MEASUREMENT OF CORE INFLATION

27 OCTOBER 2015

PRICES, INCOME AND EXPENDITURE STATISTICS DIVISION

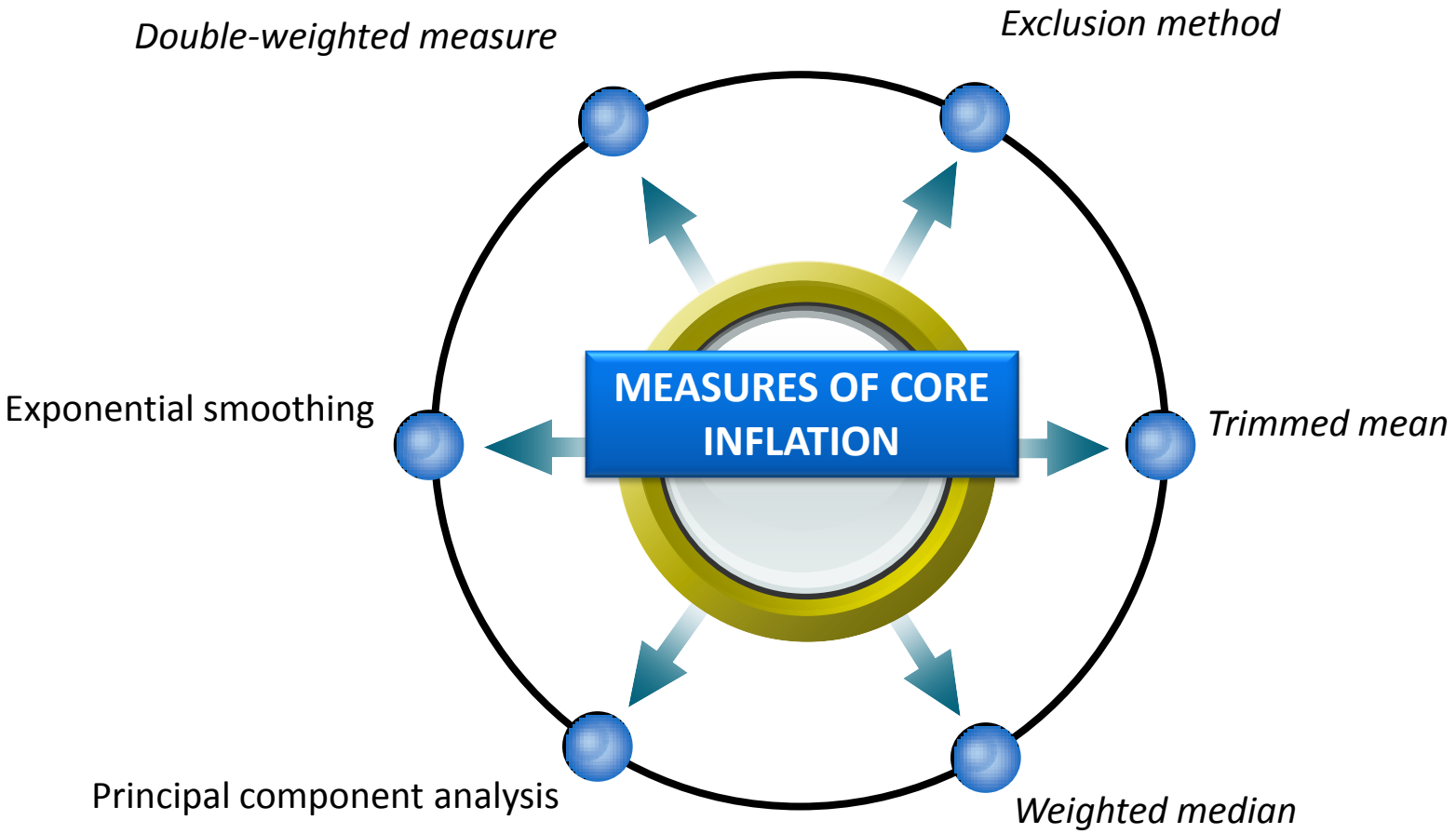
Presentation Outline

1. The importance of core inflation
2. Measures of core inflation
3. International comparison
4. Proposed CPI items that are excluded
5. Core index weight
6. Official core measures
7. Conclusion

THE IMPORTANCE OF CORE INFLATION

- **The ability to differentiate between permanent and transitory price movements is critical for the conduct of monetary policy.**
- **The importance of gauging the persistence of price changes in a timely manner has led to the development of measures of underlying, or "core," inflation that are designed to remove transitory price changes from aggregate inflation data.**
- **Relatively stable movement in core inflation that is unaffected by sharp, temporary price changes can anchor public inflation expectations, and strengthen policymakers' credibility.**
- **Core inflation provides insight on current inflationary pressures in the economy and the future trend of inflation.**

HOW IS CORE INFLATION MEASURED?



MEASURES OF CORE INFLATION

No.	Core inflation measures	Brief descriptions	Advantages	Disadvantages
1	Exclusion method	• Exclude price-volatile energy and food items from the CPI basket • Most commonly used measure among Central Banks	• Easy to construct and compute • Easy to communicate	• Critics argued that the excluded items may also contain important signals about underlying inflation • Excludes items that could represent a large share of the CPI basket (especially if food and energy account for a large share of CPI)

MEASURES OF CORE INFLATION

No.	Core inflation measures	Brief descriptions	Advantages	Disadvantages
2	Trimmed mean	• Items are arranged according to the magnitude of their price change during the month • Trims an equal amount (e.g. 15%) from each end of the distribution of price changes	• Easy to construct and compute	• The exact percentage that is excluded is still subject to debate

MEASURES OF CORE INFLATION

No.	Core inflation measures	Brief descriptions	Advantages	Disadvantages
3	Weighted median	• Items are arranged according to the magnitude of their price change during the month • Core inflation is selected from the 50th percentile inflation rate at which half of the components in the CPI basket have higher inflation and the other half, less	• Easy to construct and compute • Easy to communicate	• Item with large weights may dominate the median • Median can sometimes differ significantly from the mean

MEASURES OF CORE INFLATION

No.	Core inflation measures	Brief descriptions	Advantages	Disadvantages
4	Principal component analysis	• Derives core inflation from the common price trends embedded in the various components of the CPI	• Uses disaggregated data from the CPI basket	• The technical nature of the technique reduces its usefulness in communications
5	Exponential smoothing	• Exponential smoothening of current and past CPI data	• Remove seasonality from the data	• Works with some lags • The technical nature of the technique reduces its usefulness in communications

MEASURES OF CORE INFLATION

No.	Core inflation measures	Brief descriptions	Advantages	Disadvantages
6	Double-weighted measure	• Assigns larger weights to less volatile items and lower weights to the more volatile items	• Easy to construct and compute	• May minimise important price signals from price volatile items

Exclusion method

INTERNATIONAL COMPARISON

	CPI items that are excluded		CPI weight of excluded items (%)
1 US	Food and energy	• Food at home • Alchohol and tobacco • Fuel, gas and electricity	26.8
2 Australia	Food and energy items & mortgage interest charges and consumer credit charges	• Fruits and vegetables • Automotive fuel • Mortgage interest charges & consumer credit charges	7 + 8.2 = 15.2
3 Canada	Eight of the most volatile items	• Fruits and vegetables • Tobacco products • Fuel and gas • Mortgage interest • Transport	17.9
4 Indonesia	Volatile food and price-administered items	• Price-volatile food items • Subsidised fuels • Electricity • Transport fares	40.0
5 Philippines	Food and energy-related	• Rice, corn, meat, fresh fruits, vegetables • Fuel and gas	20.0
6 Singapore	Accommodation and private road transport	• Rented/owner-occupied accommodation, maintenance • Purchase and maintenance of vehicles, petrol	31.7

Exclusion method

INTERNATIONAL COMPARISON

	CPI items that are excluded	CPI weight of excluded items (%)
7 UK	Mortgage interest payments	3.4 (parts per 1,000)
8 Korea	Radish, Young Radish, Chinese Cabbage, Welsh Onion, Yellow Onion, Spinach, Bean Sprouts, Cabbage Lettuce, Carrot, Cucumber, Squash, Eggplant, Tomato, Sweet Potato, Platycodon, Mushroom, Fembrake, Unripe Hot Pepper, Parsley, Perilla Leaf, Scallion, Apple, Pear, Peach, Grape, Persimmon, Chestnut, Mandarine, Orange, Melon, Watermelon, Strawberry, Banana. Dried Pepper, Garlic, Ginger, Sesame, Peanut, Kerosene, LPG for cooking, City Gas, Potable Butane, Ginseng, Fresh Flower, Petrol, Light Oil and LPG for car	11.7 (parts per 1,000)
9 Japan	Fresh food (fresh fish and seafood, fresh vegetables, fresh fruits)	4.1 (parts per 10,000)
10 Thailand	Raw food (rice and cereal products, meat, poultry and fish, vegetables and fruits)	24.1

PROPOSED CPI ITEMS THAT ARE EXCLUDED

Proposed CPI items that are excluded	Std. deviation	CPI weight of excluded items (%)
Fresh food and price-volatile		**10.1**
Fresh meat	6.5	2.3
Fresh fish	8.7	2.8
Fresh seafood	12.2	1.1
Eggs	6.7	0.5
Coconuts and nuts	10.2	0.2
Fresh vegetables	4.8	1.8
Potatoes and other tubers	5.5	0.2
Spices	4.7	0.3
Fresh fruits	5.0	0.9
Price administered		**17.6**
Cooking oils	0.2	0.5
Flour and other cereal grains	0.8	0.4
Sugar	18.8	0.3
Alcoholic beverages and tobacco	9.2	2.2
Water supply	0.5	1.1
Electricity	3.0	2.9
Gas	2.8	0.5
Fuels and lubricants for personal transport equipment	6.3	8.8
Transport services	3.0	0.9
Non-core CPI		**27.7**
Core CPI		**72.3**

- ***Price administered***

Refers to goods which have been declared as controlled articles under the Control of Supplies Act 1961 and are set out in Table 2 Supply Control Rules & Regulations 1974.

CORE INDEX WEIGHT

Core Index Weight

MAIN GROUP	HEADLINE			CORE INDEX
	Weights	Weights of Non-Core Items	CPI Weights Excluding Non-Core Items	Weights in Core Index
TOTAL	**100.0**	**27.7**	**72.3**	**100.0**
Food & Non-Alcoholic Beverages	30.3	11.3	19.0	26.3
Alcoholic Beverages & Tobacco	2.2	2.2	0.0	0.0
Clothing & Footwear	3.4	0.0	3.4	4.7
Housing,Water, Electricity, Gas & Other Fuels	22.6	4.5	18.1	25.0
Furnishings, Household Equipment & Routine Household Maintenance	4.1	0.0	4.1	5.7
Health	1.3	0.0	1.3	1.8
Transport	14.9	9.7	5.2	7.2
Communication	5.7	0.0	5.7	7.9
Recreation Services & Culture	4.6	0.0	4.6	6.4
Education	1.4	0.0	1.4	1.9
Restaurants & Hotels	3.2	0.0	3.2	4.4
Miscellaneous Goods & Services	6.3	0.0	6.3	8.7

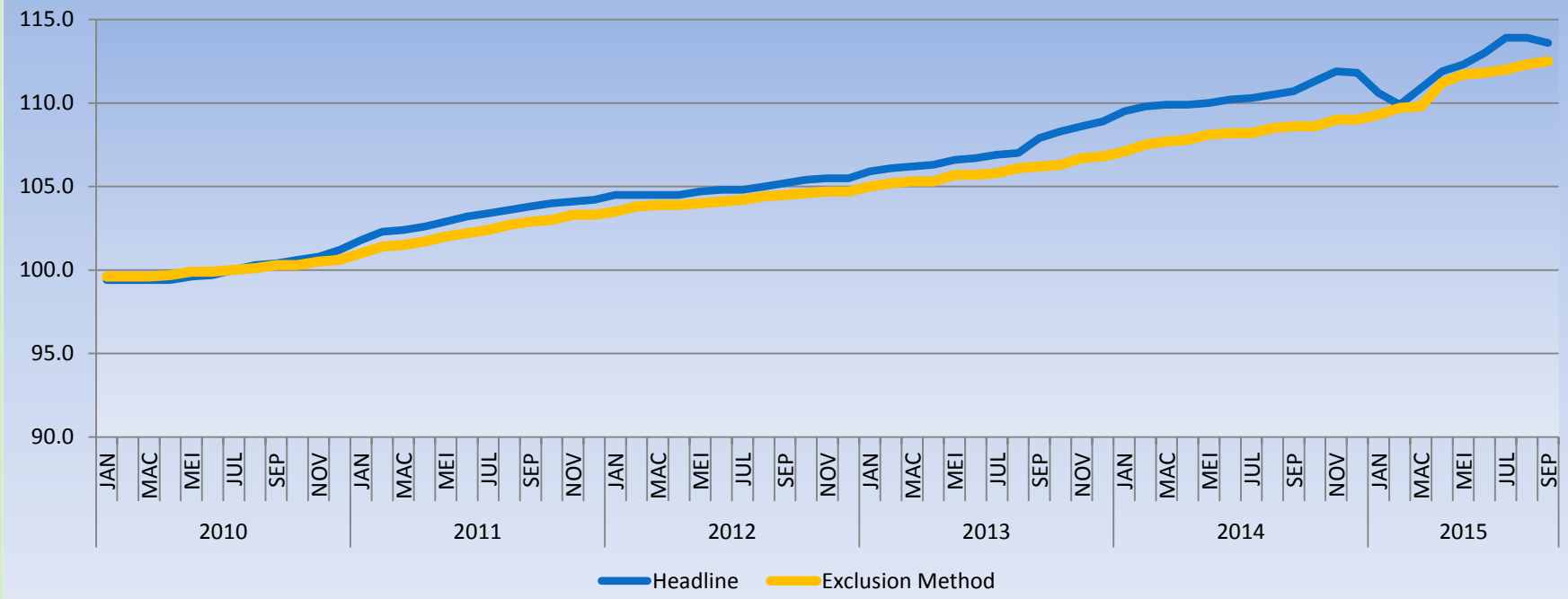
INTERNATIONAL COMPARISON

OFFICIAL CORE MEASURES

Country	Official Core Inflation Measures	Other Measures Used Internally by Central Bank
Canada	*Exclusion (food, energy & effects of indirect taxes)*	• *Exclusion (8 most volatile items – 16%)* • *Trimmed mean (15%)* • *Weighted median*
Australia	*Treasury underlying CPI*	• *Trimmed mean* • *Weighted median*
New Zealand	*Exclusion (interest charges)*	
Singapore	*Exclusion (costs of private road transport & costs of accommodation)*	• *Exclusion (volatile items – 30%)* • *Trimmed mean (15%)* • *Weighted median* • *Structural VAR*
Japan	*Exclusion (fresh food)*	
Thailand	*Exclusion (fresh food & energy – 23%)*	• *Trimmed mean (10%)*
Peru	*Exclusion (9 volatile items – food, fruits and vegetables & urban transport – 21.2%)*	

COMPARISON OF OVERALL INDEX AND CORE CPI

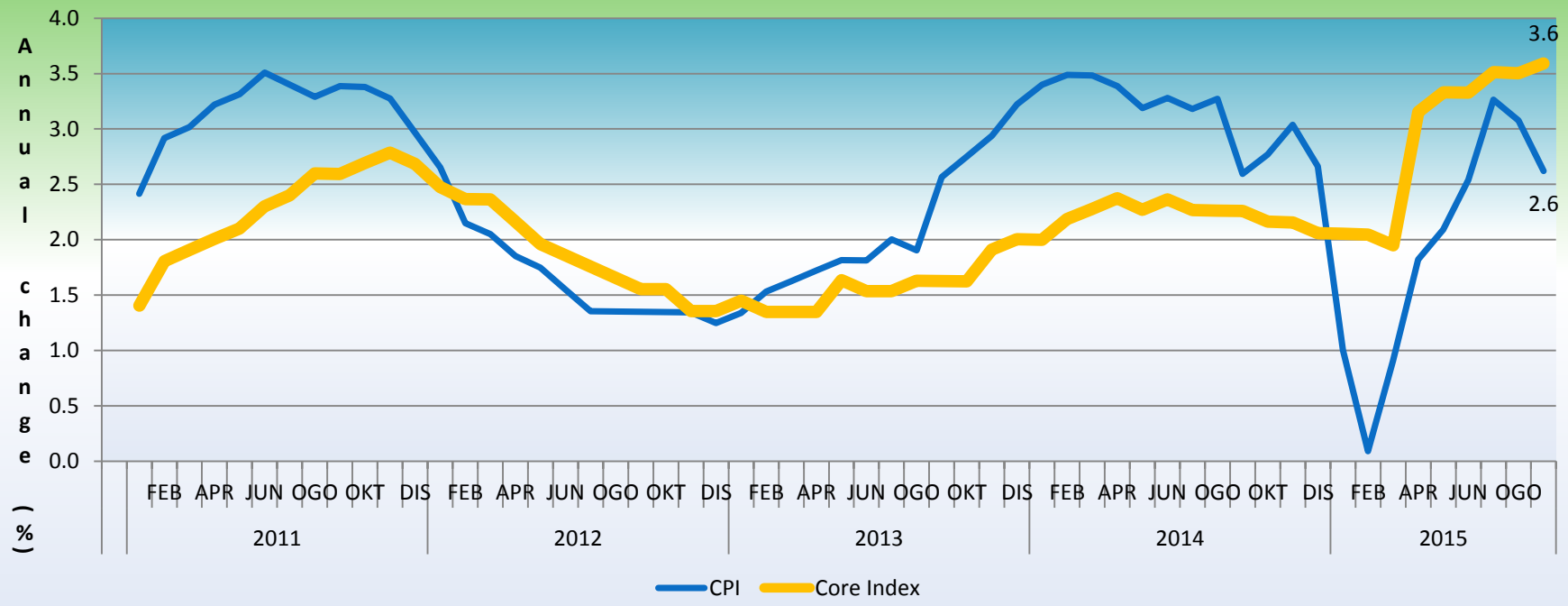
Headline vs Core Index



Year	Month	Index Numbers		Annual Change (%)	
		Headline	Core Index	Headline	Core Index
2015	JAN	110.6	109.3	1.0	2.1
	FEB	109.9	109.7	0.1	2.0
	MAR	110.9	109.8	0.9	1.9
	APR	111.9	111.2	1.8	3.2
	MAY	112.3	111.7	2.1	3.3
	JUN	113.0	111.8	2.5	3.3
	JUL	113.9	112.0	3.3	3.5
	AUG	113.9	112.3	3.1	3.5
	SEP	113.6	112.5	2.6	3.6

COMPARISON OF OVERALL INDEX AND CORE CPI

Headline vs Core Inflation



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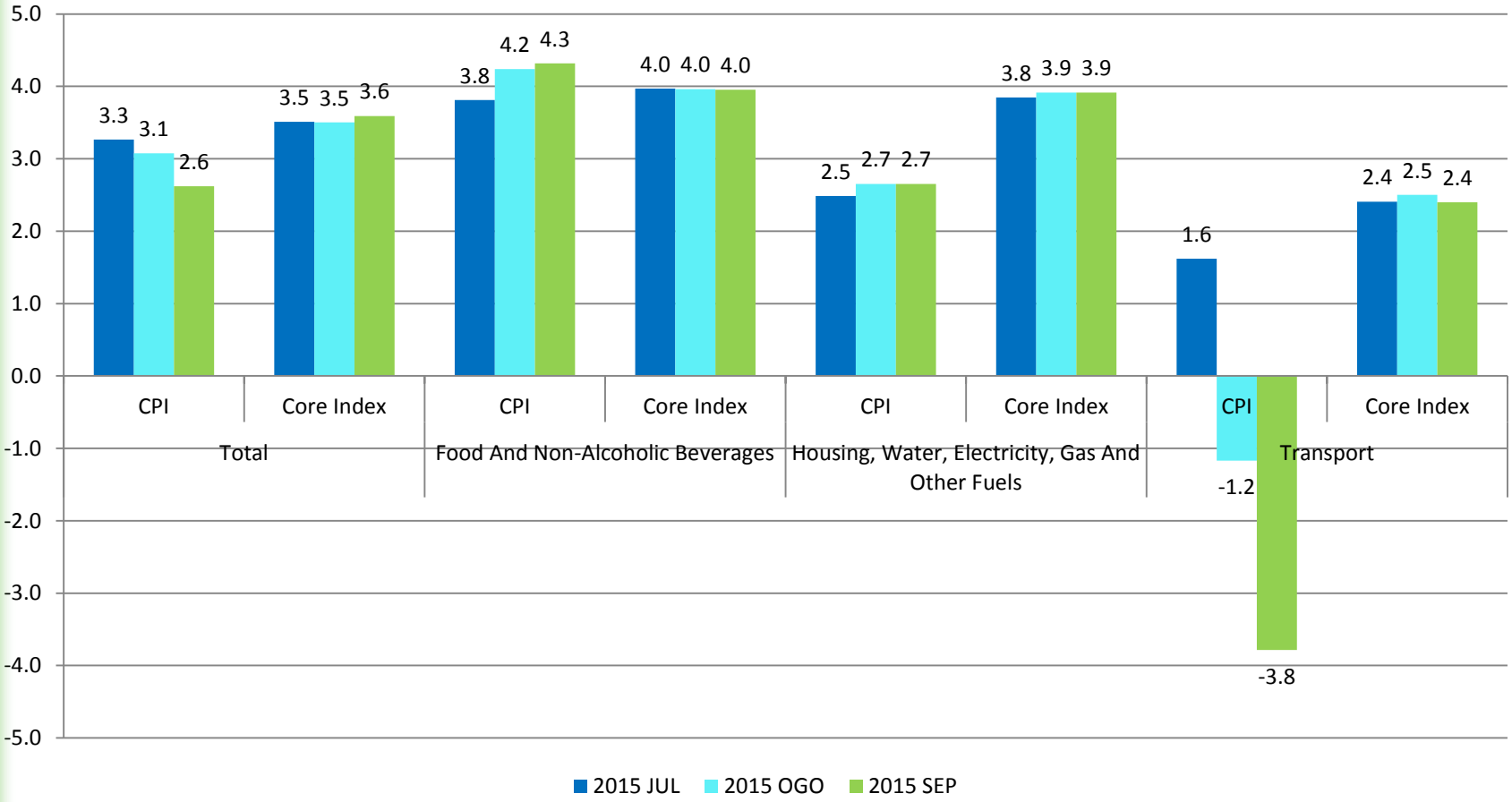
COMPARISON OF OVERALL INDEX AND CORE CPI

Comparison of Percentage Change Year-on-Year Overall CPI Index and the Core Index



CONCLUSION

- **An official methodology for computing core inflation in Malaysia is proposed based on the exclusion method.**

- **The exclusion method was chosen because:**
  - **It is easier to understand compared to the other methodologies;**
  - **It is more transparent and can be easily computed by anyone from CPI data;**
  - **It can be produced by the DOSM at the same time as the headline inflation rate; and**
  - **It is in accordance with the common international practice in excluding food and energy-related components of the CPI.**

- **The simplicity of the exclusion method can facilitate greater understanding by the public and consequently, help build credibility in the use of core inflation.**

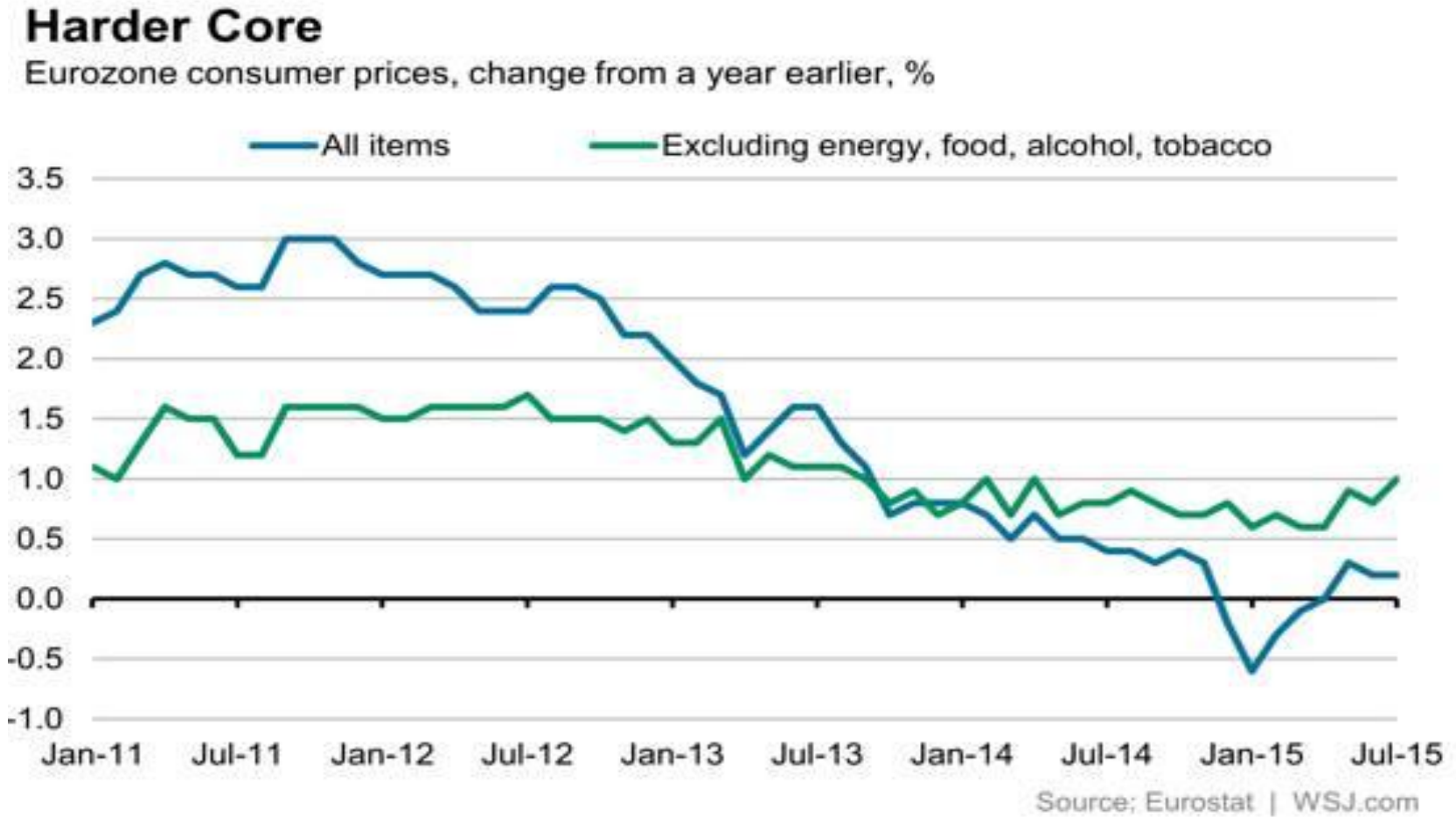
Moving Forward

i. **Core inflation will be published starting from reference month of January 2016;**
ii. **Using exclusion method for computing core inflation; and**
iii. **The list of excluded items as shown in the slide 12.**

Thank you!

Department of Statistics, Malaysia
Prices, Income and Expenditure Statistics Division

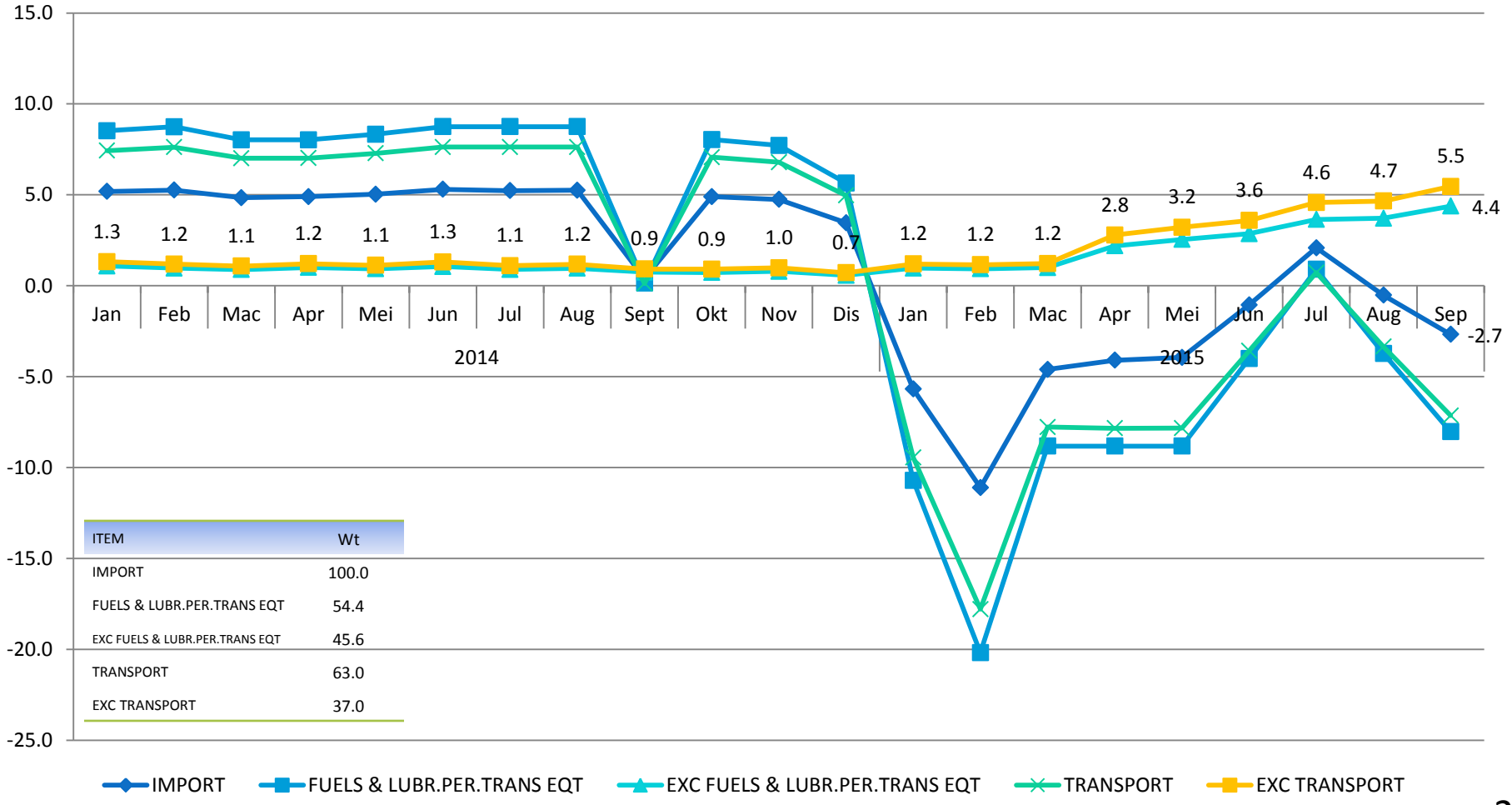
Eurozone Consumer Prices



US Consumer Prices

Volatile oil prices have distorted the Consumer Price Index; removing them reveals that inflation has been running at a relatively stable 2% rate for the past 12 years.

Comparison of Percentage Change Year-on-Year
Import Items Price Index (include and exclude index of transport)



ITEM	Wt
IMPORT	100.0
FUELS & LUBR.PER.TRANS EQT	54.4
EXC FUELS & LUBR.PER.TRANS EQT	45.6
TRANSPORT	63.0
EXC TRANSPORT	37.0