



Methodologies of Compiling CPIs in Asian Countries

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1. Purposes

- Introduce the compiling methods of the CPIs in Pacific Asian countries such as China, South Korea, Singapore, Vietnam, Philippines and Japan
- Examine movement of their CPIs throughout observing synchronicities between the CPIs and crude oil price

2. Pacific Asian Countries: Basic Information

	China	South Korea	Singapore	Vietnam	Philippines	Japan
Official	People's Republic of China	Republic of Korea	Republic of Singapore	Socialist Republic of Viet Nam	Republic of the Philippines	Nipponkoku (Nihonkoku)
Capital	Beijing	Seoul	Singapore	Ha Noi	Manila	Tokyo
Area (km ²)	9,596,961	99,720	710	329,241	299,404	377,962
Population (million)	1,340 [2012]	49 [2012]	5 [2011]	89 [2011]	96 [2011]	127 [2013]
Currency	Renminbi	South Korean won	Singapore dollar	Dong	Peso	Yen
GDP (Total) (billion US\$)	10,380 [2014]	1,417 [2014]	308 [2014]	186 [2014]	285 [2014]	4,616 [2014]
GDP(PPP) (Per capita) (INT\$)	12,880 [2014]	35,277 [2014]	82,762 [2014]	5,635 [2014]	6,962 [2014]	37,390 [2014]
Self sufficiency (Primary energy) (%)	91 [2010]	18	1 [2010]	111 [2010]	58 [2010]	4 [2010]
Self sufficiency (Oil) (%)	47 [2010]	1 [2011]	0 [2010]	84 [2010]	7 [2010]	0 [2010]
A ratio of oil to primary energy (%)	18 [2010]	37 [2011]	77 [2010]	31 [2010]	34 [2010]	41 [2010]

[]: year

Source: Japan Statistical Yearbook 2015 (Statistics Bureau of Japan)
 World Economic Outlook Database April 2015 Edition (IMF)
 平成24年度国際石油需給体制等調査報告書 (The Institute of Energy Economics, Japan)
 FY2013 Annual Energy Report (Japanese Only) (Agency for Natural Resources and Energy, Japan)

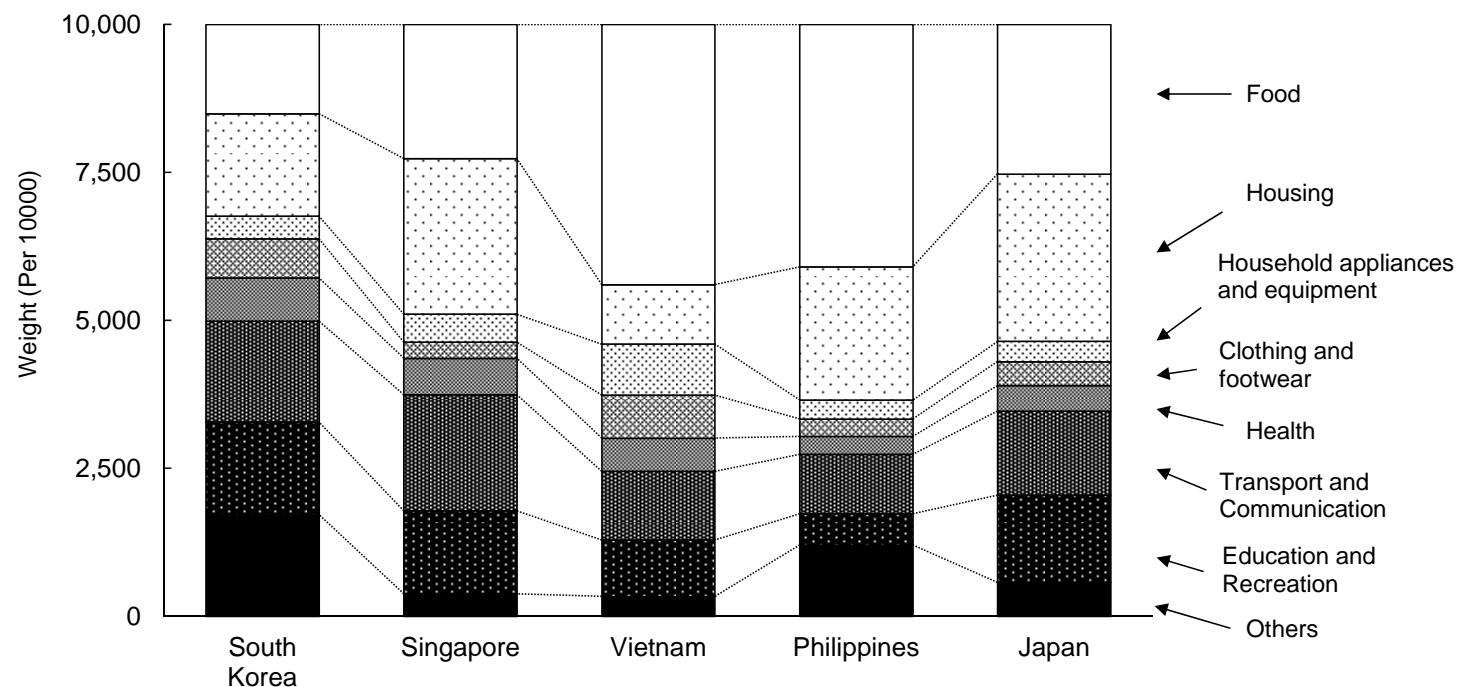
2. Pacific Asian Countries: CPI Methodology

	China	South Korea	Singapore	Vietnam	Philippines	Japan
Formula	Chained Laspeyres	Laspeyres	Laspeyres	Laspeyres	Laspeyres	Laspeyres
Base year	2010=100	2010=100	2014=100	2009=100	2006=100	2010=100
Weight	Urban and rural house-hold survey (2010), update every five years	Family Income and Expenditure Survey (2012), update every two or three years	Households Expenditure Survey (Oct. 2012 to Sep. 2013), update every five years	Vietnam Household Living Standard Survey (Jun. 2007 to May 2008), update every five years	Family Income and Expenditure Survey (2006)	Family Income and Expenditure Survey (2010), update every five years
Scope of the data	Nationwide households	One-person or more nationwide households, excluding farming and fishery households	Singapore Citizens or Permanent Residents	All consumers in Vietnam	Nationwide households	Nationwide, two-or-more-person households
Items	At least 600	481	(6,600)	256	271 to 693	588
Outlets	About 63,000	About 26,000	4,200	(254)		About 27,000
Frequency of collecting price	<ul style="list-style-type: none"> • Twice a month • Six times a month (e.g. Meat and fish) • Once a month (e.g. electricity) 	<ul style="list-style-type: none"> • Once a month, • Three times a month (e.g. livestock product) 	Every week (e.g. Peri-shable food) , monthly, quarterly, half-yearly, as when the prices/rates change	Three times a month.	<ul style="list-style-type: none"> • Twice a month • Weekly (e.g. Food, Beverage, Tobacco in National Capital Region) 	<ul style="list-style-type: none"> • Once a month • Three times a month (e.g. Fresh Foods)

Notes: China, South Korea, Vietnam: December 2014, Singapore, Philippines, Japan: April 2015
 'Items' of Singapore is unknown. That figure is the number of 'Brand and Variety'.
 'Items' of the Philippines vary by province/city.
 'Outlets' of Vietnam are markets, trading centers and retail outlets, etc.

Source: Main Economic Indicators (OECD)
 Dissemination Standards Bulletin Board (IMF)
 Official Websites of the Countries

2. Pacific Asian Countries: CPI Weights

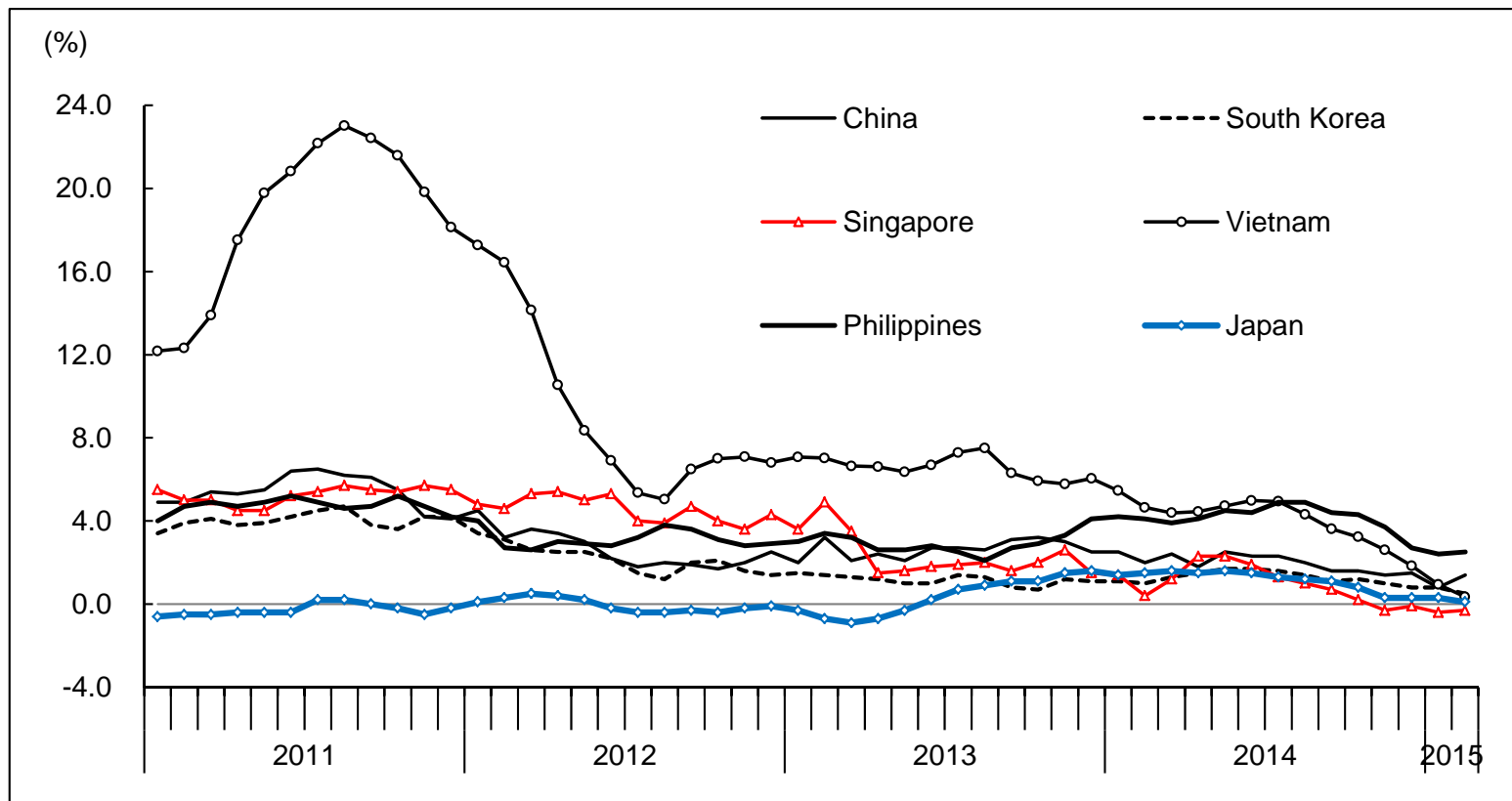


	South Korea	Singapore	Vietnam	Philippines	Japan
All Items	10,000	10,000	10,000	10,000	10,000
Food	1,508	2,267	4,396	4,098	2,525
Housing	1,730	2,287	1,001	1,435	2,122
Water, electricity, gas and other fuels		338		812	704
Household appliances and equipment	382	475	865	322	345
Clothing and footwear	664	273	728	295	405
Health	729	615	561	299	428
Transport	1,114	1,579	887	781	1,030
Communication	591	385	273	226	391
Education	1,035	615	572	336	334
Recreation	530	788	383	193	1,145
Others	1,717	378	334	1,203	569

Source: Main Economic Indicators (OECD)
Dissemination Standards Bulletin Board (IMF)
Official Websites of the Countries

3. CPIs and Crude Oil Price: CPIs

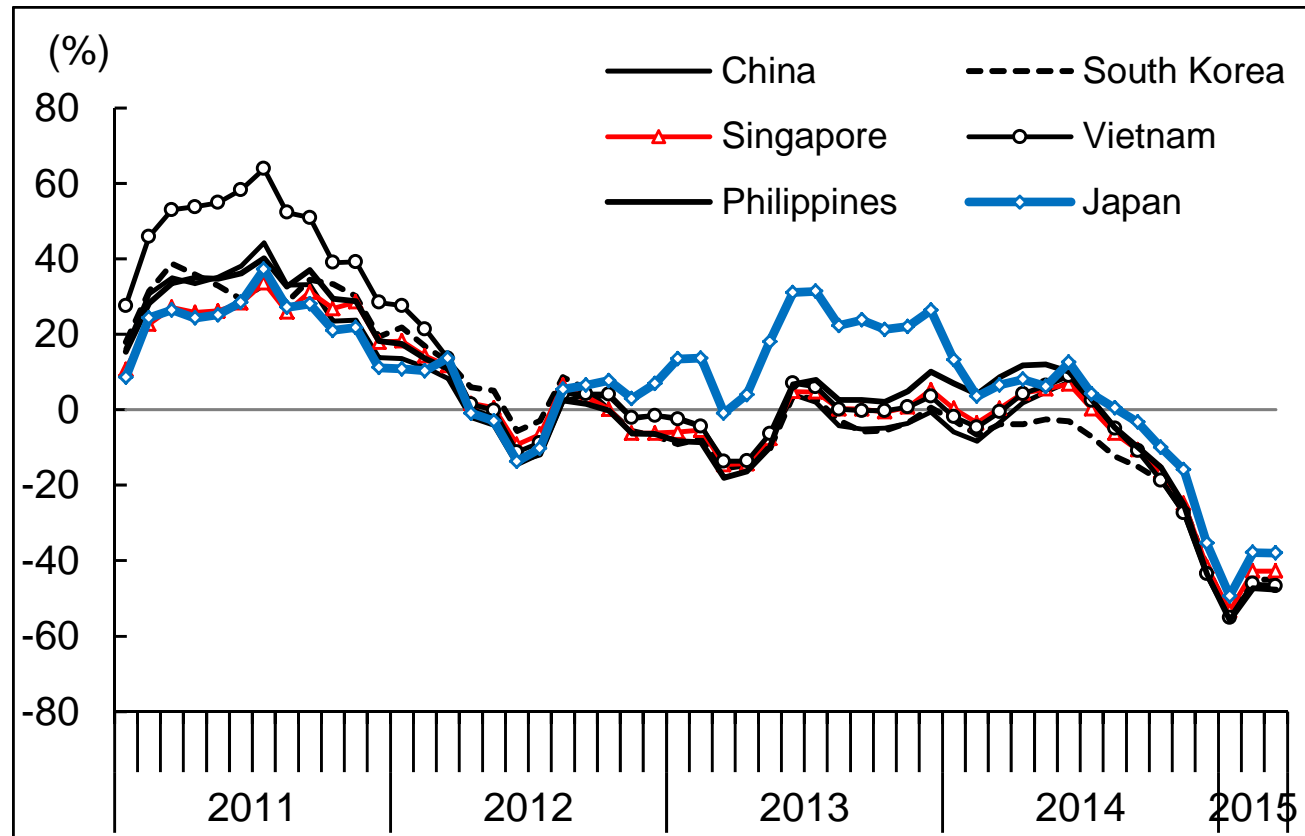
Year-on-year % change of the CPIs of Pacific Asian countries



Note: The CPI of Japan is excluding the effects of consumer tax rate change in April 2014, as well as the following.

3. CPIs and Crude Oil Price: Crude Oil Price

Year-on-year % change of the crude oil price in Dubai, translated into each country's currency



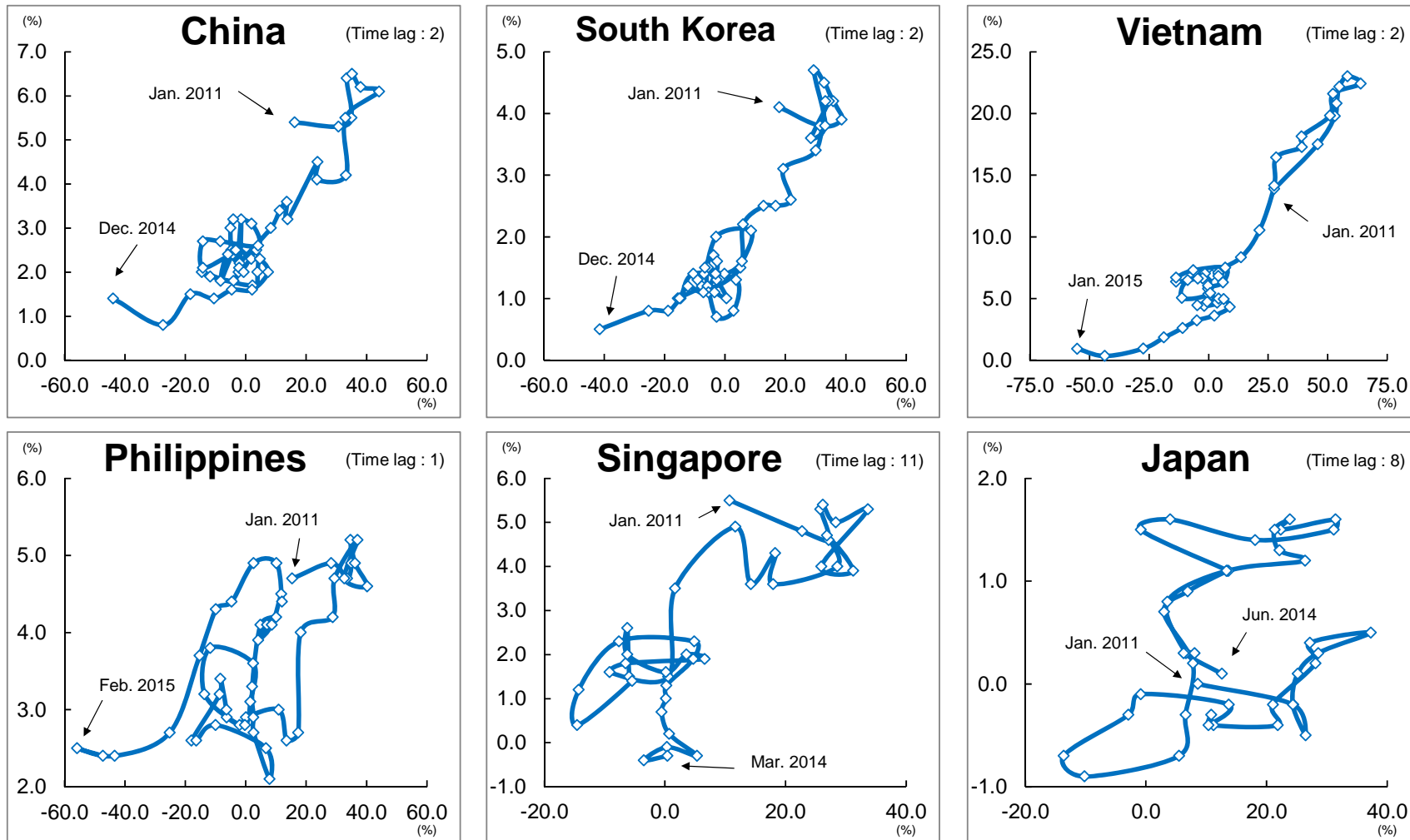
Source: Primary Commodity Prices (Crude Oil (petroleum), West Texas Intermediate 40 API, Midland Texas, US\$ per barrel) (IMF)
Historical Exchange Rates (OANDA Corporation)

3. CPIs and Crude Oil Price: Correlation between CPIs and Crude Oil Price (1)

Time lag	China	South Korea	Singapore	Vietnam	Philippines	Japan
0	0.873	0.869	0.737	0.895	0.663	-0.006
1	0.876	0.900	0.747	0.936	0.672	0.080
2	0.880	0.917	0.729	0.956	0.664	0.149
3	0.859	0.913	0.724	0.941	0.653	0.203
4	0.806	0.900	0.740	0.905	0.615	0.250
5	0.712	0.881	0.726	0.859	0.533	0.303
6	0.645	0.837	0.697	0.807	0.418	0.324
7	0.555	0.804	0.657	0.749	0.253	0.321
8	0.494	0.796	0.649	0.697	0.081	0.325
9	0.477	0.758	0.726	0.651	-0.035	0.318
10	0.446	0.705	0.769	0.613	-0.116	0.252
11	0.385	0.681	0.792	0.572	-0.196	0.089
12	0.259	0.655	0.774	0.515	-0.268	-0.097

Time lag: lags between y/y to crude oil price and
y/y to All Items CPI (month)

3. CPIs and Crude Oil Price: Correlation between CPIs and Crude Oil Price (2)

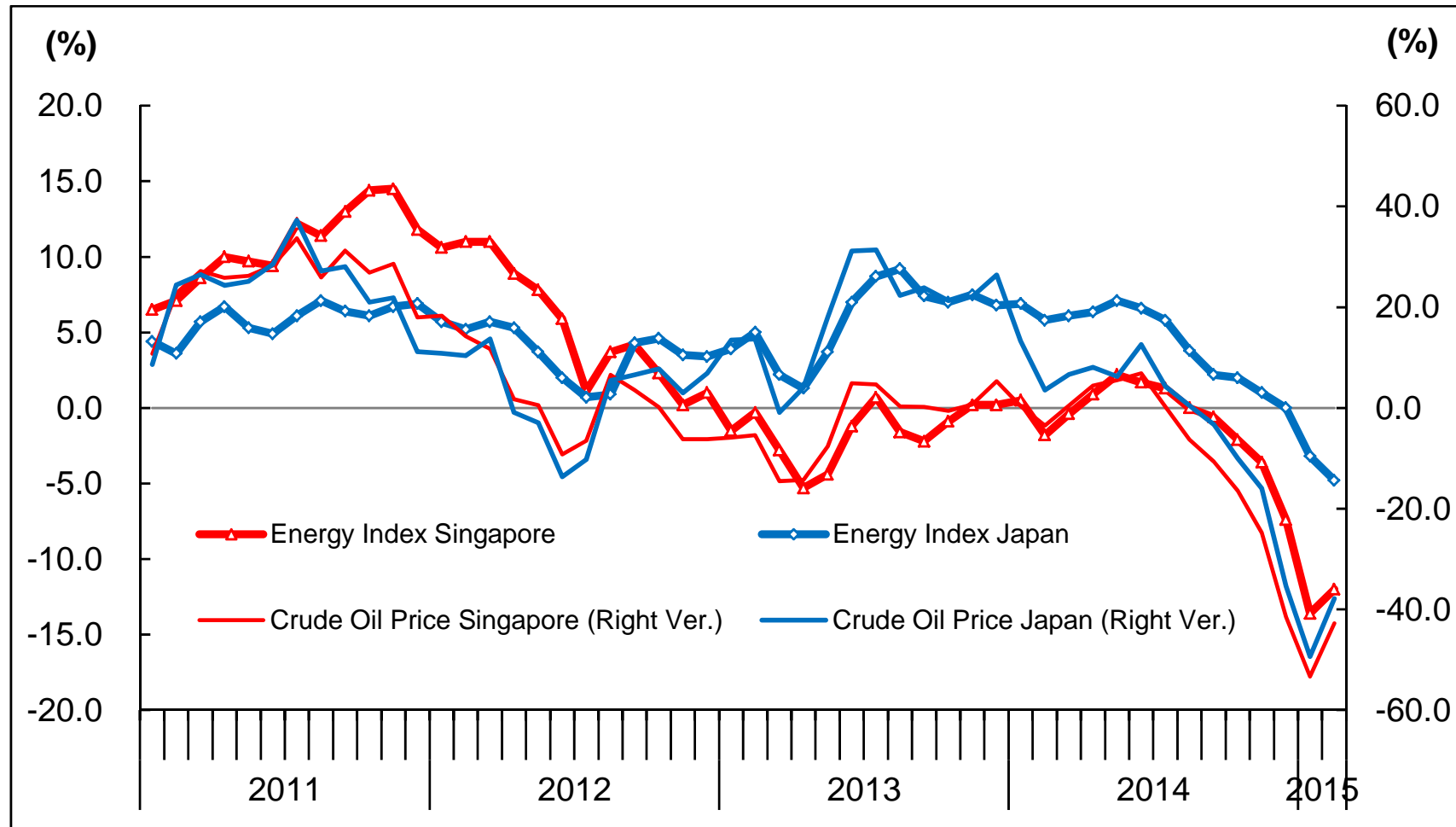


Horizontal axis: y/y to crude oil price of each country's currency
Vertical axis: y/y to All Items index

3. Singapore and Japan: Energy-related Items Weights

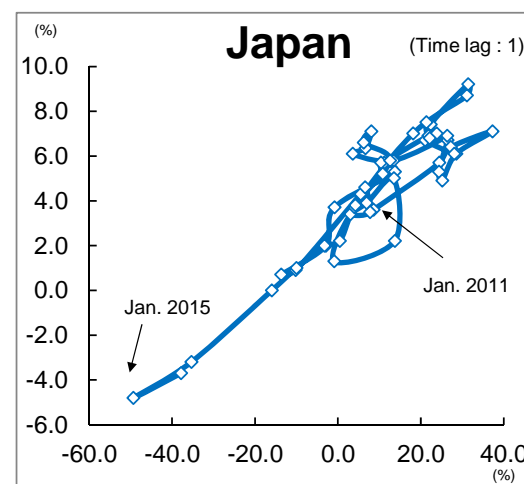
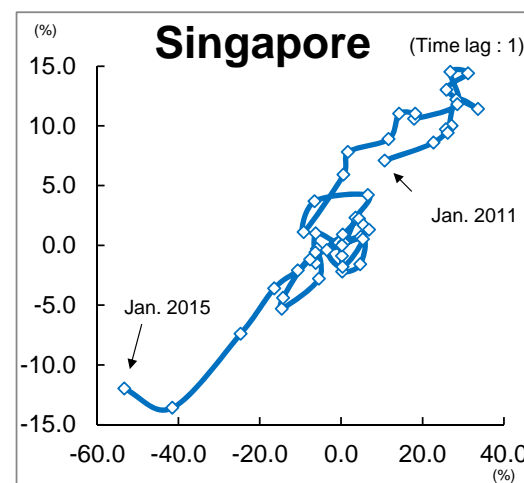
	Singapore		Japan		Vietnam	
	Weight	Frequency of collecting price	Weight	Frequency of collecting price	Weight	Frequency of collecting price
Energy	499	-	773	-	410	-
Electricity	215	each quarter	317	once a month	246	once a month
Gas, manufactured and piped	18	each quarter	96	once a month	155	Collecting price is calculated by time average price.
Liquefied propane	16	once a month	81	once a month		
Kerosene	-	-	50	once a month		
Gasoline	250	once a month	229	once a month		

3. Singapore and Japan: Energy-related Items and Crude Oil Price



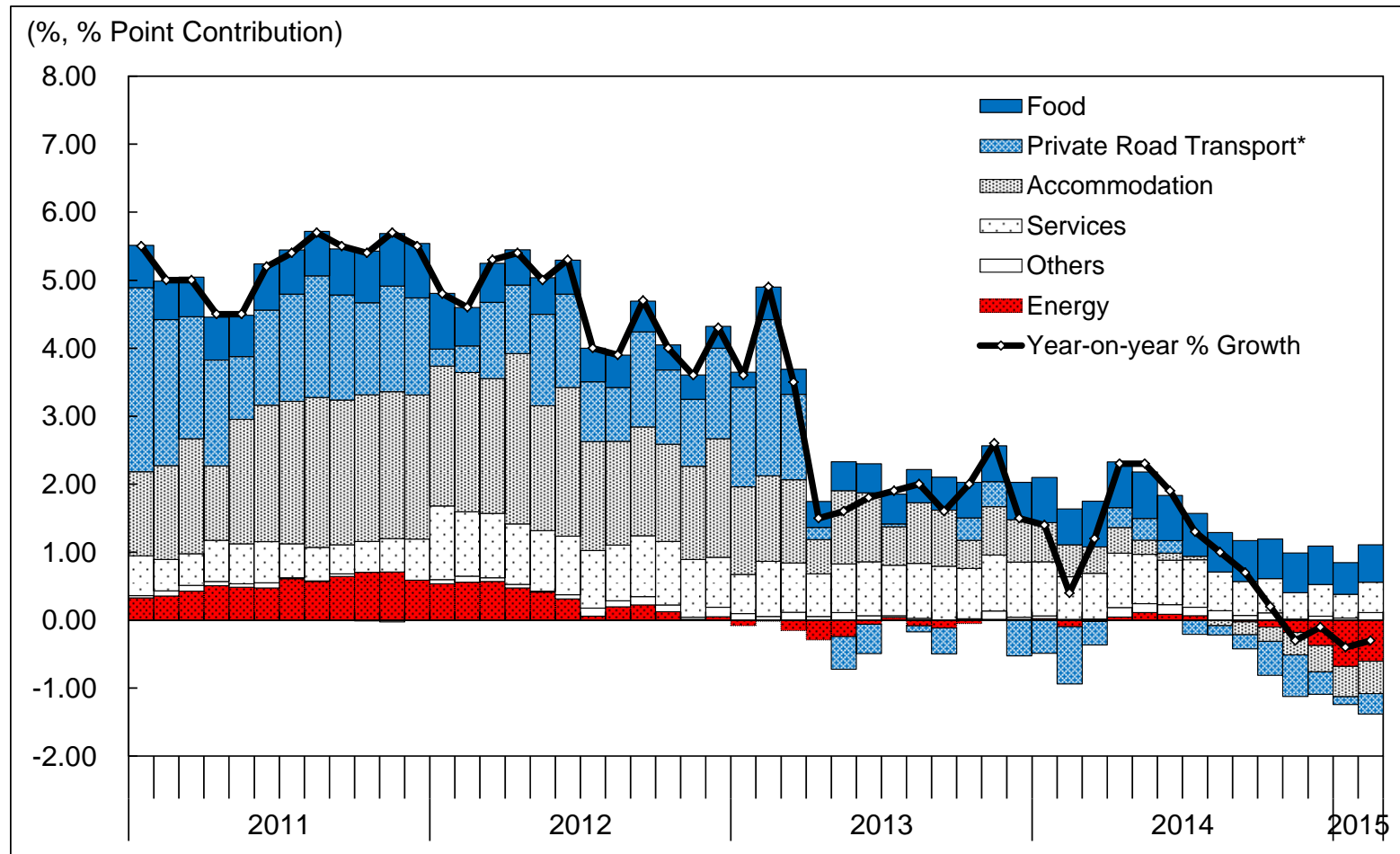
3. Singapore and Japan: Correlation between Energy-related Items and Crude Oil Price

Time lag	Singapore	Japan
0	0.899	0.839
1	0.928	0.907
2	0.914	0.796
3	0.895	0.620
4	0.882	0.557
5	0.846	0.512
6	0.777	0.451
7	0.704	0.308
8	0.638	0.196
9	0.638	0.174
10	0.635	0.082
11	0.619	-0.064
12	0.507	-0.287



Horizontal axis: y/y to crude oil price of each country's currency
Vertical axis: y/y to All Items index

3. Contribution to the year-on-year % change of the All Items CPI: Singapore

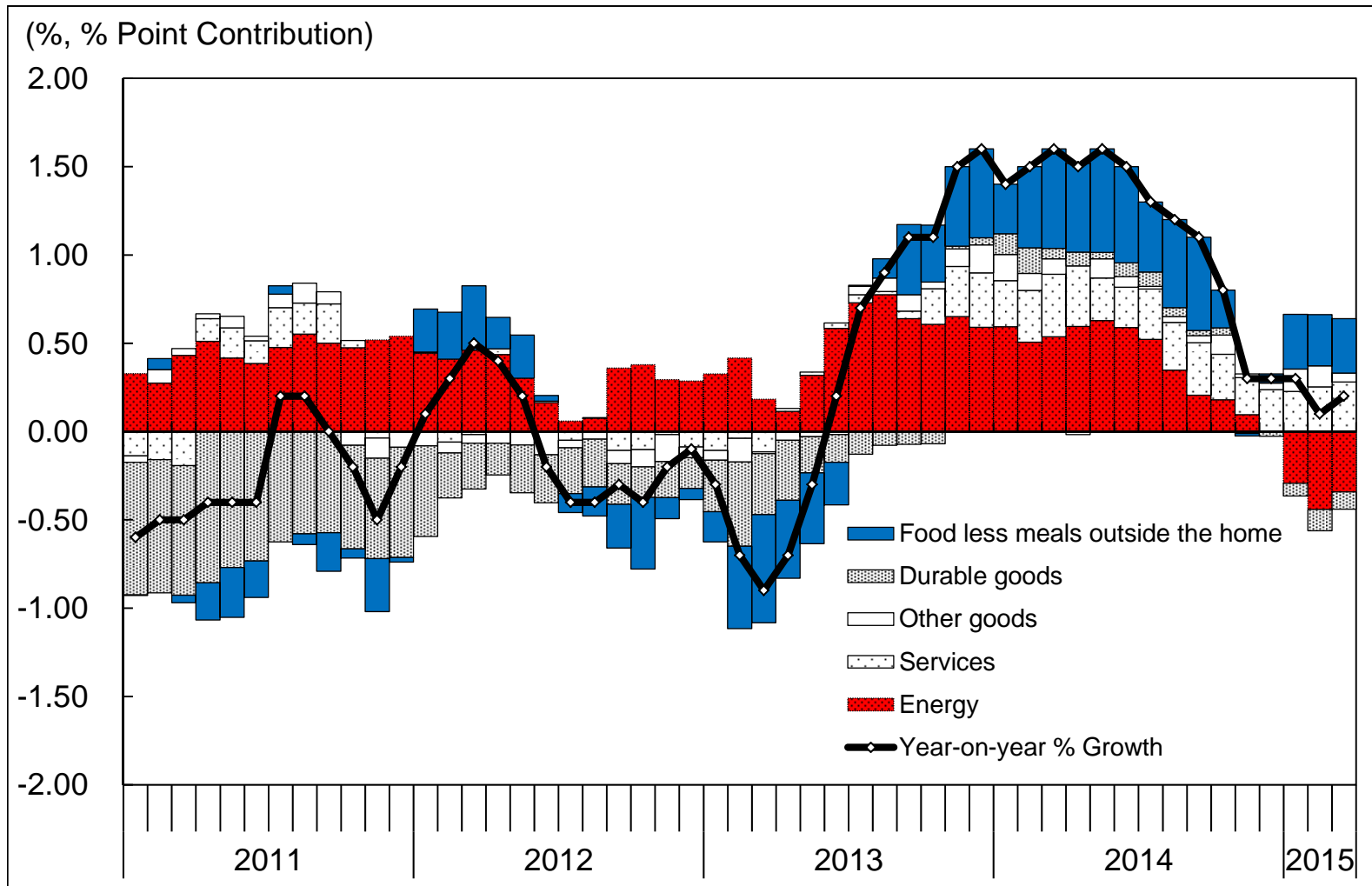


Notes: 'Private Road Transport' excludes 'Petrol'

The estimates between 2011 and 2013 are computed based on the old weighting pattern under the 2009-base year.

Source: Consumer Price Developments in February 2015 (Ministry Trade and Industry of Singapore)

3. Contribution to the year-on-year % change of the All Items CPI: Japan



4. Conclusion

- ❑ In 2011-2015, the movement of crude oil price synchronized with the CPIs' movement put of time lag of one or two months in the 4 Pacific Asian countries, except Singapore and Japan
- ❑ 'Energy' synchronized with crude oil price in Singapore and Japan
- ❑ 'Private Road Transport (exclude Petrol)' affected Singapore's CPI more particularly than 'Energy'
- ❑ 'Food less meals outside the home' and 'Durable goods' neutralized the impact of 'Energy' upon Japan's CPI

Thank you for Listening



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