
The Impact of Cross-Border Discrimination on Japanese Exports: A Sectoral Analysis¹

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1. Introduction

Japan is the second largest trading economy in the Asia-Pacific after China, and the fourth largest in the world after the United States (US), Germany, and China. Globally, two-thirds of Japan's exports go to five principal destinations - China, the US, the members of the Association of South East Asian Nations (ASEAN), the European Union (EU) and South Korea. Moreover, Japan sources two-thirds of its imports from almost the same set of countries - China, ASEAN, the US, EU, and Australia. Given this pattern of trade, how has crisis-era protectionism affected Japan's exports?

Looking at monthly trade data for Japan over the period November 2008 - July 2009, one can see that both Japanese exports and imports have contracted during the recent global recession. This is true of both its trade with its major trading partners as well as with the rest of the world (ROW). However, Japanese exports have witnessed a sharper fall on a year-on-year (YoY) basis than Japanese imports. While this latter outcome probably reflects falling global demand, it can also be hypothesised that the protectionist measures taken by Japan's major trading partners have also been a contributing factor. This matter is explored in a preliminary statistical analysis presented in this chapter of discriminatory measures reported in the GTA's database. Controlling for changes in incomes, prices and other factors—including the extent and form of foreign discrimination against Japanese commercial interests and for discrimination by Japan—it was found that foreign discriminatory measures, other than bailouts and subsidies, have reduced Japanese exports. Interestingly, Japanese discrimination against foreign commercial interests in a given sector was found to reduce Japanese exports from the same sector; suggesting that discrimination may not have been an effective way of improving sectoral trade imbalances.

The structure of this chapter is as follows: the next section looks at Japanese trade performance over the period November 2008 - July 2009, examining monthly import and export data from the Japanese External Trade Organization (JETRO). Section 3 provides a snapshot of the trends in global demand and supply over this period, looking at YoY percentage changes in Gross Domestic Product (GDP) and industrial production (IIP) for Japan's major trading partners, extracted from various editions of *The Economist*. Section 4 analyzes the data on discriminatory measures either imposed on, or by, Japan over this nine-month period, using the information from the GTA data-

1 I would like to thank Simon Evenett for inviting this contribution. The usual disclaimer applies.

base; while Section 5 does the same for Japan's major trading partners. Section 6 examines empirically if the number of discriminatory measures facing a Japanese export sector has had a negative impact on export performance during the past one year. Section 7 concludes.

2. Recent Japanese trade performance

In this section we look at Japan's trade performance over a nine-month period since November 2008. Tables 1 and 2 break down Japanese exports and imports by destination, respectively. As Table 1 shows, Japanese exports have fallen in absolute value between November 2008-July 2009, from USD 54.3 bn to USD 50.9 bn. While the fall in exports has been arrested since April 2009, the value has still not regained its pre-crisis level. The distribution of exports amongst the principal destinations has also witnessed a change - the US was the most important market for Japanese exports until January 2009 but was overtaken by China in April 2009 (the nine-month average over this period in fact places China in first place with an export share of 17.4%). However, amongst the top 5 destinations, the US has witnessed the biggest fall in Japanese exports (average YoY decline of 35.8%) followed by the EU. On the other hand, Japanese exports to China fell by an average 22% over this period.

A similar analysis of Japanese imports in Table 2 shows that, while her imports have fallen as well over this time period, from USD 56.6 bn to USD 46.9 bn, the YoY decline has not been as much as that for exports (in fact it is only in July 2009 that the YoY fall in imports exceeds the corresponding figure for exports). For the nine-month period since the beginning of this crisis, Japanese imports have had an average YoY fall of 21% compared to 28.9% YoY decline for exports.

Table 1 Value, share, and percentage change in Japanese exports by destination

Exports Country/Area	2008/11			2009/01			2009/04			2009/07		
	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)
Total	54360291	-15.0	100.0	38368462	-34.1	100.0	42399029	-38.0	100.0	50941109	-28.5	100.0
USA	9532802	-23.2	17.5	6303777	-42.9	16.4	6603072	-45.4	15.6	8125192	-31.9	16.0
China	8735294	-12.4	16.1	5636319	-33.5	14.7	8224955	-24.6	19.4	9916945	-17.3	19.5
ASEAN	7498087	-2.4	13.8	5108279	-28.9	13.3	5389578	-39.8	12.7	7547621	-22.3	14.8
EU-27	7252146	-19.8	13.3	5754806	-36.2	15.0	5614440	-44.4	13.2	5876657	-39.1	11.5
South Korea	3728194	-24.6	6.9	3080655	-30.1	8.0	3625535	-33.1	8.6	4045276	-25.0	7.9

Source: JETRO

Table 2 Value, share, and percentage change in Japanese imports by source

Imports Country/Area	2008/11			2009/01			2009/04			2009/07		
	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)
Total	56677638	-0.6	100.0	48929404	-17.0	100.0	41787668	-34.6	100.0	46967446	-33.4	100.0
China	11983434	2.2	21.1	11861640	2.1	24.2	10046339	-20.3	24.0	10490934	-17.3	22.3
ASEAN	8153467	5.0	14.4	7041185	-14.4	14.4	5836363	-33.2	14.0	6649861	-29.7	14.2
USA	5798786	-4.5	10.2	4842984	-20.9	9.9	4586096	-28.0	11.0	4624271	-26.9	9.9
EU-27	5444507	-8.0	9.6	5450399	-6.9	11.1	4248490	-29.9	10.2	4786055	-22.3	10.2
Australia	4638260	64.4	8.2	4059265	40.2	8.3	2829701	-17.1	6.8	2892663	-35.7	6.2

Source: JETRO

3. Relevant global economic developments

The sharp fall in Japanese exports can be attributed to the fall in global income as well as to the sluggish domestic economy. Similarly, falling demand in Japan and sluggish supply in ROW would have a bearing on Japanese imports. This can be seen in Tables 3 and 4 which show the percentage change in quarterly GDP and monthly IIP for Japan² and her major trading partners over this period. With the exception of China and Australia, GDP has fallen sharply on a YoY basis for all the other economies in the last three quarters. Industrial production has contracted substantially in all economies, except for the Chinese.

Table 3 Percentage change in quarterly GDP on a YoY basis

Country/Area	2008-09 Q3	2008 - 09 Q4	2009 - 10 Q1	2009 - 10 Q2
USA	0.7	-0.8	-2.5	-3.8
Japan	-0.1	-4.3	-8.8	-6.4
China	9.0	6.8	6.1	7.9
Euro Area	0.7	-1.5	-4.9	-4.7
South Korea	3.8	-3.4	-4.2	-2.2
Australia	1.9	0.3	0.4	0.6

Source: *The Economist* newspaper, various editions

Table 4 Percentage change in monthly IIP on a YoY basis

Country/Area	2008/11	2009/01	2009/04	2009/07
USA	-5.5	-10.0	-12.5	-13.1
Japan	-16.6	-30.8	-31.2	-22.9
China	5.4	3.8	7.3	10.8
Euro Area	-7.7		-21.6	-15.9
South Korea	-14.1	-25.6	-8.2	0.7

Source: *The Economist* newspaper, various editions

It is interesting to note that amongst all economies that have shown a decline in GDP and IIP over the corresponding period of the preceding year, the fall in GDP and IIP has been the most for Japan throughout this period. Clearly then, both demand and supply has fallen by more in Japan than in the US and EU, but Japanese imports have suffered less than her exports. *Prima facie* and *ceteris paribus*, this suggests that other factors may be at work as well here, and we argue that one of these could be the discriminatory measures that have been imposed on Japanese commercial interests, especially by her major trading partners. Exploring this contention further is the goal of the following section.

4. Review of protectionist measures affecting Japan

Table 5 provides a summary of measures from the GTA database that have either harmed or are likely to harm Japanese commercial interests. As this table shows, of

the 133 measures affecting Japan, 105 have been classified as "amber"³ (measures implemented and likely to be discriminatory/measures announced but not implemented and discriminatory) and "red" (implemented and almost certainly discriminatory). Of the 25 pending measures likely to affect Japan, 23 are likely to have an adverse effect. Moreover, 46 of Japan's trading partners have imposed measures that almost certainly discriminate ("red" measures) against Japanese commercial interests.

Table 5 Snapshot of trade restrictive measures affecting Japan

Statistic	All measures	All measures excluding trade defense measures
Number of measures in database affecting specified partner	133	117
Number of measures in database affecting specified partner classified (green)	18	18
Number of measures in database affecting specified partner classified (amber)	37	28
Number of measures in database affecting specified partner classified (red)	78	71
Number of implemented measures affecting specified partner	108	99
Number of pending measures likely to affect trading partner	25	18
Number of pending measures likely to harm trading partner, ie. classified (amber , red)	23	16
Number of jurisdictions imposing red measures on specified partner	46	45

Source: GTA database

A further breakdown of these measures by implementing jurisdiction and type is provided in Table 6. This reveals that almost half of the 105 "red" and "amber" measures have been imposed by her top five trading partners, which does not contradict our working hypothesis. The 27 members of the EU and ASEAN member states have imposed most of these measures, followed by China and the US. Table 6 also shows that government bail outs and tariff measures dominate in the list of discriminatory measures affecting Japan.

The GTA's website also makes it possible to look at the effect of these measures at a sectoral level. Table 7 captures the frequency of these measures affecting specific Japanese sectors.

As Table 7 shows, the sectors that have been the most affected by restrictive measures include: 1 (agriculture/horticulture), 23 (grain mill products), 27 (textiles other than apparel), 28 (knitted or crocheted fabric), 29 (leather products and footwear), 34 (basic chemicals), 35 (other chemical products), 36 (rubber and plastic products), 38 (furniture), 41 (basic metals), 42 (fabricated metal products), 43 (general purpose machinery), 44 (special purpose machinery), 46 (electrical machinery and apparatus), 47 (radio, TV and communication equipment) and 49 (transport equipment).

³ This is the classification adopted by the GTA team.

Table 6 Break-up of protectionist measures affecting Japan by partner and type of measure

Type of measure/Partner	USA	EU 27	China	South Korea	ASEAN	ROW	Total
Bail out / state aid measure	1	14		1	1	5	22
Competitive devaluation					1		1
Consumption subsidy		1				2	3
Export subsidy	1	3				4	8
Export taxes or restriction			1		1	4	6
Import ban					1	1	2
Import subsidy							0
Intellectual property protection							0
Investment measure		1	1				2
Local content requirement	1		1				2
Migration measure	1			1		1	3
Non tariff barrier (not otherwise specified)					3	6	9
Other service sector measure					1	2	3
Public procurement	1	3				2	6
Quota (including tariff rate quotas)							0
Sanitary and Phytosanitary Measure						1	1
State trading enterprise							0
State-controlled company							0
Sub-national government measure							0
Tariff measure			1	1	5	16	23
Technical Barrier to Trade						1	1
Trade defence measure (AD, CVD, safeguard)			3			6	9
Trade finance						4	4
Total	5	22	7	3	13	55	105

Source: GTA database; own calculations.

Table 7 Tally chart of restrictive measures affecting individual Japanese sectors

Sector	Number	Sector	Number	Sector	Number	Sector	Number	Sector	Number	Sector	Number
0	1	15	2	26	9	37	5	48	5	81	7
1	13	16	3	27	16	38	11	49	16	85	2
2	7	17	3	28	15	39	6	51	2	86	1
3	4	18	3	29	12	41	15	52	2	88	1
4	5	20	1	31	6	42	15	53	2	91	1
10	1	21	9	32	5	43	13	71	1	92	1
11	2	22	7	33	1	44	17	72	2	93	1
12	4	23	15	34	13	45	3	73	2	94	1
13	1	24	4	35	12	46	12	74	1	95	1
14	4	25	2	36	10	47	12	75	1	96	1

Source: GTA database; own calculations.

Table 8 Value, share and percentage change in Japanese exports by sector

Exports	2008/11			2009/01			2009/04			2009/07		
	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)	Value (USD '000s)	YoY (%)	Share (%)
Total	54360291	-15.0	100.0	38368462	-34.1	100.0	42399029	-38.0	100.0	50941109	-28.5	100.0
Transport Equipment	13843665	-16.8	25.5	8992022	-43.9	23.4	8144056	-52.5	19.2	11767097	-32.0	23.1
Machinery	10705730	-11.0	19.7	7844003	-28.3	20.4	7771224	-43.6	18.3	8379751	-39.0	16.5
Electrical Machinery	10625351	-18.5	19.6	6784027	-36.1	17.7	8812014	-32.8	20.8	10408195	-22.2	20.4
Manufactured Goods	7248266	1.8	13.3	5513009	-16.0	14.4	5396203	-33.4	12.7	6425375	-28.0	12.6
Chemicals	4361935	-23.7	8.0	3507081	-35.8	9.1	4868411	-23.5	11.5	5582830	-16.4	11.0

Source: JETRO

Significantly, the sectors that have been hit the most by foreign protectionism tend to be sectors in the Japanese economy that have witnessed the greatest fall in exports on a YoY basis. This can be seen in Table 8 above. The average YoY decline over this period has been the most for transport equipment (-36.3%) and machinery (-30.5%).

In further support of our argument, we also provide, in Table 9, a snapshot of discriminatory measures that have been imposed by Japan on its trading partners. It is interesting to note that as opposed to 105 "red" and "amber" measures affecting Japanese exports, there are only 9 "red" and "amber" measures that affect Japanese imports from ROW. This also suggests why Japanese exports may have fallen more than Japanese imports over this period, possibly as a result of Lerner Symmetry⁴.

Table 9 Snapshot of trade restrictive measures by Japan on its partners

Statistic	All measures	All measures excluding trade defence measures
Number of measures in database by specified jurisdiction	9	4
Number of measures in database by specified jurisdiction classified (green)	0	0
Number of measures in database by specified jurisdiction classified (amber)	2	2
Number of measures in database by specified jurisdiction classified (red)	7	2
Number of tariff lines affected by red measures implemented by specified jurisdiction	133	130
Number of sectors affected by red measures implemented by specified jurisdiction	9	9
Number of trading partners affected by red measures implemented by specified jurisdiction	97	97

Source: GTA database.

5. How do comparators fare in terms of measures?

It may also be revealing to look at the number of discriminatory measures affecting and imposed by Japan's major trading partners. This is done in Table 10 below.

Significantly, while the US, China and EU have had a greater number of measures harming their commercial interests compared to Japan, they have also imposed far more restrictions on their imports from ROW than the Japanese have. Unfortunately, monthly trade data is currently unavailable for China and the EU otherwise our pre-

4 This Theorem due to Abba P. Lerner (1936) states that, given balanced trade, a tax on imports has the same effect as a tax on exports. Across the board increases in Japanese tariffs, therefore, cannot improve the Japanese trade balance (as exports fall by the same amount as imports do.) In section 6 of this paper a more restrictive hypothesis, motivated by but distinct from Lerner's Symmetry, is evaluated. In that section, we examine whether Japanese discrimination against foreign commercial interests in a sector reduces Japanese exports from that sector. Why might this occur? The former discrimination may increase the incentive of Japanese firms to supply Japanese customers at home relative to supplying foreign customers abroad.

liminary findings on Japan could have been compared with an analysis of these partners' trade performance over this time period.

Table 10 Snapshot of trade restrictive measures on and by Japan's trading partners

Country/Area	No. of red & amber measures affecting		No. of red & amber measures imposed	
	All measures	Excluding trade defence	All measures	Excluding trade defence
USA	128	105	38	21
China	212	123	22	10
EU-27	163	129	74	66
Japan	115	99	9	4
South Korea	104	84	7	7
Australia	79	73	8	2

Source: GTA database.

6. Estimating the impact of discriminatory measures on Japanese exports⁵

To provide additional weight to our arguments, we next examine empirically if the number of discriminatory measures facing a Japanese export sector has had a negative impact on export performance during the past year. To do this, we modify the standard export supply function to include the number of discriminatory measures facing a Japanese export sector as an explanatory variable, in addition to standard income and price variables. Given the prominence of subsidies and bailouts in the past year, and no clear supposition that their effect on Japanese exports must be the same as other discriminatory measures, we divide each reported foreign measure that harmed Japanese commercial interests in the GTA database into subsidy⁶ measures and all other discriminatory ("non-subsidy"⁷) measures. We also control for measures the Japanese take to discriminate against foreign commercial interests in a given sector, ie, measures that may include outright protection of Japanese firms and that might induce Japanese firms to shift resources away from exporting to supplying the domestic market. The functional form of the econometric specification employed are as follows:

$$x_{it} = \alpha_0 + \alpha_1 WY_YoY_{it} + \alpha_2 iip_t + \alpha_3 xpi_t + \alpha_4 neert + \alpha_5 sbsdy_i + \alpha_6 nonsbsdy_i + \alpha_7 by_jap_i + v_{it}$$

where subscript 'i' stands for sector, subscript 't' for month, all variables in lower case are logarithms of their original values, X is the total Japanese exports, XPI is the export price index for Japan, WY is an indicator of global purchasing power, IIP is Japan's index of industrial production, NEER is the Nominal Effective Exchange Rate for Japan, SBSDY and NONSBSDY are the number of subsidy and all other discriminatory measures imposed on Japanese export sectors, respectively, By_Japi is the total

5 I would like to thank Simon Evenett for both suggesting that I include this empirical analysis and for his useful inputs in this section.

6 These include state bail outs, competitive devaluation, all forms of subsidies and trade finance.

7 These include all measures in Table 6 except for the subsidy measures outlined above.

number of discriminatory measures imposed by Japan in a given sector and α_4 is the error term. *A priori*, we expect α_1 through α_3 to be positive and α_4 through α_7 to be negative.

It is important to point out that the data employed differs in its availability and variation across sectors and time. Some variables, such as IIP, XPI, and NEER are not available on a sectoral basis, while the measures of cross-border discrimination do not have a temporal dimension. Also, since real GDP data is available only on a quarterly basis, to control for the effect of global demand on Japanese export supply we use IIP data instead which is available on a monthly basis. To construct our measure of changes in global demand, we calculated the weighted average of the YoY changes in IIP over the period November 2008 - September 2009 of Japan's top five export destinations, using as weights the share of Japanese exports in a given sector to the country in question in the year before global trade collapsed, namely, 2008. This computation renders the WY variable variant over both sector and time. As more data becomes available over time, this and similar analyses can be repeated and refined. At the moment, then, it is best to regard what follows as a preliminary analysis whose conclusions need not survive the test of time.

We assembled monthly data for these variables over the period November 2008 - September 2009 and consider 12 broad sectors for which data is available - manufacture of metals, non-ferrous metals, paper and paper manufactures, scientific and optical instruments, chemicals, textile yarn & fabrics, machinery, electrical machinery, foodstuff, raw materials, mineral fuels and transport equipment. The summary statistics and correlation between variables are provided in the Appendix.

We estimated this panel using simple OLS and report the results from estimation in Table 11 below. As expected, global demand, Japanese IIP, and export prices have a positive impact on Japanese exports but the result for the latter two lack statistical significance. The negative estimates of parameters α_6 and α_7 seem imply that foreign discriminatory measures against Japanese exports, other than subsidies, reduce Japanese exports--as do Japanese discrimination against foreign commercial interests in the same sector. Foreign tariff increases, anti-dumping investigations, "buy national procurement policies," therefore, are found to have reduced Japanese sectoral exports. Furthermore, Japanese policymakers should be under no illusion that discriminating against foreign commercial interests can proceed without harm being done to Japanese export interests--not through subsequent foreign retaliation as is often supposed but through shifting resources in Japan away from exporting.

Discriminatory foreign subsidies are estimated to have a positive impact on Japanese export performance, highlighting the importance of not always associating discrimination with falling trade. What might account for the finding that foreign discriminatory bailouts and subsidies have cushioned the fall in Japanese exports during the current global economic downturn? Suppose the foreign bailout or subsidy limits the capacity and output reductions of the beneficiaries of the foreign state's largesse. If Japanese firms seek to preserve their share of the foreign market in question (perhaps because brand strength, which has intangible value, is associated with market presence or share), then Japanese firms may respond by limiting their export reductions more than would otherwise be the case.

Interestingly, the magnitudes of the estimated coefficients on the terms capturing cross-border discrimination imply that the indirect impact of discrimination by Japan

on its own export performance may be larger than the impact of discriminatory measures imposed by foreigners. Indeed, the econometric estimates reported here imply that the combined effect of an equal percentage increase in the number of measures imposed abroad⁸ and in Japan would be to slightly raise Japanese sectoral exports. Once uncertainty in the statistical estimates is taken into account, the net effect of any escalation in discrimination worldwide would not affect the level of Japanese sectoral exports. That such discrimination may not affect sectoral trade flows does not imply that it is not distorting the allocation of national resources and creating constituencies that will oppose further liberalisation.

Table 11 Estimation results

Depdt var: ln(Exports)		
Indpdt var	Coeff	Std Err
WY YoY	0.05***	0.014
ln(IIP)	0.15	0.31
ln(XPI)	2.90	3.7
ln(NEER)	1.90	2.1
ln(SBSDY)	2.4***	0.08
ln(NONSBSDY)	-0.29***	0.04
ln(BY_JAP)	-1.9***	0.04
constant	-7.3	28.8
no of obs	55	
R-squared	0.99	

Note: Levels of significance - * 10%, ** 5%, *** 1%

7. Conclusion

In the recent sharp global economic downturn, Japanese exports have witnessed a sharper fall year-on-year than Japanese imports. While the export contraction can certainly be attributed in part to falling global demand and to shrinking domestic supply during this period, it has also been the case that Japan's commercial interests have been harmed by many measures taken by its trading partners. In a preliminary econometric analysis, the results of which were presented in this chapter, the impact of different types of foreign discrimination on Japanese sectoral exports was found to differ. Foreign subsidies and bailouts tend to have limited Japanese export falls, while foreign tariffs have exacerbated the contraction of Japanese exports. Given the prominence of discriminatory subsidies and bailouts in the past year, this empirical finding casts doubt on the wisdom of attempts to summarise the impact of contemporary protectionism, by examining only the effect of tariff increases and other more transparent discriminatory policy instruments.

The findings of this study have several implications, some for policymakers. First, the study confirms that the Japanese government has a considerable stake in the measures taken during the crisis by governments abroad. The imposition of foreign measures, other than subsidies, reduces Japanese exports. Second, defensive measures

8 Both subsidy and non-subsidy.

by the Japanese government that involve discrimination against foreign commercial interests are foolish on two grounds. For one, these measures invite potential retaliation that could harm Japanese exports. In addition, such discrimination may increase the incentives of Japanese firms to supply domestic markets and cut back on exports. In short, there are no free lunches here: attempts to protect Japanese firms from import competition will have knock-on harmful effects for Japanese exports. It would be useful to know whether this finding is unique to Japan or of more general policy relevance. Third, given the widespread resort to subsidies and bailouts by many industrialised countries during the past year, the finding reported here that foreign subsidies may have limited the retrenchment of Japanese exports surely casts doubt on any presumption that every discriminatory state measure taken in the past year has reduced trade. Economists have long recognised that the impact of policies on the allocation of resources within a society is ultimately the right metric to assess government interventions; providing another reason to cast aside the presumption that more (less) trade is equated with less (more) resource misallocation and larger (smaller) national income.

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Appendix

Table A1 Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
x_yoy	132	-25.9	14.5	-66.9	24.9
neer	132	366.7	13.0	351.4	390.0
xpi_yoy	132	-12.5	2.5	-15.5	-7.5
xpi	132	89.0	1.7	86.1	91.3
iiip	132	80.2	6.7	69.5	93.1
iiip_yoy	132	-25.3	6.1	-34.2	-16.6
x_val (USD mn)	132	3180	3860	160	13800
wyi_yoy	132	-1.9	2.9	-6.5	7.2
sbsdy	132	8.6	7.4	0	25
nonsbsdy	132	18.6	12.8	3	39
by_jap	132	1.6	3.3	0	12

Table A2 Correlation between variables

(n = 55)	lx_val	wyi_yoy	lnonsbsdy	lsbsdy	lby_jap	lxpi	liip	lneer
lx_val	1							
wyi_yoy	-0.50	1						
lnonsbsdy	-0.49	0.19	1					
lsbsdy	0.02	-0.28	-0.17	1				
lby_jap	-0.74	0.25	0.19	0.65	1			
lxpi	0.01	0.19	0	0	0	1		
liip	0.05	0.40	0	0	0	0.17	1	
lneer	-0.02	-0.26	0	0	0	-0.95	-0.16	1