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*Zuzana Stuchlíková, International Relations  
University of Economics Prague, the Czech Republic*

## **JAPANESE TRADE DEFICIT AFTER THE GREAT EAST JAPAN EARTHQUAKE IN 2011**

*Japan's external trade in goods undergo a major transformation in 2011, after the Great East Japan Earthquake. The merchandise trade turned into a deficit in 2011 for the first time in 31 years since 1980. The aim of this study is to remind and analyse development of the Japanese external trade in 2000-2012 and to analyse and explain both internal and external factors of the current trade deficit. The author tries to explain basic trends in Japan's external trade in goods, changes in its commodity and territorial structure.*

**Key words:** external trade, transformation, Japan, deficit.

*Після різкого скорочення економічної активності в 2008-2009 роках (найбільший економічний спад в Японії після Другої світової війни) японська економіка почала відновлюватися в 2010 році. Тим не менш, Східний землетрус і цунамі в березні 2011 року зупинили цей процес у Японії, пошкодивши ключові об'єкти інфраструктури в її регіонах. Ця стаття присвячена розвитку японської торгівлі в 2000-2012 рр. Приділяється особлива увага економічним наслідкам землетрусу і цунамі в березні 2011 року на трендах японської зовнішньої торгівлі, яка проявляється в її дефіциті в 2011 році вперше з 1980 року. Мета даного дослідження полягає у визначенні характеристик розвитку японської зовнішньої торгівлі в 2000-2012 рр. і аналізу як внутрішніх, так і зовнішніх факторів поточного дефіциту торгового балансу. Автор намагається пояснити основні тенденції у сфері зовнішньої торгівлі Японії, а також зміни в товарній політиці.*

**Ключові слова:** зовнішня торгівля, перетворення, Японія, дефіцит.

*После резкого сокращения экономической активности в 2008-2009 годах (самый большой экономический спад в Японии после Второй мировой войны), японская экономика начала восстанавливаться в 2010 году. Тем не менее, Восточное землетрясение и цунами в марте 2011 остановили этот процесс в Японии из-за поврежденных ключевых объектов инфраструктуры в ее регионах. Эта статья посвящена развитию японской торговли в 2000-2012 гг. Уделяется особое внимание экономическим последствиям землетрясения и цунами в марте 2011 года на трендах японской внешней торговли, которая проявляется в ее дефиците в 2011 году впервые с 1980 года. Цель данного исследования заключается в определении характеристик развития японской внешней торговли в 2000-2012 гг. и анализа как внутренних, так и внешних факторов текущего дефицита торгового баланса. Автор пытается объяснить основные тенденции в сфере внешней торговли Японии, а также изменения в товарной политике.*

**Ключевые слова:** внешняя торговля, преобразования, Япония, дефицит.

*Introduction.* At the beginning of the 1990s Japan was hit by one of the biggest bubbles in asset markets. Its disruption started a protracted stagnation (so-called lost decade), led to a collapse of the Japanese financial sector, deepening of instability of public finances and to a number of other problems (deflation, liquidity trap, rapid ageing of society, etc.). At the beginning of 2002 a long-lasting recovery of the Japanese economy started. The GDP growth was above its potential and the country's external position was strong during this period. Nevertheless, Japan's merchandise export growth rate was lower than world merchandise trade growth and Japan's merchandise import growth. After 2008 the economy lapsed into the recession again. Besides other factors, it was because of a dramatic decrease in Japanese exports. In spite of the falling exports, the Japanese trade deficit was still in surplus in 2008-2010. Then Japan's external trade in goods and services underwent a major

transformation in 2011, after the Great East Japan Earthquake (or the Great Earthquake). The merchandise trade turned into a deficit in 2011 for the first time in 31 years since 1980.

The aim of this study is to remind and analyse development of the Japanese external trade in 2000-2012 and to analyse and explain both internal and external factors of the current trade deficit. The author tries to explain basic trends in Japan's external trade, changes in its commodity and territorial structure.

Factors of the Japanese trade deficit have not been discussed enough as it is a very new and unexpected phenomenon. Best known Japanese authors of a number of books and papers on the Japanese economy and external trade known even in American National Bureau for Economic Research (NBER) or as members of research teams of Japanese government and Central Bank of Japan (BOJ) are e.g. T. Ito [13]. During the last decade, the topic was examined in a very complex way by e.g. W. R. Garside [10], B. Salsberk, C. Chandler and H. Chhor [23] or by R. C. Koo [17]. Selected topics connected to the Japanese trade have been recently examined by e.g., T. Tosborvorn [29] or M. Obstfeld [20]. The Cabinet Office of the Japanese government (CAO) and Ministry of Economy and Trade (METI) analyses individual years and periods in their comprehensive annual reports. Organization for Economic Cooperation and Development (OECD), International Monetary Fund (IMF) and Japan External Trade Organization (JETRO) publications must also be mentioned.

The text of this study is divided into two parts, which chronologically map the development of the Japanese economy and trade after 2000, and especially after 2011. The first part is devoted to a development in 2000-2011, before the Great East Japan Earthquake. The second part reminds the economic and trade development of Japan after the Great Earthquake and factors behind the newly recorded trade deficit. It also describes changes in commodity and territorial structure of the Japanese merchandise trade (the trade in services is excluded from the analysis) and with the emphasis on the analysis of efficiency of economic policy measures in this period and settling of trade deficits.

### ***1. Japanese economy and trade before the Great Earthquake (2000-2011).***

At the beginning of 2002 a long-lasting recovery of the Japanese economy started. The GDP growth was above its potential and the external position was strong during this period. Fiscal consolidation proceeded fast in Japan (however the public debt ratio was still too high), deflation was suppressed and the government continued to make progress in structural reforms as well [26; 27]. The Japanese exports were showing signs of steady growth, reflecting a recovery and good conditions in the world economy. Nevertheless, the Japan's merchandise export growth rate (11.1% annually in 2002-2007) was lower than the world merchandise trade growth (16.7%) and the Japan's merchandise import growth (13.4%) – see Table 1 [30]. In the same period, Chinese exports were increasing by astonishing 30.3%, India's exports by 25.3%. According to CAO [7]: “Japan has fallen short of benefiting fully from economic globalization, while being exposed externally to fierce competition”, especially from Asian countries (China, ASEAN etc.). The growing competition has been changing the structure of the Japanese external trade in goods as well, as exports of intermediary goods have been increasing. According to METI [18] this can be attributed “to the fact Japan cannot survive in price competition in final goods due to the economic development and industrialization of other countries and is shifting its exports to some intermediary goods requiring advanced technologies, or the fact exports of parts and components for overseas production are increasing”.

After the failure of major American investment banks (Lehman Brothers etc.) in 2008, the economic situation in the world economy worsened and even developed into a global financial crisis. During the previous decades, Japan's openness to trade has risen. Closer financial and trade integration have created two-way channels for spillovers and added a new dimension to policy making and economic development in Japan [12]. Japanese exports and stock prices plunged, which, combined with the sharp appreciation of the yen supported unwinding carry trades (see Figure 3 and part 2), and further undermined business and household confidence (see Table 2). Therefore, the economy lapsed into the recession again. The government [8] has determined that a

peak in business cycle occurred in the Japanese economy in February 2008 and a trough occurred in March 2009. This recession was one of the worst after the World War II. Then, in November 2009 the government also summed up price movements to conclude that they were "in a state of moderate deflation" (it had been considered to be resolved before the recession).

**Table 1. Value growth rates of merchandise exports and imports of selected countries, annual 2002-2011, %.**

Economy	2002 - 07	2007 - 10	2005	2006	2007	2008	2009	2010	2011
<b>Exports</b>									
<b>China</b>	30.2	6.2	28.4	27.2	25.6	17.3	-15.9	31.3	20.3
<b>India</b>	25.3	11.3	30.0	22.3	23.1	29.7	-15.2	37.3	33.7
<b>Japan</b>	<b>11.1</b>	<b>-0.7</b>	<b>5.2</b>	<b>8.7</b>	<b>10.4</b>	<b>9.5</b>	<b>-25.7</b>	<b>32.6</b>	<b>6.9</b>
<b>USA</b>	11.4	0.7	10.8	14.5	12.0	11.9	-18.8	20.9	15.9
<b>World</b>	16.7	0.0	14.4	15.4	15.5	15.1	-22.4	21.9	19.4
<b>Imports</b>									
<b>China</b>	25.7	10.7	17.6	19.9	20.8	18.3	-11.3	39.0	24.8
<b>India</b>	33.3	11.1	43.2	24.9	28.1	40.3	-19.8	36.1	32.5
<b>Japan</b>	<b>13.4</b>	<b>0.1</b>	<b>13.3</b>	<b>12.6</b>	<b>6.9</b>	<b>23.1</b>	<b>-27.8</b>	<b>25.8</b>	<b>23.3</b>
<b>USA</b>	11.8	-3.7	13.7	10.5	5.3	7.4	-26.0	22.7	15.1
<b>World</b>	16.4	-0.3	13.9	14.5	15.4	15.5	-23.0	21.5	19.1

Source: UNCTAD [30].

**Table 2. Main Economic Indicators, 2007-2011.**

Item	2008	2009	2010	2011
Gross domestic product in current prices (trill. JPY)	501.2	471.1	481.8	468.4
Real growth rates (constant prices in 2005, %)	<b>-1.0</b>	<b>-5.5</b>	<b>4.4</b>	<b>-0.7</b>
- Private final consumption expenditure (%)	-0.9	-0.8	2.5	-0.0
- Gross capital formation (%)	-4.1	-10.6	-0.5	0.5
- Government final consumption (%)	-0.1	2.3	2.1	2.1
- Exports of goods and services (%)	1.4	-24.2	24.2	0.0
Unemployment rate (%)	4.0	5.1	5.1	4.5
Consumer price index (CPI, 2010=100)	102.1	100.7	100.0	99.7
Trade balance (trillion yen)	4.0	4.0	8.0	-1.6
Capital and financial account (trillion yen)	-18.4	-12.6	-12.0	6.3
Portfolio investment (trillion yen)	-24.3	-21.2	-16.2	15.3
<b>Yen exchange rate against USD (year average)</b>	106.0	95.0	82.0	77.0
<b>Discount rate (end of the year, %)</b>	0.3	0.3	0.3	0.3
<b>Ratio of general account budget to GDP (%)</b>	-1.9	-8.8	-8.4	-9.3
<b>General government gross debt to GDP (%)</b>	171.1	188.7	192.7	205.3
<b>General government net debt to GDP (%)</b>	95.3	106.2	112.8	125.3

Source: Statistics Bureau [24, 25], BOJ [2] (balance of payment).

As for the Japanese exports, they drastically decreased compared with the past recession periods and other countries. In 2009 the Japanese merchandise export decreased by 25.7% over the previous year (while the world exports decreased by 22.4%) – see Table 1. It was the first double-digit decline in Japan since the end of World War II. This dramatic decrease in foreign demand after the Lehman Shock was possibly caused by several factors such as slump in domestic demand in

export counterparts, great impact on automobiles and IT products, moderate decrease in domestic demand in Japan and yen appreciation. However, the trade balance still recorded the surplus of 4 trillion JPY in 2009, due to large decline in imports than exports (27.8%). Nevertheless, after April 2009 the economy started to recover with foreign demand and government countermeasures (large monetary and fiscal stimulus). Following a deep recession (GDP declined 5.5% in 2009) growth accelerated to 4.4% in 2010 (see Table 2). Japan's exports rebounded (by 32.6% in 2010) with strong demand from China and other Asian countries, especially for capital goods.

From October 2010 on the economy was at a standstill and started to recover in 2011. However, owing to the tsunami damage, supply chain disruptions, restriction of power supply, and nuclear accident at Fukushima Dai-ichi nuclear power station caused by the Great East Japan Earthquake on March 11, 2011, Japan fell into an economic slump and a worsening fiscal position. The GDP fell by 0.7% in 2011. The Great Earthquake (of a magnitude of 9.0) devastated a wide area of north-eastern Japan (Tohoku Region), and its surrounding regions, especially in the Pacific coastal area. It was the largest earthquake in Japan since measurement was started and the fourth largest earthquake by magnitude in the world since 1900 [24]. The Great Earthquake and the massive tsunami caused heavy casualties (estimated to be more than 20,000) and vast damage (estimated to be more than 16.9 trillion yen). Japan's external trade in goods and services has undergone a major transformation as well [4]. The trade turned into a deficit in 2011 for the first time in 31 years since 1980 – see next chapter.

## ***2. Japanese trade after the Great East Japan Earthquake.***

In 2011 the Japanese merchandise export increased by 6.9% over the previous year (while the world exports increased by 19.4%) – see Table 1. However, the merchandise import increased by 23.3% in the same year. In terms of Japan's international trade on a customs clearance basis in 2011, exports decreased by 2.7% and imports grew by 12.1% [24]. As result of supply disruptions (also because of Thai floods), weak external demand, strong yen appreciation and sharp increase of fuel imports as a result of the closure of all nuclear power plants, the Japanese annual trade balance turned negative in 2011. The current account was still in surplus (at 1.5-2% of GDP in 2011), thanks to a stable income stream from large net foreign assets [11]. In 2011 the Japan's current account amounted to 96.5 trillion yen, down by 46.1% compared to that in the previous year (178.9 trillion yen – see Figure 1).

The Japan's export was weak already before the Great Earthquake (see Figure 2) because of falling external demand. After the Great Earthquake, the Japanese production suffered a negative impact from the shutdown of damaged factories and disruptions of supply chains and power supply limitations, especially in the North-eastern region. The Great Earthquake hit considerably the production of motor vehicles (and electrical machinery), since all this industry depends on the Tohoku region for the supply of key parts including semiconductors and other electronic components. Due to the decrease of Japanese exports of motor vehicle parts, production of motor vehicles in other countries dropped as well (for example in the United States). Major contribution for the export's decrease was in electrical machinery (down 14.2% in 2011 compared to the previous year), motor vehicles (-10.6%), semiconductors and other electronic parts (-8.3%), transport equipment (-8.0%). These products (with large proportion of the high value added) account for the biggest portion of the total export value. In 2011, transport equipment accounted for 21.4% (motor vehicles, which are in this category, constituted 12.5% of the total export value), followed by general machinery (21.1%) and electrical machinery (17.7%) [24].

As for imports in 2011, major contribution for the increase was in mineral fuels (up 25.4% in value from the previous year). Mineral fuels (especially crude petroleum and partially refined petroleum and liquefied natural gas – LNG, imported mainly from the Middle East) represented 32.0% of the total Japanese import in 2011. Electrical machinery accounted for 11.7%, chemicals for 9.0%, manufactured goods for 8.9% and foodstuffs for 8.6% in the same year [24]. Imports of energy saving devices and disaster prevention products (e.g. highly energy efficient air-conditioners, electric fans, oil space heaters, batteries or flashlights) soared after the Great Earthquake as well [14].

The weak global demand is another factor of slow growth or decrease in the Japanese manufacturing exports in 2011 and 2012. The world economy has been unstable and slow due to the deepening sovereign debt crisis in Europe and unsteady recovery in the United States [16; 1]. Concerns have grown over the slowing Chinese economy as well. China displaced the U.S. as Japan's largest export destination. Because China was the largest import counterpart for Japan since 2002, China became the largest in exports and imports. In 2011 both exports (12,902 trillion yen) and imports (14,642 trillion yen) to China accounted for almost 20% of Japan's total value [24]. Chinese imports from Japan have been sluggish since March. This may reflect a decline in imports of intermediary goods and mechanical equipment due to a slowdown in the Chinese demand as well in addition to the impact of the Great Earthquake [18].

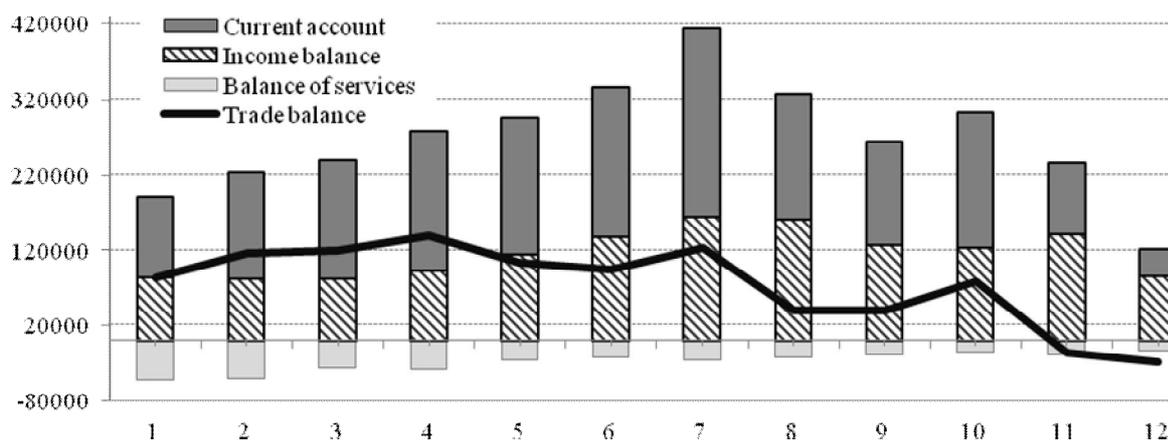


Figure 1. Current account of Japan, 2001-2012 (100 mil. yen).

China has been tightening its relationship with all the important world economies, including Japan, the U.S. and Europe. In East Asia, particular mutually complementary production networks have been built with China in the centre. China and other (mostly developing countries) handle the labour-intensive production processes.

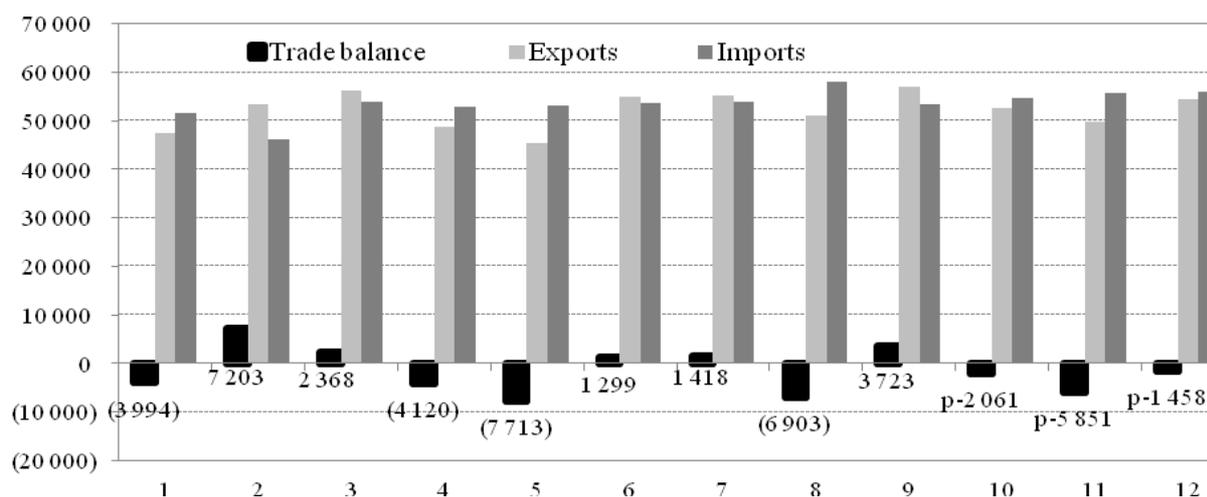


Figure 2. Trends in foreign trade of Japan in 2011 (monthly, trillion yen).

On the other hand, Japan and Republic of Korea produce goods with high value added, requiring advanced technologies. Comparing the trade intensity index for manufacturing exports of 2000 and 2010 [15], the relationship of Japan with China became closer (trade intensity index was 1.7 in 2000 compared to 1.9 in 2010) than that with the U.S. (1.5, respectively 1.1).

The United States is the second largest Japan's trading partner. In 2011 Japan's exports to the U.S. accounted for 15.3% of total exports (10,018 trillion yen). Japan's imports from the U.S. made up 8.7% of Japan's total imports (5,931 trillion yen). Exports were down 3.4% from the previous year due to the decrease in transport equipment and electrical machinery. The U.S. is the largest importer of Japanese motor vehicles (29.9% of total motor vehicles exports from Japan). As for the European Union, in 2011 the Japanese exports (7,619 trillion yen) were almost at the same level as in the previous year, due to the contributions for the decrease in electrical machinery and increase in general machinery. Japan's exports to the EU27 accounted for 11.6% of total Japan's exports, imports from the EU27 accounted for 9.4% of total Japan's imports [24].

As mentioned above, the yen has strongly appreciated since the Lehman shock in 2008. The yen has appreciated in real effective terms by 27% since the Lehman event, initially due to an unwinding of carry trades and later as a result of safe heaven flows during period of global financial crisis [11]. In 2011 the rapid and lasting appreciation of yen has been caused especially by growing concerns of economic stagnation in Eurozone and the United States and financial markets' instability in spite of the Great Earthquake [5]. The yen appreciation (see Figure 3) has become a very important downside risk to the business sector and all the Japanese economy, eroding competitiveness both of Japanese component and material manufacturers and high value-added industries [19; 28]. The Bank of Japan (BOJ) intervened several times in 2011 in response to a sharp appreciation (at about 120 billion USD in the second half of the year). Some interventions in the currency markets were carried out jointly with G7 countries to help Japan in calming the markets. This coordinated intervention was expected to be powerful and effective step against speculators; however it had no long-term effects as can be seen in Figure 3. In addition to the interventions, the Japanese government put in practice a package of comprehensive countermeasures against the yen appreciation, including e.g. expanding the financial support for SMEs in all industries which are severely affected by the appreciation.

As mentioned before, the Japanese yen has become popular among foreign speculators. Some capital flows to/from Japan have involved carry trades – the practice of borrowing in low-interest (funding) currencies to purchase higher-yielding assets in other, high-interest (target) currencies in spite of currency risks because they are highly leveraged [12]. Borrowers of yen (funding currency) try to take advantage of low Japanese interest rates (applied to combat the lasting deflation). Data on the size of carry trades are generally unavailable on detailed and timely basis as there is not a commonly accepted definition of “carry trades” as well. However, empirical studies have shown that carry trade play an increasingly important role in driving exchange rate movements [9; 12; 29].

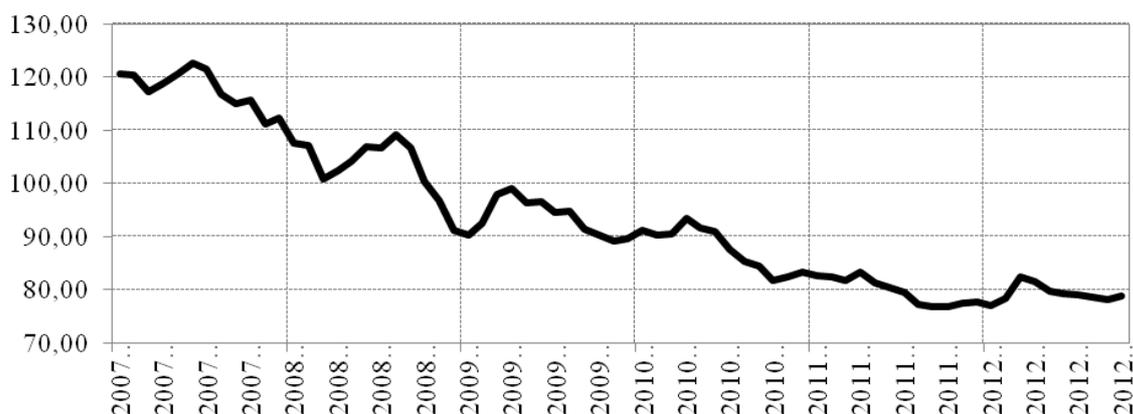


Figure 3. Yen Exchange rate against U.S.D., 2005-2012 (monthly averages).

During „unwinding“ periods investors convert the target currency back to the funding currency to repay their debts in the funding country. This may be provoked by unforeseen events such as a tightening of monetary policy, recession or a financial crisis. As a result, the target currency

depreciates against the funding currency [29]. One of the most extreme episodes of carry trade unwinding was on October 7-8, 1998, when the yen abruptly appreciated 13.4% against the US dollar (target currency) in only two days after a long period of depreciation. On October 24, 2008, the yen rose against both the Australian dollar and the British pound by 10% in only five hours [29].

From the long-term perspective, changing trade structure and decrease in exports can be attributed to the changing composition of the Japanese economy as well. There was a decrease in the manufacturing and construction industries and increase in “others”, mostly services in the 1990s. There is a strong shift from manufacturing exports to services with an important impact on manufacturing trade balance [18].

**Conclusion.** As world trade growth rebounds, Japan’s GDP growth is projected to pick up to around ¾ per cent in both 2013 and 2014, despite the waning contribution from reconstruction spending [21]. Nevertheless, the growth in foreign demand doesn’t have to be sufficient to eliminate Japan’s trade deficits. This is why the Japanese governments try to propose new countermeasures and trade or globalization strategies. Japan’s trade openness is low considering its economic size [6]. One of the ways to increase the trade openness and trade volumes should be e.g. the conclusion of more free trade areas (FTAs) and economic partnerships agreements (EPAs), especially with the Asian region. This goal is included in the New Growth Strategy and its subsequent modifications as well. Government strategies emphasise the establishment of a Free Trade Area of the Asia-Pacific (FTAAP) by 2020, promotion of the Trans-Pacific partnership (TPP) and increased economic integration with other important regions. In the last years Japan has concluded many new EPAs, e.g. with Peru in 2010, with India in 2011. In 2012 European and Japanese leaders agreed to start the process for the negotiation for Japan-EU Economic Partnership Agreement to strengthen Japan-EU relations. The New Growth Strategy also has an objective of doubling the flow of people, goods and money by reducing trade barriers, barriers on foreign investments and movement of people. All these initiatives could increase both Japanese exports and imports.

As mentioned above, in 2011 and 2012 major contribution for the increase in Japanese imports was in mineral fuels. Higher fuel imports have huge impact on the Japanese trade balance and increase Japan’s vulnerability to world energy price shocks. It is necessary to develop alternative energy sources strategy (a new energy plan) to reduce this vulnerability. The new government and new Prime Minister Shinzo Abe (Liberal Democratic Party, in office since December 2012) decided to review the previous plans of going zero-nuclear by the 2030s. Nevertheless, the restart of nuclear reactors after the Fukushima disaster will be very difficult, as the public disagreement with the government energy policy prevails. Huge demonstrations against nuclear energy contributed to election defeat of the former Prime Minister Yoshihiko Noda (Democratic Party of Japan) as well. This topic is enormously sensitive and it is too early after the nuclear meltdown in Fukushima. However, it is clear that the nuclear energy has to be involved in the new energy mix because Japan has not enough and sufficiently efficient energetic alternatives. Since the Great Earthquake, there has been a shift in power generation sources (to thermal power) but the cost of fuel for these sources has been rising since 2011.

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