ASSESSMENT OF BARRIERS TO TRADE AND INVESTMENT BETWEEN THE EU AND JAPAN

FINAL REPORT

INFORMED DECISIONS

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PREFACE

This report entitled *"Assessment of barriers to trade and investment between the EU and Japan"* has been prepared for the European Commission, DG Trade, by Copenhagen Economics A/S under the framework contract (TRADE/07/A2).

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Assessment of barriers to trade and investment between the EU and Japan

The EU and Japan are important trading partners

The EU and Japan are the largest and third largest economies in the world respectively. They respectively account for 33 percent and 11 percent of world GDP, and 17 percent and 6 percent of world trade.

Japan has a strong export orientation, with the ratio of exports to GDP standing at 15 percent, compared to 10 percent in the EU. However, the domestic market in Japan is less open to imports than the EU market. Imports as a share of domestic demand reach 17 percent in the EU and only 6 percent in Japan. This low import penetration is spread out fairly evenly across most sectors.

The EU has a stronger presence in the world market for services, with the ratio of trade in services to GDP standing at 7.6 percent compared to 6.3 percent for Japan. The EU (4.1 percent) has a notably stronger export orientation for services than Japan (2.9 percent).

The bilateral trade relationship between the EU and Japan is important for both economies. For the EU, Japan is ranked fourth among its import partners (6 percent of EU imports) and fifth among its export destinations (4 percent of EU exports). Conversely, for Japan, the EU is ranked third import partner (10 percent of imports) and also third export partners (15 percent of exports), after the US and China.

However, bilateral trade volumes are not as large as they could be. EU exports to Japan as a ratio of Japan's GDP is less than 2 percent, considerably below the ratio in the EU's other main markets such as the US, China, Korea or India.

Moreover, bilateral trade has been declining in relative importance in recent years. This is to a large extent due to macro-economic developments. Emerging market economies in Asia and Europe have been growing fast over the last decade, faster than the EU and Japan's economies. Rapid regional trade integration has also played a role. In Europe, Russia and Turkey have become major trading partners of the EU. In Asia, China and Korea have become Japan's most important partners. As a result, emerging markets account for an increasingly larger share of global trade in goods.

Still, a decline in the relative importance of bilateral trade between the EU and Japan should not necessarily be equated

with low economic potential in the bilateral trade relationship. This report argues that there is considerable unrealised economic potential to revitalise bilateral trade.

Measuring NTMs

It is often assumed that, because of already low MFN tariffs between mature OECD economies, trade policy has little economic potential to offer. Average MFN tariffs are indeed low in the EU and Japan (3.8 percent on both sides). The study shows that there are still significant gains to be made from eliminating tariffs. However, most of the potential economic gains reside in the reduction of trade costs associated with non-tariff measures (NTMs).

NTMs are not necessarily barriers to trade. They cover all non-tariff and non-quota measures that affect the cost of trade, such as the regulatory environment, technical regulations and standards, and differences in procedures for conformity assessment. While the trade cost of a tariff is straightforward, the trade cost of NTMs is not easy to estimate and may vary according to the measurement method and data used. To reduce the uncertainty linked to NTM measurement, this study combines several NTM estimation methods and data sources:

1. Direct estimation of trade costs for EU exports to Japan, based on survey replies from EU firms operating in Japan
2. Estimation of NTM-linked trade costs for imports into the EU, based on a separate industry survey.
3. Estimation of NTMs in manufacturing and services sectors in the EU and Japan using gravity models.

Most attention in this study goes to the identification and trade cost estimation of NTMs in key sectors in Japan. An inventory of 231 NTMs in Japan from existing reports provided a platform for this study. Furthermore, a survey has been conducted of about 120 European firms exporting to and operating in seven key sectors in Japan, to gauge the importance of these NTMs for their business and estimate the impact on their costs. These seven sectors cover the bulk of EU exports to Japan: automotive, pharmaceuticals, medical devices, processed foods, transport equipment, telecoms and financial services.

Three quarters of these firms perceive the Japanese market as more difficult than other markets. This is due to differences in consumer preferences and language barriers, but also to technical standards and regulatory issues. For two thirds of these firms, these barriers reduce the variety of goods they supply to the Japanese market. It also increases the cost of exporting to Japan by 10 to 30 percent, depending on the sector. While Japanese consumers benefit from getting goods that are adapted to their preferences, they are also paying a price for many of these NTMs. Non-tariff measures imply higher prices for imported goods, and reduce the variety of products being offered to consumers.

The trade costs estimates of NTMs on the EU side have been taken from a previous study on transatlantic trade be-

tween the EU and the US[1] . These estimates are based on a survey of firms exporting to the EU and their perceptions of the trade obstacles induced by NTMs. Surveys can help to bring NTM trade cost estimates in line with the perceptions of firms doing the actual international trade operations.

The third NTM estimation method uses more traditional gravity modelling techniques without the additional information supplied by firm-level surveys. This was applied mainly for the services sectors where trade data constraints and the absence of survey information left no other option. Gravity estimates in goods sector were also used as a control measure to check the validity of survey-based results. The study made a conservative selection and uses the lowest NTM values.

Reducing the cost of NTMs

Besides estimating the trade cost equivalent of NTMs, the study also investigates the extent to which NTMs can actually be reduced or eliminated. It does not judge whether NTMs are good or bad. Unlike tariff barriers that can be fully eliminated, regulatory measures can not just be abolished. They may have a legitimate purpose. They facilitate trade by setting common rules and standards, and enhance consumer welfare by protecting against health and safety risks. At the same time, rules may impose higher costs on foreign producers than strictly necessary to comply with the standards and regulations. Other rules may offer few benefits to consumer but restrict international competition and thereby benefit domestic producers. This study distinguishes between consumer welfare benefits and producer rents generated by NTMs. Regulatory heterogeneity between countries induces trade cost. Seeking alignment on international standards or convergence between different regulatory systems may reduce trade costs.

The measurement of the potential for NTM reduction is also to a large extent based on survey data, often complemented with expert opinions.
Steps that could be taken to reduce the cost of specific NTMs in the sectors covered by the Japan survey, are summarized below.

Potential gains from further trade opening

The study examines the trade and economic impact, both for the EU and Japan, of dismantling all tariffs on goods, including agriculture, and reducing the cost of NTMs. Because of uncertainty regarding the level and possible reduction of NTMs, minimum and maximum NTM reduction scenarios are tested.
The sensitivity of the results with respect to a conclusion of the Doha Development Round is also examined.
The trade simulations show that EU exports to Japan could increase by 23 percent or €14 billion if tariffs were abolished, including tariffs in agriculture and without taking into account tariff reductions from a successful Doha round.
The largest gains from tariff dismantling would occur in agricultural and processed foods exports. However, EU ex-

[1] "Study on non-tariff measures to EU-US trade and investment", final report by Ecorys BV for DG Trade, December 2009.

ports could increase by almost 50 percent or €29 billion if the cost of NTMs in Japan were reduced to the fullest possible extent. The largest trade gains from NTM reduction occur in the chemicals (incl. pharmaceuticals) sector, followed by motor vehicles and medical equipment.
Conversely, Japan's exports to the EU would increase by nearly 30 percent or €25 billion as a result of tariff dismantling in the EU. By far the largest gains would occur in motor vehicles exports (€16 bn). Completion of the Doha-round would reduce the impact of removing bilateral tariffs on motor vehicles by half. Japan's potential gains from maximum NTM reduction in the EU are estimated at 32 percent or €28 billion. Here the gains are also mostly generated in the motor vehicles sector, followed by chemicals and electronics goods.

The combination of both bilateral elimination of tariffs and the reduction of non-tariff measures would be beneficial to firms and consumers in both economies and economic welfare will increase by €33 billion in the EU and €18 billion in Japan. A third of the benefits for the EU come from tariff dismantling, the rest from NTM reduction. For Japan, the vast majority of benefits are produced by NTM reduction.

Summary of impact

	EU	Japan
Export effects:		
- Tariffs	+ €14 bn	+ €25 bn
- NTMs	+ €29 bn	+ €28 bn
Welfare effects	+ €33 bn	+ €18 bn

Note: in € billion per year
Source: See chapter 6.

Simulations show that the overall benefits from bilateral tariff and non-tariff reductions would not be significantly lower in the event of a successful conclusion of the Doha Round, although impacts will be reduced in some sectors, if Doha is completed prior to a bilateral EU-Japan trade opening. Benefits could increase to the extent that some NTM reductions are by nature on an MFN basis, rather than preferential, and would thus affect all trading partners. The potential gains from increased EU market access in Japan for public procurement, railway equipment and aircraft have not been quantified in the scenario simulations but could also significantly increase the above figures.

The simulations show that the trade effects on other trading partners as a result of bilateral tariff and preferential NTM reductions between the EU and Japan will be negative but small (-€6 billion). Global welfare will increase as a result bilateral EU-Japan trade opening.

What actions are needed to achieve these benefits?

The report is novel in its quantification of the impact of NTMs. It addresses NTMs in seven sectors in Japan and identifies the possibilities for reducing these NTMs. The main findings are:

EU pharmaceutical exports to Japan are severely impeded by a complex and costly regulatory environment.

- Non-recognition of foreign clinical data adds to the cost of serving the Japanese market.
- The approval process for marketing new medicines in Japan is slow and overly burdensome. Introduction of new medicines is delayed for two to three years. This allows Japanese firms to develop competing products and narrow down the innovative advantage of EU producers.
- Finally, the reimbursement rules in Japan provide inadequate incentives for the introduction of new and innovative medicines.

According to survey-based estimates, these factors increase the cost of EU pharmaceutical exports to Japan by 22 percent. As a result, EU pharmaceutical exports to Japan have grown much more slowly than in other markets. Subsequently, Japanese patients and consumers are paying the price for costly and delayed access to the best medicines.

These NTM costs could be reduced to just 2 percent. In this case, EU pharmaceutical exports would increase by 60-100 percent, corresponding to additional exports of up to €3.4 billion a year.

The EU's export of **medical devices** is also being restrained by the costly and cumbersome process of launching new products on the Japanese market.

- Development costs for EU medical device producers are increased by requests for additional clinical trials from the Japanese authorities.
- Excessive Japanese standards and regulatory requirements result in a significant device lag, and a large number of medical devices are not even being submitted for approval in Japan.
- The pricing and reimbursement system creates disincentives for introducing new and innovative products on the Japanese market.

According to our survey-based estimates, EU exporters of medical devices face an extra cost of 30 percent compared to their Japanese counterparts. As a result, EU producers are unable to respond to the increased demand for medical devices caused by Japan's aging population.

To reduce the entry barriers to the Japanese market will require the Japanese authorities to speed up and streamline the medical device certification process by accepting clinical trial data produced in the EU and by harmonising its GCP guidance with international standards. Alternatively, Japan could adopt the EU SDoC[2]. Furthermore, Japan could also review the Foreign Average Price rule.

Targeting these issues would reduce Japanese NTMs to 18 percent. It is important to note that neither of these steps will require changes in the regulatory requirements in terms of the safety and efficacy of the devices.

If this reduction is achieved, EU exports of medical devices to Japan could increase by €1.1 billion - up by 51 percent.

For **processed food** the combination of differences between EU and Japanese standards and technical requirements as well as cumbersome border procedures

[2] Suppliers' Declaration of Conformity.

results in high costs for EU exporters. Since these costs are independent of the export volume, the result is important entry barriers (thresholds) to the Japanese market.

- The limited number of permitted food additives in Japan and unaligned standards between the EU and Japan increases costs and prevent EU exporters from utilising scale effects.
- High conformity costs are incurred because Japanese authorities do not accept evaluations made by the EU or international bodies.

Food safety is a high priority in Japan and the combination of Japanese standards and technical requirements results in an extra cost of 25 percent for EU exporters. As a result, the number of goods that EU producers can successfully export to Japan is seriously limited.

The market potential for European exporters would be greatly enhanced by:

- Harmonising Japanese legislation to international standards with respect to re-dating, labelling and nutritional standards.
- An agreement by Japan to substantially increase the list of permitted additives.
- Introducing mutual recognition of conformity assessment procedures which get rid of the duplicate costs of evaluations imposed on EU exporters.

Together, targeting these barriers will reduce Japanese NTMs to 16 percent. Our model simulations show that EU exports of processed foods will increase by 7 to 24 percent if these barriers are reduced. Overall, food exports to Japan could increase by up to €1.1 billion.

The EU holds a strong position in the Japanese market for imported **motor vehicles** but Japanese import penetration is remarkably low compared to other OECD countries. The barriers encountered by EU motor vehicle producers in Japan are mainly TBTs related to emissions, safety and noise standards. These barriers cause extra development and production costs for EU exporters.

- The Japanese TRIAS regulation requires special testing on emissions and durability of exhaust systems. This causes delays in approvals which are particularly serious for innovative products.
- The Japanese regulations regarding steady running noise and proximity stationary noise levels are not harmonised with UN-ECE standards.
- Japan is introducing new safety standards that are not present in the UN-ECE.

According to our survey estimates, EU exporters of motor vehicles pay an extra cost of 10 percent. EU producers therefore face a serious disadvantage since the high costs of NTMs fall disproportionately on exporters compared to Japanese producers.

To reduce the barriers to the Japanese market will require the Japanese authorities to streamline and simplify the certification process and find procedures for revisions of standards and technical guidelines to better accommodate innovative products. Most importantly, Japan should adopt international or UN-ECE

standards, particularly those regarding emission, noise and safety. In many cases Japan has agreed to do so but has not yet implemented much of the necessary legislation.

Targeting these issues would reduce Japanese NTMs to 3 percent. If this reduction is achieved, EU exports of motor vehicles to Japan could increase by up to €4.7 billion, or by up to 84 percent.

The EU export of **transport equipment**, which mainly consists of aircraft and rail equipment, is also reduced by procurement rules and NTMs in Japan. We assess a potential for an additional €2.6 billion export from these sectors.

In the **services sectors**, we find substantial barriers, but also very limited amounts of cross-border trade. The gains from removing barriers to cross-border service trade with Japan would have small impact. We have assessed the potential for financial services and telecommunication, and note a potential increase of 10-20 percent, but starting from a very small base.

We have also quantified the impact of reducing the costs of **border procedures** and introducing more competition in Japan's distribution services, which would provide gains in itself, but also facilitate market access for most goods sectors.

There are also barriers in **other sectors** (e.g. chemicals, wood products and metal products), and substantial NTMs can be removed here as well. These have not been quantified in detail in this report.

Barriers to Investment

Aside from being low on imports, Japan's economy is also running on very low foreign direct investment (FDI) inflows. The Japanese government has recognised this problem and has proposed measures to address it. These are mainly structural barriers, rather than protectionist measures. Trade agreements may have only an indirect impact on this. Reforms are required in corporate governance and mergers and acquisitions. Furthermore, the rules reducing the restrictions in triangular mergers are also important.

Need for more competition

Some of the problems for market access in Japan are due to weak competition. Regulation in telecoms, in the financial sector and in distribution, for instance, gives a strong advantage to the incumbents, who are often in a dominant market position. In some cases, informal arrangements between trading houses may also make market access difficult. Competition policy rules as well as enforcement would need to be strengthened to facilitate foreign competition, through the privatisation of Japan Post or in telecommunications, for example. While clauses to reinforce competition in domestic markets are not normally part of trade agreements, such measures could considerably increase the potential for EU-Japan trade.

Public procurement market in Japan can open further

The potential for opening up Japan's public procurement market further has been quantified at €74 billion, which is the estimated value of Japan's derogations from the coverage of the Government Procurement Agreement (GPA). Of course, EU firms will not win all of these contracts, but they gain access to compete for the market. There are mar-

ket access issues in railways equipment and aircraft, and we assess that EU exports to Japan in these sectors could increase by €2.6 billion.

How to realize these potential economic gains?

The EU-Japan economic and trade relationship could be strengthened by an elimination of tariff barriers and a significant reduction in the trade costs of non-tariff measures and other barriers, for instance in public procurement. The on-going Regulatory Reform Dialogue is making slow progress. The Mutual Recognition Agreement has brought some progress for a limited number of sectors. Some suggest that this could be accelerated by negotiating a comprehensive bilateral agreement to help stimulate bilateral trade and investments. Some European exporters who face tough regulatory and non-tariff measures in Japan, including stringent standards and testing for consumer goods, argue that a bilateral agreement will help remove obstacles to trade and also ease strict and complex Japanese rules and regulations which currently stifle European investments in the country.

Japan (which is actively negotiating FTAs with its Asian neighbours) is thought to be interested in an FTA agreement with the European Union. Among other things, several Japanese industries would like access to European markets to be on par with their Asian neighbours.

Difficulties associated with reducing NTMs

Japanese NTMs must be reduced to ensure that the EU gains from an EU-Japan negotiation. Tackling these NTMs poses some challenges however, especially between two highly developed economies like Japan and the EU that have extensive and sophisticated domestic regulatory regimes in place. First, tariffs are measurable whereas NTMs are harder to quantify; that makes negotiations less transparent. Second, tariffs are bilateral whereas reductions of NTMs are often multilateral; other countries may free-ride on the benefits of NTM reduction. Third, NTM reductions are difficult without domestic reforms and could entail domestic regulation issues that are not normally negotiated within a bilateral trade framework, or that could easily be circumvented through new domestic regulation. It would require strong political will and administrative creativity to come to an agreement on meaningful NTM reductions.

Chapter 2 | INTRODUCTION

The purpose of this study is to assess the economic impact of existing barriers to trade in goods and services between the European Union and Japan. Special attention is given to quantifying the impact of non-tariff measures.

The report complements earlier studies on EU-Korea, EU-US and EU-Canada trade relations commissioned by the European Commission. Using a similar analytical framework, this report focuses on the barriers to bilateral trade and investment between the EU and Japan.

Tariff barriers are generally low, though there are exceptions for specific goods. Still, the trade volume is large and significant gains from tariff reductions can be expected. However, non-tariff measures (NTMs), or regulatory issues, constitute a more important obstacle to EU-Japan trade. NTMs on the EU side have already been examined extensively in these earlier studies. The present report therefore looks more extensively at regulatory obstacles faced by EU firms exporting to Japan. The overall economic analysis again combines both sides of the tariff and NTM picture to estimate the overall benefits of a bilateral reduction in barriers to trade.

For the purpose of this report, we have undertaken three main activities. We have examined the sector barriers in Japan, conducted new and detailed gravity model analyses of trade flows with Japan, and undertaken both in-depth interviews and detailed questionnaires of non-tariff measures (NTMs) as perceived by EU firms in Japan. This has contributed to a quantification of the trade costs of NTMs in Japan, and helped to clarify to what extent these can be reduced. The economic and trade impact of a bilateral reduction in tariff and NTMs, both in Japan and in the EU, has been assessed using a computable general equilibrium model (CGE) of global trade.

2.1. STRUCTURE OF THE REPORT

Chapter 3 describes the current EU-Japan trade flows, and Chapter 4 describes the non-tariff measures identified in Japan. In Chapter 5 we quantify the impact of selected non-tariff measures on the cost of EU exports to Japan, and we use econometric models to estimate so-called trade cost equivalents. We then move on to Chapter 6 to present how reductions of these costs would impact on trade flows, production output and consumer welfare.

In Chapter 7 we discuss the impact of some of the non-tariff measures that have not been quantified using our model, namely public procurement, intellectual property rights and competition policy. These are issues that have significant impact on EU-Japan trade relations. In Chapter 8 we discuss the reasons for the lack of foreign direct investment in Japan and present the actions taken by several Japanese governments to attract foreign direct investment to the country.

The report has 12 appendices. The first five contain technical details about methodology. Appendix 1 to 4 describes the method we use to quantify European and Japanese NTMs. Appendix 1 describes the methodology used to quantify European NTMs. Appendix 2 provides technical details about the applied gravity models and their results. Appendix 3 presents the full inventory of Japanese NTMs and Appendix 4 gives background on the business survey on Japanese NTMs. Together they provide new information about the barriers facing European exporters in the Japanese market. Appendix 5 describes simulation model (CGE-model) that we apply in order to calculate the trade and welfare effects of trade liberalisation scenarios.

Appendix 6 to 12 contains seven detailed sector analyses of Japan's non-tariff measures. These include pharmaceuticals (Appendix 6), medical devices (Appendix 7), processed foods (Appendix 8), motor vehicles (Appendix 9), transport equipment (Appendix 10), financial services (Appendix 11) and communication services (Appendix 12). Each of the sector analyses can be read independently and contain policy recommendations and simulation results.

2.2. WHAT DO WE MEAN BY "NON-TARIFF MEASURES"?

For the purposes of this study, the terms of reference define 'non-tariff measures' as "*all non-price and non-quantity restrictions on trade in goods and services. This includes border measures (customs procedures etc.) as well as behind-the border measures flowing from domestic laws, regulations and practices).*" This implies that in this study we use the term "non-tariff measures" (NTMs) to cover the following seven categories:

1. Standards, technical regulations and conformity assessment (e.g. technical specifications, testing and certification)
2. Border procedures (e.g. customs procedures)
3. Distribution restrictions (e.g. seaport and airport, secondary dealers)
4. Pricing and reimbursement rules (e.g. in selling to public clients)
5. Public procurement issues (e.g. legal framework, market access restrictions)
6. intellectual property rights (e.g. copyright, trademark, patents)
7. Other non-tariff measures

The types and importance of NTMs within each group varies significantly from sector to sector. Border procedures, for example, are more important for exporters of perishable food products, while pricing and reimbursement rules are a major concern for pharmaceutical and medical device exporters.

Overall, divergent *standards, technical regulations and conformity assessment* procedures can be said to be the single most important type of NTMs, increasing the complexity and uncertainty of doing business and generating costs. Throughout this report we use the

WTO definitions of standards, technical requirements and conformity assessment requirements, cf. Box 2.1.

Box 2.1 Standards, technical requirements and conformity assessment requirements

The definition of **standards and technical requirements** follows the WTO definition of standards and technical regulations. These are documents approved by a recognised body providing for common and repeated use, rules, guidelines, or characteristics for products or related processes and production methods. This covers both standards where compliance is not mandatory (i.e. voluntary standards) and technical regulations where compliance is mandatory (i.e. government mandated standards, or standards in regulations).

The definition of **conformity assessment requirements** follows that of the WTO. This covers any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled. They consist of activities such as certification, testing, quality system registration, and inspection. They also comprise procedures for sampling, evaluation, verification, assurance of conformity, registration, accreditation, and approval, as well as their combinations. They are either voluntary or mandatory. A voluntary conformity assessment would have the purpose of assessing compliance with a voluntary standard; a mandatory conformity assessment is required in order to attest compliance with mandatory requirements, stipulated in technical regulations.

Source: WTO Agreement on Technical Barriers to Trade, Annex 1.

Recognition of potentially welfare-enhancing effects of NTMs

All types of regulations affecting international trade flows can be broadly defined as non-tariff measures. The term "non-tariff measures" has gradually replaced the previously widely accepted term "non-tariff barriers". The use of the term "measures" instead of "barriers" is intended to emphasise the dual nature of regulation as discussed in Laird and Yeats (1990). On the one hand, NTMs can discriminate against imports and be trade-restrictive, as defined by Baldwin (1970), Hillman (1991), and others. On the other hand, NTMs can also be welfare-improving, providing consumers with additional, otherwise unavailable information, and thus overcoming imperfect/asymmetric information problems (see, for example, Bureau et al., 1998, 2001; Movchan, 1999, Disdier et al., 2008). This dual nature of the NTMs is typical for sanitary and phyto-sanitary measures (SPS), and technical barriers to trade (TBT).

Special attention to regulatory barriers

The most important NTMs encountered by EU firms exporting to Japan, and probably also by Japanese firms exporting to the EU, relate to the regulatory environment in their destination markets: the regulations in Japan are often different compared to those of the EU. When we say "regulatory environment", we mean the standards, technical regulations and conformity assessment procedures in place.

The fact that differences in the regulatory environment generate trade costs and hinder competition is not necessarily an argument for their removal. Governments impose regulation to protect the health, safety and well-being of citizens and the environment as well as to facilitate market transactions. The main problem with NTM liberalisation is that it is difficult to know whether a particular norm serves public interests or protectionists' interests, and, indeed, both motives are often found within a single NTM.

As pointed out in Baldwin (2000), NTMs often result from norms, regulations and standards that control the sale of goods in a particular market by specifying required product characteristics or production processes.[3] There are two distinct aspects of this: *content* of the norm and *conformity assessment procedures* necessary to demonstrate that a product complies with the norm. We examine both types of NTMs in this study.

It is useful to distinguish between two subtypes of content-of-norm NTMs, *horizontal* and *vertical*. *Vertical* NTMs involve norms that can readily be characterised as being more or less stringent about the quality of a product or service. Higher quality increases consumer welfare. *Horizontal NTMs* cannot be said to be more or less stringent – norms are just different and do increase consumer welfare; they just increase the cost of a product. Horizontal norms are probably more common. Many NTMs arise when a national or sub-national government adopts the specifications of the local firm's differentiated product as its norm.

[3] According to common usage, regulations are mandatory, while standards are voluntary.

Chapter 3 CURRENT EU-JAPAN TRADE

This chapter examines current bilateral trade in goods and services between the EU and Japan. It shows that import penetration in Japan is generally lower than in the EU. Moreover, Japan has gradually been losing its position as one of the top destinations for EU exports.

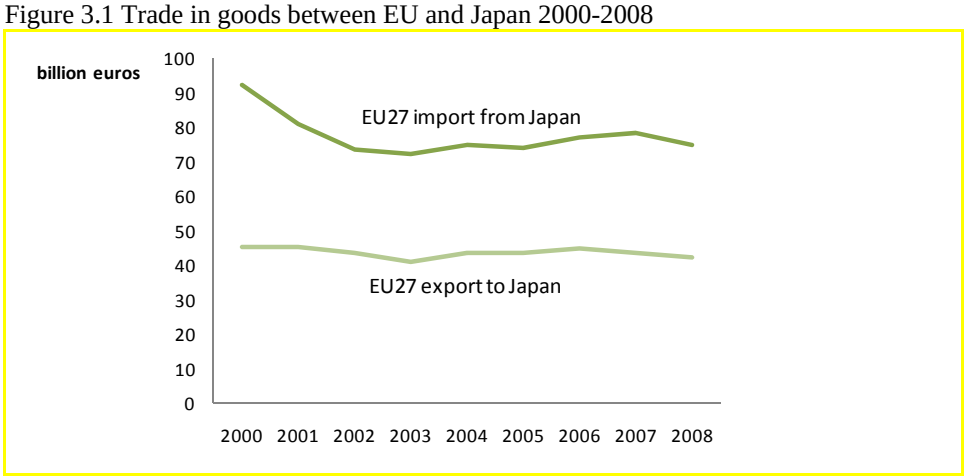
The factors holding back Japanese imports in general, and imports from the EU in particular, are divided into two: First those factors which cannot be affected by trade policy, such as the remoteness of the Japanese market, the large size of the Japanese market and various cultural and linguistic barriers. Japan's macro-economic structure, with high savings and consequently smaller consumption compared to GDP also reduces potential import penetration. Second are those factors which can be influenced by policies. These include both tariffs and non-tariff measures. Our assessment shows that the former dominates.

We find that tariffs are low and that there are few *de jure* restrictions on trade. Factors such as distance and language differences provide some explanation for low import penetration. Still, we are left with an amount of missing trade that cannot be explained by distance, language difference and tariffs, and since there are few *de jure* discriminatory restrictions, we find this to be a conundrum of missing trade with Japan. We conclude that *de facto* non-tariff measures in Japan could be the key to understanding and potentially solving the Japanese conundrum.

3.1. EU-JAPAN TRADE

The EU and Japan are the largest and third largest economies in the world respectively. They respectively account for 33 percent and 11 percent of world GDP, and 17 percent and 6 percent of world trade. In 2008, the EU27 countries imported €75 billion worth of goods from Japan and exported €42 billion, cf. figure 3.1.

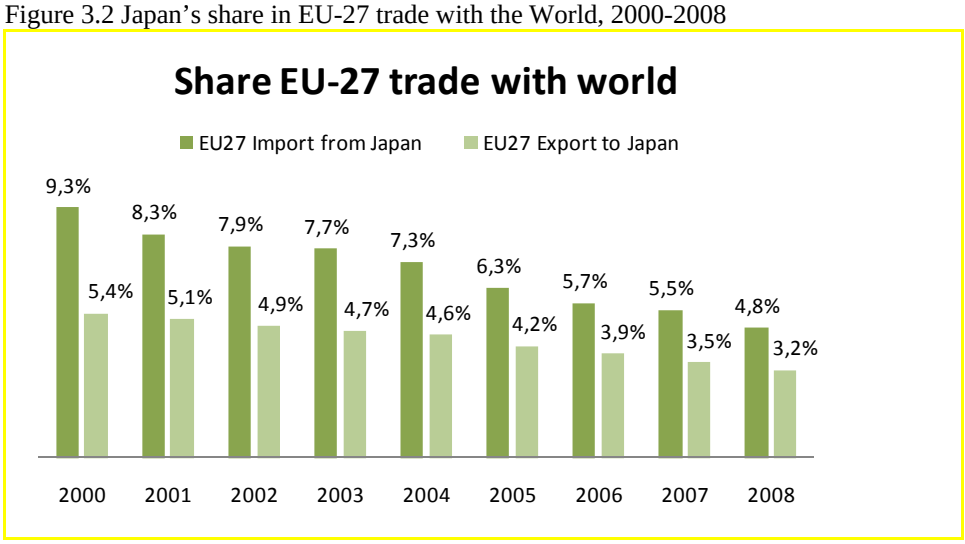
Figure 3.1 Trade in goods between EU and Japan 2000-2008



Source:Eurostat, COMEXT

The bilateral trade relationship between the EU and Japan is important for both economies. Japan is ranked fourth among the EU's import partners (4.8 percent of EU-27 imports of goods) and fifth among its export destinations (3.2 percent of EU exports), cf. Figure 3.2. For EU services trade, Japan is ranked third both for imports (3.3 percent) and exports (5.4 percent).

Figure 3.2 Japan's share in EU-27 trade with the World, 2000-2008

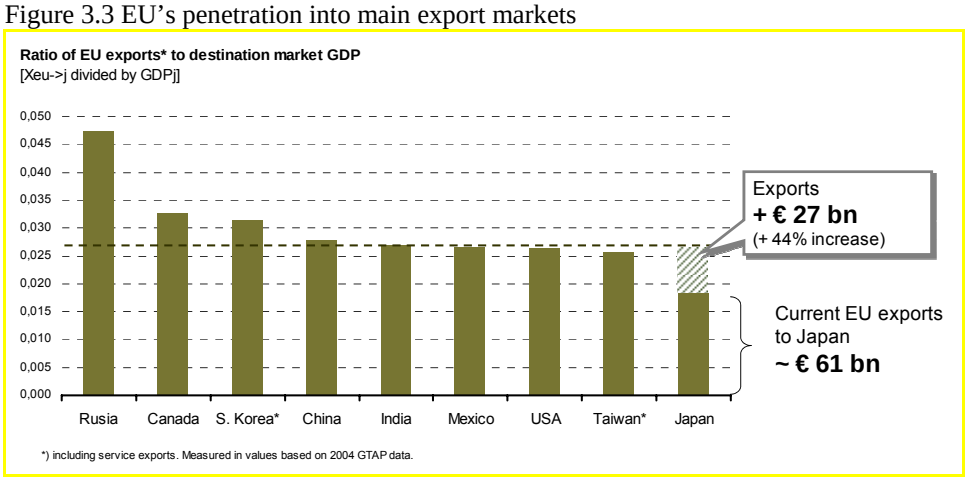


Source:Eurostat, COMEXT

3.2. IMPORT PENETRATION IN JAPAN IS LOW

The EU's penetration into the Japanese market remains low when compared to European exports to other countries, cf. Figure 3.3. Total European export to Japan was around €61 billion in 2008, when one includes the €18.7 billion of service exports. If the EU's level of import penetration in Japan was raised to the average of its main trading partners, European exports to Japan would increase by 44 percent or €27 billion.

Figure 3.3 EU's penetration into main export markets

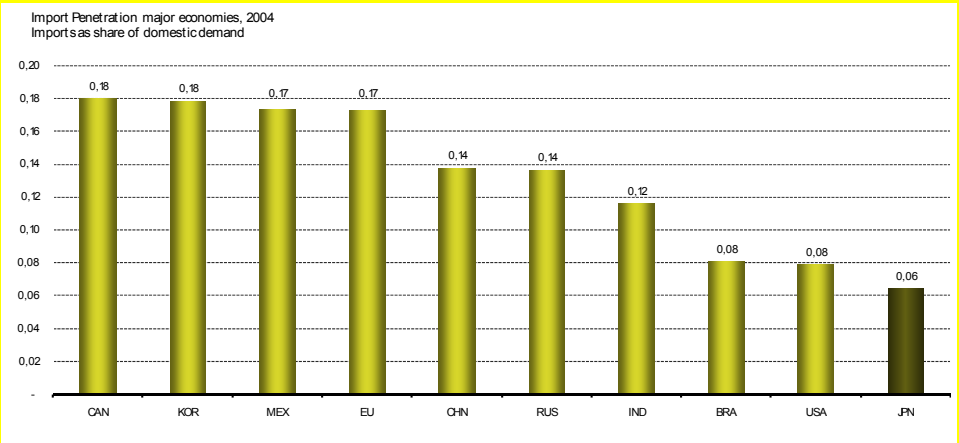


Note: This penetration indicator is calculated as the ratio of EU exports to the destination market's GDP.
Source: Copenhagen Economics' calculations based on data from GTAP. See McDougall (2001) for more information about GTAP.

However, it is not only EU exporters who are facing difficulties when exporting to Japan. Japan's general import penetration[4] measured as share of domestic demand is around 6 percent, which is lower than other major economies including the EU, which imports around 17 percent of domestic demand, excluding intra-EU trade, cf. Figure 3.4. The OECD reach a similar conclusion when they say that "*despite Japan's growing investment and trade links with China and other Asian economies, the level of import penetration - defined as imports of goods as a share of domestic demand - remains the lowest in the OECD*" , OECD (2006).

[4] *Import penetration* is the proportion of a country's domestic consumption accounted for by imported goods. On this generally accepted measure, Japan is less open than others. If measured in terms of more simple measures, such as imports per unit of GDP, we find that Japan's imports per unit of GDP are not lower than in the EU. This can be due to many reasons, since GDP includes much more than just consumption, i.e. net savings and net exports. Furthermore, as we shall see, large economies like the EU import less relative to its size than smaller economies.

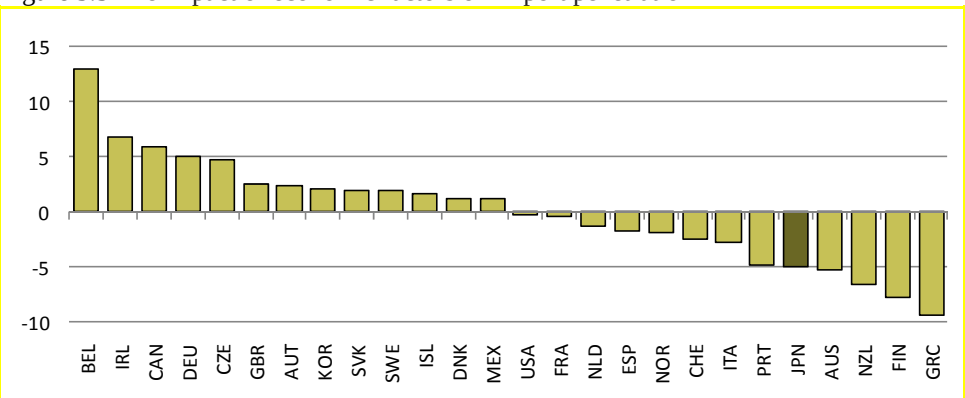
Figure 3.4 Japan has low import penetration



Note: Imports divided by domestic demand.
Source: Copenhagen Economics' calculations based on data from GTAP.

However, we also see that US import penetration is almost as low as Japan. The reasons for low import penetration result partly from size and distance and because these two economies differ due to the distinct macroeconomic and structural characteristics of their respective economies. Based on a gravity model analysis, the OECD (2006) still concludes that the level of imports in Japan is surprisingly low, even after controlling for country size, transport costs and per capita income, although there may be other economic factors. Our gravity results, as presented in chapter 5, confirm this result.

Figure 3.5 The impact of economic factors on import penetration

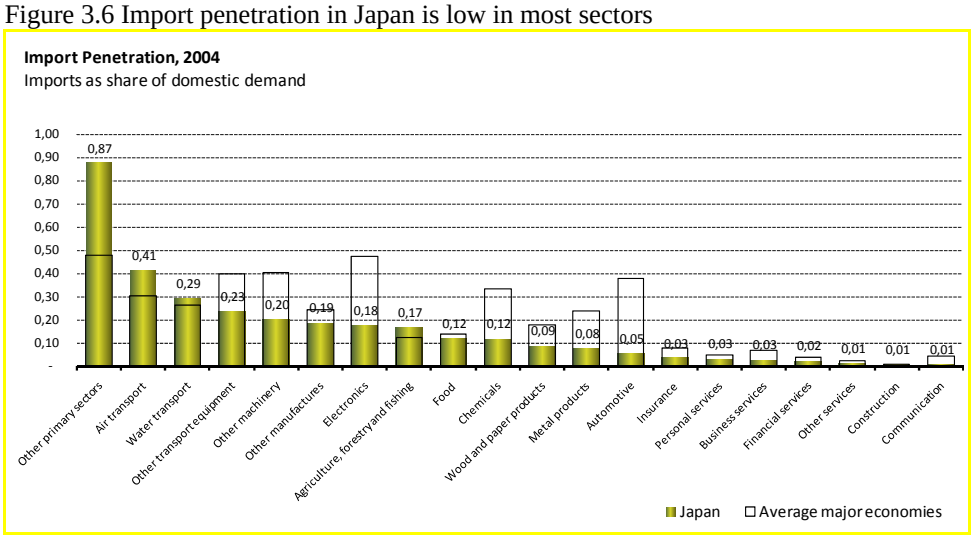


Note: Import penetration (the 1995-2004 average for goods and services) is estimated as a function of population, per capita income and transport costs. A negative (positive) residual indicates that import penetration is below (above) the level predicted by economic factors. For Japan and four other countries, these residuals are significant at a 5% level.
Source:OECD (2006), page 20.

Low import penetration is consistent across most sectors in Japan. Only four of 20 sectors have higher than average penetration, namely primary sectors, air transport, water transport as well as agriculture, forestry and fisheries, cf. Figure 3.6. The higher import penetration for air transport and water transport can be explained because Japan is an island. The high import penetration for primary sectors is because Japan is not self-supporting with food

and agriculture production. Gravity model results, as presented in chapter 5, support this result, since we show that import penetration in Japan's individual sectors is still low when controlling from size, distance, language and tariffs.

Figure 3.6 Import penetration in Japan is low in most sectors



Note: Imports divided by domestic demand.
Source:Copenhagen Economics' calculations based on data from GTAP data.

3.3. JAPAN IS LOSING IMPORTANCE AS DESTINATION FOR EU EXPORTS

Japan has gradually been losing its position as one of the most important destinations for EU goods exports over the last decade. Until 2002, Japan was the EU's second largest export destination after the US (not counting exports to EFTA countries Norway and Switzerland). In 2003, Japan dropped to third place, and second place was taken by China. In 2004, Japan dropped further to fourth place, when EU's exports to Russia took off, Russia became the third most important export destination. In 2005, Japan took its current position as the EU's fifth most important export destination as Turkey took over the fourth place, cf. Table 3.1.

Table 3.1 The EU's main export destinations, 2000-2008

Rank	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	U.S.	U.S.	U.S.	U.S.	U.S.	U.S.	U.S.	U.S.	U.S.
2	**Japan**	**Japan**	**Japan**	China	China	Russia	Russia	Russia	Russia
3	Turkey	Russia	China	**Japan**	Russia	China	China	China	China
4	China	China	Russia	Russia	**Japan**	Turkey	Turkey	Turkey	Turkey
5	Russia	Canada	Turkey	Turkey	Turkey	**Japan**	**Japan**	**Japan**	**Japan**

Note: The table shows the rank of the five largestEU-27 export destinations for goods outside EFTA in each year. Total trade values are in € constant.
Source: Copenhagen Economics calculations' based on data from Eurostat.

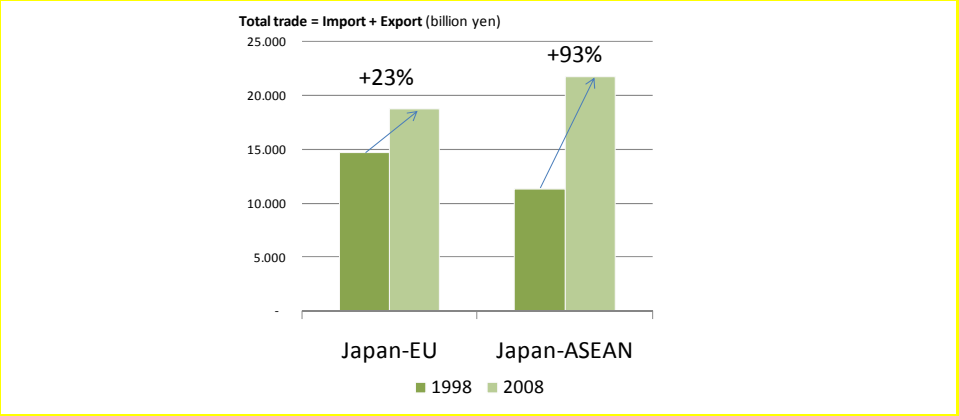
The declining role of Japan as main export destination for European goods can be explained by a variety of factors. Japan's relatively low economic growth rate over the past decade, especially when compared to fast growth in emerging market economies like China, Russia and Turkey, probably explains a considerable part of this relative decline. Moreover, rapid integration of the East Asian economies has buoyed intra-regional trade. Multinational firms (including many from Japan) have built production networks and supply chains stretching across Asia, regardless of borders, in order to benefit from the comparative advantages of individual countries. Many (intermediate) goods are being repeatedly shipped around the region before they reach their final destination, generally in the EU or U.S. East Asia is an increasingly integrated region, and inter-regional trade as a share of East Asia's total trade reached 55 percent in 2006, not far from the 66 percent observed in the European Union in the same year, and remarkably higher than NAFTA's 44 percent[5].

Business driven integration in Asia is further fuelled by trade policy driven integration. Between 2000 and 2009, Asian FTAs increased from just seven to over 100 bilateral agreements being concluded, negotiated or proposed.

The combination of business driven integration and the tremendous increase in the number of FTAs in the region has resulted in an impressive increase in Japan's trade with other East Asian partners. Japan's trade with ASEAN increased by 93 percent over the last ten years, which is much faster than Japan's trade with the European Union, which increased by 23 percent in the same period, cf. Figure 3.7. Fast economic growth and rapid trade opening in East Asia explains to a large extent the relative decline of Japan as an export market for EU goods. An acceleration in trade opening between the EU and Japan could counterbalance this downward trend and give a new boost to bilateral trade.

[5] Asian Development Bank (2008) "Regionalism as an Engine of Multilateralism: A Case for a Single East Asian FTA", Regional Economic Integration Working Paper Series, http://www.adb.org/Documents/Papers/Regional-Economic-Integration/wp14.asp .

Figure 3.7 Rapid increase in Japan's trade with East Asian partners



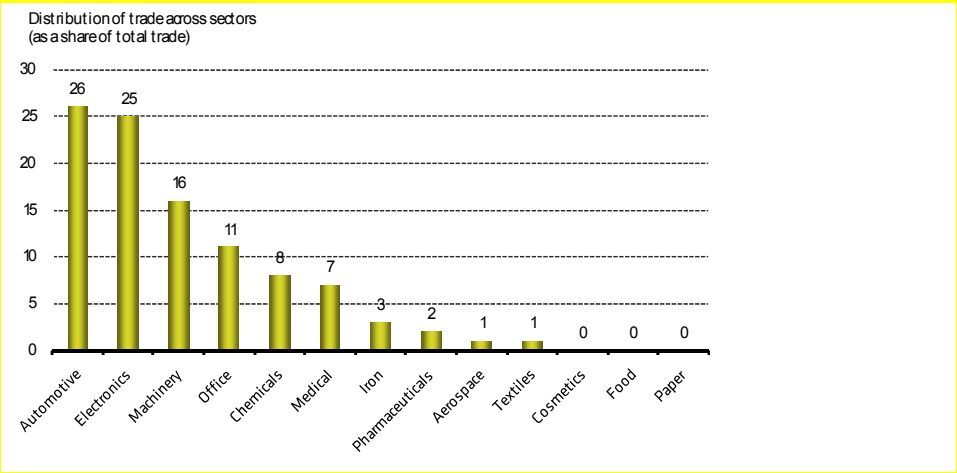
Source: Own calculations based on data from trade statistics of Japan, Ministry of Finance.

3.4. COMPOSITION OF EU-JAPAN TRADE

EU goods import from Japan

Looking at the composition of trade, EU imports from Japan are concentrated in a few sectors, cf. Figure 3.8. The EU's import from Japan is very concentrated and only two sectors - automotives and electronics – that account for more than 50 percent of total imports. Machinery and office equipment (ICT) are also important sectors. There is virtually no import of food products from Japan.

Figure 3.8 EU imports from Japan are concentrated in a few sectors

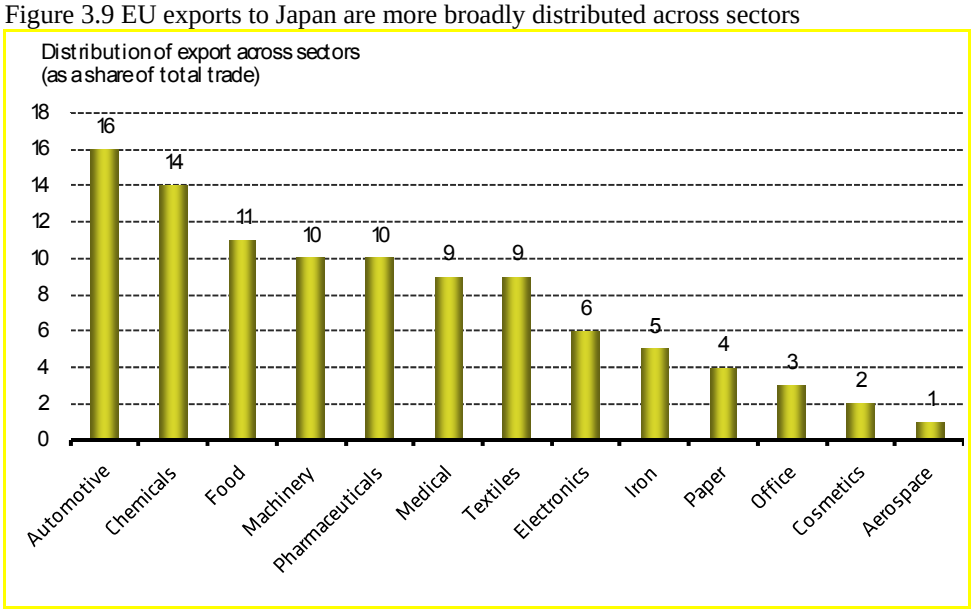


Note: Import in a particular sector is calculated as a share of the total value of import.
Source:Copenhagen Economics' calculations based on data from Eurostat.

Japan goods imports from EU

The EU's export of automotive products and chemicals accounts for 30 percent of the total European exports to Japan, whereas food, machinery, pharmaceuticals, medical devices and textiles account for approximately ten percent each. Machinery and office equipment (ICT) are also important sectors EU export to Japan is less concentrated, cf. Figure 3.9. Together food, machinery, pharmaceuticals, medical devices and textiles account for almost 50 percent of the total European export to Japan.

Figure 3.9 EU exports to Japan are more broadly distributed across sectors



Note: Export in a particular sector is calculated as a share of the total value of export.
Source: Copenhagen Economics' calculations based on data from Eurostat.

Services

The service sector is important for Japan. As in most OECD countries, services account for around 70 percent of economic output and employment. But Japan's service sector faces challenges. Productivity in Japan's service sector is lower than in most other OECD countries, productivity has grown more slowly than other sectors in Japan, and it has been declining in recent years. This may be partially due to Japanese consumer preferences for labour intensive service delivery. At the same time, it has become increasingly clear that low productivity holds back on many benefits for manufacturing sectors (and the Japanese economy as a whole) from improved efficiency in the services sectors.[6]

The EU exports around €20 billion of services to Japan per year, and Japan exports about €14 billion to the EU. Japan's import of services is much below its potential compared to other countries. Japan's import penetration is particularly low in business services and communications (telecommunication and post) services, where it is the lowest of the largest economies in the world, cf. Table 3.2.

[6] See for example the impact assessment of the EU internal market for services, Copenhagen Economics (2005a), or the impact assessment of the market opening of EU network industries, Copenhagen Economics (2004).

Table 3.2 Import penetration in selected service sectors

Country	Business services (percent)	Communication services (percent)	Financial services (percent)
India	38.1%	7.4%	7.0%
Mexico	30.0%	3.2%	4.4%
Russia	12.8%	10.1%	8.5%
Korea	10.1%	2.9%	1.5%
European Union	8.0%	7.5%	8.2%
Canada	7.9%	5.3%	4.9%
China	7.0%	1.5%	1.0%
Brazil	6.3%	1.3%	1.9%
United States	3.2%	1.6%	0.8%
Japan	2.6%	0.8%	2.2%

Note: Import penetration is calculated as imports as share of domestic demand. Intra-EU trade is excluded.
Source:Copenhagen Economics' calculations based on data from GTAP.

Business services constitute 30 percent of global trade in services, and it is the largest traded private service sector. It is, therefore, remarkable that Japan's import of business services only makes up less than three percent of the domestic demand for business services (2.6 percent), whereas, for example, the US imports services account for a share of 3.2 percent of domestic demand for business services from abroad. The EU imports 8.0 percent of domestic demand for business services through cross-border trade from outside the EU.

Communication services are generally less traded across borders. In Japan, less than one percent of domestic demand for communication services is covered by imports. In the EU, 7.5 percent of domestic demand is covered by imported services from outside the EU. Financial services are generally traded more frequently across borders than communication services. In this sector, Japan has some foreign participation, with 2.2 percent of domestic demand covered by imports. This is still below the level of penetration in the EU market by non-EU service suppliers (8.2 percent).

The EU has a trade surplus in service trade with Japan. Three quarters of the EU27 surplus in services comes from financial services and travel. In 2007, the EU27 exported €19.4 billion of services to Japan, while imports of services from Japan amounted to €13.8 billion, meaning that the EU27 had a surplus of €5.6 billion in trade in services with Japan. This surplus was mainly due to financial services (+€2.9 billion), as well as travel (+€1.3 billion) and computer and information services (+€0.9 billion). Japan accounted for around 3.5 percent of the total extra-EU27 trade in services.

Table 3.3 EU27 trade in services with Japan

	Export			Import			Trade balance		
	2005	**2006**	**2007**	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Total	**19,620**	**18,607**	**19,378**	**12,001**	**13,193**	**13,805**	**7,619**	**5,414**	**5,573**
of which:									
Transportation	5.070	5.127	5.038	4.473	4.718	4.854	597	409	184
Travel	2.362	2.422	2.181	867	921	900	1.495	1.501	1.281
Other services	12.187	11.059	12.149	6.659	7.556	8.039	5.529	3.504	4.109
of which:									
Communication services	321	144	165	96	102	117	225	42	48
Construction services	109	157	122	82	125	77	26	32	45
Insurance services	254	508	387	144	145	157	111	363	231
Financial services	3.005	3.606	4.426	1.211	1.671	1.502	1.793	1.935	2.924
Computer and informa-	702	774	991	208	178	134	494	596	857
Royalties and licenses	2.068	1.714	1.806	1.496	1.486	1.592	572	228	214
Other business services	5.178	3.774	3.913	3.286	3.686	4.307	1.892	88	-394
Personal, cultural and	500	344	308	53	65	45	447	279	263
Government services	51	39	30	82	99	109	**-32**	**-60**	**-79**
Total extra-EU27	**403,396**	**447,080**	**498,523**	**349,282**	**378,555**	**414,399**	**54,114**	**68,525**	**84,124**
Japan / total extra-EU27	**4.9%**	**4.2%**	**3.9%**	**3.4%**	**3.5%**	**3.3%**			

Note: Data is in € million.
Source:Copenhagen Economics' calculations based on data from Eurostat.

3.5. TARIFFS ARE LOW

Both the EU and Japan have low tariffs on goods, with simple average MFN tariff rates of 3.8 percent for both partners. Japan, however, has more duty-free tariff lines (47.4 percent of tariff lines in Japan compared to 25.8 in the EU). More than two thirds of EU's export value to Japan is duty-free, whereas 36.9 percent of Japan's export to the EU is duty-free. As mentioned, EU's exports to Japan are also more diversified than the Japanese export to the EU. For EU exports to Japan, it takes 71 HS 2-digit tariff lines to cover 95 percent of trade (or 1.279 HS 6-digit tariff lines), while for Japan's export to the EU, 95 percent of trade can be included under only 50 HS 2-digit tariff lines (or 848 HS 6-digit tariff lines), cf. Table 3.4.

The trade weighted tariff protection in Japan for EU exports is 1.7 percent, while the trade weighted tariff rate for Japan's exports to the EU is 3.4 percent. This is because the EU has tariffs on products that have large trade volumes, whereas Japan's tariff peaks are generally on products that the EU is not exporting to Japan in any large volumes.

Table 3.4 EU-Japan trade and duties faced

	EU exports to Japan	Japan exports to EU
Value of exports, 2008	€42.4 bn	€74.8 bn
Diversification		
95% of trade in no. of tariff lines		
- HS 2-digit	71	50
- HS 6-digit	1.279	848
Duty-free imports		
- Tariff lines in %	47.4	25.8
- value in %	71.7	36.9
MFN average of traded tariff lines		
- simple	3.8	3.8
- weighted	1.7	3.4

Source: International Trade Centre, World Tariff Profiles 2008 Country Profiles Part B (pages 78 and 99). Value of exports from EUROSTAT *(Comext, Statistical regime 4).*

Japan has high tariff peaks in agriculture, e.g. dairy products, with an average bound tariff of 126.8 percent and an average applied MFN tariff of 154.7 percent, but with peaks above 500 percent and no duty-free products. Petroleum, textiles, clothing and leather have also high tariffs.

Table 3.5 Japan tariffs and imports by product groups

Product groups	Final bound duties				MFN applied duties			Imports	
	AVG	Duty-free in %	Max	Binding in %	AVG	Duty-free in %	Max	Share in %	Duty-free in %
Animal products	17.6	41.2	438	100	13.9	43.8	438	1.7	3.8
Dairy products	126.8	0	552	100	154.7	6.7	552	0.1	21.8
Fruit, vegetables, plants	10.3	20.4	414	100	12.3	19.8	414	1.2	11.1
Coffee, tea	14.3	22.2	165	100	15.5	22.7	165	0.4	62.1
Cereals & preparations	79.5	7.9	648	100	64.3	10.6	648	1.3	62.0
Oilseeds, fats & oils	9.8	46.6	522	100	10.9	42.3	522	0.7	79.8
Sugars and confectionery	38.7	7.3	120	100	23.2	13.0	120	0.1	66.5
Beverages & tobacco	14.8	22.0	53	100	13.9	32.1	53	1.3	62.1
Cotton	0.0	100.0	0	100	0.0	100.0	0	0.0	100.0
Other agricultural products	4.5	68.0	544	100	5.3	70.0	544	0.8	71.7
Fish & fish products	5.0	4.2	12	90.7	5.5	3.8	15	2.2	4.4
Minerals & metals	1.0	70.2	10	99.9	1.0	70.3	10	22.1	90.7
Petroleum	60.9	11.1	520	50.0	0.6	72.1	8	21.9	96.8
Chemicals	2.0	46.2	7	100	2.5	30.3	7	8.2	44.9
Wood, paper, etc.	0.9	80.0	10	97.6	0.8	81.0	10	3.4	77.2
Textiles	5.4	7.9	25	100	5.5	7.3	25	2.1	7.3
Clothing	9.2	0	13	100	9.2	0	13	4.2	0
Leather, footwear, etc.	8.6	48.6	483	100	11.2	54.7	483	1.8	44.8
Non-electrical machinery	0.0	100.0	0	100	0.0	100.0	0	10.3	100.0
Electrical machinery	0.2	96.1	5	100	0.2	96.4	5	5.9	98.7
Transport equipment	0.0	100.0	0	100	0.0	100.0	0	3.7	100.0
Manufactures, n.e.s.	1.0	77.2	8	100	1.2	74.7	8	6.5	94.8

Source: International Trade Centre, World Tariff Profiles 2008 Country Profiles Part A.2 (page 99).

The EU also has tariff peaks in agriculture and food products, but the peaks are generally lower than in Japan as maximum rates go up to 231 percent, whereas Japan has several peaks above 500 percent. The has tariffs on key Japanese export products such as cars and electronics, with tariffs on these products of 22 and 14 percent respectively.

Table 3.6 EU tariffs and imports by product groups

Product groups	Final bound duties				MFN applied duties			Imports	
	AVG	Duty-free in %	Max	Binding in %	AVG	Duty-free in %	Max	Share in %	Duty-free in %
Animal products	26.8	20.6	215	100	25.9	23.6	215	0.4	15.2
Dairy products	66.8	0	237	100	62.4	0	215	0.1	0.
Fruit, vegetables, plants	10.7	22.8	231	100	11.6	18.5	231	1.6	11.4
Coffee, tea	6.9	27.1	88	100	6.9	27.1	88	0.7	80.4
Cereals & preparations	24.3	6.3	116	100	19.8	10.7	116	0.4	26.7
Oilseeds, fats & oils	5.6	48.2	113	100	6.0	43.1	113	1.2	69.1
Sugars and confectionery	29.5	0	133	100	29.8	0	133	0.2	0
Beverages & tobacco	23.2	23.0	210	100	20.0	19.8	191	0.6	15.3
Cotton	0.0	100.0	0	100	0.0	100.0	0	0.0	100.0
Other agricultural products	5.1	67.1	120	100	5.6	65.1	119	0.5	68.3
Fish & fish products	11.2	10.7	26	100	10.6	14.1	26	1.1	6.9
Minerals & metals	2.0	49.6	12	100	2.0	50.7	12	17.4	70.8
Petroleum	2.0	50.0	5	100	2.3	41.1	5	21.7	96.4
Chemicals	4.6	20.0	7	100	3.8	34.4	13	9.6	60.5
Wood, paper, etc.	0.9	84.1	10	100	0.9	81.3	10	3.1	90.3
Textiles	6.5	3.4	12	100	6.6	2.1	12	2.4	1.9
Clothing	11.5	0	12	100	11.5	0	12	4.8	0
Leather, footwear, etc.	4.2	27.8	17	100	4.1	26.1	17	2.5	19.6
Non-electrical machinery	1.7	26.5	10	100	1.7	27.3	10	13.1	67.6
Electrical machinery	2.4	31.5	14	100	2.6	28.3	14	6.3	39.5
Transport equipment	4.1	15.7	22	100	4.1	17.0	22	6.1	22.9
Manufactures, n.e.s.	2.5	25.9	14	100	2.5	24.2	14	6.3	56.8

Source: International Trade Centre, World Tariff Profiles 2008 Country Profiles Part A.2 (page 78).

Japan seldom uses trade defense instruments. In the period 1995 to 2003, Japan did not initiate any antidumping or countervailing duties investigations, while the EU initiated 270 antidumping investigations and 41 countervailing duties investigations over the same period[7].

In summary, Japan has low tariffs. In fact, Japan has the lowest tariffs on industrial goods in the Quad according to Kommerskollegium (2008). Japan seldom uses trade defense instruments and Japan has a sizable number of zero-tariffs.

While some of the low level of trade between EU and Japan can be explained by tariffs on agriculture and food, and by EU tariffs on certain industrial goods, the low level of imports into Japan cannot be explained by tariffs. We will need to look for the impact of non-tariff measures to find the reasons for the low level of trade between EU and Japan.

Pre- and Post-Doha tariffs

Tariffs above zero will remain after the completion of the Doha-round. Mostly in food and beverages, where Japan's trade-weighted tariff on European food and beverage exports will decline from 34.7 percent to 23.9 percent, and the EU's tariff on Japanese food and beverages will go down from 12.4 percent to 7.2 percent. Japan will also have higher tariffs on agricultural products, with an average MFN tariff against EU imports of 6.7 percent, compared to an EU tariff of 4.8 percent. These will decrease to 2.8 and 2.9 percent respec-

[7] Calculations done by the Swedish National Board of Trade, based on WTO reports on anti-dumping. The similar number for the U.S. is 288 antidumping investigations and 73 countervailing duties investigations. Canada has initiated 113 and 15 investigations respectively.

tively. The EU will have higher tariffs than Japan for non-agriculture manufacturing. This is notably true for motor vehicles, where the EU will have a tariff of 4.0 percent down from 8.7 percent, cf. Table 3.7, while Japan's motor vehicle tariffs are already duty-free prior to Doha.

Table 3.7 Pre- and Post-Doha MFN tariffs (percent)

Sector	EU tariffs on Japanese import		Japanese tariffs on EU import	
	Pre-Doha	Post-Doha	Pre-Doha	Post-Doha
Primary agriculture	4.82	2,92	6.70	2,78
Other primary	0.22	0,20	0.13	0,09
Food and beverages	12.36	7,25	34.71	23,94
Chemicals	2.60	1,67	1.08	0,74
Electrical machinery	2.32	1,29	0.00	0,00
Motor vehicles	8.66	4,03	0.00	0,00
Other transport equipment	4.04	2,45	0.00	0,00
Other machinery and equipment	1.87	1,41	0.10	0,06
Metals and metal products	2.30	1,58	0.83	0,62
Wood and paper products	0.52	0,39	0.93	0,75
Other manufactures	3.45	2,05	3.12	3,29

Note: The table shows bilateral trade weighted tariffs on goods trade from EU to Japan and vice versa (percent).

3.6. OTHER INDICATORS OF TRADE OPENNESS

The importance of non-tariff measures can be summarised in different ways. One way is to use frequency counts of non-tariff barriers as done in the UNCTAD TRAINS database. This approach only informs us about the existence of certain measures, but not about the impact on trade costs or prices. Another approach is to quantify the impact of NTMs through international price comparisons of similar products. While this approach provides a quantification of the impact in terms of higher prices and higher trade costs, it does not link these results to the existence of identifiable NTMs. A third approach is to look at various survey-based analyses of indices of openness such as the World Economic Forum's Global Trade Enabling index or the World Bank's Ease of Doing Business index, which from a business perspective aims at assessing the ease of access to markets around the globe.

Looking across these many measures of NTMs, it appears that NTMs in both the EU and in Japan are high and that there are generally higher costs of NTMs in Japan than in the EU. Japan is the least open partner in terms of NTMs in the Quad.

Frequency measures

Based on frequency counts of NTMs, there is not much difference between the EU and Japan. In both countries, 17 percent of tariff lines are affected by NTMs according to counts based on the UNCTAD TRAINS database. Looking at the share of imports on these tariff lines, it occurs that only 7 percent of imports in Japan are affected by NTMs,

while 14 percent of EU imports are affected. Note that the UNCTAD data on NTMs are from 1999 for the EU and from 2001 for Japan.

Table 3.8 Frequency counts of NTMs in major economies

	EU	US	Canada	Japan
Share of tariff lines affected by NTBs (%)	17,2	21,9	8,9	17,0
Share of imports affected by NTBs (%)	14,4	31,6	11,3	7,4

Note: Calculations by the National Board of Trade, based on the UNCTAD TRAINS database. Frequency and import coverage analysis of NTMs for industrial goods (HS category 25 to 97). Anti-dumping and countervailing duties are not included and neither are the now abolished textile quotas. EU (15) data are from 1999, US data from 1999 and 2000 (import), Canadian data from 2000 and 1995 (imports) and Japanese data from 2001 and 1999 (import).
Source: Kommerskollegium (2008), p. 106-111.

Kee et al (2008) have used the UNCTAD data and tariff data to estimate so-called overall trade restrictiveness indices. They estimate an overall trade restrictiveness index using only tariffs and one with the combined effect of tariffs and NTMs. They conclude that NTMs have a significant contribution to the level of trade restrictiveness measured by their indices. Indeed, according to the estimates by Kee et all (2008) NTMs add on average an additional 87 percent to the level of trade restrictiveness imposed by tariffs. In 34 countries (out of 78) the contribution of NTMs to the overall level of restrictiveness is higher than the contribution of tariffs. The authors conclude that "neglecting the restrictiveness of NTMs can be very misleading".

This is indeed also true for the estimates on EU NTMs and Japanese NTMs. According to the estimates by Kee et al (2006), Japan is more restricted than the EU both with respect to tariffs and with respect to the combined effect of tariffs and NTMs. The combined effect of tariffs and non-tariff measures is given by the Overall Trade Restrictiveness Index, which shows the tariff level that keeps imports at their observed level. According to this broad estimate, the level of trade protection is 14.3 percent in Japan, compared to 12.6 percent in the European Union and 8.2 percent in the United States. The contribution of NTMs to the overall level of restrictiveness is much higher than the contribution of tariffs. According to Kee et al (2006), NTMs between EU and Japan add by a factor of 2.5 in case of Japan and up to a factor of four in the case of the EU, to the level of trade restrictiveness imposed by tariffs.

Table 3.9 Impact of tariffs and NTMs compared

Trading partner	OTRI using tariffs	OTRI using tariffs and NTMs
European Union	3.0	12.6
Japan	5.8	14.3
United States	2.7	8.2
Average of 13 OECD countries in study	5.8	11.0

Note: The table shows the trade costs added by the OTRI tariff index and by an OTRI index which also includes NTMs
Source: Kee et al (2006).

Price gap analyses

Bradford and Lawrence (2004) offers estimates of general price gaps for the four largest trading partners. The approach is to consider barriers to arbitrage across national borders as barriers to trade. Controlling for unavoidable costs associated with shipping goods between countries, price gaps between equivalent goods in two different countries are seen as indicators that the higher-priced market is affected by trade barriers. Moreover, the price gap is used as a measure of the extent of protection, thereby quantifying the total effect of all trade barriers for that product. As argued by the authors, these gaps may be caused in part by policies that are not explicitly designed to impede trade, such as certification requirements that are more restrictive than is required. No matter what the intent, it is argued that policies which segment national markets are trade barriers.

The analysis shows that the average price impact in Japan is 61 percent higher prices, compared to a price impact of NTMs in the EU of 35 percent. The NTMs in Canada and the US are significantly lower, at 17 percent and 15 percent respectively, cf. Table 3.10.

Table 3.10 Price gaps for similar products in major economies

	EU	Japan	US	Canada
Price gap of national basket in comparison to minimum priced basket (1999)	+35%	+61%	+15%	+17%

Note: Estimates are from Bradford and Lawrence (2004). Prices are compared to the lowest available price in the countries in each case and then a weighted average is calculated.
Source: Kommerskollegium (2008), p. 106-111.

Bradford (2003) uses a similar approach to estimate price gaps by sector. Bradford did not estimate an average EU NTM impact. Instead we can use the estimates for Germany as a proxy for the EU average. Using detailed price data for 29 product groups, Bradford identifies eight sectors were Japan has higher estimates than Germany (processed food, textiles, footwear, furniture, chemicals, pottery, electronics, and other machinery).

According to estimates of price impacts provided by Ferrantino et al (2006), Japan prices are not high compared to EU, based on NTM incidence measures.

Indices of trade openness

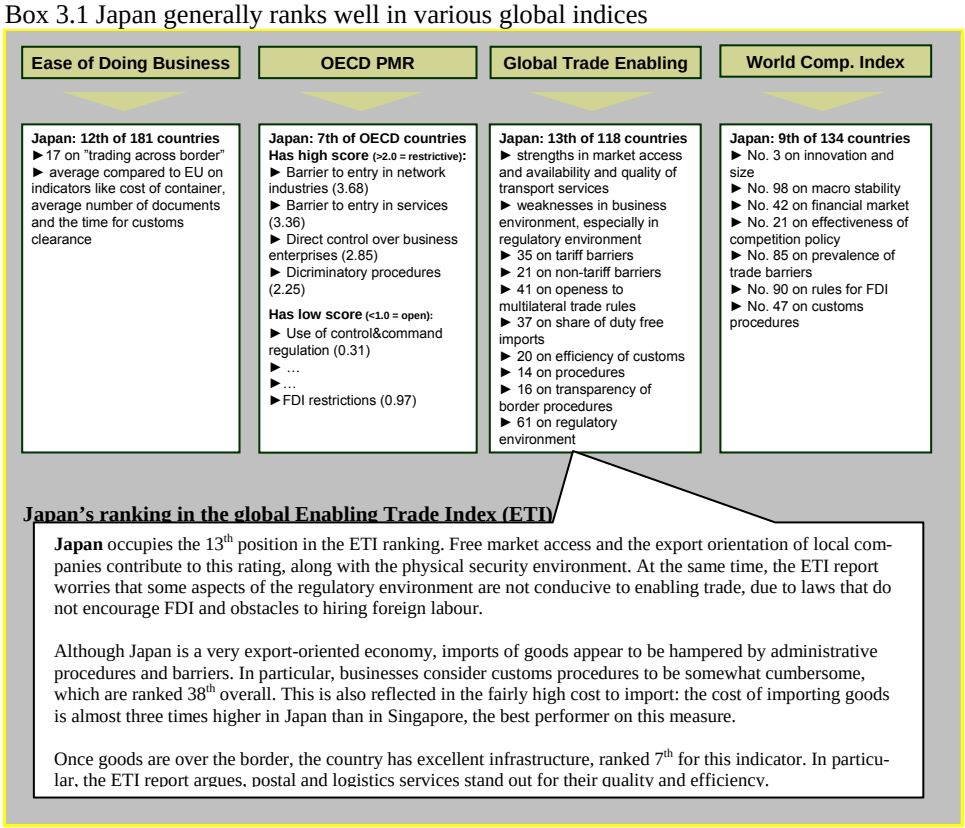
Both Japan and most EU countries are regarded to be relatively open, as measured by standard indices. Japan is 12th of 181 countries in the World Bank "Ease of Doing Business" index, while three EU members rank better than Japan (Denmark on 5th place, the UK on 7th and Ireland as 8th on the list). The 24 other EU members ranks equal with Japan, with Greece on 96th place in the ranking.

Japan ranks 13th in the World Economic Forum's "Global Trade Enabling" index. Six EU countries rank better than Japan (namely Sweden on 3rd place, Denmark 6th, Finland 7th, Germany 8th, Netherlands 11th and Luxemburg 12th). The other EU member states thus

ranks on par with Japan or worse, with Bulgaria being the lowest ranking of the 27 members in 60th place of the 118 countries in the ranking.

The same five EU members perform well on the World Competitiveness Index and better than Japan at 9th place of 134 countries in the World Competitiveness Index. In the OECD ranking on product market reforms (PMR), Japan is rated 7th among the OECD countries, cf. Box 3.1.

Box 3.1 Japan generally ranks well in various global indices



Note: The box illustrates Japan's ranking in various indices measuring the framework conditions for trade and investment in the country. The ETI covers 118 countries and is a comprehensive index that measures the factors, policies and services facilitating the free flow of goods over borders and to destination. The index is composed of four overall issue areas, or sub-indexes: (1) market access, (2) border administration, (3) transport and communications infrastructure and (4) the business environment.

Sources: World Bank (2008), OECD indicators of product market regulation and World Economic Forum (2009).

These indices do, however, also highlight areas where Japan is performing less well. The OECD product market reform indicators reveal that barriers to entry into network industries (telecommunications, postal services, electricity and transport) are substantially above the restrictive level, and to barriers to entry in services, which are also much above the restrictive level. Furthermore, the OECD point to "direct control over business enterprises" as a problem of specific importance in Japan together with "discriminatory procedures".

The Global Trade Enabling index, produced by the World Economic Forum, also points to both positive and problematic aspects of market access in Japan. The main reason for ranking Japan at 13th place is due to its transportation system, which, when compared to most other countries in the index, is outstanding. However, when it comes to trade policy related issues, Japan ranks much lower. According to the Global Trade Enabling index, it is considered to be ranked 21st out of 118 countries regarding non-tariff barriers, 41st on openness to multilateral trade rules and 61st on regulatory environment.

The World Competitiveness Index also ranks Japan poorly on trade barriers more generally. In the most recent report from the World Economic Forum, Japan ranks 85th out of the 134 countries analysed on the perception of trade barriers.

3.7. CONCLUSION: A JAPANESE CONUNDRUM

There is a Japanese conundrum: There is little trade, but few barriers. On one hand, Japan's imports from Europe are low compared to the size of the Japanese economy. On the other hand, formal barriers in the form of tariffs are low and on some of the general indices Japan appears to be one of the more open OECD economies.

We acknowledge that EU exports to Japan are hampered by the long distance to Japan, and recognise that the language difference hinders trade and will continue to do. Furthermore, large countries of Japan's size generally import less per unit of GDP than smaller countries.

In addition, the macro-economic structure of Japan's economy with high savings and investments is also factor to take into account. Export-driven economies such as Japan, with high savings rates and high investments, generally have smaller imports relative to GDP. All in all, there are many factors explaining the low level of Japanese imports.

However, controlling for these factors still leave the conclusion that imports into Japan are low. Furthermore, available sources on non-tariff measures in Japan point to restrictions on trade resulting from NTMs, and indicated that NTMs might add substantially more to the cost of trade than tariffs. Some studies have indicated that the impact of NTMs is up to four times higher than the impact of tariffs. Other studies have pointed to price effects of NTMs of more than 30 percent in Europe and more than 60 percent in Japan. The OECD analyses also point to the barriers in Japan to include barriers to entry into network industries, barriers to entry in other services industries, and point to a large amount of direct control over business enterprises and to restrictive discriminatory procedures. The restrictiveness of the overall regulatory environment in Japan also ranks low according to the Global Trade Enabling index.

We therefore conclude that NTMs are indeed part of the explanation for the low volume of trade between EU and Japan, and that NTMs are probably higher on the Japanese side than on the European side.

Chapter 4 NON-TARIFF MEASURES IN JAPAN

In the previous chapter, we looked at bilateral trade flows between the EU and Japan and saw that imports into Japan are relatively low. We examined various factors that could explain this and concluded that, among the trade policy variables, non-tariff measures (NTMs) are an important factor in explaining the relatively low level of imports in Japan, and imports from the EU in particular. In this chapter we identify the concrete non-tariff measures which affect European businesses in Japan. We rely on an inventory of NTMs identified in policy documents and on results from a questionnaire directed at EU exporters in Japan who describe their perception of the Japanese market. In the next chapter we will use these survey results as one of the inputs into the measurement of the bilateral trade costs of NTMs.

4.1. IDENTIFIED NTMS IN JAPAN

Based on information from the European Commission (2008a), the European Business Council in Japan (2008a), the World Trade Organisation (2004) and the US Department of State (2008), we have constructed an inventory of NTMs which are listed as barriers to the Japanese markets in these policy documents. Across all sectors, we have identified a total of 215 issues. The complete list of NTMs is presented in Appendix 3.

The inventory is based on a four-step methodology that was developed with the purpose of identifying Japanese NTMs across sectors. Not all issues raised by business or policy makers would qualify as an NTM according to our definition. We have applied the following four steps in order to identify NTMs in Japan:

- **Impact:** We assess that the issue has an impact on trade
- **Problem:** There is a clearly identifiable problem underlying the NTM
- **Solvability:** There are reasons to believe that the NTM is solvable
- **Instrument:** We can identify instruments to remedy the damage created by the NTM

Of the 215 issues identified, 194 are related to NTMs, while 21 issues are issues that do pose difficulties to European firms in Japan, but cannot be considered as NTM related. This covers issues related to tariffs (e.g. on steel) or domestic taxes (e.g. on motor vehicles). Also in this group, we find issues related to the lack of scientific cooperation (e.g. the request for more cooperation on ocean management). Of the 194 NTM issues, four are found in agriculture, 99 are found in manufacturing, and 62 issues are identified in services. A total of 29 issues are cutting across sectors (e.g. customs procedures, which will affect all good trading sectors or requests to improve competition policy enforcement).

Table 4.1 Number of issues identified in Japan

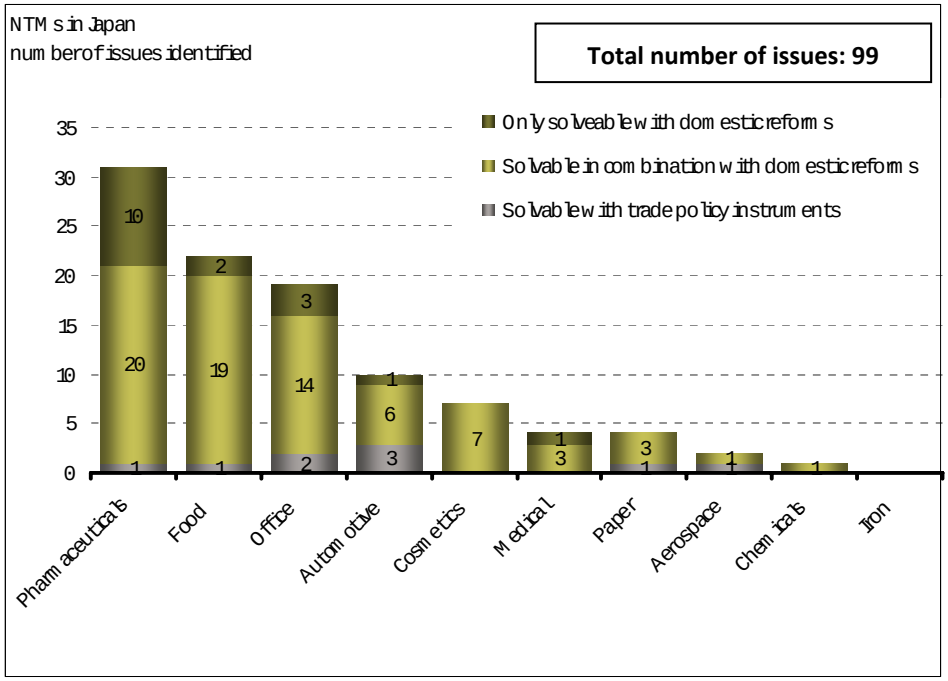
	Agriculture	Manufacturing	Services	Cross-cutting	Total
NTM related	4	99	62	29	**194**
Other issues	1	12	4	4	**21**
Total nb of issues	**5**	**111**	**66**	**33**	**215**

Note: The table shows the count of issues identified. The count of issues does express gravity of the issue.
Source:Copenhagen Economics inventory of Japanese NTMs.

Identified NTMs in manufacturing

From our inventory of Japanese NTMs we identify 111 issues across 13 manufacturing sectors out of which 99 are found to be trade-related and can be characterised as NTMs. Looking across sectors, we find that pharmaceuticals, processed food, office and IT equipment as well as automotives have the highest number of issues that can be characterised as NTMs. Together these four sectors account for 82 out of the 99 issues, cf. Figure 4.1.

Figure 4.1 Total number of NTM issues grouped by solvability



Note: The category "Only solvable with domestic reforms" involves trade barriers that are entirely domestically founded; the category "Solvable in combination with domestic reforms" includes barriers that involve both trade and non-trade themes; and the category "Solvable with trade policy instruments" includes purely trade-related barriers to trade. Details of the IPSI inventory of Japanese NTMs can be found in Appendix 3.

Source:Copenhagen Economics inventory of Japanese NTMs.

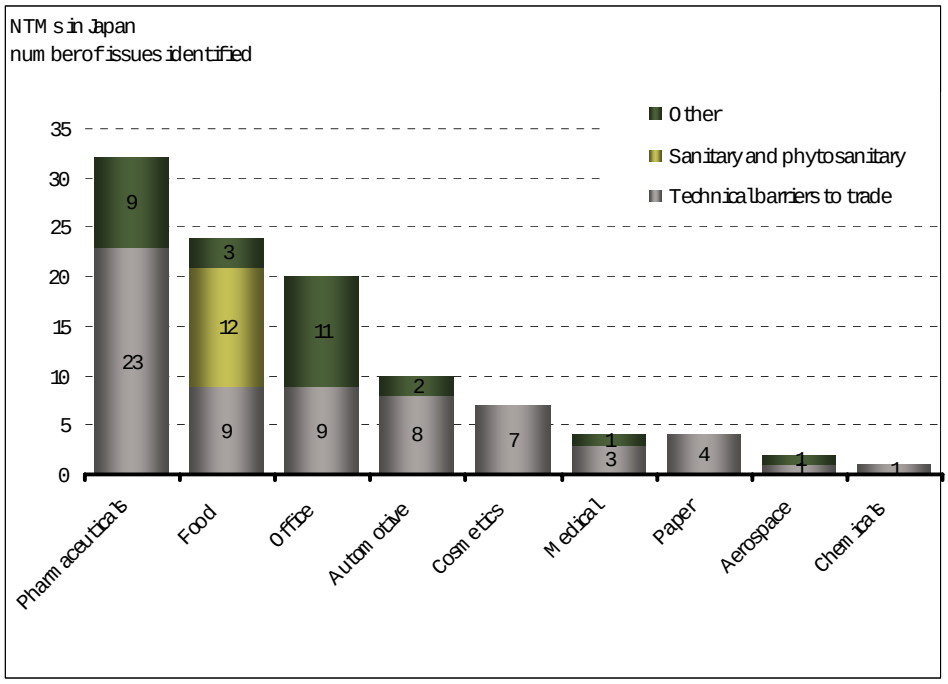
First, we distinguish between discriminatory NTMs and non-discriminatory NTMs. Domestic measures that apply equally to foreign and domestic firms are non-discriminatory. Pure trade measures, which apply only to foreign suppliers are considered discriminatory. NTMs that are discriminatory would normally be included in trade policy negotiations. However, as we shall see, this is not the prevailing type of NTMs in Japan.

The discriminatory NTMs are solvable with trade policy instruments. For the non-discriminatory NTMs, we distinguish between NTMs that are solvable in combination with domestic reforms; and those that are only solvable with domestic reforms. The first group of NTM issues (with purely discriminatory issues) should obviously be incorporated into FTA negotiations, whereas one should carefully target the most harmful issues listed in group two. The latter group of issues function as effective trade barriers (and might actually be the most harmful). Moreover, since their abolishment involves both trade and non-trade themes, some degree of adjustment towards domestic firms is likely to be required. We call the last category "only solvable with domestic reforms" and this group consists of issues that *de facto* hinder trade, but where solutions are entirely domestic. These are non-discriminatory NTMs.

Most of the NTM issues listed in the inventory are only solvable in combination with domestic reforms. For the four sectors - pharmaceuticals, food, office and automotives - 59 out of 82 issues are solvable in combination with domestic reforms.

The NTMs in the inventory can also be grouped according to the type of NTM. The most frequently mentioned NTMs listed by exporters to Japanese markets are technical barriers to trade (TBTs) and sanitary and phyto-sanitary (SPS) measures, cf. Figure 4.2.

Figure 4.2 Total number of NTM issues in manufacturing grouped by sector and type

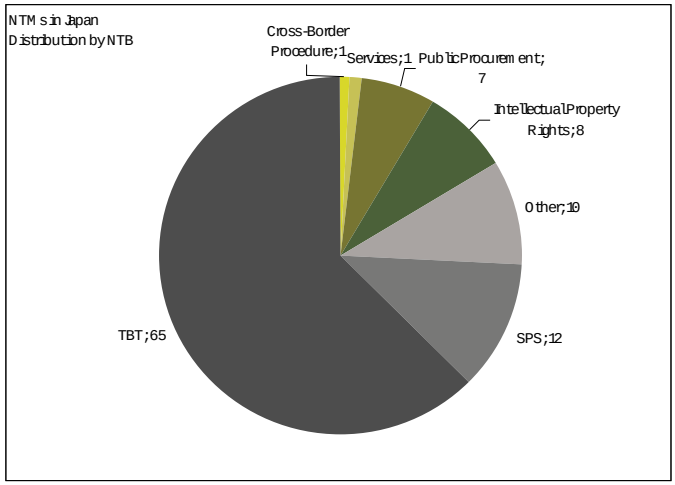


Note: "Other" contains public procurement, cross-border procedures, intellectual property rights and other issues.

Source: Copenhagen Economics IPSI inventory of Japanese NTMs.

TBTs are the most frequently mentioned barrier to Japanese markets as measured across sectors, cf. Figure 4.3. Of the total number of NTMs of 99 in manufacturing, TBT account for 65 of the listed issues.

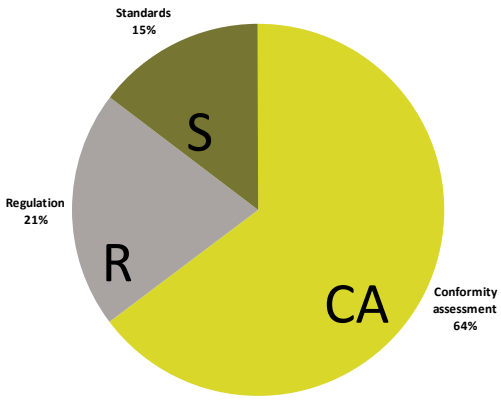
Figure 4.3 Total number of NTM issues in manufacturing grouped by type of NTM



Note: Includes all barriers except NTB types that are registered as "not trade-related".
Source: Copenhagen Economics IPSI inventory of Japanese NTMs.

The nature of the TBT and SPS barriers are, in the majority of cases, linked to conformity assessment (CA), cf. Figure 4.4.

Figure 4.4 Problems with conformity assessment dominates



Note: The diagram shows the distribution of all TBT and SPS issues identified in manufacturing sectors in Japan according to three types: "CA" is where the issue mentioned relates to conformity assessment problems (e.g. costly and cumbersome procedures cause excessive delays in getting new products approved in Japan). "R" relates to regulatory differences, i.e. the compulsory norm in Japan is different than in Europe and this is the cause of the problem. "S" is similar to "R", but relates to standards being different in EU and Japan.

Source:Copenhagen Economics IPSI inventory of Japanese NTMs.

Identified NTMs in services

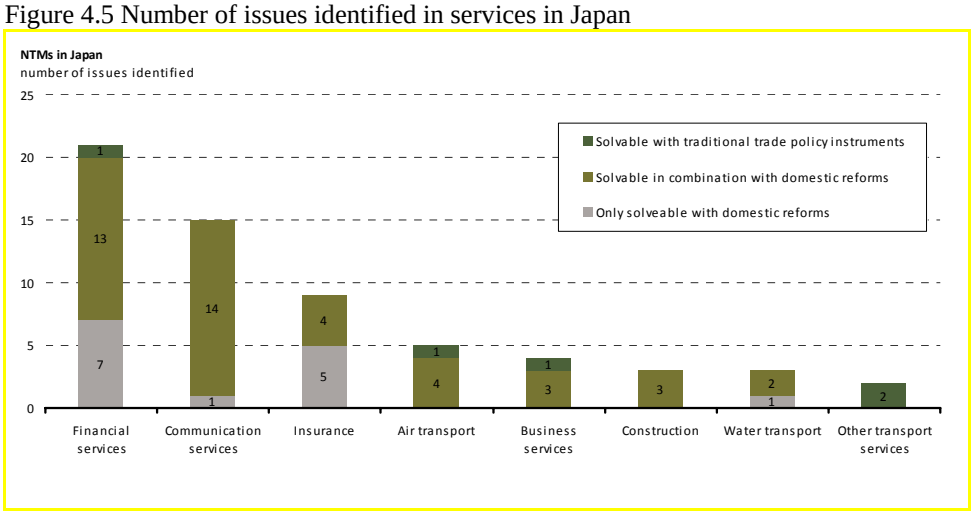
The barriers to services trade (all modes) can be classified in several dimensions:

- Affecting *establishment* (the ability of service suppliers to establish physical outlets in an economy and supply services through those outlets) or *ongoing operations* (the operations of a services supplier after it has entered the market).
- *Non-discriminatory* (restricting domestic and foreign services suppliers equally) or *discriminatory* (restricting only foreign services suppliers).
- Affecting *prices of services* or *costs of service* providers.

In our NTM inventory, we have identified 66 issues in services. Most of these are barriers affecting *ongoing operations* in a *non-discriminatory* manner that affects the *costs of service* providers. However, several barriers also affect establishment and are, therefore, barriers to foreign direct investment (FDI).

Of the 66 issues identified as barriers, the financial service sector comes out as the sector with most issues listed (21 issues). Communications is second with respect to the number of issues identified (15 issues). Ten issues were identified in transport service sectors (five in air transport, three in water transport and two in other transport services). Insurance services account for nine of the identified service issues, cf. Figure 4.5.

Figure 4.5 Number of issues identified in services in Japan



Note: The category "Only solvable with domestic reforms" involves trade barriers that are entirely domestically founded, the category "Solvable in combination with domestic reforms" includes barriers that involve both trade and non-trade themes, and the category "Solvable with trade policy instruments" includes purely trade-related barriers.

Source:Copenhagen Economics IPSI inventory of Japanese NTMs.

Only five of the 66 issues identified are issues that appear to be solvable with trade policy instruments (or other bilateral policy instruments). These include the restrictions in Japan's bilateral air service agreements hindering foreign airlines' access to operate; restrictions on foreign ownership of airports; the need to apply equivalent customs clearance procedures for private and public express carriers (incl. duty declarations); and finally some discriminatory practices based on nationality requirements (regarding rules for registration as a lawyer and a discrimination between foreign and domestic bank branches). Another 14 of 66 issues have been categorised as "only solvable through domestic reforms".

The remaining 47 issues are expected to require a combination of trade policy instruments and domestic changes in order to be solved. Eight of these relate to "lack of competition in the telecommunications sector", and include issues related to ensure equal access to interconnections according to the standards of transparency, to resolve the unreasonably high interconnection fees in telecommunications and to introduce facilities-based competition across different broadband platforms. These are issues which require domestic policy changes, but *de facto* affect market access for foreign operators, and can be considered to be a NTM, as defined in this study.

4.2. EU EXPORTERS PERCEIVE JAPAN TO BE A DIFFICULT MARKET

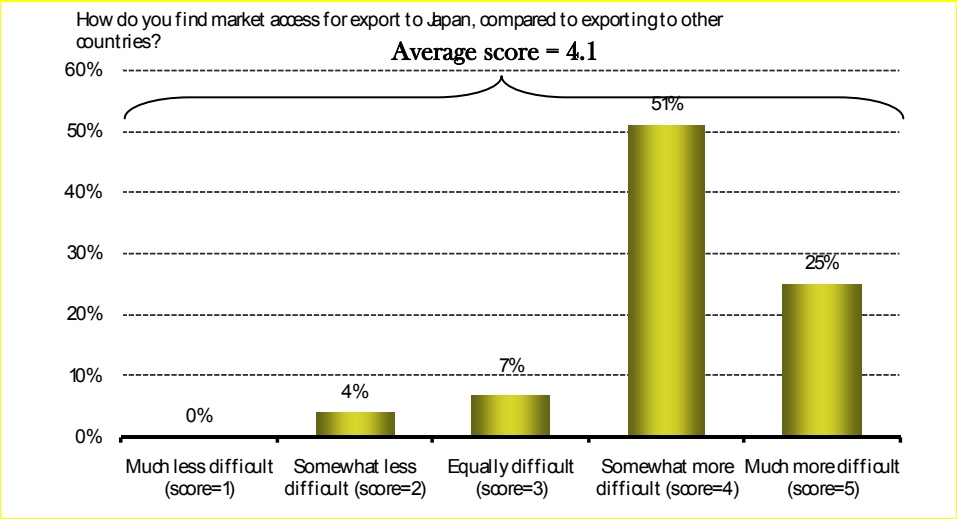
In this section we present results from a comprehensive questionnaire completed by European business managers in Japan. We use the questionnaire to reveal the businesses' perceptions of the NTMs and how they affect various parts of their value chain from product development to final delivery to the customer in Japan.

We use information from EU firms actually exporting to Japan, drawn from a substantial and detailed questionnaire which was submitted to managers of the Japanese branches of 128 EU firms in six sectors. A total of 92 managers replied (71 percent response rate). The 128 EU firms in the sample covers the majority of European exporters within the selected industries with own operations in Japan[8]. The questionnaire and the details of the responses are described in Appendix 4.

Overall perception of the Japanese market

Responses to our questionnaire show that three out of four managers consider Japan to be "more difficult to access than other markets" (51 percent) or "much more difficult to access than other markets" (25 percent), cf. Figure 4.6. Scoring replies from 1 (much easier) to 5 (much more difficult), we calculate an average restrictiveness score of 4.1.

Figure 4.6 Perceived difficulty of exporting to Japan



Note: Average score = 4.1. Details of the business survey can be found in Appendix 4.
Source:Copenhagen Economics Questionnaire to managers of European firms that export to Japan (all sectors).

There is no significant variation from the average in the individual sector responses. Pharmaceutical firms have the lowest average score of 3.8 and medical devices have the highest score of 4.3, thus we conclude that all firms across sectors share the perception that market access to Japan is more difficult than other export markets.

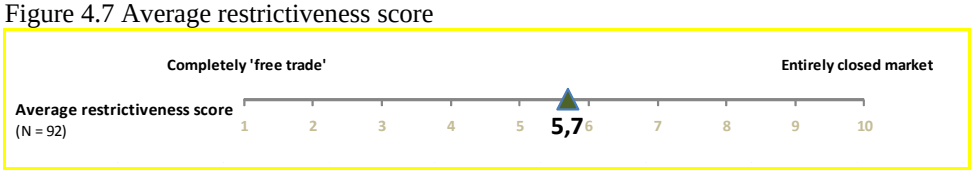
Perceived restrictiveness compared to home market

We have also asked the EU managers in Japan to range the restrictiveness of the Japanese market on a scale from 1 to 10, with 10 representing an entirely closed market, cf. Figure

[8] A smaller survey among European SMEs exporting to Japan shows that more than 90 percent entered the market through a Japanese distributor. Since the Japanese distributor handles all the difficulties of getting the products approved and sold on the Japanese market, we expect that the SMEs have less information about the cost impact of Japanese NTMs.

4.7. Measured in this way, the average score of 5.7 illustrates that EU exporters consider the Japan market to be slightly closed.

Figure 4.7 Average restrictiveness score



Note: Replies to the question: "Consider exporting to Japan, keeping in mind your domestic market. If 1 represents a completely "free trade" environment, and 10 represents an entirely closed market due to barriers, what value between 1 – 10 would you use to describe the overall level of restrictiveness of the Japanese market to your export?". Details of the business survey can be found in Appendix 4.

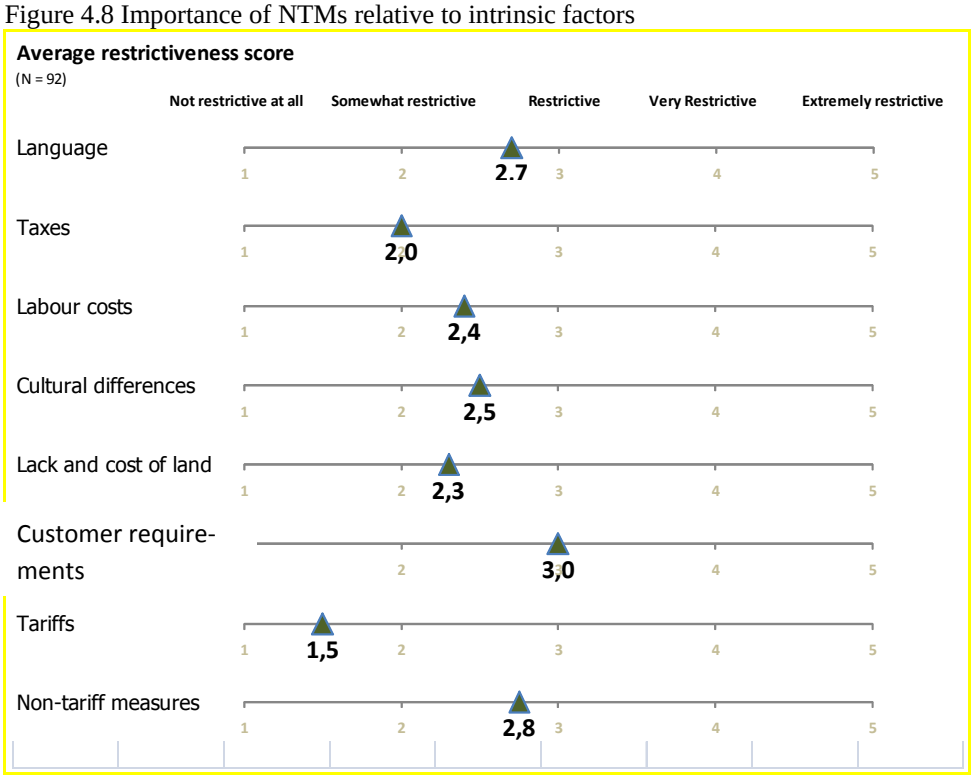
Source:Copenhagen Economics Questionnaire to managers of European firms that export to Japan (all sectors).

There are some differences in the replies at the sector level. Again pharmaceutical firms perceive Japan as being slightly less restrictive (score of 4.4) than average across all firms (score of 5.7), while medical device firms consider Japan to be slightly more closed (score of 6.7) than average. Average restrictiveness scores from other sectors lie between the two.

Importance of NTMs relative to other factors

Factors other than NTMs also restrict trade. Of these, "customer requirements" comes out as the most important factor restricting EU exports to Japan (average score of 3.0). On average, NTMs are considered to be the second most important factor for trade (average score of 2.8), closely followed by language differences and the third most restricting factor (average score of 2.7), cf. Figure 4.8. This picture is consistent across sectors.

Figure 4.8 Importance of NTMs relative to intrinsic factors

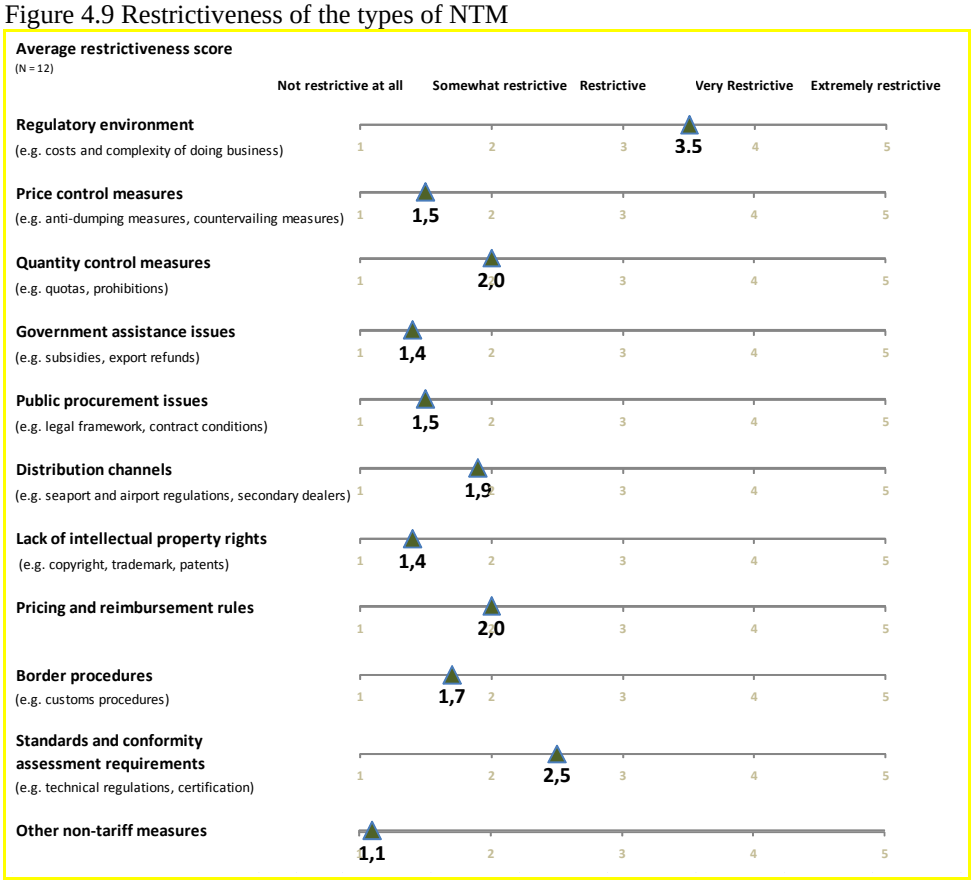


Note: Replies to the question: "Please give the following factors a score between 1 and 5 in terms of the degree to which they restrict your export to Japan". Details of the business survey can be found in Appendix 4.
Source:Copenhagen Economics Questionnaire to managers of European firms that export to Japan (all sectors).

4.3. REGULATORY ENVIRONMENT IS THE MOST IMPORTANT NTM

The regulatory environment in Japan is seen as the biggest obstacle for the responding European companies, cf. Figure 4.9. The second largest barrier is related to *standards and conformity assessment* which increase the complexity and uncertainty of doing business and generating costs. Quantity control measures as well as pricing and reimbursement rules are perceived as being equally important.

Figure 4.9 Restrictiveness of the types of NTM



Note: Replies to the question: "Please give the following non-tariff measures a score between 1 and 5 in terms of the degree to which they restrict your export to Japan". Possible replies include regulatory environment (e.g. costs and complexity of doing business), price control measures (e.g. anti-dumping measures and countervailing measures), quantity control measures (e.g. quotas and prohibitions), public procurement issues (e.g. legal framework and contract conditions), distribution channels (e.g. seaport and airport regulations, secondary dealers), lack of IPR (e.g. copyright, trademark and patents), border procedures (e.g. customs procedures) and technical regulations and certification (e.g. standards and conformity assessment requirements). Details of the business survey can be found in Appendix 4.

Source:Copenhagen Economics Questionnaire to managers of European firms that export to Japan (all sectors).

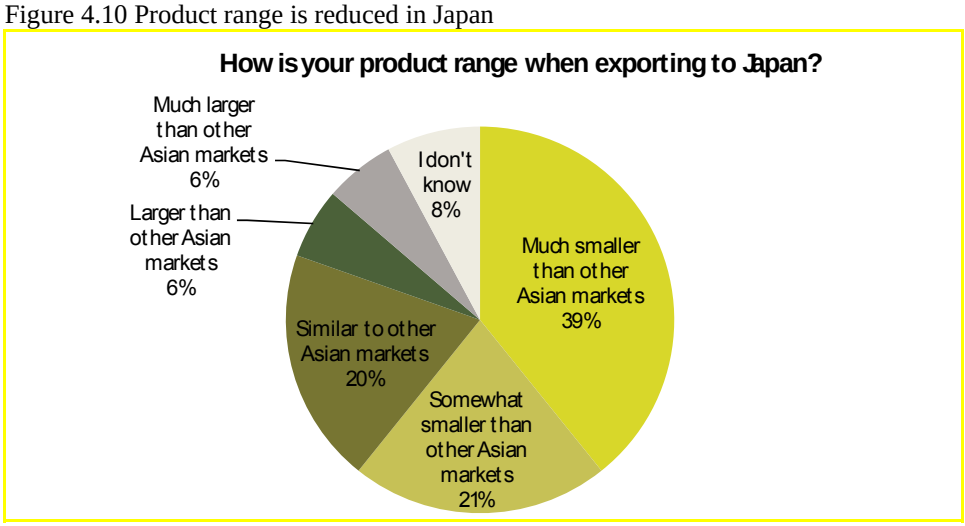
There are large sector differences. Pharmaceutical and medical device companies rate the regulatory environments, barriers related standards and conformity assessment requirements in addition to the pricing and reimbursement rules as being highly restrictive. The latter most seriously hamper the export of pharmaceutical products. The same factors restrict exports of motor vehicles and processed food products but access to distribution channels and quantity control measures are also important in these two sectors. Processed food is the only sector where Japanese border procedures seem to have a restrictive impact on export.

NTMs in Japan create new costs, but they also (and perhaps more importantly) have an impact on the capacity of foreign companies to offer their complete portfolio of products, and their ability to offer new products quickly. Japanese consumers attach at least as much

importance to having the latest and most fashionable product than to the cost of the product. This aspect has also been addressed in the questionnaire and is an element that is factored into the subsequent analyses.

The majority (60 percent) of EU exporters in our survey replied that they have a smaller or much smaller product range in Japan than other markets in Asia. Almost 40 percent said that their firm offers substantially fewer products on the Japanese market than other Asian markets. A minority of 12 percent have a larger product range in Japan than in other Asian markets, cf. Figure 4.10.

Figure 4.10 Product range is reduced in Japan



Source:Copenhagen Economics Questionnaire to managers of European firms that export to Japan (all sectors).

In our model assessment of the impact of reductions of the NTMs we take this into account, since the model applied uses so-called *love-of-variety* demand functions. This means that there are welfare benefits to consumers from a wide range of differentiated products, and that there are productivity gains from an increasing the variety of suppliers. These assumptions imply that lowering of NTMs in Japan will have both a cost reducing effect and product range expansion effect, and both effects are captured in the model.

4.4. SELECTION OF SECTOR STUDIES

We have selected five manufacturing sectors (pharmaceuticals, medical devices, processed food, motor vehicles and transport equipment) and two services sectors (financial services and communication services) for in-depth investigation. The results of the sector studies are reported in Appendices 6 to 12, and the results are summarised in the next chapter.

The selection is first based on existing trade volumes in order to identify sectors with large amounts of trade and secondly we select sectors with a high expected increase of EU exports as a result of NTM reductions. Thirdly, amongst the sectors with large current vol-

umes and large potential increases, we have chosen sectors where the NTM inventory listed the most substantial amount of concrete and solvable barriers.

The selected manufacturing sectors

Processed foods has been selected because the current trade flows are high (approximately 7 percent of total EU export value to Japan) and because the current tariffs in Japan are very high and are holding back trade. We have also identified many NTMs affecting trade in the sector and the potential for barrier reduction is judged to be substantial. Reductions of tariffs and NTMs may be essential to unlock trade in the sector.

Medical devices has been selected, even though the current export level is not among the highest (approximately 3 pct of total EU exports to Japan). Importantly, EU exports in the sector appear to be depressed below potential level. Furthermore, many barriers are mentioned and the potential for barrier reduction is judged to be substantial. Furthermore, the sector is interesting because there is widespread SDoC[9] in the EU. Also, these products have been under the present MRAs, but recent reports confirm that this has been without much effect. Therefore new policy options will have to been considered to unlock the potential for increased EU exports to Japan. Finally, the EU medical device industry is very innovative and high-skill intensive, and thus interesting from a growth perspective.

The *motor vehicles* sector has been selected because it represents around 9 percent of total EU export value to Japan. The potential EU market share is estimated to be much higher than the current level and estimates of trade barriers are high and with large differences in market access costs in Japan and the EU to the disadvantage of EU exporters. The inventory highlights many NTMs as having an impact on trade and barrier reduction potential is judged to be high.

Pharmaceuticals has been selected because is constitutes approximately 7 percent of total EU exports to Japan. A number of non-tariff measures have been identified in the sector and estimates of trade barriers are high and with large differences in market access costs in Japan and EU, to the disadvantage of EU exporters.

Transport equipment has been selected, not so much because of the current trade flow (which makes up about 1 percent of total EU export value to Japan) but more because the potential increase is judged to be particular high. The export of rail road equipment and aircraft to Japan is low and is hindered by a number of NTMs and issues related to procurement rules.

Selection of service sectors

Service sectors constitute nearly 35 percent of EU exports to Japan. According to the OECD (2008), specific importance should be given to restrictions in major service indus-

[9] SDoC is short for manufactures self declaration of conformity.

tries which are characterised by either low productivity or high growth potential. Following this argument, the sectors to focus on are: retail distribution, energy, transport, telecommunication services, public services and business services.

Since total service trade with Japan is very low, and since the service sector in Japan appears to be very closed, when measured by the standard measures of *de facto* openness such as import penetration, foreign affiliate sales and foreign direct investment, we should be cautious when basing our conclusions on the size of current trade flows. Large parts of service trade with Japan are entirely missing, and predicting trade potentials based solely on percentage increases of existing trade levels will not reveal the real issues (a 100% increase from zero is still zero).

Therefore, we need to carefully consider whether the underlying reasons for the lack of openness are to be found in domestic issues which cannot be influenced by trade policy, or whether there are options for reducing restricting domestic regulation within the realms of trade policy.

We have chosen to focus on *financial services* because there is already some EU trade and commercial presence in Japan. The sector is also ranked as the number one service sector in our NTM inventory of trade-related issues for industry. Furthermore, the welfare impact in the EU of increased trade is higher than most other sectors partly because the financial service sector is skill intensive.

Furthermore, we have chosen *telecommunications* even though EU trade and commercial presence in Japan appears to be highly depressed by regulatory issues. The much higher import penetration of EU telecom services in other economies indicates a hidden trade potential if current barriers were reduced. Also the internal EU process of market opening in telecommunications has shown clear benefits from reducing barriers to cross-border trade and commercial presence.

Finally, the retail trade and wholesale trade sector in Japan would also be worth further investigation. Due to constraints in the current data, quantifications regarding barriers in this sector have not been possible. However, a considerable amount of other evidence points to central role of the Japanese distribution system, including retail and wholesale trade. Barriers in the retail sector may have significant impacts on the *de facto* market access of many other industries, particularly in manufacturing, and this sector may hold the key to unlock many of the difficulties faced by EU firms trading with or being commercially present in Japan.

Chapter 5 QUANTIFICATION OF NTMS

In chapter 3 we examined bilateral trade flows in goods and services between the EU and Japan, and concluded that NTMs are a more important trade policy factor than tariffs to explain relatively low levels of trade, especially in Japan where import penetration is relatively low. In chapter 4 we focused specifically on the identification of NTMs in Japan and drew more detailed conclusions on the nature of these NTMs by means of an inventory of NTMs and a survey of EU firms operating in Japan.

In this chapter we produce a more comprehensive picture of the trade costs of NTMs, both in Japan and in the EU, for goods and for services. Estimating the trade costs of NTMs is difficult and subject to many uncertainties. Various methods have been developed in recent years, all of which have their pros and cons. In order to contain these uncertainties, we draw on several sources of information: the survey results for selected sectors in Japan as discussed in the previous chapter, another set of business survey results for the EU, and more traditional "gravity model" estimates which we use for services sectors and as a "control" value for goods sectors. The estimates of trade cost equivalents (TCEs) of the NTMs that we show in this chapter will be used in the next chapter to run a number of trade policy scenarios on EU-Japan trade.

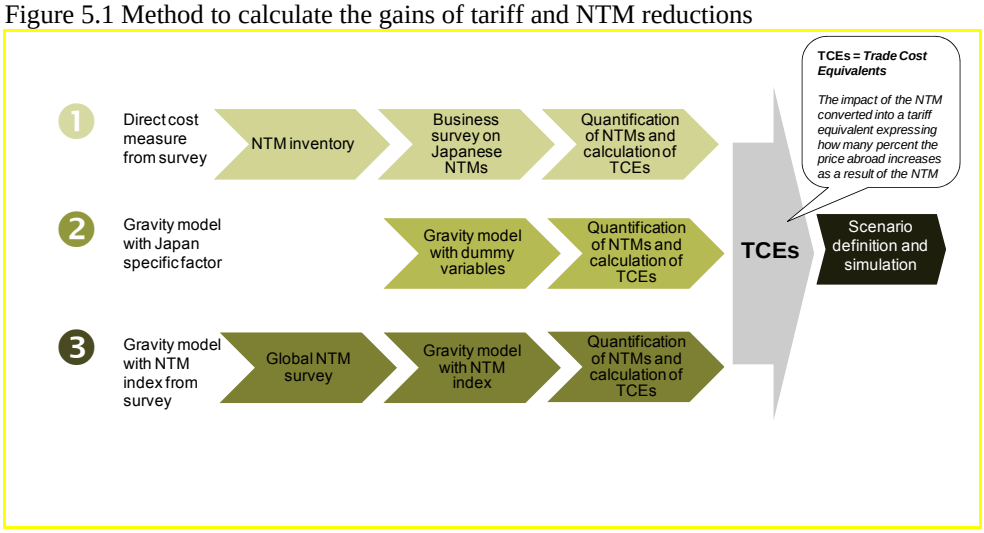
Barriers to trade in services have been quantified using gravity methods. Gravity estimates of the trade costs of these barriers are done by sector, both for Japan and for the EU, using panel data of bilateral services trade flows and using OECD indicators of service trade restrictiveness.

5.1. THREE METHODS FOR ESTIMATING GOODS NTMS

Given the intangible nature of NTMs quantifying such measures is non-trivial, and so far no methodological consensus has been reached in the empirical literature. We use three distinct approaches to estimate Japanese NTMs. We use both assessments of trade costs derived directly from a detailed business surveys and results from two types of gravity models.

All three approaches allow us to calculate trade cost equivalents (TCEs) expressing the cost impact on cross-border trade of the identified NTMs, cf. Figure 5.1. Intuitively, a TCE of, say, 25 percent informs us that the NTMs add on average 25 percent more costs as a result of regulatory barriers that the exporter has to comply with. From the three approaches, we use the most conservative, i.e. the lowest, of the estimates for a given sector. The resulting sector TCEs are subsequently implemented in a general equilibrium model used to evaluate the impact NTM reduction scenarios (see chapter 6).

Figure 5.1 Method to calculate the gains of tariff and NTM reductions



Source:Copenhagen Economics.

Method 1: Direct cost measure

In Method 1, *direct cost measure*, we use the information from the comprehensive questionnaire completed by European business managers in Japan (as discussed in the previous chapter) to produce bottom-up direct estimates of the trade costs. We use businesses' own assessments of how the NTMs affect various parts of their value chain from product development to final delivery to the customer in Japan. Assessments provided by the managers of EU exporters in Japan have yielded estimates of individual NTM cost elements as well as estimated cost reduction potentials. The direct cost measures generally provide more conservative estimates of the TCEs than the gravity models and, for that reason, we use the TCE values generated by Method 1 for the six selected goods sectors in Japan. The questionnaire and the survey are described in Appendix 4.

Method 2: Gravity model with country-specific factor

In Method 2, a *gravity model with a Japan-specific factor*, we use gravity modeling of global trade flows per sector over several years and between all trading partners (i.e. more than 120.000 data points). Gravity models explain the volume of bilateral trade in each sector by means of the following explanatory factors: GDP, distance, language, common border, tariffs and a country-specific dummy variable ("*time invariant importer dummy*").

We specify our gravity model for the *manufacturing sectors* using so-called importer dummy variables and the model used *inter alia* by Anderson and van Wincoop (2003) and Bergstrand, Egger and Larch (2007), see Appendix 2.2 for further details. These importer dummies capture country-specific barriers to trade and reflect deep-rooted structural, institutional and regulatory factors that have an impact on trade in a particular sector.

However, importer dummies are likely to overestimate the size of the country-specific NTMs since these restrictions also reflect a country's culture, structural/institutional factors,

consumer preferences, comparative advantages and other import barriers that cannot be removed by trade policy instruments.

The outcomes from Method 2 could thus be considered as a control value or ceiling on TCEs, with the actual value probably being lower. That is precisely why we prefer the sector specific information for the selected sectors in Japan covered by the survey to provide a conservative estimate of the trade cost impact of Japanese NTMs. For sectors not covered by the survey we have to rely on these estimates.

Method 3: Gravity model with NTM index from survey

In Method 3, *gravity model with NTM index*, we use the same gravity model specification as in Method 2 but we use a NTM index collected from a global business survey instead of the time-invariant importer dummies. We introduce the NTM index in the gravity equation in order to have a specific control variable for the perceived restrictiveness of NTMs in a particular country in a particular sector.

The NTM index is based on a large scale firm survey conducted for the European Commission by Ecorys (2009), in which firms from 40 countries have reported the perceived NTM barrier by sector regarding their main trade destinations. In particular, firms have been asked to indicate on a scale of 0 to 100 how restrictive they find exporting from their home country to the EU and their other export destinations (including Japan).

Box 5.1 Question on level of restrictiveness

Question A12a. Consider exporting to *[name of export market]*, keeping in mind your domestic market. If 0 represents a completely 'free trade' environment, and 100 represents an entirely closed market due to NTBs, what value between 0 – 100 would you use to describe the overall level of restrictiveness of the *[name of export market]* to your export product in this sector?

Note: Companies were asked to state their main export destinations in terms of export shares. Firms indicate on a 0 to 100 scale, how restrictive they find exporting from their home to each of their main export destinations.
Source: Ecorys (2009)

Responses to this question provide us with a measure of NTMs for each trading partner as perceived by exporters to that market. For perceived barriers to the EU we get a satisfactory number of responses and we therefore rely on this method to quantify the NTMs that Japanese exporters face in European markets. However, the number of observations for Japan as destination market in the original survey was low, Ecorys (2009). We have therefore asked the same question again in our survey specifically to European firms exporting to Japan, but only in the five sectors covered in our in-depth questionnaire.

5.2. RESULTS OF DIRECT COST ESTIMATES (METHOD 1)

Method 1 produces bottom-up direct cost estimates of the impact of NTMs in Japan. The results of these direct cost estimates are based on the survey of European exporters to Ja-

pan in the selected key sectors and they provide a direct cost estimate from companies in a particular sector. We summarise the results below.

Pharmaceuticals

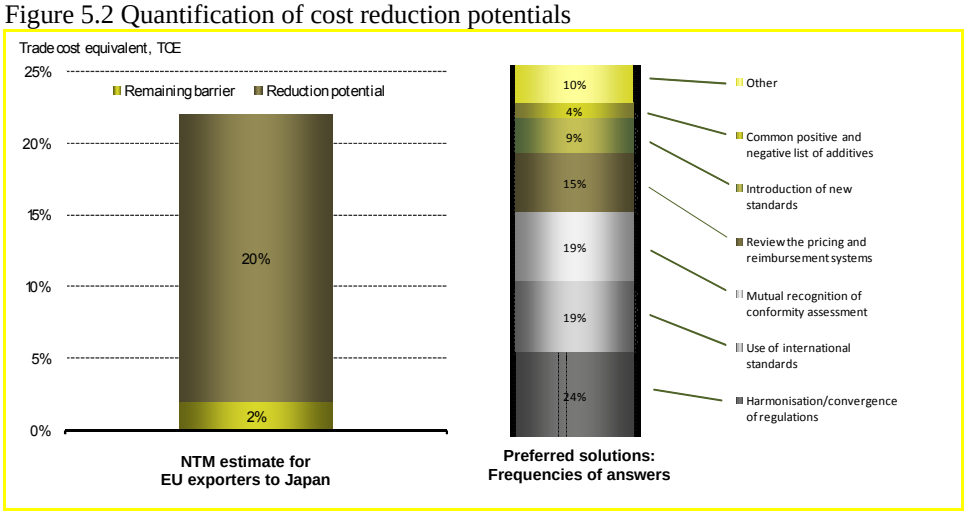
According to the survey responses, the current regulatory requirements, administrative procedures for conformity assessment and reimbursement procedures imply an additional cost for European pharmaceutical exporters of approximately 22 percent. In other words, the identified NTMs have an economic impact corresponding to a 22 percent tariff on the imports of pharmaceutical products into Japan.

According to estimates provided by European managers in Japan, about 15 to 20 percentage points of these 22 percent extra costs can be avoided through actions aimed at eliminating Japanese NTMs related to standards, technical regulations and conformity assessment procedures. This implies that up to 20 percentage points of the barrier can potentially be reduced. The remaining 2 percent are costs that relate to issues for which European exporters see no or little potential for solutions.

Reducing barriers to pharmaceutical exports requires a combination of policy instruments. No single solution is preferred by a majority of the firms in the sector. The most desired solution to reduce the regulatory burden is through harmonisation and convergence between the EU and Japan regarding rules and regulations in the sector (mentioned 24 percent of the time), cf. Figure 5.2. The use of international standards is mentioned in 19 percent of the replies as the second most desired solution. Mutual recognition of the certification procedure is also frequently mentioned (19 percent of the items mentioned). Review of the pricing and reimbursement system is noted in 15 percent of the mentioned solutions.

There is no direct link between the frequencies of the mentioned solutions and the cost impact of these solutions. For example, the fact that MRAs are mentioned in 19 percent of the replies does not necessarily mean that the absence of workable MRAs constitutes 19 percent of the potential cost impact of NTMs. The frequencies of the replies are not necessarily reflecting individual contributions to the NTM cost. Rather the frequencies are used to show that, based on the assessment from EU exporters in Japan, a multitude of solutions are needed to reduce the NTM barriers identified.

Figure 5.2 Quantification of cost reduction potentials



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

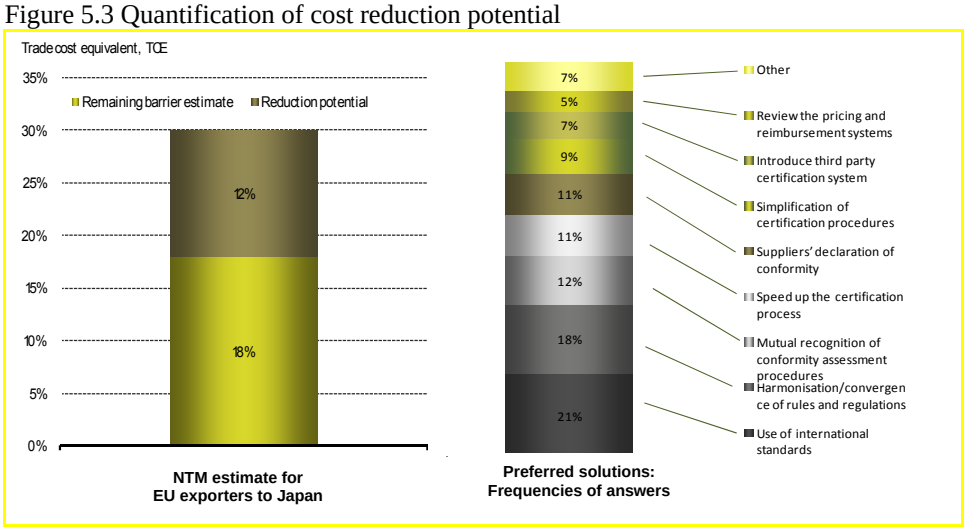
Medical Devices

According to our estimates, the current regulatory requirements, administrative procedures for conformity assessment and reimbursement assessment imply an additional cost for European medical device exporters of approximately 30 percent. In other words, the identified NTMs have an economic impact comparable to the impact of a 30 percent tariff on the imports of medical devices.

According to estimates provided by European managers in Japan, about 8 to 12 percentage points of these 30 percent extra costs can be avoided through various actions requiring efforts from both European and Japanese policy makers.

The actions required to achieve this kind of reduction will multiple. No single solution is preferred by a majority of respondents. The preferred solution to reducing the regulatory burden is through the use of international standards (mentioned in 21 percent of the replies), cf. Figure 5.3. The second most popular solution is to see harmonisation and convergence between the EU and Japan regarding rules and regulations in the sector (mentioned 18 percent). Simplification of the certification procedure and speeding up the certification process also gets frequently mentioned. Introduction of a SDoC is also mentioned by some exporters as their preferred solution. Review of the pricing and reimbursement system appear as the least frequently mentioned solution. Recall that the frequencies of these replies does not necessarily reflect the contribution to the cost impact, but rather the solutions most frequently mentioned as preferred solutions by EU exporters in Japan.

Figure 5.3 Quantification of cost reduction potential



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source:Copenhagen Economics Questionnaire to managers of European medical device firms in Japan.

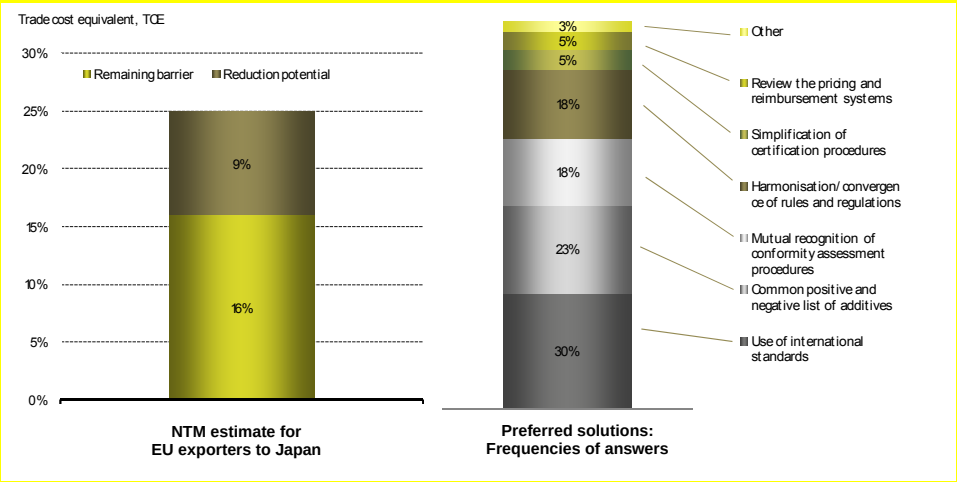
Processed Food

According to the survey responses, the barrier estimate for processed food is between 25 percent and 70 percent. We take the conservative approach and use a TCE of 25 percent in the CGE simulations.

Not all of this barrier can necessarily be removed. According to the responses from the managers in Japan, costs corresponding to 5 to 7 percent of the value of sales in Japan can be avoided by addressing the regulatory environment and costs corresponding to 1 to 2 percent of value of sales can reduced by improving the conformity assessment procedures.

According to these estimates, about 6 to 9 percentage points of the 25 percent barrier costs can be avoided through various actions aimed at reducing NTMs related to standards, technical requirements and conformity assessment. To achieve this kind of reduction will most likely require a multitude of actions, cf. Figure 5.4. 30 percent of the respondents find that the introduction of international standards would be an effective tool to reduce barriers in the Japanese food sector. A common positive and negative list of additives is also on the European exporters' wish list. Harmonisation/convergence of rules and regulations is listed as an alternative.

Figure 5.4 Cost reduction potential in the processed food sector



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source: Copenhagen Economics Questionnaire to managers of European processed food firms in Japan.

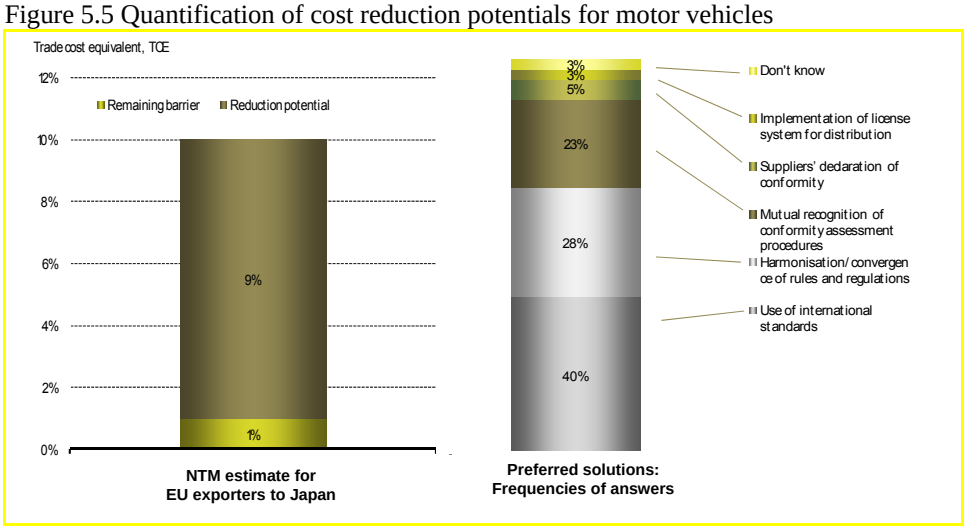
Motor Vehicles

According to our survey estimates, EU exporters of motor vehicles pay an extra cost of 10 percent. EU producers therefore face a serious disadvantage since the costs of TBTs fall disproportionately on exporters compared to Japanese producers. To reduce these barriers will require that the Japanese authorities streamline and simplify the certification process and find procedures for revising standards and technical guidelines to better accommodate innovative products. Most importantly, Japan should adopt international or UN-ECE standards, in particular with regards to emission, noise and safety. In many cases Japan has agreed to do so but has not yet implemented much of the necessary legislation.

Not all of the NTMs can necessarily be removed. According to the responses from the managers in Japan, costs corresponding to around 9 percentage points of the 10 percent can be reduced by reducing barriers related to standards and technical regulations. In addition, 7 percentage points can be reduced by eliminating barriers related to conformity assessment requirements. If both types of NTMs are eliminated it would therefore be possible to stimulate EU export to Japan even more than our simulation results predict.

The majority of respondents call for an increased use of international standards as a tool for lowering the barriers in the Japanese motor vehicles industry related to standards, cf. Figure 5.5. Alternatives could be the harmonisation/convergence of rules and regulations or the mutual recognition of conformity assessment procedures.

Figure 5.5 Quantification of cost reduction potentials for motor vehicles



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source: Copenhagen Economics Questionnaire to managers of European motor vehicle firms in Japan.

A speedier certification process is listed by responding managers as a means of reducing barriers related to conformity assessment requirements. Next follows the use of international standards and the simplification of certification procedures.

Transport equipment

There is a large potential in the transport equipment sector for bilateral trade gains on EU exports of aircraft and railway products to Japan. While there are several explanations for barriers to trade in the railway sector, the reasons for lack of bilateral aircraft trade between the EU and Japan are less clear.

Improving Japanese bilateral trade relations on air and rail products could potentially increase the total EU27 export revenue of the transport equipment sector by around 340 percent since the EU27 revenue of €1.1 billion in 2007 could potentially increase to €3.7 billion, provided the implementation of the necessary regulatory reforms in Japan.

The Japanese purchase of aircrafts is strongly biased towards U.S. suppliers. Equalising the percentage of Japanese imports from the EU and the USA could increase EU aircraft exports by approximately €2 billion per year. Additionally, opening the Japanese market of railway products to foreign companies (e.g. by public procurement contracts) is likely to boost Japan's imports of railway products from the EU by approximately €600 million. The total export potential is thus €2.6 billion.

Given the trade elasticity of the transport equipment sector we have calculated the trade cost equivalent corresponding to this potential. This corresponds to a trade cost of 45percent and a reduction potential of 75 to 90 percent, with the maximum scenario implying a realisation of the €2.6 billion increase in exports.

5.3. RESULTS FROM GRAVITY MODELWITHOUT NTM INDEX (METHOD 2)

Method 1 only generates TCE estimates for six goods sectors in Japan. These are the most important sectors in terms of trade volumes and potential trade impacts of NTMs. But we also need estimates for the remaining smaller sectors, including services, and for NTMs in the EU. To fill this gap, we use two other methods.

In Method 2 we use a gravity model of global trade flows per sector over several years and between all trading partners. We explain the volume of bilateral trade in each sector by means of the following explanatory factors: GDP, distance, language, common border, tariffs and an importer specific factor ("*time invariant importer dummy*").

We find that the importer specific factor is generally higher for Japan than for the EU and higher than for other OECD countries. This is in line with the findings in OECD (2006). Our result tells us that imports in Japan in most sectors are depressed over and above what can be explained by the other explanatory factors (GDP, distance, language and tariffs). We assume that this "over and above" trade reduction is due in part to non-tariff regulatory measures.

The gravity model also sheds light on what factors other than NTMs are restraining trade. The factors restraining exports from the EU to Japan can be divided in two. First, those factors which cannot be affected by trade policy, such as the remoteness of the Japanese market, the large size of the Japanese market and the cultural and linguistic barriers. The macro-situation also belongs to this category. Second are the factors that can be influenced by policies. These include both tariffs and non-tariff measures. Our assessment shows that the factors that cannot be affected by policy have a large impact on trade.

Distance and language are two important factors in explaining the lack of trade between the EU and Japan. To illustrate, our gravity model shows that:

- Geographical distance between the EU and Japan reduces trade significantly. On average, transport from Europe to Japan takes 3 times longer than from EU to the U.S. This fact alone reduces EU exports to Japan by 15 to 20 percent compared to trade with the US.

- Language differences also significantly reduce trade. On average, only 12 percent of Japanese speak business English and only very few Europeans can manage in Japanese.[10] In comparison with EU exports to the U.S., where the English language facilitates trade, language difference with Japan is a major factor in accounting for the gap in trade. To illustrate the large impact of language on trade, one could consider a hypothetical and very unlikely scenario, where the EU and Japan

[10] Besides the mother tongue, the most commonly spoken foreign languages in Europe are English (32%), French (11%), German (8%), Russian (6%) and Spanish (5%).

share a common language. The impact on trade would be enormous. EU exports to Japan could increase by more than 70 percent in the pharmaceutical industry, by 50 percent in the medical device sector, by 40 percent in the food sector and by 14 percent in the automotive sector.

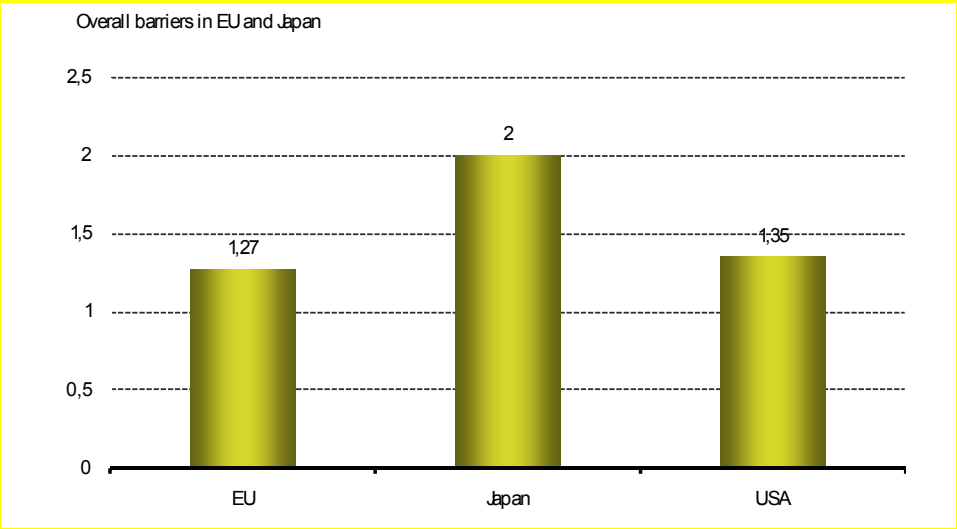
In sum, language difference and geographical distance reduce trade. Neither of these will change considerably in the foreseeable future. Better and faster transport can reduce the impact of distance, and better knowledge of foreign language can reduce the impact of language. But a scenario which eliminates all language barriers between the EU and Japan is not foreseeable. At the same time, it must be recognised how large an impact language has on trade. We take that into account when we assess the potential for NTM reductions.

In our assessment of NTM reductions we keep the impact of distance and language on trade constant, and only assess potential new trade which could be created given the existing language and distance barriers.

NTMs pose serious challenges to European exporters

Even after accounting for distance, language and tariffs, part of the low import penetration can still be explained by high Japanese barriers to import, as captured by the importer dummies in the gravity model, cf. Figure 5.6. This is clear from the positive and significant importer specific dummies. For Japan, the estimated coefficient on the importer dummy is 2.0, and this is higher than for the EU (1.27) and the U.S. (1.35). The difference between the EU and the Japan dummy variables is 0.73, which suggests that the Japanese import would be 73 percent higher if Japan's restrictiveness was reduced to the level of the EU.

Figure 5.6 General restrictiveness of manufacturing import

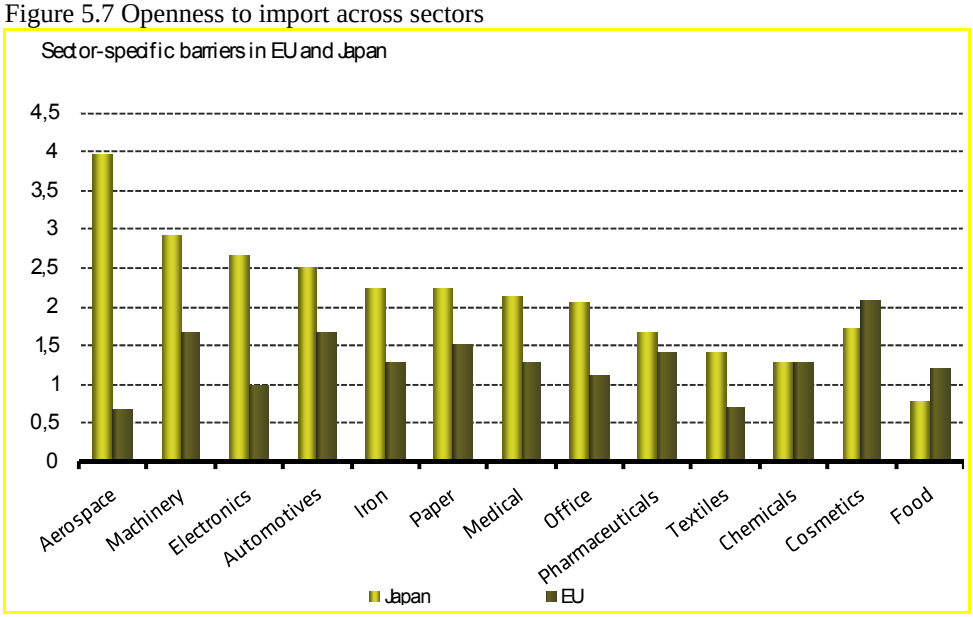


Note: Restrictiveness is concluded after accounting for other variables (language, distance and tariffs). It is measured by the importer dummy from the gravity model for manufacturing goods. The importer dummies take the value 1 for a particular importer country and 0 otherwise. See Appendix 2.1 for further details on the gravity model.

Source:Copenhagen Economics' gravity model for manufacturing goods.

Our estimates of the importer specific variables at the sector level show that Japan is less open than the EU in 11 out of the 13 sectors. Only food and cosmetics show the reverse picture. This suggests that sector-specific import barriers other than tariffs are larger in Japan than in the EU. The difference is substantial: the Japanese importer specific effect exceeds the EU importer specific effects by significant amounts, ranging from 0.26 in pharmaceuticals to 1.69 in electronics. The Japanese barrier to EU exports is particularly high in aerospace, where the difference is 3.30.

Figure 5.7 Openness to import across sectors



Note: A higher figure means more restrictive on imports. The importer dummies take the value 1 for a particular importer and 0 otherwise.

Source:Copenhagen Economics' gravity model for manufacturing goods.

The difference of 0.26 for pharmaceuticals (Table 5.1) tells us that Japan's imports of pharmaceuticals would be 26 percent higher than their current levels if their impediments were as low as the EU's vis-à-vis non-EU trade partners in the same sector. Similar interpretations can be made for other sectors.

Table 5.1 Importer specific factors for EU and Japan by sector

Sector	**EU importer specific effect**	**Japan importer specific effect**	**Difference** (EU minus Japan estimate)
Aerospace	-0,68	-3,97	-3,30
Electronics	-0,98	-2,67	-1,69
Machinery	-1,66	-2,91	-1,25
Iron	-1,28	-2,24	-0,96
Office	-1,10	-2,05	-0,95
Medical	-1,29	-2,13	-0,84
Automotives	-1,67	-2,50	-0,83
Textiles	-0,69	-1,42	-0,73
Paper	-1,52	-2,23	-0,71
Pharmaceuticals	-1,42	-1,68	-0,26
Chemicals	-1,29	-1,30	0,00
Cosmetics	-2,08	-1,71	0,36
Food	-1,20	-0,77	0,44

Note: Importer-specific factors are captured by the importer dummies from the gravity model. All estimates are significant at the 5% level. All importer dummies are listed in Appendix I.

Source:CE gravity model.

Not all of the impediments to trade that are captured by the importer specific variables can be removed through bilateral trade negotiations. We rely on detailed sector analyses and surveys to assess which impediments can be removed and which cannot. Gravity models based on method 2, alone, cannot inform us about how much various policies and actions can provide in terms of removing or reducing these impediments.

Knowing that the importer specific variables are likely to overestimate the cost impact of NTMs, we can still calculate a trade cost equivalent based on method 2. To calculate the implicit trade costs we use the estimated tariff elasticity to translate changes in export volumes (quantities) into trade cost equivalents (prices).

The result shows a high imputed trade cost for cosmetics exports in both countries (a trade cost corresponding to over 90 percent tariff). Most other sectors range between 20 and 60 percent trade costs based on method 2. For pharmaceuticals, machinery, automotives and aerospace sectors, we cannot produce a TCE estimate because our models do not yield any significant tariff elasticity estimates.

Table 5.2 Trade costs imputed from importer specific factors for EU and Japan

Sector	Tariff elasticity	Importer specific factor		Imputed Trade Cost Equivalent (TCE)	
		EU	Japan	EU	Japan
Chemicals	-3,315	-1,292	-1,296	32%	32%
Pharmaceuticals	*insign.*	-1,418	-1,680	-	-
Cosmetics	-0,639	-2,076	-1,713	96%	93%
Machinery	*insign.*	-1,663	-2,914	-	-
Electronics	-5,461	-0,975	-2,665	16%	39%
Office	-2,193	-1,102	-2,054	39%	61%
Medical	-3,250	-1,289	-2,127	33%	48%
Automotives	*insign.*	-1,673	-2,500	-	-
Aerospace	*insign.*	-0,676	-3,971	-	-
Food	-1,352	-1,202	-0,767	59%	43%
Iron	-6,386	-1,283	-2,241	18%	30%
Textiles	-3,058	-0,688	-1,419	20%	37%
Paper	-5,993	-1,523	-2,233	22%	31%

Note: Trade costs are calculated based on the importer specific factor estimated for Japan and EU and by using the tariff elasticities derived from the same gravity equation.
Source:CE gravity model method 2.

As said before, we should be careful not to over-interpret these gravity-based estimates. Other factors than NTMs are captured in the importer specific factor in the gravity model and other aspects than NTMs may play a role in explaining the country- and sector-specific "missing trade". For instance, one should bear in mind the macroeconomic aspect of global trade when comparing Japan's import penetration with other countries. Goto (1991) suggests that, in addition to lack of imports due to relative factor endowments (particularly

its small land space, distance to its trading partners and scarce natural resources) and its economic size, Japan's rapid capital accumulation might add to the explanation of the low level of import penetration in Japan.

A particularly important factor to explain missing trade can be Japan's strong global competitive position in some sectors of the economy, which makes it hard for foreigners to compete with Japan in these sectors and would thus explain low imports into Japan from elsewhere. To verify the validity of this explanation we have calculated revealed comparative advantage (RCA) indicators for Japan. Japan has a strong revealed comparative advantage in the automotive industry; iron, steel and metal products; machinery; as well as textiles, clothing and footwear, cf. Table 5.3. In the automotive industry, for example, a RCA of 2.1 means that Japan's share of global export in this sector is 2.1 times higher than its overall share of global export.[11]

Table 5.3 Revealed comparative advantage in the EU and Japan

Sector	EU ~ World	Japan - World
Food and beverages	0.9	0.2
Textiles, clothing and footwear	1.0	1.2
Paper and paper products	0.7	0.2
Chemicals	1.0	0.3
Rubber and plastic products	1.1	0.9
Iron, steel, metal products	1.0	1.6
Automotive industry	0.6	2.1
Machinery	0.9	1.3

Note: The revealed comparative advantage (RCA) indicator measures a country's competitiveness vis-à-vis the rest of the world. The indicator is calculated as $RCA = (X_{ik}/\sum_i X_{ik})/(\sum_i X_{ik}/\sum_i\sum_i X_{ik})$*, where* X_{ik} *is country i's export in sector k. It thus measures a country's share of exports in a given sector relative to its total share of exports. Values greater than one indicate that the country has a comparative advantage in that sector. The GTAP and Eurostat sector definitions to not match completely and what is denoted electronics in Eurostat largely corresponds to the machinery sector in GTAP. Intra-EU exports are not included in the analysis as we are interested in analysing the EU's external competitiveness.*

Source:Copenhagen Economics' calculations based on data from GTAP.

However, accounting for comparative advantages does not alter our estimates of the Japan-specific import factor. We have tested the inclusion of these RCA variables in our gravity model, and it turned out that this inclusion of the RCA variable did not alter the estimated importer specific effect, so we conclude that large importer specific impact in Japan cannot be explained by the comparative advantage variable.

[11] The EU, on the other hand, does not seem to have its main competitive strength in manufacturing. Only in rubber and plastic products does the EU have a RCA greater than one, and the EU's export in this sector is 1.1 times higher than the EU's overall share of exports.

5.4. RESULTS FROM GRAVITY MODELWITH NTM INDEX (METHOD 3)

In method 3, we expand the gravity model in method 2 with an NTM index collected through a large scale global survey. We have supplemented this survey with data for Japan in five sectors (pharmaceuticals, medical devices, motor vehicles, processed foods and other manufacturing). For pharmaceuticals, motor vehicles and other manufacturing the additional data confirm the result from the Ecorys data. For medical devices and processed foods, our survey resulted in higher NTM indices than the Ecorys data.

Using the NTM indexes in the gravity model yields estimates of the trade costs. For pharmaceuticals and chemicals, this indicates a trade cost of around 30 percent for imports into Japan, and a trade cost above 60 percent for cosmetics. The cost of NTMs on processed food imports into Japan is estimated at around 25 percent. For some sectors (medical devices, motor vehicles and machinery) the method did not yield significant estimates, cf. Table 5.4.

Table 5.4 NTM index and imputed trade costs in Japan

Sector	ECORYS survey NTM Index 0 to 100	New survey NTM Index 0 to 100	Imputed trade costs from method 3 results
Chemicals	58	-	32,4
Pharmaceuticals	41	44	30,0
Cosmetics	74	-	61,1
Machinery	48	-	-
Electronics	11	-	11,6
Medical	38	67	-
Motor Vehicles	43	52	-
Aerospace (other transport)	58	-	25,0
Food and beverages	29	60	24,9
Iron	38	-	55,3
Textiles	42	-	21,3
Paper	53	-	11,6
Other manufacturing	50	54	15,4

Note: The imputed trade costs in the table are based on method 3. For more information refer to annex 1.
Source:Copenhagen Economics' calculations based gravity model using NTM index from Ecorys (2009).

5.5. COMPARISON OF TRADE COST EQUIVALENTS FOR GOODS

To compare the direct costs estimates with the gravity results, we have also calculated gravity based TCEs from Method 2.

The TCEs using the gravity model approach are generally higher than the direct cost estimates provided by the companies, cf. Table 5.5. To be conservative, we therefore use the direct cost estimates in our CGE simulations for the sectors where these are available. The argument is further strengthened by the fact that the gravity model approach (irrespective of whether we use the importer dummy approach as applied in this study or the NTM index from the EU-US study) captures the impact of all barriers to trade and not only the impact of NTMs.

Table 5.5 Trade cost estimates for goods in EU and Japan

	Japan barriers against EU			EU barriers against Japan	
Sector	Method 1	Method 2	Method 3	Method 2	Method 3
Food and beverages	**25**	59	25	43	**-**
Pharmaceuticals/chemicals	**22**	32*	30	32*	**18**
Electrical machinery	**-**	39	**12**	16	**4**
Motor vehicles	**10**	-	-	-	**16**
Other transport equipment	**45**	-	25	-	**19**
Metals and metal products	**-**	30	**21**	18	**6**
Wood and paper products	**-**	31	**15**	22	**11**
Other machinery (medical)	**30**	-	-	-	**-**

*Note: The table shows percentage of trade cost equivalents of NTMs in goods. The estimates shown in **bold** are those we use for the subsequent modelling. Results are reported for CGE-model sectors. *) Estimate pertain to chemicals.*

Source: Copenhagen Economics gravity estimates.

The sectors without direct cost estimates represent smaller trade flows and the aggregate results of the assessment are insensitive to these TCE estimates. We use the most conservative gravity results based on Method 3. The TCEs from the gravity models can overestimate the impact of NTMs. For this reason we use conservative reduction scenarios in these sectors.

5.6. GRAVITY ESTIMATES FOR SERVICES

Conceptually, the approach followed for services NTM estimation is the same as for goods and drawn from gravity modelling of bilateral services trade. However, there are severe data limitations, and differences in the nature of services markets opening. Indeed, while data for trade with services are available from balance of payments statistics, primary data on detailed bilateral trade are available only from the OECD, Eurostat, and limited national sources. These data have been combined in a composite dataset that takes advantage of OECD reported trade with non-OECD countries to construct non-OECD imports based on mirror flows.[12] In addition, these data are limited to direct cross-border trade. Data on sales through affiliates is even more limited. We work here with cross-border trade data. Our regression work on the services sectors with these data, reported here, shows that there are significant effects of NTMs on services trade.

Data for service sector estimates

For the services sectors, the OECD (2007) FDI restrictiveness indexes are used, and combined with a survey-based NTM index from Ecorys (2009) and theoretical work by Fillat,

[12] See Francois, J., O. Pindyuk, and J. Woerz (2009). "International Transactions in Services: Data on International Trade and FDI in the Service Sectors," University of Linz, Institute for International and Development Economics discussion paper 20090802.

Francois & Woertz (2008). These indexes are different from the PMR indexes produced by the OECD. They are produced as part of the OECD reporting on FDI regimes, and are designed to quantify levels of regulatory discrimination against foreign service firms across different service markets.

The OECD restrictiveness indices show that Japan is more restrictive than the EU in rail services and air transport. Rail services refer to foreign management and operation of rail-based transport in Japan. Foreign businesses in Japan also consider the air transport sector in Japan as being closed[13]. In other sectors, the picture is more balanced, with Japan appearing slightly less restrictive than the EU average.

Estimation of gravity model for services

Using a panel data set covering bilateral trade in many services sectors between most OECD countries, we estimate the impact of the NTM indexes for cross-border service trade. The model includes partner dummies and time dummies, as well as the set of variables like per capita income, GDP, current account (% GDP), distance and FDI stocks. From the basic regression results we are able to estimate an importer effect variable or index that measures the systematic variation at country level of imports, after controlling for the variables in our gravity equation.

Results from the estimates shows that sector service barriers in Japan range from 2 to 24 percent additional trade costs. Barriers in the EU27 range from 2 to 14 percent additional trade costs. The estimations for the EU and Japan reveal a picture not significantly different from that in the restrictiveness index above. As such, Japan is slightly less restrictive than the EU – i.e. has slightly lower trade cost estimates than the EU. The exception is telecommunications. In telecommunications, our estimates show that supply into Japan is twice as costly as the supply of telecommunication services into the EU. These estimates correspond to the tariff equivalent explaining the amount of trade reflected by the OECD indexes, beyond what can be explained by the traditional gravity variables (GDP, distance, common border and common language). However, not all of these barriers can realistically be removed.

[13] Air transport services are governed by bilateral agreements that fall outside GATS and FTAs.

Table 5.6 Trade cost estimates for services in EU and Japan

Service sector	Japan barriers against EU	EU barriers against Japan
Finance	15,8	11,3
Insurance	6,5	10,8
Business and ICT	2,5	14,9
Communications	24,7	11,7
Construction	2,5	4,6
Personal, cultural, other services	6,5	4,4

Note: The table shows percentage of trade cost equivalents of NTMs in services. Data for water transport and air transport did not allow for country specific estimates and are omitted.
Source: Francois gravity estimates. See Appendix 2.

To assess the number of service barriers which could potentially be removed through new EU-Japan trade and investment liberalisation, we have looked at internal-EU service trade and internal-ASEAN + Japan service trade. We find that services are traded within the two "blocs" much more than between them. Service trade *between* EU-members is much higher than between any EU-member states and Japan (or ASEAN) even when controlling for size of GDP, common border and language. Similarly, Japan's service trade with ASEAN is higher than with the EU after controlling for the traditional gravity factors. We apply estimates from a recent EU-US trade study, cf. Ecorys (2009) to determine the scope for possible reduction to identify maximum potential barrier reductions. These are lower than total estimated barriers, as not all sources of trade costs are deemed to be candidates for elimination in FTA negotiations.

Table 5.7 Reduction potentials for services in EU and Japan

Service sector	Japan barriers against EU	EU barriers against Japan
Finance	8,7	7,0
Insurance	1,2	5,6
Business and ICT	2,5	4,3
Communications	19,2	8,2
Construction	1,9	2,6
Personal, cultural, other services	3,7	2,5

Note: The table shows how many percentage-points each trade cost equivalent of NTMs in services can be reduced in the maximum potential.
Source: Francois gravity estimates.

Chapter 6 | MODEL SIMULATIONS

In this chapter we present the results from the CGE simulations that quantify the effects of removing tariffs and reducing non-tariff measures on cross-border trade between the EU and Japan. Firstly, we quantify the impacts on the two economies from the combined tariff and NTM scenarios. Secondly, we decompose the results to show how much of the impact is related to the reduction of non-tariff measures.

Both tariff reductions and NTM reductions are beneficial to economic welfare. In the most ambitious scenario, we show that two-sided NTM reductions between the EU and Japan yield two times more welfare to the EU than bilateral tariff reductions do to the EU. For Japan the effect is even stronger. Reducing EU-Japan NTMs can yield up to six times more welfare to the Japanese economy than bilateral tariff reductions with the EU. Thus both partners, particularly Japan, should have a strong incentive to include NTM reductions in a bilateral trade liberalisation scenario.

6.1. THE MODEL AND THE SCENARIOS

We have evaluated the effect of trade liberalisation between the EU and Japan using a CGE-model of global trade (see Box 6.1).

We have used this model to simulate two scenarios. Both scenarios aim at quantifying the potential for bilateral trade liberalisation, taking the NTM estimates from Chapter 5 as well as the identified NTM reduction possibilities into account. Since there is some uncertainty about the size of the possible NTM reductions, we model two scenarios, providing a lower bound and upper bound quantification of the likely potential.

Scenario 1 – Lower Bound

- Bilateral tariffs between EU and Japan are reduced to zero in all sectors
- Manufacturing NTMs are reduced as in the minimum reduction scenario
- Barriers on cross-border service trade are reduced as in minimum scenario

Scenario 2 – Upper Bound

- Bilateral tariffs between the EU and Japan are reduced to zero in all sectors
- Manufacturing NTMs are reduced as in the maximum reduction scenario
- Barriers on cross-border service trade are reduced as in maximum scenario

The two scenarios differ only by the size of the NTM reductions in manufacturing and on the reduction of barriers to cross border service trade. In the first scenario, we use the most modest assumptions for NTM reductions and in the second scenario we use the upper bound estimate of the NTM reduction potential.

The reduction potentials for NTMs in Japan are derived from our questionnaire to EU exporters in Japan for those sectors covered by the questionnaire (pharmaceutical, medical devices, motor vehicles, food and beverages, financial services and communications ser-

vices). In the questionnaire, EU managers in these sectors have been asked to assess how the identified barriers can be reduced, and how much of the imposed trade cost they expect it to be possible to reduce. Of course there is no single objective answer, but rather a range of possible reduction potentials. As a consequence, the responses for each sector also vary within a range. We use the range from the lower end estimate to the higher end estimate from the questionnaire to define the minimum and maximum NTM reduction scenarios.

In the sectors, where there is only limited EU export to Japan, and which are thus not covered by our questionnaire, we have applied the so-called actionability assumptions as applied in Ecorys (2009). These are assumptions about how much of a given barrier estimate can be deemed to be reduced in a policy scenario. The rates are shown in appendix 1. Ecorys (2009) have separated the barrier estimates into a cost creating and a rent creating part, and we use the cost creating part as the minimum scenario, and the combined cost and rent creating barrier estimate as the maximum scenario.

In the following we describe the scenarios in more detail (the sectors covered by our questionnaire are also described in annex 6-12). First we look at the tariffs that are assumed to be removed, we then analyse the NTMs in manufacturing, and finally we asses the assumed reductions in service barriers to cross-border trade.

Bilateral tariffs are reduced to zero in both scenarios

Both scenarios include full bilateral tariff removal between the EU and Japan, and the scenarios do not differ regarding tariff reductions. The starting point (the so-called baseline) is the position without the implementation of the Doha-round[14]. The Doha-round will reduce tariffs in the EU and Japan by a significant amount. Our simulations estimate the effects of reducing the pre-Doha tariffs. However, sensitivity analyses, as reported towards the end of this chapter, shows that the results of the EU-Japan trade liberalisation scenarios are unaffected by the inclusion of the Doha Round in the baseline.

Some non-zero tariffs will remain after the completion of the Doha-round, most notably in food and beverages. Japan's trade-weighted average MFN tariff on European food and beverage exports will be 34.7 percent, and the EU's average external tariff on Japanese food and beverages will be 12.4 percent, cf. Table 6.1. Note that the EU imports very little food and beverages from Japan, whereas Japan imports large amounts of European food and beverages. Japan will also have higher tariffs on agricultural products, with an average MFN tariff against EU imports of 6.7 percent, against the EU tariff of 4.8 percent.

The EU will have higher tariffs than Japan in all non-agriculture manufacturing (NAMA) sectors in our model. This is notably true for motor vehicles, where the EU will have a tar-

[14] We have also run simulations with alternative baselines, in particular one with the Doha round in the baseline, and scenarios with the EU-Korea agreement in the baseline. The isolated effect of EU-Japan liberalisation is largely the same, whether or not the Doha round or EU-Korea FTA or both are included in the baseline.

iff of 8.7 percent, while Japan's motor vehicle tariffs are expected to drop to zero if the Doha agreement comes into force, cf. Table 6.1. Note that the EU is importing large amounts of motor vehicles from Japan, whereas the EU's export of motor vehicles is limited.

Table 6.1 Post-Doha MFN tariffs (percent)

Sector	Japanese tariffs on EU import	EU tariffs on Japanese import
Primary agriculture	6.70	4.82
Other primary	0.13	0.22
Food and beverages	34.71	12.36
Chemicals	1.08	2.60
Electrical machinery	0.00	2.32
Motor vehicles	0.00	8.66
Other transport equipment	0.00	4.04
Other machinery and equipment	0.10	1.87
Metals and metal products	0.83	2.30
Wood and paper products	0.93	0.52
Other manufactures	3.12	3.45

Note: The table shows bilateral trade weighted tariffs on goods trade from EU to Japan and vice versa (percent). The table shows post-Doha tariffs. For pre-Doha tariffs, please refer to chapter 3.
Source:Own calculation based on GTAP and on Doha-round tariff scenario from German Agricultural Institute.

Our scenarios include the reduction of these tariffs to zero on a bilateral basis, i.e. the EU reduces the tariffs in Table 6.1 to zero vis-à-vis Japan, but keeps tariffs unchanged against other non-FTA partners. Likewise, Japan will reduce its tariffs, as shown in Table 6.1 vis-à-vis the EU, but keep tariffs unchanged vis-à-vis other partners.

NTMs are reduced in both Japan and the EU

The trade cost equivalents of NTMs in goods sectors, as shown in chapter 5, are double digit and range from 10 percent for motor vehicles to 45 percent for other transport equipment. Most tariff rates are single digit, all NTM estimates show double digit trade cost equivalents. Service barriers are low in some sectors (e.g. estimated at 2 percent in air transport), while others are higher (e.g. 25 percent in telecommunications).

NTMs are reduced in Japan and the EU in both scenarios. We assume that NTMs are reduced bilaterally, i.e. that Japan lowers its NTMs vis-à-vis the EU, but keep the initial NTM level vis-à-vis other trading partners, and similarly that the EU only lowers its NTMs for Japanese exporters, but keep NTMs towards others.

In the lower bound scenario, the NTM reductions are modest, and in the upper bound scenario the reductions are larger. Both scenarios are ambitious and measure the size of the full NTM potential. Both scenarios require the reduction of all the identified barriers in each sector. The difference between the lower and upper bound estimates pertain alone to the uncertainties as to how large a share of the barrier can actually be reduced. Both

scenarios assume that *all* NTMs that are identified as removable are removed, but in the minimum NTM scenario we apply the lower end estimate for this reduction, while in the maximum scenario, we apply the higher estimate for how much of the barrier can be removed by policy. If less than all NTMs are reduced, the impact will fall accordingly. The NTM estimates are derived as described in Chapter 5, and they match model sectors[15] as indicated, cf. Table 6.2.

Table 6.2 Scenarios of reduction of non-tariff measures affecting EU exports to Japan

	Trade Cost for exports to Japan		
	Baseline Trade Cost Estimate (%TCE)	**Lower bound** Min. reduction scenario (%-point change)	**Upper bound** Max, reduction scenario (%-point change)
Food and beverages*	25.0	-6.0	-9.0
Chemicals (incl. pharmaceuticals)*	22.0	-15.0	-20.0
Electrical machinery	11.6	-2.6	-3.9
Motor vehicles*	10.0	-1.2	-3.8
Transport equipment (incl. aircraft and rail)*	45.0	-33.8	-41.0
Metals and metal products	21.3	-4.3	-6.5
Wood and paper products	15.4	-7.1	-10.6
Other machinery (incl. medical devices)*	30.0	-2.9	-3.9
Air transport	2.0	-0.9	-1.3
Water transport	8.0	-3.5	-5.2
Finance*	15.8	-5.8	-8.7
Insurance	6.5	-0.8	-1.2
Business and ICT	2.5	-2.5	-3.7
Communications*	24.7	-12.8	-19.2
Construction	2.5	-1.2	-1.9
Personal, cultural, other services	6.5	-2.5	-3.7

*Note: Sectors marked with * are based on sector studies. Sectors without stars are based on gravity estimates.*
Source:Own estimates

NTMs on the European side are also assumed to be reduced in the scenarios. We do not have detailed assessments available for how Japanese exporters perceived barriers in the EU. Instead we to use the results from another DG Trade study, Ecorys (2009), as the source of the estimates on the European side. The advantage is that these estimates are based on a similar method (Method 3 with specific NTM indices in the gravity equation), and they rely on similar data. Furthermore, the same CGE-model applied in this study was also applied in Ecorys (2009).

[15] Since some of the model sectors are more broadly defined than our sector studies, we need to make a match between the sector studies and the sectors in our model. For most sectors there is a perfect match. Motor vehicles, transport equipment and processed foods match the model sectors very precisely. For chemicals, we use the NTM estimates for pharmaceuticals to represent the whole sector. Pharmaceutical products constitute about one third of the exports within the chemicals sector. Other products are cosmetics and chemical products. Gravity estimates of chemical products and cosmetics showed similar restrictiveness as pharmaceuticals, and use the NTM estimate for the pharmaceutical sector as a valid NTM estimate for the whole chemicals sector. Medical devices exports belong to the model sector "other machinery". For EU exports to Japan, medical devices represent 24 percent of the sector export to Japan in the model. Since other parts of the sector are ranked equally or less restrictive, we have not assumed any changes for other parts of the sector than medical devices.

We know from our analysis of Japanese exports to the EU (see Chapter 2) that they are very concentrated in a few sectors. We therefore pay specific attention to six sectors which drive the result of our assessment, namely chemicals, electronics, motor vehicles, transport equipment, metal and wood and paper products. These sectors account for over 75 percent of the EU's import from Japan. Service imports from Japan are small and the overall assessment of economic benefits to the European and Japanese economies are insensitive to the trade cost estimates on Japanese service exports to the EU.

The results in Ecorys (2009) for the six manufacturing sectors indicate that TCEs into the EU are higher than TCEs into Japan. The result also shows that the potential for reducing the barriers on the EU side is generally smaller than on the Japanese side. For chemicals, Ecorys (2009) estimates a NTM trade cost of 18 percent and that between 7 and 12 percent-points can be reduced. For Electronics (Electrical machinery) the EU NTM estimate is low, at 4.5 percent, and it is assessed that this can be reduced by between 1.7 and 2.8 percentage-points. For motor vehicles, Ecorys (2009) have estimated an EU NTM related trade cost of 16.3 percent, and with a reduction of between 3.5 and 5.3 percentage points being possible. Transport equipment has the highest NTM estimates of the six industries with a TCE of 18.8 percent, but with a limited reduction potential of 3.1 to 5.6. Metal products have, according to Ecorys (2009), a barrier estimate of 6 percent, which can be reduced by between 1.9 and 5.2 percentage-points, cf. Table 6.3. Finally, for other machinery, we have no reliable trade cost estimate.

Table 6.3 Non-tariff measures affecting Japanese exports to the EU

	Trade Cost for exports to EU		
	Baseline Trade Cost Estimate (%TCE)	**Lower bound** Min. reduction scenario (%-point change)	**Upper bound** Max, reduction scenario (%-point change)
Food and beverages	n.a.	-	-
Chemicals	18,0	-7,3	-12,1
Electrical machinery	4,5	-1,7	-2,8
Motor vehicles	16,3	-3,5	-5,3
Transport equipment	18,8	-3,1	-5,6
Metals and metal products	6,0	-1,9	-5,2
Other machinery	n.a.	-	-
Air transport	2,0	-0,4	-1,1
Water transport	8,0	-1,4	-4,5
Finance	11,3	-2,9	-7,0
Insurance	10,8	-2,8	-5,6
Business and ICT	14,9	-2,5	-4,3
Communications	11,7	-4,3	-8,2
Construction	4,6	-1,9	-2,6
Personal, cultural, other services	4,4	-1,0	-2,5

Source:Ecorys (2009), Study on Non-Tariff Measures to EU-US Trade and Investment.

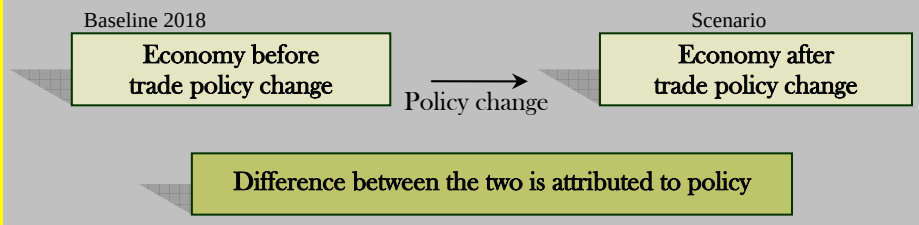
The model

The CGE model used is based on Francois, Van Meijl, and Van Tongeren (2005), and is similar to the model used in the Ecorys (2009) EU-US study on non-tariff measures. By design, the model incorporates a number of key characteristics specifically for the study on the removal of EU-Japan NTMs. The model is a standard multi-region computable general equilibrium (CGE) model, with imperfect competition features using product varieties, see Francois and Roland-Holst (1997) and Francois (1998). For more details on the model, see appendix 5.

International trade is modelled as a process that explicitly involves trading costs, which includes both trade and transportation services. To reflect the NTMs, frictional trading costs are imposed on trade flows. These costs represent real resource costs associated with producing a good for sale in an export market instead of the domestic market.

Box 6.1 The applied CGE model

General equilibrium models help us answer "what if" questions. They are simulation models that can simulate market equilibriums on markets under different assumptions. The "baseline" for the model is the equilibrium before the policy change, and the "scenario" is the equilibrium after the policy change.



Simulating the model will yield estimates of the economic impact in terms of trade and incomes in the EU and Japan of removing the remaining tariffs and reducing NTMs.

For each scenario, we run the model for both short and long run. The short run does not take the dynamic effects of the economy into account, e.g. reallocation of resources. These estimates provide an *immediate* impact assessment of removing the NTMs on the global economy from the 2018 projected baseline.

However, in the long run scenarios we include pro-competitive effects and allow for productivity gains through more efficient allocation of investments across sectors. Thus, these long run estimates provide the view of a 2018 global economy where dynamic links between NTM reductions and investments levels have worked through the economy. The long-run estimates reveal the total economy-wide potential of the NTM reductions, and they provide insights to the likely dynamic effects that take a longer time to be fully realised.

The model is calibrated using social accounting data based on the most recent version of the GTAP database. The data includes the data on Ad-Valorem Equivalents (AVEs) of border protection across the world. For the purpose of this study, the 58 sectors in the GTAP database are re-arranged and re-aggregated to 20 sectors. Furthermore, barriers to trade in services draws on the estimation of a gravity equation using panel data as detailed in Francois, Hoekman and Woerz (2007).

The model is projected to 2018 using the IMF growth projections of the world economy, and assumes a successful implementation of the Doha round's proposed initiatives.

Note: See Appendix 5 for more details.

6.2. IMPACTS ON BILATERAL TRADE

We first discuss the impact of the removal of tariff and reduction in NTM's on trade flow. The next section examines their economic impact.

Table 6.4 show the impact of the scenario simulations on EU exports to Japan. The first column shows baseline trade volumes, i.e. trade in 2008. The second column shows the long-run increase in trade due to a removal of Japan's import tariffs on goods. Long-run effects are computed over a sufficiently long time period (up to 2018) to allow all price, income and resource allocation effects to work their way through the economy. The third and fourth columns show the increase in trade due to a minimum and maximum reduction in NTMs. The last two columns add up the tariff and NTM effects.

European exports to Japan could increase by between €27.8 billion and €43.4 billion depending on whether one assumes the lower or upper bound scenario for NTM reductions. This corresponds to an increase of between 46 percent and 71 percent of the EU's 2008 baseline exports of €61 billion to Japan. Removal of bilateral tariffs is estimated to result in

€14.1 billion additional exports, and the increase in exports due to NTM reductions is estimated at between €13.7 billion and €29.4 billion. The export gains from NTM reductions are comparable or larger compared to the trade effect of tariff reductions. NTM reductions lead to just as much trade as tariff removal in the lower bound scenario. In the upper bound scenario the impact of NTM reduction will be double as high.

Looking at sectors, we find largest increase for European chemicals export to Japan – of €6.3 to €11.0 billion - which includes pharmaceutical exports, cosmetics and chemical products. Tariffs are only responsible for €1.0 billion increase in exports, while NTM reductions are the vastly dominating source of the increase in the sectors exports to Japan. Processed foods are responsible for the second largest increase in sector exports of between €5.1 and €5.9 billion additional exports. Here, the increase is mainly a result of tariff removal rather than NTM reductions. For motor vehicles, EU exports could increase by up to €5.4 billion and NTM reductions are the main source of the increase. EU exports of transport equipment, machinery, metals and wood products each increase by around €3 billion and are mainly driven by NTM reductions, cf. Table 6.4.

The services sectors, taken collectively, contribute with an increase of €1.4 billion to €2.6 billion in additional EU exports to Japan. Though there are no tariffs on services, trade in services benefits from tariff removal in goods through indirect price, income and competitiveness effects on services sectors.

Table 6.4 The impact of the scenarios on EU exports to Japan (billion €)

	Baseline trade volume	Removing Tariffs	Reducing NTMs		**Combined scenario**	
			Min. NTM	Max. NTM	Lower	Upper
Processed foods	4,3	4,8	0,3	1,0	5,1	5,9
Chemicals (incl. pharma)	9,1	1,0	5,3	10,0	6,3	11,0
Motor vehicles	5,6	0,6	1,8	4,7	2,4	5,4
Transport equipment	0,7	0,1	1,6	2,8	1,7	2,8
Machinery (incl. medical)	6,1	0,4	1,6	3,1	2,0	3,5
Metals and metal products	1,4	0,4	0,9	2,6	1,3	3,0
Wood and paper products	1,9	0,3	1,0	2,5	1,3	2,7
Other sectors (incl. agri.)	10,8	6,1	0,2	0,5	6,3	6,6
Services	21,2	0,4	1,0	2,2	1,4	2,6
Total EU exports to Japan	**61,0**	**14,1**	**13,7**	**29,4**	**27,8**	**43,4**

Note: The table shows the long-run effects on bilateral trade. Without Doha and EU-Korea FTA in baseline. Data in € billion. 2008 trade data. Sectors with no or little change are included in 'other sectors'.
Source: CGE model simulations.

Japanese exports to Europe could increase by between €35.3 billion and €53.8 billion, depending on whether one assumes the lower or upper bound scenario for NTM reductions. This corresponds to an increase of between 40 percent and 61 percent of Japan's baseline exports of €87 billion to the EU in 2008. Removal of bilateral tariffs is estimated to result in €25.2 billion additional exports, and the increase in exports due to NTM reductions is

estimated at between €10.1 billion and €28.5 billion. The export gains from NTM reductions in the maximum scenario are comparable to the trade effect of tariff reductions. NTM reductions lead to just as much trade as tariff removal in the upper bound scenario, and to half as much trade as tariff removal in the lower bound scenario, based on the minimum NTM reduction scenario.

Looking at sectors, we find that motor vehicle exports indicate by far the largest increase, where exports could increase between €20.1and €27.2 billion. Tariffs reductions are responsible for €15.9 billion increase in exports, while NTM reductions in the EU in motor vehicles could increase Japan's motor vehicle export by a further €4.2 to €11.3 billion. Half of Japan's increase in exports in the scenarios stem from the motor vehicles sector.

Reduction of EU tariffs and NTMs for chemicals could lead to increases in Japan's export to the EU of between €4.3 billion and €9.1 billion, with NTM reductions being the main source. Export of electrical machinery is also one of the sectors with large increases. We estimate a possible increase of between €3.7 and €6.2 billion of Japan's export to Europe.

Japanese exports of transport equipment, machinery and metals also increase, cf. Table 6.4. It is interesting to note that machinery exports from Japan to Europe could decline as a result of NTM liberalisation. The reason for this is the expansion of exports in other sectors such as motor vehicles and chemicals. This expansion of Japan's most competitive sectors will pull production factors such as labour and capital from other less competitive sectors in Japan, including machinery and services. Since production factors can be used more effectively in other sectors, sectors like services and machinery will lack the capital and labour to benefit from the increased openness of the EU market for their products. Moreover, because of the constraint on production factors, production and exports will subsequently decline as a result of these indirect mechanisms via the factor markets.

It is important to note that these results are assuming a starting point for EU-Japan trade liberalisation without Doha round and without implementation of the EU-Korea FTA. If the Doha round is included in the starting point (i.e. the baseline) some tariff concessions will already be absorbed through the Doha concessions. For some sectors this difference is small, while for others, such as motor vehicles, the Doha round would provide substantial tariff reductions, and thus leave less tariff reductions to EU-Japan bilateral liberalisation. In the case of motor vehicles, the inclusion of the Doha round in the baseline would reduce the impact of EU-Japan tariff liberalisation by half. Impacts of NTM reductions are still large.

The services sectors, taken as a whole, contribute with a limited increase of €0.2 billion to €1.0 billion in additional EU exports to Japan. There is a small negative impact on Japan's service exports in the tariff only scenario. This is due to the fact that as goods exporting sectors expand in response to the tariff removal, goods sectors will draw resources (labour

and capital) away from the services sector, and their production capacity will fall, and so will their exports.

Table 6.5 The impact of the scenarios on Japan's exports to the EU (billion €)

					Combined scenario	
	Baseline	Tariffs	Min. NTM	Max. NTM	Lower	Upper
Chemicals	9,0	1,5	2,8	7,6	4,3	9,1
Electrical machinery	8,8	2,2	1,5	4,0	3,7	6,2
Motor vehicles	20,2	15,9	4,2	11,3	20,1	27,2
Other transport equipment	4,4	1,5	0,9	2,8	2,4	4,3
Other machinery	25,0	3,2	-0,3	-1,5	2,9	1,7
Metals and metal products	1,3	0,7	0,2	2,5	0,8	3,1
Other sectors (incl. agri.)	3,5	0,7	0,3	0,6	0,9	1,2
Services	16,4	-0,3	0,5	1,3	0,2	1,0
Total Japan exports to EU	**88,6**	**25,2**	**10,1**	**28,5**	**35,3**	**53,8**

Note: The table shows the long-run effects on bilateral trade. Without Doha and EU-Korea FTA in baseline. Data in € billion. 2008 trade data. Sectors with no or little change are included in 'other sectors'.
Source: CGE model simulations.

From the evidence provided in the scenarios on the impact of tariffs and non-tariff measures, we conclude that non-tariff measures (NTMs) are the most important factor hindering trade between the EU and Japan, and that NTMs reduce trade more than twice as much as tariffs. Also, NTMs have larger impact on reducing trade than the combined effect of distance and language. Based on our assessment, some NTMs could be reduced through trade negotiations and such NTM reduction will increase trade substantially, even if some NTMs remain, and without assuming reduced impact of distance, language and other fixed factors.

6.3. GLOBAL TRADE EFFECTS

EU-Japan trade liberalisation is trade creating

Our scenarios show that further integration between the EU and Japan is creating more trade in total for the two partners. The expansion of trade between the two is not just a question of shifting trade with other partners to become EU-Japanese trade. Europe's total exports to all partners go up by 0.7 percent in the maximum scenario (of which 0.3 percent is from tariff removal and 0.4 percent is from NTM reductions), and Europe's total imports from all partners increase by 0.6 percent (of which 0.2 percent is from tariff removal and 0.4 percent is from NTM reductions). The aggregate trade balance for Europe is consequently slightly improved in the scenarios, cf. Table 6.6.

For Japan, trade liberalisation with the EU will lead to much larger percentage increases because of the sheer size of the European market. Japan's total export will increase by 6.4 percent (of which 2.5 percent is from tariffs and 3.9 percent is from NTMs), while Japan's total imports will increase even more in percentage terms, namely with 7.9 percent (of which 3.1 percent is from tariffs and 4.8 percent is from NTMs). The result of trade liber-

alisation will thus lead to increased openness of the Japanese economy, and imports into Japan will increase than exports from Japan again, cf. Table 6.6.

Table 6.6 Global trade impact for EU and Japan in combined tariff and NTM scenarios

	Combined effect, Maximum scenario	Tariffs	Min. NTM	Max. NTM
Value of Exports, percent above baseline				
European Union -> world	0.7%	0.3%	0.2%	0.4%
Japan -> world	6.4%	2.5%	1.6%	3.9%
Value of Imports, percent above baseline				
European Union <- world	0.6%	0.2%	0.2%	0.4%
Japan <- world	7.9%	3.1%	2.0%	4.8%

Note: Long run effects in the scenarios in % change from baseline values (without Doha and EU-Korea FTA).
Source: CGE model simulations.

Small negative impact on main trading partners

EU-Japan trade liberalisation will have a small negative impact on some of their trade partners, notably China and S. Korea who will see their aggregate export to world decline by 0.26 percent and 0.39 percent respectively as a result of bilateral trade liberalisation between EU and Japan. Results are reported for the long-run effect of the maximum scenario including both tariff removal and maximum NTM reduction. China and S. Korea are mainly affected because they lose ground to Japanese exporters in the European market. The U.S. will also be slightly negatively affected in the scenario (-0.15% less exports), and this is mainly because they lose ground to European exporters in the Japanese market, cf. Table 6.7.

Other trade partners will be slightly positively affected, namely Mexico (+0.06% more exports), Russia (+0.02%) and Canada (+0.01%). These are very small effects, and barely measurable, and they arise due to the extra demand effect created by EU-Japan liberalisation, whereby demand for imports increases in both the EU and in Japan. Since none of these three trading partners are neither close competitors to European exporters in Japan, nor close competitors to Japanese exporters to Europe the demand effect will dominate, and these countries could see a slightly positive impact on their export volumes, cf. Table 6.7.

Table 6.7 Impact on trade partners from EU -Japan combined tariff and NTM scenarios

Trade partner	**Combined effect of tariff removal and max. NTM reduction Value of Exports to world** (percent change from baseline)
Japan	+6,40%
European Union	+0,65%
Mexico	+0,06%
Russia	+0,02%
Canada	+0,01%
India	-0,06%
Brazil	-0,07%
United States	-0,15%
China	-0,26%
S. Korea	-0,39%
Other OECD	-0,08%
Rest of the world	-0,04%

Note: The table shows the long run effects in the scenarios in percentage change from baseline values.
Source: CGE model simulations.

EU-Japan trade liberalisation is globally welfare enhancing

Looking at the impact on global welfare, we conclude that bilateral trade liberalisation between EU and Japan as in our scenario will be positive.

The combined loss for the rest of the world will be small (approximately €5.8 billion) compared with the combined welfare gain for EU and Japan of €51.5 billion. Global welfare will increase as a result of EU-Japan integration. A sum of €45.7 billion in welfare gains will still be available to the EU and Japan. EU-Japan trade liberalisation is clearly a net benefit for the world.

Welfare effects on trading partners will be small. Korea and China will be the most negatively affected trading partners. For Korea, the negative welfare effect of EU-Japan trade liberalisation is €0.4 billion, which is a very small welfare decrease of 0.06 percent. For China, welfare will decline by €1.6 billion, but compared to the size of the Chinese economy this only represents a 0.03 percent decrease in welfare. The remaining welfare losses are spread across many countries, with none reaching an impact higher than 0.01 percent.

6.4. OUTPUT EFFECTS

The reduction of trade barriers between the EU and Japan will imply small changes in the composition of output between sectors, and aggregate economic output measured in fixed prices will increase slightly. Productivity enhancing reallocation of production factors will take place between sectors as a result of the trade liberalisation scenario. Sectors which see their competitiveness being enhanced by trade liberalisation will expand their output and sectors which have benefited from protection from more competitive foreign suppliers will contract relative to the expanding sectors. The net result will be a small positive effect on aggregate output, which according to our estimates could increase by 0.14 percent in the

EU and by 0.31 percent in Japan. The effects on output are relatively small, which obviously reflects the fact that, in the scenario, Europe is after all only reducing trade costs marginally with a trading partner representing less than three percent of extra-EU exports.

For the European economy, the productivity enhancing reallocation of output will lead to an increase in the sector's share of total EU-wide value added in: processed foods (+0.01 percent), machinery (+0.02 percent), wood and paper (+0.01 percent) and other goods sectors (+0.02 percent). The services sectors will also increase their share of total output, but this will largely be an indirect effect of trade liberalisation, since as the above mentioned goods sectors expand their output and as consumers increase their purchasing power, demand for services will increase.

The only sector that will see a declining share of aggregate output is motor vehicles, which will decline its share by 0.05 percent. Measured in terms of sector output at fixed prices, motor vehicles will decline by 3 percent. Still, the expansion of other sectors will be more than large enough to ensure a net positive effect on aggregate EU output, although only of 0.14 percent in total, cf. Table 6.8.

Table 6.8 Composition of output in the EU in scenario

	Baseline	Max. scenario	Change in pct.
Goods			
Processed foods	2,73	2,74	0,4%
Chemicals (incl. pharmaceuticals)	2,66	2,66	0,0%
Motor vehicles	1,59	1,54	-3,1%
Transport equipment	0,46	0,46	0,0%
Machinery (incl. medical devices)	3,18	3,20	0,6%
Metals and metal products	1,54	1,54	0,0%
Wood and paper products	2,12	2,13	0,5%
Other sectors (incl. agriculture)	10,77	10,79	0,2%
Services			
Finance & insurance	3,53	3,53	0,0%
Transport service	1,05	1,06	1,0%
Business services	18,17	18,20	0,2%
Communications	2,08	2,08	0,0%
Construction	6,12	6,14	0,3%
Personal services	3,70	3,71	0,3%
Other services	40,29	40,34	0,1%
Total	**100,00**	**100,14**	**0,1%**

Note: The table shows value added shares by sector in the baseline and in the long-run maximum scenario. Changes compared to a baseline without Doha and without EU-Korea FTA.
Source:CGE simulations

For the Japanese economy, changes in the sector composition will larger as a result of trade liberalisation because they will be integrating with a larger economy. The sectors which can foresee increasing shares of total Japanese value added are: motor vehicles (+0.26 percent), electrical machinery (+0.09 percent), and transport equipment (+0.03 percent). As in

Europe, Japanese services sectors will also increase their share of total output, mostly through indirect effects from trade liberalisation. Measured in terms of sector output at fixed prices, Japanese motor vehicle output will increase by 12.5 percent, electrical machinery will increase by 5.8 percent and transport equipment output will be up by 7.1 percent.

A few sectors in Japan will see a declining share of aggregate output in the scenario. The most prominent of these will be the Japanese machinery sector, which includes the medical devices sector, which will be under pressure from EU competitors. Their share will decline somewhat, and output measured in fixed prices will decline by 5.8 percent in the maximum long-run scenario. A small decline could also be possible in Japan's metal industry and in other goods sectors, including wood and paper. Still, the expansion of other sectors will be more than large enough to ensure a net positive effect on aggregate output in Japan, and a gain of 0.31 percent in total, cf. Table 6.9.

Table 6.9 Composition of output in Japan in scenario

	Baseline	Max. scenario	Change in pct.
Goods			
Chemicals	2,56	2,57	0,4%
Electrical machinery	1,56	1,65	5,8%
Motor vehicles	2,16	2,43	12,5%
Other transport equipment	0,42	0,45	7,1%
Other machinery	3,54	3,34	-5,6%
Metals and metal products	1,91	1,90	-0,5%
Other sectors (incl. agri.)	9,82	9,72	-1,0%
Services			
Finance & insurance	5,39	5,40	0,2%
Transport service	1,13	1,13	0,0%
Business services	9,72	9,74	0,2%
Communications	2,34	2,34	0,0%
Construction	5,67	5,71	0,7%
Personal services	3,45	3,45	0,0%
Other services	50,33	50,50	0,3%
Total	**100,00**	**100,31**	**0,3%**

Note: The table shows value added shares by sector in the baseline and in the long-run maximum scenario. Changes compared to a baseline without Doha and without EU-Korea FTA.
Source: CGE simulations

6.5. OVERALL WELFARE EFFECTS

We provide two sets of estimates for overall output and welfare effects in the tables below. These include the change in GDP and the change in real income. The tables also include both a short-run effect (where capital stocks are fixed), and a long-run estimate which includes the cumulative impact of changes in conditions for returns to investment on capital stocks (where capital stocks adjust).

In the longer run, increased investment drives a 0.31 percent increase in Japan's GDP (inclusive of the short-run effects), while for the European Union we then estimate a 0.14 percent increase in GDP, cf. Table 6.10. The short-run effects imply no measurable change in GDP from a full agreement for either the EU or for Japan.

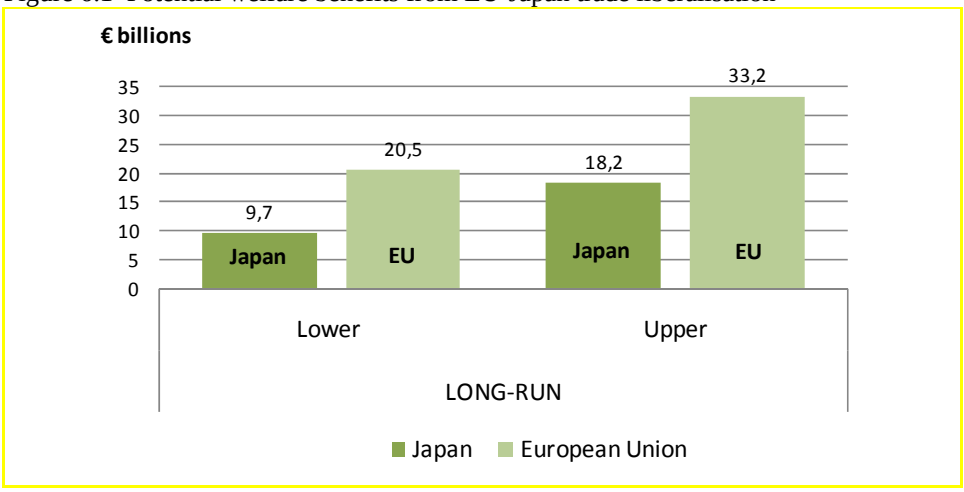
Table 6.10 Change in GDP (quantity index) 2018 baseline, percent

Country	Lower bound scenario (tariffs + min. NTM)	Upper bound scenario (tariffs + max. NTM)
Long-run effects		
European Union	0.10	0.14
Japan	0.20	0.31

Note: We use a fixed-weight GDP index. Compared to a baseline without Doha and EU-Korea FTA.
Source: CGE simulations

Measured in welfare terms, these effects translate into a long-run gain in real income of €9.7 in the lower bound scenario and a long-run gain of €18.2 billion in the upper bound scenario. For the EU the estimated long-run gain in real income is between €20.5 and €33.2 in the lower and upper bound estimates respectively, cf. Figure 6.1.

Figure 6.1 Potential welfare benefits from EU-Japan trade liberalisation



Note: National real income effects (€ billions 2018 baseline). We measure real income effects as changes in equivalent variation. Compared to a baseline without Doha and EU-Korea FTA.
Source: CGE simulations

Our welfare measure is the so-called equivalent variation (EV)[16], which is commonly used to translate consumer welfare or utility into monetary values. This is different from measuring welfare in GDP terms. GDP is based on quantities and measured as output at fixed prices. Real income changes, however, are what matters for the consumer, since they also reflect changes in both consumer prices and in wages. From the consumer's point of view,

[16] EV is a single summary statistic to ascertain the net benefits from a policy change. The EV tells us how much money should be given to a consumer to compensate him/her for a change in the consumption pattern arising from a change in prices.

trade liberalisation has two important long-run effects. First, prices of imported goods and services decline as a direct result of the reduction of trade costs. This is reflected in cheaper products and a wider variety of products to choose from. This implies direct benefits for the consumer. Second, the productivity enhancing reallocation of resources between sectors leads to long-run increases in wages. This also improves the situation for the average household. On the negative side, we need to take account of the loss of tariff revenues and other losses incurred as a result of the liberalisation scenario. The national real income measure incorporates all these effects into one single measure.

Looking at the sources of real income gain in the maximum scenario in the long-run, we see that one third of the gain to the European economy - €11.2 billion - is due to tariff reductions, and two thirds - €22.1 billion - of the real income gains are a result of NTM reductions.

For Japan, only around 15 percent of the welfare gain (€2.8 billion) can be attributed to tariff reductions, while the remaining 85 percent (€15.4 billion) of the potential for welfare gains to Japanese consumers stem from NTM reductions. In other words, NTM reductions yield five times more welfare to the Japanese consumer than tariff reductions. If Japanese policy makers care about real income improvements for their households, they should be more interested in seeking to reduce NTMs than reducing tariffs. Both are beneficial from a consumer perspective, but the potential gain from NTM reduction is much bigger, and Japanese consumers are paying the price for the Japanese NTM restrictions.

Table 6.11 Decomposition of the long-run welfare effects

	Combined effect, Maximum scenario	Tariffs	Min. NTM	Max. NTM
National Income Effects, billion € above baseline				
European Union	+ €33.2 bn	+ €11.2 bn	+ €9.4 bn	+ €22.1
Japan	+ €18.2 bn	+ €2.8 bn	+ €6.9 bn	+ €15.4
National Income Effects, percent above baseline				
European Union	0.20%	0.07%	0.05%	0.13%
Japan	0.48%	0.07%	0.19%	0.41%

Note: National real income effects (in percentage change from 2018 baseline). We measure real income effects as changes in equivalent variation. Compared to a baseline without Doha and EU-Korea FTA.
Source: CGE simulations

As reported in the table below, real wages will also increase. What we report are permanent long-run improvements in real wages, i.e. wage changes adjusted for changes in the price level. For the EU, real wages will increase by 0.25 percent for both skilled and unskilled labour. For Japan, the impact is stronger. We estimate a long-run rise in real wages of 0.72 percent for skilled labour and 0.68 percent for unskilled labour, cf. Table 6.12.

Table 6.12 Decomposition of Change in Real Wages - 2018 baseline, percent change

	Combined effect, Maximum scenario	Tariffs	Min. NTM	Max. NTM
Real wages for skilled workers, percent above baseline				
European Union	0.25%	0.11%	0.06%	0.14%
Japan	0.73%	0.30%	0.19%	0.43%
Real wages for less skilled workers, percent above baseline				
European Union	0.25%	0.12%	0.05%	0.13%
Japan	0.68%	0.26%	0.19%	0.42%

Note: Changes in real wages in percentage from 2018 baseline without Doha and EU-Korea FTA.
Source: CGE simulations

6.6. ALTERNATIVE BASELINES

In the scenarios analysed above we have assumed that there is no Doha round and no EU-Korea FTA as part of the baseline. As we show in this section, the results above are not significantly affected when we introduce a Doha round and the Korea FTA in the baseline

The results we showed earlier in this chapter remains unchanged. The percentage change in welfare in the long-run maximum scenario is the same under all four baseline assumptions, and thus we conclude that our results are insensitive to the exclusion of the Doha round and the Korea FTA in the baseline.

Table 6.13 Impacts of alternative baselines on the long-run welfare effects

	Standard Baseline no Doha or Korea	Korea agreement in baseline	Doha in baseline	Korea and Doha in baseline
National Income Effects, percent change from baseline				
Japan	+0.48%	+0.48%	+0.47%	+0.47%
European Union	+0.20%	+0.20%	+0.20%	+0.20%
Rest of World				
OECD members	-0.01%	-0.01%	-0.01%	-0.01%
Non-OECD Members	-0.02%	-0.02%	-0.02%	-0.02%

Note: National real income effects (percentage change from 2018 baseline).
Source: CGE simulations

Looking at the effects on trade of the same alternative baselines, we come to the same conclusion: the inclusion of the Doha round and the EU-Korea FTA in the baseline has little or no influence on the size of the isolated impact from EU-Japan trade liberalisation. The percentage increase in Japan's exports to the world from EU-Japan trade liberalisation is slightly higher with Doha in the baseline (+6.8 percent) than without the Doha round in the baseline (+6.4 percent). The reason for this result is logic. With the general tariff reductions assumed in the Doha round, bilateral trade liberalisation will have less trade diverting effects and more trade creation effects. When tariffs are lowered to start with, negative impacts of diversion are outweighed by trade creation.

Table 6.14 Impacts of alternative baselines on exports

	Standard Baseline no Doha or Korea	Korea agreement in baseline	Doha in baseline	Korea and Doha in baseline
Change in global exports, percent change from baseline				
Japan	+6.4%	+6.4%	+6.8%	+6.8%
European Union	+0.7%	+0.6%	+0.7%	+0.7%

Note: Global export changes (percentage change from 2018 baseline).
Source: CGE simulations

While the inclusion of the Doha round and the EU-Korea FTA in the starting point does not change the results at the aggregate level, it does imply changes at the sector level. Including the Doha round in the baseline implies that some tariff concessions will already be absorbed through the Doha concessions. For sectors such as motor vehicles, the Doha round would reduce in EU tariffs and the impact of EU-Japan bilateral liberalisation will be smaller. In the case of motor vehicles, the inclusion of the Doha round in the baseline would reduce the impact of EU-Japan tariff liberalisation by half. Including the Doha-round in the baseline would not alter the impact of NTM liberalisation.

6.7. SYSTEMIC CONSIDERATIONS

In this study we have identified NTMs in the EU and in Japan and quantified their impact on trade costs. We have also simulated the possible impacts of reducing the NTMs between EU and Japan based on an assessment of how various instruments may possibly contribute to the reduction of the additional trade costs associated with these NTMs.

The scenarios have assumed that NTMs can be reduced on a bilateral basis, i.e. that Japan can lower its NTM costs only for European exporters, while keeping the higher baseline NTM levels for other trading partners. This may be true for some instruments, for example if Japan adopts an EU-only conformity assessment procedure, or if Japan and the EU agree on a common set of rules in a certain area, which are shared with no other partner.

However, many of the identified instruments available for reducing the NTMs are multilateral in nature. If for example, Japan adopts international standards in an area where Japan-only standards existed, then this change will not only benefit EU exporters, but also all other exporters who use this specific international standard. Such instruments are often mentioned and would, in many cases, be the preferred solution, for example in the motor vehicles sector. Compared to the assessments made in this report, such instruments would water down the bilateral preferences granted between the EU and Japan, which we have assumed in our simulations.

Another systemic aspect is the situation where the EU and Japan find a common ground for going ahead of other advanced nations in shaping future international standards. In this case, the advantages for both partners will be substantial, if they succeed in setting the stan-

dards for other trading partners. This aspect of EU-Japan trade cooperation has not been addressed in this study.

6.8. CONCLUSION: THE MERITS OF EU-JAPAN TRADE LIBERALISATION

From our quantification of trade liberalisation scenarios between the EU and Japan it seems clear that there is a win-win situation for both the EU and Japan in pursuing future bilateral trade liberalisation. The majority of the gains are found in manufacturing, and both tariffs reductions (including food and agriculture tariffs) and NTM reductions would be required to provide a win-win package for both partners. Services do not contribute much in comparison with manufacturing.

The potential of NTMs in delivering welfare gains to the EU and indeed to Japanese consumers is significantly higher than the impact of tariffs (although tariff reductions are still welfare enhancing). Japanese consumers are paying the price for these measures. Non-tariff measures imply higher prices for imported goods, and reduce the variety of products being offered to the consumers.

In the more ambitious scenario, called the "upper bound scenario" for NTM reductions, NTMs between the EU and Japan are reduced in both directions. In this scenario, we find potential for gains in consumer welfare of up to €33.2 billion in the EU (long run), and welfare gains for the Japan consumers of up to €18.2 billion. This is much higher than the €11.2 billion welfare gain from tariff removal in the EU and the €2.8 billion welfare gain in Japan.

By way of comparison, we can conclude that the EU's welfare gain from NTM reductions with Japan is almost twice the welfare gain from tariff reduction. For Japan, the importance of NTM reduction is even greater. Full NTM reductions yield 5.5 times more welfare to Japan than removing bilateral tariffs. The so-called lower bound scenario is roughly yielding half the benefits of the full scenario.

Our results clearly show that there are possibilities for revitalising EU –Japan trade. The main obstacles are the so-called non-tariff measures (NTMs). EU exports to Japan could increase by over 70 percent if non-tariff measures in Japan were reduced and tariffs reduced to zero. Conversely, Japan's export to the EU could increase by more than 60 percent as a result of a reduction in the EU's non-tariff measures and tariffs vis-à-vis Japanese exporters.

Efforts must be made to strengthen the EU-Japan economic relationship. This could be done by negotiating a bilateral agreement to help stimulate bilateral trade and investments. Our analysis shows that this would be beneficial to consumers in both economies.

There will, however, be difficulties associated with achieving this win-win situation. Japanese industry will mainly benefit from lower tariffs, but would perhaps dislike changes to their domestic regulatory environment, such as those relating to conformity assessment procedures. Changes in the regulatory environment will be needed on the European side as well, even though our results show a clear asymmetry, with the impact of NTMs being much more pronounced in Japan. EU producers would of course welcome tariff reductions on their exports to Japan, but Japanese NTMs must be reduced to ensure sufficient EU gains from an EU-Japan trade liberalisation scenario. Tariff reductions will be required in exchange for non-tariff reductions.

This poses some challenges. First, tariffs are measurable whereas NTMs are debatable. Second, tariffs are bilateral whereas reductions of NTMs are often multilateral. Third, NTM reductions are difficult without domestic reforms and NTM reduction could entail issues that are not normally negotiated within a bilateral framework. It will require political will and administrative creativity to agree on NTM reductions that are bilateral as opposed to multilateral, and to concede concrete tariff reductions in exchange for intangible and diffuse NTM reductions.

Chapter 7 | OTHER NON-TARIFF MEASURES

As mentioned in the first chapter of this report, we have adopted a broad definition of non-tariff measures. In this chapter, we look at three aspects: firstly, public procurement, secondly, competition issues and finally, intellectual property rights (IPR). We present these three issues in the order of priority, starting with public procurement as the most important of the three and finalising with IPR and a summary of the potential for economic gains from further liberalisation.

7.1. PUBLIC PROCUREMENT ISSUES IN JAPAN

The public procurement market in Japan is an area where European firms report difficulties. The main sectors affected by these difficulties are the construction sector (including building materials, e.g. windows) and the transport equipment sector (e.g. railway equipment including trains and other urban transport equipment), but service sectors (e.g. water treatment) are also affected by difficulties related to public procurement.

The difficulties faced by EU firms in Japan in the public procurement market can be split in two categories:

a) Problems of market access (i.e. that the sector in question is not part of Japan's WTO Government Procurement Agreement commitments or likely to be below thresholds, and therefore excluded for EU bidders).
b) Problems of rules (i.e. that while the sector in question is in fact covered by the WTO Government Procurement Agreement and in principle eligible for EU bidders, they are still facing difficulties because of the specific rules related to the procurement).

One example of a problem related to the rules is the so-called "operational safety clause" in the WTO GPA Agreement that is systematically invoked in the procurement of railway equipment of JR entities and urban transport operators. While Japan has the right to implement this clause for the legitimate objective of safety, the implementation of that clause is *de facto* hindering foreign suppliers' access to such contracts in Japan because of its systematic use. Most of the 17 issues listed in the NTM inventory for Japan on public procurement also relate to the latter category – i.e. problems with the rules, cf. Table 7.1.

Table 7.1 Public procurement issues in the NTM inventory

Issue	Source	Page
Aerospace and space industry		
Procurement decisions are made on a non-competitive basis	EBC	81
Construction services		
Public procurement systems (Comprehensive Evaluation Bidding System) are not always used	EBC	87
Computer and information services		
Widespread vendor liabilities	USG	4
Uncompetitive rules in government IT procurement bidding rules	USG	4
Lack of transparency in government IT procurements	USG	4
Backdating of government IT procurement contracts is allowed	USG	4
Automotive industry		
Japan-specific requirements in procurements	EBC	79
Green procurement rules do not follow international practices	EBC	
General government procurement		
Too much focus on rigid technical specifications (green procurement)	EU	28
Restrictive qualifications in (open) tendering	EU	67
No real difference between an open and competitive procedure and selective tendering	EU	26
Weak implementation of public procurement regulations	EU	21
Long evaluation process prior to tendering, lack of min. required for each specific capability	EU	28
Lacking a single point of access equivalent to EU's centralised tender database	EU	27
Compulsory company registration on public work contracts every two years	EU	28
Complex legal framework for public procurement and lack of English versions	EU	28
Limited info exchange on legal and technical choices in e-procurement	EU	27

Note: The column "page" in the above table indicates the page number in the original source where more information can be found. For these sources, please refer to the NTM inventory.

Source: Copenhagen Economics' inventory of Japanese NTMs.

There are, however, also market access problems facing EU firms in Japan's public procurement market. One important market access problem is the difference between the EU and Japan regarding the threshold for construction works. In the EU, this threshold is 5 million SDRs, meaning that contracts above this level are open to foreign bidders. In Japan, only construction works above 15 million SDRs are open to foreign bidders.

Both Japan and the EU are signatories to the WTO Government Procurement Agreement (GPA).[17] The EU and Japan differ in their commitments and the derogations that they have

[17] Foreign access to public procurement is exempted from the general rules of GATT/GATS, cf. GATT Article III:8(a), GATS Article XIII:1. Instead a number of WTO members have signed a plurilateral agreement that extends the principles of the GATT (non-discrimination, national treatment and transparency) to specific areas of public procurement. There is no MFN clause in the GPA. Therefore, signatories to the GPA can grant more access for one party to the agreement, without being obliged to grant the same access to all signatories.

offered under the GPA. The EU (and most other signatories to the GPA) has offered a commitment giving GPA members access to all five annexes of the GPA. The commitments are generally granted under the provision that the partners grant similar access to their procurement market. Japan has only offered access to parts of the five annexes of the GPA. As a response, most other GPA signatories, including the EU, have limited Japan's access to their home markets in a similar way.

Size of the public procurement market in Japan

According to a study by the European Commission, DG Internal Market[18], the total market for public procurement in Japan has been estimated at €565 billion in 2007. This corresponds to around 18 percent of Japan's GDP. This is similar to the ratio of public procurement to GDP seen in the EU, which is 19 percent. More than 83 percent, or €469 billion, of the total public procurement market is estimated to fall below the GPA thresholds and hence consist of small contracts awarded to domestic suppliers. The remaining part of the total market is split in two, cf. Figure 7.1.

The "open" part is the smaller part of the public procurement market in Japan that is already open for foreign suppliers under Japan's current GPA commitments, and this "open" part is valued at €22 billion or 23 percent of the above-thresholds public procurement market (or 3.8% of the total public procurement market). Whether EU firms are restricted in being awarded contracts in this €22 billion market is hard to quantify, but the problems related to rules and procedures for awarding contracts, as listed above, indicate that EU firms are facing difficulties in getting *de facto* access to the open part of the market. The "open" procurement market in Japan is relatively small compared to the overall size of the market, and the 3.8 percent is low compared to other parties to the GPA. The high threshold for construction works is a major part of the explanation for the relatively small share of the "open" part compared to the "potentially open" part.[19] The exclusion of procurement contracts by local entities is another reason. Finally, many large buyer entities are excluded from Japan's GPA commitments and for this reason, EU suppliers of railroad equipment cannot offer their products and services in Japan, for example.

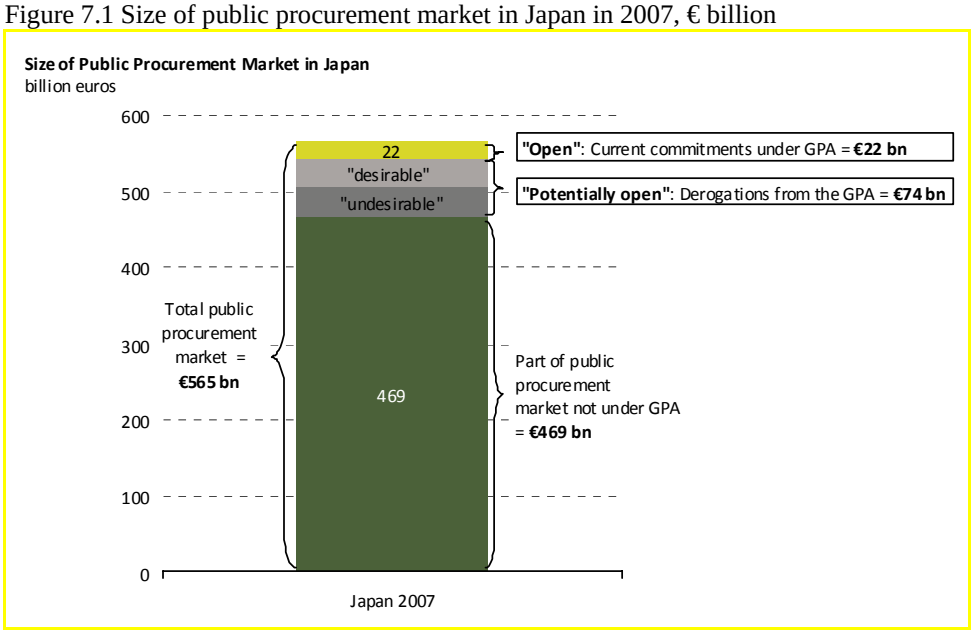
The "potentially open" aspect is the part of the procurement market where Japan has made general derogations from the coverage of the GPA. This part constitutes a potential of €74 billion or 13 percent of the total market. When compared to the €22 billion value of the "open" market, we see that the "potentially open" market is 3.4 times larger than the "open" market. The "potentially open" market comprises contracts, that in principle could be covered by the GPA, and thereby be eligible for EU bidders, but have been excluded from foreign competition as a result of the derogations Japan has listed under the current GPA.

[18] Commission (2008), "Comparative analysis of the size of public procurement in the EU and the main GPA parties (US, Japan, Canada and Korea)", D(2008) MARKT/C1/OC-ARL D(2007).
[19] In all but one sector, the EU and Japan have similar thresholds for the size of individual contracts open under the GPA. The exception is construction contracts, where the threshold in Japan is three times as high as in the EU.

Not all parts of the "potentially open" market are equally interesting for the EU. The reason is simple: some of these contracts are defence contracts, for example. If the EU was asking Japan for access to bid for these contracts, it would expect the same openness in the EU market, and this could be labelled the "less desirable part". The "desirable" parts of the "potentially open" market are those parts of the Japanese procurement market currently not open to foreign competition, and in which the EU has already made commitments to other parties to the GPA, but not to Japan, for reasons of reciprocity with the Japanese offers.

It is worth noticing that, in spite of the reciprocity clauses, Japan still benefits from a much greater access to the EU public procurement market. The "open" part of EU procurement open to Japanese companies amounts to some 260 billion EUR, or 70% of the above-thresholds public procurement market (or 13% of total procurement).

Figure 7.1 Size of public procurement market in Japan in 2007, € billion



Source: Commission (2008).

Box 7.1 Case of EU service firm providing public procurement in Japan

[An EU firm in Japan] currently provides water treatment services to Japanese towns. The drinking water market is not open to foreigners. Only designated cities over a certain threshold – prefectures (as in Japan's commitment in WTO GPA) – are open for competition. Municipal markets are excluded for foreign suppliers.

[The EU firm] is facing 3 difficulties:

1) Local references are required in bids (not possible when you enter as a foreign firm).
2) Pre-registration is required in every little town (more than 2000 entities) and needs frequent up-dating. Very time consuming and costly.
3) Headquarter must be in the town itself (cannot supply services from HQ in Tokyo). Must register company in many towns (however not required in all towns).

[The EU firm] has partly overcome these difficulties by buying smaller local companies and merging them into a national network of firms, but keeping their local registrations and staff. It generally works well.

The Japanese water treatment market has many small operators. They deliver very high quality, but also at very high costs. [The EU firm] can bring expertise in the operation and bring higher efficiency, while preserving high quality.

Finding ways to remove the three difficulties above and making Japan open for foreign access in the GPA for drinking water and for access to municipalities will provide more opportunities.

Note: Anonymous firm known to consultant.
Source: Personal interview with General Manager, January 2009.

7.2. COMPETITION ISSUES IN JAPAN

Our assessment is that:

- Competition in the Japanese service sectors seems to be weak compared to the EU and to most other countries.
- Competition in Japanese manufacturing industries seems to be about as strong as in the EU.
- Competition enforcement in Japan generally ranks poorly.

Our analyses show that competition is relatively weaker in Japan in service sectors like financial services, telecommunications, postal services, air transport, energy and business services. The OECD has also pointed to lack of foreign participation in the retail and whole sector in Japan.

We have limited information about the degree of competition in Japan's manufacturing sectors and therefore cannot draw firm conclusions here.

The relatively weaker competition and state aid rules in Japan limits market access for European businesses as it raises new barriers to substitute for tariffs or traditional non-tariff barriers. The EU has a strategic interest in developing international rules and cooperation on competition policies to ensure European firms do not suffer in third countries from unreasonable subsidisation of local companies, new entry barriers or anti-competitive practices. There is much to be done in this area in Japan. In Japan, as in many countries, there is little transparency over the granting of state aid and the entry barriers formed by regulation are de facto a barrier for foreign competition, as is the case in for example telecoms, postal services and many financial services. In all these areas, transparent, effective and re-

spected rules are essential. The proper enforcement of competition rules with the same rigour as in Europe, should be seen as the foundation for further trade liberalisation with Japan. Europe could insist to work with Japan to ensure their rules and standards are of similar quality and to ensure that markets for key service sectors of general economic interest are opened for foreign competition.

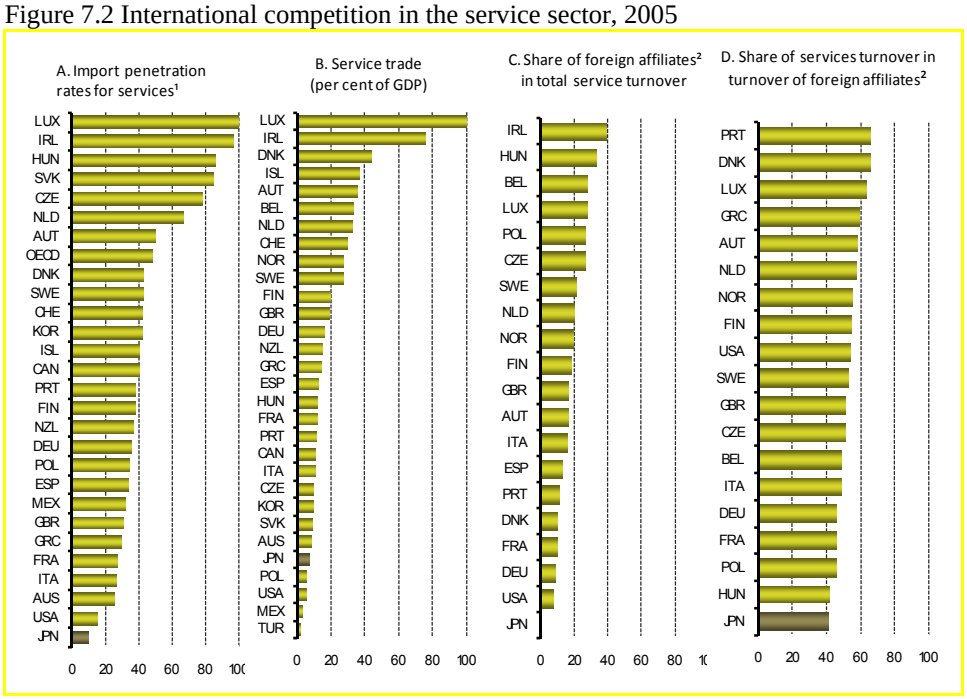
Competition in services

Comparing Japan with other countries shows that the competitive pressure from international trade and FDI in Japan's service sector is surprisingly weak, and that Japan's trade in services is underdeveloped when compared to other OECD countries.

More international competition seems to be required to boost productivity growth in the Japanese service sector. What is much less evident is *how* to increase foreign competition in Japan's service sector and, in particular, how to identify the policy instruments available for opening up key service sectors in Japan to European service suppliers.

There is a lack of foreign competition in Japan's service market. In the OECD (2008) economic survey, Japan ranks lowest on service import penetration amongst the OECD countries and ranks as one of the lowest on shares of service trade relative to GDP. Japan also has a very low share of foreign affiliate sales in total services turnover and the lowest share of services turnover in total turnover of foreign affiliates in the OECD, cf. Figure 7.2. These are all solid indicators of lacking foreign competition in Japan's service sector.

Figure 7.2 International competition in the service sector, 2005



Note: [1] As percent of domestic demand, data is for 2003. [2] Majority-owned affiliates under foreign control, data is from 2002 and is in percent of total service turnover). [3] Majority-owned affiliates under foreign control, data is from 2002 and is in percent of total service turnover)

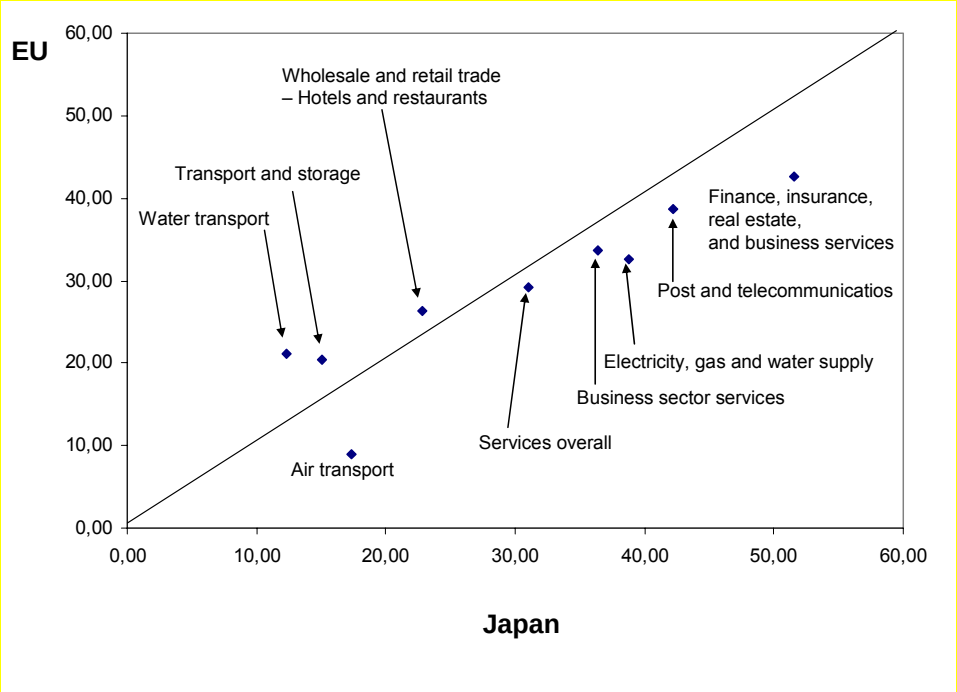
Source:OECD (2005).

We note that large countries tend to be at the lower end of these indicators, reflecting that import penetration is generally lower in large countries, and we note that Japan ranks higher than the U.S. on service trade as a share of GDP (panel B), and right after the U.S. on import penetration (panel A) and the share of foreign affiliates in total service turnover (panel C). On the last indicator, namely the share of services in total foreign affiliate sales (panel D), the U.S. ranks in the middle, while Japan is at the lower end. Should size be the only explanation for these positions, Japan should rank consistently above the U.S. Since this is not the case, and as Japan is consistently ranking very low on all indicators, we (as well as the OECD who performed the original analysis) conclude that there is a specific Japanese issue regarding services and that there is a pronounced lack of foreign competition in Japan's services markets.

Competition in the Japanese service sectors seems to be weak compared to the EU and to most other countries. Comparing the degree of competition between countries is difficult and more than one indicator is needed. One crude and indirect indicator allowing for cross country comparisons of the degree of competition is the ratio of earnings to turnover. The ratio of earnings to turnover is a proxy for mark-ups.

Competition is rather weak in Japan's service industries compared to the same sectors in the EU, cf. Figure 7.3. Sectors below the diagonal have higher mark-ups in Japan than in the EU, for example in financial services and in air transport.

Figure 7.3 Gross earnings to turnover in services

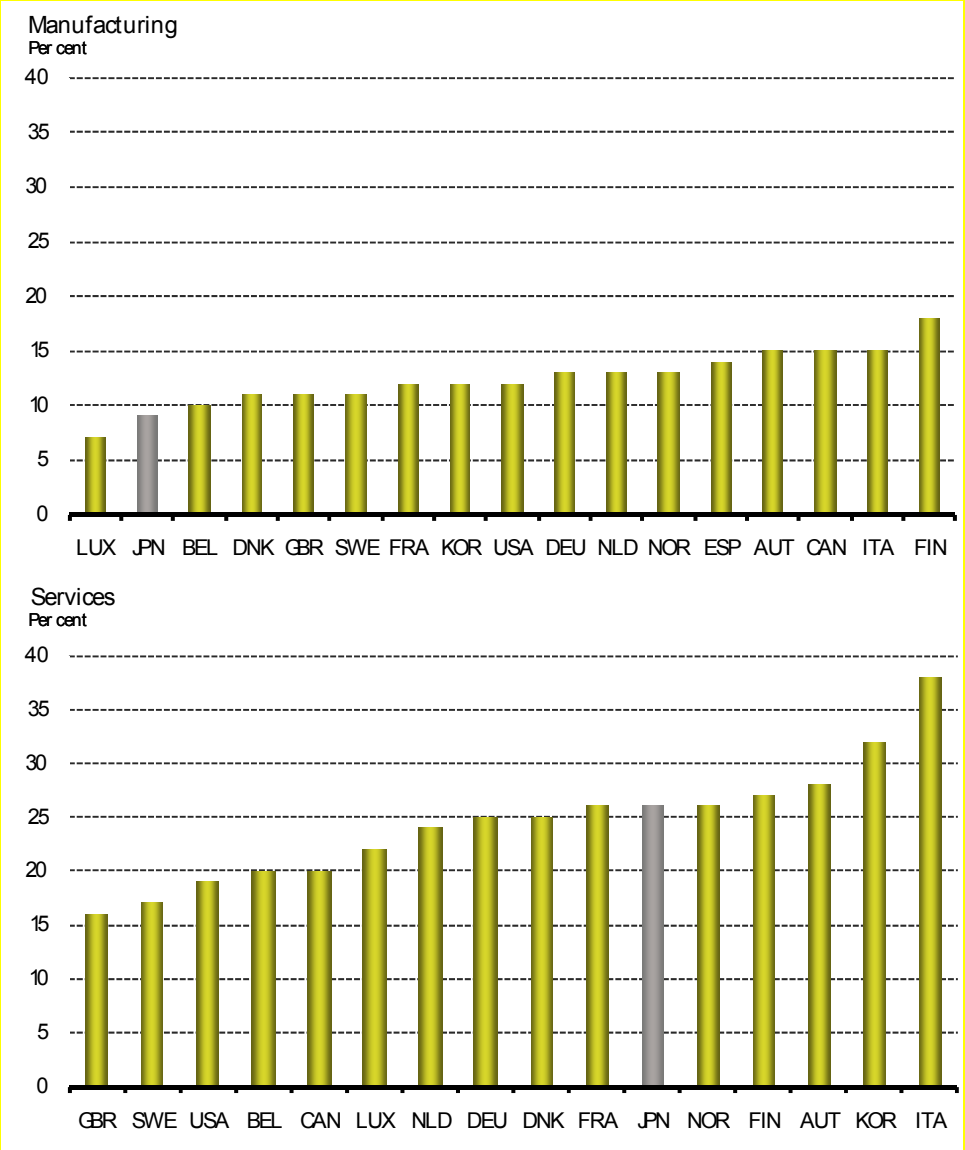


Note: The diagram shows the ratio of earnings to turnover as a proxy for mark-ups and thus provides indications of weak competition for the EU and Japan respectively.

Source: Copenhagen Economics' calculations based on data from the OECD STAN database.

Competition seems to be weaker in services compared to manufacturing. Japanese mark-ups in manufacturing are generally low. Japanese mark-ups in services are generally high according to OECD calculations, cf. Figure 7.4.

Figure 7.4 Comparing mark-ups in manufacturing and services in Japan



Note: Mark-ups are calculated for individual two-digits ISIC sectors and aggregated over all sectors using country-specific final sales as weights.

Source:OECD (2007a).

Productivity growth in the retail sector in Japan is one the lowest in the OECD. Japan has an exceptionally high number of small stores, but a lack of large stores.[20] According to the OECD (2008), domestic regulation is the reason for the current situation in Japan. The

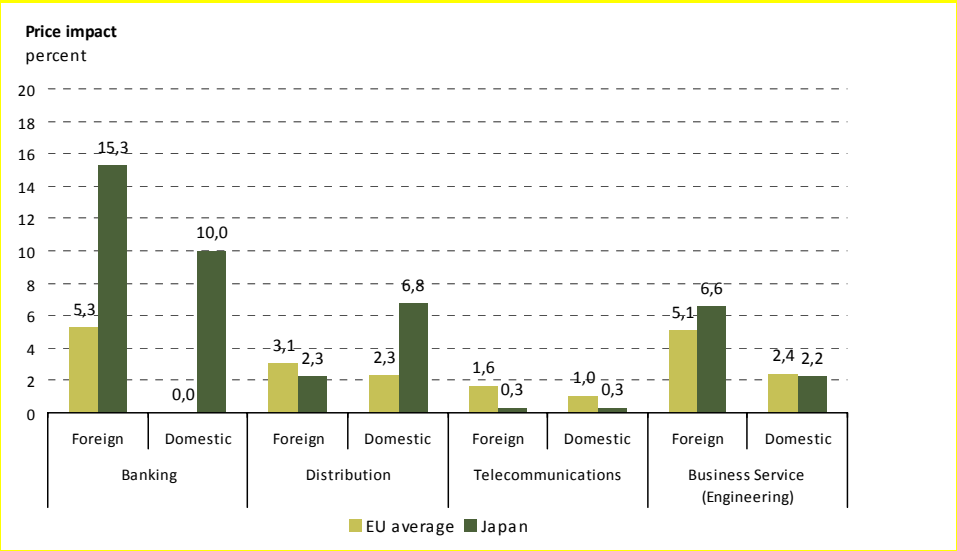
[20] According to OECD (2008), Japan has around 100 stores per 10.000 inhabitants. EU has 73 and the UK only has 43 stores per 10.000 inhabitants. The average size of these stores in Japan is 832 m^2, around 1/5th of the size in the US. This comparison is not meant to imply that bigger stores are necessarily better. The point is that the Japanese retail sector seems to function very differently from the EU retail sector.

Large-scale Retail Store Law in Japan was changed in 2000 and this created uncertainties and put foreign retail stores at a disadvantage. Some large European retail chains were established in Japan but have now left. The retail sector is further limited by regulations on construction (building permit and environment) and by price controls which remain restrictive (Conway *et al.*, 2006). The result is that the turnover of foreign affiliates as a share of wholesale and retail trade in Japan is the lowest in the OECD: Japan is 2 percent against e.g. 25 percent foreign participation in Sweden and 9 percent in the US (OECD, 2005).

The OECD has published a collection from various service sector estimates, see McGuire (2003). The OECD collection is mainly based on work completed at the Australian Productivity Commission in late 1990s and early 2000s led by Professors P. Dee and C. Findlay. One interesting feature in these studies (although not very recent), is the distinction between a domestic index and a foreign index. In their set-up, the foreign index measures *de jure* discrimination, i.e. systematic and cumbersome research to filter through actual sector regulation and find the practical rules and regulations stating specific additional requirements for foreign suppliers not applicable to domestic suppliers. If the foreign index is higher than the domestic index, it implies that there is *de jure* discrimination. If the foreign and domestic indices are equal, there may still be a *de facto* barrier, and a high domestic index may imply that prices for foreign suppliers are higher than for domestic suppliers.

This distinction seems to tell us something about Japan (which also corresponds well with our earlier observations). While there is little direct discrimination, restrictive domestic regulation (as measured by the domestic index) may still imply higher costs for foreign suppliers. In the comparison between the EU (averaged) and Japan, this shows that both discrimination and domestic regulation are at play in Japan's banking sector, while the domestic effect is zero in the EU, and the foreign index only has one third of the impact of the foreign index in Japan. It also shows the large impact of domestic regulation in Japan's retail sector, cf. Figure 7.5.

Figure 7.5 Price impacts of barriers on foreign service suppliers in the EU and Japan

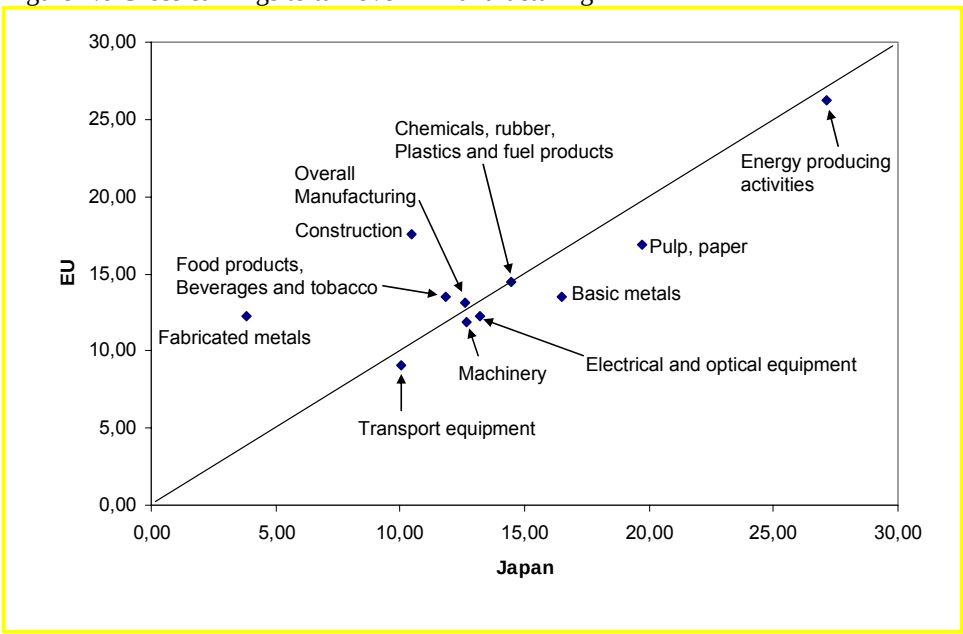


Note: Results are compiled by OECD.
Source:Kalirajan (2000), Kalirajan et al. (2000), Nguyen-Hong (2000) and Warren (2000).

Competition in manufacturing

Competition in the Japanese manufacturing industries seems to be about as strong as in the EU. Analysing the degree of competition measured by the ratio of earnings to turnover and comparing Japan with the EU shows no systematic differences in the indicator across sectors. It means that Japan has higher earnings to turnover ratios, and perhaps weaker competition than in the EU, in those industries below the diagonal, but there are equally many sectors above and below the diagonal line.

Figure 7.6 Gross earnings to turnover in manufacturing



Note: The diagram shows the ratio of earnings to turnover as a proxy for mark-ups and thus for sign of weak competition for the EU and Japan respectively.

Source: Copenhagen Economics' calculations based on data from the OECD STAN database.

Competition policy in Japan

Japan generally ranks poorly in competition policy and enforcement. Japan ranked only 21st in terms of both the legal framework and enforcement in 2003 according to the OECD indicator (OECD, 2007a), as illustrated by Table 7.2.

Table 7.2 OECD ranking of major economies on competition policy and enforcement

	Japan	EU	US	Canada
Competition law and policy indicators	2.8	1.3	1.4	1.8
Antitrust framework	2.0	1.3	1.4	1.7
Network sector regulation	5.3		1.6	2.2
Scope of law and enforcement	2.4	1.3	1.4	1.6
Legal framework and rules	2.6	1.8	2.9	2.8
Exemptions	1.0	1.0	3.4	2.7
Merger regimes	1.3	1.7	0.3	0.0
Enforcement	3.4	0.8	0.3	1.5
Independence of Competition Authorities	0.5	1.4	1.5	1.8
Institutional design	1.0	1.7	3.0	3.5
Accountability	0.0	1.2	0.0	0.0
Independence of Sector Regulations, Telecommunications	6.0	1.9	0.7	2.0
Institutional design	6.0	1.2	0.0	1.5
Accountability	5.1	0.9	0.0	2.4
Powers	6.0	3.6	2.0	2.0
Independence of Sector Regulations, Energy	6.0	2.1	0.9	1.5
Institutional design	6.0	1.2	0.0	0.0
Accountability		1.0	0.0	2.4
Powers		4.0	2.7	2.0
Network Access	3.5	2.1	2.4	2.3
Entry restrictions	1.8	1.6	1.7	1.1
Vertical Integration	6.0	2.8	3.5	4.0

Source: OECD (2007a).

Competition policy in Japan is improving, but anti-trust regulation and merger control are still not at a level comparable to the EU. There are many reasons for this, and Box 7.2 below highlights the most important ones.

Improvements to Japanese competition policy would have further repercussions for many of the underlying difficulties encountered by EU firms in Japan. In a trade policy context, the EU could always encourage more co-operation and co-ordination of cases, but this is already taking place, and is not going to change the general picture of weak antitrust enforcement in Japan.

To make an impact on many of the underlying causes for the difficulties EU firms are facing in Japan, the EU could stress that strong competition policy and enforcement is necessary to foster free trade between major developed partners like Japan and the EU. Ensur-

ing that the Japanese competition authority, JFTC, is independent enough within the GoJ (especially from METI) to deliver powerful competition policy should be an important precondition for the EU to negotiate with Japan.

For this reason, we see competition an important area that can deliver important economic impacts from bilateral trade liberalisation.

Box 7.2 Competition policy in Japan

The Japan Fair Trade Commission (JFTC) has increased its efforts against anti-competitive practices. The JFTC's role was enhanced by the 2005 revision of the anti-monopoly act (AMA), which strengthened its enforcement power and increased the penalties for anti-competitive activities in several ways:

1. The surcharge rate on large manufacturing enterprises was increased from 6% to 10% of firms' sales of the affected product for up to three years for violations such as price fixing and output restrictions.
2. The JFTC was granted stronger criminal investigative power – compulsory search and seizure – which should improve its capacity to investigate cases that may call for criminal penalties.
3. A leniency programme was introduced in 2006.
4. The "recommendation system" was abolished to facilitate administrative measures.

However, there is still a possibility to strengthen the legal framework and enforcement of competition policy in Japan. In particular, legal measures by the JFTC in response to M&As have been rare with only one merger being formally rejected in more than 35 years. Moreover, the JFTC has taken no legal actions regarding M&As since 2000, even though nearly 100 mergers per year were reported to the JFTC from 2003-05.

For comparison, The European Commission received a record number of merger notifications in 2007, breaking the 400 mark for the first time. The Commission prohibited one proposed merger considered during 2007, Ryanair's proposed acquisition of Aer Lingus, the second prohibition decision of Competition Commissioner Kroes's term. However, the Commission's approach to mergers continues to be generally non-interventionist, arguably in part due to several judgments of the European courts criticising the rigour of its analysis and overturning its decisions further to appeals by both notifying parties and complainants. The decision of the CFI to award partial damages to Schneider Electric for losses stemming from the Commission's 2002 prohibition of its merger with Legrand will have done little to encourage a more interventionist attitude by the enforcer. The Commission has blocked only two mergers since 2002, and only 20 out of some 3,600 cases since 1990.

There are still three major competition issues in Japan:

1. The deterrent effect of surcharges and criminal penalties is still inadequate and needs to be strengthened further. International comparisons also suggest that the surcharge rate in Japan is still low.
2. Reducing exemptions from the AMA that are aimed at achieving other policy goals is a prerequisite for achieving enforcement of competition policy. Although the number of exemptions has been reduced from 89 in 1996 to just above 20 in recent years, the exemptions cover a wide range of areas such as insurance and the liquor business.
3. The role of trade associations should be limited to norm setting, information sharing and provision of administrative information. When the activities of the trade associations interfere with the operation of firms, there is a risk that they will curb competitive forces.

Source:OECD (2008) and Global Competition Review.

7.3. INTELLECTUAL PROPERTY RIGHTS ISSUES IN JAPAN

The question at hand is whether IPR issues constitute a non-tariff barrier to trade with Japan. The overall situation on IPR in Japan is quite positive, when including both legislative and enforcement issues. The major concerns are imports of counterfeits (mainly trademarks infringement) coming from China and Korea (for details see the 2008 IPR report by the Japanese Customs and Tariff Bureau). The EU and Japan share a common interest in fighting against counterfeits in third countries and *co-operation* in this field is progressing well. The Agreement between the Government of Japan and the European Community in

Co-operation and Mutual Administrative Assistance in Customs Matters was signed in 30 January 2008.

The area which needs to see further progress is Geographical Indications (GI), which is being dealt with in the WTO framework.

There are also examples of IPR issues affecting export transport equipment. IPR rights of Shinkansen are owned by JR Tokai which selects (Japanese companies) to build new trains. As a consequence, no competition is possible.

Intellectual Property strategy in Japan

That said, Japan has a well developed IPR system. In 2002, then Prime Minister Koizumi called for a national IP Strategy in his policy speech, aiming to promote economic growth by leveraging IPR. Since then, the IP Strategy Headquarters were established in 2003, and an annual national IP Strategic Programme has been issued. Phase I (FY 2003-2005) focused on the development of basic frameworks for the IP strategy and Phase II (FY 2006-2008) of the Programme aimed to make Japan the most advanced IP-based nation in the world.

EU-Japan relations

In April 2008, DG TRADE sent out questionnaires on "IPR Enforcement Survey" to major delegations, including Japan. The results of the survey, on the basis of responses by Embassies and business, confirmed the comments in the mission report of the March 2008 EU-Japan Dialogue: "excellent quality and standards are noted in Japan" (see European Commission, 2008b).

The EU and Japan started bilateral dialogue on IPR in 2003. This dialogue takes place between DG Trade and the Japanese Ministry of Economy Trade and Industry (METI) annually. The Japan-EU Joint Initiative for the Enforcement of Intellectual Property Rights in Asia was announced in June 2004 at the EU-Japan Summit in Tokyo. Japan and the EU have agreed to renew this Joint Initiative, expanding their collaborative efforts to protect and enforce IPR worldwide both in a bilateral as well as multilateral framework. At the 16th EU-Japan Summit in June 2007 in Berlin, the EU and Japan adopted the Japan-EU Action Plan on IPR Protection and Enforcement.

The 17th EU-Japan Summit in April 2008 in Tokyo confirmed an agreement to continue to strengthen their *co-operation* on IPR at both bilateral and multilateral levels, and by implementing the initiative of the Japan-EU Action Plan on IPR Protection and Enforcement, including acceleration of the negotiations on the Anti-Counterfeiting Trade Agreement (ACTA).

For these reasons we see no value added from special attention the IPR issues within Japan in a bilateral framework.

7.4. SUMMARY OF OTHER NTMS IN JAPAN

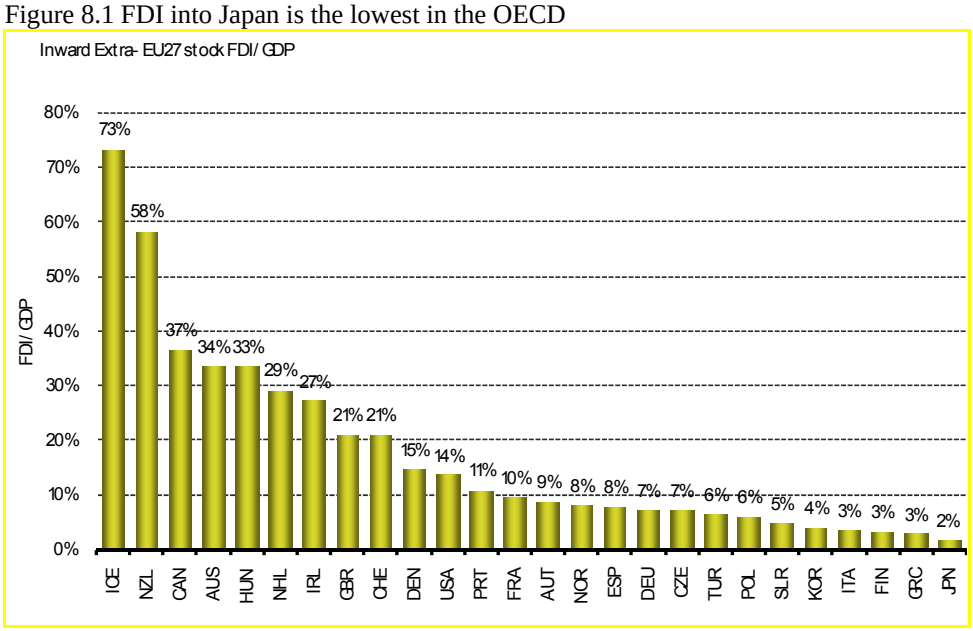
Of the NTMs analysed in this chapter, competition issues and public procurement issues appear to be the most important from an economic point of view. All three are, of course, vital to European business interests, and progress can be made in all three areas. However, compared to other difficulties faced by EU firms in Japan, the protection and enforcement of IPR policies in Japan is not the most significant problem. In fact, IPR protection and enforcement is judged to be of very high quality in Japan. Both Japan and the EU are considered to be strong global partners on many IPR issues having common objectives and approaches.

From a policy point of view, improving access to the public procurement market in Japan will be beneficial to ensuring access for EU exporters. Finding appropriate policy options for improving competition policy and enforcement in the Japanese market will also be an important step, which, in the long run, will improve possibilities for EU firms to compete freely in the Japanese market.

Chapter 8 BARRIERS TO FDI IN JAPAN

According to the UNCTAD World Investment Report 2008, Japan enters the matrix of inward FDI performance and potential as having a high FDI potential but a low FDI performance. FDI into Japan thus remains the lowest in the OECD cf. Figure 8.1. The stock of FDI in Japan was two percent of GDP in 2007, compared to 14 percent in US and over 37 percent in Canada. Therefore, the potential to increase FDI into Japan appears to be enormous.

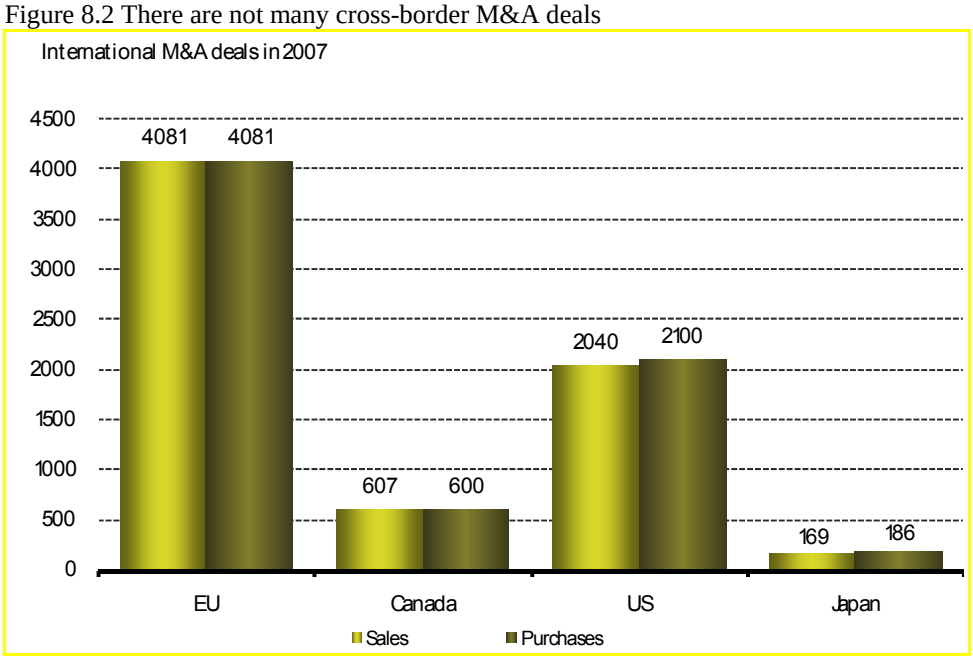
Figure 8.1 FDI into Japan is the lowest in the OECD



Source:UNCTAD (2008).

One important explanation for the low level of FDI is the low number of M&A deals in Japan when compared to other OECD countries *cf.* Figure 8.2. In 2007, 169 Japanese firms were sold to foreign buyers, while Japanese buyers purchased 186 foreign firms. The low number of total M&A transactions suggests that the restructuring process of the Japanese economy has not started. The result is an inefficient business structure.

Figure 8.2 There are not many cross-border M&A deals

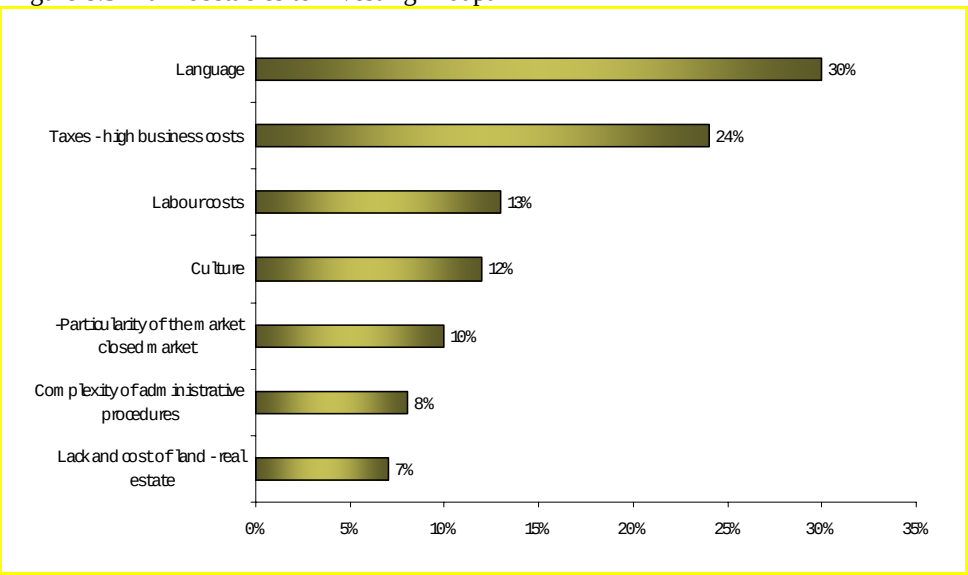


Note: "Sales" are sales of domestic companies to a foreign buyer. "Purchases" are purchases of foreign companies by domestic buyers.
Source:UNCTAD (2008).

8.1. IDENTIFIED BARRIERS TO FDI IN JAPAN

Worries expressed by investors in a large-scale survey of Japan's competitive positioning within Asia cf. Figure 8.3. Among the obstacles perceived by investors regarding the Japanese market, language and cost-related criteria (such as taxation and labour costs) appear to be the main barriers to be overcome. Language is cited by 30 percent of investors as the main obstacle, followed by taxes (24 percent) and labour costs (13 percent).

Figure 8.3 Main obstacles to investing in Japan



Note: The survey results are based on telephone interviews with 209 senior executives of US, European and Asian companies. The project was commissioned by the Japanese Ministry of Economy, Trade and Industry.

Source:Ernst and Young and JETRO (2008).

The barriers are not equally distributed across sectors, *cf.* Table 8.1. Overall, 52 percent of investors from the information and telecommunication (ITC) sector cite language as the main obstacle, versus an average of 30 percent. Conversely, investors from the chemical, pharmaceutical and medical equipment manufacturing – life science sector and those from wholesale and business-to-business services tend to be less hampered by language difficulties (17 and 20 percent citation rate, respectively).

Many of the obstacles identified in the study are specifically related to the Japanese market (language, culture and particularities of the market) and these issues are difficult for the GoJ to tackle in the short and medium term. The closed character of the Japanese market, for example, is related to Keiretsu-affiliated companies and personal contacts. The very integrated buyer-supplier relationship in Japan, with suppliers (e.g. auto parts) receiving investments from main firm (e.g. automaker) against a long-term commitment and a price-premium, creates challenges for foreign competitors. However, this system is deeply rooted in Japanese culture and its dismantlement is not easily handled. It is outside the scope of this study to assess if its dismantlement is even desirable.

Table 8.1 Breakdown of obstacles by sector

	Total	ITC	Business services	Life science	Automotive	Electronics
Language	30%	52%	20%	17%	36%	26%
Taxes - high business costs	24%	14%	20%	26%	41%	17%
Labour costs	13%	10%	9%	11%	9%	24%
Culture	12%	14%	11%	17%	14%	4%
Particularity of the market - closed market	10%	10%	11%	13%	5%	11%
Complexity of administrative procedures	8%	8%	11%	13%	5%	4%
Lack and cost of land - real estate	7%	6%	11%	..	9%	7%

Note: The survey results are based on telephone interviews with 209 senior executives of US, European and Asian companies. 29 percent of the respondents already operate in Japan. 70 percent operate in Asia. The project was commissioned by the Japanese Ministry of Economy, Trade and Industry. ICT is information and telecommunication technology. Business services include wholesale, distribution, logistics and other business-to-business services. Life science includes chemicals, pharmaceutical and medical equipment manufacturing. Electronics include manufacturing of electronics, electrical instruments and high-tech equipment.

Source:Ernst and Young and JETRO (2008).

The complexity of administrative procedures, on the other hand, is more readily accessible for the GoJ. Such procedures are related to approval of licenses, legal regulations and standards, and lengthy inspections of products. As an example, Japan is one of the latest countries to launch new medical devices, and some Japanese companies launch their products outside of Japan in the first instance. In this way, the regulatory reform process does not foster competition, cf. Table 8.2. The score 6 for telecommunications and energy suggests that the sectoral regulator cannot be considered to be independent from the political process. It is almost always the case that Japan has a higher score than the EU, which suggests that the Japanese market is less competitive than the EU market. One exception is the Japanese competition authorities who turn out to be more protected from political pressure than their EU counterparts.

Table 8.2 The regulatory reform and competition

	Japan	EU	US	Canada
Competition law and policy indicator	2.8	1.3	1.4	1.8
Antitrust framework	2.0	1.3	1.4	1.7
Network sector regulation	5.3	.	1.6	2.2
Scope of law and enforcement	2.4	1.3	1.4	1.6
Legal framework and rules	2.6	1.8	2.9	2.8
Exemptions	1.0	1.0	3.4	2.7
Merger regimes	1.3	1.7	0.3	0.0
Enforcement	3.4	0.8	0.3	1.5
Independence of competition authorities	0.5	1.4	1.5	1.8
Institutional design	1.0	1.7	3.0	3.5
Accountability	0.0	1.2	0.0	0.0
Independence of sector regulations, telecommunication	6.0	1.9	0.7	2.0
Institutional design	6.0	1.2	0.0	1.5
Accountability	5.1	0.9	0.0	2.4
Powers	6.0	3.6	2.0	2.0
Independence of sector regulations, energy	6.0	2.1	0.9	1.5
Institutional design	6.0	1.2	0.0	0.0
Accountability	.	1.0	0.0	2.4
Powers	.	4.0	2.7	2.0
Network access	3.5	2.1	2.4	2.3
Entry restrictions	1.8	1.6	1.7	1.1
Vertical integration	6.0	2.8	3.5	4.0

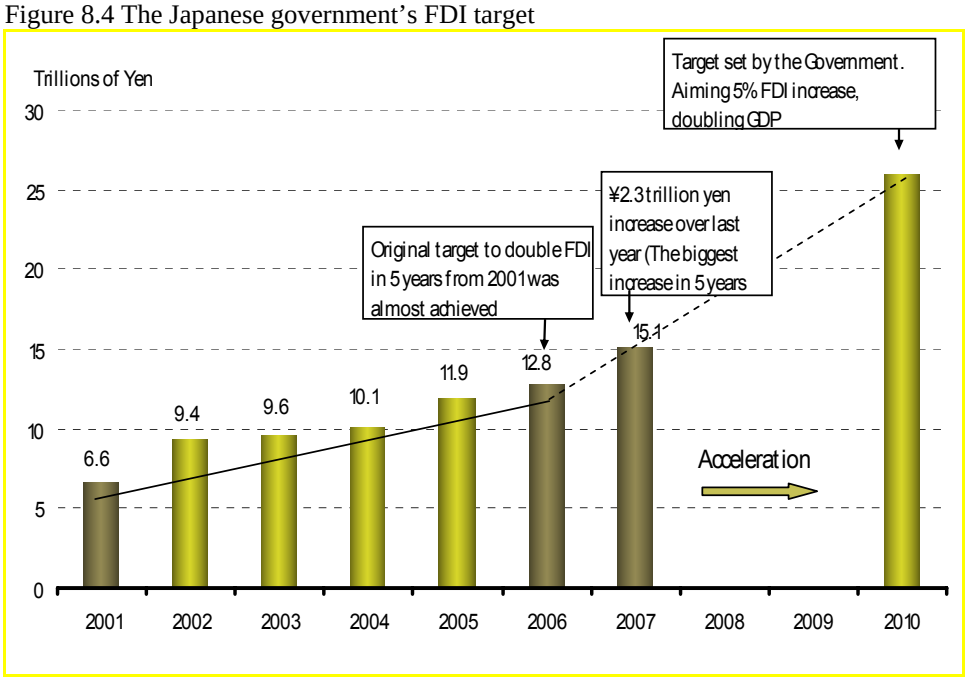
Note: EU includes Austria, Belgium, Czech Rep., Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovak Rep., Spain, Sweden and the United Kingdom. Individual policies are scored against a benchmark of generally-agreed best practices in the area of competition enhancing policies. Low (high) scores are indicative of a high (low) level of competition. Scores lie between 0 and 6. "Network Access" focuses on regulations affecting market access and vertical separation of network sectors.

Source:OECD (2007a).

8.2. WHAT IS BEING DONE TO INCREASE FDI INFLOWS?

As a response to the low level of foreign capital, the Government of Japan (GoJ) has initiated several initiatives to accelerate FDI inflows. In 2003, the Japanese government announced as a goal that the FDI stock in Japan should double over the period 2001-2006. The Japan Investment Council (JIC) subsequently formulated the "Program for the Promotion of Foreign Direct Investment in Japan", which established a strategic plan to achieve that goal. This goal was almost realised (*cf.* Figure 8.4) with the FDI stock increasing from 6.6 trillions of Yen in 2001 to 12.8 trillions of Yen in 2006.

Figure 8.4 The Japanese government's FDI target



Source: US Japan Economic Partnership for Growth (2008).

In 2006, the GoJ set a new goal of increasing FDI stock by raising it to the level of about 5 percent of GDP by 2010. The goal by 2010 is slightly more ambitious than the original target since it implies an acceleration of the growth rate in FDI inflows. However, the goal still does not seem to be very ambitious. From Figure 8.1 we see that achieving a ratio of FDI to GDP of 5 percent would only just allow Japan to pass the 2007 level of Korea.

In response to the GoJ's 2010 FDI target, the JIC established the "Program for Acceleration of Foreign Direct Investment in Japan" in 2006. This program was revised in 2008. In the same year, the Expert Committee on FDI Promotion was established to discuss measures to increase FDI further, and the Committee submitted "Five Recommendations toward the Drastic Expansion of Foreign Direct Investment in Japan" (see Box 8.1). The Chairman of the European Business Council is a member of the Expert Committee, which therefore provides a forum for setting out the views of European investors interested in entering or expanding their activities in the Japanese market.

Box 8.1 Recommendations from the Expert Committee on FDI Promotion

The five recommendations include:

1. Enhancement of the system for the facilitation of M&A
   - Corporate M&A activities in Japan (boost the predictability of the M&A process)
   - Sort out and clarify takeover rules without delay
   - Promotion of studies for the facilitation of cross-boarder M&A
   - Elimination of allergy towards M&As by foreign companies
2. Comprehensive studies on FDI regulations
   - Clarification of the scope and grounds of cases where FDI regulations are necessary as exceptions to the principle of non-discrimination between domestic and foreign investors)
   - Japan's open investment policy should be shown to the rest of the world
3. Establishment of priority strategies by sector
   - Bringing the world's most advanced medicines to Japan
   - Selection of sectors and formulation of action programs (in particular medical devices and pharmaceutical products)
4. Reduction of business costs and improvement of system transparency
   - Reduction of the corporate tax rate
   - Improvement of the "no-action letter" system and written reply procedures for taxes
   - Evaluation of regulations and administrative burden survey
   - Revision of hearing procedures etc. under the Antimonopoly Act
   - Promotion of utilisation of private-sector dynamism in public service by government
5. Regional revitalisation by foreign capital
   - Strategic attraction of foreign capital in wide-area economic zones ("local to local")
   - Activities to attract foreign capital centred on former private-sector personnel
   - Building on living environments suitable for foreigners
   - Facilitating continuation of business of small and medium-sized companies through foreign capital M&As
   - Strengthening of appeal that FDI in Japan is welcome

Source:Expert Committee on FDI Promotion (2008).

Overall, 45 percent of investors demand measures to reduce taxation and 38 percent hope for a reduction in labour costs (cf. Table 8.3). Japan actually has the highest combined corporate tax rate among the OECD countries (cf. Figure 8.5). Furthermore, 25 percent of respondents would like the government to implement simpler, more flexible administrative procedures. This is demanded particularly in the automotive and manufacturing of electronics, electrical instruments and high-tech equipment. Investors in the ITC sector feel particularly frustrated by the lack of flexibility in the labour market – 48 percent request measures to improve labour flexibility, compared with an average of 29 percent.

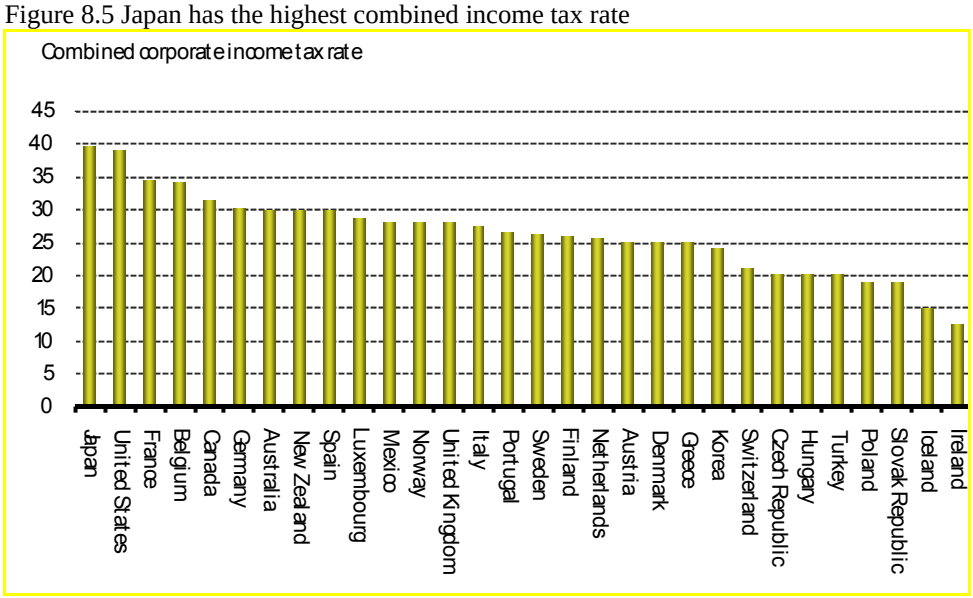
Table 8.3 Priority measures to be taken by the Japanese government

	Total	ITC	Busi-ness ser-vices	Life science	Automo-tive	Elec-tronics
Reduce taxation	45%	50%	44%	39%	50%	43%
Reduce language barriers	40%	42%	33%	35%	45%	46%
Reduce labour costs	38%	42%	33%	39%	32%	43%
Make labour regulation more flexible	29%	48%	24%	26%	18%	26%
Implement simpler, more flexible administrative procedures	25%	24%	20%	17%	32%	33%
Improve the country's image abroad	17%	16%	16%	17%	23%	11%
Improve quality of life	15%	20%	16%	15%	9%	13%
Improve the education system	11%	8%	22%	9%	5%	11%
Improve transport and communication infrastructure	8%	6%	13%	11%	5%	4%
Improve innovation and R&D	7%	12%	7%	7%	5%	4%

Note: The survey results are based on telephone interviews with 209 senior executives of US, European and Asian companies. 29% of the respondents already operate in Japan. 70% operate in Asia. The project was commissioned by the Japanese Ministry of Economy, Trade and Industry. ICT is information and telecommunication technology. Business services include wholesale, distribution, logistics and other business-to-business services. Life science includes chemicals, pharmaceutical and medical equipment manufacturing. Electronics include manufacturing of electronics, electrical instruments and high-tech equipment.

Source:Ernst and Young and JETRO (2008),Japan's Attractiveness Survey 2008.

Figure 8.5 Japan has the highest combined income tax rate



Note: The figure shows basic combined central and sub-central (statutory) corporate income tax rate given by the adjusted central government rate plus the sub-central rate.

Source: OECD (2009) at www.oecd.org/dataoecd/26/56/33717459.xls also available in Hodge (2008).

It is too soon to evaluate whether the initiatives and programmes implemented by the GoJ are actually effective in attracting FDI into Japan and ease the entry of European firms into the Japanese market. However, what we can say is that the programmes do not seem to be overly ambitious and that further actions will be required if Japan wishes to reach its inward FDI potential.

8.3. EFFECTS OF REDUCING BARRIERS TO FDI

The decision to enter a market through trade or direct investment is interrelated. FDI often occurs after a firm enters a market through trade but trade barriers may also stimulate "tariff-jumping" FDI. On balance, however, the removal of obstacles to trade has been found to boost FDI inflows (see Nicoletti *et al.*, 2003). Given the complementarity of trade and investment, easing barriers to trade should encourage FDI inflows. Similarly, liberalising barriers to FDI should promote trade. The observations and recommendations provided in the sector-specific chapters below will therefore also provide important information about how to boost FDI into these sectors.

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APPENDIX 1: METHODOLOGY TO QUANTIFY EUROPEAN NTMS

The estimates of EU NTMs used in this study rely on Ecorys (2009). The methodology for the estimates is summarises below. For more details we refer to Ecorys (2009).

Step 1: Survey indexes from the business survey
Responses to a survey question on how businesses perceive the EU market as export market generate exporter-importer specific indexes of NTMs with a country-pair specific NTM variable. Companies were asked about the restrictiveness of the EU market on a scale from 1 to 100. NTM indices valued between 0 (completely open) and 100 (completely closed) were generated by combining responses from all exporters to a specific destination into one single variable per sector measuring the average perceived NTM for each country.

Step 2: From survey indexes to trade and FDI restrictions
The survey index,that ranges from 0 – 100, is transformed into a log scale conform OECD best practice: Trade/FDI level of restrictiveness = ln (1 + 0.01 * survey index). For services a combination of OECD and survey indexes is used.

Step 3: From level of restrictiveness to the coefficient of the gravity regression variable
By multiplying the *NTMj* index with the dummy-variables for trading block membership (Transatlantic dummy, EU dummy or NAFTA dummy, generating the effects described above) a variable with a bi-directional dimension (exporter and importer) is obtained. This variable is used in the regression analyses. The coefficient on the NTM variable generated by running the gravity regressions, specifies the effect of the NTM-transatlantic, NTM-EEA and NTM-NAFTA measures on trade and investment flows.

Step 4: From variable coefficient to specific trade cost estimate
The coefficients on the NTM-EEA variables can then be changed into trade cost estimates. The trade cost estimate (in percent) is the estimated increase in trade costs as a consequence of the existence of NTMs and regulatory divergence in the EEA.

Step 5: From specific trade cost estimates to the aggregate trade cost estimate at the sectoral level
Knowing the individual EEA trade cost estimates, they are aggregated (assuming intra-EEA preferential treatment is extended to potential trade partners) into one single trade cost estimate at the sectoral level.

The article by Anderson and van Wincoop (2003) forms the basis of the formulation of the empirical model for goods sectors. Based on this model, trade cost equivalents are estimated using the NTM indices as described in the five step methodology.

Below we report the key data going into the barrier estimate for the EU, namely the NTM indexes and the assumptions about actionability. The resulting gravity estimates are shown in the report.

Average NTM indexes

The Ecorys (2009) survey generated 5.445 data points. Of these 5.445, 3.518 data points relate to NTM indexes in trade. The NTM index is calculated on a 0 – 100 scale with 0 meaning there is not one NTM or any regulatory divergence and 100 meaning there are prohibitively high NTMs and levels of regulatory divergence. The table below shows the perception of firms regarding the overall levels of restrictiveness in terms of NTMs as an outside exporter to the EU.

Table 8.4 NTM index for the EU by sector

Trade	EU NTM index
Travel	17.6
Transport	26.3
Financial services	21.3
ICT	19.3
Insurance	39.3
Communication	27.0
Construction	37.3
Other business services	20.0
Personal, cultural and recreational services	35.4
Chemicals	53.2
Pharmaceuticals	44.7
Cosmetics	52.2
Biotechnology	50.2
Machinery	36.5
Electronics	40.0
Office, information and communication equipment	32.3
Medical, measuring and testing appliances	44.5
Automotive industry	31.6
Aerospace and space industry	55.1
Food and Beverages	33.6
Iron Steel and Metal products	24.0
Textiles clothing and footwear	48.9
Wood & paper, paper products	47.1

Source: Ecorys (2009)

Actionability

Realising that not all of the estimated trade costs can necessarily be reduced, Ecorys (2009) have assessed the so-called 'Actionability' of the NTMs in each sector. Actionability is defined as *"the degree to which an NTM or regulatory divergence can potentially be reduced by 2018, given that the political will exists to address the divergence identified."* According to the assessment, between 40 and 70 percent of the trade cost per sector is actionable, i.e. can be reduced through trade policy negotiations. This information has been aggregated by Ecorys into a sector level of actionability as presented in Table 8.5.

Table 8.5 Actionability of EU NTMs per sector

	Potential NTM reduction (percent)
Aerospace & space	59
Automobile	67
Chemicals	63
Communication services	70
Electronics	64
Cosmetics	58
Financial services	49
Insurance services	52
Food & beverages	53
OICE	52
Pharmaceuticals	42
Transport services	56
Biotechnology	41
ICT	35
Construction services	38
Machinery	55
Medical equipment	45
Other business services	51
Personal, recreational services	37
Steel	62
Textiles	50
Wood & paper products	60
Travel services	40

Note: The table shows the percentage of the NTM index are expected to be 'actionable', i.e. the possible percentage reduction of the barrier.

Source: Ecorys (2009)

APPENDIX 2: GRAVITY MODEL METHODOLOGIES AND RESULTS

A2.1 GRAVITY MODEL FOR MANUFACTURING GOODS

We run gravity model estimations for the time period 1996 to 2005 in 13 manufacturing sectors. Since the focus is on external barriers to trade, we exclude intra-EU trade flows from the study. Here, bilateral import to country *i* from country *j* in sector *k* at time *t* will depend on time-varying sector-specific bilateral tariffs (*lnT*), a set of time-invariant bilateral gravity factors including border, language and distance (*gravity*), time-varying importer GDP and GDP per capita (*GDP* and *GDP/pop*), time-invariant importer dummies (D_i) and, finally, time-varying exporter dummies (D_j) and a time trend (t). The specification is:

$$\ln M_{ijkt} = f(\ln T_{ijkt}, gravity_{ij}, GDP_{it}, GDP_{it} / pop_{it}, D_i, D_{jt}, t)$$

Parameter estimates can be seen in Table A11.1.[21] All variables generally enter with the expected sign: low tariffs, common language, common border and a short distance have a positive impact on trade. As expected, the elasticity of import with respect to importer's GDP is around one, whereas the elasticity of import with respect to GDP per capita unexpectedly turns out to be negative.

The gravity model has typically forms the basis for a quantification of NTMs by interpreting the residual (the difference between actual and predicted trade) as missing trade between two trading partners.[22] This is the residual approach. One important criticism of the residual approach is that the residual captures a broad range of factors where some of these factors are trade-related but where others are rooted in structural, institutional and regulatory factors in the domestic economy. To get a more precise estimate of how open the Japanese economy is, we use the Japanese importer dummy variables. Since we control for factors that affect trade and that vary over time by including the importer country's GDP and GDP/capita in the gravity model, the Japanese importer dummy will therefore capture Japan-specific non-tariff factors that have an impact on trade and that do not vary over time.

If the Japan dummy is negative in a particular sector, it means that there are barriers in the Japanese market that hinder foreign exporters from penetrating the market in that particular sector. Likewise, if the Japanese dummy is larger than the EU dummy (in absolute terms) it means that the Japan-specific non-tariff factors hinder foreigners from penetrating the Japanese market to a greater extent than the EU-specific NTMs limit imports to the EU markets. The size of the dummy variable will thus be more directly related to trade barriers. The importer dummies are listed in Table A2.2

[21] We have also included the importing country's revealed comparative advantage in the particular sector and the current account balance to control for importer-specific structural characteristics. When we rerun our gravity model estimations, we find that this does not change the sign or the size of the importer dummy variables.

[22] The gravity model approach was originally developed by Leamer (1998). See also Beghin and Bureau (2001) for a discussion of the various methods to quantify NTMs and Harrigan *et al.* (2003) for an application of the gravity model for Japan.

Table A2.1 Estimation results from gravity model

VARIABLES	Chemicals	Pharmaceuticals	**Cosmetics**	Machinery	Electronics	Office	Medical	Automotives	Aerospace	**Food**	Iron	Textiles	Paper
Tariffs	-3.315***	-1.516	**-0.639**	-0.208	-5.461***	-2.193***	-3.250***	3.640***	-0.737	**-1.352*** **	-6.386***	-3.058***	-5.993***
	[-5.252]	[-1.609]	**[-1.328]**	[-0.344]	[-7.480]	[-2.812]	[-4.518]	[7.949]	[-0.477]	**[-7.120]**	[-10.00]	[-8.031]	[-8.748]
Distance	-1.319***	-1.397***	**-1.641*** **	-1.463***	-1.312***	-1.375***	-1.313***	-1.737***	-1.411***	**-1.223*** **	-1.307***	-1.063***	-1.305***
	[-99.37]	[-79.79]	**[-83.78]**	[-108.1]	[-71.29]	[-80.27]	[-91.85]	[-100.7]	[-50.28]	**[-82.56]**	[-94.00]	[-87.31]	[-83.41]
Language	0.358***	0.773***	**1.054*** **	0.230***	0.606***	1.059***	0.505***	0.140*	0.853***	**0.408*** **	0.216***	0.094*	0.153**
	[5.637]	[9.603]	**[16.41]**	[4.605]	[9.096]	[14.42]	[8.347]	[1.849]	[8.278]	**[6.364]**	[3.997]	[1.679]	[2.317]
Border	0.249***	-0.485***	**0**	-0.091	-0.098	-0.732***	-0.284***	0.281**	-0.746***	**0.218** **	0.361***	0.574***	0.773***
	[3.172]	[-3.706]	**[0.00240]**	[-1.012]	[-0.885]	[-6.279]	[-2.769]	[2.184]	[-3.955]	**[2.521]**	[4.472]	[6.811]	[7.125]
Importer GDP	1.152***	0.943***	**0.878*** **	1.032***	1.052***	1.072***	1.156***	1.114***	1.202***	**1.033*** **	1.226***	1.112***	1.122***
	[64.21]	[37.50]	**[43.28]**	[62.69]	[62.44]	[54.00]	[74.53]	[51.01]	[33.86]	**[49.51]**	[78.60]	[64.61]	[57.13]
Importer GDP/pop	-0.394***	-0.231***	**-0.363*** **	-0.201***	-0.176***	-0.231***	-0.308***	-0.267***	0.451***	**-0.205*** **	-0.242***	-0.384***	-0.090*
	[-9.584]	[-3.996]	**[-7.099]**	[-5.322]	[-4.471]	[-4.959]	[-8.473]	[-5.440]	[4.610]	**[-4.293]**	[-6.780]	[-9.913]	[-1.891]
Time trend	0.007	0.088***	**0.115*** **	0.048***	0.048**	-0.083***	0.051***	0.091***	-0.080**	**-0.034***	0.011	-0.049**	0.070**
	[0.352]	[3.642]	**[4.518]**	[3.032]	[2.538]	[-4.032]	[3.045]	[3.368]	[-2.046]	**[-1.650]**	[0.437]	[-2.171]	[2.539]
Constant	-53.402	-213.222***	**-269.419*** **	-135.318***	-135.564***	125.169***	-142.814***	-229.948***	105.878	**34.226**	-63.699	63.488	-182.303***
	[-1.310]	[-4.406]	**[-5.313]**	[-4.300]	[-3.559]	[3.025]	[-4.233]	[-4.248]	[1.358]	**[0.819]**	[-1.259]	[1.410]	[-3.314]
Observations	9860	8973	**8245**	9790	9769	9008	9614	9164	6543	**9744**	9888	9991	9448
R-squared	0.8	0.693	**0.727**	0.832	0.793	0.767	0.807	0.751	0.603	**0.721**	0.798	0.807	0.733

*Note: All variables are in logs. GDP and GDP per capita are in constant $US. *** p<0.01, ** p<0.05, * p<0.1.*
Source:CE gravity model.

Table A2.2 Importer dummies from gravity model

Country	Chemicals	Pharmaceuticals	**Cosmetics**	Machinery	Electronics	Office	Medical	Automotives	Aerospace	**Food**	Iron	Textiles	Paper
ARG	0.152	-0.474***	-1.293***	-0.872***	-0.162	-0.875***	-0.875***	-1.630***	-2.120***	-1.769***	-0.389***	-1.576***	-0.775***
BRA	-0.142	-0.573***	-2.150***	-1.266***	-0.376**	-1.283***	-1.273***	-1.936***	-0.517*	-1.746***	-1.190***	-2.554***	-2.021***
CAN	-0.775***	-1.367***	-1.670***	-1.003***	-1.130***	-1.036***	-1.278***	-1.472***	-0.567***	-0.532***	-0.625***	-0.197***	-1.551***
CHE	-1.200***	-1.372***	-2.803***	-2.301***	-1.866***	-1.663***	-1.263***	-2.240***	-2.080***	-1.455***	-1.323***	-0.600***	-1.996***
CHN	-1.290***	-2.395***	-3.355***	-1.868***	-1.025***	-2.027***	-2.221***	-3.695***	-0.579	-2.112***	-1.229***	-2.249***	-1.124***
EEU	**-1.292*** **	**-1.418*** **	**-2.076*** **	**-1.663*** **	**-0.975*** **	**-1.102*** **	**-1.289*** **	**-1.673*** **	**-0.676*** **	**-1.202*** **	**-1.283*** **	**-0.688*** **	**-1.523*** **
IDN	-0.653***	-1.810***	-2.247***	-1.393***	-1.739***	-2.321***	-2.702***	-3.044***	0.979***	-1.354***	-0.750***	-2.234***	-0.518***
IND	-1.254***	-2.216***	-3.952***	-2.513***	-1.608***	-2.753***	-2.448***	-5.200***	-0.264	-3.589***	-0.336	-3.063***	-1.313***
ISL	-0.716***	-1.095***	-0.950***	-1.005***	-0.433***	-0.206	-0.614***	-0.360*	-0.573*	0.057	0.762***	1.199***	0.163
JPN	**-1.296*** **	**-1.680*** **	**-1.713*** **	**-2.914*** **	**-2.665*** **	**-2.054*** **	**-2.127*** **	**-2.500*** **	**-3.971*** **	**-0.767*** **	**-2.241*** **	**-1.419*** **	**-2.233*** **
KOR	0.047	-1.079***	-1.356***	-1.315***	-0.581***	-1.420***	-0.950***	-2.027***	-1.070***	-0.467***	0.002	-0.949***	-1.254***
MEX	-0.559***	-0.803***	-1.770***	-0.938***	-0.091	-0.922***	-0.923***	-1.994***	-1.467***	-1.336***	-0.336***	-1.313***	-1.247***
MYS	0.436***	-0.368*	-0.492***	-0.2	1.164***	0.719***	-0.360*	-2.344***	2.268***	-0.677***	0.985***	-1.267***	0.606***
NOR	-1.271***	-2.531***	-2.182***	-1.931***	-1.251***	-0.993***	-1.708***	-1.645***	-2.520***	-1.362***	-0.615***	-0.03	-1.539***
NZL	0.686***	0.236	0.596***	0.421***	0.588***	0.394***	0.608***	0.622***	1.032***	0.356***	0.820***	0.700***	0.710***
RUS	-1.929***	-1.103***	-1.578***	-2.008***	-1.932***	-2.748***	-1.917***	-3.121***	-1.196*	-0.538**	-1.401***	-2.233***	-1.486***
THA	0.293*	-0.441*	-1.079***	-0.942***	0.603***	-0.617***	-1.108***	-3.187***	-0.098	-0.288	0.788***	-0.685***	0.035
TUR	-0.618***	-2.045***	-2.767***	-1.968***	-1.486***	-2.312***	-2.251***	-2.311***	-1.169***	-1.961***	-0.988***	-1.354***	-1.623***
USA	-1.261***	-1.725***	-1.601***	-1.484***	-1.356***	-1.160***	-1.589***	-1.766***	-1.144***	-1.299***	-1.517***	-0.739***	-2.174***

Note: To avoid multi-colinearity we include a constant we let Australia by the omitted country.
Source:CE gravity model.

A2.2 GRAVITY MODEL FOR SERVICES

Conceptually, the basic approach followed for services NTB estimation is the same as for goods. This means our estimates of services trade barriers are drawn from gravity modeling of bilateral services trade. However, while the core estimating equation is the same, we have had to make allowances for severe data limitations, and also for the different nature of goods and service market integration in Europe and North America.

Due to severe data limitations, gravity estimates for services are often based on total trade with world (See for example Francois, Hoekman, Woerz 2007; Francois 2001; Francois, van Meijl and van Tongeren 2005; Francois and Wignarajan 2008). An example of a gravity model with bilateral services trade is Francois (1993), while Sapir and Lutz (1981) and Sapir (1981) offer early examples of the gravity model applied to balance of payments-based (total) trade data. Park (2002) extends the Francois (2001) method, which was based on total trade in the GTAP database, to bilateral trade. However, the Park estimates rely on early GTAP services trade flows, which were themselves generated by a gravity model. As such, his estimates actually provide no more information than provided by the aggregate data, as in Francois (2001).

Data

NTMs

Our primary source for NTMs for services FDI come from the OECD (2007) and our firm survey. To maximize country coverage, we work with a composite index based on the OECD indexes, supplemented with additional information from the surveys.[23] The OECD provides indexes ranging from 0 to 1. The index itself measures regulatory barriers and restrictions limiting foreign access in the service sector linked to investment, operation of firms, and movement of persons necessary for firms to operate. The survey data range from 0 to 100. We scale both the indexes as a log indexes for regression analysis, where index=ln(1+.01*index).

Trade

Recently, access to improved bilateral datasets makes it possible to develop estimates from bilateral trade flows instead. This offers the advantage of isolating the impact of bilateral agreements, and also of allowing more observations per exporter and importer so that general openness (based on importer effect variables) can be better quantified. In the present context, we work with the pre-release version of a dataset of bilateral trade flows organized by balance of payments service sectors (BOPs). This dataset combines data from multiple sources: bilateral trade data, aggregate trade data, service sector FDI stocks, and service sector FDI flows from the IMF, OECD, EUROSTAT, BEA, and national sources. (See Francois

[23] The OECD indexes cover 43 countries. By regressing the OECD index on our survey results, and using this to calculate indexes for country outside the core OECD sample, we obtain estimates by sector for up to 51 unique importers.

et al 2008). The dataset is under development, and is currently being extended on the basis of national source data. It offers better coverage for aggregate trade categories (all trade, transport, travel, and other commercial services) than for more detailed sectors.

We work with the recent trade data in the data cube, from 2004-2006. At one extreme, for Total Trade in Services (BOPs 200) we have observations on 5,153 trade flows between 2004 and 2006, of which 3,162 are non-zero. In contrast, for Personal, Cultural, and Recreational Services (BOPs 287) we have observations on 4,536 bilateral flows, of which only 800 are non-zero. The dominance of zeros in the data means we rely on selection model-based econometrics to derive estimates of trade barriers. This also means we will rely on sector specific selection models (i.e. Heckman selection modeling) rather than pool the sample as is the case in this study with trade in goods.

Econometrics

Working with BOPs-based bilateral trade data, we have estimated a standard basic gravity equation for bilateral services trade in the form of a selection model:

$$\Pr\left(M_{i,j,t} > 0\right) = \mathbf{G}'\mathbf{Z} + e_{i,j,t}$$

$$\ln\left(M_{i,j,t}\right) = \mathbf{B}'\mathbf{X} + \varepsilon_{i,j,t}\Big|_{\Pr\left(M_{i,j,t}\right)>0}$$

Where *M* is imports by country *j* from country *i* in period *t*, and *Pr(M)>0* is the probability that we have non-zero imports. The first equation is estimated as a probit function, while from this we calculate a variable known as the Mills-ratio that is include in the second stage regression. This approach (technically a Heckman selection model) corrects for sample selection bias by including zero trade flows in the estimation process. The vectors **G** and **B** are the sets of coefficients to be estimated, while **Z** and **X** are the sets of explanatory variables. For the probit, **Z** this includes distance, FDI stocks, GDP and per-capita income, and regional agreement dummy variables. For trade values in the second stage, **X** includes includes country and time dummies as appropriate (fixed effects), interaction of the NTB index with an intra-RTA (regional trade agreement) dummies, distance, common language, and shared borders. As such, the core estimating equation maps to the formulation used for goods. However, there is a critical difference. We do not have tariff data for services, and so there is not a direct way to estimate price elasticities. What we have done is employed a third-stage estimator. After the second stage fixed-effect regressions, we have decomposed the estimated importer fixed effect coefficients (which are a measure of multilateral propensity to export), including a regression against our NTB index. The resulting coefficient provides and NTB elasticity – the observed % change in imports in response to % changes in the NTB index. We use these NTB elasticities to make the trade cost calculations reported in the service sector discussion in this report.

Regression results are reported in the tables below. Note that the intra-EU coefficients are trade diversion elasticities (analogous to a trade tariff elasticity in gravity modeling for goods). They would only be the same if we had full elimination of

NTBs within the EU. Otherwise, we expect the EU coefficient to be smaller than the overall NTB elasticities (or technically, at most to be statistically the same allowing for standard errors in the estimates).

Linkages between modes

Data limitations preclude formal scenario-modeling of how NTBs interact across modes in the context of FTAs. However, we do have evidence (Fillat, Francois, Woerz 2008) that over the long-run, there is a complementarity between FDI restrictions and trade restrictions. In particular, over the long-run, we see that trade follows FDI penetration in the service sectors. This is illustrated in the figure below, taken from the Fillat et al paper. In the paper, they employ dynamic panel estimation methods to examine the long-run joint evolution of services trade and FDI flows. These results support the notion that market access in services is a function of joint market access across modes.

Services Imports -- Heckman 2-stage selection model with NTB elasticities

Bilateral services imports 2004-2006

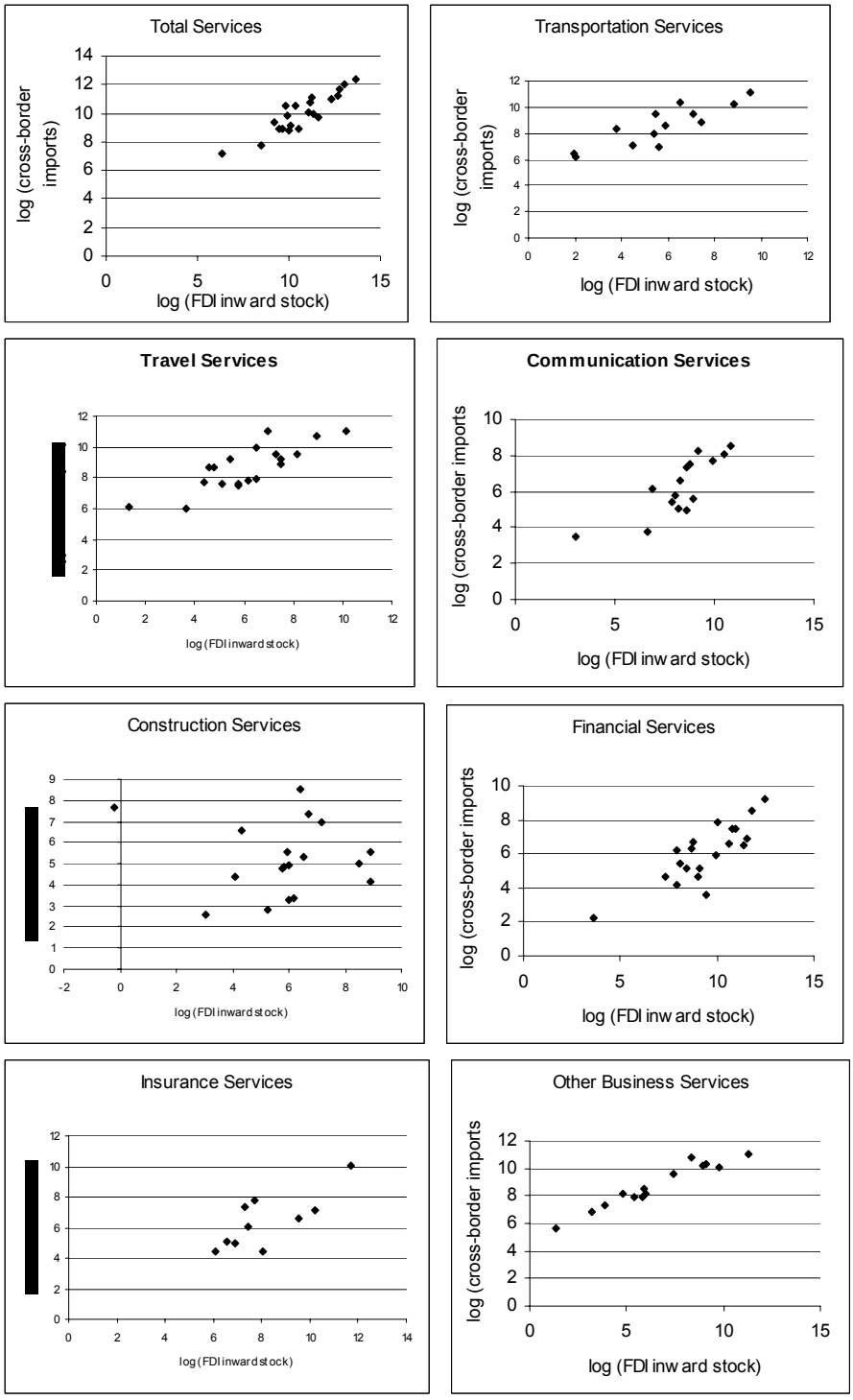
	All Services	Business and ICT	Communi-cations	Personal, cultural, recreational	Construction	Transport	Travel
	BOPS: 981 (200, less 205,236)	GTAP: 54 obs BOPS: 268,269, less 262	GTAP: 51, cmn BOPS: 245	GTAP: 55, ros BOPS: 287	GTAP: 46, cns BOPS: 249	GTAP: 48, otp; 49, wtp; 50, atp; 44, gdt BOPS: 205	GTAP: N/A BOPS: 236
First stage probit, Pr(trade)							
distance	-0.429***	0.144***	-0.136***	-0.049	-0.204***	-0.478***	-0.633***
	(-12.23)	(5.259)	(-4.578)	(-1.527)	(-6.221)	(-15.06)	(-20.72)
importer FDI stocks	0.000	-0.000***	0.000	-0.000***	0.000	-0.000	0.000
	(1.006)	(-3.871)	(0.608)	(-3.265)	(0.480)	(-0.978)	(0.185)
importer PCI	1.676	-10.273*	-3.173	-4.249	-11.358	4.289	-2.056
	(0.284)	(-1.911)	(-0.479)	(-0.537)	(-1.466)	(0.757)	(-0.389)
exporter PCI	0.369***	0.133***	-0.005	0.118***	-0.031	0.224***	0.147***
	(14.34)	(6.107)	(-0.220)	(4.432)	(-1.133)	(9.414)	(6.641)
importer GDP	-1.605	10.142*	2.016	2.839	10.055	-3.266	3.090
	(-0.271)	(1.889)	(0.303)	(0.360)	(1.305)	(-0.573)	(0.580)
exporter GDP	-0.029	0.318***	0.153***	0.208***	0.175***	-0.095***	-0.321***
	(-0.831)	(10.87)	(4.840)	(5.977)	(5.041)	(-2.912)	(-10.48)
EU	0.313***	-1.038***	-0.881***	-0.851***	-0.665***	-0.159***	0.079
	(4.840)	(-18.67)	(-14.49)	(-12.87)	(-9.985)	(-2.600)	(1.389)
NAFTA	-0.177	-0.604***	-0.289**	-0.221*	-0.812***	-0.315**	0.497***
	(-1.294)	(-5.475)	(-2.477)	(-1.836)	(-6.290)	(-2.180)	(4.212)
Observations	5153	5161	4714	4536	4604	5055	5315
Pr >0	0	0	0	0	0	0	0
Chi-Sq	2534	2137	1667	1372	1374	2628	2741
Second stage: value of imports as dependent variable, fixed effect estimates							
distance	-1.118***	-1.184***	-1.336***	-0.660***	-1.222***	-0.944***	-1.126***
	(-26.73)	(-23.69)	(-14.64)	(-6.492)	(-8.587)	(-20.08)	(-22.27)
border	0.484***	0.275*	0.686***	0.692***	0.730***	0.658***	0.647***
	(4.326)	(1.676)	(3.791)	(2.971)	(2.739)	(5.837)	(6.072)
language	0.680***	0.358***	0.072	0.417*	0.263	0.626***	0.659***
	(6.723)	(2.844)	(0.319)	(1.710)	(0.595)	(5.464)	(6.470)
EU interaction with NTB index	0.803**	0.956**	0.017	-0.929	2.761	-0.670***	0.070
	(2.458)	(2.500)	(0.0358)	(-0.468)	(1.596)	(-2.891)	(0.506)
NAFTA interacted with NTB index	2.078***	-0.119	2.045*	-4.762	7.138	1.425*	0.588
	(2.765)	(-0.159)	(1.881)	(-1.172)	(0.782)	(1.807)	(1.409)
ATLANTIC interacted with NTB index	-1.758**	1.792**	0.079	3.228	-14.089**	0.583	-0.294
	(-2.503)	(2.085)	(0.101)	(0.863)	(-2.510)	(1.153)	(-1.135)
inverse Mills ratio	0.173	1.001***	0.054	1.464***	0.475	-0.372**	-0.691***
	(1.181)	(3.842)	(0.105)	(2.813)	(0.650)	(-2.287)	(-4.621)
Observations	3162	2134	1116	800	780	2960	2794
R-squared	0.834	0.829	0.813	0.753	0.753	0.792	0.818
Post-Selection Model: fixed effect decomposition for NTB elasticities							
NTB trade elasticity	-1.983*	-3.178**	-0.577	-8.712***	-4.205**	0.253	0.051
	(-1.771)	(-2.490)	(-0.701)	(-2.763)	(-2.108)	(0.312)	-0.0825
Number of importers	38	49	43	39	41	44	44

Robust t-ratios and z-ratios given in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Note: NTB elasticities are based on GLM regression analysis of importer fixed effects, including the NTB index.
As both trade and NTBs are in logs, this gives us an elasticity.

Correlation between alternative modes of services delivery by sector, average 2001-2004



Source: **Fillat, Francois, and Woerz (2008).**

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APPENDIX 3: THE INVENTORY OF JAPANESE NTMS

The inventory is based on a four-step methodology that was developed with the purpose of identifying Japanese NTMs across sectors. Not all issues raised by business or policy makers would qualify as an NTM according to our definition. We have applied the following four steps in order to identify NTMs in Japan:

- **Impact:** We assess that the issues has an impact on trade
- **Problem:** There is a clearly identifiable problem underlying the NTB
- **Solvability:** There reasons to believe that the NTB is solvable
- **Instrument:** We can identify instruments to remedy the damage created by the NTB

Impact. In the first step, the impact of the NTM facing the different sectors is qualitatively assessed in two dimensions: extent and magnitude. The first dimension, the extent, is analysed in terms of the size of the sector which is affected by the NTM. We determine whether the whole sector or part of the sector is affected. Some NTMs are, however, not restricted to specific sectors. In these cases, we classify the extent of the NTM as cross-sectoral. In the second dimension, the magnitude, we analyse the impact of NTM on the trade volume in the sectors. We distinguish between NTMs that have no or limited impact on trade and NTMs that have some impact on trade.

Problem. In this step, we identify the problems of the NTMs. The problems facing firms in each sector are classified to facilitate comparisons across sectors and to reach an overall view of the problems of the NTMs. Some commonly cited problems are: "costly approval procedures", "lack of harmonisation with international standards" and "differences in regulation".

Solvability. In those instances where we find that a NTM gives rise to a non-negligible impact on trade, we assess the solvability of the problem caused by the NTM. We assess whether the problem can be solved by i) a trade policy instrument, ii) a trade policy instrument in combination with domestic reforms or iii) by domestic reforms only. We further assess whether the problem should be solved on a bilateral basis or whether an open solution involving more trade partners is appropriate.

Instrument. In this final step, we identify the proposed instruments which are potentially available to solve the NTM. The choice of instruments is sometimes dependent on whether the underlying problem should be solved on a bilateral basis or if a multilateral approach is called for.

Sources used for the inventory

A list of all Japanese NTMs in inventory according to sector and type can be found below. The sources are (page references included below):

EBC = European Business Council Japan (2008), *Economic Integration: The New Reform Paradigm*.

http://www.ebc-jp.com/downloads/2008-WP-E.pdf

EU = European Commission (2007, 2008a), *EU Proposals for Regulatory Reform in Japan*.

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USG = US Department of State (2008), *Annual Reform Recommendations under the US-Japan Regulatory Reform and Competition Policy Initiative*.

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WTO = World Trade Organisation (2007), *Trade Policy Review – Japan*.

http://www.wto.org/english/tratop_e/tpr_e/tp276_e.htm

Table 3.1 Inventory of Japanese NTMs

Original sector	NTB TYPE	Issues	Source	Page
Aerospace and space industry	Not trade barrier	Limited academic cooperation	EBC	
		Limited industrial cooperation (compared with North America)	EBC	82
	Public procurement	Procurement decisions are made on a non-competitive basis	EBC	81
	Technical barriers to trade	Mutual Japanese and European export control procedures should be recognised	EBC	82
Agriculture	Not trade barrier	Limited capacity for cooling facilities at Narita airport	EBC	67
	SPS	Plant quarantine regulations are not in line with GATTs Sanitary and Phytosanitary chapter	EBC	67
	Technical barriers to trade	High fumigation costs	EBC	67
		Low tolerance regime for insects common in Japan	EBC	67
		No regulatory compliance with CODEX standards for organic crop imports, safe food additives and testing regimes for pre- and post-harvest pesticides	USG	7
Air transport	Not trade barrier	EU not included in Haneda airport plans	EU	55
		Limitations to flexibility of aviation infrastructure	EU	55
	Service barriers	Burdensome fare filing procedure	EBC	37
		High fees on air service such as landing, navigation etc	EU	55
		Regulations on distribution, pricing and settlement of air fares	EU	55
		Restriction by bilateral air services agreements	EU	53
Animal health	Technical barriers to trade	Costly translation of technical reports written in English	EBC	53
		Domestic regulations are not completely harmonised with international standards	EBC	53
		The seed-lot system is not aligned with internationally recognised requirements	EBC	53
		Time consuming product approval and registration procedures	EBC	53
		Delays due to different review processes by different ministries involved in the regulation	EU	88
		Listing compound system favours generic producers	EU	88
Automotive industry	Not trade barrier	Heavy tax on the purchase and ownership of motor vehicles	EBC	77
		Limited information exchange	EBC	79
	Public procurement	Green procurement rules do not follow international practices	EBC	
		Japan-specific requirements in procurements	EBC	79
	Technical barriers to trade	Burdensome procedure for demonstrating compliance with ECE Regulation	EBC	77
		Burdensome procedure to get approval of advices that complies with an UN-ECE Regulation	EU	58
			EU	60
		Cumbersome and non-transparent Technical Guidelines Incomplete adoption of UN-ECE vehicle regulations	EU	58
		No standard testing procedure for SCR catalysts	EU	60
		Regulatory and fiscal privileges for kei cars distort competition	EBC	77
		Restrictive allowance and harmonisation of radar technology	EU	60
		Unaligned vehicle certification systems	EBC	77
	FDI	Need to reform Japan's legal system to encourage cross-border M&A	USG	6

Commercial law and legal systems reform				
	Other	Need to strengthen good corporate governance	USG	6
	Service barriers	Need for legal system reform (lawyers, gaiben)	USG	6
Communication services	Custom border procedure	Need to apply equivalent customs clearance procedures for private and public express carriers (incl. duty declarations)	USG	8
	Other	Closed flow of information and a non-transparent communication structure	EBC	42
		Limited flow of information to foreign press and the restrictive kisha club system	EBC	42
		Limited transparency and stakeholder participation in policymaking and regulation	USG	4
	Service barriers	Absence of a clear separation between the Government's roles as both owner and regulator in telecommunications	EBC	46
		Ensure the new postal financial institutions meet the same tax, legal and regulatory obligations and are subject to the same supervisory standards as private firms	USG	8
		Heavy regulatory supervision and control in telecommunication	EBC	46
		Inefficient use of spectrum	USG	4
		Lack of competition in markets for wire line and mobile interconnection	USG	4
		Lack of facilities-based competition across different broadband platforms	USG	4
		Lack of transparency and competition in the advertising industry	EBC	42
		Licensing regime is not technology-neutral	USG	4
		New regulatory framework is not always transparent and made to minimise burdens on operators while promoting new entry and competitive opportunities	USG	4
		Risk of anticompetitive behaviour by carriers with market dominance as telecom services move to IP-based networks	USG	4
		Unreasonably high interconnection fees in telecommunications	EBC	46
		Weak competitive safeguards against the abuse of dominance in telecommunications	EBC	46
Competition policy	Competition	Need to address bid rigging	USG	6
		Need to improve antimonopoly compliance and deterrence	USG	6
		Need to improve fairness and transparency	USG	6
Computer and information services	IPR	Approaches in IPR protection and enforcement should be harmonised with international best practices	USG	4
		Contractors are not allowed to own the IPR to software they develop	USG	4
		Insufficient copyright enforcement	USG	4
		Need to further promote strong IPR protection and enforcement with a focus on the asia-Pacific region	USG	4
		Need to streamline patent procedures	USG	4
	Not trade barrier	Missing communication and collaboration between relevant ministries and private sector in IT-related financial reform	USG	4
	Other	Insufficient incentive to use innovative information-sharing in health IT	USG	4
	Public procurement	Backdating of government IT procurement contracts is allowed	USG	4
		Lack of transparency in government IT procurements	USG	4
		Uncompetitive rules in government IT procurement bidding rules	USG	4
		Widespread vendor liabilities	USG	4

	Service barriers	Lack of alternative non-bank payment services in electronic payments	USG	4
	Technical barriers to trade	No harmonisation with international standards in health IT	USG	4
		There is no technology neutrality and interoperability in health IT	USG	4
Construction services	Public procurement	Public procurement systems (Comprehensive Evaluation Bidding System) is not always used	EBC	87
	Technical barriers to trade	Environment friendly and safe constructions are not ensured	EBC	87
		Tests for building materials standards are not harmonised	EBC	87
Cosmetics		Additional claims for cosmetics that are within the existing scope of currently approved claims are not allowed	USG	5
		EU-validated alternative methods to animal testing is not accepted	EU	74
		Regulations on ingredients are not harmonised	EBC	65
		Restrictive allowable efficacy claims	EBC	65
		Slow validation process of testing on Cosmetics	EU	74
		Unclear and time consuming application process for quasi-drugs	EBC	65
Customs	Custom border procedure	Unclear approach to the bilateral mutual recognition of EC-Japan Customs Cooperation Agreement	EU	63
		Need to increase the Custom Law's de minimis level to improve efficiency	USG	8
	Service barriers	Need to allow post mortem declaration of exports and more flexibility for express carriers to select the customs office for customs declarations	USG	8
Financial Services	Service barriers	Differences in the issues of insurance and reinsurance solvency regulation in EU/Japan	EU	41
		Discrimination between foreign and domestic bank branches wanting to engage in trust and banking business	EU	38
		dissimilarities between International Financial Reporting Standards and Japans "General accepted accounting principles"	EU	45
		Dissimilarities of the regulatory systems of audit firms, eg. JFSA not accept inspections carried out by the EU	EU	43
		Early access to pension funds is not allowed in special circumstances	USG	5
		Excessive, inefficient and non-transparent administrative burden on regulated firms (e.g. applications for bank licences)	EBC	31
		Extra restrictions on banking sales of Insurance relative to other channels	EU	41
		Favoured status of Kyosai	EU	42
		Firewalls envisaged, restriction on customer info sharing	EU	38
		Inconsistency in consumption taxation regarding commission on sales of insurance products	EU	39
		Lack of published written interpretation of financial laws (limited use of no-action and interpretive letters)	USG	5
		Lack of transparency and predictability of rule interpretation and inspections processes	USG	5
		Limited consultation on draft laws and regulations	USG	5
		Need for a credit bureau system that facilitates more accurate risk pricing	USG	5
		Need to create a level playing field before the privatisation of Japan Post	USG	8
		Not possible to cross-marketing products by double hat officers and employees	EU	37
		Obstacles to sales and service of off-shore funds	EBC	28
		Restrictive contribution limits in the defined contribution pension system (employee contributions are not allowed)	USG	5
		Rules governing asset management are restrictive and inconsistent	EBC	28

Strict firewall and severe license restrictions result in a costly separation of banking, securities and asset management operations	EBC	28

Food	SPS	(Worldwide recognised) food additives prohibited	EU	75
		Legislation on trade in beef and other BSE products not in line with World Organisation for Animal Health	EU	77
		Limited acceptance of scientific evaluation by international bodies (JECFA/CODEX)	EU	76
		Needs internationally recognised regulatory approach to distinguish food which support growth of Listeria monocytogenes (different measures)	EU	79
		Restrictions on Bovine products from the EU	EU	76
		Slow approval rate of food additives	EU	75
		Standard on non-quarantine pests not in line with international standards	EU	79
		Weak collaboration on phytosanitary regulations applied to imports of fruit and vegetables	EU	78
	Technical barriers to trade	Administrative burdens and financial cost on the European certifying bodies	EU	83
		EU organic products within the EU legislation do not have complete access to the Japanese market/logo	EU	83
		Long processing time for new and revised food additive applications	USG	5
	Other	Categorisation of alcoholic beverages for tax purposes does not use the same categories as in the EU and the US	EBC	69
		Heavy subsidisation in certain sectors (rice, wheat and barley)	WTO	65
		Limited capacity to receive and adequately handle perishable products at Narita Airport	EBC	74
	SPS	Regulations in Listeria Monocytogenes in ready-to-eat food products are not aligned with the "double approach"	EBC	74
		Slow approval of additives on priority list	EBC	73
		There is no mutual recognition of products certified and sold in the other country	EBC	71
	Technical barriers to trade	Different standards for "best before data" labelling	EBC	74
		License applications for wholesale and retail of liquor are complex and not processed in a clear, transparent and consistent manner	EBC	69
		Need for supplementary organic certificates	EBC	71
		Product definition for alcoholic beverages should conform with international specifications	EBC	69
		Slow process of examination of the data submitted and the questions to what is necessary for risk assessment for meat/beef import	EBC	73
Government pro-curement	Public procurement	Complex legal framework for public procurement and lack of English versions	EU	28
		Compulsory company registration on public work contracts every two years	EU	28
	Public procurement	Lacking a single point of access equivalent to EU's centralised tender database	EU	27
		Limited info exchange on legal and technical choices in e-procurement	EU	27
		Long evaluation process prior to tendering, specific a lack of minimum level required for each specific capability	EU	28
Healthcare	IPR	Non-sufficient data protection	EU	65
	Not trade barrier	Fee-level for drug approval are high	EU	65
		Need of pricing-policy stimulating investment and research	EU	71
	Other	Favouring of Japanese firms on pricing and reimbursement of blood plasma derived products	EU	68
	Technical barriers to trade	Guidelines for vaccines development and approval not in line with WHO/EU - non-transparency	EU	67

		lack of non-discriminatory policy towards/among foreign potential entrants (including tendering process)	EU	67
		Limited data on drug application processing time	EU	65
		Need to align Japan Industrial standards with ISO and IEC standards on medical devices	EU	71
		Non-acceptance of foreign clinical data delays market entry of medical devices	EU	71
		Non-sufficient quality, efficiency and time of the registration process for new drug applications (pharmaceuticals)	EU	65
		Non-transparency of product approval process. Need for harmonisation with trading partners	EU	71
		Technical specification for manufacturing and quality control of vaccines not in line with international standards	EU	67
		Unclear wording of the supply/demand provision of the Blood Law	EU	68
ICT	Competition	Business sensitive info provided by competitors to integrated incumbents not being kept confidential	EU	32
	Service barriers	Ensure equal access to interconnections according to the standards of transparency, non-discrimination and cost	EU	32
	Technical barriers to trade	Additional requirements (e.g. license) of "Suppliers declaration of conformity" products from the EU	EU	34
		Additional testing/administrative requirements of "Suppliers declaration of conformity" products from the EU	EU	34
		Blanket licensing is a problem for competition and innovation on the market for mobile terminal equipment	EU	33
		Limitations to the "self verification of conformity" procedure	EU	34
Insurance services	Not trade barrier	Insufficient incentives to encourage long-term saving	EBC	33
	Service barriers	Guaranteed Minimum Benefits are excluded for Variable Annuity (VA) products	EBC	33
		Ineffectiveness of the bank sales channel for Insurance	USG	7
		Need to facilitate new opportunities for independent insurance agents	USG	7
		No requirements that insurance cooperatives meet the same obligations as private insurers	USG	7
		Risk management and compliances standards in the insurance sector are far from the standards in the private sector	EBC	32
		The FSA product approval process is overly lengthy	EBC	33
		There are no common rules for solvency calculations (do not follow Solvency II)	EBC	32
		Unduly restrictive sales controls on bank assurance	EBC	32
Iron, steel, metal products	Not trade barrier	Arbitrary tariff classifications and revisions with no available appeal mechanisms	EBC	89
		Import tariffs on industrial raw materials, including aluminium oxide, silicon carbide and manganous manganic oxide	EBC	89
		Import tariffs on industrial raw materials, including nickel products	EBC	88
Maritime affairs	Not trade barrier	Limited cooperation on oceans management	EU	57
Medical, measuring and testing appliances	Other	Reimbursement prices for medical equipment to not properly reflect prices	EBC	57
	Technical barriers to trade	Long medical equipment certification process because clinical trial data and GCP guidance do not follow international standards	EBC	57
Mergers and acquisitions	FDI	Accounting standards limit cross-shareholding	EU	10
		Complex triangular merger scheme	EU	10
		Limitations to the range of vehicles available in Japan for mergers	EU	11

		Restrictions on FDI in sensitive sectors on the basis of national security or public order	EU	10
		Restrictive notification ceiling for investment in sensitive sectors	EU	10
		Tax treatment of triangular mergers is a barrier to market entrant	EBC	25
		Uncertainty over tax deferral treatment in triangular mergers	EU	11
Office, information and communications equipment	Technical barriers to trade	A Supplier Self Declaration of Conformity regime is not implemented	EBC	49
		Different technical standards and certification procedures	EBC	49
		Incomplete harmonisation in Spectrum for IMT	EBC	49
Other business services	Service barriers	Discrimination in the rules for registration as a lawyer	EBC	23
		Lawyers need to register individually rather than as a firm	EBC	23
		Limited liability status is not available to lawyers in Japan	EBC	23
Pharmaceuticals	Custom border procedure	Burdensome import processes	USG	5
	IPR	Restrictions on selection of brand names	EBC	59
		The extended re-examination period from six to eight years only applies to drugs containing a new chemical entity	EBC	59
	Not trade barrier	Global standard vaccines are not available in Japan	EBC	61
		The pharmaceutical drug system does not reward innovation and does not reflect the value of drugs	EBC	59
	Other	A price reform should improve understanding of price issues	USG	5
		Insufficient reward of innovation	USG	5
		Pricing system does not reflect the characteristics of the plasma product industry	USG	5
		Vaccines are not incorporated into the National Healthcare Insurance System	EBC	
	SPS	Lack of transparency in the development of health food safety regulations	USG	5
	Technical barriers to trade	Additional claims for cosmetics that are within the existing scope of currently approved claims are not allowed	USG	5
		Burdensome review and clinical trial consultation system	USG	5
		Clinical development guidelines and biological product specifications are not harmonised with the EU	EBC	61
		Cumbersome labelling rules	USG	5
		Foreign clinical data are not recognised	EBC	61
		Japanese GCP rules are not aligned with international ICH-GCP rules	EBC	59
		Long price and drug approval time	USG	5
		The mutual recognition agreement does not cover solid products	EBC	59
		There is no regulatory category that allow for ingredient-specific health claims	USG	5
		Unclear and late direction on licensure requirements to vaccine manufacturers	EBC	61
		Vaccine standards and technical specifications should be aligned	EBC	61
Postal Service	Service barriers	Lack of transparency in the planned process to further open up the mail delivery sector	EU	50
		SPECIAL CASE: First year of a 10-year privatisation process of Japanese postal service. Issues: transparency in process, secure clear and public access to the network of post offices	EU	50
Regulation	FDI	Limited No-Action Letter system	EU	21
	Not trade barrier	Too much focus on price compared to quality in tendering	EU	28

		Unpredictable regulatory environment	EU	21
	Other	Scarce public consultations/hearings	EU	21
	Public procurement	No real difference between an open and competitive procedure and selective tendering	EU	26
		Restrictive qualifications in (open) tendering	EU	67
		Too much focus on rigid technical specifications compared to innovation as an alternative (green procurement)	EU	28
		Weak implementation of public procurement regulations	EU	21
	Technical barriers to trade	Cumbersome bilateral negotiations and evaluations of EU products	EU	78
Transparency	Competition	Need to improve access to advisory groups	USG	7
	Not trade barrier	Need to promote transparency in re-organisation of government functions	USG	7
		Need to strengthen public comment procedures	USG	7
	Other	Need to ensure transparency of interpretation of regulations	USG	21
Transportation services	Custom border procedure	Exceptionally high port costs	EBC	10
		Foreign shipping lines are not allowed to trans-ship their own overseas cargo and vessels	EBC	45
	FDI	Discrimination, non-transparency and non-proportionality in foreign ownership of airports	EU	45
		The Operational safety exceptions is difficult to interpret/limits the access to railway procurements of foreign firms	EU	40
	Not trade barrier	Political involvement in the air transport sector has resulted in an over-establishment of local airports outside the Kanto area	EBC	38
		Restrictive ETOPS requirements	EBC	36
	Other	High and non-transparent landing and user fees	USG	45
	Service barriers	Competition on the waterfront is stifled by the current system of prior consultation that lacks transparency and efficiency	EBC	36
		Lack of Fixed Base Operators (FBO)	EBC	38
		Lack of landing and take-off slots in Tokyo	EBC	38
		Lack of landing slots for business aviation in Haneda and Narita	EBC	
		Prohibitive landing fees, navigation charges, airport terminal rent, airport terminal common user charges and cargo handling fees	EBC	36
		Restrictions on pricing and distribution in a few remaining IATA categories	EBC	36
		Rigid clearance procedures and outdated restrictions on foreign-owned companies engaged in domestic freight forward business	EBC	28
		Unfair competition from the newly privatised Japan Post that enjoys preferential regulatory treatment	EBC	27
Wind energy	Technical barriers to trade	Need to consolidate regulatory processes for construction and operation of wind power projects	USG	7
Wood Standard	Technical barriers to trade	Difficult accreditation procedure for testing organisations (Need of documentation in English and internationally approved data to be accepted)	EU	84-85
		Need of facilitate testing of products imported from the EU to be used in multi-storey buildings	EU	85
		Non-recognition of EN standards and CE marking of lumber	EU	85
		Unfair low classification of some European tree/timber species	EU	85

APPENDIX 4: BUSINESS SURVEYS ON JAPANESE NTMS

The business survey was distributed through the Chairmen of the European Business Council responsible for the selected manufacturing sectors as well as the Chairman of the financial service sector. Together 128 firms were asked and 92 managers participated in the business survey. The response rate was 72 percent. The two business surveys are listed underneath. For some questions, the response categories were reformulated to reflect sector-specific issues.

A4.1 BUSINESS SURVEY FOR MANUFACTURING SECTORS

This business survey is to be answered by EU companies that export to Japan in the **manufacturing** sectors. The CEO of your operation in Japan is kindly asked to answer the questions related to your company's exports to Japan. If the CEO of your Japanese affiliate has delegated the responsibility to a manager, the manager in charge is asked to fill out the questionnaire.

Purpose of the business survey:
The data collected from this survey is a part of a study on the "Assessment of barriers to trade and investment between the EU and Japan" currently being undertaken by consultants from Copenhagen Economics on behalf of the European Commission.

The questions are divided in three broad groups:

1. Export information

   These questions intend to provide general information about your export to Japan and how your export to Japan is organised.

2. Barriers for trade with Japan

   These questions intend to provide information about the barriers you encounter in Japan and how they can be eliminated or reduced. Here, you are asked about the cost of the most important barriers.

3. Barriers to introducing new products on the Japanese market

   These questions intend to provide information about which barriers limit your company's ability to launch new products on the Japanese market and in which way the most important barriers could possibly be eliminated or reduced.

1 Export information

1.1 What is your main export sector?

- ☐ Pharmaceuticals
- ☐ Motor vehicles
- ☐ Processed foods
- ☐ Medical device
- ☐ Other (please specify)): _____

1.2 What share of your **export value** going outside the EU went to Japan in 2008?

- 0-10 %
- 10-20%
- 20-30%
- 30-40%
- 40-50%
- 50-60%
- 60-70%
- 70-80%
- 80-90%
- 90-100%
- I don't know

1.3 What share of your export **volume** going outside the EU went to Japan in 2008?

- 0-10 %
- 10-20%
- 20-30%
- 30-40%
- 40-50%
- 50-60%
- 60-70%
- 70-80%
- 80-90%
- 90-100%
- I don't know

1.4 Where are the products you export to Japan produced?

- Mainly in production facilities in the EU
- Mainly in production facilities in Japan
- Mainly in production facilities in third country outside EU
- I don't know
- Other production facilities (please specify): _____

1.5 How does your company distribute its products on the Japanese market?

- Mainly through own distribution facilities
- Mainly through local partner
- I don't know
- Other distribution channels (please specify):_____

2 Barrier information on current export products

2.1 How do you find market access for export to Japan, compared to exporting to other countries?

- ☐ Much more difficult
- ☐ Somewhat more difficult
- ☐ Equally difficult
- ☐ Somewhat less difficult
- ☐ Much less difficult
- ☐ I don't know

2.2 Consider exporting to Japan, keeping in mind your domestic market. If 0 represents a completely 'free trade' environment, and 10 represents an entirely closed market due to barriers, what value between 0 – 10 would you use to describe the overall level of restrictiveness of the Japanese market to your export?

☐

2.3 Please give the following **non-tariff measures** a score between 0 and 5 in terms of the degree to which they restrict your export to Japan:

- ☐ Regulatory environment (e.g. costs and complexity of doing business)
- ☐ Price control measures (e.g. anti-dumping measures, countervailing measures)
- ☐ Quantity control measures (e.g. quotas, prohibitions)
- ☐ Government assistance issues (e.g. subsidies, export refunds)
- ☐ Public procurement issues (e.g. legal framework, contract conditions)
- ☐ Distribution channels (e.g. seaport and airport regulations, secondary dealers)
- ☐ Lack of intellectual property rights (e.g. copyright, trademark, patents)
- ☐ Pricing and reimbursement rules
- ☐ Border procedures (e.g. customs procedures)
- ☐ Standards and conformity assessment requirements (e.g. technical regulations, certification)
- ☐ Other non-tariff measures (please specify)

2.4 Please give the following factors related to **border procedures** a score between 0 and 5 in terms of the degree to which they restrict your exports to Japan, where 0 represents not at all restrictive, and 5 represents extremely restrictive:

- Para-tariff measures (e.g. customs surcharges, additional charges, internal taxes and charges on imports)
- Financial measures (e.g. advance payments, multiple exchange rates)
- Automatic licensing measures (e.g. automatic licence, import monitoring)
- Monopolistic measures (e.g. single channel for imports, compulsory national services)
- General customs procedures (e.g. customs valuation, customs classification, customs clearance, rules of origin)
- Customs procedures that are specific for your product (e.g. health inspections)
- Lack of transparency and information sharing when requirements and procedures are changed
- Other factors related to border procedures (please specify)

2.5 Please give the following factors related to **public procurement and tenders** a score between 0 and 5 in terms of the degree to which they impact on your export to Japan, where 1 represents no restricting impact, and 5 represents a extremely restrictive impact:

- Weak implementation of public procurement regulations (e.g. no difference between an open procedure and selective tendering)
- Complex legal framework (e.g. company registration)
- Lack of English versions of tenders
- Lack of single point tender database
- Length of evaluation process prior to tendering
- Other factors related to public procurement (please specify)

2.6 Is your main export product covered by a Mutual Recognition Agreement between the EU and Japan?

- Yes
- No
- I don't know

2.7 Do you use the Mutual Recognition Agreement for your current export to Japan?

- Yes
- No
- I don't know

3 Barriers related to standards and technical regulations

The definitions used in this survey follow the WTO definitions of ***standards and technical regulations.*** *These are documents approved by a recognised body providing for common and repeated use, rules, guidelines, or characteristics for products or related processes and production methods. This covers both* ***standards*** *with which compliance is not mandatory (i.e. voluntary standards) and* ***technical regulations*** *with which compliance is mandatory (i.e., government mandated standards, or standards in regulations).*

3.1 Please give the following factors related to standards and technical regulations a score between 1 and 5 in terms of the degree to which they impact your ability to export products to Japan:

- Product standards
- Production standards
- Labelling requirements
- Marking
- Packaging
- Other issues related to standards and technical regulations (please specify)

3.2 Which barriers related to standards and technical regulations are of most concern to you?

- Product standards
- Production standards
- Labelling requirements
- Marking
- Packaging
- Not relevant
- I don't know
- Other issues related to standards and technical regulations (please specify)

3.3 In your opinion, which actions would at least be required in order to reduce the barriers related to standards and technical regulations that are of most concern to you?

- Introduction of new standards
- Use of international standards
- Mutual recognition of conformity assessment procedures
- Harmonisation/convergence of rules and regulations
- Suppliers' declaration of conformity
- Review of the functional category system for Special Treatment Materials
- Common positive and negative list of additives
- Review the pricing and reimbursement systems
- Implementation of license system for distribution
- Not relevant
- I don't know
- Other ways to reduce barriers related to standards and technical regulations

3.4 In your opinion, which **actions would you prefer** in order to reduce the barriers related to standards and technical regulations that are of most concern to you?

- Introduction of new standards
- Use of international standards
- Mutual recognition of conformity assessment procedures
- Harmonisation/convergence of rules and regulations
- Suppliers' declaration of conformity
- Review of the functional category system for Special Treatment Materials
- Common positive and negative list of additives
- Review the pricing and reimbursement systems
- Implementation of license system for distribution
- Not relevant
- I don't know
- Other ways to reduce barriers related to standards and technical regulations

4 Quantification of standards and technical regulations

Quantifying how barriers affect your company is very important. The following questions ask how standards and technical regulations affect your costs of exporting to Japan. The definitions used in this survey follow the WTO definitions of standards and technical regulations.

4.1 Do standards and technical regulations affect your **costs of shipment**?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.2 Do standards and technical regulations affect your **costs of production**?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.3 Do standards and technical regulations affect your **costs of development**?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.4 Do standards and technical regulations affect your **other direct costs**?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.5 Do standards and technical regulations **delay the process of getting your products approved** for the Japanese market compared to the EU?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.6 Do standards and technical regulations **delay the entry of approved products** for the Japanese market compared to the EU?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.7 Do standards and technical regulations cause **other delays** in your export to Japan compared to the EU?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.8 By how much would you expect your **costs per unit of export** of exporting to Japan to decrease if the barriers related to standards and technical regulations were eliminated?

- 0- 1%
- 1- 5%
- 5- 10%
- 10-15%
- 15- 20%
- More than 20%
- Not relevant
- I don't know

4.9 By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to standards and technical regulations were eliminated?

- 0- 1%
- 1- 5%
- 5- 10%
- 10-15%
- 15- 20%
- More than 20%
- Not relevant
- I don't know

5 Barriers related to conformity assessment procedures

The definitions used in this survey follow the WTO definitions of conformity assessment procedures. Conformity assessment procedure is any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled. They consist of such activities as certification, testing, quality system registration, and inspection. They also comprise procedures for sampling, evaluation, verification, and assurance of conformity; and registration, accreditation, and approval; as well as their combinations. They are either voluntary (e.g. private bodies assessing conformity), or mandatory (e.g. government regulations to ensure that given technical regulations are met).

5.1 Please give the following factors related to **conformity assessment procedures** a score between 1 and 5 in terms of the degree to which they impact on your export to Japan:

- General certification
- Quarantine
- Inspection
- Other issues related to conformity assessment procedures (please specify)
- Not relevant
- I don't know

5.2 Which barriers related to conformity assessment procedures are of **most concern** to you?

- General certification
- Quarantine
- Inspection
- Testing
- Not relevant
- I don't know
- Other ways to reduce barriers related to conformity assessment procedures (please specify)

5.3 In your opinion, which **actions would at least be required** in order to reduce the barriers related to conformity assessment procedures that are of most concern to you?

- Introduction of new standards
- Use of international standards
- Mutual recognition of conformity assessment procedures
- Simplification of certification procedures
- Speed up the certification process
- Introduce third party certification system
- Harmonisation/convergence of rules and regulations
- Suppliers' declaration of conformity
- Common positive and negative list of additives
- Review the pricing and reimbursement systems
- Implementation of license system for distribution
- Not relevant
- I don't know
- Other required actions to reduce barriers related to conformity assessment procedures (please specify)

5.4 In your opinion, which **actions would you prefer** in order to reduce the barriers related to conformity assessment procedures that are of most concern to you?

- Introduction of new standards
- Use of international standards
- Mutual recognition of conformity assessment procedures
- Simplification of certification procedures
- Speed up the certification process
- Introduce third party certification system
- Harmonisation/convergence of rules and regulations
- Suppliers' declaration of conformity
- Common positive and negative list of additives
- Review the pricing and reimbursement systems
- Implementation of license system for distribution
- Not relevant
- I don't know
- Other required actions to reduce barriers related to conformity assessment procedures (please specify)

6 Quantification of barriers related to conformity assessment procedures

Quantifying how barriers affect your company is very important. The following questions ask how conformity assessment requirements affect your costs of exporting to Japan. The definitions used in this survey follow the WTO definitions of conformity assessment procedures.

6.1 Do conformity assessment procedures affect your **costs of shipment**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.2 Do conformity assessment procedures affect your **costs of production**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.3 Do conformity assessment procedures affect your **costs of development**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.4 Do conformity assessment procedures affect your **other direct costs**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.5 Do conformity assessment procedures **delay the entry of approved products** for the Japanese market compared to the EU?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.6 Do conformity assessment procedures **delay the process of getting your products approved** for the Japanese market compared to the EU?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.7 Do conformity assessment procedures **cause delays in other ways** for your export to Japan compared to the EU?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.8 By how much would you expect your **costs per unit of export** (e.g. costs related to production) of exporting to Japan to decrease if the barriers related to conformity assessment procedures were eliminated?

- ☐ 0-1%
- ☐ 1%-5%
- ☐ 5%-10%
- ☐ 10%-15%
- ☐ 15%-20%
- ☐ More than 20%
- ☐ Not relevant
- ☐ I don't know

6.9 By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to conformity assessment procedures were eliminated?

- ☐ 0-1%
- ☐ 1%-5%
- ☐ 5%-10%
- ☐ 10%-15%
- ☐ 15%-20%
- ☐ More than 20%
- ☐ Not relevant
- ☐ I don't know

7 Your product range in Japan

These questions intend to provide information about which barriers limit your company's ability to launch new product on the Japanese market and in which way the barrier could possibly be eliminated or reduced. Please answer the following questions for one of your main export product to other export destinations that is not yet exported to Japan.

7.1 How is your product range when exporting to Japan:

- Much smaller than other markets (we offer substantially fewer products on the Japanese market than other Asian markets)
- Somewhat smaller than other markets (we offer fewer products on the Japanese market than other Asian markets)
- Similar to other markets (we offer the same product range on the Japanese market as in other Asian markets)
- Larger than other markets (we offer more products on the Japanese market than in other Asian markets)
- Much larger than other markets (we offer substantially more products on the Japanese market than in other Asian markets)
- I don't know

8 General barriers to launching new products on the Japanese market

8.1 Why have you reduced your product range on the Japanese market?

- The Japanese market is not interesting for my other products
- It is too costly/difficult for my company to export our other products to Japan given the structure or strategy of my company
- It is too costly/difficult for my company to export our other products to Japan given the existing barriers in Japan for this sector
- I don't know
- Other reasons (please specify)

9 The impact of non-tariff measures on launching new products in Japan

9.1 Please give the following non-tariff measures a score between 1 and 5 in terms of the degree to which they restrict your ability to expand your product range on the Japanese market:

- Price control measures (e.g. anti-dumping measures, countervailing measures)
- Quantity control measures (e.g. quotas, prohibitions)
- Government assistance issues (e.g. subsidies, export refunds)
- Public procurement issues (e.g. legal framework, contract conditions)
- Distribution restrictions (e.g. seaport and airport regulations, secondary dealers)

- ☐ Lack of intellectual property rights (e.g. copyright, trademark, patents)
- ☐ Pricing and reimbursement rules
- ☐ Border procedures (e.g. customs procedures)
- ☐ Standards and conformity assessment procedures (e.g. technical regulations, certification)
- ☐ Other non-tariff measures (please specify)

9.2 By how much would you increase your product range if barriers to the Japanese market were eliminated or reduced?

- ☐ Product range would not increase
- ☐ Product range would increase a little (stay below levels in other Asian markets)
- ☐ Product range would increase a lot (to comparable levels in other Asian markets)
- ☐ Not relevant
- ☐ I don't know

10 Formalities

10.1 Would you like to make any further comments on the barriers you face in your exports to Japan?

- ☐ No
- ☐ Yes

10.2 Would you consider participating in a follow-up interview?

- ☐ No
- ☐ Yes

What is your name? _____

What is your position in the company? _____

What is your e-mail address? _____

What is your direct telephone number? _____

A4.2 BUSINESS SURVEY FOR FINANCIAL SERVICES

This business survey is to be answered by EU companies that provide **financial services** to the Japanese market. The CEO of your operation in Japan is kindly asked to answer the questions related to your company's exports to Japan. If the CEO of your Japanese affiliate has delegated the responsibility to a manager, the manager in charge is asked to fill out the questionnaire.

Purpose of the business survey:
The data collected from this survey is a part of a study on the "Assessment of barriers to trade and investment between the EU and Japan" currently being undertaken by consultants from Copenhagen Economics on behalf of the European Commission.

The questions are divided in three broad groups:

1. Export information

   These questions intend to provide general information about your export to Japan and how your export to Japan is organised.

2. Barriers for trade with Japan

   These questions intend to provide information about the barriers you encounter in Japan and how they can be eliminated or reduced. Here, you are asked about the cost of the most important barriers.

3. Barriers to introducing new products on the Japanese market

   These questions intend to provide information about which barriers limit your company's ability to launch new products on the Japanese market and in which way the most important barriers could possibly be eliminated or reduced.

1 Export information

1.1 **Please describe the market segments you service in Japan:**

- ☐ Retail banking, e.g. consumers and small companies
- ☐ Wholesale banking, e.g. large and midsized corporate clients, international trade finance business and institutional customers
- ☐ Investment services, e.g. asset management and hedge fund management
- ☐ Financial intermediation services, e.g. letters of credit, lines of credit and foreign exchange transactions
- ☐ Auxiliary services, e.g. financial market operations and custody services
- ☐ Freight insurance
- ☐ Non-life insurance
- ☐ Life insurance
- ☐ Reinsurance
- ☐ Other financial services (please specify)

1.2 Please describe how your operations in Japan are organised:

- ☐ My company has established a sales office in Japan
- ☐ My company provides services through Japanese partner

- ☐ My company has established a full service operation in Japan
- ☐ Other operation mode (please specify)

1.3 Please specify how you sell and produce for each of the market segments you service in Japan

- ☐ Retail banking, e.g. consumers and small companies _____
- ☐ Wholesale banking, e.g. large and midsized corporate clients, international trade finance business and institutional customers _____
- ☐ Investment services, e.g. asset management and hedge fund management _____
- ☐ Financial intermediation services, e.g. letters of credit, lines of credit and foreign exchange transactions _____
- ☐ Auxiliary services, e.g. financial market operations and custody services _____
- ☐ Freight insurance _____
- ☐ Non-life insurance _____
- ☐ Life insurance _____
- ☐ Reinsurance _____
- ☐ Other selling and production modes used by your company _____

2 General barrier information

These questions intend to provide information about the barriers you encounter in Japan and how they can be eliminated or reduced.

2.1 How do you find market access for export to Japan, compared to exporting to other countries?

- ☐ Much more difficult
- ☐ Somewhat more difficult
- ☐ Equally difficult
- ☐ Somewhat less difficult
- ☐ Much less difficult
- ☐ I don't know

2.2 Consider exporting to Japan, keeping in mind your domestic market. If 0 represents a completely 'free trade' environment, and 10 represents an entirely closed market due to barriers, what value between 0 – 10 would you use to describe the overall level of restrictiveness of the Japanese market to your export?

☐

2.3 Please give the following **non-tariff measures** a score between 0 and 5 in terms of the degree to which they restrict your export to Japan:

- Intrinsic barriers, e.g. language and culture
- Entry barriers, e.g. permits, licenses and start-up procedures
- Barriers to operation, e.g. taxation rules, solvency rules and regulation of conduct
- Other restrictive factors (please specify)

2.4 Please give the following **intrinsic barriers** a score between 1 and 5 in terms of the degree to which they restrict your export to Japan, where 1 represents no restricting impact, and 5 represents a extremely restrictive impact:

- Language
- Japanese culture
- Other intrinsic barriers (please specify)

3 Entry barriers related to financial services

3.1 Please give the following **entry barriers** a score between 1 and 5 in terms of the degree to which they restrict your export to Japan:

- Barriers related to licenses and permits
- Restrictive start-up procedures, e.g. administrative burdens and complexity of rules
- High start-up costs, e.g. fees, land costs and read estate costs
- Other entry barriers (please specify)

3.2 Which entry barriers are of most concern to you?

- Barriers related to licenses and permits
- Restrictive start-up procedures, e.g. administrative burdens and complexity of rules
- High start-up costs, e.g. fees, land costs and read estate costs
- Other entry barriers

3.3 In your opinion, which **actions would be required** in order to reduce the entry barriers that are of most concern to you? _____

4 Quantification of entry barriers

Quantifying how barriers affect your company is very important. The following questions ask how ***entry barriers*** *at the Japanese market affect your cost of exporting to Japan.*

4.1 Do entry barriers affect your **costs of selling** to the Japanese market?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.2 Do entry barriers affect your **costs of producing** to the Japanese market?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.3 Do entry barriers affect your **costs of development**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.4 Do entry barriers affect your **other direct costs**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.5 Do entry barriers **delay the process of getting your products approved** for the Japanese market compared to the EU?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.6 Do entry barriers cause **other delays** in your export to Japan compared to the EU?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

4.7 By how much would you expect your **costs per unit of export** of exporting to Japan to decrease if these entry barriers were eliminated?

- 0- 1%
- 1- 5%
- 5- 10%
- 10-15%
- 15- 20%
- More than 20%
- Not relevant
- I don't know

4.8 By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if these barriers were eliminated?

- 0- 1%
- 1- 5%
- 5- 10%
- 10-15%
- 15- 20%
- More than 20%
- Not relevant
- I don't know

5 Barriers to operation related to financial services

5.1 Please give the following **barriers to operation** a score between 1 and 5 in terms of the degree to which they impact on your export to Japan:

- Barriers related to taxation rules, e.g. inconsistency or lack of transparency
- Solvency regulation, e.g. inconsistency or lack of transparency
- Barriers related to product standards, e.g. restrictive requirements
- Regulation of conduct, e.g. advertising, form of business or distribution
- Anti-trust exemptions, e.g. price regulation
- Conduct of public owned firms
- Barriers related to access risk information, e.g. sharing rules
- Other barriers to operation (please specify)

5.2 Which barriers to operation are of **most concern** to you?

- ☐ Barriers related to taxation rules, e.g. inconsistency or lack of transparency
- ☐ Solvency regulation, e.g. inconsistency or lack of transparency
- ☐ Barriers related to product standards, e.g. restrictive requirements
- ☐ Regulation of conduct, e.g. advertising, form of business or distribution
- ☐ Anti-trust exemptions, e.g. price regulation
- ☐ Conduct of public owned firms
- ☐ Barriers related to access risk information, e.g. sharing rules
- ☐ Other barriers to operation

5.3 In your opinion, which **actions would be required** in order to reduce the barriers to operation that are of most concern to you? _____

6 Quantification of barriers to operation

Quantifying how barriers affect your company is very important. The following questions ask how barriers to operation at the Japanese market affect your costs of exporting to Japan.

6.1 Do barriers to operation affect your costs of selling to the Japanese market?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.2 Do barriers to operation affect your costs of producing to the Japanese market?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.3 Do barriers to operation affect your **costs of development**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know
- ☐ Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.4 Do barriers to operation affect your **other direct costs**?

- ☐ No
- ☐ Not relevant
- ☐ I don't know

- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.5 Do barriers to operation **delay the process of getting your products approved** for the Japanese market compared to the EU?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.6 Do barriers to operation procedures **cause other delays** in your export to Japan compared to the EU?

- No
- Not relevant
- I don't know
- Yes - please specify these costs in the way that you find the most appropriate, preferably as a percentage of the value of your export to Japan

6.7 By how much would you expect your **costs per unit of export** of exporting to Japan to decrease if these barriers to operation were eliminated?

- 0-1%
- 1%-5%
- 5%-10%
- 10%-15%
- 15%-20%
- More than 20%
- Not relevant
- I don't know

6.8 By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if these barriers to operation were eliminated?

- 0-1%
- 1%-5%
- 5%-10%
- 10%-15%
- 15%-20%
- More than 20%
- Not relevant
- I don't know

7 Your product range in Japan

These questions intend to provide information about which barriers limit your company's ability to launch new product on the Japanese market and in which way the barrier could possibly be eliminated or reduced. Please answer the following questions for one of your main export product to other export destinations that is not yet exported to Japan.

7.1 How is your product range when exporting to Japan:

- Much smaller than other markets (we offer substantially fewer products on the Japanese market than other Asian markets)
- Somewhat smaller than other markets (we offer fewer products on the Japanese market than other Asian markets)
- Similar to other markets (we offer the same product range on the Japanese market as in other Asian markets)
- Larger than other markets (we offer more products on the Japanese market than in other Asian markets)
- Much larger than other markets (we offer substantially more products on the Japanese market than in other Asian markets)
- I don't know

8 General barriers to launching new products in Japan

8.1 Why have you reduced your product range on the Japanese market?

- The Japanese market is not interesting for my other products
- It is too costly/difficult for my company to export our other products to Japan given the structure or strategy of my company
- It is too costly/difficult for my company to export our other products to Japan given the existing barriers in Japan for this sector
- I don't know
- Other reasons (please specify)

9 The impact of barriers on launching new products in Japan

9.1 Please give the following **entry barriers** a score between 1 and 5 in terms of the degree to which they restrict your ability to expand your product range on the Japanese market:

- Barriers related to licenses and permits
- Restrictive start-up procedures, e.g. administrative burdens and complexity of rules
- High start-up costs, e.g. fees, land costs and read estate costs
- Other entry barriers (please specify)

9.2 By how much would you increase your product range if entry barriers to the Japanese market were eliminated or reduced?

- Product range would not increase

- ☐ Product range would increase a little (stay below levels in other Asian markets)
- ☐ Product range would increase a lot (to comparable levels in other Asian markets)
- ☐ Not relevant
- ☐ I don't know

9.3 Please give the following barriers to operation a score between 1 and 5 in terms of the degree to which they restrict your ability to expand your product range on the Japanese market:

- ☐ Barriers related to taxation rules, e.g. inconsistency or lack of transparency
- ☐ Solvency regulation, e.g. inconsistency or lack of transparency
- ☐ Barriers related to product standards, e.g. restrictive requirements
- ☐ Regulation of conduct, e.g. advertising, form of business/distribution channels
- ☐ Anti-trust exemptions, e.g. price regulation
- ☐ Conduct of public owned firms
- ☐ Barriers related to access risk information, e.g. sharing rules
- ☐ Other barriers to operation (please specify)

9.4 By how much would you increase your product range if barriers to operation at the Japanese market were eliminated or reduced?

- ☐ Product range would not increase
- ☐ Product range would increase a little (stay below levels in other Asian markets)
- ☐ Product range would increase a lot (to comparable levels in other Asian markets)
- ☐ Not relevant
- ☐ I don't know

10 Formalities

10.1 Would you like to make any further comments on the barriers you face in your exports to Japan?

- ☐ No
- ☐ Yes

10.2 Would you consider participating in a follow-up interview?

- ☐ No
- ☐ Yes

What is your name? _____

What is your position in the company? _____

What is your e-mail address? _____

What is your direct telephone number? _____

APPENDIX 5: CGE MODEL

In this appendix we outline the broad structure of the computable general equilibrium (CGE) model used in the main body of the report. We have estimated the broad macro-economic effects of NTM liberalisation with a CGE model. Due to limits in data availability, the sector-structure of the CGE model is more aggregated than for some of the detailed sector analysis in the main report. At the level of the model, the estimated total price impact of NTMs identified in the study – the increase in delivered price because of the NTMs can be broken down in various ways, and this is taken account of in the model. In particular, we model NTMs that increase costs for serving the Japanese or EU markets, as well as NTMs that instead limit access and raise price for imports, creating economic rents in the process.

The CGE approach detailed here brings together the full set of econometric, survey and legal analysis through definition of policy scenarios. The model is based on Francois, van Meijl, and van Tongeren (2005), and is similar to World Bank, CEPII and CPB global models. It is a multi-sector, multi-region model of the global economy. Estimated effects are based on a projected 2018 baseline. From this baseline, we have estimated the impact, both immediate and medium-term (following investment responses) of NTM liberalisation. The immediate impact (short-run) estimates described in the main report reflect the possible impact, on the 2018 baseline, if the relevant trade agreement was only implemented in 2018. The medium-term, in contrast, provides an estimate of how the 2018 baseline would look if the agreement had been implemented far enough in the past (approximately 7 to 10 years) so that the full set of investment impacts have already been realised. Hence, the short-run estimates are immediate, while the long-run gives a sense of the difference in economic activity allowing for investment responses.

A5.1 Technical overview

The core CGE model is based on the assumption of optimising behaviour on the part of consumers, producers, and government. Consumers maximise utility subject to a budget constraint, and producers maximise profits by combining intermediate inputs and primary factors at least possible cost, for a given technology. The model employed here is based on Francois, van Meijl, and van Tongeren (2005). It is a standard, multi-region CGE model, with important features related to the structure of competition (as described by Francois and Roland-Holst 1997). Imperfect competition features are described in detail in Francois (1998). Social accounting data follow conventions for the structure of the GTAP dataset (www.gtap.org).

The model is implemented in GEMPACK, a software package designed for solving large applied general equilibrium models. The model is solved as an explicit non-linear system of equations, through techniques described by Harrison and Pearson (1994). More information can be obtained www.monash.edu.au/policy/gempack.htm. For a detailed discussion of the basic algebraic model structure represented by the GEMPACK code, refer to Hertel (1996). The aim of this appendix is to provide a broad overview of the model and

detailed discussion of mathematical structure is limited to added features, while for the standard GEMPACK-based structure the reader is referred to Hertel (1996).

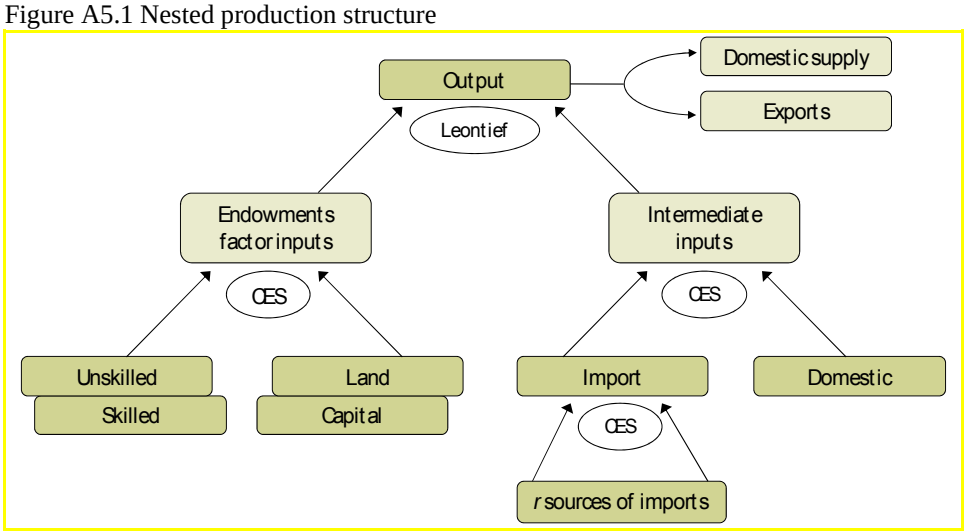
Table A5.1 Model sectors

Primary	Manufacturing	Services
Agricultures, forestry, and fisheries	Food and beverages	Water transport
Other primary sectors	Chemicals and related products	Air transport
	Electrical machinery	Finance
	Automotive	Insurance
	Transport equipment	Business and ICT services
	Machinery	Communications
	Metals and metal products	Construction
	Wood and paper products	Personal, cultural, and recreational services
	Other manufactures	Other services

General model structure

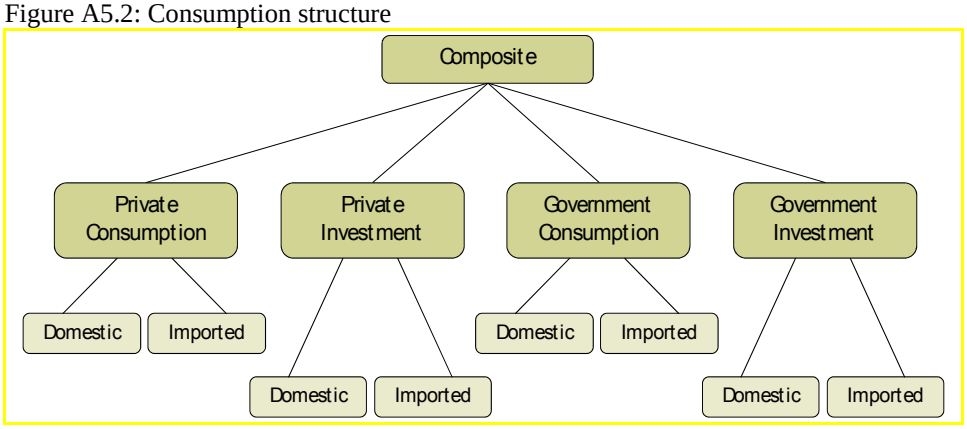
The general conceptual structure of a regional economy in the model is as follows: firms produce output, employing land, labour, capital, and natural resources and combine these with intermediate inputs, within each region/country. Firm output is purchased by consumers, government, the investment sector, and by other firms. Firm output can also be sold for export. Land is only employed in the agricultural sectors, while capital and labour (both skilled and unskilled) are mobile between all production sectors. While capital is assumed to be fully mobile within regions, land, labour and natural resources are not. Substitution elasticities in value added (capital, labour, natural resources) are detailed in the elasticity table below.

Figure A5.1 Nested production structure



Source:Francois.

Figure A5.2: Consumption structure



Source:Francois.

Trade policy

Trade policy can be represented in the model as direct taxes and subsidies, or as increased costs of production for export markets dues to non-tariff measures. Trade taxes are a special case of the range of taxes that are included in the theory of the model. Trade taxes and subsidies include both applied most-favored nation (MFN) tariffs and preferential rates as appropriate. The full set of tariff vectors are based on WTO tariff schedules, combined with possible Doha and regional initiatives as specified by the Commission during this project, augmented with data on trade preferences. The underlying GTAP data include data from CEPII on preferential tariff rates (including regional agreements and developing country preferences), and these are supplemented with WTO tariff data as appropriate.

In addition to tariffs, we also model non-tariff measures as a mixture of (i) frictional trade costs, and (ii) restrictions that operate as barriers that limit access and generate economic rents in the process. Frictional trading costs represent real resource costs associated with producing a good or a service for sale in an export market instead of the domestic market. Conceptually, for the model this means we have implemented a linear transformation technology between producing for domestic and export markets. This technology is depicted in Annex Figure 1 below. The straight line AB indicates, given the resources necessary to produce a unit of goods or services for the domestic market, the feasible amount that can instead be produced for export to a particular destination using those same resources. If there are no frictional barriers to trade, this line has slope -1. The line AC represents the NTM-free case. As we reduce NTM-related trading costs, the linear transformation line converges on the free trade line, as indicated in the figure. This approach is used for liberalisation of non-tariff measures, affecting both goods and services, where they are modelled as increasing the cost of goods and services sold to trading partners.

In addition to NTMs that generate frictional trade costs, we also model NTMs that do not raise trade costs per se, but that instead generate economic rents by limiting market access. In other words, this case covers restrictions that do not increase the cost of serving an over-

seas market, but that do still limit access to that market. Because they do not limit costs, but limit access (and so by limiting volume lead to higher prices) they generate economic rents – a gap between cost and final price. Such NTMs, where they generate rents, are modelled in the same was as import and export taxes. The allocation of the price impact across these "economic rent taxes" determines the allocation of the rents involved.

The actual levels of NTMs and their division between frictional and rent-creating barriers are discussed in the main body of the report. Also important in this regard is the allocation of NTMs into those that can actually be addressed through dialog and negotiation (those that are actionable) and those that are not actionable. For example, assume we have identified a 50 percent total tariff equivalent for NMTs in the widget repair sector. Assume further that half of the underlying barriers are actionable, so that we want to model a 25 percent reduction in the tariff equivalent of NTMs. Further, assume that of this 25 percent, we have identified 10 percent as resulting from non-tariff measures that raise costs, while the remaining 15 percent generates economic rents that are shared between the importer and exporter. In the model, the 10 percent trade cost is modelled as in Annex Figure A-1. This means that if a widget repair service costs $100 to produce and sell in Europe; it now costs only $90 to produce, once the underlying non-tariff measures are reduced. At the same time, with a split of rents (estimated at 15 percent) between the exporting firm and the importing or downstream, firm, we model this a 15 percent NTM trade tax (with a 50-50 split in rents this means a 7.5 percent import tax and a 7.5 percent export tax equivalent for the NTM). The resulting liberalisation experiment then involves both the 10 percent reduction in real costs and the elimination of the market access barriers (modelled as taxes) that generated economic rents.

It should be stressed that, in the services sectors, FDI restrictions are also important for total cross-border sales and sales through affiliates. Indeed, the econometrics used to arrive at NTM measures for services are based on indictors of regulatory barriers and discrimination against FDI in the service sector. As such, the NTM barrier estimates in services, as implemented in the model, also reflect estimated effects on trade related to FDI restrictions.

Transportation costs

International trade is modelled as a process that explicitly involves trading costs, which include both trade and transportation services. These trading costs reflect the transaction costs involved in international trade, as well as the costs of the physical activity of transportation itself. Those trading costs related to international movement of goods and related logistic services are met by composite services purchased from a global trade services sector, where the composite "international trade services" activity is produced as a Cobb-Douglas composite of regional exports of trade and transport service exports. Trade-cost margins are based on reconciled f.o.b. and c.i.f. trade data.

A5.2 Market structure

Demand for imports: Armington sectors

The basic structure of demand in constant returns sectors is Armington preferences. In Armington sectors, goods are differentiated by country of origin, and the similarity of goods from different regions is measured by the elasticity of substitution. Formally, within a particular region, we assume that demand for goods from different regions is aggregated into a composite import according to the following CES function:

(1)
$$q^M_{j,r} = \left[\sum_{i=1}^{R} \alpha_{j,i,r} M^{\rho_j}_{j,i,r} \right]^{1/\rho_j}$$

In equation (1), $M_{j,i,r}$ is the quantity of imports in sector j from region *i* consumed in region *r*. The elasticity of substitution between varieties from different regions is then equal to σ^M_j, where $\sigma^M_j = 1/(1-\rho_j)$. Composite imports are combined with the domestic good q^D in a second CES nest, yielding the Armington composite *q*.

(2)
$$q_{j,r} = \left[\Omega_{j.M.r} \left(q^M_{j,r} \right)^{\beta_j} + \Omega_{j,D,r} \left(q^D_{j,r} \right)^{\beta_j} \right]^{1/\beta_j}$$

The elasticity of substitution between the domestic good and composite imports is then equal to σ^D_j, where $\sigma^D_j = 1/(1-\beta_j)$. At the same time, from the first order conditions, the demand for import $M_{j,i,r}$ can then be shown to equal

(3)
$$\begin{aligned} M_{j,i,r} &= \left[\frac{\alpha_{j,i,r}}{P_{j,i,r}} \right]^{\sigma^m_i} \left[\sum_{i=1}^{R} \alpha^{\sigma^M_j}_{j,i,r} P^{1-\sigma^M_j}_{j,i,r} \right]^{-1} E^M_{j,r} \\ &= \left[\frac{\alpha_{j,i,r}}{P_{j,i,r}} \right]^{\sigma^M_j} \left(P^M_{j,r} \right)^{\sigma^M_j - 1} E^M_{j,r} \end{aligned}$$

where $E^M_{j,r}$ represents expenditures on imports in region *r* on the sector *j* Armington composite. In practice, the two nests can be collapsed, so that imports compete directly with each other and with the corresponding domestic product. This implies that the substitution elasticities in equations (2) and (3) are equal.

Imperfect competition

As indicated in Annex Table 1, we model a number of sectors as being imperfectly competitive. The approach we follow has been used in the Michigan and the WTO assessment of the Uruguay Round, and many recent studies of the Doha Round (see Francois *et al.* 2005). Recent model testing work indicates that this approach works "best" vis-à-vis Armington models, when tracked against actual trade patterns (i.e. Fox (1999) for certain sectors, uses the US-Canada FTA as a natural experiment for model testing).

Formally, within a region *r*, we assume that demand for differentiated intermediate products belonging to sector *j* can be derived from the following CES function, which is now indexed over firms or varieties instead of over regions. We have

$$q_{j,r} = \left[\sum_{i=1}^{n} \gamma_{j,i,r} X_{j,i,r}^{\Gamma_j} \right]^{1/\Gamma_j} \tag{4}$$

where $\gamma_{j,i,r}$ is the demand share preference parameter, $X_{j,i,r}$ is demand for variety *i* of product *j* in region *r*, and $\sigma_j = 1/(1-\Gamma_j)$ is the elasticity of substitution between any two varieties of the good. Note that we can interpret *q* as the output of a constant returns assembly process, where the resulting composite product enters consumption and/or production. Equation (4) could therefore be interpreted as representing an assembly function embedded in the production technology of firms that use intermediates in production of final goods, and alternatively as representing a CES aggregator implicit in consumer utility functions. In the literature, and in our model, both cases are specified with the same functional form. While we have technically dropped the Armington assumption by allowing firms to differentiate products, the vector of γ parameters still provides a partial geographic anchor for production. (Francois and Roland-Holst 1997, Francois 1998).

Firms in different regions/countries compete directly on a global level. Firms are assumed to exhibit monopolistically competitive behaviour. This means that individual firms produce unique varieties of good or service *j*, and hence are monopolists within their chosen market niche. Given the demand for variety, reflected in equation (4), the demand for each variety is less than perfectly elastic. However, while firms are thus able to price as monopolists, free entry (at least in the long-run) drives their economic profits to zero, so that pricing is at average cost. The joint assumptions of average cost pricing and monopoly pricing, under Bertrand behaviour, imply the following conditions for each firm f_i in region i:

$$\zeta_{j,f_i} = \sum_{r=1}^{R} \frac{X_{j,f_i,r}}{X_{j,f_i}} \left(\sum_{k=1}^{n} \left(\frac{\alpha_{j,k,r}}{\alpha_{j,f_i,r}} \right)^{\sigma_j} \left(\frac{P_{j,k,r}}{P_{j,f,r}} \right)^{1-\sigma_j} \right)^{-1} \tag{5}$$

$$P_{f,i} = AC_{f,i} \tag{6}$$

The elasticity of demand for each firm *f* will be defined by the following conditions.

$$\varepsilon_{j,f,i} = \sigma_j + (1-\sigma_j)\zeta_{j,f,i} \tag{7}$$

$$\frac{P_{f,i} MC_{f,i}}{P_{f,i}} = \frac{1}{\varepsilon_{f,i}} \tag{8}$$

In a fully symmetric equilibrium, we would have $\zeta=n^{-1}$. However, the calibrated model includes CES weights γ, in each regional CES aggregation function, that will vary for firms from different regions/countries. Under these conditions, ζ is a quantity weighted measure of market share. To close the system for regional production, we index total resource costs for sector j in region i by the resource index Z. Full employment of resources hired by firms in the sector j in region i then implies the following condition.

$$Z_{j,i} = \sum_{f=1}^{n_i} TC_{j,i,f} \tag{9}$$

Cost functions for individual firms are defined as follows:

$$C(x_{j,i}) = (a_{j,i} + b_{j,i}\ x_{j,i})\ P_{Z_{j,i}} \tag{10}$$

This specification of monopolistic competition is implemented under the "large group" assumption, which means that firms treat the variable n as "large", so that the perceived elasticity of demand equals the elasticity of substitution. The relevant set of equations then collapses to the following:

$$q_{j,r} = \left[\sum_{i=1}^{R} \bar{\gamma}_{j,i,r}\ \bar{x}_{j,i,r}^{\Gamma_j} \right]^{\frac{1}{\Gamma_j}}$$

$$\bar{\gamma}_{j,i,r} = \alpha_{j,i,r}\, n_{j,i\ 0}^{\,1-\Gamma_j} \tag{11}$$

$$\bar{x}_{j,i,r} = \left(\frac{n_{j,i}}{n_{j,i\ 0}} \right)^{(1-\Gamma_j)/\Gamma_j} X_{j,i,r}$$

$$\bar{x}_{j,i} = \left(\frac{Z_{j,i\ 1}}{Z_{j,i\ 0}} \right)^{(1-\rho_j)/\rho_j} X_{j,i} \tag{12}$$

In equation (12), n_0 denotes the number of firms in the benchmark. Through calibration, the initial CES weights in equation (12) include the valuation of variety. As a result, the reduced form exhibits external scale effects, determined by changes in variety based on firm entry and exit, and determined by the substitution and scale elasticities. For sectors covered in this study, the underlying gravity model yields estimate tariff or substitution elasticities. We have used these here, and so then calibrate the implied scale coefficients in equation (12) from the trade substitution elasticities, cf. Table A5.2.

Table A5.2 Key elasticites in the model

Project sectors within the model sector	Model sectors	Value added substitution elasticity	Trade sub-stitution elasticity
	Agriculture, forestry, and fisheries	0.224	4.766
	Other primary sectors	0.200	12.126
20	*Food & Beverages	1.120	2.460
10, 11, 12	*Chemicals and related products	1.260	5.090
15, 16, 17	*Electrical machinery	1.260	9.650
18	*Automotive	1.260	7.140
19	Transport equipment	1.260	7.140
14	*Machinery	1.260	9.710
21	Metals and metal products	1.260	13.910
23	Wood and paper products	1.260	7.990
22	*Other manufactures	1.260	6.556
2	Water transport	1.680	3.800
2	Air transport	1.680	3.800
3	Finance	1.260	2.040
5	Insurance	1.260	3.180
4,8	Business and ICT services	1.260	3.180
6	Communications	1.260	3.180
7	Construction	1.400	4.210
9	Personal, cultural & recreational services	1.260	8.710
	Other services	1.420	3.920

*Note: * Monopolistic competition sectors.*

The composite household and final demand structure

Final demand is determined by an upper-tier Cobb-Douglas preference function, which allocates income in fixed shares to current consumption, investment, and government services. This yields a fixed savings rate. Government services are produced by a Leontief technology, with household/government transfers being endogenous. The lower-tier nest for current consumption is also specified as a Cobb-Douglas. The regional capital markets adjust so that changes in savings match changes in regional investment expenditures.[24]

Capital accumulation and investment

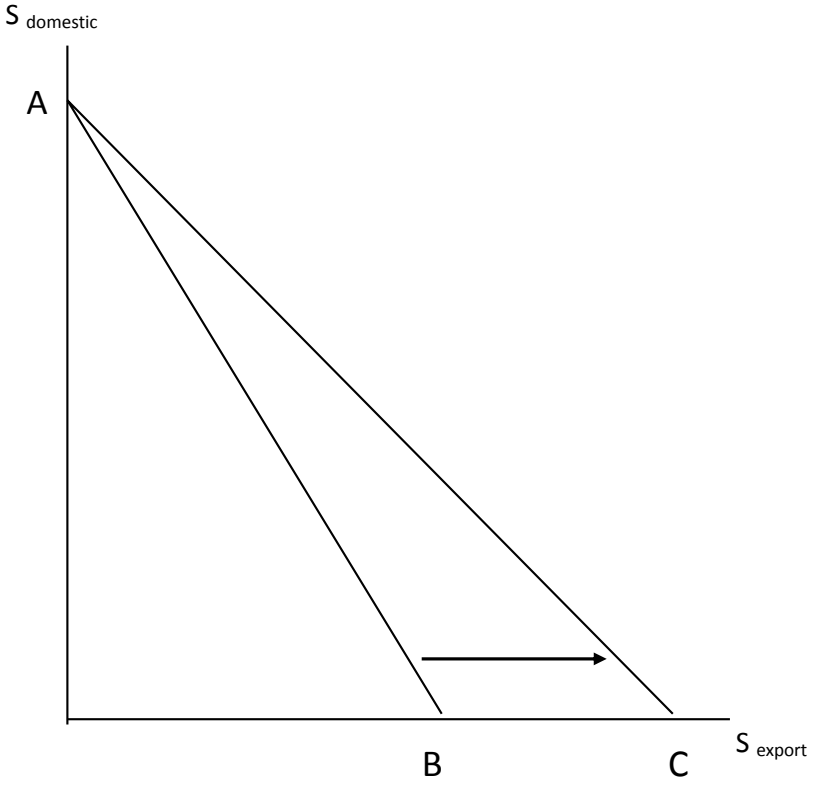
An important feature of the model involves a savings-investment-capital link, whereby the static or direct income effects of trade liberalisation induce shifts in the regional pattern of savings and investment. These effects have been explored extensively in the trade literature, including Baldwin and Francois (1999), Smith (1976, 1977), and Srinivasan and Bhagwati (1980). Several studies of regional and multilateral trade agreements have also incorporated variations on this mechanism. Such effects compound initial output welfare effects over the medium-run, and can magnify income gains or losses. How much these "ac-

[24] Note that the Cobb-Douglas demand function is a special case of the CDE demand function employed in the standard GTAP model code. It is implemented through GEMPACK parameter files.

cumulation effects" will supplement static effects depends on a number of factors, including the marginal product of capital and underlying savings behaviour. In the present application, we work with a classical savings-investment mechanism (Francois *et al.* 1996). This means we model medium- to long-run linkages between changes in income, savings, and investment. The results reported here therefore include changes in the capital stock, and the medium- to long-run implications of such changes.

The resulting estimates can be viewed as including two sets of effects. Our short-run or static estimates, as described in the report, correspond to the impact of a reduction in NTMs as observed in 2018, if the agreement was fully introduced and implemented in 2018. The longer-term (dynamic) estimates provide an overview of the observed impact in 2018, of the agreement had already been in place for several years, such that investment effects are fully realized. Hence, the estimates with capital accumulation provide a sense of the eventual outcome from dynamic gains linked to NTM reduction.

Annex Figure 1
Trading Costs as Iceberg Costs – cost-raising NTM reductions



APPENDIX 6: PHARMACEUTICALS SECTOR STUDY

The European pharmaceutical firms produced more than €190 billion worth of products to the global market in 2008, which is equal to a 36 percent share of the world market (more than €525 billion). European pharmaceutical firms exported more than €70 billion to destinations outside the EU in 2007 according to Eurostat data.

With an estimated size of €52 billion in 2008, Japan is the world's third largest pharmaceutical market after the US (€212 billion) and Europe (€169 billion). The Japanese pharmaceutical market is expected to grow at a rate of one to four percent a year between 2008 and 2013, which is faster than the North American market, but slower than the European market, which is expected to grow at three to six percent a year (IMS, 2009).

EU firms are currently exporting pharmaceutical products to Japan worth between €3 billion and €4 billion a year or corresponding to a market share of approximately six to eight percent of the total annual market in Japan.[25] Japan only imports about 14 percent of its domestic consumption of pharmaceutical products from aboard. A large share (nearly 60 percent) is from the EU. Only around 17 percent is from the US.[26] Therefore, the challenge for European pharmaceutical exporters is to open up the Japanese market, rather than to win market shares from other exporters in Japan.

A6.1 Major concerns in the pharmaceutical sector

In spite of many efforts to harmonise and streamline the regulation of the pharmaceutical sector in international forums, first and foremost in ICH[27], EU firms in Japan still encounter problems that have formally been solved through international harmonisation.

The most important NTMs for EU pharmaceutical export to Japan pertain to:

1. **A complex and costly regulatory environment**
   - Foreign clinical data are not recognised.
   - There are differences in clinical development guidelines and biological product specifications.
2. **A slow approval process result in a Japanese "drug lag"**
   - The review process for approving new medicines for sale in Japan is slow
   - Burdensome review and clinical trial consultation system.
3. **An inadequate pricing and reimbursement system**
   - Japan's reimbursement system does not reward the development and introduction of innovative medicines.

[25] According to Eurostat data for 2008 for the Harmonised System's chapter 30 'Pharmaceutical products' (HS-02).
[26] According to Japanese trade statistics from the Ministry of Finance for the category 507 'Medicinal products'.
[27] ICH is the International Conference on Harmonisation, which brings together the regulatory authorities of Europe, Japan and the U.S. and encompasses experts from the pharmaceutical industry from all three regions to discuss scientific and technical aspects of product registration. See www.ich.org.

In sum, these NTMs and other factors result in the so-called "drug lag". This is the delay in the access to new pharmaceuticals in Japan compared to the EU and the US. According to estimates from our business survey amongst European pharmaceutical firms in Japan, approval of new drugs in Japan is delayed by two to three years compared to the EU. This is confirmed by other studies. For biopharmaceuticals, the approval lag was 53.6 months in Japan compared to 7.5 months in the EU and 3.7 months in the US.[28]

For European exporters, the drug lag implies that the market return from Japan is delayed for up to three years and that the cost of launching new drugs on the market in Japan is higher than elsewhere. For the Japanese users, this does not only imply a delay in access to the newest medicines, but it also implies higher costs for the products. According to one assessment, a startling 87 percent of important new medicines are unavailable in Japan (Thomas, 2001).

If the review process is streamlined and the drug lag reduced, Japanese users of pharmaceuticals will have earlier access to better and cheaper products. Achieving this result requires a number of changes in the administrative implementation of the regulatory requirements, but it will not require changes in the regulatory requirements in terms of the safety and efficacy of the products.

According to our estimates, the current regulatory requirements, administrative procedures for conformity assessment and reimbursement procedures imply an additional cost for European pharmaceutical exporters of approximately 22 percent. In other words, the identified NTMs have an economic impact corresponding to a 22 percent tariff on the imports of pharmaceutical products.

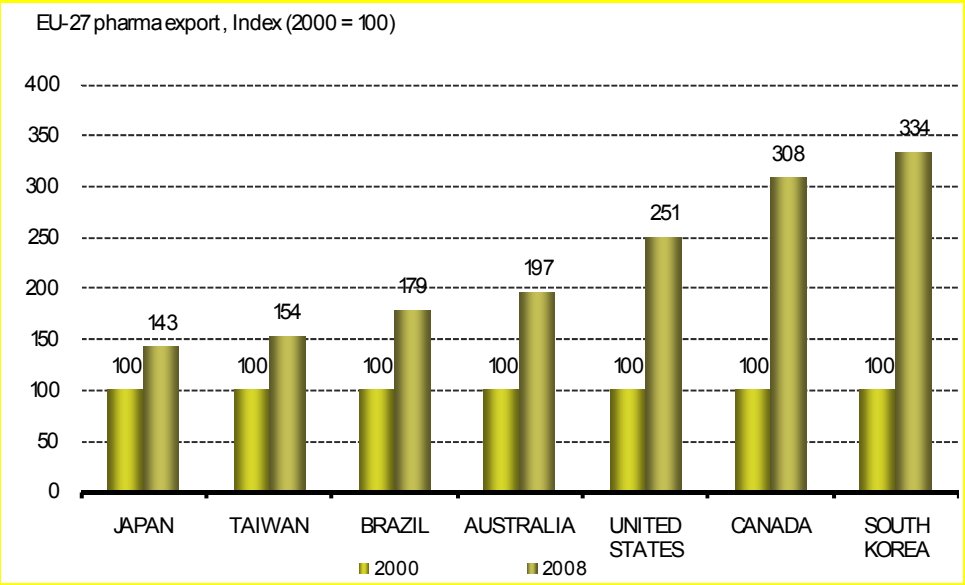
According to estimates provided by European managers in Japan, about 20 percentage points of these 22 percent extra costs can be avoided through actions aimed at eliminating Japanese NTMs related to standards, technical regulations and conformity assessment procedures.

A6.2 EU exports to Japan

European pharmaceutical export has increased significantly over the period from 2000 to 2008. Exports to Japan increased by 43 percent over the period, whilst export to other major economies outside Europe increased more. Exports to Korea have more than tripled, while EU pharmaceutical exports to Taiwan only increased by 54 percent cf. Figure A6.1.

[28] Based on research from the Graduate School of Pharmaceutical Sciences at the University of Tokyo and the Japanese Health Care Science Institute as published in Tsuji and Tsutani (2007). The analysis is based on the 65 new biopharmaceutical products being approved between 1999 and 2006.

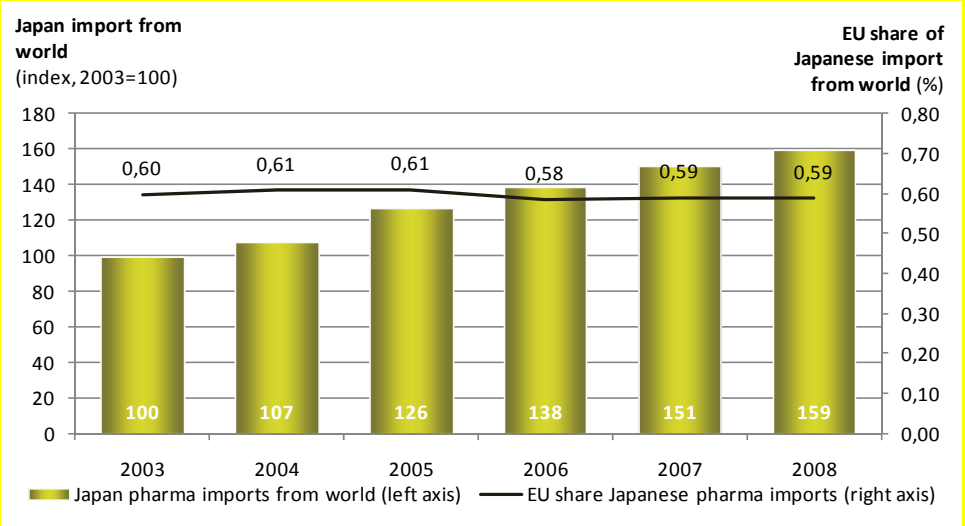
Figure A6.0.1 EU pharmaceutical exports to major non-EU destinations, 2000-2008



Source:Copenhagen Economics calculations based on data from Eurostat, SITC code 54.

Japan's pharmaceutical import from all partners grew by 59 percent between 2003 and 2008, and EU's share of Japan's import of pharmaceutical products from the world kept almost steady at around 60 percent, cf. Figure A6.0.2.

Figure A6.0.2 Japan's pharmaceutical import from world and the EU market share

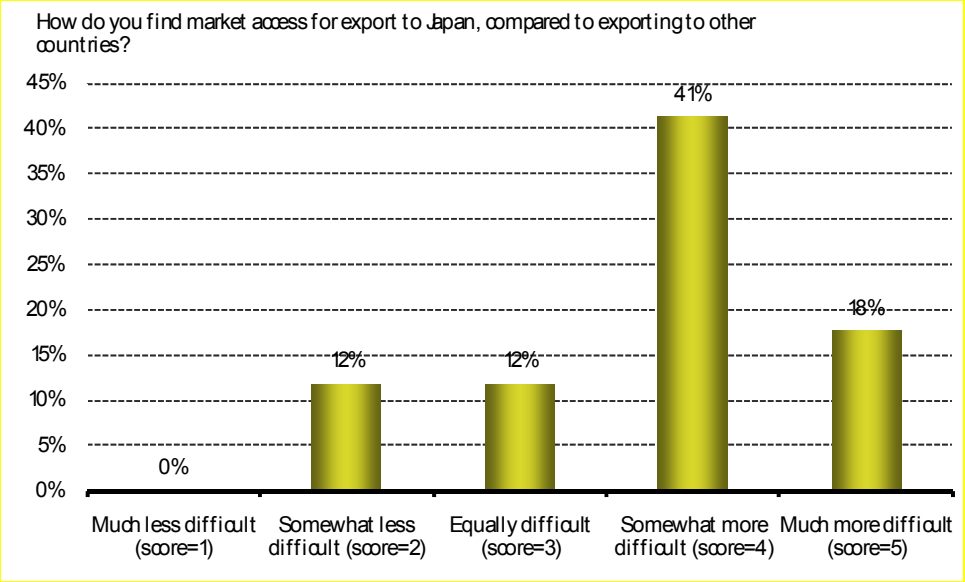


Source:Copenhagen Economics calculations based on Japanese trade statistics from the Ministry of Finance in Japan. Import code 507 in Japanese customs classification.

A6.3 NTMs to the Japanese market

Nearly six out of ten pharmaceutical sector managers in our business survey consider Japan as being more or much more difficult to access than other markets, cf. Figure A6.0.3.

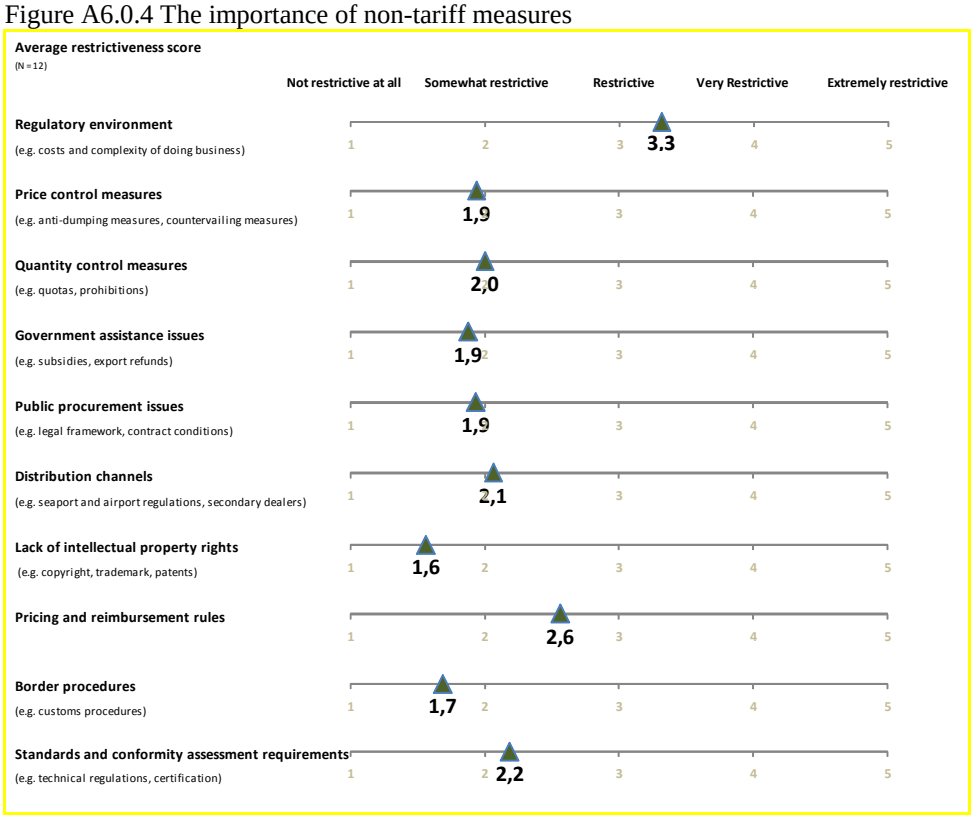
Figure A6.0.3 Perceived difficulty of exporting to Japan



Note: Average score = 3.8.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

There is almost uniform agreement among the responding EU managers in Japan that the regulatory environment, e.g. the cost and complexity of doing business, is considered the most restrictive barrier to the Japanese market, cf. Figure A6.0.4. The second most important NTM is related to the pricing and reimbursement rules for pharmaceuticals in Japan. In the third position, we find standards and conformity assessment requirements.

Figure A6.0.4 The importance of non-tariff measures

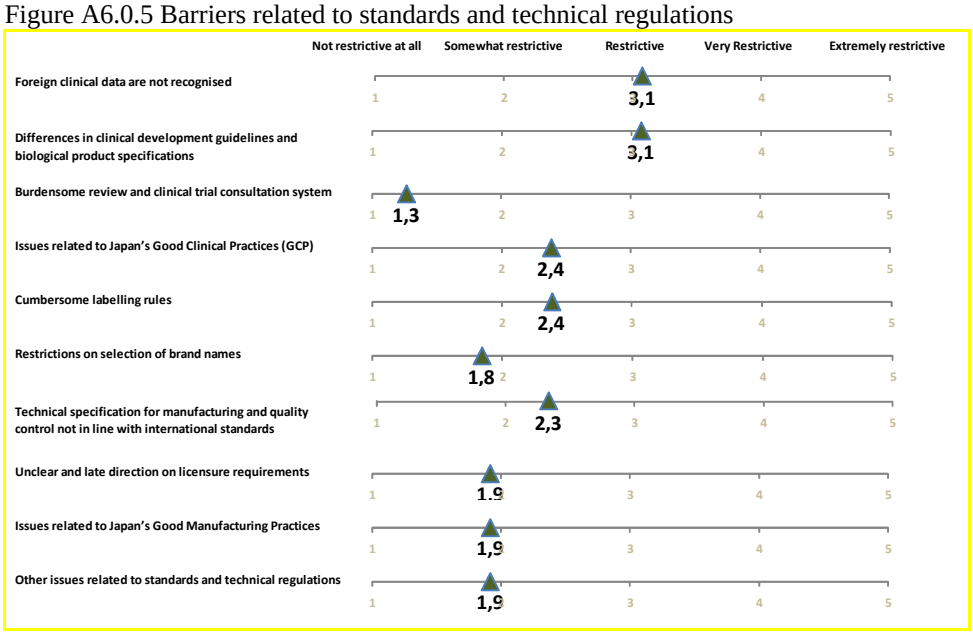


Note: The figure shows the average score for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

Barriers related to standards and technical regulations

The definition of standards and technical requirements follows the WTO definition (see more details in Chapter 1). The barriers related to standards and technical regulations are listed in Figure A6.0.5. Of most importance are issues related to the non-recognition of foreign clinical data

Figure A6.0.5 Barriers related to standards and technical regulations

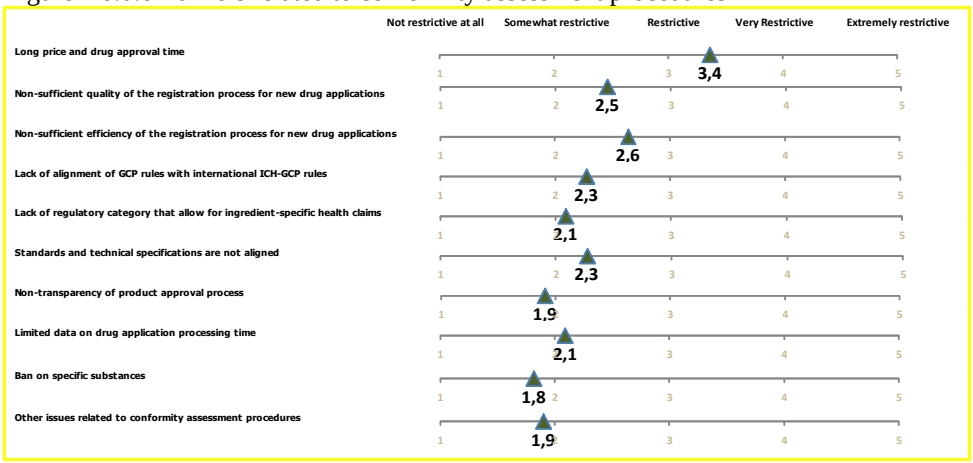


Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

Barriers related to conformity assessment requirements

The definition of conformity assessment requirements follows the WTO definition (see more details in Chapter 1). The most important barriers related to conformity assessment procedures are ranked in Figure A6.0.6.

Figure A6.0.6 Barriers related to conformity assessment procedures

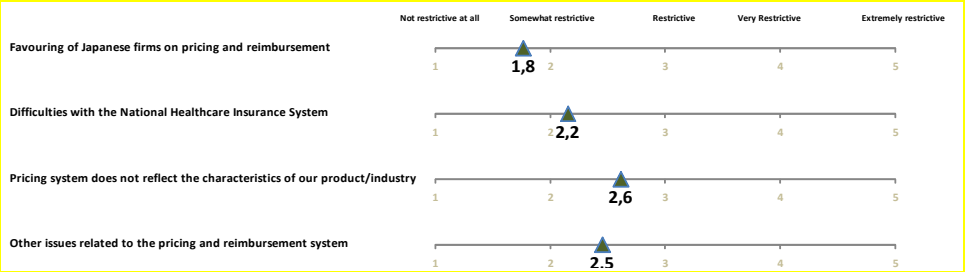


Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

The pricing and reimbursement rules also function as effective barriers to the Japanese market. In particular, the respondents attach most importance to the inability of the reimbursement system to adapt to the characteristics of their particular product, cf. Figure

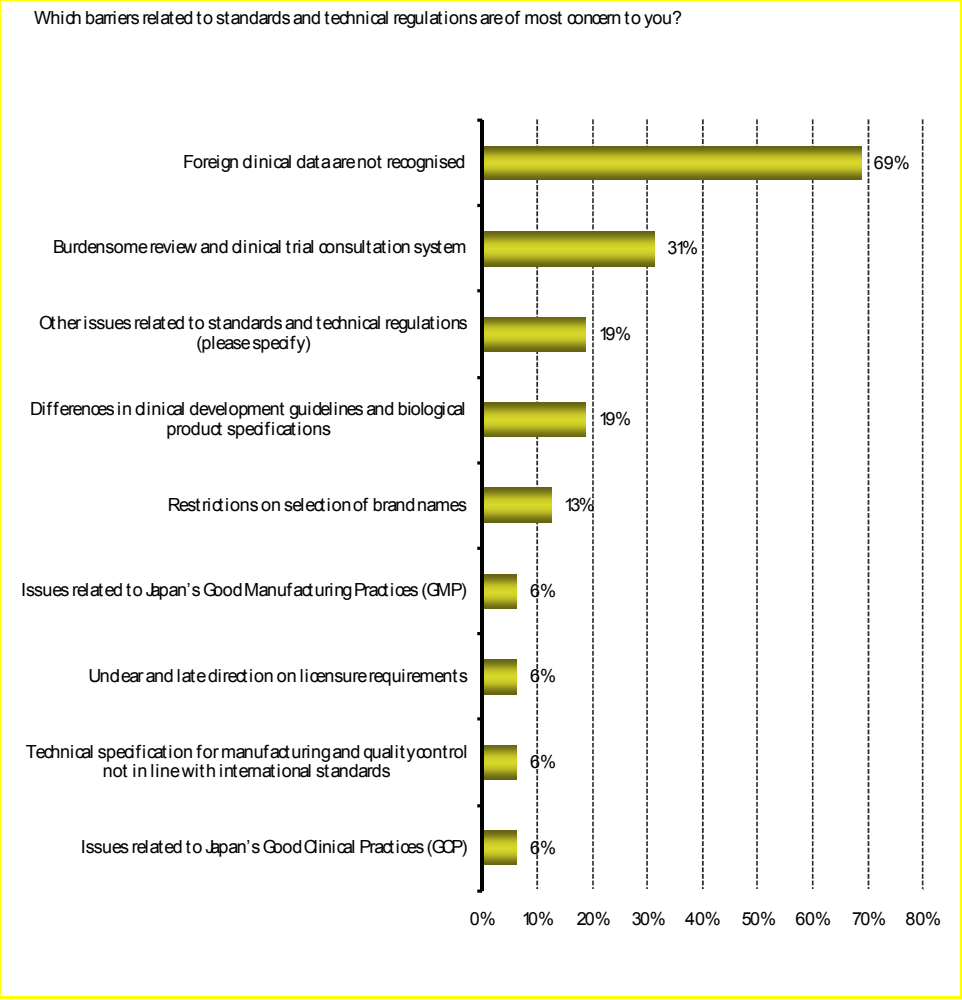
A6.0.7. Other issues are also considered as somewhat restrictive, namely the lack of transparency and information about decisions made (and grounds for rejection).

Figure A6.0.7 Barriers related to the pricing and reimbursement system



Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

Figure A6.0.8 Major concerns for EU pharmaceutical managers in Japan



Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

A6.4 Potential solutions

A potential solution to the challenges facing European pharmaceutical exporters in Japan would naturally need to find a solution to the clinical test data problem. The use of international standards is both seen as the preferred and the minimum required action to reduce barriers related to standards as well as conformity assessment requirements. On the latter point, the streamlining of product approval procedures and more resources in the Japanese administration to deal with these issues seems to be required. A complete and full recognition of the product approval from the EU home regulator is seen as the ultimate solution to both reducing the regulatory costs and the conformity assessment costs.

Efforts are already being carried out by the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH), cf. Box A6.1.

Box A6.1 Efforts to harmonise regulation on product registration

The International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) has as its main purpose to bring together the regulatory authorities of Europe, Japan and the US as well as experts from the pharmaceutical industry in the three regions to discuss scientific and technical aspects of product registration.

The purpose is to make recommendations on ways to achieve greater harmonisation in the interpretation and application of technical guidelines and requirements for product registration in order to reduce or obviate the need to duplicate the testing carried out during the research and development of new medicines.

The ICH terms of reference outlines that the objectives are:

- To maintain a forum for a constructive dialogue between regulatory authorities and the pharmaceutical industry on the real and perceived differences in the technical requirements for product registration in the EU, USA and Japan in order to ensure a more timely introduction of new medicinal products, and their availability to patients.
- To contribute to the protection of public health from an international perspective.
- To monitor and update harmonised technical requirements leading to a greater mutual acceptance of research and development data.
- To avoid divergent future requirements through harmonisation of selected topics needed as a result of therapeutic advances and the development of new technologies for the production of medicinal products.
- To facilitate the adoption of new or improved technical research and development approaches which update or replace current practices, where these permit a more economical use of human, animal and material resources, without compromising safety.
- To facilitate the dissemination and communication of information on harmonised guidelines and their use such as to encourage the implementation and integration of common standards.

Source:See www.ich.org for more information.

On the Japanese side, these objectives are far from being fulfilled: foreign clinical data are not recognised and the review and clinical trial consultation system is burdensome, differences in clinical development guidelines and biological product specifications continue to pose problems for European exporters, and there remains to be issues related to Japan's Good Clinical Practices (GCP).

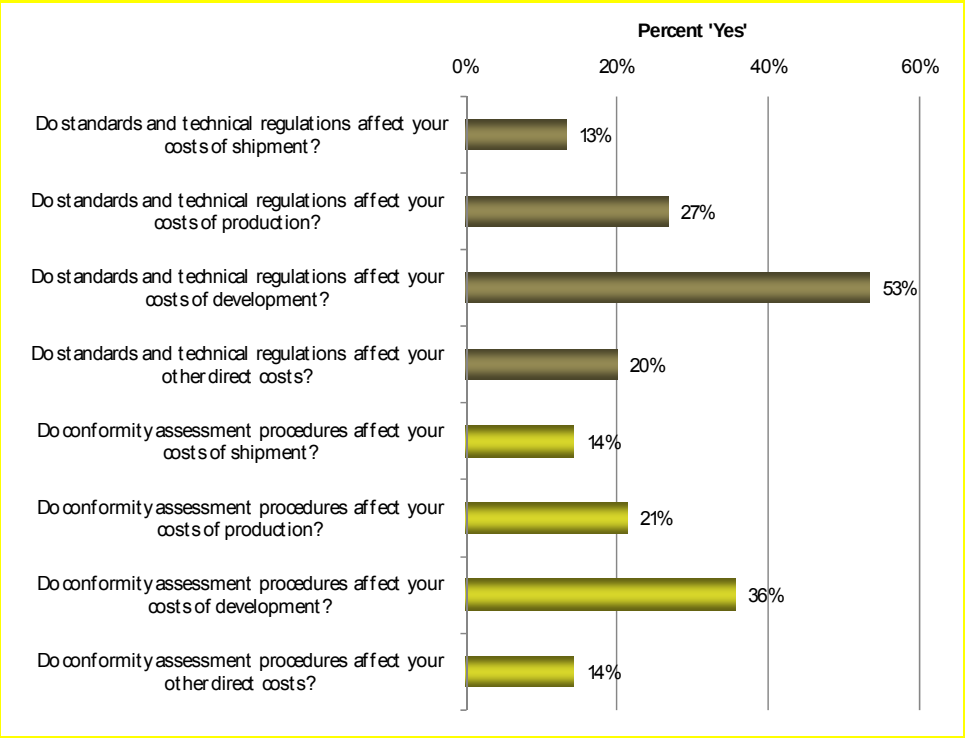
A6.5 Quantifying impacts on trade

The identified barriers in Japan have several negative impacts on European exporters:

1. **Higher development costs:** The non-recognition of foreign clinical test data increases the development costs, and additional R&D needs to be carried out at the conception and development phases.
2. **High approval costs:** The approval process in itself is time-consuming and costly. Approval of new medicines typically takes two to three years longer than in the EU, and the process requires more resources than in the EU.
3. **Delayed sales revenues:** Sales revenues from innovations are delayed and thus the net present value of investments made in R&D is depreciated because of the lengthy approval process in Japan (the drug lag).
4. **Higher production costs:** The delay in market entry into Japan also increases the production costs because, by the time the drug is approved for sale in Japan, the European production lines have changed to produce the next generation medicines. This increases the production costs because certain economies of scale in production cannot be achieved.
5. **Higher border and distribution costs:** The individual inspections of shipments of approved products, once they arrive in Japan, add costs to European exporters. Furthermore, the complex system of dealerships and distribution wholesales inserted between the EU producer and the final customer in Japan adds extra costs and drives up the rents on these products.
6. **Fewer product varieties:** European exporters market fewer products on the Japanese market as result of the lengthy approval procedures. This restrict the European exporters from achieving economies of scope, for example in the sales and distribution system (e.g. because the same number of sales staff can sell more, if more products were approved for sale in Japan, or because of synergies for company marketing and branding can be achieved).

More firms are affected by regulatory costs than by conformity assessment costs. In both cases, development costs remain the most affected cost category. More than half of the firms confirm that their development costs are affected by the regulatory requirements in Japan, cf. Figure A6.0.9.

Figure A6.0.9 How various barriers affect costs of EU pharmaceutical export to Japan

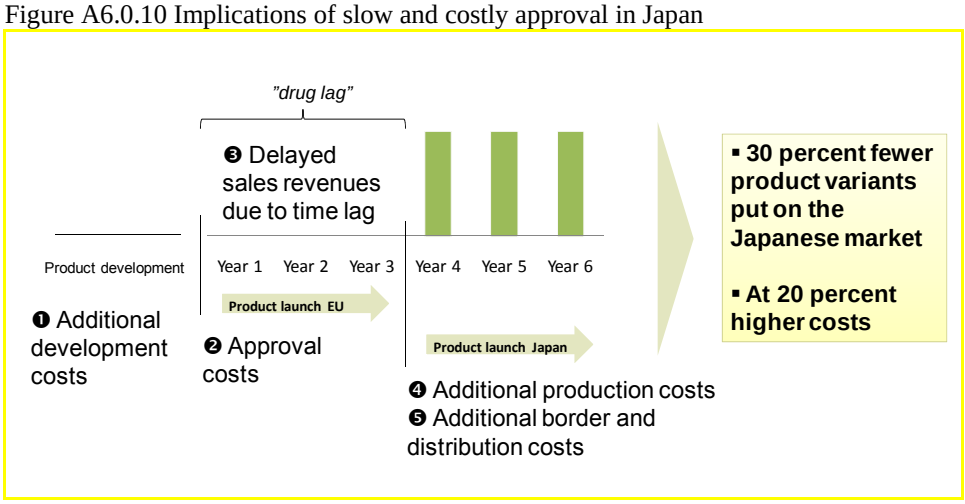


Note: Many of the respondents have answered "I don't know" to this question.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

As a result, European exporters are selling less of each of the approved products at a higher cost. Furthermore, the barriers also imply a more narrow set of product varieties on the Japanese market. Seven out of ten respondents say that their product range on the Japanese market is smaller or somewhat smaller than in other markets. The main reason given is that "it is too costly or too difficult to export a large share of products to Japan given the existing barriers in Japan". This result is confirmed by a study from the Japanese Office of Pharmaceutical Industry Research from 2006 showing that 30 percent of the world's top selling drugs were not yet launched in Japan (Fukuhara, 2006). Furthermore, the study showed that Japan was one of the countries where drugs are launched in the last place among 66 countries surveyed.

For the Japanese consumers of pharmaceuticals, the result is higher prices and fewer products to choose from. For the European exporters, the implication is less sales and higher costs, cf. Figure A6.0.10.

Figure A6.0.10 Implications of slow and costly approval in Japan



Source:Copenhagen Economics.

Managers of EU pharmaceutical firms in Japan have been asked to quantify the impact of barriers as a percentage of the export value of their export to Japan. The regulatory requirements in Japan imply higher production costs than for production in the EU or other markets. According to estimates by the pharmaceutical companies, this is in the order of 5 to 10 percent, and in some cases up to 20 percent for certain products.

> *We estimate that the Japanese requirements imply additional 15-20 pct production cost.*

The most significant impact of the regulatory requirements in Japan relates to the development costs. The main reason is the need to duplicate costly clinical tests, because of the non-recognition of foreign clinical data by Japanese authorities. According to estimates by the pharmaceutical companies present in Japan, this adds costs corresponding to between 10 and 30 percent of the export value. Estimates by the Tufts Centre for the Study of Drug Development in Boston indicate that clinical tests make up more than half of the total development costs of new drugs (DiMasi, 2003).

> *Need for specific development (local clinical trials) - By far the biggest economic impact/barrier +20%*

And

> *We estimate that the cost of developing products for the Japanese market is 25-30 pct higher than world average*

Conformity assessment costs appear to be low. Also, border procedures that delay export of pharmaceutical products already accepted at the Japanese market are assessed to have a minor impact of up to 1 percent of the export value.[29]

Based on calculations of the decrease in net present value of the sales revenues resulting from a two-year delay in product approval we assess the delay costs as being equivalent to 6 to 11 percent of their total export value. This is likely to be a conservative estimate in that on responding manager states that

> *Market entry/launch usually 2-3 years later than Europe. On a 20 year life cycle the cost of launching a product 3 years later would be 15%*

In sum, the barrier estimate is between 22 percent and 54 percent based on business survey responses, cf. Table A6.0.1. We use the lower end estimate of 22 percent in order to avoid overestimating the barriers.

Table A6.0.1 Quantification of barriers

Cost element	Low estimate	High estimate
Higher production costs	5%	10%
Higher development costs	10%	30%
Other conformity assessment costs	1%	2%
Border costs	0%	1%
Depreciation of sales due to delay (approval)	6%	11%
Total cost estimate	**22%**	**54%**

Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

Not all of these barriers can necessarily be removed. According to the responses from the managers in Japan, costs corresponding to 9 to 12 percent of the value of sales in Japan can be avoided by addressing the barriers related to standards and technical regulations, and costs corresponding to 6 to 9 percent of value of sales can reduced by improving the conformity assessment procedures (in particular for product approvals), cf. Table A6.0.2. This indicates a barrier reduction potential of 15 to 20 percent of the value of sales if both are addressed.

According to these estimates, about 20 percentage points of the 22 percent barrier costs can be avoided through various actions improving the regulatory environment and shortening the device lag.

[29] In the terminology of Djankov, Freund, and Pham (2006) this translates into less than one days delay given that pharmaceutical products are characterised as time-sensitive. An estimated trade cost of 1 percent therefore seems to be a very conservative estimate.

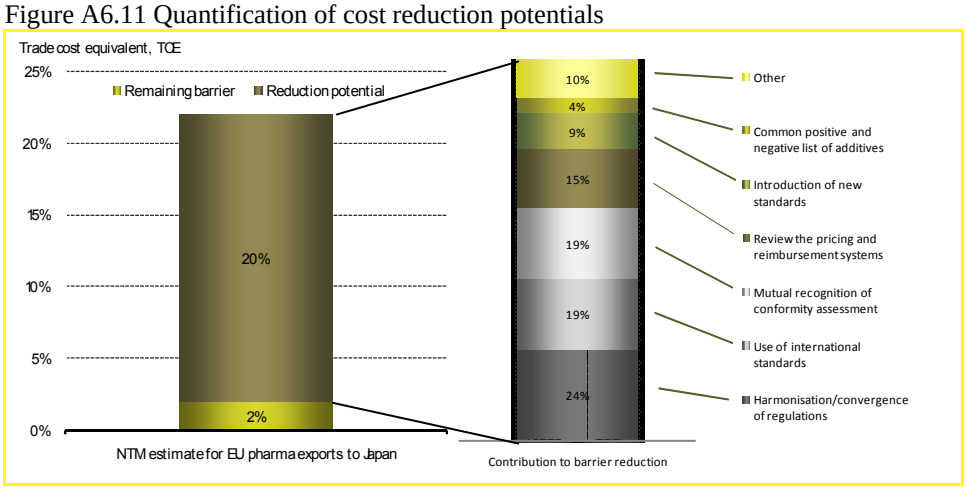
Table A6.0.2 Reduction potential

	Question 4.8	Question 4.9	Question 6.8	Question 6.9
	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?
Answer options	**Response percent**	**Response percent**	**Response percent**	**Response percent**
0- 1%	18%	18%	27%	56%
1% - 5%	0%	36%	18%	0%
5% - 10%	18%	9%	9%	22%
10% - 15%	18%	0%	18%	0%
15% - 20%	9%	9%	0%	11%
More than 20%	36%	27%	27%	11%
Average	**12%**	**9%**	**9%**	**6%**

Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

Reducing barriers to pharmaceutical exports requires a mix of policy instruments. No single solution is preferred by a majority of the firms in the sector. The most desired solution to reduce the regulatory burden is through harmonisation and convergence between the EU and Japan regarding rules and regulations in the sector (mentioned 24 percent of the times), cf. Figure A6.11. The use of international standards is mentioned in 19 percent of the replies as the second most desired solution. Mutual recognition of the certification procedure also gets frequently mentioned (19 percent of the items mentioned). Review of the pricing and reimbursement system is mentioned in 15 percent of the mentioned solutions.

Figure A6.11 Quantification of cost reduction potentials



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source:Copenhagen Economics, Questionnaire to managers of European pharmaceutical firms in Japan.

A6.6 Results and implications

The European pharmaceutical industry faces a challenge in opening up the Japanese market. However, the process of launching new products on the Japanese market is costly and cumbersome. First, the complex and costly regulatory environment in Japan leads to excessive development costs. In spite of the ICH collaboration between the EU, Japan and the US, foreign clinical data are still not recognised in Japan, and there remains to be differences in clinical development guidelines and biological product specifications. Second, the slow approval process has resulted in a significant "drug lag".

According to managers in the European pharmaceutical industry in Japan, the cost of NTMs is 22 percent, where barriers related to standards, technical regulations and conformity assessment procedures make up as much as 20 percentage points. 60 percent of the respondents point to the harmonisation/convergence of regulations, the use of international standards or the mutual recognition of conformity assessment as ways to eliminate these NTMs. In a CGE modelling framework this cost decrease translates into almost a doubling of trade from around €4 billion to around €7.4 billion a year.

APPENDIX 7: MEDICAL DEVICE SECTOR STUDY

The US, the EU and Japan together account for about 90 percent of global production and consumption of medical devices. EU production of medical devices totalled approximately €31 billion, whereas apparent EU consumption of medical devices was equal to €27.4 billion in 2005 (USITC, 2007).

With an estimated size of €23 billion per year, Japan is the world's third largest medical device market after the EU (€70 billion) and US (€98 billion).[30] Japan has remained a net importer of medical devices for many years. Furthermore, demand for medical devices is increasing since Japan's population is shrinking and aging. The increased demand for health care will put pressure on Japan's healthcare budget.

EU firms are currently exporting instruments and appliances to Japan used in medical, surgical, dental or veterinary sciences as well as orthopaedic appliances worth €2.1 billion a year. The potential for increasing exports of European medical device to Japan is large. According to our gravity model estimates, the trade could increase with 84 percent if the level of NTMs was made comparable to the EU (equal to the difference between the EU and Japan dummies).

A7.1 Major concerns in the medical device sector

The most important NTMs for EU medical device export to Japan pertain to:

1. **A complex and costly regulatory environment**
   - Special "Japan only" safety requirements adds extra development and production costs for European exporters.
   - The functional category system for Special Treatment Materials creates disincentives for introducing new products and services.
2. **A slow conformity assessment process results in a device lag**
   - The review process for approving new products for sale in Japan is slow.
   - The clinical trial consultation is cumbersome and costly.
3. **An inadequate pricing and reimbursement system**
   - Japan's reimbursement system does not reward the development and introduction of innovative medical devices.
   - The Foreign Average Price rule regulates the Japanese prices based on an average of foreign prices on same or similar product and is criticised for not reflecting the value of newly developed and advanced medical devices (including R&D costs).

To the European exporters, the high costs of conformity assessment procedures are mainly related to costs of development because of the need to carry out additional trials to be in conformity with Japanese requirements. Also, the costs of these testing and product approval procedures are high in terms of delays.

[30] According to information from the European medical device firms' organisation *Eucomed*, see www.eucomed.be.

In general, standards and technical regulations in themselves are less of a problem in the medical device sector. However, one major concern is related to reimbursement pricing issues. The concern is that Japan's reimbursement policies do not sufficiently reward the development and introduction of innovative medical devices.[31]

In sum these barriers result in the so-called "device lag". This is the delay in the access to new medical devices in Japan compared to the EU and the US. In general, market entry of new or improved devices is delayed between 18 and 36 months in Japan compared to the EU and US. For most devices this delay corresponds to one or two generation of products. For European exporters, the device lag implies that the market return from Japan is delayed for up to three years and that the cost of marketing devices in Japan is higher than elsewhere. For the Japanese users, it not only implies a delay in access to the newest medical treatment, but also implies higher costs for the products.

EU producers may be disproportionately affected compared to Japanese rivals. This occurs in cases where EU medical device firms are "innovative frontrunners" having a competitive advantage in higher-risk, more innovative products compared to their Japanese competitors. Such innovative medical devices face longer delays in regulatory approvals than more standard medical devices (approval times of up to 3 years in Japan), while at the same time being characterised by much shorter product life cycles than most other products (as short as 18 months).

If the review process can be streamlined and the device lag can be shortened, Japanese users of medical devices will have earlier access to better and cheaper products. Achieving this result requires a number of changes in the administrative implementation of the regulatory requirements, but it will not require changes in the regulatory requirements in terms of safety and efficacy of the devices.[32]

According to our estimates, the current regulatory requirements, administrative procedures for conformity assessment and reimbursement assessment imply an additional cost for European medical device exporters of approximately 30 percent. In other words, the identified NTMs have an economic impact corresponding to a 30 percent tariff on the imports of medical devices.

According to estimates provided by European managers in Japan, about 12 percentage points of these 30 percent extra costs can be avoided through various actions requiring efforts from both European and Japanese policy makers.

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[31] A lot is being done already. For example, the MHLW has increased the frequency of health insurance listings of devices classified as C" to four times a year.

[32] A similar result is found in reports and interviews with U.S. manufacturers who state that the most prominent Japanese trade barriers revolve around regulatory delays, reimbursement policies, and market entry restrictions. According to a US government report, the regulatory reform priority that would most benefit US industry and government is a faster product approval process in Japan according to a USITC report from 2007.

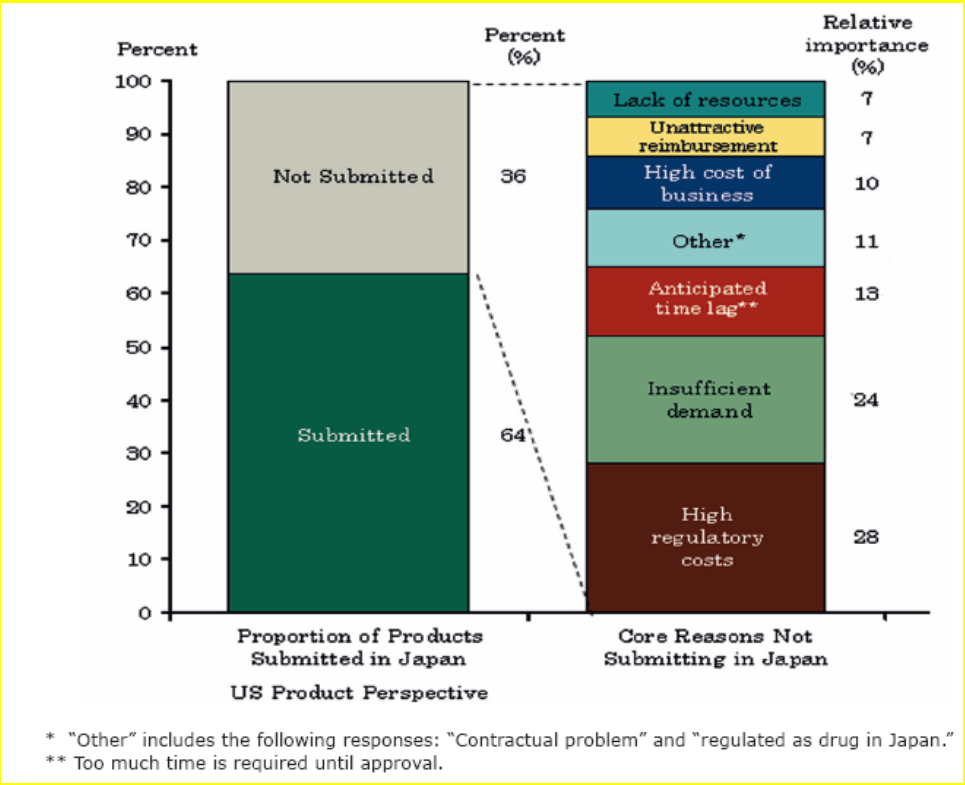
The device lag

The Japanese medical device market is highly regulated which means that product approvals are slow and expensive. Japanese standards and regulatory requirements result in a 1-2 years time lag before the newest and most innovative equipment is put on the market in Japan. Sometimes up to 3 years delay. This "device lag" differs from product to product, but is significant for diagnostic equipment, life-saving equipment and internal-in-body instruments (e.g. pacemakers).

Many Asian countries accept global standards, but not Japan. This means that medical devices need to be adapted to enter Japan (sometimes, however, just a Japanese language requirement). One example of the delay is the 3.0 tesla MR scanners, which were delayed almost four years before entering into Japan, while rapidly accepted in Taiwan, Korea and elsewhere.

The device lag consists of a "submittal lag" plus an "approval lag". The *submittal lag* is caused by delays in the period from approval in the EU to submission to the Pharmaceuticals and Medical Devices Agency (PMDA). The submittal lag has been reduced from 16.8 to 11 months for Premarket Approval Application (PMA) equivalent products, and the lag for 510(k) equivalent products is now 14.3 months in Japan compared to 2.2 months in the US (ACCJ, 2008) (European Commission, 2007). However, it is important to keep in mind that a large number of medical devices are not even being submitted for approval in the Japanese market. High regulatory costs, insufficient demand and the anticipated time lag (too much time is required until approval) submittal date, cf. Figure A7. According to the American Chamber of Commerce in Japan (ACCJ, 2008), only about half of the European and US medical devices are available in the Japanese market. By its nature, the submittal lag only exist for exporting firms, which leads to an asymmetry between EU and Japanese producers.

Figure A7.1 Reasons for not submitting devices for approval in Japan



Source:American Chamber of Commerce in Japan (2008).

The *approval lag* is the difference in the period from application submission to approval between Japan and the EU. ACCJ (2008) reports that the average total review period from submission to approval of PMA equivalent products has fallen from 26.6 months in 2005 to 21.1 months in 2008. Accordingly, the time lag following approval was slashed from 16.8 months to 11.0 months for PMA equivalent products and 25.6 months to 12.1 months for 510(k) equivalent products. However, the Japanese device lag remains to be significant.

There do not seem to be any formal indications of discrimination against foreign medical device producers that would cause the approval lag to be more pronounced for EU medical device companies compared to their Japanese counterparts. There may be some small advantage due to proximity and no linguistic difficulties but these are relatively negligible. However, the fact that EU producers are technological frontrunners suggests that the main bulk of their submissions will be of new and innovative medical devices. Since such medical devices are characterised as PMA equivalent products, this means that the approval lag is likely to be longer for EU exporters than for Japanese medical device producers.

Also, certification by a third party certification body is rarely possible since such new and innovative are often rated as higher risk, and therefore need to undergo the examination

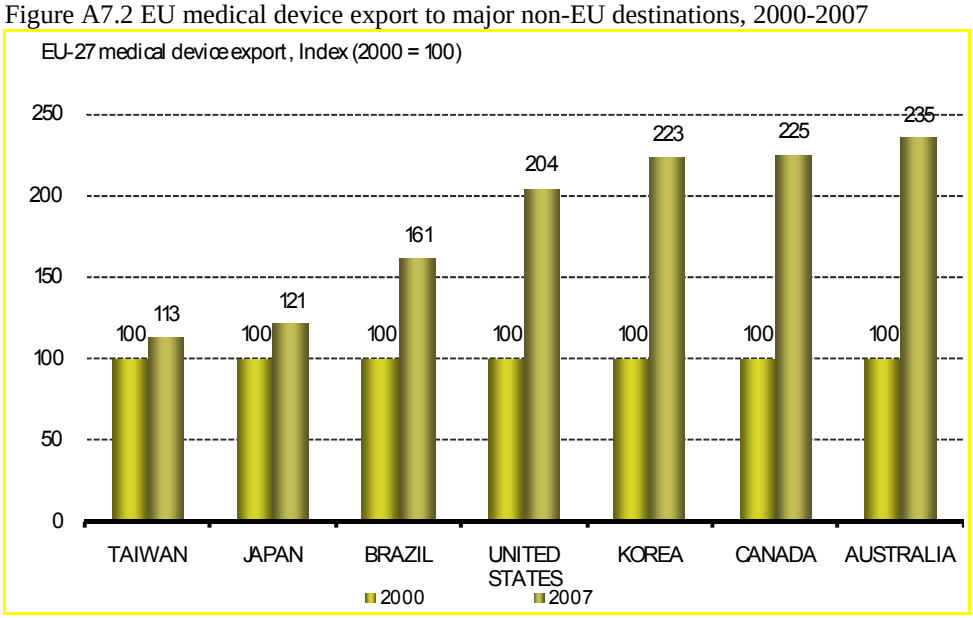
process by the PMDA (EBC, 2008a). In light of the limited resources at the PMDA, this means that the approval lag will have a disproportionate impact on European producers.

A5.2 EU exports to Japan

The market situation is that there are three Japanese firms with a combined market share of around 50 percent of the Japanese market (Toshiba, Hitachi and Shimadzu). There are also three large foreign suppliers, which have a combined market share of another 50 percent in Japan (Philips, Siemens and GE). In other parts of the world, Japanese firms normally have a combined market share of around 10 percent, while the three foreign firms (Philips, Siemens and GE) would have a combined market share around 90 percent. This suggests that there are factors in the Japanese market that have a disproportionate impact of exporting companies compared to Japanese producers.

European medical device export to its main destinations has increased significantly over the period from 2000 to 2008. Exports to Japan increased by 21 percent over the period, but this increase is modest compared to other major economies outside Europe. Exports to the US, Korea, Canada and Australia have more than doubled, cf. Figure A7.2.

Figure A7.2 EU medical device export to major non-EU destinations, 2000-2007

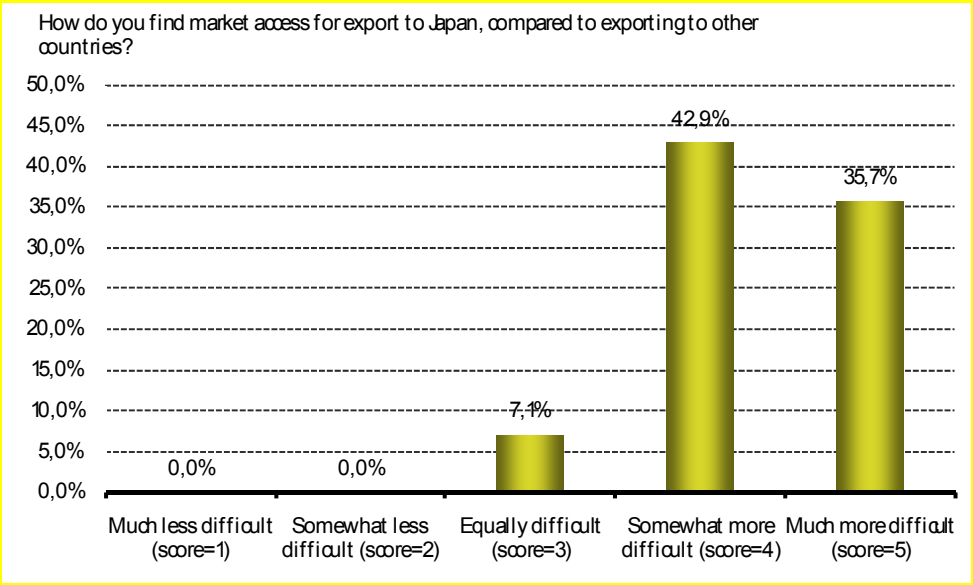


Source:Copenhagen Economics calculations based on Eurostat data, SITC code 54.

A7.3 NTMs to the Japanese market

Close to 80 percent of the medical device managers in our business survey consider Japan as being more or much more difficult to access than other markets, cf. Figure A7.3.

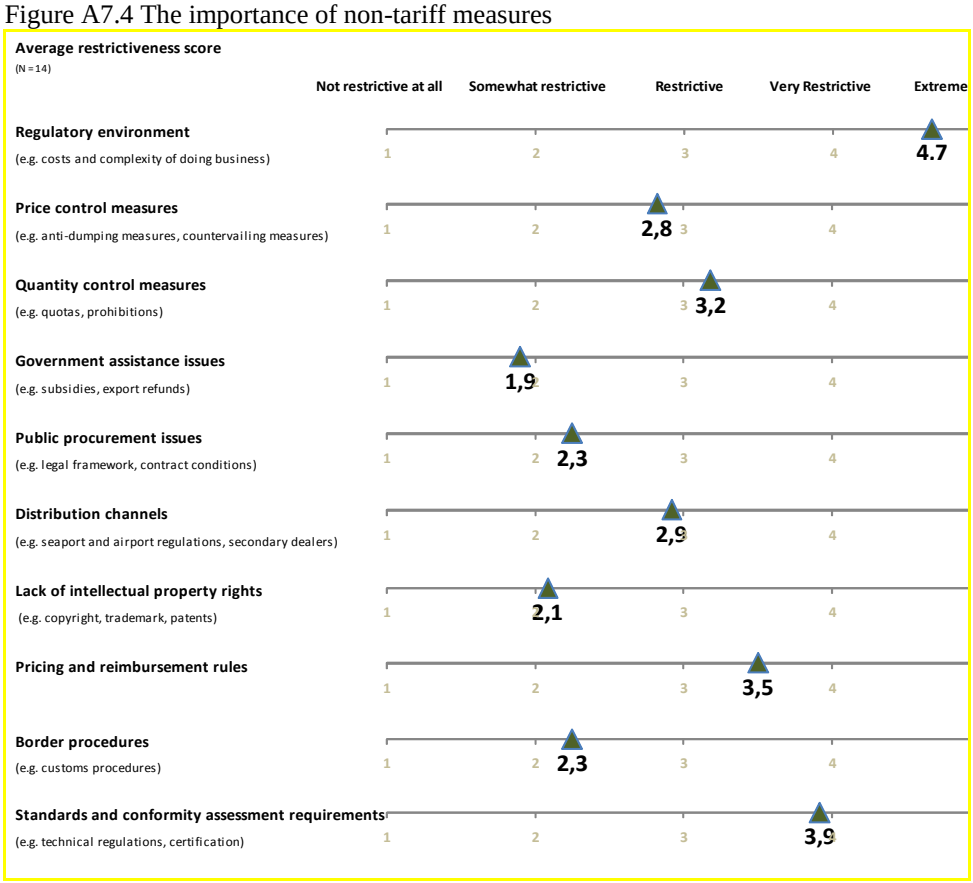
Figure A7.3 Perceived difficulty of exporting medical device to Japan



Note: Average score = 4.3.
Source:Copenhagen Economics, Questionnaire to managers of European medical device firms in Japan.

The regulatory environment is perceived as being highly restrictive receiving an average score of 4.7, cf. Figure A7.4. Next come standards and conformity assessment requirements closely followed by difficulties related to the Japanese pricing and reimbursement rules. These issues will be covered in more details below.

Figure A7.4 The importance of non-tariff measures

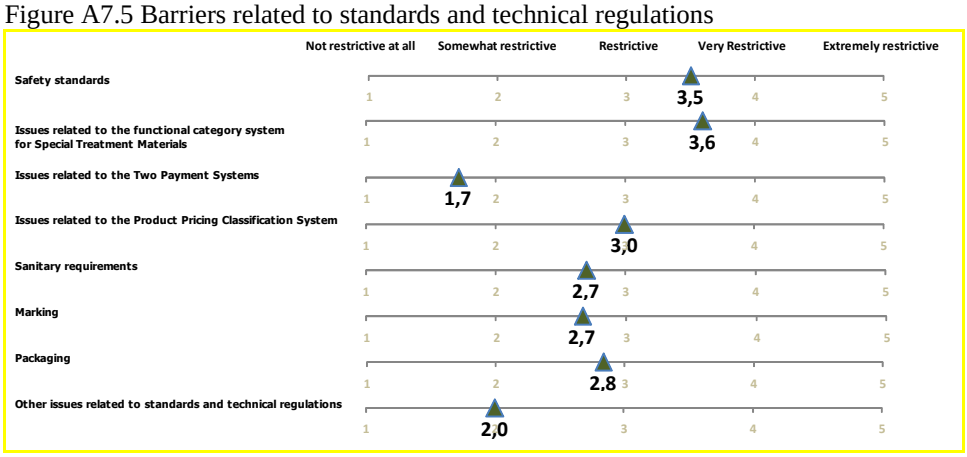


Note: The figure shows the average score for each response category.
Source:Copenhagen Economics questionnaire to managers of EU medical device firms in Japan.

Barriers related to standards and technical regulations

The definition of standards and technical requirements follows the WTO definition (see more details in Chapter 1). The barriers related to standards and technical regulations are listed in Figure A7.5.

Figure A7.5 Barriers related to standards and technical regulations



Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics Questionnaire to managers of European medical device firms in Japan.

Of most importance are issues related to the functional category system for Special Treatment Materials (STMs), cf. Box A7.1. The impact of price controls on STMs is a downward pressure on prices, which creates disincentives for introducing new products and therapies. This means that the product generation gap between the EU and Japan is growing.

Box A7.1 The functional category system for Special Treatment Materials

The Functional Category System is used in the Japanese health care sector and categorises different treatments and medical procedures into groups of similarity. This serves the reimbursement system where hospitals are reimbursed by the government for technical procedures and medical devices. In some cases the reimbursement for medical devises lies within the technical fee paid to the physician. In other cases the price for the medical devices is fixed separately from the procedure. These devises are called "special treatment materials" and are generally used one time at one patient.

The Japanese Two Payment System consist of the following two systems:

1. Special Treatment Materials (STMs) also called "designated insured medical materials" - product reimbursement price fixed according to a fee schedule and is separate from other medical service fees. STMs represent about 1/3 of overall device budget, or about 3% of national healthcare expenditures.

2. The remaining 2/3, including capital equipment, IVDs, commodities, etc, are either purchased "by-brand" or paid out of the "technical fee" associated with a medical procedure. Non-STM product prices are determined through direct negotiation between buyer and seller, not according to fee schedule.

The functional category system for STMs was established by MHLW in 1992, adopted in 1994, with the aim of increasing price competition among products with identical or similar function. Today, there are roughly 150 major groupings containing about 600 functional categories.

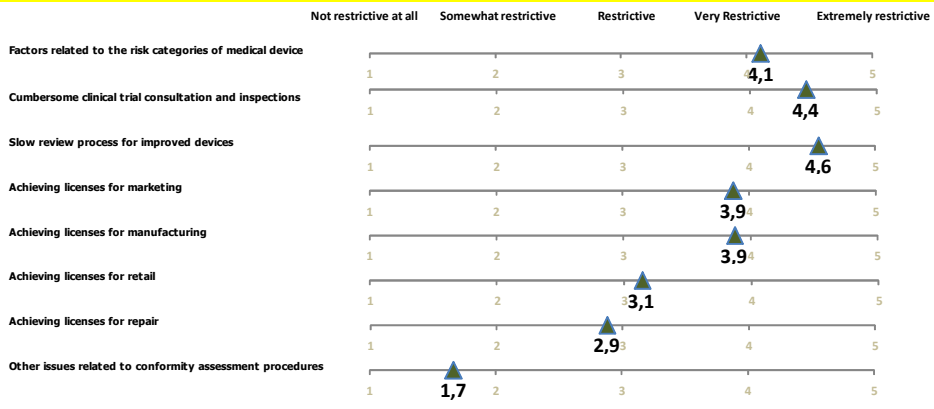
The Ministry of Health, Labour and Welfare (MHLW) introduced this fixed pricing system as the National Health Insurance. In 2002 MHLW introduced "Foreign Average Pricing" FAP which regulates the Japanese prices based on an average of foreign prices on same or similar product.

Source:EBC (2005), Barry (2008) and information from Pacific Bridge Medical on recent changes in the regulatory environment in Japan's medical device industry at www.pacificbridgemedical.com/publications/japan.

Barriers related to conformity assessment requirements

The definition of conformity assessment requirements follows the WTO definition (see more details in Chapter 1). The barriers related to conformity assessment requirements are listed in Figure A7.6.

Figure A7.6 Barriers related to conformity assessment procedures

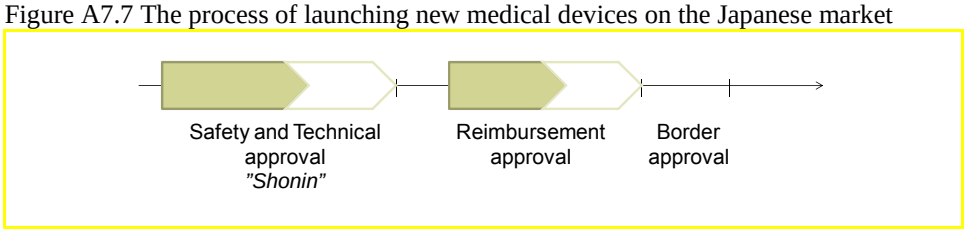


Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics Questionnaire to managers of European medical device firms in Japan.

The most important barriers related to conformity assessment procedures are related to the process of launching new products on the Japanese market. This process consists of

several steps, cf. Figure A7.7. The most frequently mentioned problems related to launching new products on the Japanese market are related to the product approval process (mainly factors related to the risk categories of medical devices and the review process for improved devices) and to clinical trials (mainly cumbersome clinical trial consultations and inspection). Also, barriers related to achieving licenses for marketing and manufacturing are highly restrictive.

Figure A7.7 The process of launching new medical devices on the Japanese market

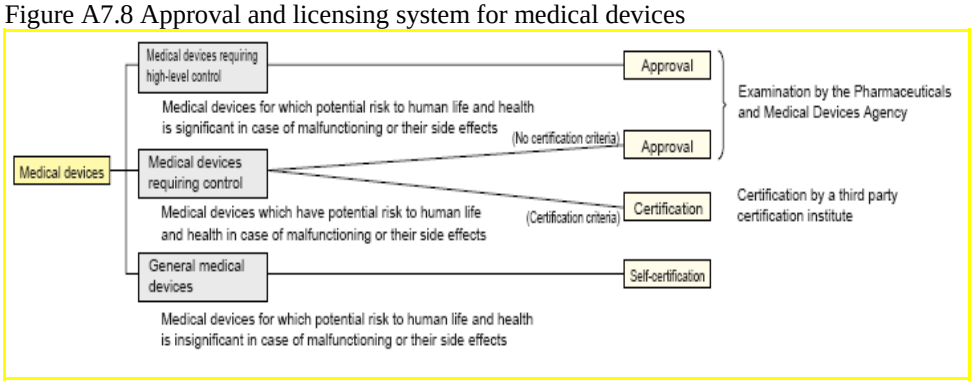


Source:Copenhagen Economics.

Almost all EU medical device firms interviewed for this study, including subsidiaries of EU in Japan, suggest that their sales and exports are adversely affected by the more demanding and lengthier Japanese product approval process.

Two agencies regulate medical devices in Japan. First, there is the Ministry of Health, Labour and Welfare (MHLW) which is in charge of approving product applications. Second, there is the Pharmaceuticals and Medical Devices Agency (PMDA) which is a non-governmental agency that is in charge of reviewing product applications. PMDA reviews devices in the highest risk categories. Third party can review lower-risk devices, cf. Figure A7.8.

Figure A7.8 Approval and licensing system for medical devices



Source:MHLW (2008) available at www.mhlw.go.jp/english/wp/wp-hw2/part2/p3_0035.pdf.

Since EU medical device firms are "innovative frontrunners" having a competitive advantage in higher-risk, more innovative products compared to their Japanese competitors, certification by a third party certification institute is rarely possible. In most cases, EU medical devices need to undergo the examination process by the PMDA.

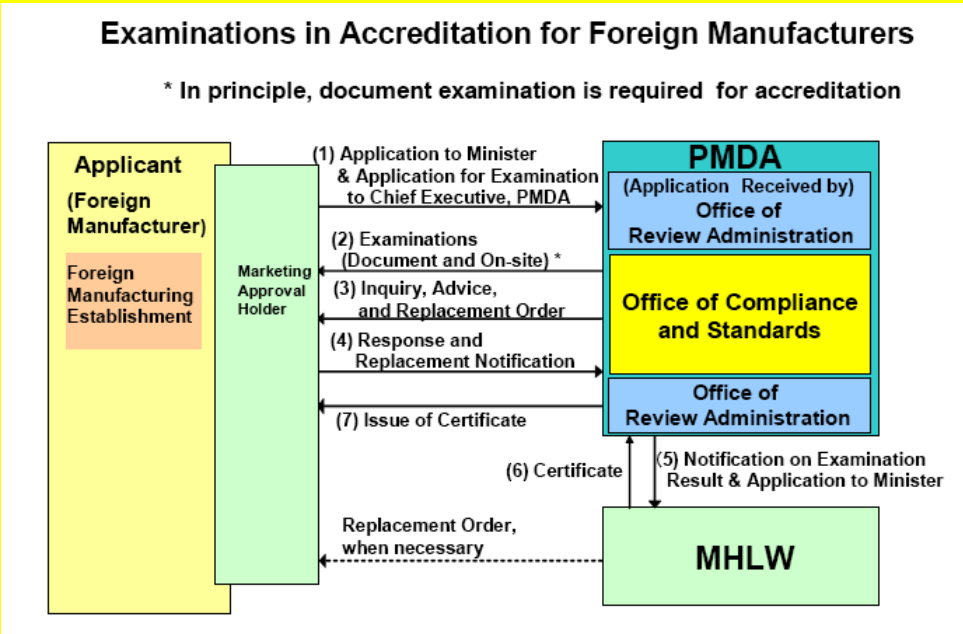
A major factor in explaining the problems related to the clinical trials and the slow product approval process is the discrepancy between international standards and Japanese guidance related to Good Clinical Practices (GCP) and international Quality Management Systems (QMS). Clinical investigation data from the outside are not always accepted by the Japanese authorities. This causes significant additional delay and the incurrence of expenses for having to conduct a new clinical investigation in Japan.

Conformity with the QMS is obligatory and forms the basis for ensuring the quality, safety and performance of medical devices. The EU analogue to the QMS is the Good Manufacturing Practices (GMP). Since the QMS and the GMP systems are unaligned exporters face significant costs and delays in meeting both requirements.

The remaining issues are related to achieving licences for the Japanese market. An EU exporter of medical devices is required to be accredited by the MHLW as an "Accredited Foreign Manufacturer", cf. Figure A7.9. When an exporter intends to apply for a new accreditation, they cannot apply for multiple categories in one accreditation application. They need to submit an accreditation application for one category and, at the same time, submit additional applications for the other categories. A target period to complete administrative processing (standard administrative process time) of accrediting a foreign manufacturer is not specifically set.

Examination fees for the accreditation differ between on-site and document examinations. A medical certificate and the other required documents for accreditation can be written in any language, but their Japanese translations are required. This imposes significant costs of translation on EU exporters.

Figure A7.9 The process of establishing business in Japan



Source: PMDA, Application for Accreditation of Foreign Manufacturers available at www.pmda.go.jp/english/service/acc_foreign.html.

Pricing and reimbursement rules

In particular, the respondents find that the reimbursement system does not reward the development and introduction of innovative medical devices, and that the Foreign Average Price (FAP) rule does not reflect the value of advanced medical devices, cf. Figure A7.10.

Figure A7.10 Barriers related to the pricing and reimbursement system

Answer Options	Rating Average
Reimbursement system does not reward the development and introduction of innovative medical devices	3,2
The Foreign Average Price rule does not reflect the value of advanced medical devices	3,1
Functional categories do not reflect differences among products	2,6
Other issues related to the pricing and reimbursement system	2,5

Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics inventory of Japanese NTMs.

FAP has a disproportionate impact on importers to Japan. For instance the system ignores the higher cost of bringing advanced technologies to the market in Japan from foreign countries and thereby weakens competition for companies from foreign countries.

Barriers related to the distribution channels

Barriers related to distribution channels are also relatively important, which is reflected by the fact that almost 80 percent of the responding medical device companies have established their own distribution facilities in Japan. In light of this, the EU has initiated the EU

Gateway Programme which, among others, has as an objective to facilitate contact between EU and Japanese actors in health care, cf. Box A7.2.

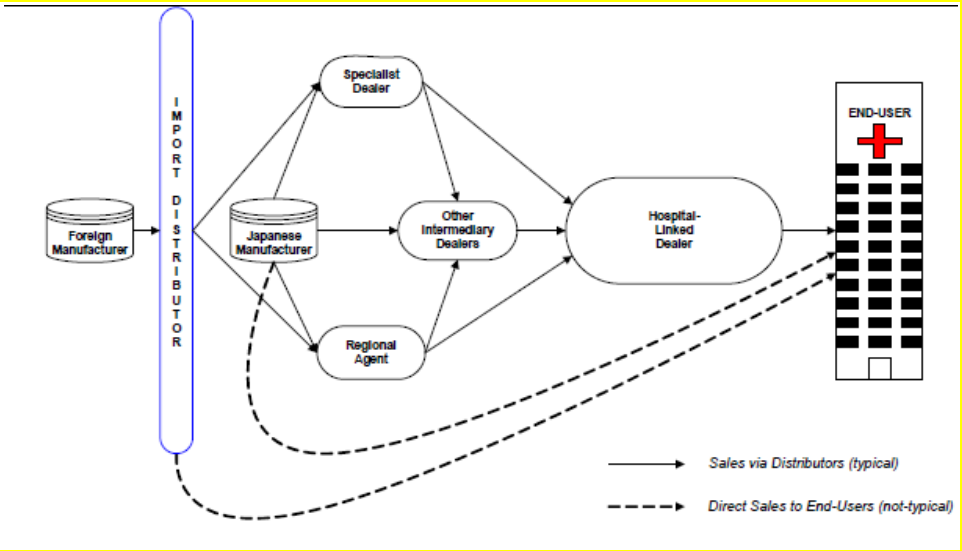
Box A7.2 The EU Gateway Programme

The EU Gateway Programme is managed by the European Commission and helps EU companies to succeed in Japan and Korea. The Programme focuses on providing assistance in technological sectors with a high market potential as well as in the design sectors. Healthcare and medical technologies is one of the targeted sectors. The programme offers several benefits for EU companies that are directed towards overcoming the entry barriers to the Japanese and Korean market. In light of the importance of having a local distributor in the Japanese market, the Programme assists EU companies in developing a collaborative platform with Japanese and Korean companies, and facilitates meetings with potential Japanese and Korean business partners.

Source: For more information, please consult www.eu-gateway.eu.

Japan's complex distribution system makes it difficult for the industry to remain competitive. The system is characterised by various distribution layers employing numerous intermediary agents between manufacturers and end users, cf. Figure A7.11. More than 80 percent of foreign or domestic manufacturers' medical device sales are filtered through a series of regional agents (who often serve rural areas), specialist dealers (who possess highly technical training, such as for cardiac-related medical devices), intermediary dealers (whose purpose and business dealings are ill-defined), and/or hospital-linked dealers (who directly service hospitals by monitoring daily inventory records and matching hospital needs with other dealer offerings). Additionally, foreign manufacturers usually also sell through Japan's import distributors, who are considered the most expensive intermediary dealers by Japanese industry analysts interviewed.

Figure A7.11 Japan's distribution system for medical devices



Source: Japan External Trade Organisation; and industry analysts, interviews by Commission staff, Japan, July 31–August 9, 2006. See www.usitc.gov/publications/docs/pubs/332/pub3909.pdf.

Japan's larger number of intermediary agents along typical supply routes is a key difference in its distribution system compared with the distribution systems in other advanced coun-

tries. An in-depth report by the USITC from 2007 suggested that Japan's relatively complex distribution system has increased supply inefficiencies and prices, since product training and price mark-ups are added at each level of the distribution chain (USITC, 2007).

Public procurement issues

The total value of public procurement in medical device is relatively high compared to other sectors of interest, and the foreign share is more than 40 per cent cf. Table A7.0.1.

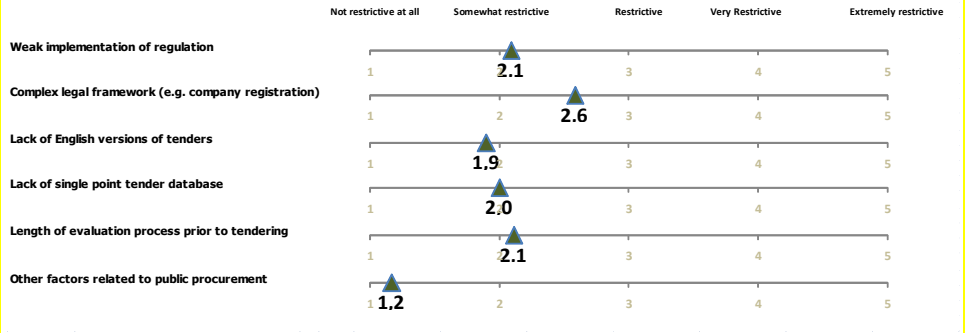
Table A7.0.1 Procurement by product and by origin, 2002 and 2004

Product	2002		2004	
	Total value	Foreign share	Total value	Foreign share
Products from agriculture, and from agricultural and food processing industries	0.9	0	1.9	49.5
Medicinal and pharmaceutical products	288.5	30.7	315.2	31.1
Road vehicles	325.2	0.8	279.2	0.3
Medical, dental, surgical, and veterinary equipment	536.5	42.4	333	41.1
Total in all sectors	**6,874.1**	**17.1**	**6,189.9**	**13.1**

Note: Numbers from the selected industries have been extracted from Table III.3 in WTO (2007). Numbers are in 100 million Yen and percent).
Source:WTO (2007).

The survey data also confirm that public procurement rules do not seriously limit European producers' engagement in public procurement in medical device. The most important issue listed is the complex legal framework for public procurement, cf. Figure A7.12.

Figure A7.12 Barriers related to public procurement



Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics Questionnaire to managers of European medical device firms in Japan.

A7.4 Potential solutions

There are many way for the Japanese government to reduce the device lag. One way to reduce the barriers related to the long and cumbersome product approval process is to shorten the medical device certification process. This could be done by accepting clinical trial data produced in the EU and by harmonising its GCP guidance with international

standards. In this way, it would ensure that products certified in one market would be automatically accepted in the other market.

The use of international standards is listed by European medical device producers as both the preferred and the minimum required action to reduce barriers related to standards as well as conformity assessment requirements.

Supplier's Declaration of Conformity (SDoC) is another tool available for simplifying the conformity assessment process and which also features prominently in discussions on NTMs. Under SDoC the supplier himself (this can be the manufacturer, distributor, importer, assembler, etc) provides written assurance of conformity to all required Japanese technical regulations of a market. Allowing the supplier himself to declare compliance of a product removes the regulatory need for obtaining certification from a recognised third party, usually located in the export market. Manufacturers have described SDoC as saving costs (e.g., certification fees) as well as valuable time.

SDoC was introduced for medical devices (low-risk Class I) in the EU in 1995.[33] which gives the possibility in Europe to market Class I MD without involving a notified body in the conformity assessment. This system has boosted the intra-EU trade intensity of medical device by 35 percent and has also had a positive impact on trade with other OECD countries although the effect is less pronounces (around 20 percent). Adopting the EU SDoC is therefore likely to boost trade in medical device even further. Since the Japanese authorities have already opened up for certification by third party certification institutions for certain medical devices, adopting the EU SDoC will not require deep changes to the Japanese system. It is worth mentioning that an EU-Japan SDoC will at the same time give Japanese medical device companies a competitive advantage compared to other exporters in the EU market.

The Japanese authorities are already putting serious effort into reducing the barriers related to conformity assessment procedures, cf. Box A7.3.

Box A7.3 Efforts to reduce barriers related to conformity assessment procedures

The *New 5 Yearly Clinical Trial Activation Plan*, developed jointly by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and MHLW, has been implemented since 2007. The purpose of the plan is to secure timely patient access to new medicine as well as to keep the uptake level of new medical technologies through improving clinical trial infrastructure in Japan.

The five-yearly plan lays down the five essential challenges

1. Establishment of Core Centres of Excellence (CCE) and Clinical Trial Centres (CTC)
2. Human resource development
3. Education and encouragement to volunteers
4. Trial efficiency improvement and reduction of sponsor's burden
5. Appropriate regulation and human subject protection.

[33] See Fliess, Gonzales and Schonfeld (2008) for detailed information about the functioning of the EU SDoC in medical devices.

Also, the MHLW, MEXT and the Ministry of Economy, Trade and Industry (METI) have adopted a *5-Year Strategy for Creating Innovative Drugs and Medical Devices* to support the entire process from research through to practice. The overall goal of this strategy is to boost the pharmaceutical/medical device industry to become the driving force of Japan's growth and swiftly provide the Japanese population with access to the best pharmaceuticals/medical devices in the world.

One important objective of the strategy is a drug pricing and medical fee system that allows for the optimal assessment of innovative products as well as the latest domestic/overseas therapies while maintaining the balance with the healthcare insurance system. The plan also involves a review of reimbursement pricing system.

Furthermore, to cope with patients' needs for advanced medical services, an advanced medical care assessment system was established in April 2008. In this system advanced medical technologies using pharmaceuticals or medical devices that are yet to be approved under the Pharmaceutical Affairs Law can be combined with insurance provided that they meet certain requirements.

Advanced medical care research facilities have also been selected in establishing "special zones for advanced medical care development" for promoting the development of state-of-the-art regenerative medicine, pharmaceuticals, and medical devices in parallel consultations between the MHLW who controls the research fund and the independent administrative organisation of the PMDA.

Source:MHLW (2007, 2008).

Also, Japan participates in the Global Harmonisation Task Force (GHTF), cf. Box A7.4. If effective, the GHTF has the potential to convey important impacts on European medical device companies' export opportunities in the Japanese market since its primary purposes of minimising regulatory barriers related to safety, facilitating trade and improving access to new medical devices are very much in line with the worries expressed by EU medical device managers.

Box A7.4 Global Harmonisation Task Force

The Global Harmonisation Task Force (GHTF) is a voluntary effort established in 1993 by government and medical device industry officials of Australia, Canada, Japan, the EU and the US. The primary purpose of the GHTF is to harmonise medical device standards to minimise regulatory barriers related to the safety, performance, and quality of medical devices and equipment; facilitate international trade; and improve access to new medical technologies.

The work of the GHTF is accomplished principally through publication and dissemination of harmonised guidance documents on basic regulatory practices, which are developed by four different GHTF study groups. These documents may then be implemented or adopted by the regulatory authorities of members. The GHTF also serves as an information exchange forum for countries in the process of developing medical device regulatory systems so they can benefit from the experience of countries with existing systems.

Source:Global Harmonisation Task Force (2008).

However, a qualitative assessment of the task force's activities over the past 15 years finds that the GHTF's most successful achievements have been developing guidance documents, providing a forum for information exchange and dialogue, and extending training. Furthermore, there is the perception that Founding Member jurisdictions are slow to adopt GHTF guidance and that there is limited awareness of the GHTF beyond regulators and technical experts. There is also an expressed desire for GHTF leadership on policy related to medical device regulation, especially on issues arising from emerging technologies.

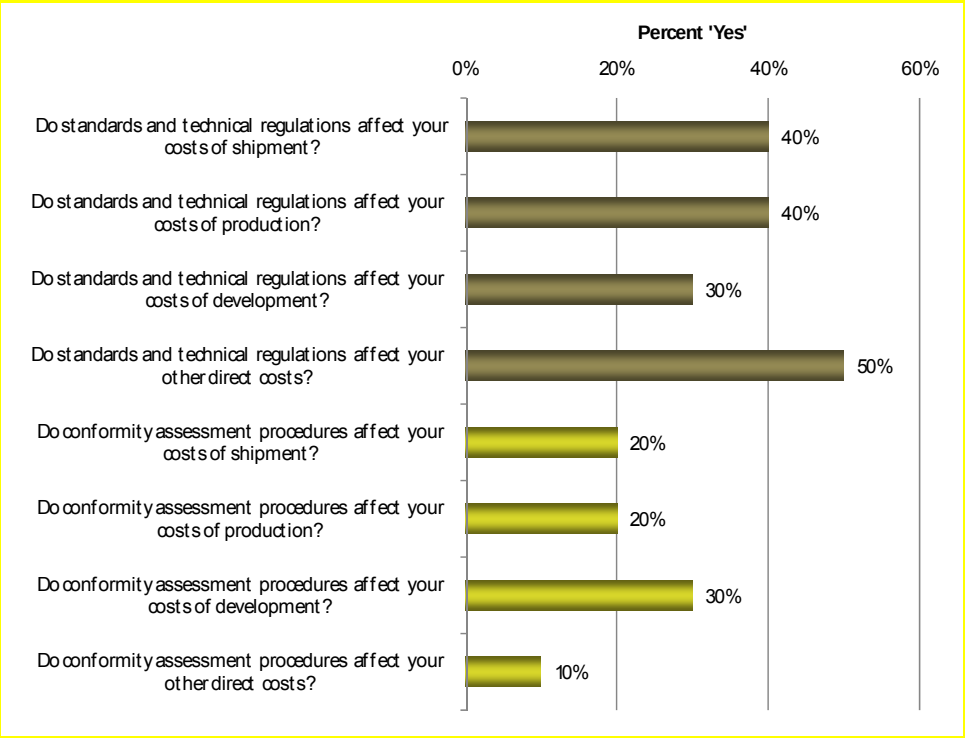
A7.5 Quantifying impacts on trade

The identified barriers in Japan have several negative impacts on European exporters:

1. **Higher development costs:** The "Japan only" requirements in the regulation (mainly related to the need for additional clinical tests) increases the development costs, and additional R&D shall be carried out at the conception and development phase of the product life cycle.
2. **High approval costs**: The approval process in itself is time consuming and costly. Approval of medical devices typically takes 18 to 36 months longer than in the EU, and the process requires more manpower than in the EU.
3. **Delayed sales revenues:** Sales revenues from new innovations are delayed and thus the net present value of investments made in research and development is depreciated because of the lengthy approval process in Japan (the device lag).
4. **Higher production costs**: The delay in market entry into Japan also increases the production costs because, by the time the device is approved for sale in Japan, the European production lines have changes to produce the next generation medical devices. The device lag in Japan, for some unexplained reason, corresponds almost exactly to the length of a product improvement cycle. Therefore, European exporters often have to keep an old production line running specifically to Japan. This increases the production costs because certain economies of scale in production cannot be achieved.
5. **Higher border and distribution costs:** The advance payment system makes border procedures costly for European exporters. Also, a lack of transparency and information sharing when border requirements are changed makes export to Japan more uncertain. Finally, since more than 80 percent of the responding medical companies have established their own distribution facilities in Japan, this means that European exporters miss out on potential economies of scale in distribution.
6. **Fewer product varieties:** European exporters market fewer product varieties on the Japanese market as result of the lengthy approval procedures. This restrict the European exporters from achieving economies of scope for example in the sales and distribution system (e.g. because the same number of sales staff can sell more, if more products were approved for sale in Japan, or because of synergies for company marketing and branding can be achieved).

More firms are affected by standards and technical regulations than by conformity assessment costs. Standards and technical regulations mainly affect costs of shipment and costs of production, whereas conformity assessment procedures impact mainly on costs of development, cf. Figure A7.13.

Figure A7.13 How various barriers affect costs of EU medical device export to Japan



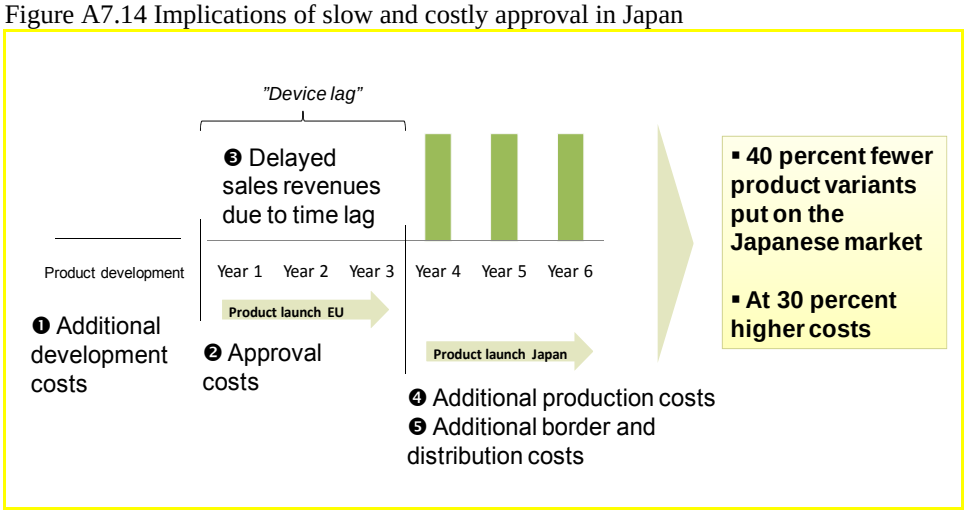
Note: Many of the respondents have answered "I don't know" to this question.
Source:Copenhagen Economics, Questionnaire to managers of European medical device firms in Japan.

As a result, European exporters are not only selling less of each of the approved products at a higher cost, they also market fewer product varieties on the Japanese market as result of the lengthy approval procedures. Seven out of ten respondents say that their product range on the Japanese market is smaller or somewhat smaller than in other markets. The reason is that "it is too costly or too difficult export a large share of products to Japan given the existing barriers in Japan". This result is confirmed by a US Chamber of Commerce study comparing the availability of medical devices in the EU and US to the situation in Japan. This shows that there are more than 40 percent fewer medical devices available in Japan compared to in the EU and the US (ACCJ, 2008).

For the Japanese consumers of medical devices the result is higher prices and fewer products to choose from. For the European exporters, the implication is less sales and higher costs.

Other economists have also noted the impact of regulatory decisions on the amount and cost of innovation for both firms and consumers. For example, differences in regulatory decision times directly affect the time to market, which, in turn, affects the return on investment in product development.

Figure A7.14 Implications of slow and costly approval in Japan



Source: Copenhagen Economics.

Based on the gravity results we get a TCE measure of 29.4 percent in a scenario where the Japanese level of restrictiveness in the medical device sector reaches a level comparable to that of the EU. The quantification of barriers is confirmed by the responses from EU exporters of medical device, cf. Table A7.2. The findings in the previous sections clearly show that the main barriers to the Japanese medical device market are related to the product approval process as well as the pricing reimbursement system. We do not have quantitative data on the latter.

Table A7.2 Quantification of barriers

Cost element	Low estimate	High estimate
Higher production costs	5%	7%
Higher development costs	10%	15%
CA costs	7%	10%
Border costs	2%	3%
Depreciation of sales due to delay	6%	11%
Total cost estimate	**30%**	**46%**

Source:Copenhagen Economics Questionnaire to managers of European medical device firms in Japan.

Costs related to conformity assessment requirements increase costs by 7 to 10 percent. These numbers are estimated on the basis of responses from the medical device sector.

Based on calculations of the decrease in net present value of the sales revenues resulting from the two-year delay in product approval we assess the delay costs as being equivalent to 6 to 11 percent of their total export value.

In addition, we estimate that standards and technical regulations cause additional production costs (e.g. post-sterilisation aeration) and additional development costs (e.g. repetition of processes) of 10 to 15 percent of the total export value. Border procedures are assessed to have a minor impact of around 2 to 3 percent of the export value. The impact of conformity assessment procedures on shipment costs, costs of production and costs of development is negligible. In sum, the barrier estimate is between 30 percent and 46 percent based on the business survey responses.

Not all of this barrier can necessarily be removed, Table A7.3. According to the responses from the managers in Japan, costs corresponding to 5 to 8 percent of the value of sales in Japan can be avoided by addressing the regulatory environment, and costs corresponding to around 4 percent of value of sales can reduced by improving the conformity assessment procedures. This indicates a barrier reduction potential of 9 to 12 percent of the value of sales if both are addressed.

Table A7.3 Reduction potential

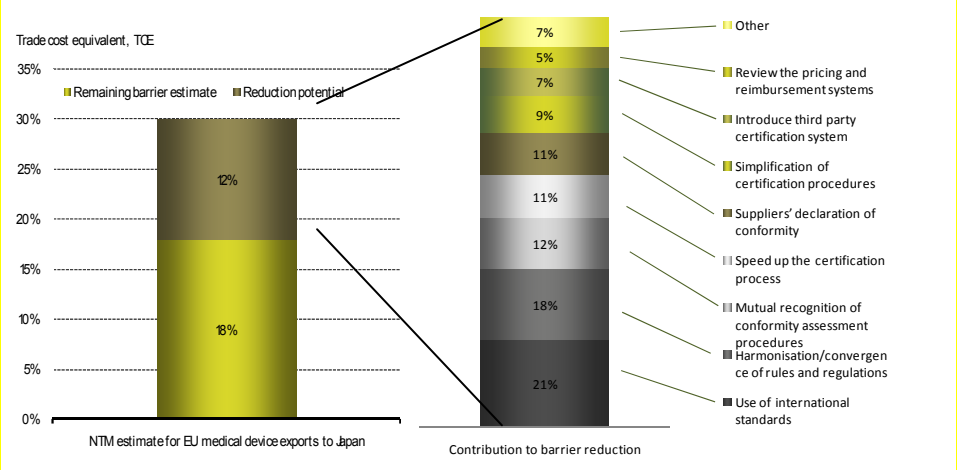
	Question 4.8	Question 4.9	Question 6.8	Question 6.9
	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?
Answer options	**Response percent**	**Response percent**	**Response percent**	**Response percent**
0- 1%	25%	25%	22%	33%
1% - 5%	13%	25%	56%	44%
5% - 10%	25%	38%	11%	11%
10% - 15%	25%	13%	0%	0%
15% - 20%	0%	0%	0%	11%
More than 20%	13%	0%	11%	0%
Average	**8%**	**5%**	**4%**	**4%**

Source:Copenhagen Economics Questionnaire to managers of European medical device firms in Japan.

In sum, these estimates inform us that about 12 percentage points of the 30 percent barrier costs can be avoided through various actions improving the regulatory environment and shortening the device lag. If such cost reductions were achieved, European exports to Japan could increase above current export levels.

To achieve this kind of reduction will most likely require a multitude of actions. There does not seem to be one single solution preferred by a majority of respondents. The preferred solution to reducing the regulatory burden is through the use of international standards (mentioned in 21 percent of the replies), cf. Figure A7.15. The second most desired solution is to see harmonisation and convergence between the EU and Japan regarding rules and regulations in the sector (mentioned 18 percent). Simplification of the certification procedure and speeding up the certification process also gets frequently mentioned. Introduction of a SDoC is also mentioned by some exporters as their preferred solution. Review of the pricing and reimbursement system appear as the least frequently mentioned solution.

Figure A7.15 Quantification of cost reduction potential



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source:Copenhagen Economics Questionnaire to managers of European medical device firms in Japan.

A5.6 Results and implications

The potential for increasing exports of European medical device to Japan is large. Japan is a net importer of medical devices, and demand for medical devices is increasing. However, the process of launching new products on the Japanese market is costly and cumbersome. First, excessive Japanese standards and regulatory requirements result in a significant device lag, and a large number of medical devices are not even being submitted for approval in the Japanese market. Second, the pricing and reimbursement system, and particularly price controls on STMs, create disincentives for introducing new products on the Japanese market.

Both of these issues are being targeted by the MHLW *New 5 Yearly Clinical Trial Activation Plan* although tangible results are yet to be seen. Also, efforts by the GHTF so far have not been successful in reducing entry barriers to the Japanese market.

A major factor in explaining the problems related to the clinical trials and the slow product approval process is the discrepancy between international standards and Japanese guidance

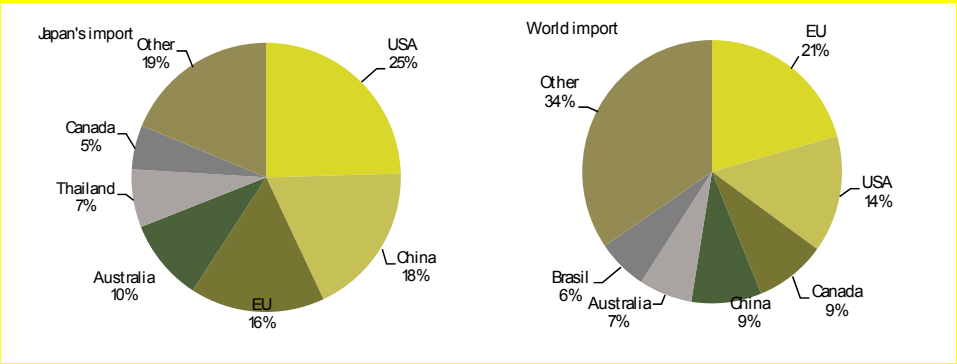
related to GCP and international QMS. One way to speed up and streamline the medical device certification process is by accepting clinical trial data produced in the EU and by harmonising its GCP guidance with international standards. Alternatively, Japan could adopt the EU SDoC. Likewise, a review of the Foreign Average Price rule would improve access to the Japanese market. It is important to notice that neither of these steps will require changes in the regulatory requirements in terms of safety and efficacy of the devices.

According to managers of European medical device exporters, the cost of NTMs is 30 percent, where barriers related to standards, technical regulations and conformity assessment procedures make up 12 percentage points. In a CGE modelling framework this cost decrease translates into an increase in trade from €2.1 billion to €3.2 billion or by up to 51 percent. By comparison, Fliess, Gonzales and Schonfeld (2008) find that medical device import increased by 35, 20 and 79 percent for intra-EU, extra OECD and extra non-OECD countries, respectively, by introducing an SDoC for medical devices.

APPENDIX 8: PROCESSED FOODS SECTOR STUDY

Japan's food market ranks second in the world. Japan's food retail market is worth about €240 billion, and the food processing industry is estimated to have a value of about €19 billion. Japan is a major importer of food, and its self-sufficiency ratio is just below 40 percent (EBC, 2008). Japan's import of food from the EU is low compared to world import: the EU world market share is 21 percent but only 16 percent of Japanese food import comes from the EU, cf. Figure A8.1.

Figure A8.1 Geographic distribution of Japan's and the world's food import, 2005-2006



Note: Numbers are expressed as a percent of Japan's and the world's total food import.
Source: FAOSTAT.

On the other hand, the US holds a strong position in the Japanese market (25 percent market share) compared to its world market share of 14 percent. Since Japan is extremely open to food imports, the challenge for European food exporters is to gain a market share that matches its comparative advantage in the global markets rather than opening up the Japanese market.[34] However, Japan maintains high tariffs on a number of food products that are important for the EU, including meat from swine, wine and cheese (EBC, 2008b). Also, EU producers have an unfulfilled export potential of beef (traditionally an important EU export product) since there is a ban on import of beef from the EU. The ban on US beef was lifted more than two years ago.

A8.1 Major concerns in the processed food sector

The most important NTMs for EU food export to Japan pertain to:

1. **Standards and technical requirements**
   - The absence of a common list of permitted additives and compositional standards increase costs and hinder economies of scale in production.
   - Safety standards and strict sanitary requirements impose cost of compliance where standards are incompatible.
   - Packaging and labelling requirements (e.g. re-dating and nutrition labelling) impose additional work and costs.

[34] The large degree of openness in the Japanese food sector is confirmed by our gravity model estimates, where we find that Japan is actually more open to food import than the EU.

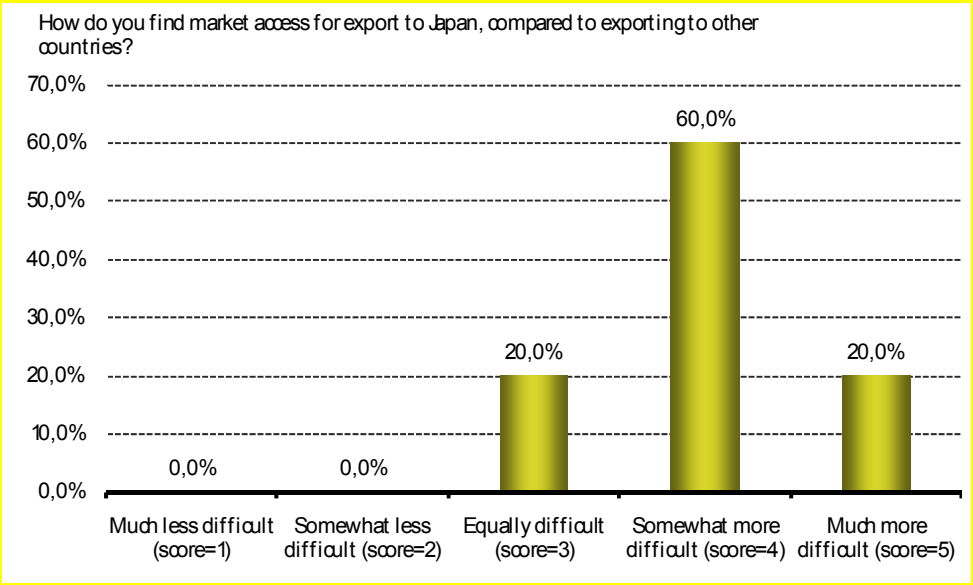
2. **Conformity assessment requirements**
    - Rigorous border inspection and quarantine regulations cause delays at the port of entry, which reduces reduce shelf life and imposes costs of storage. This also means that there is a higher probability of rejection which increases risk.
    - The Japanese authorities do not accept evaluations made by EU or international bodies which imposes duplicative costs on European exporters.
3. **Regulatory environment increases the costs and complexity of doing business**
    - Food safety is extremely highly prioritised in Japan which has resulted in a heavy and non-transparent regulatory system.
4. **Burdensome border procedures**
    - General border procedures (e.g. customs valuation, customs classification, customs clearance, rules of origin) and product-specific customs procedures (e.g. health inspections) impose costs and delays on food exporters.
    - Changing requirements and procedures make the Japanese business environment more uncertain.

The overall impact is that there are significant threshold effects in the access to the Japanese market. Entry barriers are high but once these barriers have been tackled to the satisfaction of the Japanese authorities, there is a great potential to export significant volumes to the Japanese market. Such threshold effects might provide an explanation of the strong position of US companies that have a longer history of exporting food to Japan.

A8.2 NTMs to the Japanese market

In the processed food sector, 80 percent of the responding managers consider Japan as being more or much more difficult to access than other markets, cf. Figure A8.2.

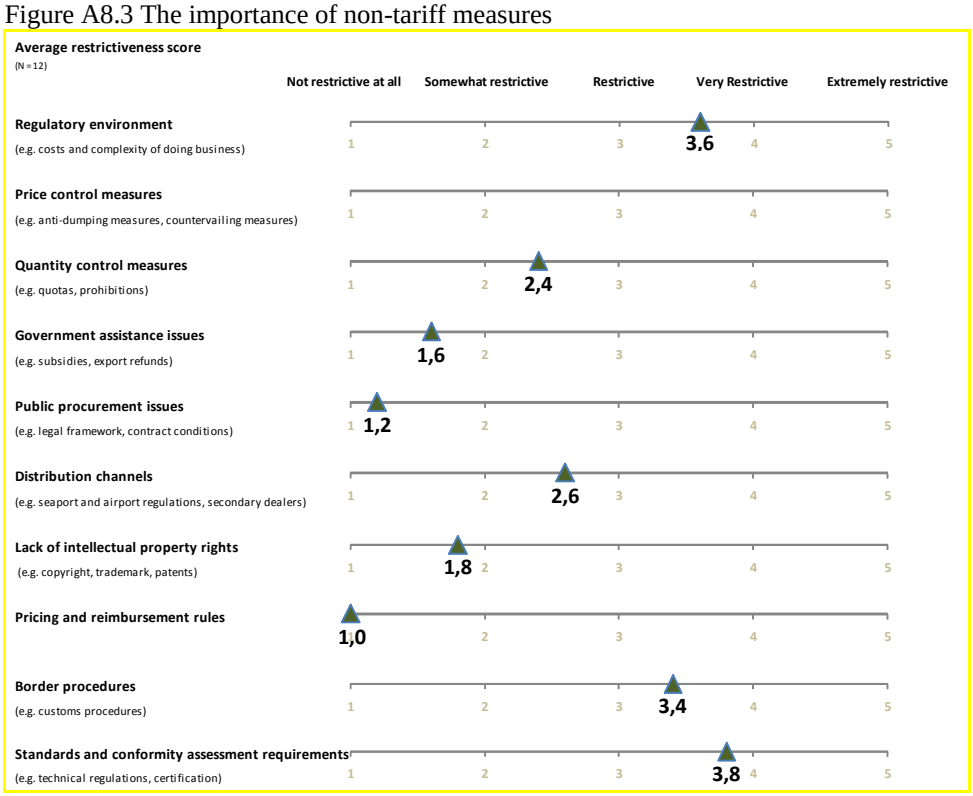
Figure A8.2 Perceived difficulty of exporting processed food to Japan



Note: Average score = 4.0.
Source:Copenhagen Economics Questionnaire to managers of European processed food firms in Japan.

There is almost uniform agreement among the responding EU exporters that the main NTMs to the Japanese market are related to standards and conformity assessment requirements, cf. Figure A8.3. Such restrictions are typically laid down for sanitary requirements, permitted additives, maximum residue levels for veterinary drugs, general food labelling requirements and nutrition labelling requirements.

Figure A8.3 The importance of non-tariff measures

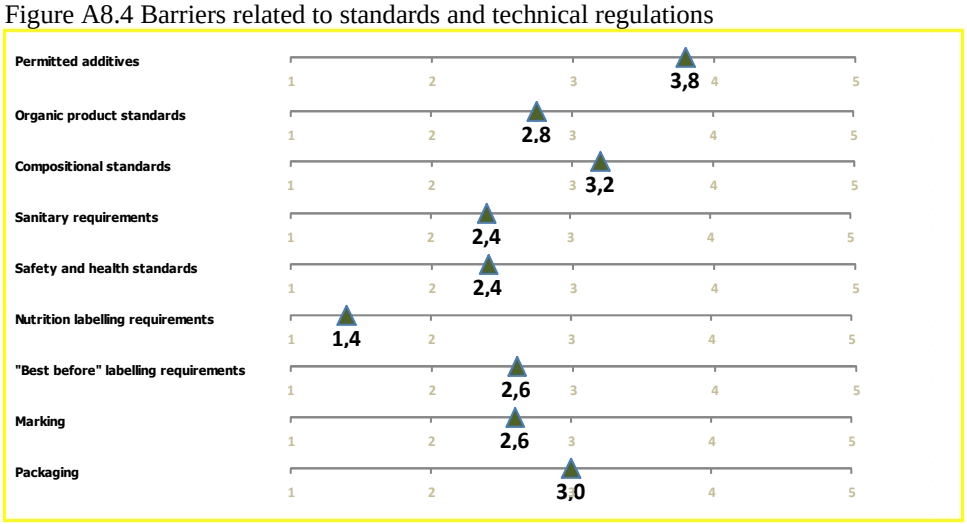


Note: The figure shows the average score for each response category.
Source:Copenhagen Economics, Questionnaire to managers of EU processed food firms in Japan.

Barriers related to standards and technical regulations

The definition of standards and technical requirements follows the WTO definition (see more details in Chapter 1). The barriers related to standards and technical regulations are listed in Figure A8.4.

Figure A8.4 Barriers related to standards and technical regulations



Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European processed food firms in Japan.

The most important barriers related to standards and technical requirements are permitted additives and compositional standards. In this context, one respondent points out that

> *Loss of economies of scale as customised recipes have to be developed only for the Japanese market*

There has been a growing concern and distrust of food safety among the Japanese public, triggered by various problems involving the occurrence of BSE ("mad cow disease") in 2001. Therefore, the Government of Japan has enacted the Food Safety Basic Law, a comprehensive law to ensure food safety for the purpose of protecting the health of the public, as well as developing related laws, cf. Box A8.1.

Box A8.1 Legal framework for food imports to Japan

The legal framework for food imports to Japan is defined by the Ministry of Health and Welfare. The work is carried out under the Food Safety Basic Law (enacted in May 2003) and related laws including the Food Sanitation Law, the Abattoir Law, and the Poultry Slaughtering Business Control and Poultry Inspection Law. In addition, other related laws include the Law of Temporary Measures for Enhancing the Control Method of the Food Production Process and the Health Promotion Law.

The Food Sanitation Law lays down general sanitary requirements as well as specific requirements for particular food products, including methods of production, permitted food additives, compositional standards, packaging etc.

Sanitation-controlled manufacturing processes are lain down under the Food Sanitation Act for many food products. All food processing plants are required to be licensed at the prefecture level. Before a license is granted, the plant is inspected to ensure it complies with the requirements of the Food Sanitation Law and the Plant Protection Act.

Detailed compositional standards are laid down for individual dairy products covering chemical composition, permitted additives, moisture content, microbiological quality etc. There are also detailed standards for permitted packaging and food labelling. For some food products, there are certain quarantine regulations that must be complied with, cf. the Quarantine Act.

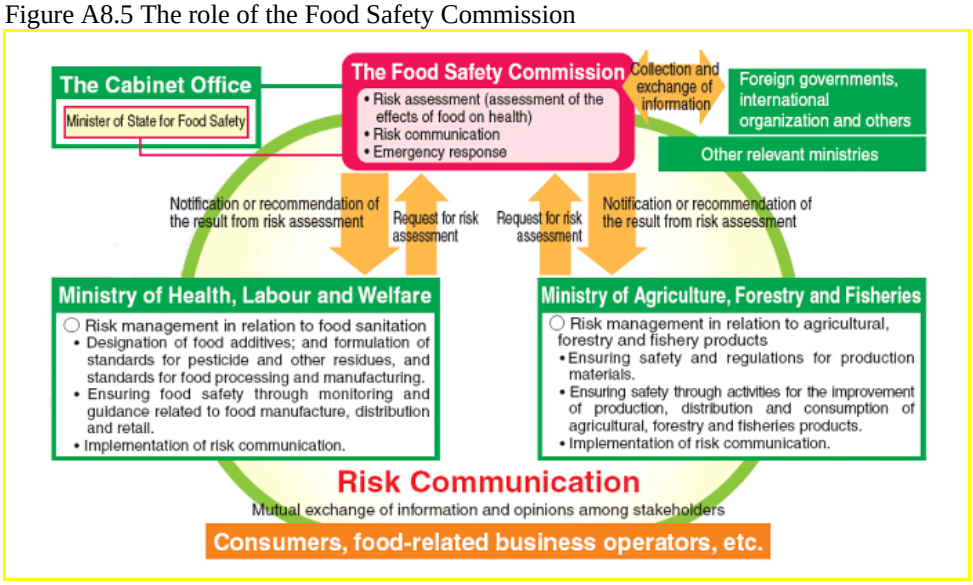
Source:OECD (1999), An Assessment of the Costs for International Trade in Meeting Regulatory Requirements, updated documents can be found at www.jetro.go.jp/en/reports/regulations/.

Food safety is extremely highly prioritised in Japan. Strict sanitary requirements that cover methods of production, end-product quality, etc., can impose cost of compliance to EU exporters where Japanese and EU standards are incompatible. In December 2002, the MHLW prepared a list of 46 food additives that should be approved in Japan. In 2008, 20 out of the 46 additive still require approval (EBC, 2008b).

In the wake of the development of these laws, Japan has introduced a risk analysis approach to food safety work, cf. Figure A8.5. The approach is to scientifically assess risks (expressed as the probability and degree of adverse health effects) and develop necessary measures based on the risk assessment.[35] This process is costly and, since even small lots need certification, the standards effectively reduce supply and variety of supply. The overall impact is that there are significant threshold effects in the access to the Japanese market. Entry barriers are high but once these barriers have been overcome, there is a great potential to export significant volumes to the Japanese market.

[35] The risk analysis consists of three components: risk assessment-assess risk scientifically; risk management-implement necessary measures based on risk assessment; and risk communication-exchange information and opinions among related people representing the people including public, government, and academia.

Figure A8.5 The role of the Food Safety Commission



Source: The Food Safety Commission.

Once the product has been imported into Japan it can only be legally offered for sale if it complies with labelling, packaging and other requirements. Japanese regulations require all imported food to be re-date-coded which imposes additional work and costs. Also, one respondent states that

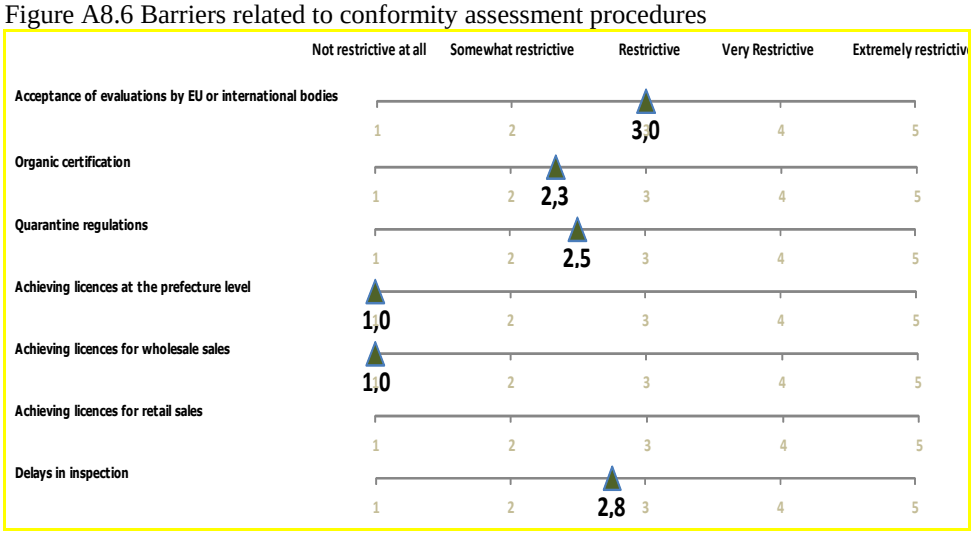
> *Simply the use of Euro pallets is not common in Japan. Each delivery has to be packed again by hand*

Together these requirements prevent producers from benefiting from economies of scale. Since many food products cannot be stored over long time periods, these requirements pose an additional threshold barrier to the Japanese market.

Barriers related to conformity assessment requirements

The definition of conformity assessment requirements follows the WTO definition (see more details in Chapter 1). The barriers related to conformity assessment requirements are listed in Figure A8.6.

Figure A8.6 Barriers related to conformity assessment procedures



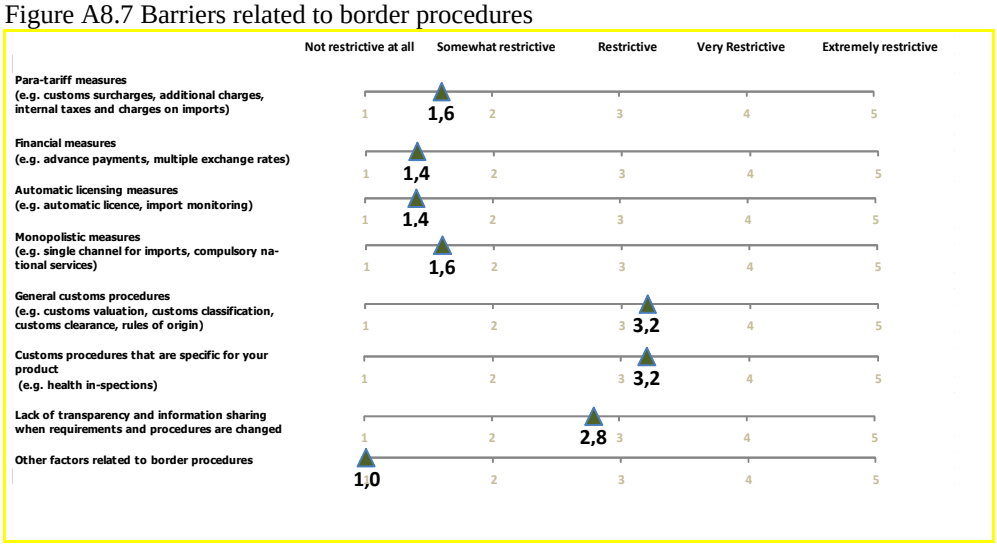
Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European processed food firms in Japan.

Barriers related to conformity assessment procedures do not receive a high score in terms of the restrictiveness on exports to Japan. The lack of acceptance of evaluations by EU or international bodies scores the highest. Also, there is an issue regarding delays in inspection and quarantine regulations.

Barriers related to border procedures

The system of border procedures is the third most limiting factor for EU export to Japan. General customs procedures (e.g. customs valuation, customs classification, customs clearance, rules of origin) receive the highest score followed by customs procedures that are specific for the particular export product of the respondent (e.g. health inspections), cf. Figure A8.7. Also, lack of transparency and information sharing when requirements and procedures are changed imposes difficulties for European exporters.

Figure A8.7 Barriers related to border procedures



Note: The figure shows the average restrictiveness for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European processed food firms in Japan.

The border procedures also impose logistic challenges for European food exporters. One responding manager writes that

> *One extra part time employee must be used to deal with specific Japanese logistics and quality issues*

A8.3 Potential solutions

There are several aspects that need to be considered when looking for ways to reduce barriers related to standards and technical regulations in the processed food sector. The most important issue raised is the use of additives in processed foods, where progress in approving already agreed upon additives, extending the list of additives and harmonising the usage level of approved additives is needed.

Managers in the food sector point to the use of international standards and the agreement on a common positive/negative list of additives as the most realistic ways to reduce barriers related to standards. This would have a potential to increase EU export of food on the intensive margin (increasing the import of food products that are already being sold at the Japanese market) since costs per unit of export will be reduced. Moreover, there is a large potential to increase EU export on the extensive margin (introducing new food products on the Japanese market) since entry barriers to the Japanese market will be reduced.

The European Commission has raised the issue of regulatory obstacles in the Sanitary and Phytosanitary (SPS) area in bilateral negotiations with Japan. In the Japan-EU Regulatory Reform Dialogue as well as in the WTO SPS meetings in Geneva, the European Commission especially points to those obstacles where Japan does not follow international standards (in particular food additive restrictions and ban on EU beef).

The strict Japanese regulation in the food sector is based on safety issues. However, it is important to notice that many of the requirements related to labelling and packaging standards can easily be harmonised to EU or international standards without compromising on food safety.

The Japan-EU Regulatory Reform Dialogue addresses improved market access for organic agricultural products. This issue is moving toward resolution by mutually recognising the equivalence between the organic standard and the EU organic product certification standard. Market penetration of organic food is very low in Japan compared to other OECD countries. Leading EU countries has organic shares of 3-5 percent of packaged food, whereas in Japan it is only 0.5 percent.[36] There is therefore a large export potential on the extensive margin (introducing new organic food products on the Japanese market).

A8.4 Quantifying impacts on trade

The identified barriers in Japan have several negative impacts on European exporters:

1. **Higher production costs**: The lack of a common list of permitted additives increases the production costs since scale effects are prohibited. High costs of compliance with safety and sanitary requirements also increase production costs.
2. **Higher shipment costs**: The re-dating of products and nutritional requirements increase the shipment costs (both in terms of money and time) and makes it impossible to sell products intended for other of destinations at the Japanese market. Also, the logistic costs are higher.
3. **Conformity assessment costs**: Duplicative costs on European exporters because Japanese authorities do not accept evaluations made by EU or international bodies.
4. **Border costs**: Delays at the port of entry (e.g. due to health inspections) reduces reduce shelf life and imposes costs of storage.
5. **Costs of uncertainty**: The non-transparent and unpredictable legal system increases the uncertainty that EU exporters face in the Japanese market.

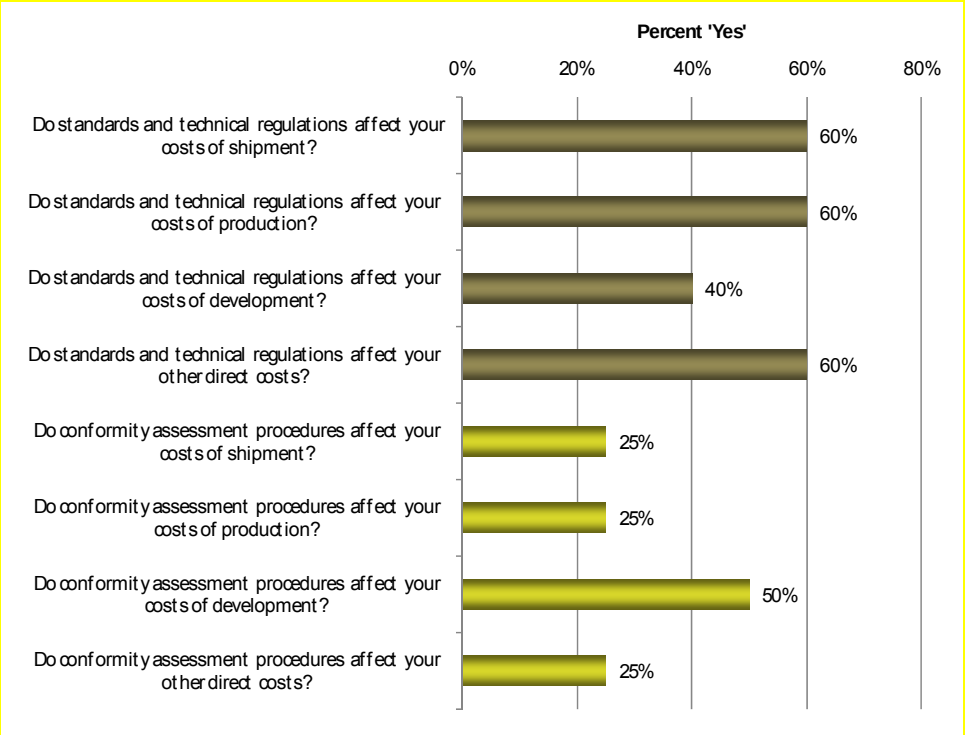
More firms are affected by standards and technical regulations than by conformity assessment costs. 60 percent of the respondents report that standards and technical regulations affect their costs of shipment and costs of development. In addition, half of the responding managers state that conformity assessment procedures affect their costs of development, cf. Figure A8.8.

Once we take the threshold effects of expanding trade on the extensive margin in addition to the intensive margin we would expect that this potential will be more than realised if the

[36] Information provided by respondents of the business survey for the food sector.

Japanese government used international standards for additives and usage levels. Solving the labelling issue will also make a contribution.

Figure A8.8 How various barriers affect costs of EU food exporters to Japan



Note: Many of the respondents have answered "I don't know" to this question.
Source:Copenhagen Economics, Questionnaire to managers of European processed food firms in Japan.

The threshold effects described above are also confirmed by the fact that *all* responding managers report that their product range is more limited in the Japanese markets than in their other export markets. Border procedures as well as standards and conformity assessment procedures are listed as the main causes of the reduced variety of food products exported to the Japanese market.

For the Japanese food consumers the result is higher prices and fewer products to choose from. For the European exporters, the implication is less sales and higher costs.

The gravity model estimations confirm the notion that Japan is extremely open to food import. The Japanese dummy variable is smaller than the European dummy variable, which suggests that there is less missing trade in Japan compared to the EU. As a consequence we do not obtain a TCE from the gravity model using dummy variables. However, the gravity model based using the NTM index reports a striking TCE of 118.5 percent. Although we expect that figure is greatly overestimates it nonetheless reflects that the there is a large unfulfilled export potential in the Japanese market.

Instead of relying on the gravity model estimates we quantify the costs of NTMs by using the information obtained from EU exporters of processed foods, cf. Table A8.1.

Table A8.1 Quantification of barriers

Cost element	Low estimate	High estimate
Higher production costs	5%	10%
Higher shipment costs	5%	15%
Conformity assessment costs	10%	15%
Border costs	3%	25%
Costs of uncertainty	2%	5%
Total cost estimate	**25%**	**70%**

Source:Copenhagen Economics Questionnaire to managers of European processed food firms in Japan.

The higher costs of adopting production to Japanese standards and the foregone scale effects are estimated to lie between 5 and 10 percent. The shipment costs of 5 to 15 percent are mainly due to Japanese labelling and packing requirements. Costs related to conformity assessment requirements increase costs by 10 to 15 percent and mainly cover costs of extra quality assurance. Delays at the border cause costs of storage and foregone sales. This is not a problem for all types of products but *when* delays take place, the costs are extremely high since such food products are often highly time-sensitive goods (Djankov, Freund and Pham, 2006). The costs of uncertainty are difficult to quantify and we therefore provide very conservative estimates of these costs.

In sum, the barrier estimate is between 25 percent and 70 percent based on business survey responses. We take the conservative approach and use a TCE of 25 percent in the CGE simulations.

Not all of this barrier can necessarily be removed. According to the responses from the managers in Japan, costs corresponding to 5 to 7 percent of the value of sales in Japan can be avoided by addressing the regulatory environment and costs corresponding to 1 to 2 percent of value of sales can reduced by improving the conformity assessment procedures, cf. Table A8.2.

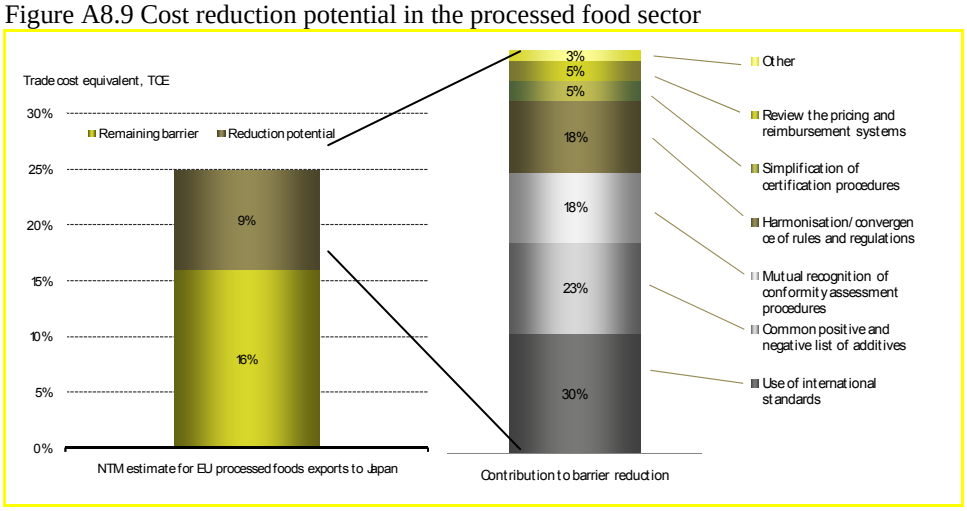
Table A8.2 Reduction potential

	Question 4.8	Question 4.9	Question 6.8	Question 6.9
	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?
Answer options	**Response percent**	**Response percent**	**Response percent**	**Response percent**
0- 1%	0%	0%	33%	67%
1% - 5%	0%	50%	67%	33%
5% - 10%	100%	50%	0%	0%
10% - 15%	0%	0%	0%	0%
15% - 20%	0%	0%	0%	0%
More than 20%	0%	0%	0%	0%
Average	**7%**	**5%**	**2%**	**1%**

Note: Data is based on responses to question 6.3, 6.4, 8.3 and 8.4.
Source:Copenhagen Economics Questionnaire to managers of European processed food firms in Japan.

According to these estimates, about 9 percentage points of the 25 percent barrier costs can be avoided through various actions aimed at reducing NTMs related to standards, technical requirements and conformity assessment. To achieve this kind of reduction will most likely require a multitude of actions, cf. Figure A8.9. 30 percent of the respondents find that the introduction of international standards will be an effective tool to reduce barriers in the Japanese food sector. Also, a common positive and negative list of additives is on the European exporters' wish list. Harmonisation/convergence of rules and regulations is listed as an alternative.

Figure A8.9 Cost reduction potential in the processed food sector



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source: Copenhagen Economics Questionnaire to managers of European processed food firms in Japan.

A8.5 Results and implications

Japan is a major importer of food but the European import penetration is low compared to its world market share. One reason is that Japan maintains high tariffs on a number of food products that are important for the EU. Moreover, food safety is extremely highly prioritised in Japan which has resulted in a heavy and non-transparent regulatory system. The overall impact of Japan-specific standards and technical requirements as well as burdensome border procedures is that there are significant threshold to the Japanese market.

The most important issues raised by European exporters relate to the use of additives in processed foods. Managers in the processed food sector point to the use of international standards and the agreement on a common positive/negative list of additives as the most realistic ways to reduce barriers related to standards. This would have a potential to increase EU export of food on both the intensive and the extensive margin. It is important to notice that many of the requirements related to labelling and packaging standards can easily be harmonised to EU or international standards without compromising on food safety.

According to managers of European processed foods exporters, the Japanese NTMs translate into an additional cost of 25 percent out of which 9 percentage points can be removed by targeting the most important barriers related to standards, technical regulations and conformity assessment procedures. In a CGE modelling framework, reducing Japanese NTMs result in an increase in trade from €4.3 billion a year to €5.3 billion a year. If tariff are also reduced, the increase would be to €10.2 billion a year, or by up to 137 percent.

APPENDIX 9: MOTOR VEHICLE SECTOR STUDY

Europe is the world's largest motor vehicle producer. Of the 71 million motor vehicles produced in the world in 2008, almost 26 percent were produced in the EU, compared to 18 percent produced in the NAFTA and 16 percent in Japan.[37] Output from the EU motor vehicle producers dropped 7 percent in 2008 compared to 2007 and dropped further by 35 percent in the first quarter of 2009 compared to the previous quarter.[38]

The domestic market for motor vehicles in Japan is approximately €280 billion based on 2004 GTAP data.[39] This makes it the third largest market in the world after the EU (€900 billion) and the US (€590 billion). China comes in fourth having a domestic market worth of €120 billion. Japan imported around 200.000 units in 2008, down from a level of approximately 250.000 units on average over the previous ten years. The import penetration in Japan is remarkably low, especially given the tariff-free import of cars to Japan. Only seven percent of the domestic market (passenger cars excluding Kei cars) was served by imports, compared to an import penetration of 28 percent in the EU (defined as EU15 and EFTA) and 53 percent in the US.[40]

EU producers exported €5 billion worth of motor vehicles to Japan in 2008, down from €6 billion in 2007. European car producers make up almost 95 percent of the entire imported car market in Japan. Most of the imported cars are in the upper 10 percentile price segment of the market (cars priced above 3.5 million yen or approximately €33.000). The import penetration in this segment is about 50 percent and is almost entirely European cars.[41]

According to estimates provided by European motor vehicle exporters in Japan, NTMs in Japan pose a barrier for export and add a cost of around 10 percent of the exported value of European motor vehicles sold in Japan.

A9.1 Major concerns in the motor vehicle sector

The most important NTMs facing EU motor vehicle manufacturers in Japan pertain to a unique regulatory and certification environment regarding:

1. Emissions standards
2. Noise standards
3. Safety standards

Common of these elements is the lack of harmonisation between the Japanese legislation and EU or UN-ECE regulations. Such differences cause delays and add extra development and production costs for European exporters when launching new vehicles to the Japanese market. This put the European automobile manufacturers at a disadvantage, both in terms

[37] See production statistics from the International Organisation of Motor Vehicle Manufacturers at www.oica.net.
[38] European Automobile Manufactures Association (2009).
[39] GTAP version 8. The GTAP data base uses baseline data from 2004 and projects the data to 2008 according to estimates from the World Economic Outlook, among others.
[40] Numbers are from Europe ACEA, Japan: MLIT, JAIA.
[41] Numbers are from Europe ACEA, Japan: MLIT, JAIA.

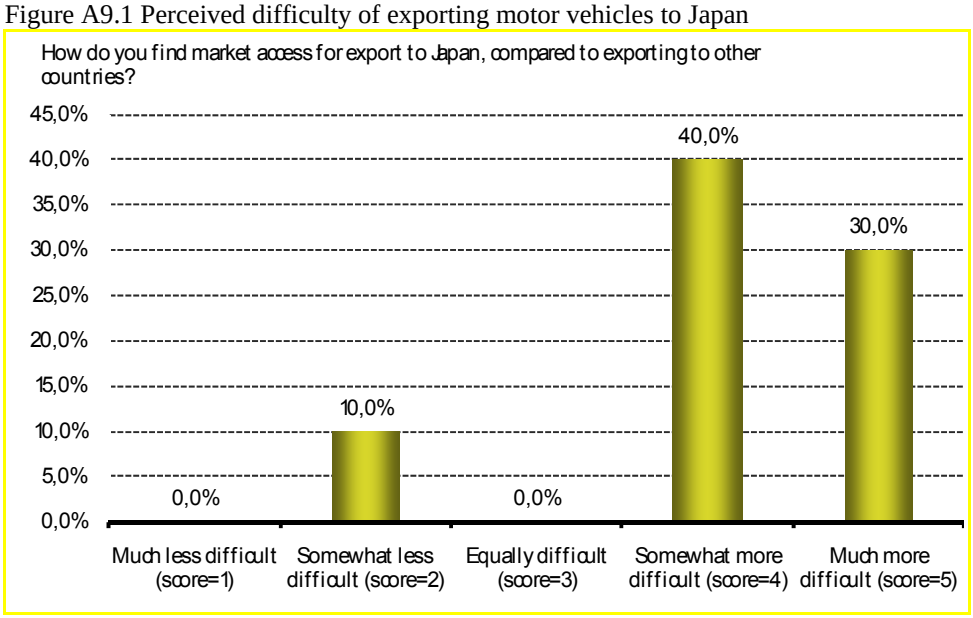
of introducing the latest technologies in cars, as well as delivering automobiles at competitive prices compared to domestic Japanese manufacturers.

Streamlining the certification processes on emissions, safety and noise, e.g. adhering to international standards where these have not yet been implemented, Japanese users of cars would have earlier access to better and cheaper automobiles from European manufacturers. Since these certifications are not inferior to the Japanese regulations, such harmonisations will not put the safety of Japanese consumers at risk.

A9.2 NTMs to the Japanese market

Around 70 percent of the motor vehicle managers in our business survey consider Japan as being more or much more difficult to access than other markets, cf. Figure A9.1.

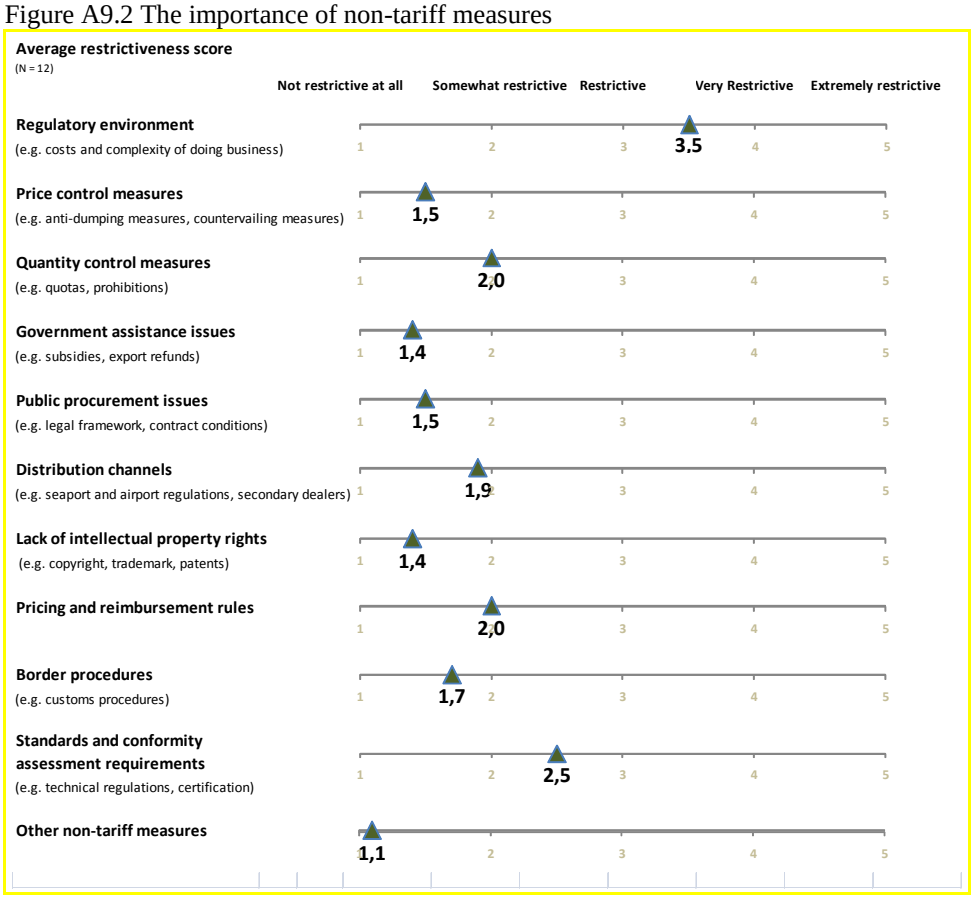
Figure A9.1 Perceived difficulty of exporting motor vehicles to Japan



Note: Average score = 4.1.
Source:Copenhagen Economics, Questionnaire to managers of European motor vehicles firms in Japan.

Issues related to the regulatory environment, standards and conformity assessment procedures are the most important NTMs facing the European motor vehicle firms in Japan, cf. Figure A9.2. These NTMs will be covered in more details in Section A9.3.

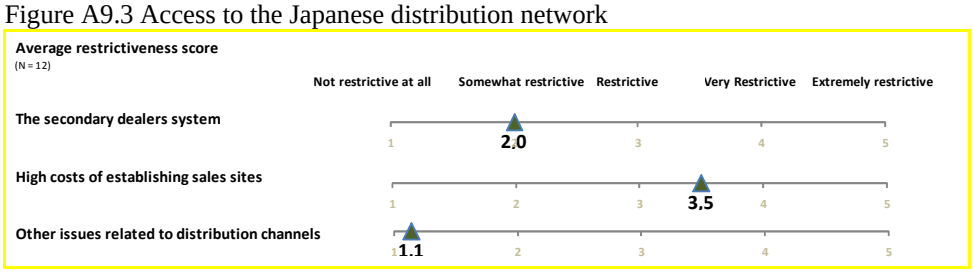
Figure A9.2 The importance of non-tariff measures



Note: The figure shows the average score for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European motor vehicle firms in Japan.

Also, access to the distribution network is difficult for European motor vehicle exporters in Japan, cf. Figure A9.3. In particular, the high costs of establishing sales sites prevent European motor vehicle exporters from settling down in Japan. Zoning laws make it practically impossible to obtain permission to open a new service shop in such regions as the Tokyo metropolitan area, while domestic manufacturers already have access to operate service and showroom facilities. The competitive issues related to the Japanese distribution network are not directly related to NTMs and these issues therefore do not enter the NTMs reduction scenarios applied in our simulations. In the final model simulations, such impacts are taken into account through the lowering of general wholesale/retail mark-ups.

Figure A9.3 Access to the Japanese distribution network



Source:Copenhagen Economics, Questionnaire to managers of European motor vehicle firms in Japan.

Public procurement issues are generally not perceived as being very restrictive, but one European exporter states that

> *As the assumption is that imported cars are anyway more expensive than local ones we are – in fact and not by regulation – excluded from such procurements*

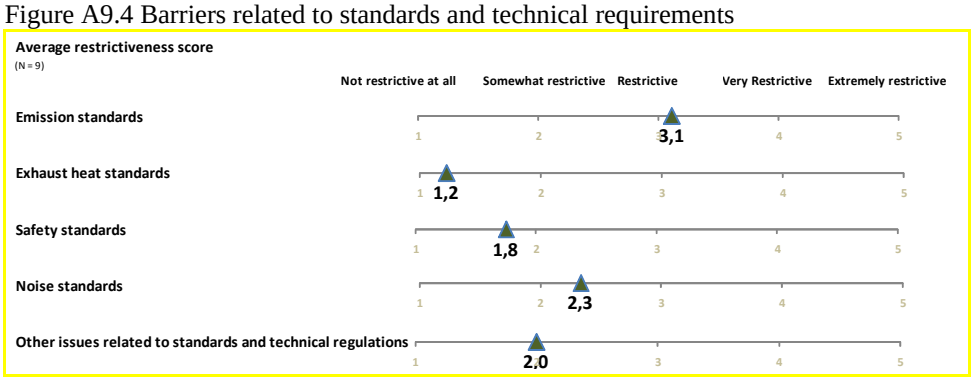
A9.3 NTMs related to standards and conformity assessment

Prior to marketing and sales of motor vehicles, automotive systems and their components need to undergo type approvals according to the official regulations of their destination countries. For the European market, two systems for vehicle homologation co-exist:

- **European Union (EU) directives:** Since 1998 the European Whole-Vehicle-Type-Approval (WVTA) has progressively been replacing the individual national type approvals of the EU member states. This allows manufacturers to have a vehicle "type" approved in one member state and then be able to market the vehicle in all other member states without further tests.
- **United Nation Economic Commission for Europe (UN-ECE) regulations:** ECE is an organisational part of the United Nations. Members are EU member states as well as many other countries including Japan. Thus, testing according to UN-ECE regulations opens the gate to the worldwide markets because of a broader acceptance of approved components.

In Japan, the UN-ECE regulations co-exist in parallel with the Japan-specific regulations. In the motor vehicle sector, NTMs often arise when Japanese regulations are different from EU directives or UN-ECE regulations. NTMs related to standards and technical requirements are particularly serious with regard to emission standards, cf. Figure A9.4. Also, noise and safety standards impose significant costs on European motor vehicle firms in Japan.

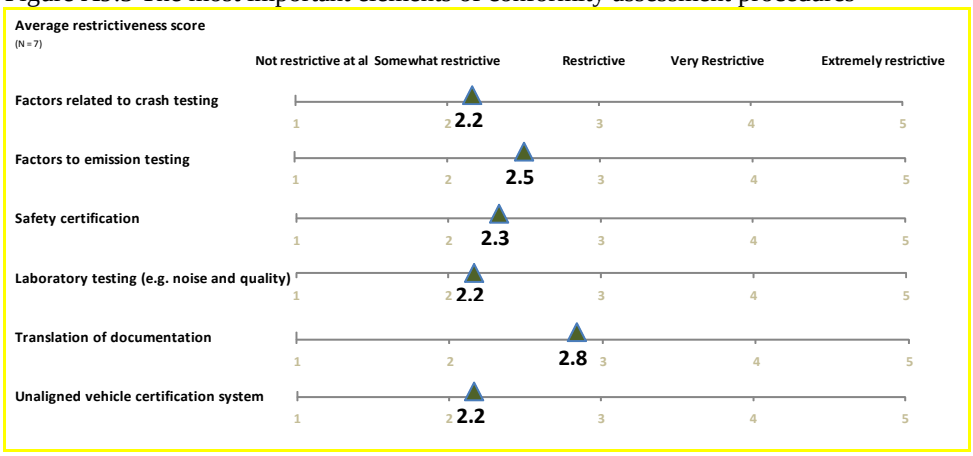
Figure A9.4 Barriers related to standards and technical requirements



Note: The figure shows the average score for each response category.
Source:Copenhagen Economics, Questionnaire to managers of European motor vehicle firms in Japan.

Of the barriers related to conformity assessment procedures, translation of documentation is rated as being the most restrictive, cf. Figure A9.5.

Figure A9.5 The most important elements of conformity assessment procedures



Source:Copenhagen Economics, Questionnaire to managers of European motor vehicle firms in Japan.

Most of the remaining factors are related to certification. One responding manager of an European motor vehicle firm in Japan state that

> *3 out of 60 total headcount of the Japanese subsidiary are fully occupied with certification procedures*

Overall, we conclude that the barriers encountered by the European motor vehicle producers in Japan are mainly TBTs related to emission, safety and noise standards. We will discuss each of these issues individually underneath.

Emissions

According to the Japanese TRIAS, the exhaust regulations require special testing on emissions and durability of exhaust systems. These tests have to be conducted on Japanese government approved facilities and can be very time-intensive. The norms are not different than in the UN-ECE, but the testing procedures differ and are often unique to Japan. This causes additional development and production costs for European exporters to Japan (while not for Japanese producers in Europe). As reported by EU managers in Japan

> *Japan has unique emission regulation even for imported vehicles, that means, unique development work and cost are needed*

And

> *Japan has unique emission regulation even for imported vehicles, so as a result, it affects our production cost*

One problem related to testing of emission requirements in Japan is the 2009 *Exhaust Emission Regulations on Emission Durability Requirements*, especially for Diesel Particulate Filters (DPF). The testing and certification process is labour intensive and takes more than one week to conduct. According to industry officials, it would be desirable to establish streamlined and harmonised procedures for testing periodic control correction (KI correction) on those vehicles equipped with DPF.

Another issue relates to the test method on Plug-In Hybrid Electric Vehicles (HEV). Industry sources inform us that Japan is in the process of adopting a unique testing method for Plug-In HEVs. The adoption of such testing method will impede the import of European manufactured Plug-In HEV to Japan. From the view point of EU motor vehicle exporters, and to the extent possible, the test method for Plug-In HEV should be harmonised globally.

A third example of emission-related problems relate to a vertical content-of-norm TBT which is related to the new test driving cycle for light duty vehicles (WLTP). Japan uses a unique test cycle to measure emissions and fuel efficiency for such vehicles. EU car manufactures use a different test cycle, and EU producers optimise the emissions and fuel efficiency performance of their vehicles in accordance with the EU test cycle. European produced vehicles therefore do not perform optimally under the Japanese test cycle. Consequently, they do not qualify for tax incentives in Japan based on environmental performance.

In this case, the Japanese norm does not only cause additional costs for the testing, but it also adversely affects the sales of EU vehicles in Japan. Introducing tests according to UN-ECE standards in Japan would accelerate sales of fuel-efficient vehicles in Japan through more competition from EU producers.

Noise

The Japanese regulations on steady running noise and proximity stationary noise levels (including limit values) are not harmonised with the UN-ECE standards. In Europe, compli-

ance with these norms is tested according to the UN-ECE Regulation R51, while Japan's testing methods are unique to Japan. The levels required by the Japanese standard is no less stringent as set down by the UN-ECE standard so the unique Japanese requirements result in time consuming and costly extra noise testing of all imported cars to the Japanese market.

Safety

Regarding safety standards, Japan is introducing new regulations not present in the UN-ECE. Two examples of such regulations are mandatory *Pedestrian Leg Protection* for larger vehicles and *Collision Mitigation Brakes* for heavy-duty vehicles (e.g. engineering machinery).

There are also several horizontal-norm TBTs in place for pyrotechnic safety devices (e.g. devices using explosives such as air bags) and for cars running on compressed hydrogen. For explosives, each device type has to be approved separately regardless of earlier approval of similar devices. A generic exemption from the explosives law for safety devices, subject to a limit of explosive amount, could mitigate this TBT. For cars running on compressed hydrogen, the Japanese technical requirements are unique, and there is no mutual recognition for cars approved for Europe.

A9.5 Other barriers

The introduction of advanced information technology software to vehicles (e.g. car navigation, traffic signals, congestion reporting and proximity radars) spurs a whole range of regulatory issues regarding certification of automobiles. The fast pace of technological innovation means the regulatory authorities have difficulties in keeping up with defining the requirements for certification of these systems.

> *Certain automotive products (accessories, additional optional equipment) allowed by EU regulations cannot be sold in Japan*

Especially introducing completely new technologies requires thorough and burdensome procedures for approval. Also, the new technology is affected by regulation from areas not normally bound to automobiles. For example, Japan does not allow the use of the radio frequency for proximity radars that are approved for such use in the EU and the US. One manager reports that the costs of launching innovative products in Japan are high due to

> *Technical Guidelines for advanced technologies, and in case of no regulation corresponding to new features the guidelines must be established first*

A9.6 Potential solutions

More specifically the following items could be addressed:

- Adaption of international or UN-ECE standards, in particular with regards to emission, noise and safety.
- Streamlining and simplifying the certification process.
- Define procedures for revisions of standards and technical guidelines to better accommodate innovative products.

Japan is very active in the UN-ECE, and both the EU and Japan are in favour of mutual recognition and international standards. However, the Japanese adoption of UN-ECE Regulations is only a third way through. Out of 127 regulations, only 38 have been adopted by Japan. The remaining areas are covered by domestic Japanese regulation and certification with various diverging norms and standards. This maintains extra costs. The adoption of the remaining regulation and a speedier adoption of new regulation will reduce the Japanese NTMs greatly. In particular, the following actions are listed by the automotive industry:

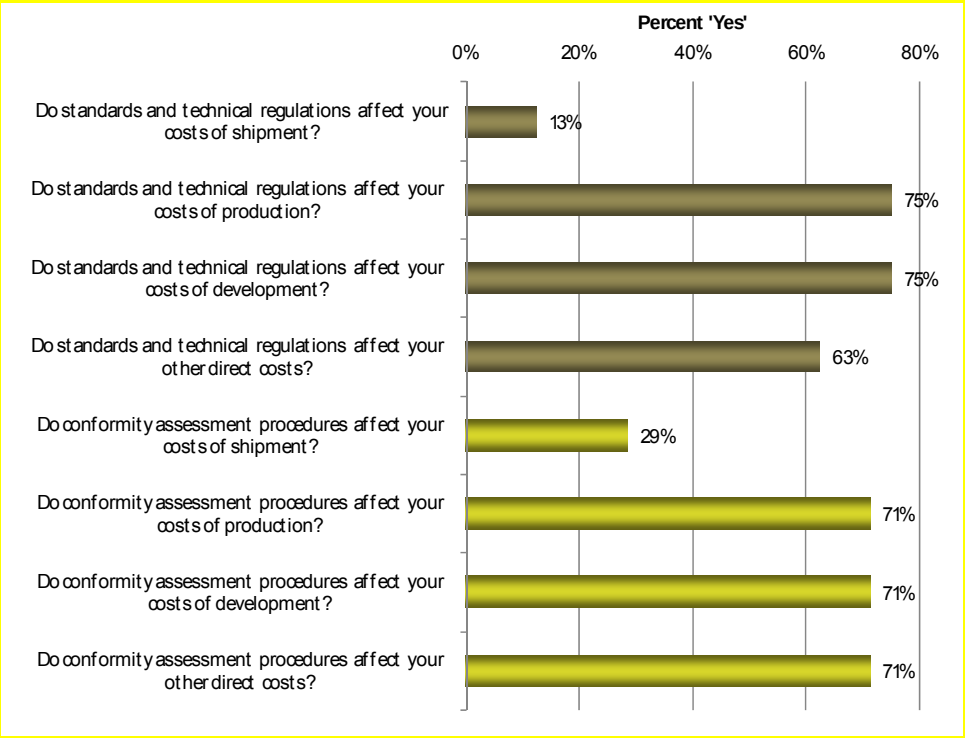
- Japan could speed up the adoption of UN-ECE regulations (in particular harmonisation of noise regulations in Japan with those present in the UN-ECE Regulations).
- The test-method for Plug-In HEV should be harmonised globally.
- Regarding Pedestrian Leg Protection, the date of compliance could be harmonised with the date of introduction in the European legislation.
- Explosives used in automobiles could be given a generic exemption from the Explosives Law, subject to a limit on the amount of explosives that may be used.
- In line with the EU and the US, Japan could permit the use of the radio frequencies used for automobile safety devices.
- Regarding revisions of guidelines with respect to approval of new technology for safety devices, the process could be much improved and thereby removing obstacles for the introduction of new and better technology.
- Streamlining the procedures for periodic control correction on vehicles equipped with Diesel Particulate Filters.

A9.7 Quantifying impacts on trade

The identified barriers to trade with Japan increase certification and approval cost for exporters. In the end, this will increase the price paid by the final consumer and delay the introduction of new cars and technology in Japan. As a consequence, the barriers distort consumption of motor vehicles toward the domestic Japanese manufacturers who do not carry these costs.

Three out of four managers report that standards and technical regulations impose significant costs of production and costs of development on the EU motor vehicle producers, cf. Figure A9.6. The same picture arises for the costs of conformity assessment requirements. Costs of shipment, on the other hand, do not seem to be significantly affected by NTMs.

Figure A9.6 How various barriers affect costs of EU automobile exports to Japan



Source:Copenhagen Economics, Questionnaire to managers of European motor vehicle firms in Japan.

The gravity model gives a TCE of 12.5 percent which lies in the lower end of the TCE interval we get from the direct TCEs estimates from our business survey, cf. Table A9.1. The difference between the low and high estimates is large, and we take this into account by applying the low estimates in our simulations.

Table A9.1 Quantification of barriers

Cost element	Low estimate	High estimate
Higher production and certification costs	2%	15%
Higher development costs	8%	30%
Border costs	0%	2%
Costs of delay	0%	4%
Total cost estimate	**10%**	**51%**

Source:Copenhagen Economics Questionnaire to managers of European motor vehicle firms in Japan. Numbers in brackets are unlikely to be achievable on a bilateral basis.

The high production and development costs are mainly due to NTMs related to differences between Japanese and European standards. For example, one manager states that development costs are particularly high since

One sample car is needed per new model

Conformity assessment costs are mainly high due to the costly and cumbersome certification process in Japan. Border costs and costs of delay are generally not highly rated.

Not all of the NTMs can necessarily be removed. According to the responses from the managers in Japan, costs corresponding to around 9 percentage points of the 10 percent can be reduced by reducing barriers related to standards and technical regulations, cf. Table A9.2. In addition, 7 percentage points can be reduced by eliminating barriers related to conformity assessment requirements. If both types of NTMs are eliminated it would therefore be possible to stimulate EU export to Japan even more than our simulation results predict.

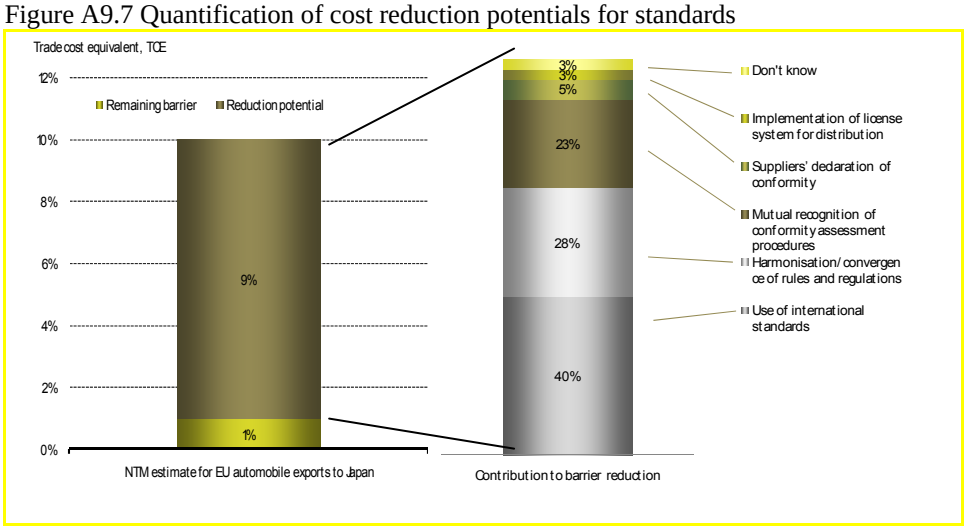
Table A9.2 Reduction potential of NTMs

	Question 4.8	Question 4.9	Question 6.8	Question 6.9
	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *standards and technical* regulations were eliminated?	By how much would you expect your **costs per unit** of export of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?	By how much would you expect your **other export costs** (i.e. fixed costs not related to per unit cost of export) of exporting to Japan to decrease if the barriers related to *conformity assessment* procedures were eliminated?
Answer options	**Response percent**	**Response percent**	**Response percent**	**Response percent**
0- 1%	0%	0%	0%	0%
1% - 5%	14%	29%	14%	14%
5% - 10%	43%	43%	71%	71%
10% - 15%	29%	14%	14%	14%
15% - 20%	14%	14%	0%	0%
More than 20%	0%	0%	0%	0%
Average	**9%**	**8%**	**7%**	**7%**

Source:Copenhagen Economics Questionnaire to managers of European motor vehicle firms in Japan.

The majority of respondents call for an increased use of international standards as a tool for lowering the barriers in the Japanese motor vehicles industry related to standards, cf. Figure AFigure A9.7. Alternatives could be the harmonisation/convergence of rules and regulations or the mutual recognition of conformity assessment procedures.

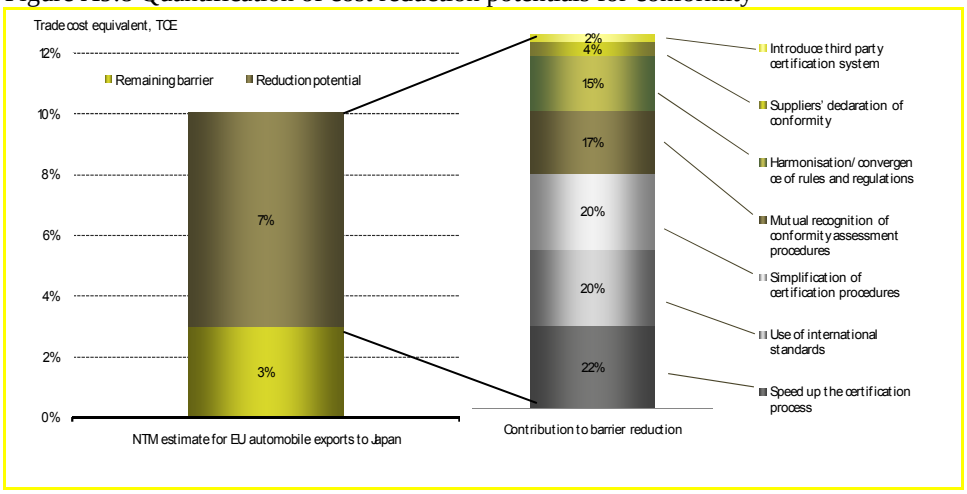
Figure A9.7 Quantification of cost reduction potentials for standards



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source: Copenhagen Economics Questionnaire to managers of European motor vehicle firms in Japan.

A speedier certification process is listed by responding managers as a means to reduce barriers related to conformity assessment requirements, c.f. figure A9.8. Next come the use of international standards and the simplification of certification procedures.

Figure A9.8 Quantification of cost reduction potentials for conformity



Note: Data is based on responses to question 4.8, 4.9, 6.8 and 6.9.
Source: Copenhagen Economics Questionnaire to managers of European motor vehicle firms in Japan.

A9.8 Results and implications

The EU holds a strong position in the Japanese market for imported motor vehicles but the Japanese import penetration is low compared to other OECD countries. The barriers encountered by the EU motor vehicle producers in Japan are mainly TBTs related to emission, safety and noise standards. These barriers cause extra conformity assessment, development and production costs for EU exporters. First, the Japanese TRIAS regulation

requires special testing on emissions and durability of exhaust systems. This causes delays in approvals that are particularly serious for innovative products. Second, the Japanese regulations on steady running noise and proximity stationary noise levels are not harmonised with the UN-ECE standards. Third, the costly and cumbersome certification process in Japan causes delays and extra costs.

According to our survey estimates, EU exporters of motor vehicles pay an extra cost of 10 percent. EU producers therefore face a serious disadvantage since the costs of TBTs fall disproportionately on exporters compared to Japanese producers. To reduce these barriers will require the Japanese authorities streamline and simplify the certification process and find procedures for revising standards and technical guidelines to better accommodate innovative products. Most importantly Japan should adopt international or UN-ECE standards, in particular with regards to emission, noise and safety. In many cases Japan has agreed to do so but has not yet implemented much of the necessary legislation. If the full NTM reduction is achieved, EU exports of motor vehicles to Japan will increase from €5.6 billion to €10.3 billion, or by up to 84 percent.

APPENDIX 10: TRANSPORT EQUIPMENT SECTOR STUDY

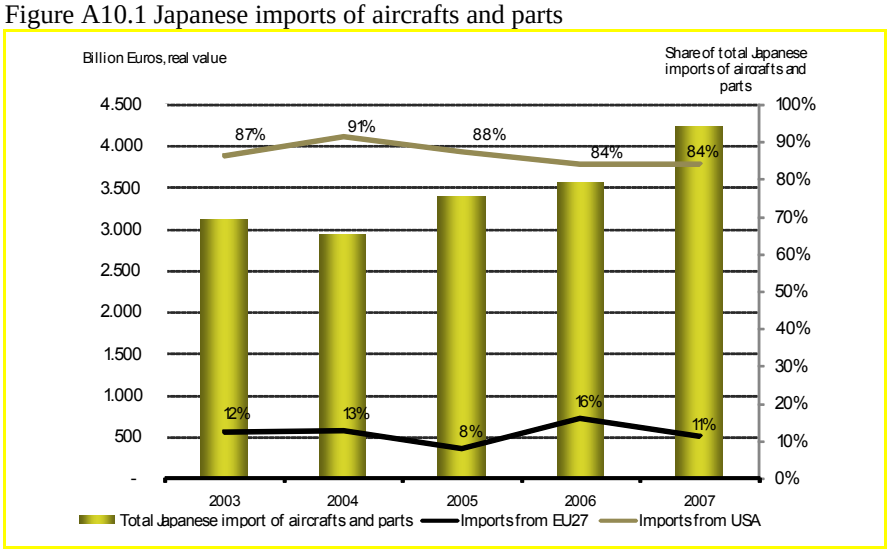
In this section we address the possible increase in exports of transport equipment to Japan. In broad terms the definition of transport equipment encompasses any equipment for transportation other than motor vehicles. Examples of such products are commercial aircrafts, spacecrafts, vessels, motorcycles, railway locomotives along with replacement parts. In this chapter, we focus on the two largest EU export items within transport equipment: aircraft and rail-transport equipment making up 45 percent and 7 percent of total extra-EU27 exports of transport equipment in 2008.

EU exports of transport equipment to Japan are depressed because of derogations in Japan's commitments under the Government Procurement Agreements (GPA); Japanese additional requirement to foreign suppliers can be extremely severe. We assess that imports have the potential to increase by more than 300 percent or €2.6 billion if these barriers were addressed. In this chapter, we look at the pattern of bilateral trade and estimate the potential gains in these two sectors if trade barriers were removed.

A10.1 Aircrafts

On a global scale, the Japanese market for commercial aircrafts is one of the largest in the world and is estimated to be around €10.7 billion.[42] Traditionally, the US has been Japan's preferred trade partner. Japan's import of aircrafts and parts amounted to more than €4 billion in 2007 and has increased by 37 percent during the period from 2003 to 2007, while market shares for EU aircrafts has remained stable at around 10 percent and without much decline in the U.S. aircrafts market shares, which has been around 85 to 90 percent of the Japanese import.

Figure A10.1 Japanese imports of aircrafts and parts



Source: UN Comtrade and Eurostat HS02 product code 88.

[42] The market size is an unofficial estimate based on information obtained from the Ministry of Finance and the Society of Japanese Aerospace Companies. Source: www.buyusa.gov/asianow/jaircraft.html.

The import shares depicted in Figure A10.1 are not easily explained and are contrasted by the fact that global market shares for aircrafts are roughly shared fifty-fifty between European and US suppliers. Excluding import of parts would make the market share even more unbalanced. Increased competition and diversification of suppliers will in general benefit efficiency and lower buying cost, but so far Japan has kept the USA as its main provider despite high efforts of the European community to establish co-operation and trade relations. According to the Aerounatics, Space and Defense Committee of the EBC, the problem is not related to quality or price. Furthermore, the legal framework does not constitute a fundamental problem as the differences between European and Japanese rules and regulation are not considerable.

If the removal of the current constraints will allow export competition between all aircraft suppliers, we would assume a change in the EU market share in the direction of the global fifty-fifty balance. One plausible scenario could, therefore, be that the current Japanese import shares of the EU27 and the USA of respectively 11 percent and 84 percent would change towards a fifty-fifty balance in the future. We, therefore, estimate the export potential from a scenario where the EU27 exports of aircrafts would increase from the current level of €0.7 billion to a future level of €2.7 billion, corresponding to a 50 percent share of the current market value. This will imply an increase by €2.0 billion a year or a 285 percent increase on current levels of European aircraft exports to Japan.

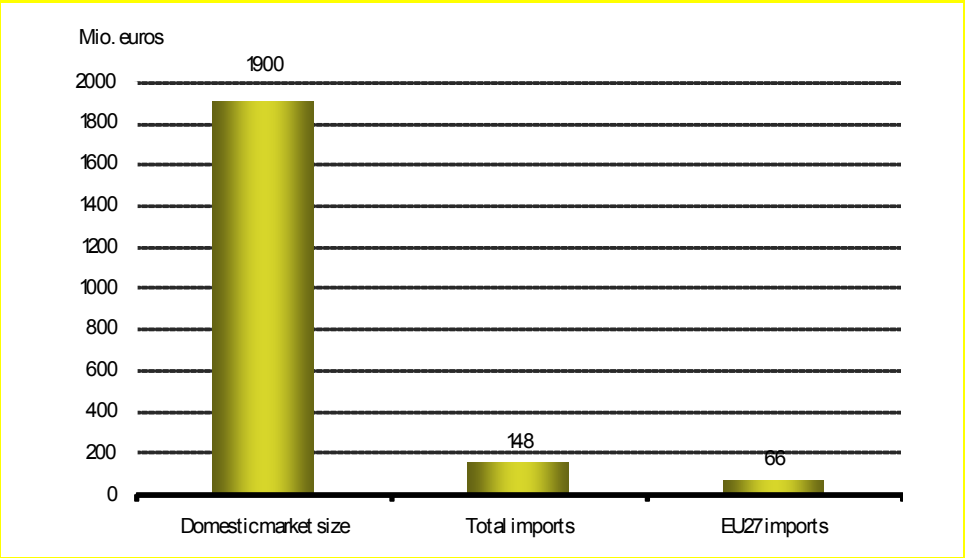
A10.2 Rail-transport equipment

The Japanese market for railway equipment is of a significant size. The worldwide market for railway equipment is estimated at around €36 billion per year and out of this, the Japanese domestic market was worth approximately 5 percent or €1.9 billion in 2006.[43]

Production of railway equipment and parts primarily takes place in the EU, where the industry is estimated to make up 60 percent of total world production (European Commission, 2007). With a production share representing around 10 percent of total world production Japan is a net-exporter. Still, Japan is importing a small share, €148 million or about 8 percent of its domestic demand from abroad. Of this EU27 exports of €66 millions only make up 3 percent of the total domestic market in Japan, cf. Figure A10.2.

[43] http://ec.europa.eu/enterprise/rail_guided_transport/rail/index.htm and Japanese Association of Rolling Stock Industries.

Figure A10.2 Japanese domestic market size and imports of rolling stock, 2006



Source: Eurostat and UN Comtrade HS06, product code 66 and Japanese Association of Rolling Stock Industries.

The incumbent operator (Japan Rail) has been privatised, but still falls under the WTO Government Procurement Agreement. Therefore, market access is constrained not only by industry structure, but also by the lack of transparency of the Japanese government procurement system.

To a large extent, the low import penetration can be explained by barriers concerning public procurement:

1) When Japan signed the WTO Agreement on Procurements (GPA) in 1994, the country gained dispensation to deny applications for reasons of "operational safety". This prevents foreign firms from bidding on procurement contracts as only 2 percent of the rail-transport equipment market is open to international procurements contracts compliant with the GPA.
2) Complex customer-suppliers relations required in procurement contracts can be an additional barrier to foreign suppliers. Local suppliers involved in long-standing dealings with the customers are favoured and additionally, to win a contract, the producers are sometimes commanded to demonstrate work already carried out in the local market in addition to previous experience of work with local partners.
3) Out of the 2 percent of the rail-transport equipment market open to international procurements only 15 percent is awarded to non-Japanese firms summing to only 0.3 percent of the total market (European Commission, 2007).

Furthermore, unique Japanese safety standards create a hurdle to exports. Together, it is clear that world distribution of production is not reflected in trade of railway products in the Japanese market. Noting that the European companies Alstrom, Bombardier and Siemens respectively hold world rolling-stock market shares between 14 percent and 25 percent (European Commission, 2007), a Japanese market share of 10 percent would not be an overly optimistic assumption for each of these major producers if the market was open to international competition. Given an estimated Japanese market size of €1.9 billion in 2006, the total potential gain for these European companies would amount to €600 million per year if they jointly gained a market share of 30 percent of the Japanese railway equipment market. This would constitute almost a ten fold increase of the current export levels.

A10.3 Results and implications

Summing up, there is a large potential in the transport equipment sector for bilateral trade gains on EU exports of aircraft and railway products to Japan. While there are several explanations for barriers to trade in the railway sector, the reasons for lack of bilateral aircraft trade between the EU and Japan are less clear.

Improving the Japanese bilateral trade relation on air and rail products could potentially increase the total EU27 export revenue of the transport equipment sector by around 340 percent since the EU27 revenue of €1.1 billion in 2007 could potentially increase to €3.7 billion provided the implementation of the necessary regulatory reforms in Japan.

The gains from equalising the percentage of Japanese imports from the EU and the USA on aircraft equipment are, however, obvious as the export revenue could increase by approximately €2 billion per year. Additionally, opening the Japanese market of railway products to foreign companies e.g. by public procurement contracts is likely boost the Japanese imports of railway products from the EU by approximately €600 million. The total export potential is thus €2.6 billion.

Given the trade elasticity of the transport equipment sector we have calculated the trade cost equivalent corresponding to this potential. This corresponds to a trade cost of 45percent and a reduction potential of 75 to 90 percent, with the maximum scenario implying a realisation of the €2.6 billion increase in exports.

APPENDIX 11: FINANCIAL SERVICES SECTOR STUDY

Cross-border trade in financial services covers financial intermediation services and auxiliary services conducted between residents and non-residents in a particular country. Our business survey, in line with other studies, identifies three major barriers to cross-border trade between the EU and Japan:

- A complex and costly regulatory environment
    - The Japanese licensing system requires costly product modifications. A lack of transparency as to regulation makes it difficult to foresee the results of investments in innovation and development.
- Firewalls between business entities prevent synergies
    - Business entities within a company have to be separate from each other in terms of staff and other resources.
- Excessive administrative burdens
    - Duplicated inspections add to the administrative burden.

Although progress is already being made with respect to the barriers described above respondents and trade and business organisations suggest that these barriers could be resolved by the measures listed below:

- Dropping the firewall regulation would improve efficiency for EU-based firms as well as for Japanese firms.
- The introduction of a new licensing regulation would take care of the most restrictive barrier and also provide more opportunities for Japanese banks to export to the EU.
- Increased regulatory transparency would increase the presence of foreign providers of financial services and thereby increase competition on the Japanese market to the benefit of Japanese firms and consumers.

Lastly, the business survey validates the quantitative results from the gravity model. We decide to look at two scenarios where the barriers are reduced by approximately one half and two thirds respectively.

Introduction

Cross-border trade in financial services covers financial intermediation services and auxiliary services conducted between residents and non-residents in a particular country. Financial intermediation services include commissions and fees for letters of credit, lines of credit, financial leasing services and foreign exchange transactions. Auxiliary services include financial market operational and regulatory services and security custody services (IMF, 2008). It is only commission, fees and other compensation for services that is included in the measures of cross-border trade in financial services. Financial services should not be confused with international capital movements which are not services, for example a deposit in foreign savings account does not count as financial service but the fee for the deposit does.

By trade, in this context, we refer to mode 1 trade. Mode 1 trade is cross-border supply of a service that does not require the physical movement of supplier or consumer. In financial

services, cross-border trade predominantly takes place at a wholesale and interbank level and less at the retail level. The typical cross-border customer is also more sophisticated in the sense that they demand complex services (OECD, 2000).

An EU based firm that provides financial services has essentially two different ways to reach a Japanese customer; either operate in Japan while keeping it's juridical residence in EU or by entering the Japanese market through establishment of a branch. Establishing a branch would be a direct investment and business generated by such investments is excluded from the concept of cross-border trade. In the remainder of this chapter we discuss both barriers to entry and barriers to operation. While many of the barriers apply both to entry and operation, we only consider cross-border trade, and therefore, our interest is mainly directed towards barriers to operation since such barriers are often also encountered by firms of foreign residence wishing to sell to Japanese customers.

The total exports of financial services from EU to Japan was about €1.2 billion in 2004 which makes EU the largest exporter to Japan. Furthermore, Japan was EU's second largest export market in 2004.[44] To our knowledge there are no available statistics regarding how much of the exports is mode 1 trade in financial services. The quantity referred to above also includes trade where either supplier or consumer physically moves, for example when an investment advisor travels to a representation office in Japan to meet with his clients.

This chapter draws on the survey data based on how EU managers in financial service companies perceive barriers to the Japanese market. Here, we highlight the most important findings and explain how the quantitative data collected in the survey are used to refine the trade liberalisation scenario for the financial services sector.

A11.1 Major concerns in the financial services sector

The most important NTMs for EU financial services export to Japan pertain to:[45]

1. A complex and costly regulatory environment
   - The Japanese licensing system requires costly product modifications.
   - A lack of transparency as to regulation makes it difficult to foresee the results of investments in innovation and development.
2. Firewalls between business entities prevent synergies
   - Business entities within a company have to be separate from each other in terms of staff and other resources.
3. Excessive administrative burdens
   - Duplicated inspections add to the administrative burden.

The regulatory framework is perceived as rigid and its implementation lacks transparency. A rule-based regulatory approach rather than principle-based approached results in a regu-

[44] The largest is the US, Source: GTAP.
[45] These concerns are also expressed in EBC (2008b).

latory framework that is not conducive to services and in a structure that does not fit into predetermined categories and prescriptions. Financial products that are sold on the Japanese market, therefore, often require costly product modifications. Furthermore, the rigid regulatory framework hampers innovation since it is not worth developing products that do not fit in the predefined categories.

71 percent of the respondents state that their product range in Japan is somewhat or much smaller in Japan than in other countries. The reason for reducing the product range is that it is too costly and/or too difficult to export a number of products to Japan given the existing barriers in Japan. 80 percent state that their product range would increase a lot if barriers were removed.

The firewall regulation in Japan requires each business entity to maintain certain separate functions and organisational structures, which could otherwise be shared on a group basis. Such duplications create inefficiencies and extra costs and make it very difficult to integrate Japan operations into the global business.

Excessive administrative burdens make it costly to export to Japan. Duplicated inspections by the Financial Services Agency (FSA), Securities & Exchange Surveillance Commission (SESC), Tokyo Stock Exchange (TSE), Japan Securities Dealers Association (JSDA), Ministry of Finance (MOF) and Bank of Japan (BOJ) impose an excessive administrative burden on regulated firms.

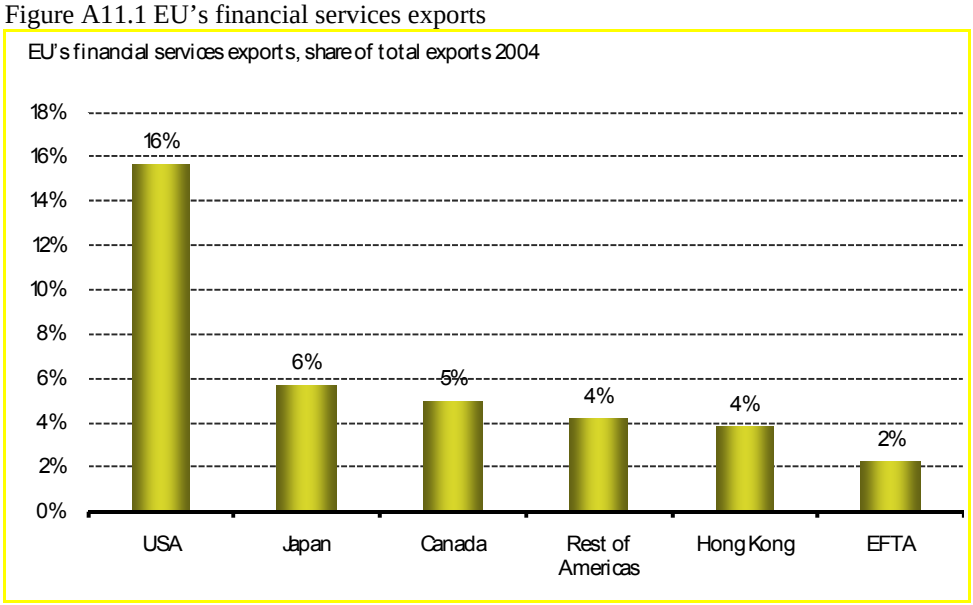
Issues in the banking and insurance sectors are also frequently listed in the NTM inventory. Here, the differences between the EU and the Japanese risk assessments play a prominent role (for example the differences in the insurance and reinsurance solvency regulation in Japan or the lack of common rules for solvency calculations, because Japan does not follow Solvency II).

Costly product approval procedures also affect the on-going operations of a financial service firm in Japan. The administrative burdens for financial service firms are, in comparison with their EU home countries, considered to be excessive, inefficient and non-transparent. This also extends to issues affecting establishment (e.g. applications for bank licences). Another issue in the financial service sector is the lack of harmonisation with international standards (e.g. the dissimilarities between International Financial Reporting Standards and Japan's "Generally accepted accounting principles"). Finally, a lot of the challenges for European financial service firms in Japan relate to the on-going process of privatisation of Japan Post – one of the worlds largest financial institutions offering banking, insurance as well as postal services. The competition from Japan Post is stated to be particularly troublesome in the insurance industry where their product range expands and they compete directly with private companies. Regarding banking, the competition from Japan Post is lesser since they provide less complex products than the typical cross-border customer demands.

A11.2 EU export to Japan

Japan is EU's second largest export market for financial services. In 2004 it stood for close to 6 per cent of the total EU exports, cf. Figure A6.0.1.

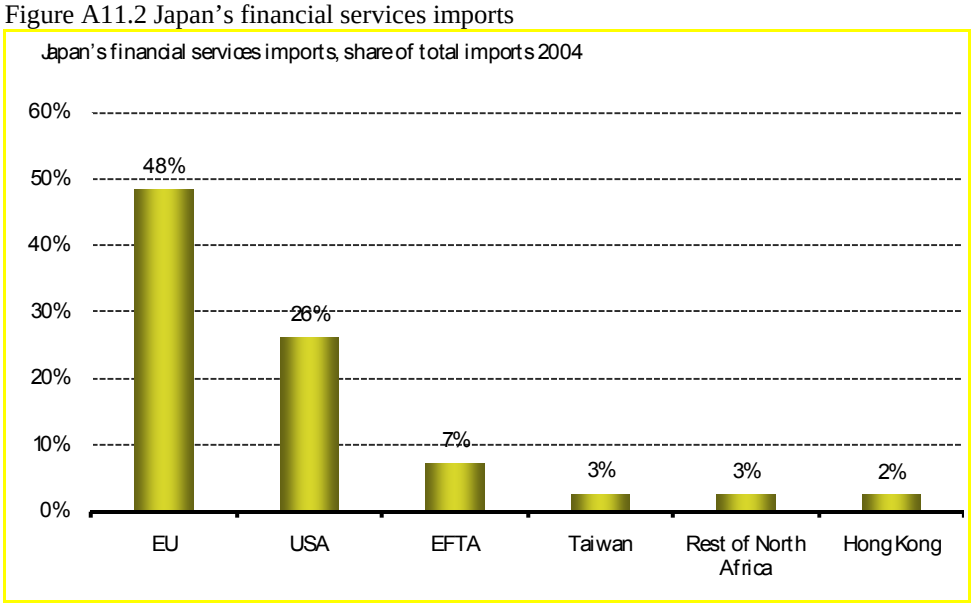
Figure A11.1 EU's financial services exports



Note: EU denotes EU25.
Source: Copenhagen Economics based on data from GTAP.

In total, Japan imported nearly €2.5 billion of financial services in 2004. Exports from EU constituted almost half of these imports, cf. Figure A6.0.2.

Figure A11.2 Japan's financial services imports

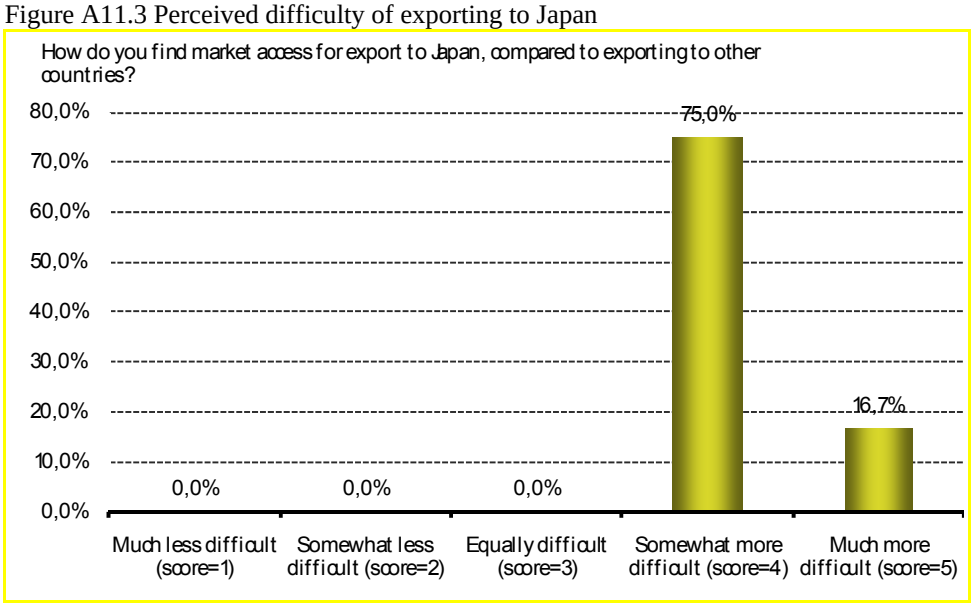


Note: EU denotes EU25.
Source: Copenhagen Economics based on data from GTAP.

A11.3 NTMs to the Japanese market

On the overall level, more than 90 percent of the interviewed managers stated that it is more difficult to export to Japan than to other countries, cf. Figure A6.0.3.

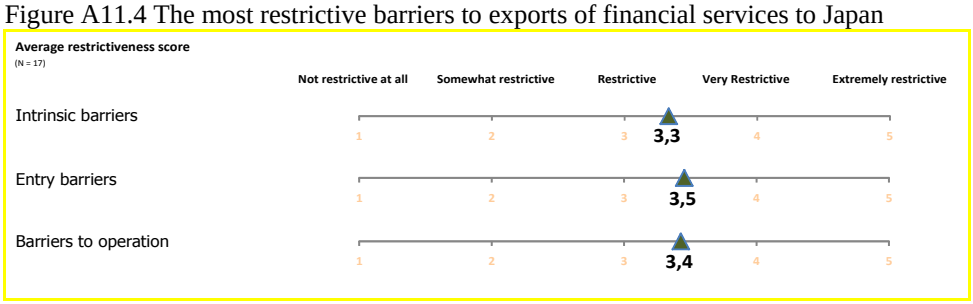
Figure A11.3 Perceived difficulty of exporting to Japan



Note: Average score = 4.2.
Source: Copenhagen Economics, Questionnaire to managers of European financial firms in Japan.

We have divided NTMs into three categories; intrinsic barriers (e.g. language and culture), barriers to enter the market and barriers to operate in the market. There is no category that stands out as much more restrictive than others, cf. Figure A11.4.

Figure A11.4 The most restrictive barriers to exports of financial services to Japan



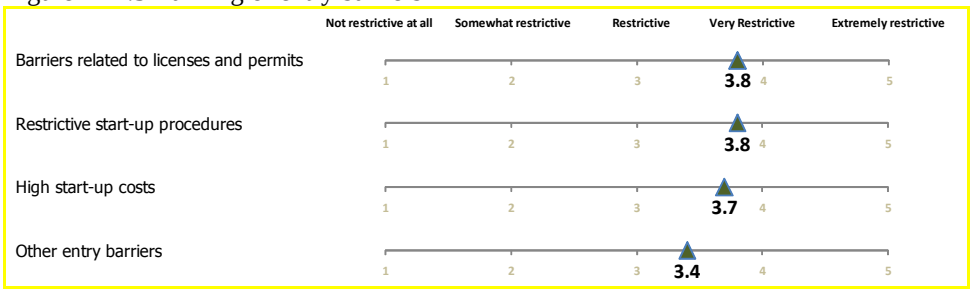
Note: The figure shows the average score for each response category.
Source: Copenhagen Economics, Questionnaire to managers of European financial firms in Japan.

Entry barriers and barriers to operation cannot, however, be completely separated. Many barriers restrict both entry and operation, e.g. the important issue of product licensing and approval of product modifications is a barrier both to entry and to operation. Below we rank the importance of each category and after that we discuss the relationship between the categories.

Barriers to entry

The most restrictive entry barriers are related to licenses and permits. Specifically, the need for pre-approval for each product and each product modification is listed as an important barrier. In addition, administrative burdens and other restrictive start-up procedures are perceived as major barriers to entering the market, cf. Figure A11.5.

Figure A11.5 Ranking of entry barriers



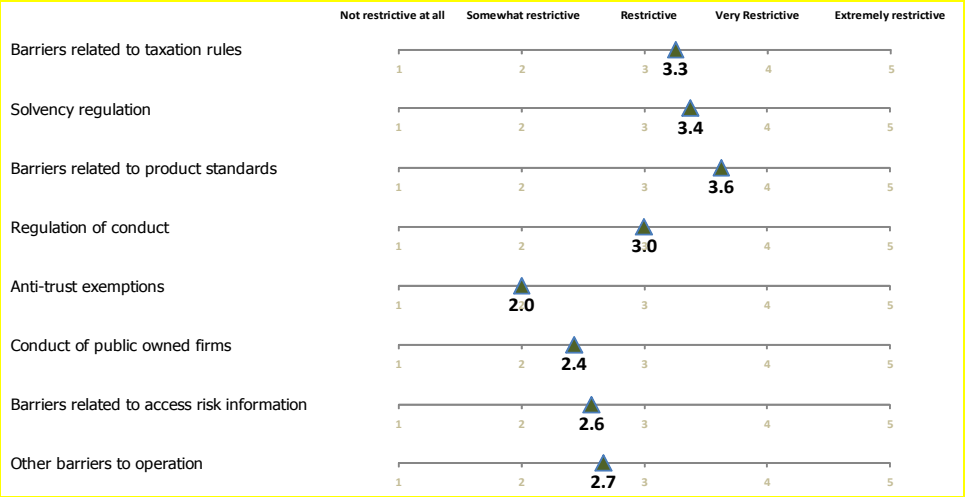
Note: The figure shows the average score for each response category.
Source: Copenhagen Economics, Questionnaire to managers of European financial firms in Japan.

Barriers to operation

The most severe barriers to operation in the financial sector in Japan are barriers related to product standards and lack of transparency of solvency regulation. The firewalls between banking, securities and insurance businesses are also perceived to be an important barrier

to operations. Anti-trust exemptions and barriers related to risk information are, however, less of a problem, cf. Figure A11.6.

Figure A11.6 Ranking of barriers to operation



Note: The figure shows the average score for each response category.
Source: Copenhagen Economics, Questionnaire to managers of European financial firms in Japan.

A11.4 Potential solutions

Several suggestions have already been made and initiatives have been undertaken in order to reduce the barriers to the Japanese market. The "Better Market Initiative" and the "Better Regulation Initiative" are aimed at reducing some of barriers pointed out in this chapter, cf. Box A11.1 and Box A11.2. In addition, the European Commission has proposed several measures to reduce barriers, cf. Box A11.3.

In conclusion, the survey together with statements from the Japanese FSA as well as the European Commission suggests that three topics of significant importance are:

- Dropping the firewall regulation would improve efficiency for EU-based firms as well as for Japanese firms.
- The introduction of a new licensing regulation would take care of the most restrictive barrier and also provide more opportunities for Japanese banks to export to the EU.
- Increased regulatory transparency would increase the presence of foreign providers of financial services and thereby increase competition on the Japanese market to the benefit of Japanese firms and consumers.

Box A11.1 FSA's four pillars of "Better Regulation Initiative"

"***The first pillar: "The optimal combination of rules-based and principles-based supervisory approaches"***
"The rules-based approach" involves establishing detailed rules and applying them to individual cases. On the

other hand, "the principles-based approach" is a framework where several key principles are explicitly stated so as to encourage voluntary efforts by financial institutions in line with such principles. It is important to ensure the effectiveness of the entire financial regulation through an optimal combination of these two approaches. We [the FSA] are open to discussion with relevant parties as to find out how to combine these two approaches.

The second pillar: "Prompt and effective responses to high-priority issues" (risk-focused, forward-looking approach)
This approach requires the recognition of the areas where potential risks exist in the financial system as quickly as possible, and the effective allocation of our resources to these areas so as to address such significant issues. In order to do this, it is necessary to monitor economics and markets and to understand as accurately as possible the strategies and activities of financial institutions, in addition to conducting intensive communications with financial institutions and market participants.

The third pillar: "Encouraging voluntary efforts by financial institutions, and placing greater emphasis on incentives for them"
Our approach toward more incentive-compatibility and greater emphasis on voluntary efforts has already been incorporated to a significant extent in our regulatory framework, such as the Financial Inspection Rating System, Basel II and the Relationship Banking framework for regional banks. Voluntary efforts of financial institutions are becoming more crucial as the financial sector is shifting into a new phase, so we intend to pay continuous attention to the effectiveness of such frameworks.

The fourth pillar: "Improving the transparency and predictability of regulatory actions"
The FSA has compiled and published its inspection manuals and supervisory guidelines, which clarify checkpoints in inspection and supervision. The inspection and supervisory policies are also published for each operational year. In addition, we have published criteria for our administrative actions, upgraded our No Action Letter System, and posted Q & As about the interpretation of rules. Thus we have taken various measures to improve the transparency and predictability of our actions. We intend to continue our efforts and examine, whether there is any room for further improvement by listening to the opinions of interested parties."

Note: Quote from FSA website.
Source: FSA website, www.fsa.go.jp/en/policy/iqfrs/br1.html.

Box A11.2 Four pillars of the "Better Market Initiative"

1. Creating markets for professional investors; diversifying exchange-traded funds (ETFs); reviewing the administrative monetary penalty system in accordance with the Financial Instruments and Exchange Act (FIEA).
2. Revamping the firewall regulations among banking, securities and insurance businesses; broadening the scope of businesses permitted to banking and/or insurance groups.
3. Enhancing dialogue with the industry; increasing transparency and predictability of regulation and supervision.
4. Improving the broader environment surrounding the markets by nurturing and securing financial experts; upgrading urban functions as an international financial centre.

Source: FSA website, www.fsa.go.jp/en/policy/bmi/index.html.

Box A11.3 EU proposals for regulatory reform in Japan

The EU requests the GoJ to consider the following proposals:

a) To implement, in an internationally coordinated way, the recommendations of the Financial Stability Forum (FSF) as a response to the financial turmoil;

b) To implement on a larger scale its policy of Better Regulation in the financial services area, that is to say to promote principle-based regulations and ensure that the financial industry applies the rules;

c) To share experience with the EU on progress of implementing the Better Regulation approach in the financial services;

d) In the context of the elimination of firewalls envisaged, to implement the opt-out system in a way that will actually ease the restrictions on customer information sharing;

e) To authorise financial services firms to appoint a country manager and to carry out cross-marketing of products;

f) As regards prevention of conflicts of interest, to leave detailed criteria, modalities and application to the best practices of the financial industries, as it is the case in Europe. The EU is open to share its experience with Japan in this regard;

g) To ensure that discrimination between foreign and domestic bank branches interested in engaging in trust and banking business concurrently be suppressed at short notice. In this regard, Article 1 of the Law concerning Concurrent Management of Trust Business by Financial Institutions should be revised;

h) To encourage the Japan Investment Trust Association and the Japan Securities Investment Advisers Association to merge as soon as possible;

i) To ensure that the revamp of the firewall regulation is also applied to investment advisors;

j) To avoid duplication of regulatory roles played by the Japan Investment Trust Association and by the FSA;

k) To keep universal banking as a governmental priority.

Source: EC (2008) EU Proposals for Regulatory Reform in Japan.

The respondents find that the regulation and the application of regulation needs to be reformed and simplified in order to reduce the most concerning barriers, cf. Box A11.4.

Box A11.4 Suggested actions from survey

Answers to the question "In your opinion, which actions would be required in order to reduce the entry barriers/barriers to operation that are of most concern to you?"

Entry barriers

- Transparent application of existing regulations
- Further deregulation of licensing system and more administrative transparency
- Recognition of EU basic rules and principles for funds
- Simplification of Rules and Regulations
- Legal cost is very expensive.
- Further deregulation and administrative simplification
- Deregulation towards a universal bank type of financial institution
- More transparency in FSA regulation, less capricious action by the regulator, better balance of rules-based and principles-based regulation.
- Convince Japan government to reduce the barriers related to licences and permits
- Simplified, more flexible product approval Clearer guidelines

Barriers to operation

- Strict and transparent application of existing rules would already be a big step forward
- Introduction of universal banking and additional administrative transparency
- Clarification of Rules and Regulations
- Regulatory simplification
- More adoption by FSA of global standards in approaching product approvals.
- Revise solvency regulation
- Clearer guidelines and m ore flexibility

Source: Copenhagen Economics, Questionnaire to managers of European financial firms in Japan.

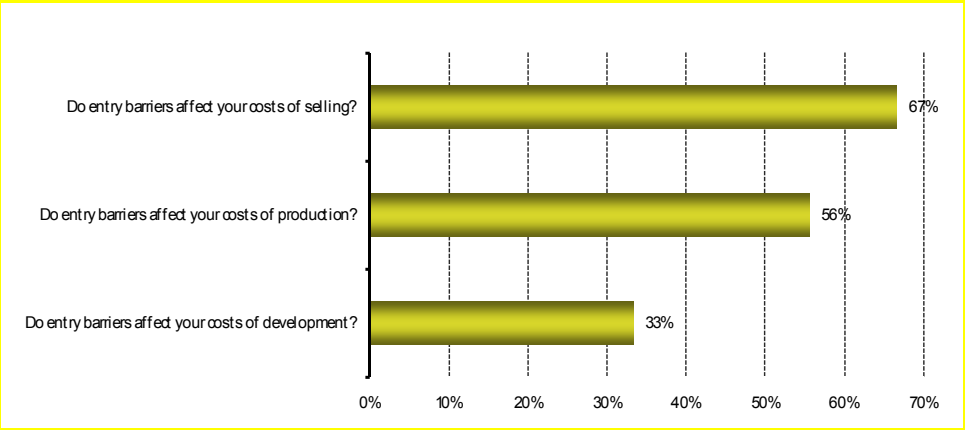
A11.5 Quantifying impacts on trade

Cost of entry barriers

The respondents state on average that if entry barriers were removed, costs of exports would decrease by 19 percent.[46] The costs increase is due the regulatory environment in general and due to the licensing procedure in particular. Costs of entry barriers are mainly related to costs of selling and costs of production and product development, the costs of selling are more commonly perceived as a problem, cf. Figure A11.7.

[46] Based on the answers to the question" By how much would you expect your costs, per unit of export, of exporting to Japan to decrease if these entry barriers were eliminated?"

Figure A11.7 How entry barriers affect costs of EU financial services exporters to Japan



Note: Many of the respondents have answered "I don't know" to this question.
Source: Copenhagen Economics, Questionnaire to managers of European financial firms in Japan.

Costs of selling are affected predominantly by the firewall regulation that forces many firms to duplicate sales resources, some respondents state that their costs of selling increases 30-50 percent due to entry barriers which suggests that the costs of selling is the main driver of the cost increase.

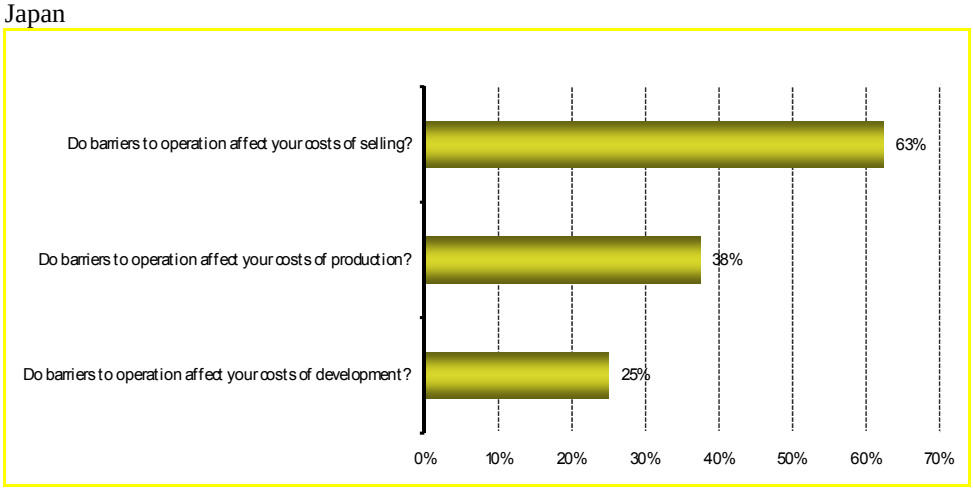
Costs of production and product development also increase due to regulatory requirements. Especially burdensome are the licensing system which requires product modifications and the duplication of resources due to firewall regulation. Product development for Japan often has to be done separate from other jurisdictions to meet FSA requirements and practice, which introduces extra costs of development. Firewalls between banks and securities lead to a duplication of resources also in the case of product development.

Cost of barriers to operation

The respondents stated on average that the barriers to operation increase costs of exports by 12 percent.[47] The primary reasons for the increased costs are the firewalls which makes necessary a duplication of many resources. Costs due to barriers to operation are mainly related to costs of selling and costs of production and product development, the costs of selling are more commonly perceived as a problem, cf. Figure A11.8.

[47] Based on the answers to the question" By how much would you expect your costs, per unit of export, of exporting to Japan to decrease if these barriers to operation were eliminated?".

Figure A11.8 How barriers to operation affect costs of EU financial services exporters to Japan



Note: Many of the respondents have answered "I don't know" to this question.
Source: Copenhagen Economics, Questionnaire to managers of European financial firms in Japan.

Costs of selling are, like costs of selling as a barrier to entry, affected predominantly by the firewall regulation that forces many firms to duplicate sales resources. High printing costs are also reported as barrier to operation.

Costs of production and product development due to barriers to operation are in many ways the same as the costs due to entry barriers. The licensing system requires product modifications, and the firewall regulation requires a duplication of both production and development resources. In addition, the product approval takes a long time which increases the payback time on investments in product development. This in turn makes such investments less profitable since future income is worth less than immediate income because of lost rents.

As mentioned above, entry barriers and barriers to operation cannot be completely separated. Some of the barriers faced by a new market entrant turns into a barrier to operation once he has entered the market, e.g. the important issue of product licensing and approval of product modifications is both a barrier to entry and a barrier to operation. Likewise, the firewalls add both to the costs of entering the market and to operating on the market since the duplicated organisation have to first be established and then sustained.

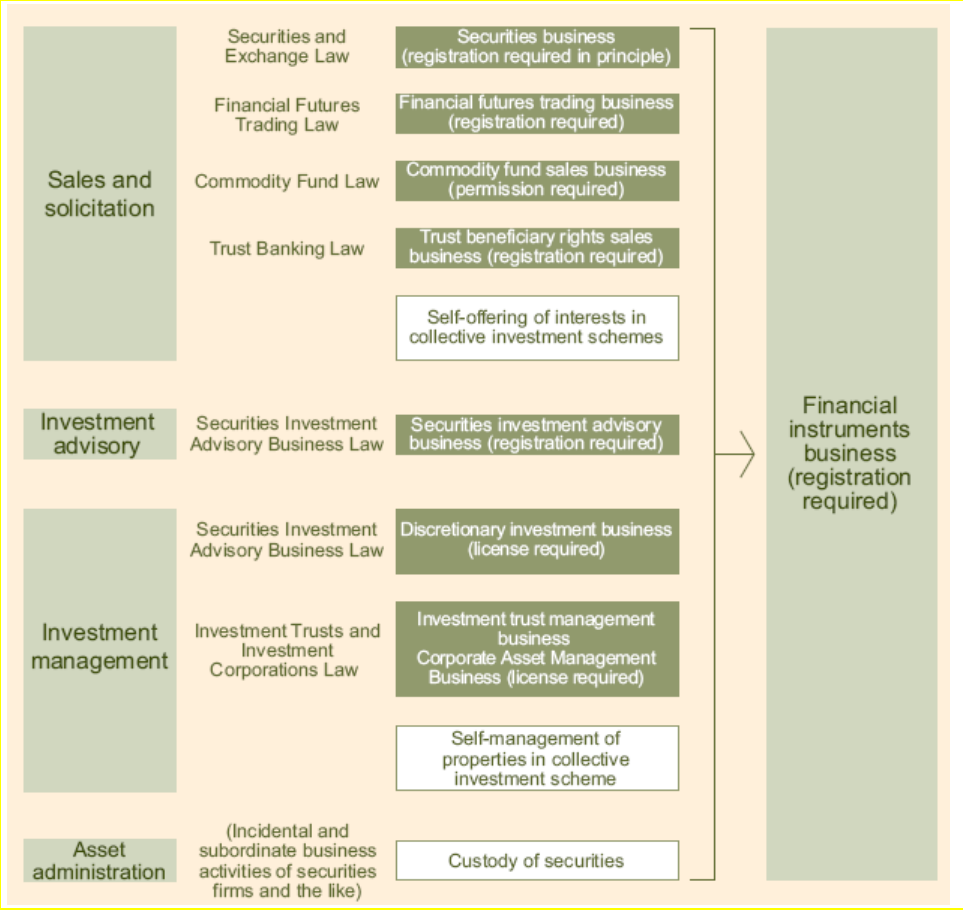
The barriers to operation are also often shared by firms that do not reside in Japan but merely sell their products to Japanese residents. For example, the Japanese FSA (2006) states that:

"As to the foreign financial institutions, the FSA... will examine their compliance with the laws and regulations in Japan and the overall risk management of their financial group.

The FSA will also examine whether they properly manage their new business such as private banking from the view point of customer protection."

In many cases a company is required to register, apply for permission or to acquire a license in order to sell and advertise to the Japanese market. For example, any advertisement for financial instruments must indicate a registration number of the advertising firm. Operation in some fields, such as investment trust management businesses, requires a license which is often costly to acquire, cf. Figure A11.9.

Figure A11.9 Requirements for operating in the Japanese market



Source: FSA (2006).

A11.6 Results and implications

We estimate the trade cost equivalent (TCE) to be equal to the barriers to operation, 12 percent. The gravity model estimate provides a TCE of 15.8 percent. The two estimates seem to be approximately in line with each other and we view the survey results as a validation of the gravity model estimate.

We do not have sufficient quantitative data to estimate the effects of each of the potential solutions. Instead we look at one scenario where the TCE is reduced by 8.7 percentage units and one scenario where the TCE is reduced by 5.8 percentage units.

APPENDIX 12: COMMUNICATION SERVICES SECTOR STUDY

The purpose of this chapter is to assess the economic impact of barriers on cross-border trade in communications services between the EU and Japan. We are particularly interested in barriers hindering the export from the EU to Japan, and we aim at quantifying how much the current flow could increase in the event that some of the key barriers were removed or significantly reduced.

First, we provide an overview of the situation in the Japanese telecoms sector. Then we look into the cross-border flow of telecommunication services which is in fact what we model, and then we look into the problems of establishment and lack of competition in the Japanese telecommunications market.

Overview of the situation in Japan's telecom sector

In 1999, the telecommunications monopoly, NTT, was reorganised into multiple companies. However, the three resulting companies are wholly owned subsidiaries of a holding company, so that no actual deconcentration was achieved. NTT has a monopoly over networks and initially charged prohibitive collocation fees. This was addressed through regulation requiring NTT to lease its unused network capacity at cost to other carriers. Nevertheless, serious concerns remain regarding the transparency of NTT's cost structure, in particular the cost of interconnection, and the terms and conditions of network access.

Problems encountered in the telecommunications sector include cross-subsidisation, using data obtained from competitors, and not making available technical data and other information required to adequately provide services.

The requirement to price interconnection charges at cost may provide insufficient safeguards for competitors, due to the lack of transparency in the cost structure of the incumbent. This is due to insufficient structural and accounting separation, which also facilitates cross-subsidisation. Similarly, charges imposed on operators for the financing of its universal service obligation are not transparent enough.

Insufficient regard to the principle of non-discrimination is a concern in the case of a vertically integrated undertaking such as NTT EAST/WEST. This may limit competition in the downstream market. Specific problems that have been mentioned include the timing of information about changes in NTT's access networks, which does not adequately allow competitors to adjust their investment strategies. In addition, NTT may delay competitors' access to networks. Finally, close attention must be paid to ensure that customer information obtained from competitors is not shared among different parts of the incumbent.

An additional problem is posed by the control operators have over the market for mobile telephony terminals. Operators usually bundle handsets with their services, so that competition in the terminal market is limited.

It seems clear that significant competitive disadvantages for foreign companies persist in

the telecoms sectors of Japan. The incumbent frequently retains a dominant position in the market and is able to establish high barriers to entry. Regulation in the sector is insufficient to constrain incumbents' market power and unlock the full benefits of competition. A greater emphasis on competition law principles is therefore necessary, in order to ensure that European companies can compete on an equal footing.

A12.1 Cross-border trade in telecommunication between EU and Japan

The current cross-border export from EU to Japan of communications services amount to €0.3 billion a year or a 20 percent share of Japan's total import of communications services (€1.6 billion).[48] This is mainly telecommunications services, but it also includes postal services. Before proceeding, we need to explain which telecommunications services are actually traded across the border. This is important because the vast majority of sales revenues for European telecom operators outside Europe would not generally come from cross-border sales, but rather from foreign affiliate sales by EU firm's establishments in the foreign markets. As we will show, EU firms have very little of both when it comes to Japan.

Cross-border trade in telecommunications services is captured in the balance of payments statistics, and it covers among other, payments for interconnection charges. Thus, the flow we register as cross-border exports of EU firms to Japan is the income from calls originating in Japan and connected or terminated in the European telephone network: when a person in Japan makes a call to a person in the EU, this call is being connected to the EU operators' network. The receiving operator in the EU will charge the Japanese operator an interconnection fee for terminating the call. This can be considered wholesale telecommunications trade. The income from these international connection charges (which may also include some minor international transit charges) is what constitutes cross-border exports from Europe to Japan.

Definition of cross-border trade

Cross-border trade in telecommunication services is defined as the transaction of telecommunication services between residents of EU and residents of Japan. The services could for instance be regular calls, MMSs, emails etc., cf. Box A12.1 below. Thus, cross-border flows will for instance capture all calls between EU to Japan and international roaming, i.e. when consumers with European mobile subscriptions make a phone call from their mobile in Japan, and vice versa.

[48] Based on GTAP7 data.

Box A12.1 Cross-border trade in telecommunication services

Cross-border trade in telecommunication enters as a service in the balance of payments and consists among other things of:

- The transmission of sound
- The transmission of images
- Other information by telephone
- Telex
- Telegram
- Cable
- Broadcasting
- Satellite
- Electronic mail
- Facsimile services, etc.

And includes business network services, teleconferencing and support services.

Source:IMF (2008), paragraph 253.

The financial flow underlying cross-border trade in telecommunication

The trade flow is based on a survey among national telecommunication operators. In this survey the foreign traffic data and corresponding interconnection fees are collected, and the total amount of cross-border trade is estimated. Cross-border trade is thus the invoiced revenues and expenditures between a resident operator and its non-resident counterparts. Cross-border trade will thus cover both regular foreign calls and roaming. Take for instance a regular call. If a phone call is made from Japan to Denmark, then the Japanese telephone operator will pay a Danish telephone operator for the call. This is a case of Danish export. Import is the opposite. Another example is the case of roaming, which also enters the statistics. If a Danish resident for instance, travels to Japan and makes a phone call to Denmark with his Danish mobile subscription, then the Danish telephone operator will pay the Japanese operator for the use of the Japanese operators' net. This is classified as Danish import of telecommunications services.

More cross-border trade

The current cross-border export from EU to Japan of communications services amount to €0.3 billion a year or a 20 percent share of Japan's total import of communications services (€1.6 billion).[49] This is mainly telecommunications services, but it also includes postal services. Overall, this trade flow is less than expected, which could be due to Japanese barriers reducing Japanese consumers' demand for connecting to EU operators' networks.

Based on gravity estimations, the barriers in Japan reduces Japanese demand for international communications services equivalent to prices on such services being 24.7 percent higher than in the absence of barriers (Trade Cost Equivalent), cf. Table A12.1.

[49] Based on GTAP7 data.

Table A12.1 Trade costs and reduction potential

	Total trade costs	Max NTM reduction	Min NTM reduction
Communications	24.7 percent	19.2 percent	12.8 percent

Note: Max NTM reduction is how much the barriers would be reduced in an optimistic scenario. Min NTM reduction is how much the barriers as a minimum would be reduced if addressed.
Source: Copenhagen Economics.

One way to overcome these barriers is by implementing better regulation. As telecommunication is an industry with very high entry barriers, regulation is particularly important in order to promote the public interests, e.g. by avoiding abuse of market power, fostering competition and creating a favourable investment climate. Today, however, the Japanese telecommunication sector is not subject to much regulation. Box A12.2 provides an overview of the Japanese telecommunication sector.

Box A12.2 Description of the Japanese telecommunication sector

There are four large mobile operators in Japan. The incumbent, NTT DoCoMo (has a 50% market shares) and the new entrants KDDI (~25%), Softbank (~18%) and newcomer e-mobile (~ 7%).

Technologically, Japan is running ahead of the rest of the world and it is running fast. Today, mobile television and mobile payments are widespread and required for all handsets. However, there are problems with inter-operability. SMS services between subscribers at NTT (the incumbent) and other operators are for instance not allowed from NTT (while technically feasible) and number portability is available, but not very used due to a high "stickiness" factor to the operators.

In regard to handsets, the market is dominated by four domestically oriented handset producers. This is NEC, Panasonic, Sharp and Hitachi. Handsets and subscriptions are tied with low upfront payments and long binding periods (24 months). Operators are in the driver's seat on services and on handset requirements. Handsets from one operator cannot be used with another operator. Every operator has specific technical requirements to handsets. These have very little market share outside Japan, but a huge share at home.

The situation of the Japanese market, with "mobile silos", means that EU producers must make adaptations to their products for each operator. This means that they have only a very small market share. Nokia has decided to leave the mobile market after only realising a 0.4% market share.

Source:Interviews conducted by Copenhagen Economics in Japan with Nokia and Nippon Ericsson.

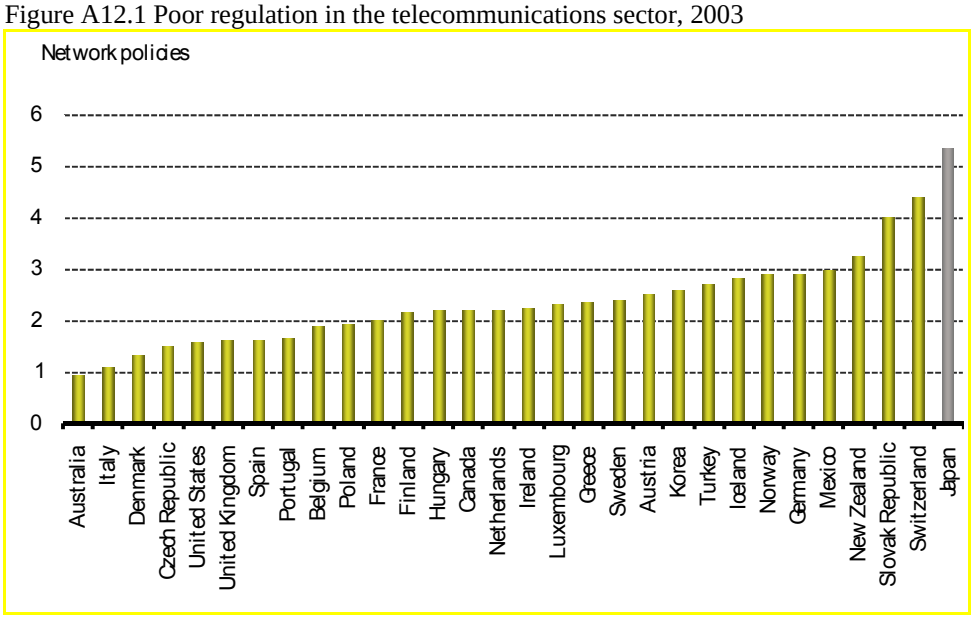
A12.2 FDI in telecommunications

Even in the light of lower NTMs, and in turn higher cross-border flows, the revenue will still be relatively small. The reason is that cross-border flows is just about €0.3 billion. In fact, the great potential is in making it possible for European telecommunication operators to establish themselves in Japan and provide telecommunications services to the Japanese producers. In comparison to the €0.3 billion that EU firms current receive from cross-border trade, the Japanese telecommunication market approaches €140 billion.

The combined annual revenue of Japan's telecom operators is on the order of US$ 200 billion, indicating the large size of Japan's telecommunications sector. [..] Therefore Japan is extremely interesting for European and US telecommunications and IT solution companies, including start-up companies[50]

However, the poor regulatory environment in Japan would tend to increase barriers for EU telecommunications operators. In fact, an OECD rapport shows that Japan scores highest of all OECD countries when it comes to poor of regulation within telecommunication, cf. Figure A12.1.

Figure A12.1 Poor regulation in the telecommunications sector, 2003



Note: The network policy indicator above consists of independence of sector regulators and network access. In Japan sector regulators are missing altogether.
Source:OECD, www.olis.oecd.org/olis/2007doc.nsf/LinkTo/NT00002ED6/$FILE/JT03230825.PDF.

According to the EU Commission, good regulation is often a necessary condition for strong competition and performance, cf. Box A12.3 below.

[50] See http://eurotechnology.com/industries/telecoms.shtml.

Box A12.3 Quotes on regulation within telecom can foster competition

"Competition in the liberalised market is seen as the key to promoting technological progress. It brings rewards and provides opportunities for innovative companies, particularly in a sector that has experienced intense technological convergence in recent years. However, market forces are not always sufficient to generate growth, protect consumers and ensure a level playing field for new entrants in the telecoms sector, where imperfect competitive conditions exist due to the legacy of national, often state-run monopolies.

For that reason, the European Commission sees continued regulation as essential in order to counterbalance the significant market power of former monopolies, ensure universal service and protect consumers, especially those social groups that may otherwise face exclusion. To ensure that telecoms markets benefit from continued market regulation, the European Commission oversees the correct implementation and enforcement of the Directives."

Source:http://ec.europa.eu/information_society/policy/ecomm/implementation_enforcement/index_en.htm.

This is generally supported by studies showing a link between pro competitive regulation and higher productivity on the one hand and lower prices on the other hand, cf. Table A12.2.

Table A12.2 Link between price and productivity and competitive regulation

Study	Effect on telecommunication performance from introducing competitive regulation	
	Price	Productivity
Boylard and Nicoletti (2000)	Pushing down prices	Pushing up productivity
Copenhagen Economics (2005b)	Pushing down prices	Pushing up productivity

Note: Both studies find statistically significant estimates.
Source:Boylard and Nicoletti (2000): Trunk voice services (table A.4), Copenhagen Economics (2005b): Fixed and mobile voice services.

So what are the concrete barriers making it difficult for European operators to provide telecommunications service to Japanese consumers in Japan? Based on three interviews with European telecommunication operators, who have experience with the Japanese market (namely Vodafone, Deutsche Telecom and British Telecom) and reports conducted by the US Government and EBC Telecom Carriers Committee, we identify the most prominent of these barriers.

Independent regulator and antitrust laws

Japan could strengthen its regulatory stance by setting up an independent, well-resourced and empowered telecommunications regulatory authority with pro-competitive mandate. Similarly, Japan could strengthen its antitrust laws. Better antitrust laws would make it possible for carriers to affect sector regulation through an antitrust law suit against dominant operators.

Transparency in information sharing

Transparency is very important for a new entrant as they need to obtain knowledge about the market and the applied regulation in order to compete. Japanese authorities could therefore consider increasing transparency (including when it will intervene) and make sure that access is granted to operators on transparent and fair terms. But also that information is available on the dominant carriers cost structure, how its rates are calculated and on the

funding mechanism in regard to interconnection and universal service obligation, so to avoid potentially unfair cross-subsidisation.

Equal access

NTT dominates Japan's fixed line market through its control over almost all "last-mile" connections. This could be a sign of poor access regulation, which Japanese authorities could consider addressing. For example, NTT could be obligated to publish network interconnection terms, conditions and prices on a suitably unbundled basis, using a forward-looking cost methodology. This also entails account separation, so that NTT provides services to competitors at the same rate using same procedures as those services are available to their own retail operation.

Privatisation

Japan has an unclear separation between the Government's role as both owner and regulator in telecommunications. Japan could therefore abolish the legal requirement that the government own one-third of the dominant carrier NTT.

Technology and consumer demand

Adding to this list of barriers is a couple of other challenges that makes it difficult for a European telecommunication operator to transfer technology from Europe to Japan. These are differences in technology and differences in consumer demand.

The different technology used in Japan implies that European firms cannot just copy the technology they use in Europe. According to one EU manager of a financial firm in Japan, this reduces their ability to reap important economies of scale.

> *A long time ago Japan started on a different technology path. The Japanese spectrum is standardised around different standards than the one used in EU. This means that one cannot just copy the European technology and use it in Japan. This means that even a pan-European or cross US operator cannot make easy use of their economies of scale, making it more difficult to compete with DoCoMo*

And

> *Japan has different technical standards. The Japanese telecommunication industry is ahead in terms of technology. However, it is not only in the development they make their advantage, but also in bringing the technology very aggressively to the market. Japan was for instance the first in the world with video telephony. You could say that Japan is a Galapagos Island. It is an odd disadvantage to be*

the first, but not being able to compete and to use that advantage outside of Japan

In addition to this, there seems to be a strong tradition for close *co-operation* between telecommunication operators and suppliers of hardware and software. This makes it more difficult for EU operators to enter the market. In addition, the advanced technology is not always available from non-Japan suppliers, which reduces competition among supplies, and the possibility for EU operators to make use of non-Japan suppliers.

Another barrier is consumer demand. The consumer demand in Japan seems different than in Europe. EU managers state that this makes it difficult just to take European products to the Japanese market.

...the consumer demand in Japan is different than in Europe. The expectations are high and specific. You would have to develop special devises for the Japanese market

The Japanese market is different. You have to understand the cultural differences and deal with this market in a different way. You cannot, for instance, outsource a helpdesk to China. Japan is an attractive market – the third biggest economy in the world – but it needs special treatment

The NTMs identified in NTM inventory for the communications sector mostly relate to telecommunication services, but barriers are also hindering market entry and increasing on-going costs for foreign postal operators and express delivery operators in Japan. Here, the dominant position of Japan Post is the key issue. The barriers identified in telecommunications can be grouped in four: competition-hostile regulation, weak antitrust enforcement, government ownership and lack of transparency.

The *competition-hostile regulation* is mainly due to a lack of regulated third party access which results in unreasonably high interconnection fees. The consequence is a lack of competition in markets for both fixed line and mobile services. There is also a lack of facilities-based competition across different broadband platforms. Furthermore, the licensing regime is not technology-neutral and there is an inefficient use of spectrum. Therefore, much of the regulation is poorly equipped to foster competition from new entrants, not least from abroad.

The *weak antitrust enforcement* is problematic given the relative high market share of the incumbent operator. Because of a weak antitrust law and a weak enforcement, competitors will have limited safeguards against the abuse of dominance and there is a high risk of anti-competitive behaviour by carriers with market dominance.

The *government ownership* of the incumbent is problematic because there is no clear separation between the government's roles as owner and as regulator in telecommunica-

tions. This results in a closed loop of information and a non-transparent business environment.

The *lack of transparency* is particularly problematic for foreign operators since it adds to the already high information asymmetry. Combined with a heavy regulatory supervision and government control in the telecommunication sector, the regulatory framework is not always transparent and adds burdens on operators while discouraging new entry and weakening competition.

Potential solutions

Japan is aware of their regulatory issues and attempts have been made in order to make reforms that include better regulation. In October 2007, Japan's Ministry of Internal Affairs and Communications issued a revised "New Competition Promotion Program 2010" in an effort to address competition concerns as suppliers increasingly offer telecommunications services over IP based networks. However, according to the US Government and EBC Telecommunications Carriers Committee the Japanese attempt is not good enough.

EBC concludes that the New Competition Promotion Program 2010 has not made clear reference to some of the basic competition principals such as transparency and equal treatment. Furthermore, in October 2008 the US Government urges that:

> *Japan ensures fair market opportunities for emerging technologies and business models, develop a regulatory framework for converged and Internet-enable services, and strengthen competitive safeguards on dominant carriers. The US Government also continues to request that Japan improve transparency in rulemaking and ensure the impartiality of its regulatory decision making, including by abolishing the legal requirement that the government own one-third of the dominant carrier, Nippon Telegraph and Telephone (NTT)*

A12.3 Results and implications

The current cross-border export from EU to Japan of communications services amount to €0.3 billion a year. This is mainly telecommunications services, but it also includes postal services. However, not all telecommunication services are actually traded across the border. The flow we register as cross-border exports from EU to Japan are primarily the international connection charges.

Based on gravity estimations, the barriers in Japan reduces Japanese demand for international communications service equivalent to prices on such services being 24.7 percent higher than in the absence of barriers. One way to overcome these barriers is by implementing better regulation. As telecommunication is an industry with very high entry barri-

ers, regulation is particularly important in order to promote the public interest. Today, however, the Japanese telecommunication sector is not subject to much regulation.

Even in light of lower barriers of lower barriers, and in turn higher cross-border flows, the revenues will still be relatively small. In fact, the great potential is in making it possible for European telecommunication operators to establish themselves in Japan and provide telecommunications services to the Japanese producers. In comparison to the €0.3 billion that EU firms current receive from cross-border trade, the Japanese telecommunication market approaches €140 billion. The barriers of FDI are lack of an independent regulator and antitrust laws, lack of transparency in information sharing, lack of equal access and a lack of privatisation. Furthermore, Japan uses a different technology which implies that the European firms cannot just copy the technology and the Japanese consumer demand is also different.