categories (doctors, registered nurses, dentists, pharmacists, administration, and other medical employees)
- Measure the average salary of each type of employee in the US and Japan in national currencies
- Compute the non-wage labor costs (e.g., unemployment benefits, health care costs, etc) associated with each of these types of health care employees in national currencies
- Compare the fully-loaded labor cost (i.e., wage plus non-wage cost) for each employment category between the US and Japan to compute a PPP for each employment category
- Calculate a PPP for the entire medical labor category by weighting the doctor, nurse, pharmacist, dentist, admin, and other health care employment PPP's by their share of employment

¶ **Drug inputs:** We used two different drug PPP's, one for prescription drugs (which we calculated ourselves) and one for OTC from calculations done by Japan's Japan Health Science Institute (*Iryo Keizai Kenkyojo*).

This section describes our methodology for calculating a PPP for prescription drugs, which constitute 80% of drug expenditures in both Japan and the US. Our final prescription drug PPP is based on a price comparison of roughly 85 different pharmaceutical products, compared at equivalent dosage and drug form. Our methodology was as follows:

- Convert a list of the top 500 selling prescription drugs in Japan to a list of chemical names

- Match chemical names with chemical names listed in the US Red Book for Drug Topics (the definitive source for average wholesale drug prices)
 - For all drugs that we were able to match between Japan and the US and hence confirm that they were available in both markets, we then matched them in terms of dosage and format. In other words, we compared only tablets with other tablets, powders with other powders, liquids with other liquids. We also ensured that the products we compared matched in terms of dosage (e.g., 1 mg tablet vs. 1 mg tablet). We did not consider any drugs that we could not match in these ways
 - Once we had matched drugs, we compared prices:
 - Japan: NHI reimbursement price
 - US: Average wholesale price across all manufacturers, adjusted by a 15% retail margin
 - We cross-checked the US price data from the publicly available Red Book with data from a major US pharmacy. This data served to confirm that many of our previous assumptions were accurate
 - Finally, we derived a PPP for each drug in the comparison. We computed a PPP for the entire prescription drug category by weighting each drug's PPP by its share of total sales in Japan and the US
 - For OTC drugs, we relied on a study by the Japan Health Science Institute (*Iryo Keizai Kenkyojo*)
- ¶ **Capital:** We first determined the share of capital inputs composed of structures vs. equipment respectively. Then, we computed a weighted average capital PPP by applying the OECD PPP for health care equipment and the OECD PPP for consumption of fixed capital.
- ¶ **Other:** We used the OECD GDP PPP, since this category consists of the remaining basket of goods and services purchased by the health care sector (e.g., food, paper, maintenance services, etc).

Appendix D: Explaining employment differences

There is 77% more health care employment in the US than in Japan, as seen in Exhibit D1. We use our labor PPP's (described in Appendix C) to convert employment to labor inputs in per capita PPP dollars. In this appendix, we explain the reasons for the employment gap between the health care systems of the two countries and estimate how much additional employment Japan could create by reaching US levels of service.

Exhibit D2 is a summary of our findings. As the exhibit illustrates, there are four sources of employment differences between Japan and the US:

- ¶ More disease/injury in the US
- ¶ Inefficiencies in the US system
- ¶ Inefficiencies in the Japanese system
- ¶ Higher service output in the US

We consider each of these factors in turn:

More disease and injury in the US

As described in Appendix A, we estimate that Japan would have 22% higher health care costs at American disease and injury levels. Hence, we simply make a 22% adjustment to labor inputs as well to represent the additional employment that Japan would need if its population were as sick and injury-prone as the US population. This adjustment closes the labor input gap by 12 points, as shown in Exhibit D2.

Inefficiencies in the US system

We have observed two important inefficiencies in the US system that account for higher levels of labor inputs than in Japan.

- ¶ **More admin workers:** As seen in Exhibit D1, the US system requires more workers—in hospitals, clinics, and insurance companies—to administer than the Japanese system. This admin gap represents 2 additional labor input points, once we adjust for disease-level differences.
- ¶ **Excessive surgery:** We have also observed that there is almost four times as much surgery performed in the US on a per capita basis as in Japan. From the numerous interviews we have conducted (including with surgeons who have practiced in both countries), we have concluded that a portion of this surgery gap is explained by excessively high surgery rates in the US driven by doctor incentives.

In other words, since American doctors are reimbursed separately from hospitals and since surgeries are generally quite profitable in the US, surgeons face strong financial incentives to perform surgery, even when non-surgical treatment may serve the patient as well or better than surgery. Moreover, US payors have in some cases tolerated these practices because they often prefer a surgical solution to a lengthy, medication and consultation-based non-surgical approach. With surgery, they can be sure that the medical problem is removed without the need for numerous additional doctor visits and medicines. A review of medical literature confirms our suspicions. In fact, looking at a number of surgeries, US specialist boards often conclude that a percentage of these surgeries are “inappropriate” given the symptoms that patients showed.³

We have estimated the reasons for more surgery in the US in Exhibit D3. As shown, excessive surgery accounts for about 20% of the overall surgery gap with Japan. Using the logic outlined in Exhibit D4, we estimate that excessive surgeries in the US translate into 2% higher health care employment overall. In other words, if the excessive surgeries that are conducted in the US today were removed, this would reduce total US labor inputs by 2%.

Inefficiencies in the Japanese system

Long ALOS is a significant inefficiency in the Japanese system that contributes to excessive labor and capital inputs. We have discussed this issue, including its impact on labor inputs, at great length in the body of the case. We conclude that long ALOS accounts for 18% of the overall labor input gap, corresponding to 8 points on Exhibit D2, where labor inputs are indexed to the US=100. Please refer to Exhibits 17 and 18 for more detail.

Higher service output in the US

¶ **Treatment variations:** We do not believe that treatment variations, however, impact employment levels. Interviews with both Japanese and US hospitals suggest that non-surgery patients often require higher levels of labor inputs than non-surgical patients, largely because they often require longer hospital stays to cure. Anecdotal evidence about the non-surgical approach used for appendicitis in Japan (i.e., drug therapy administered over several weeks on an inpatient basis) suggests that this assumption is not unreasonable. Appendicitis in the US is treated surgically, with a 2-3 day ALOS. We capture the impact of different disease levels separately (see Appendix A above).

¶ **Treatment gaps:** Surgical treatment gaps, as shown in Exhibit D3, account for 1% more employment in the US. We have doubled this figure to account for slower adoption in Japan of new non-surgical

³ Please see, for instance, UCLA/Rand Corporation study (2000) and Health Services Research (1989)

technology and procedures, a factor that interviewees have indicated another reason for employment differences.

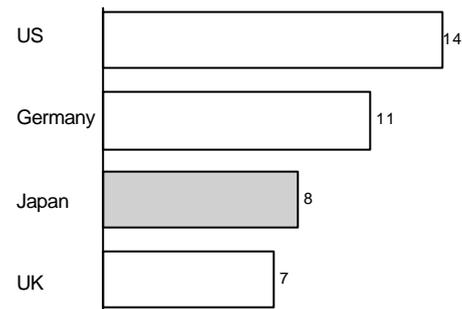
- ¶ **More time with outpatient doctors:** As explained above, service levels for inpatients and outpatients are higher in the US than in Japan. Americans spend more time with physicians in a given year despite three times fewer visits. If Japan were to close this gap, it would require a 1% increase in labor inputs, as described in Exhibit 20.
- ¶ **Higher nursing home services:** We estimate that there is a gap in nursing home care staffing levels as well, though roughly the same number of elderly and institutionalized in nursing facilities in both countries. Even assuming that 20% of employment in Japanese hospitals is for nursing care, total nursing employment is still significantly below US levels, as seen in Exhibit D5. Closing this employment gap in elderly nursing services would close the overall labor input gap by an additional 7%. (We have not adjusted for disease level differences here because we estimate that the number of nursing care patients is roughly equal on a per capita basis in the two countries).
- ¶ **Higher acute inpatient service levels:** In order to estimate the labor input difference for acute inpatient care, we have used employment, utilization, and ALOS data from a Japanese hospital that treats only acute patients (as typical US hospitals do). This comparison shows that labor inputs, in terms of total hours worked, are 20% less in Japan than in the US. When one adjusts for disease levels, Japanese inefficiencies such as long ALOS, and US inefficiencies such as lower capacity utilization, excess surgeries, and more admin (as shown in Exhibit D6), Japan's input levels remain 18% below US levels. Adjusting US acute hospital employment downwards by a corresponding 18% would account for 8% of the total labor inputs.
- ¶ **More home care services:** Roughly 6% of US health care employment is in the home health services field. These services are virtually non-existent in Japan today. The inputs associated with home health services amount to 7 additional points.
- ¶ **Other services/Other inefficiencies:** The remainder of the labor input gap is due to other services in the US (e.g., rehabilitation facilities, sub-acute care, therapy, etc.) and other US inefficiencies. Unfortunately, we were not able to quantify the specific nature of all of these services or the specific inefficiencies. Hence, we do not consider these inputs in the "higher service" category.

Having estimated the reasons for labor input differences, we then estimate the impact on employment if Japan reaches US service levels. In other words, we estimate the number of jobs Japan would add if it closed all of the gaps shaded in Exhibit D2, assuming that 50% of the "other service/US inefficiencies" box represents higher service output in the US. As Exhibit 12

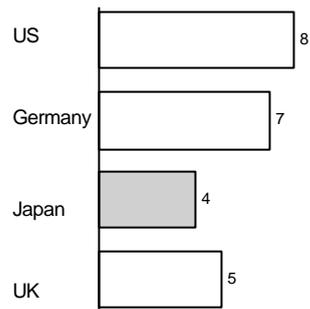
of the case summarized, this would amount to 1 million new jobs in the Japanese economy.

Exhibit 1
EXPENDITURES AND EMPLOYMENT IN THE HEALTH CARE SECTOR

Health care expenditures as percent of GDP
Percent; 1996

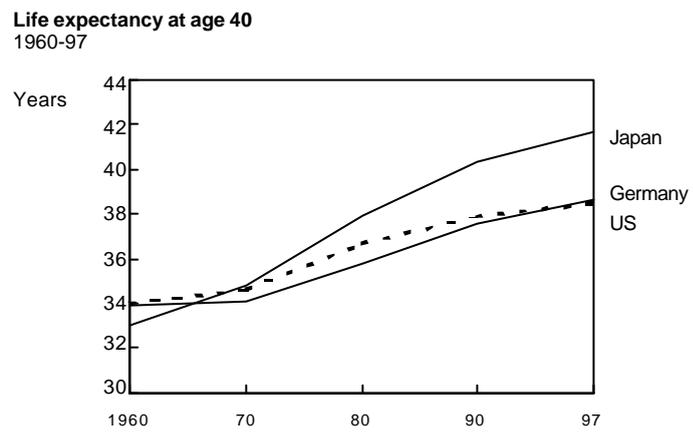


Health care employment as share of total employment
Percent; 1996



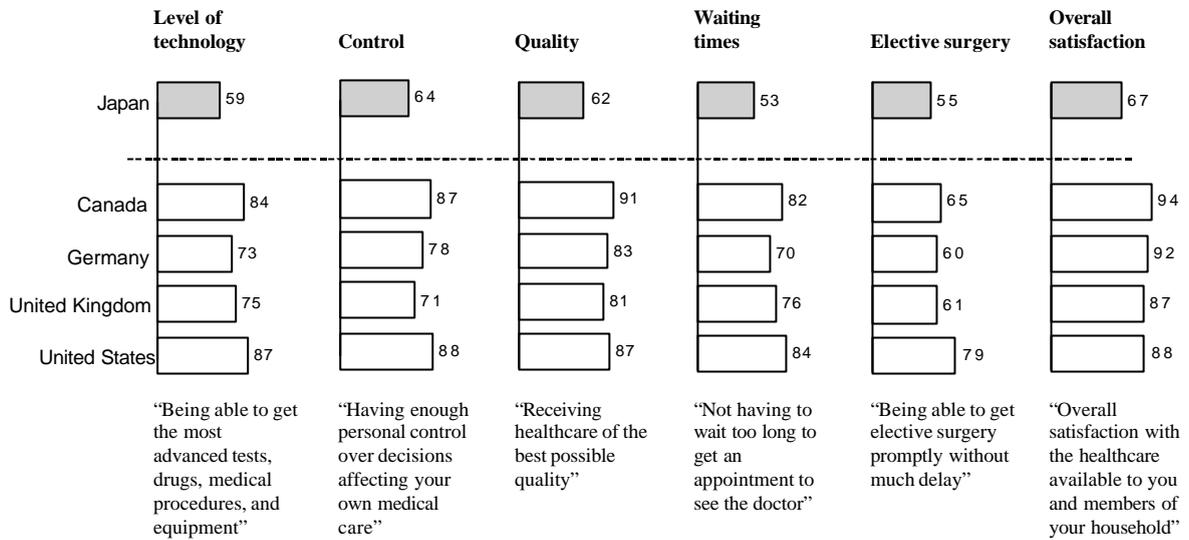
Source: OECD; Yukiko Katsumata in Containing Health Care Costs in Japan (ed. Ikegami and Campbell); MHW; US Bureau of Labor Statistics

Exhibit 2
COMPARATIVE LIFE EXPECTANCY



Source: OECD Health Data, MHW, US National Center for Health Statistics

Exhibit 3
JAPANESE PATIENTS ARE NOT SATISFIED

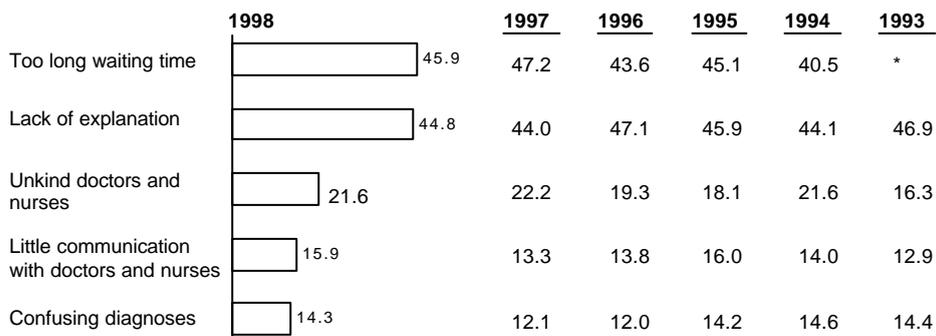


Source: Survey of 1000 patients in each country conducted by Louis Harris and Associates for the Harvard Community Health Plan

Exhibit 4
RESULTS OF DOMESTIC PATIENT SATISFACTION SURVEYS

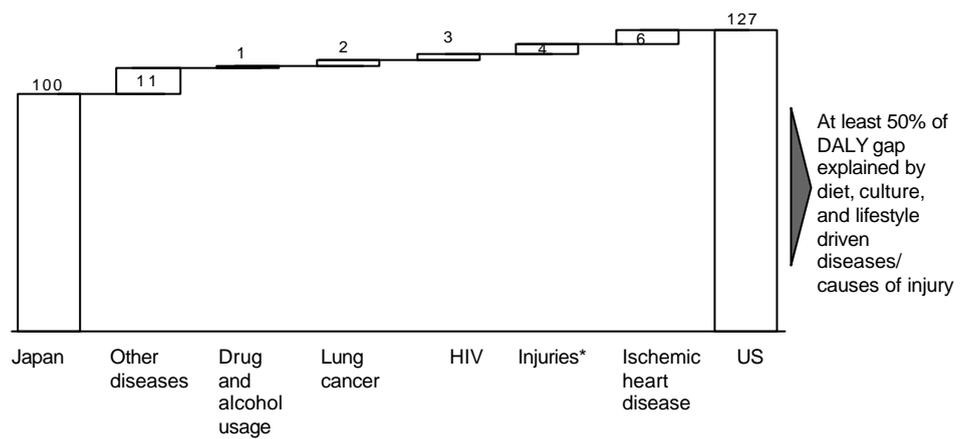
Percent of overall respondents

Reasons for patient dissatisfaction



Source: Kenporen health insurance association; 1998

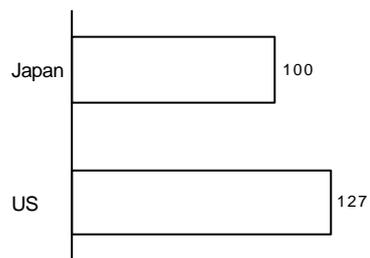
Exhibit 5
DRIVERS OF DALY'S GAP BETWEEN JAPAN AND THE US
 Index; Japan=100



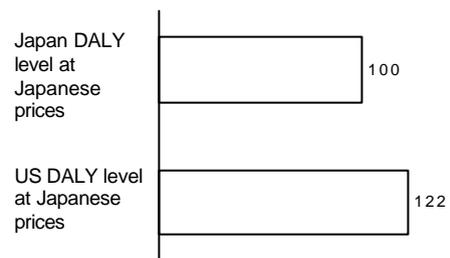
* Including homicide and violence, motor vehicle accidents, falls, drownings, fires, etc.
 Source: US Center for Disease Control, Harvard School of Public Health; Hasegawa; *Kenporen and Kokumin Hoken*

Exhibit 6
BURDEN OF DISEASE COMPARISON: JAPAN VS. US
Index; Japan=100

DALY's/1,000 population*



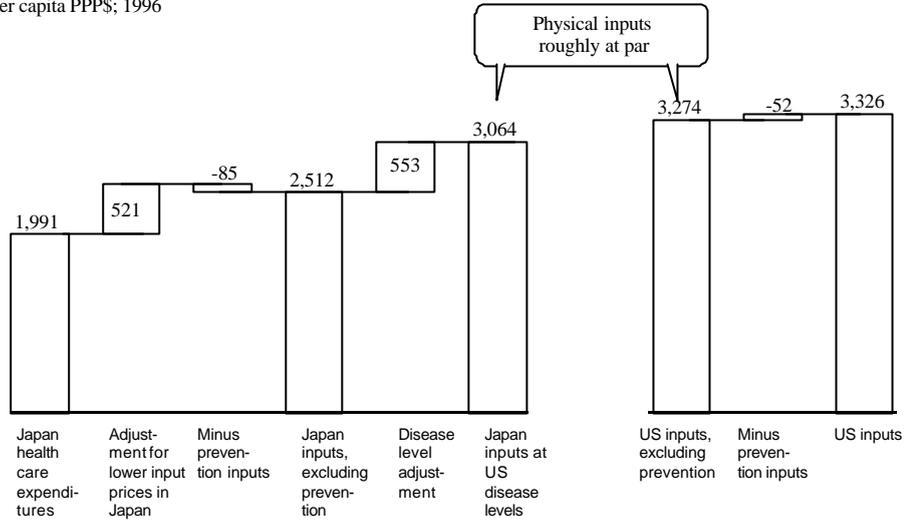
Cost impact of DALY difference**



* For 80+ causes of death and injury.
** Based on a sample of 50 causes of death and injury for which Japanese payor cost data was available.
Source: US Center for Disease Control, Harvard School of Public Health; Hasegawa; *Kenporen* and *Kokumin Hoken*

Exhibit 7
JAPAN'S HEALTH CARE INPUTS AT US DISEASE/INJURY LEVELS

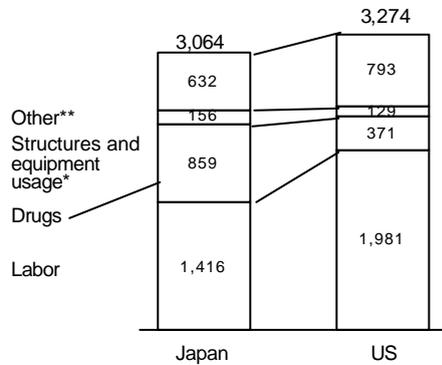
Per capita PPP\$, 1996



Source: MHW; Yukiko Katsumata in Containing Health Care Costs in Japan (ed. Ikegami and Campbell); OECD; NHS outpatient survey; McKinsey analysis

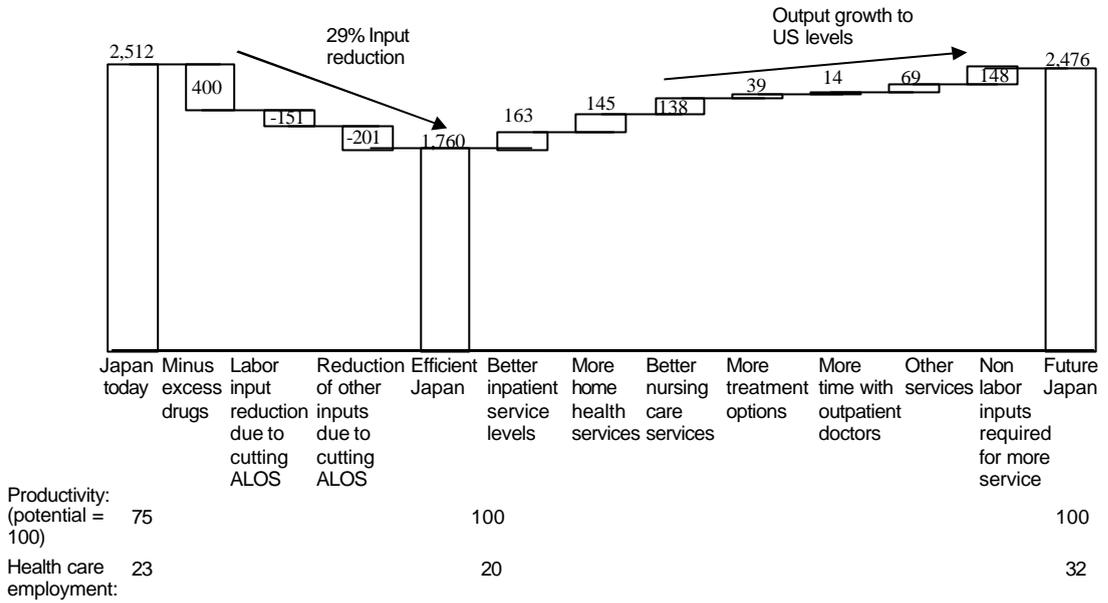
Exhibit 8
BREAKDOWN OF DISEASE-LEVEL ADJUSTED HEALTH CARE INPUTS EXCLUDING PREVENTION, JAPAN VS. US

Per capita PPP \$, 1996



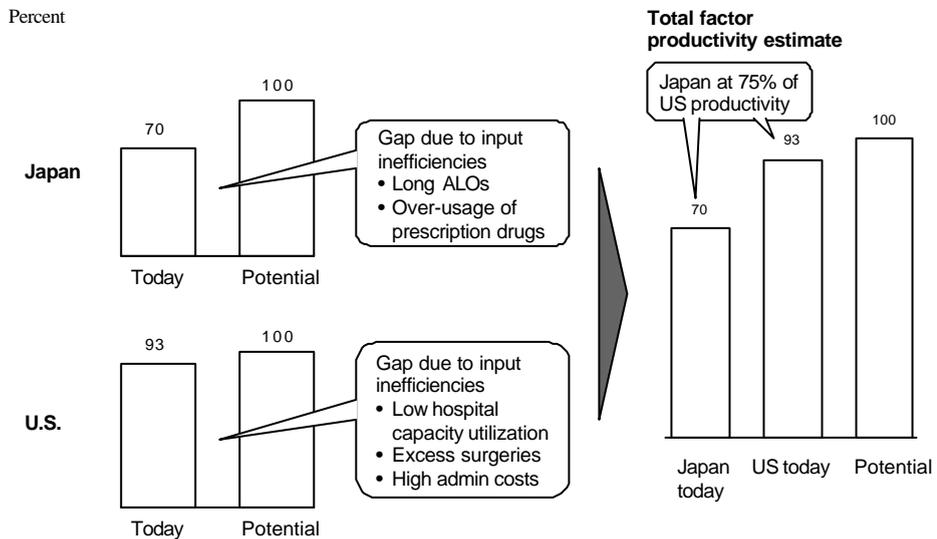
* Estimated using structures and equipment depreciation
 ** Includes rent, interest, insurance, food, materials, supplies, other disposables
 Note: Excludes all inputs associated with pharmacies outside of clinics/hospitals as well as retailers selling OTC products
 Source: Management and coordination agency input-output tables; OECD; US Census of Service Industries

Exhibit 9
PRODUCTIVITY AND OUTPUT GROWTH IN JAPAN'S HEALTH CARE SECTOR
 Per capita PPP\$; 1996



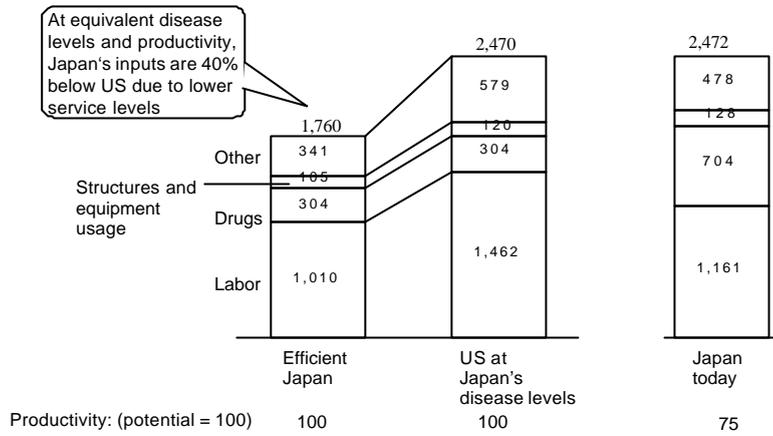
Source: McKinsey analysis

Exhibit 10
HEALTH CARE PRODUCTIVITY ESTIMATION METHODOLOGY



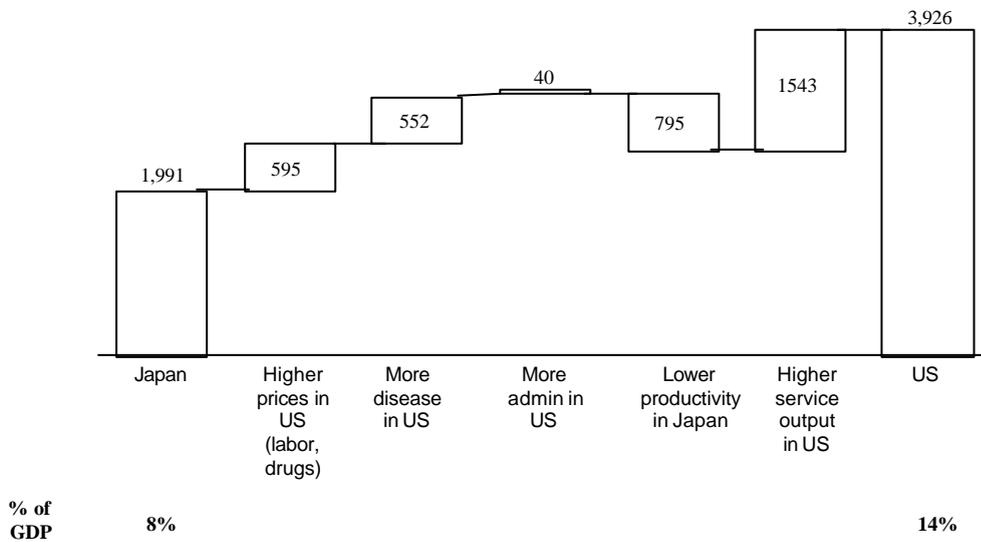
Source: McKinsey analysis

Exhibit 11
OUTPUT IMPROVEMENT POTENTIAL IN JAPAN
 Per capita health care inputs excluding prevention; 1996 at PPP\$



NOTE: Japan's efficient input level determined using different ALOS assumptions as US (14 days vs. 6 days). Japan's input level at US service level would therefore be still be lower than the US under similar ALOS assumptions.
 Source: McKinsey analysis

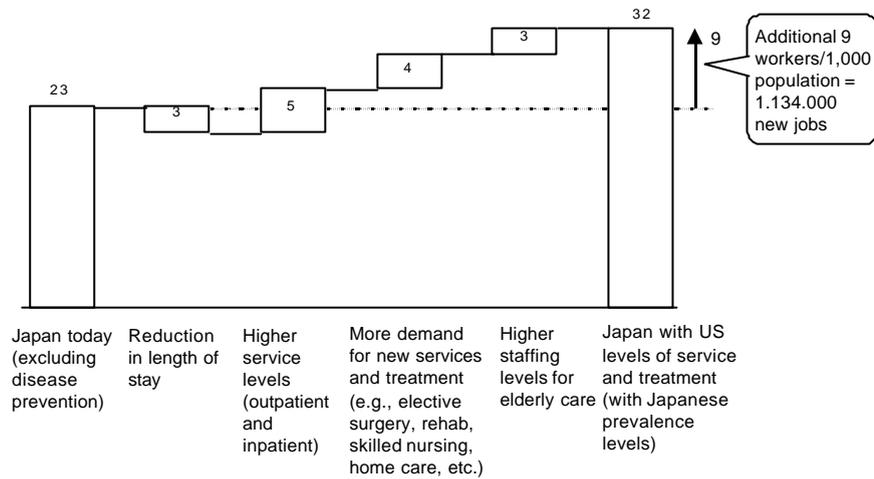
Exhibit 12
RECONCILIATION OF HEALTH CARE EXPENDITURE DIFFERENCES
 Per Capita \$ at GDP PPP, 1996



Source: McKinsey analysis

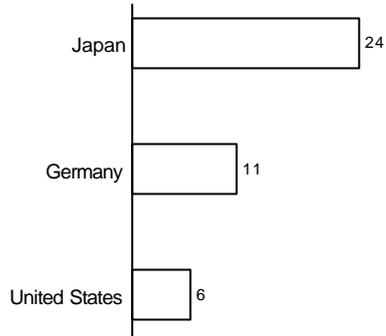
Exhibit 13
EMPLOYMENT POTENTIAL OF JAPANESE HEALTH CARE SYSTEM

Workers per thousand population



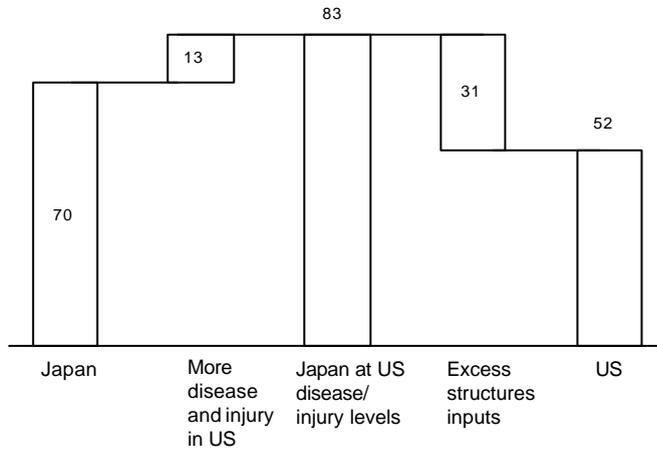
Source: MHW, McKinsey analysis

Exhibit 14
AVERAGE LENGTH OF STAY FOR ACUTE CARE
 Days; 1996



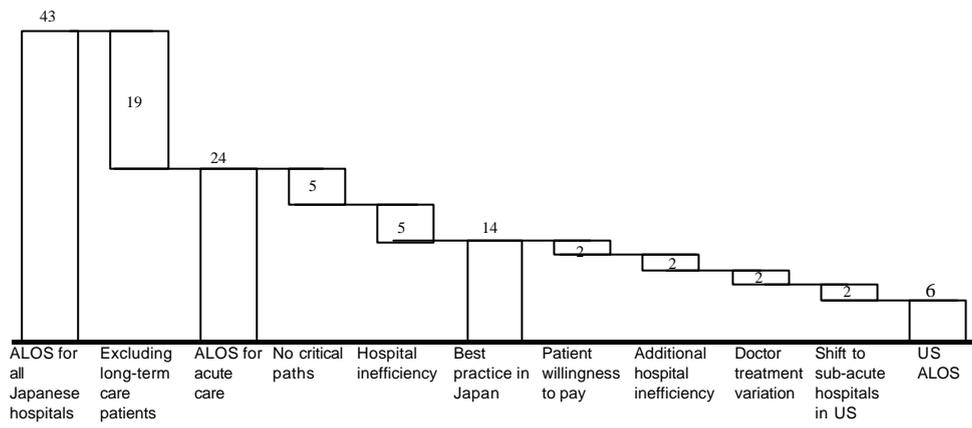
Source: Ministry of Health and Welfare; American Hospital Association; Statistisches Bundesamt, Provider interviews, McKinsey analysis

Exhibit 15
COMPARISON OF PHYSICAL STRUCTURE INPUTS
 Per capita; 1996; At OECD structures PPP



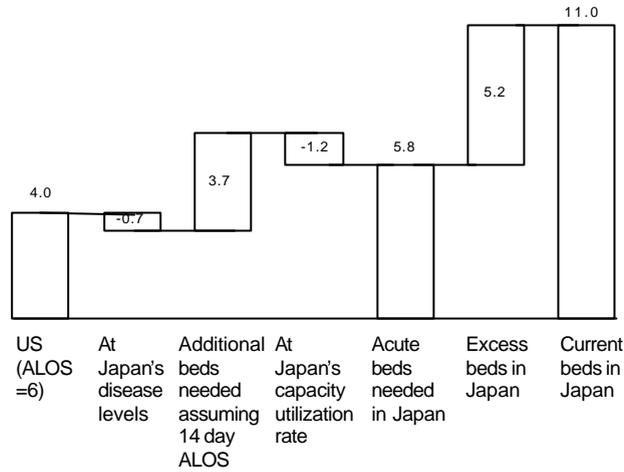
Source: EPA; US Census Bureau; MHW, OECD

Exhibit 16
DRIVERS OF LENGTH OF STAY DIFFERENCES – JAPAN VS. US
 1996



Source: Interviews; McKinsey analysis; MHW; US Health Care Almanac

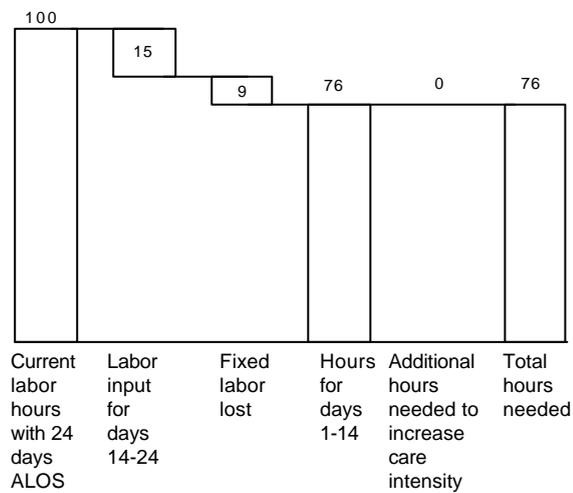
Exhibit 17
ACUTE BEDS NEEDED IN JAPAN WITH ALOS OF 14 DAYS
 Acute beds/1,000 population, 1996



- If Japan's ALOS dropped to 14 days, it would only need 53% of its current bed capacity
- Fixed labor associated with excess beds is 9% of total hospital employees

Source: Hospital interviews, McKinsey analysis

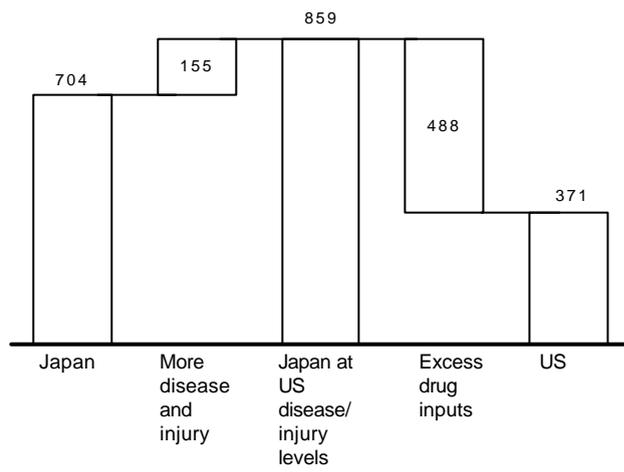
Exhibit 18
EMPLOYMENT REDUCTION POTENTIAL DUE TO CUTTING ALOS TO 14 DAYS



LOS reduction will cause 24% loss in hospital employment in Japan (13% of total health care employment)

Source: Hospital interviews, McKinsey analysis

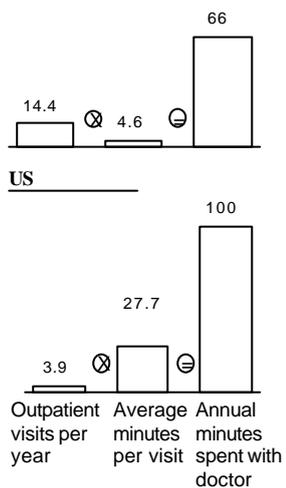
Exhibit 19
DRUG INPUTS COMPARISON
1996; at per capita drug PPP



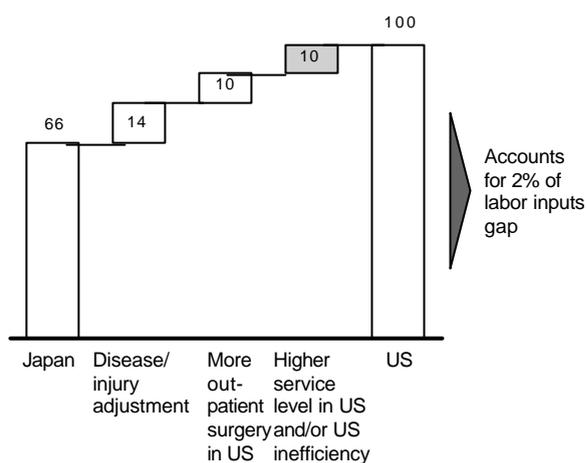
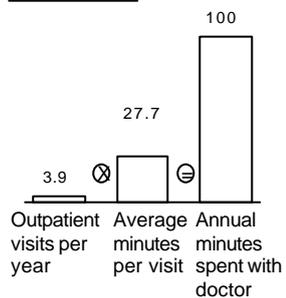
Source: MHW; IMS; US Red Book; McKinsey analysis

Exhibit 20
TIME SPENT WITH DOCTOR PER YEAR – OUTPATIENT
 Minutes per year per person; 1996/97

Japan

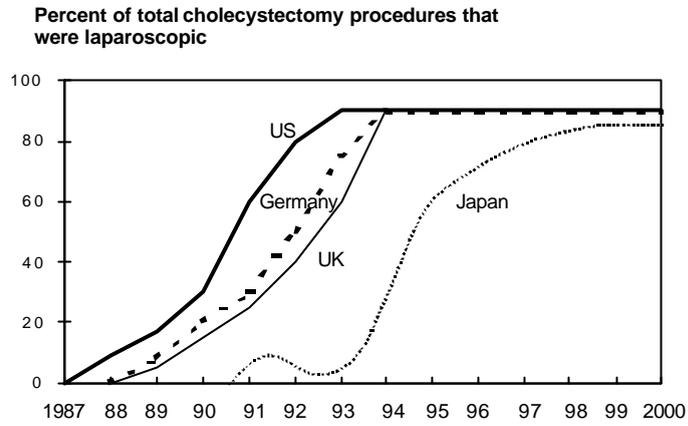


US



Source: MHW; Vital and Health Statistics

Exhibit 21
RATE OF ADOPTION OF LAPAROSCOPIC TECHNOLOGY



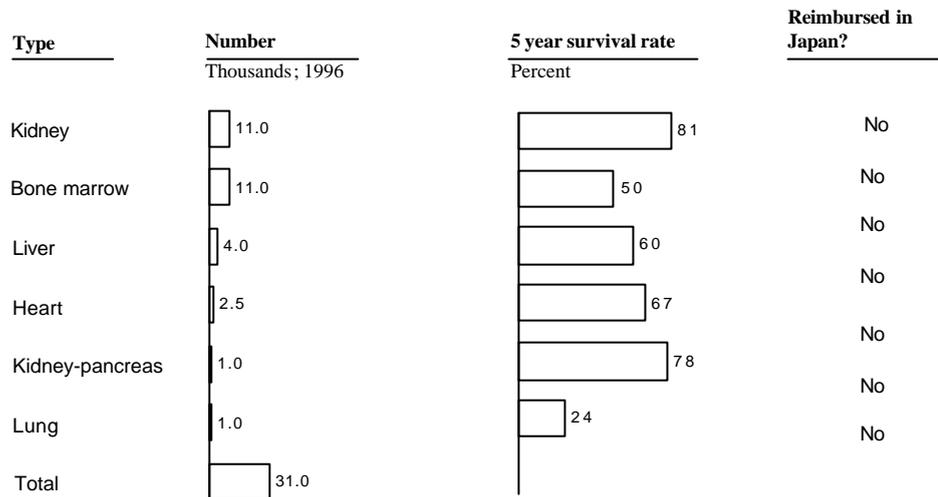
Source: R. Orlando III et al., 1993(US); NIH Consensus Development Panel on Gallstones and Laparoscopic Cholecystectomy, 1993; R. McCloy, 1992(UK); R.C.G. Russell, 1993(UK); industry interviews(UK); H.J. Kramling et al., 1993(Germany); clinician interviews(Germany); interviews in Japan

Exhibit 22
APPROVAL OF VARIOUS GENERATIONS OF STENTS

<u>Generation of product</u>	<u>Date approved in:</u>			<u>Japan time lag with US</u> Years
	<u>US</u>	<u>Europe</u>	<u>Japan</u>	
1st generation	1991	1991	1997	6
2nd generation	1997	1996	1999	2
3rd generation	1998	1998	2000	2

Source: Interviews; McKinsey analysis

Exhibit 23
TREATMENT GAPS EXAMPLE – TRANSPLANTATION



Source: Health Forum

Exhibit 24

TOP-SELLING BREAKTHROUGH DRUGS ARE NOT AVAILABLE IN JAPAN

Top ten selling drugs worldwide	Description	Date approved in:		Time lag behind the US Years
		US	Japan	
1. Losec	Anti-ulcerant	1989	1991	2
2. Zocor	Anti-cholesterol	1991	1991	0
3. Prozac	Anti-depressant	1987	–	12+
4. Norvasc	Calcium antagonist	1992	1993	1
5. Lipitor	Anti-cholesterol	12/96	–	3+
6. Renitec	Ace inhibitor	1986	1986	0
7. Seroxlat/Paxil	Anti-depressant	1992	–	7+
8. Zoloft	Anti-depressant	1991	–	8+
9. Augmentin	Broad spectrum penicillin	1984	1985	1
10. Claritine	Antihistamine	1993	–	6+

Not available in Japan

Source: IMS

Exhibit 25

PRODUCTION PROCESS CAUSALITY: HEALTH CARE

- Primary (≥10 points)
- Secondary (5-9 points)
- Undifferentiating

	<u>Productivity issues</u>	<u>Output issues</u>	<u>Description</u>
• Product mix/marketing	-	●	<ul style="list-style-type: none"> • No combined high service/high tech provider formats • Few private rooms • Fewer treatment options • Fewer breakthrough drugs
• Production factors			
- Capital intensity/technology	-	○	<ul style="list-style-type: none"> • Slow technology adoption
- Scale	-	-	
- Labor trainability	-	-	
• Operations			
- Organization of functions and tasks	●	-	<ul style="list-style-type: none"> • Long ALOS • Over-usage of prescription drugs
- Supplier/buyer relations	-	-	
- Capacity utilization	-	-	

Exhibit 26

HEALTH CARE SYSTEM STRUCTURE: THREE PLAYERS AND THREE MARKETS

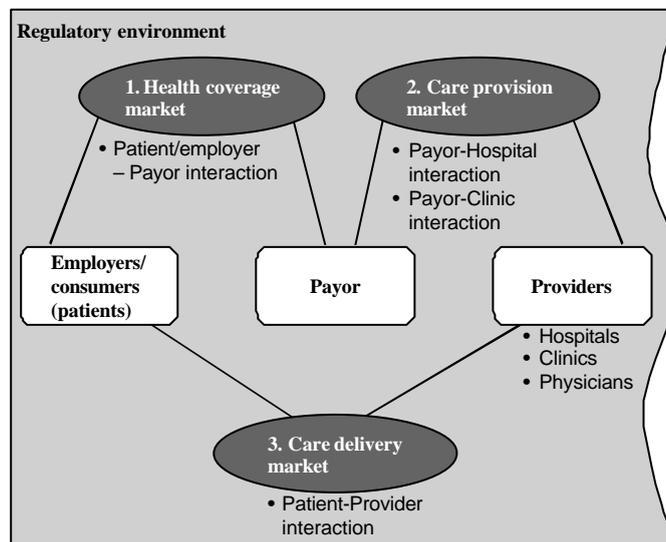


Exhibit 29

SUMMARY OF DIRECT LINKS BETWEEN EXTERNAL FACTORS AND OPERATIONAL ISSUES

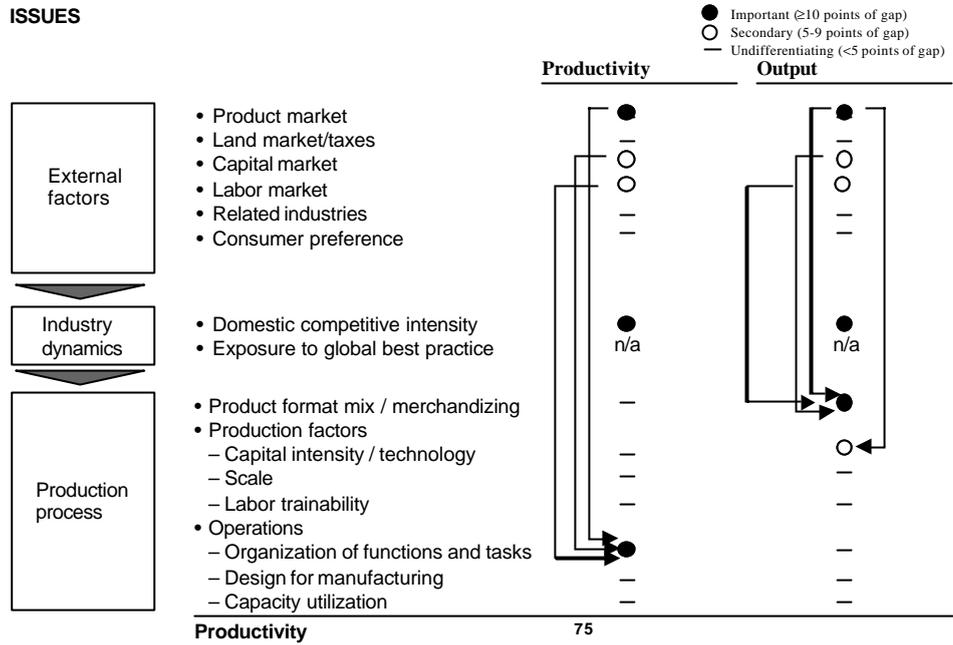
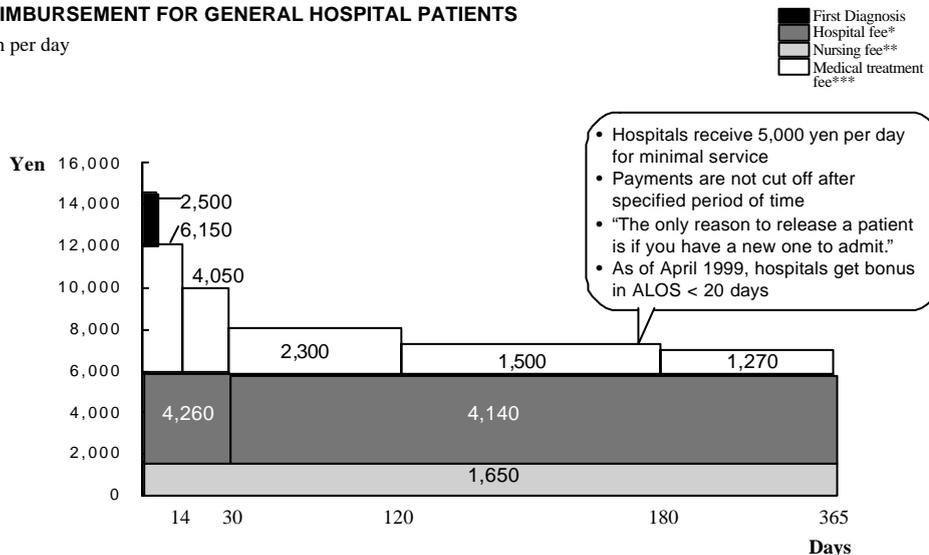


Exhibit 30

REIMBURSEMENT FOR GENERAL HOSPITAL PATIENTS

Yen per day



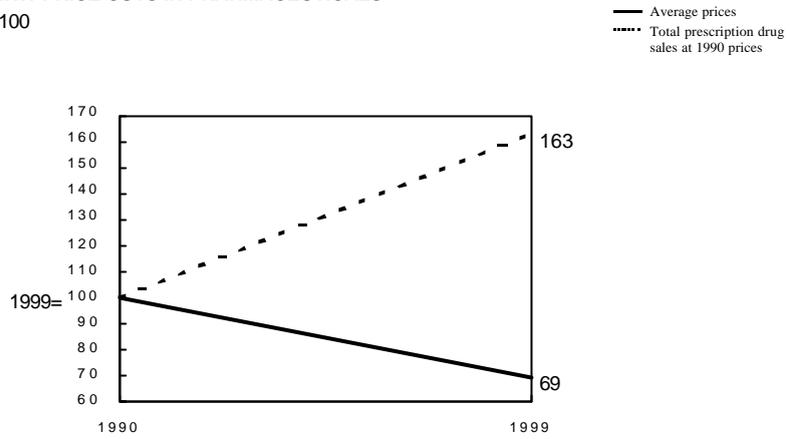
* Reimbursement given as long as beds and sleeping supplies are available, clean and disinfected

** Reimbursement given as long as nurse-patients ratio = 1:3

*** Reimbursement given of any of following actions is undertaken: simple diagnoses; blood pressure measurement; hypodermic; intramuscular and intravenous injection; simple physical remedy

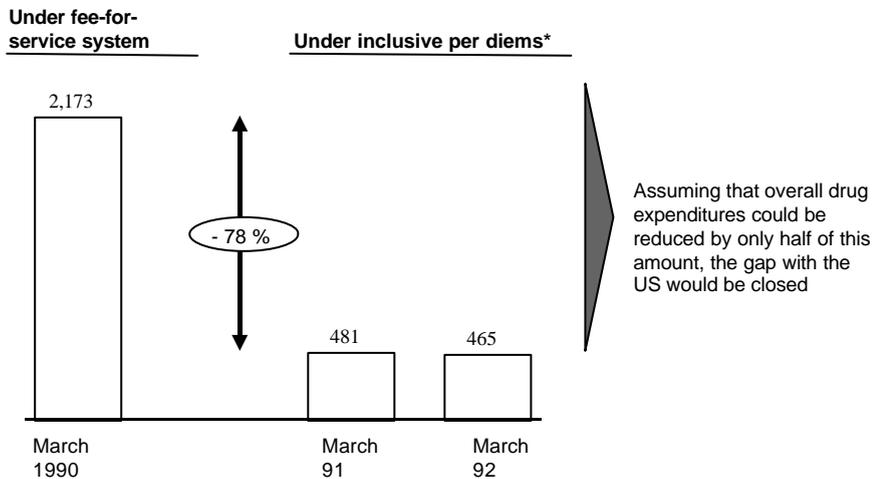
Source: MHW

Exhibit 31
IMPACT OF MHW PRICE CUTS IN PHARMACEUTICALS
 Index; 1990 = 100



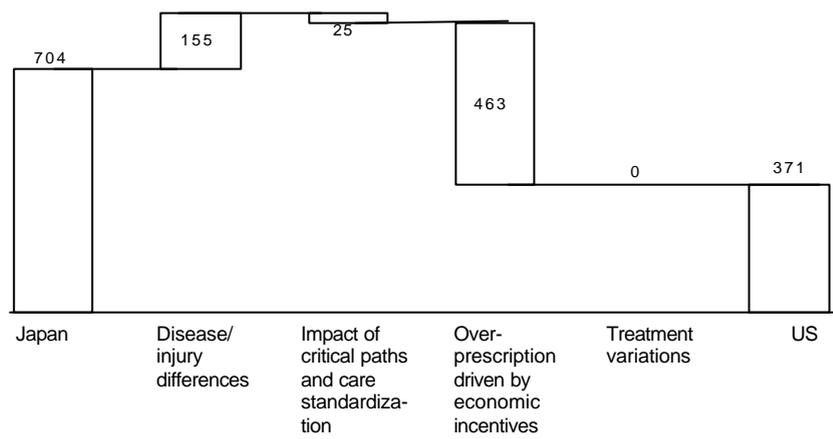
Source: IMS

Exhibit 32
IMPACT OF CHANGING ECONOMIC INCENTIVES ON DRUG PRESCRIPTIONS
 Daily drug prescription fees, Yen per patient day
 Case example of elderly care hospital



* Fees that would have been realized under the fee-for-service system
 Source: Yasuo Takagi in *Containing Health Care Costs in Japan*, (Ed. Ikegami and Campell)

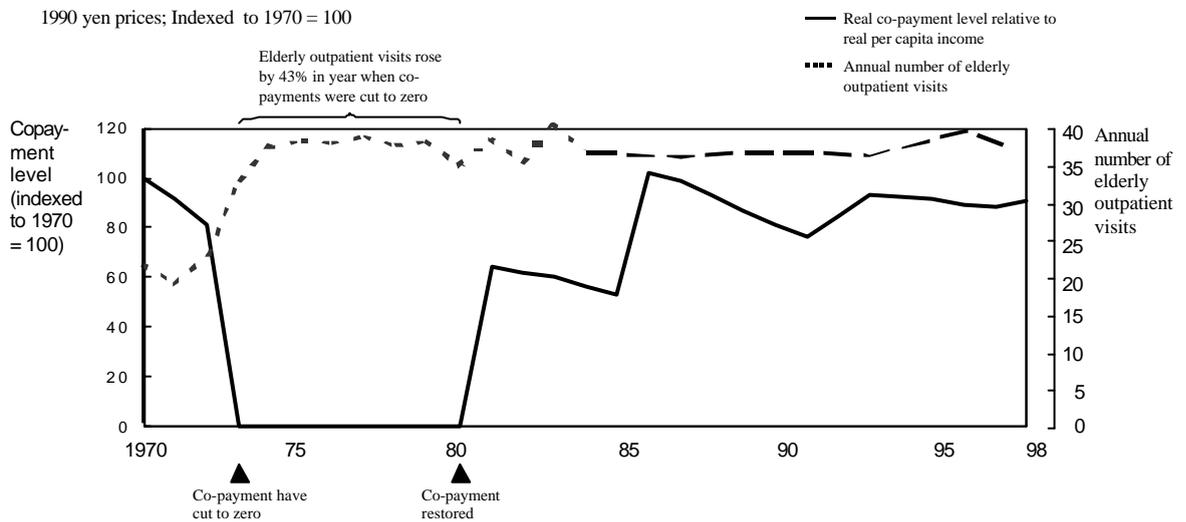
Exhibit 33
DRUG INPUTS WATERFALL
 Per Capita; 1996



Source: Interviews; McKinsey analysis, IMS, MHW, Yasuo Takagi in *Containing Health Care Costs in Japan*

Exhibit 34
REAL CO-PAYMENT LEVELS RELATIVE TO REAL INCOME

1990 yen prices; Indexed to 1970 = 100



Source: MHW; OECD; McKinsey analysis