

Chart 1

# Global "Purchasing Managers" Index

Diffusion Index, >50 = Growth

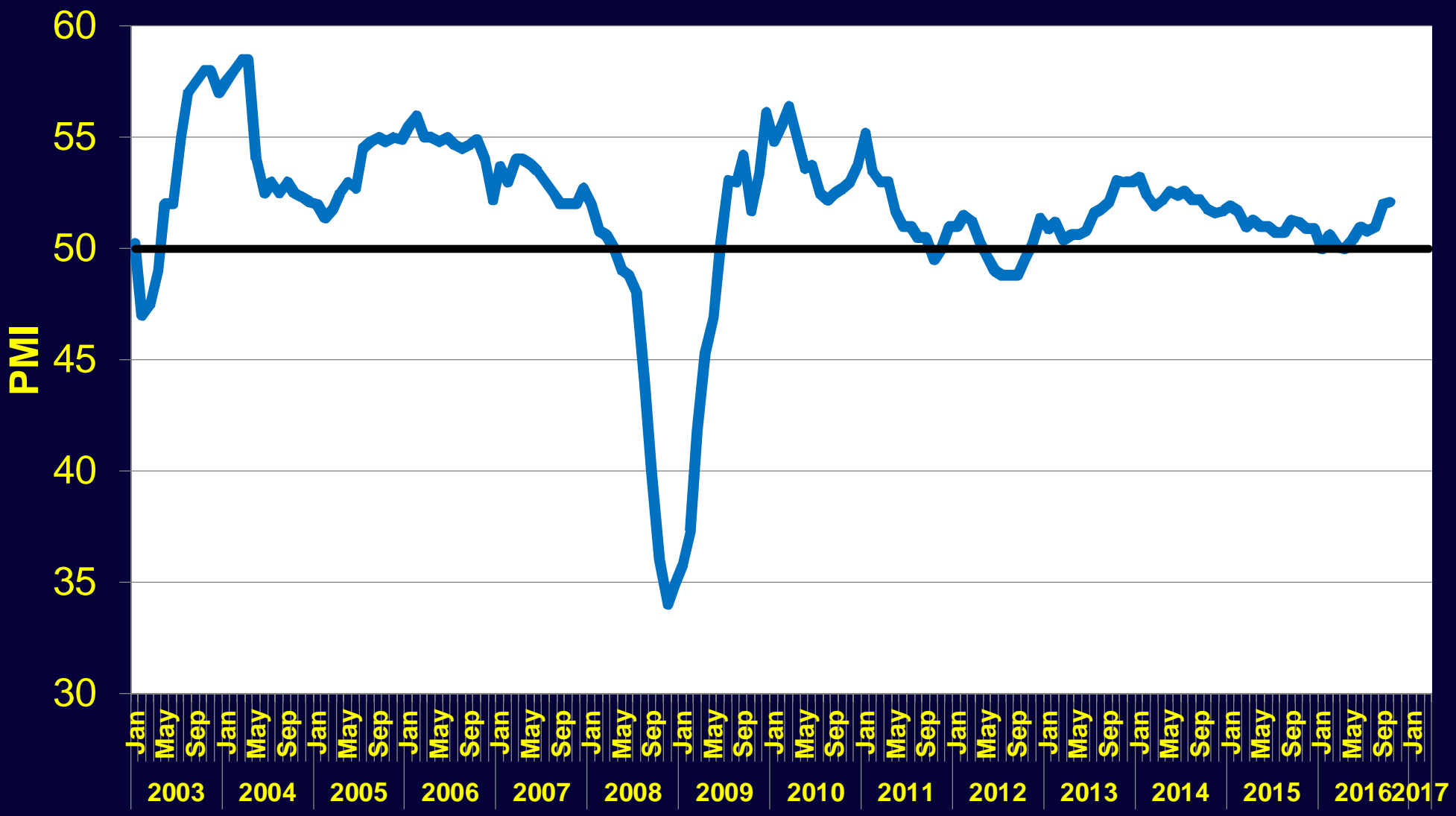
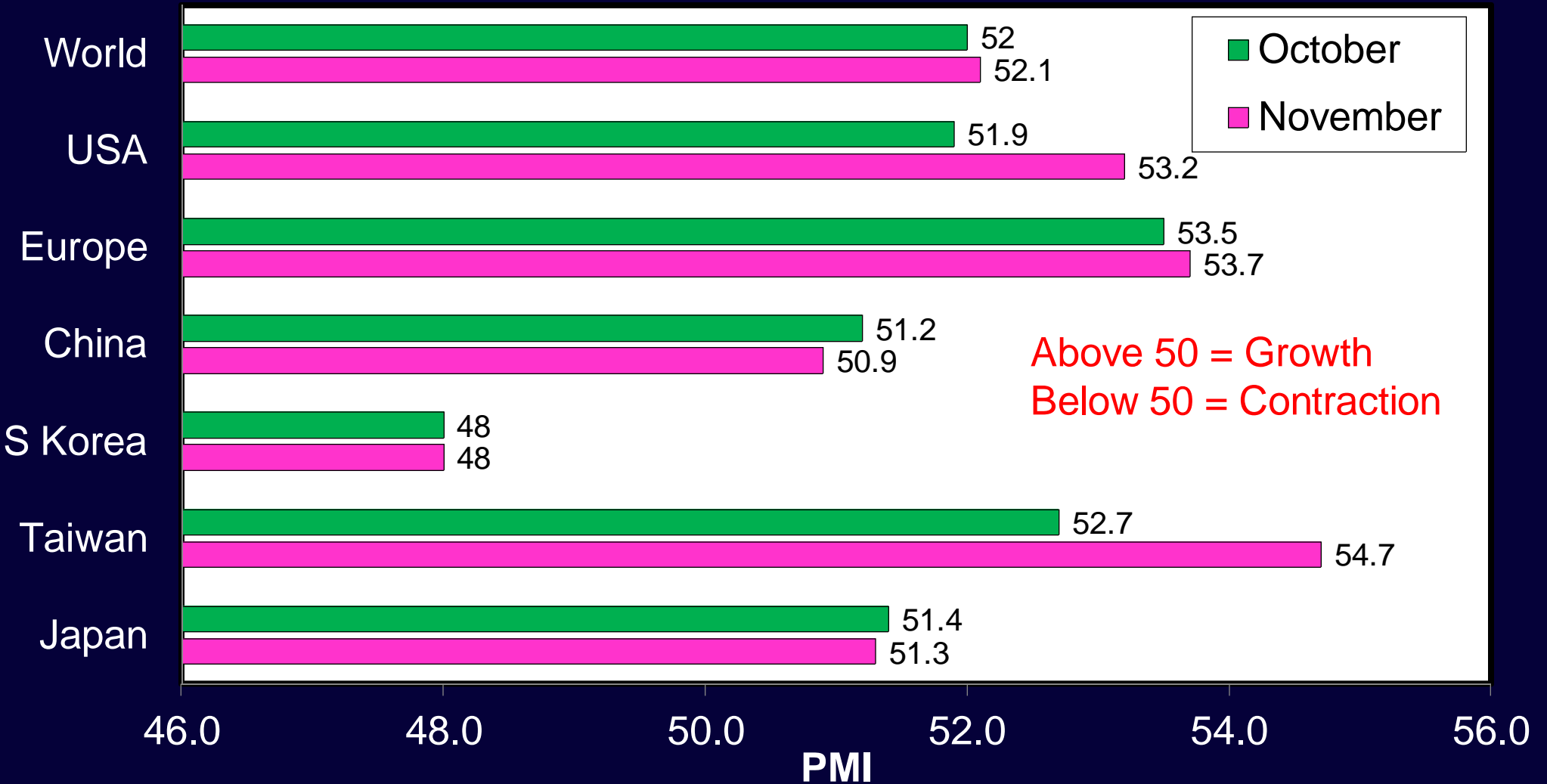


Chart 2

# Purchasing Managers' Indices November vs. October 2016



Markit Economics, JPMorgan and ISM

# U.S "Purchasing Managers" Indices

## ISM vs. Markit Economics

Diffusion Index, >50 = Growth

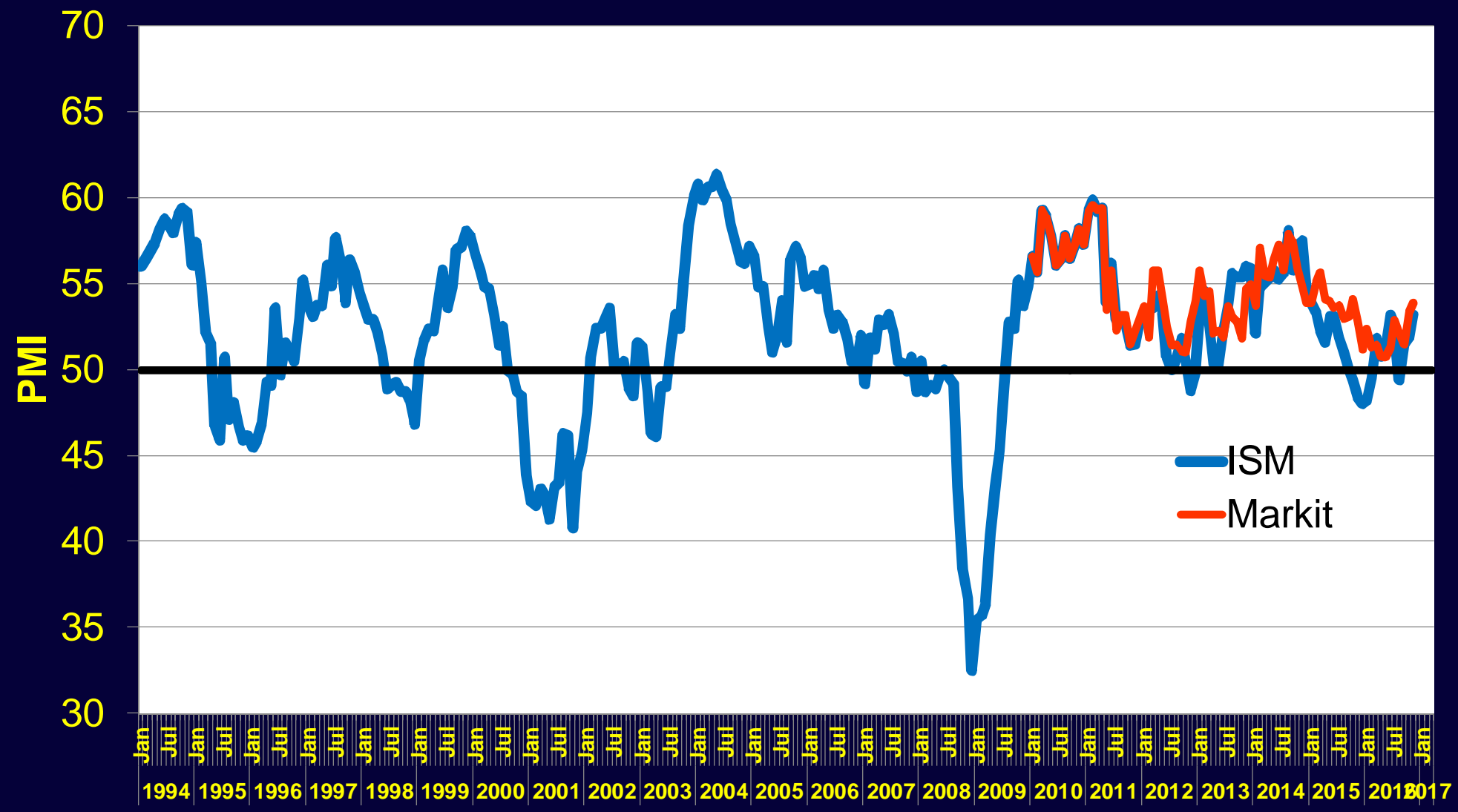


Chart 4

# Eurozone "Purchasing Managers" Index

Diffusion Index, >50 = Growth

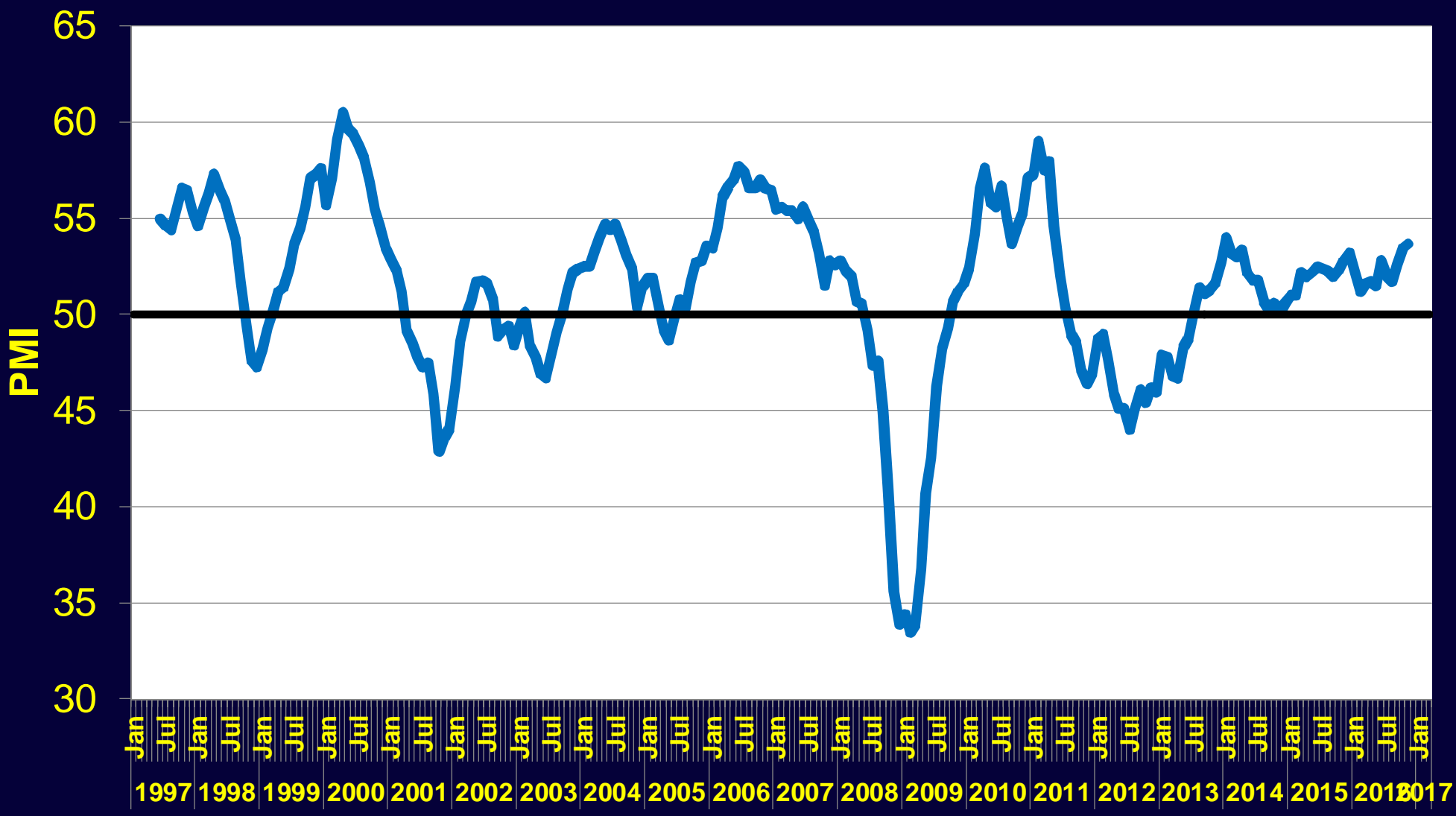
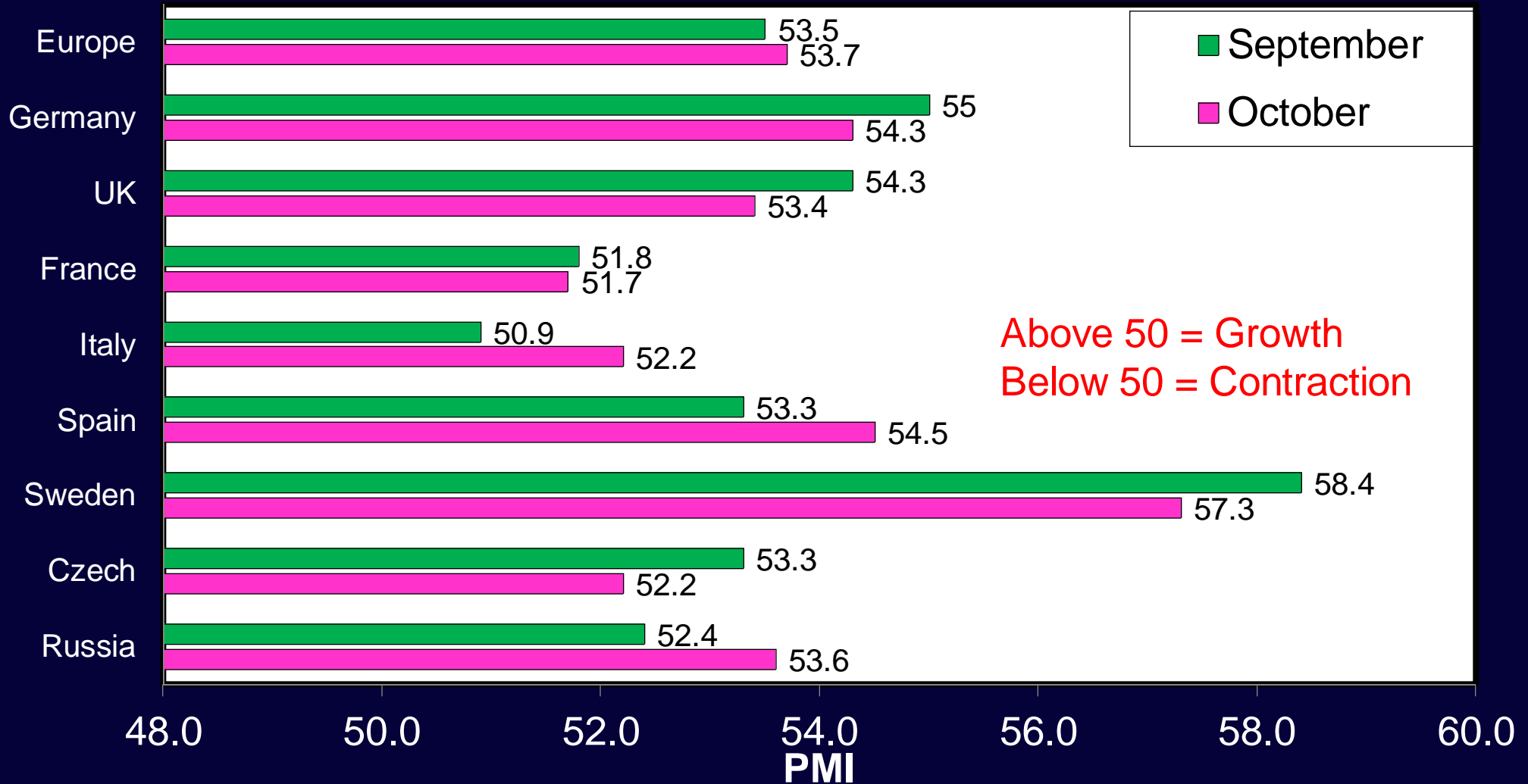


Chart 5

# European Purchasing Managers' Indices November vs October 2016



# Asian Purchasing Managers Indices November vs. October 2016

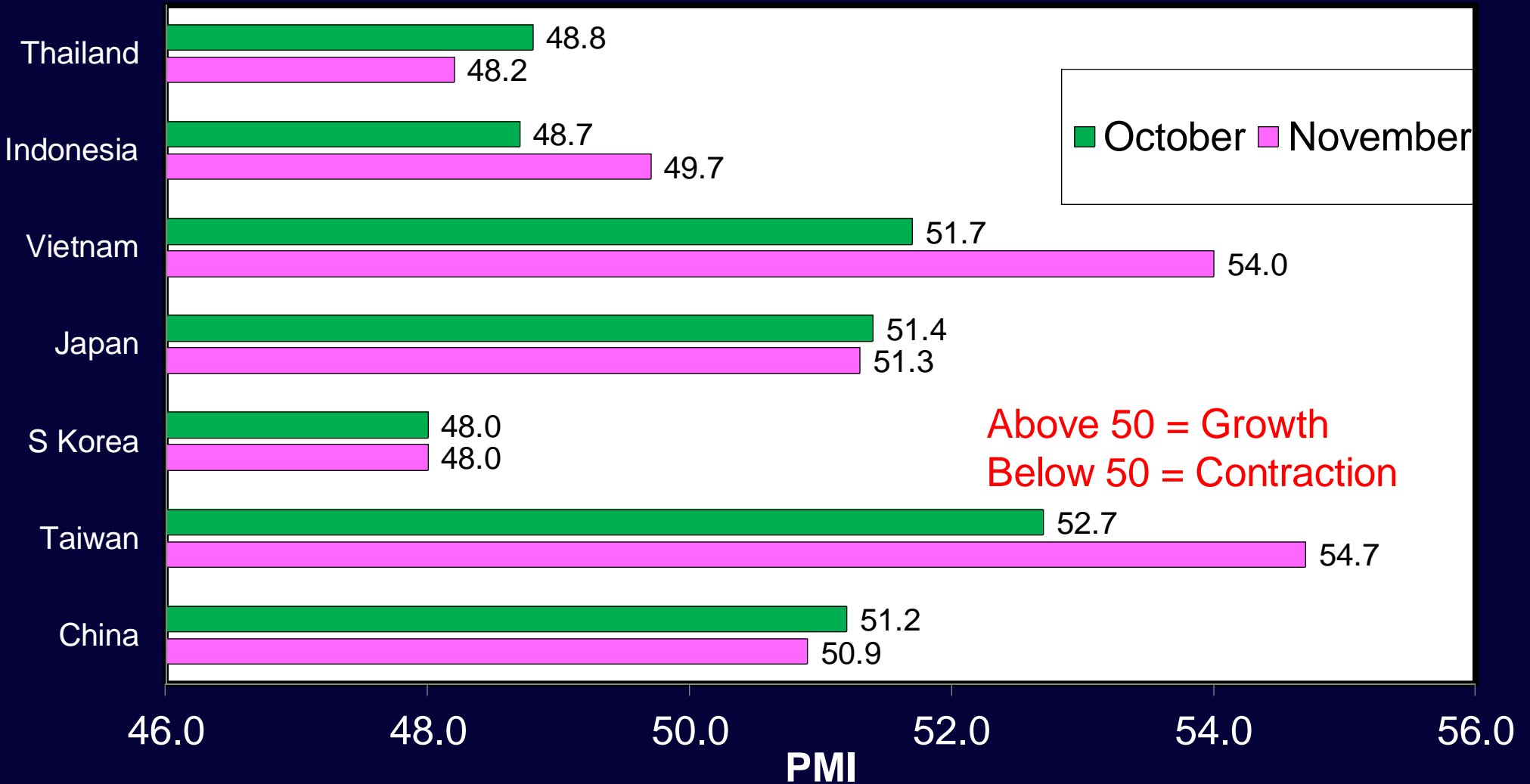


Chart 7

# S Korea "Purchasing Managers" Index

>50 = Growth

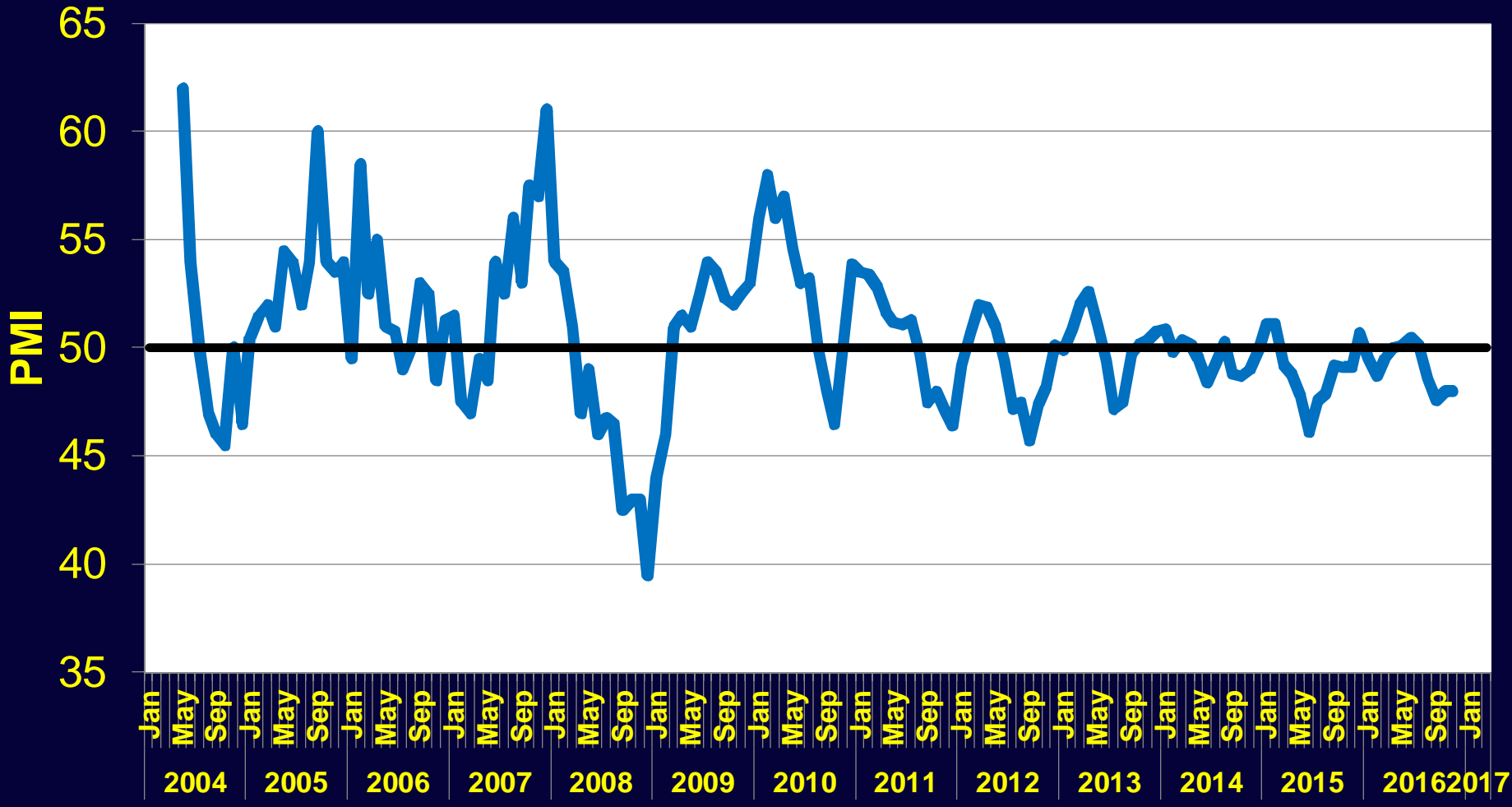


Chart 8

# China "Purchasing Managers" Index

>50 = Growth

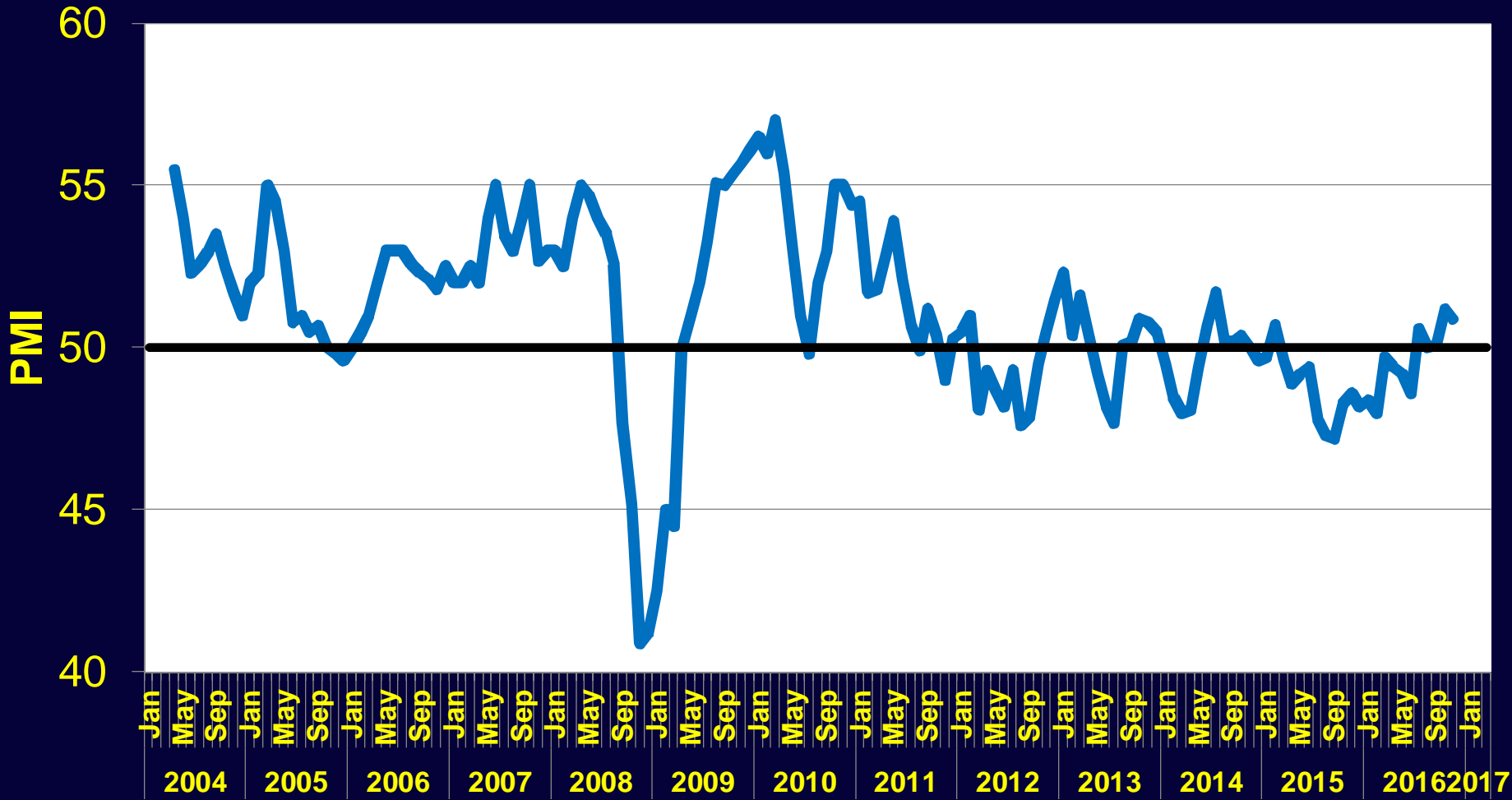




Chart 9

# Japan "Purchasing Managers" Index

>50 = Growth

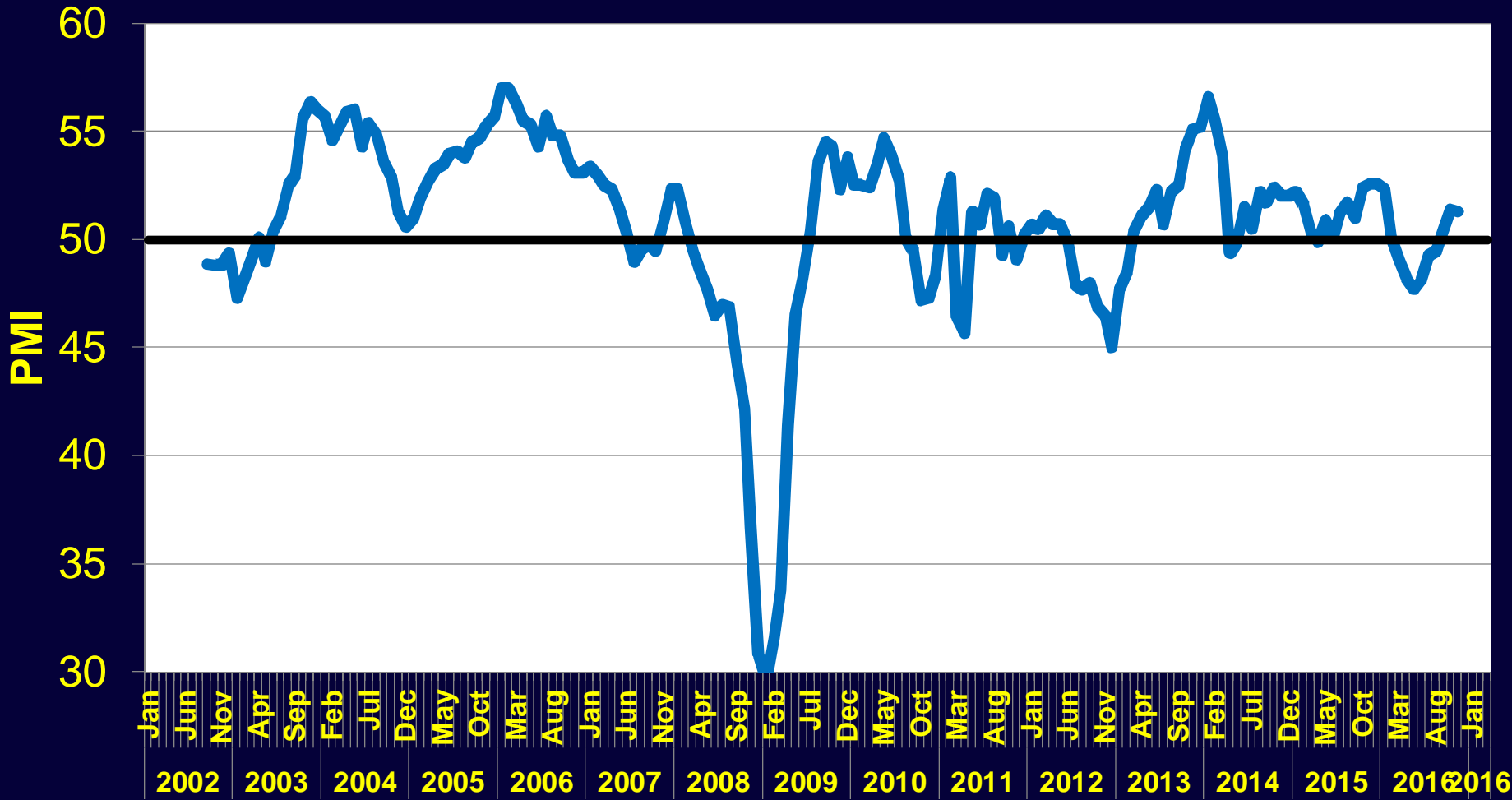
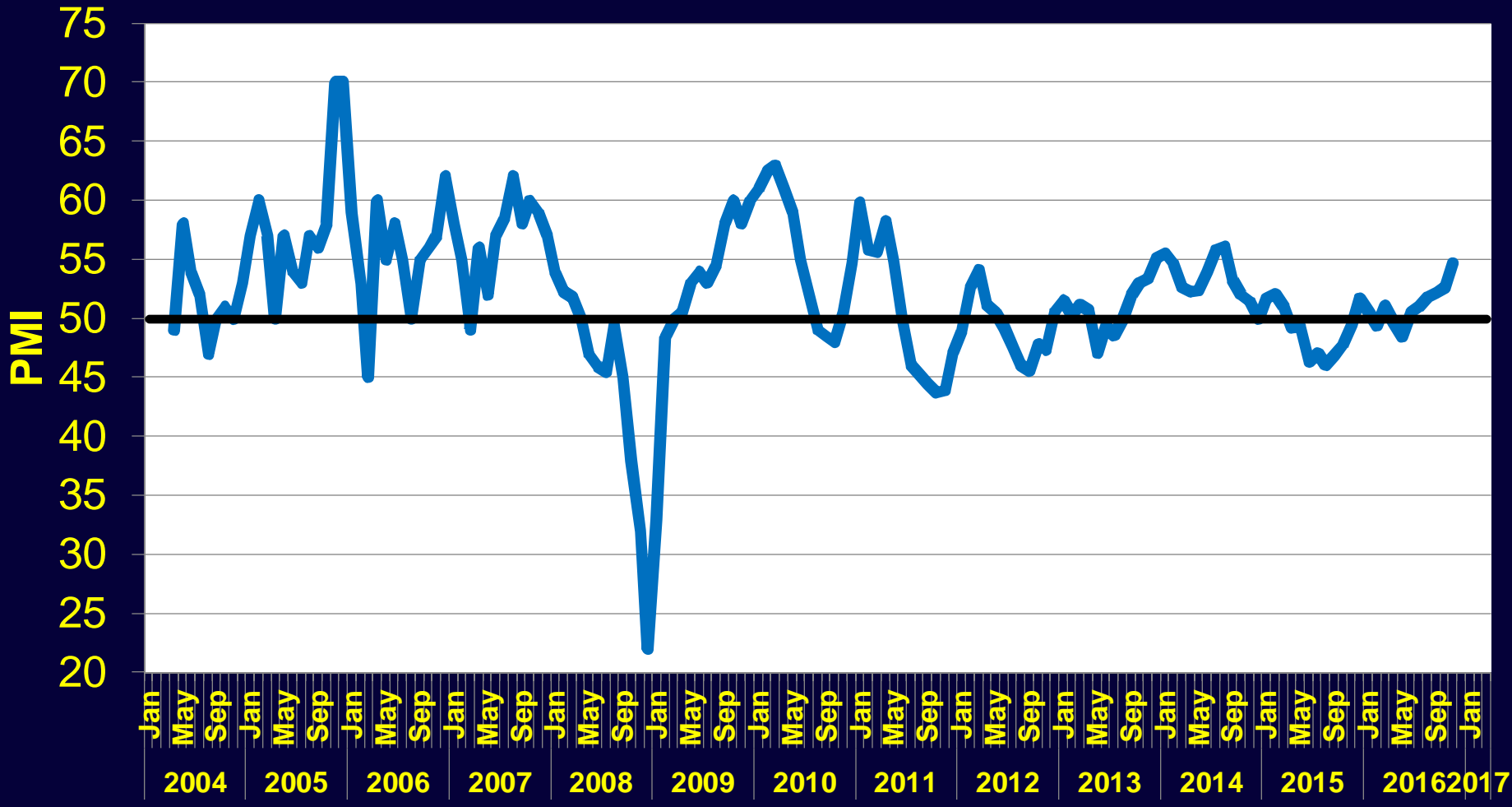


Chart 10

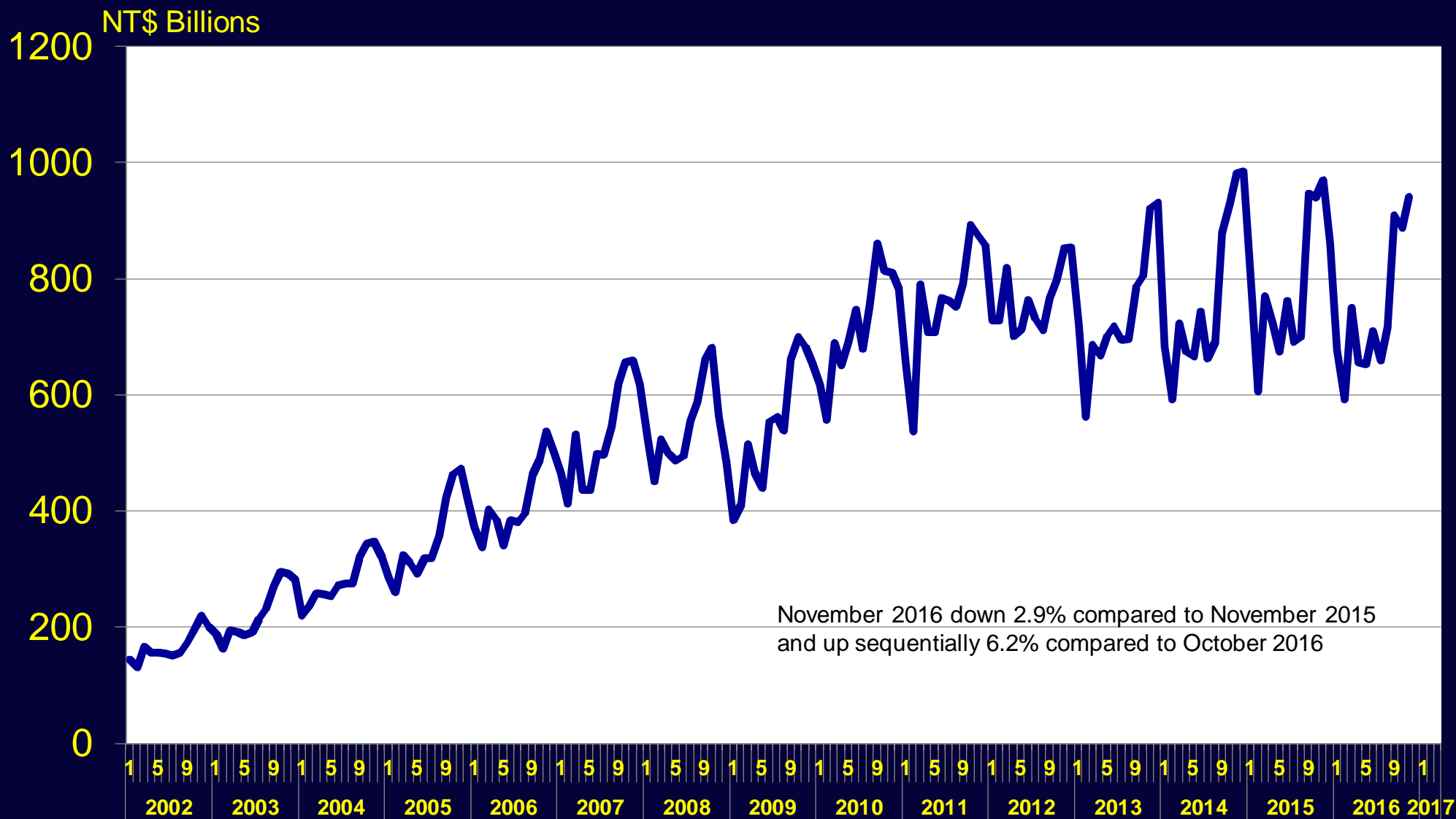
# Taiwan "Purchasing Managers" Index

>50 = Growth



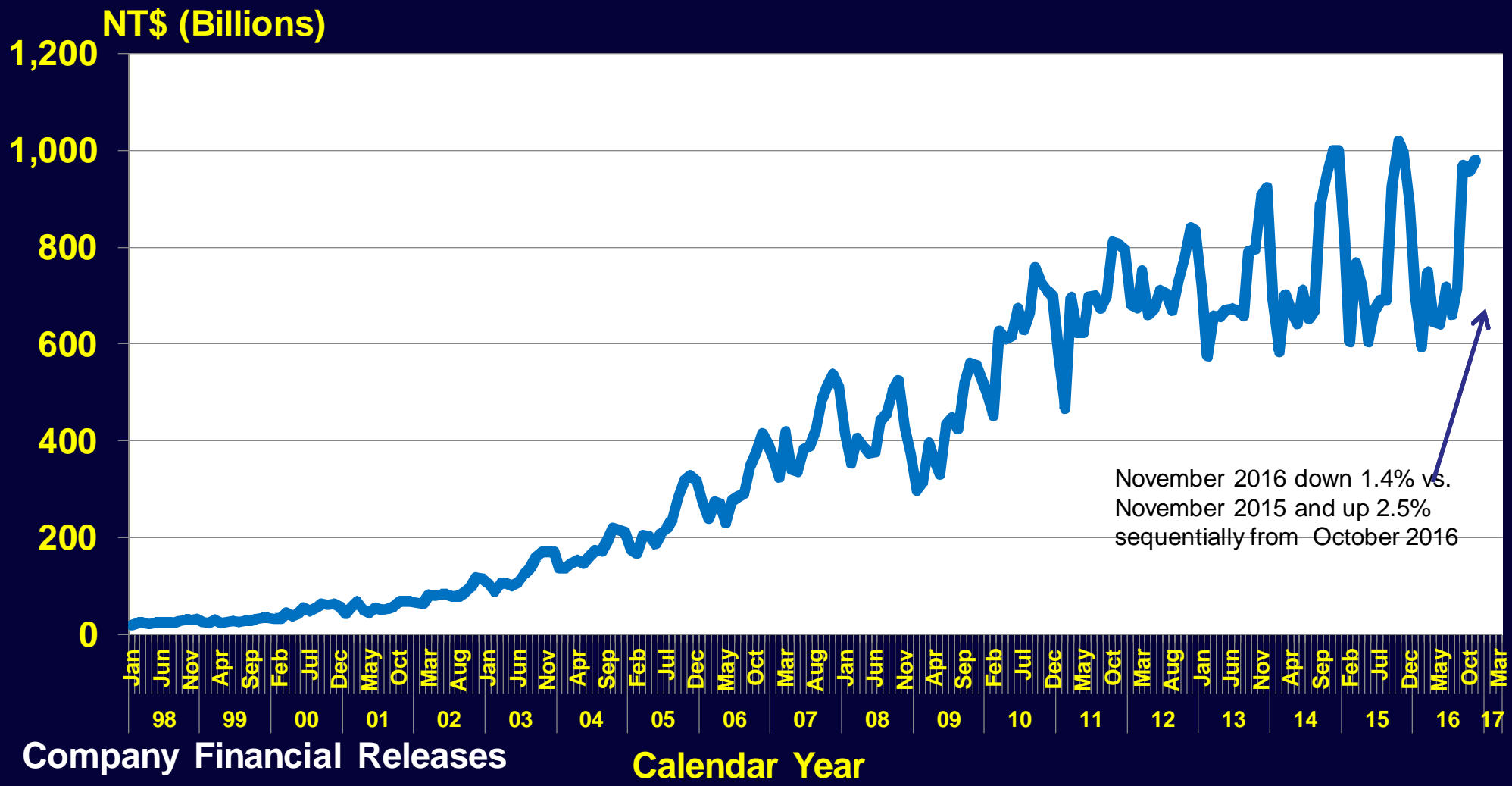
# Taiwan/China Electronic Equipment Producers Composite of 101 Manufacturers Consolidated Revenue

Chart 11



Taiwan listed companies, often with significant manufacturing in China

# Taiwan ODM Companies Composite Sales of 11 Large Manufacturers



Asustek Computer, Chei Mei, Compal Electronics, Foxconn, Chimei Innolux, Inventec, Inventec Appliance, Lite On Technology, Mitac International, Pegatron, Quanta Computer, Wistron, Chei Mei Display replacing Chei Mei & Innolux Display 3/10 & later

# Taiwan Rigid & Flex PCB Shipments

## Broad Composite of 46 Taiwan-listed Manufacturers

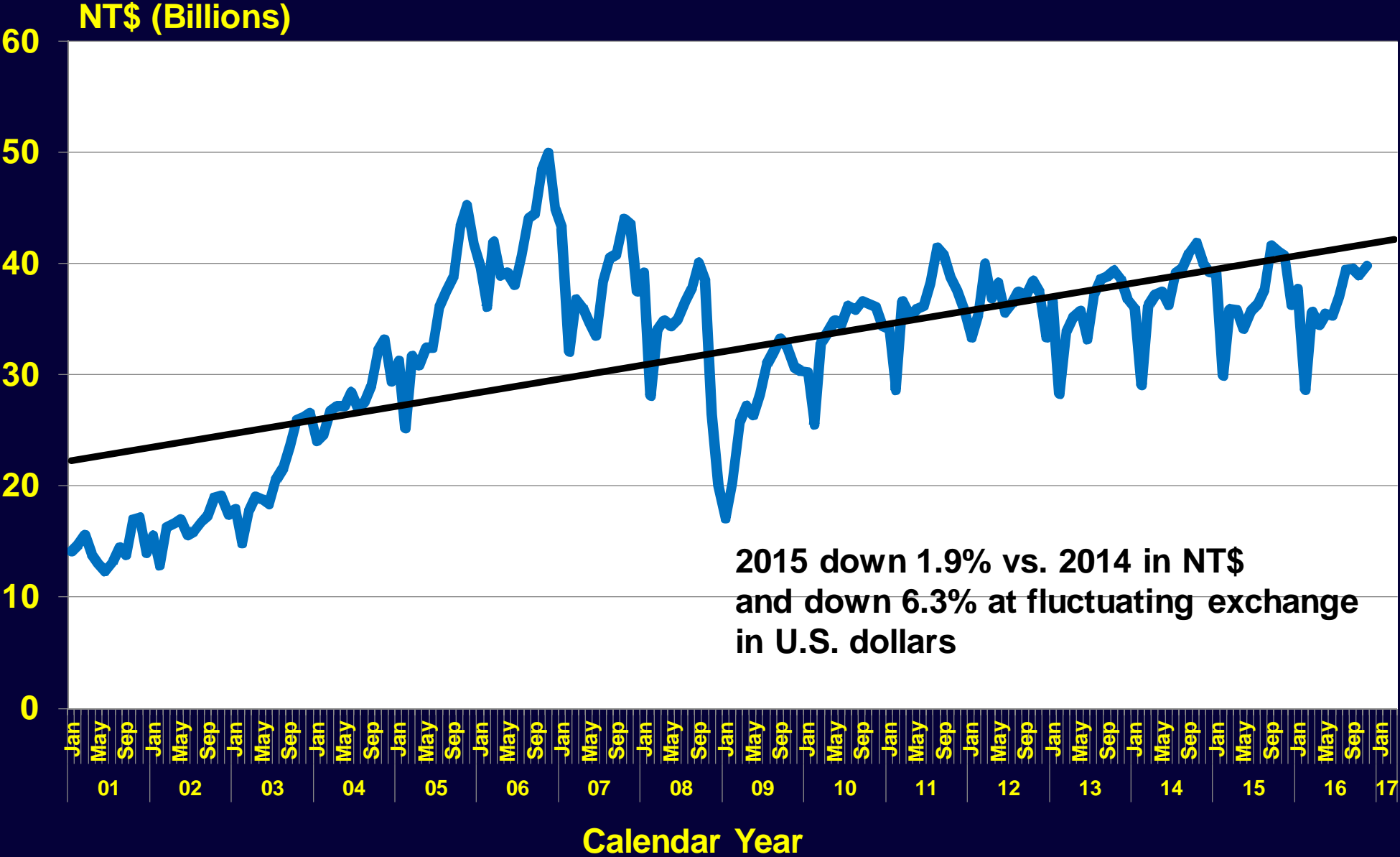
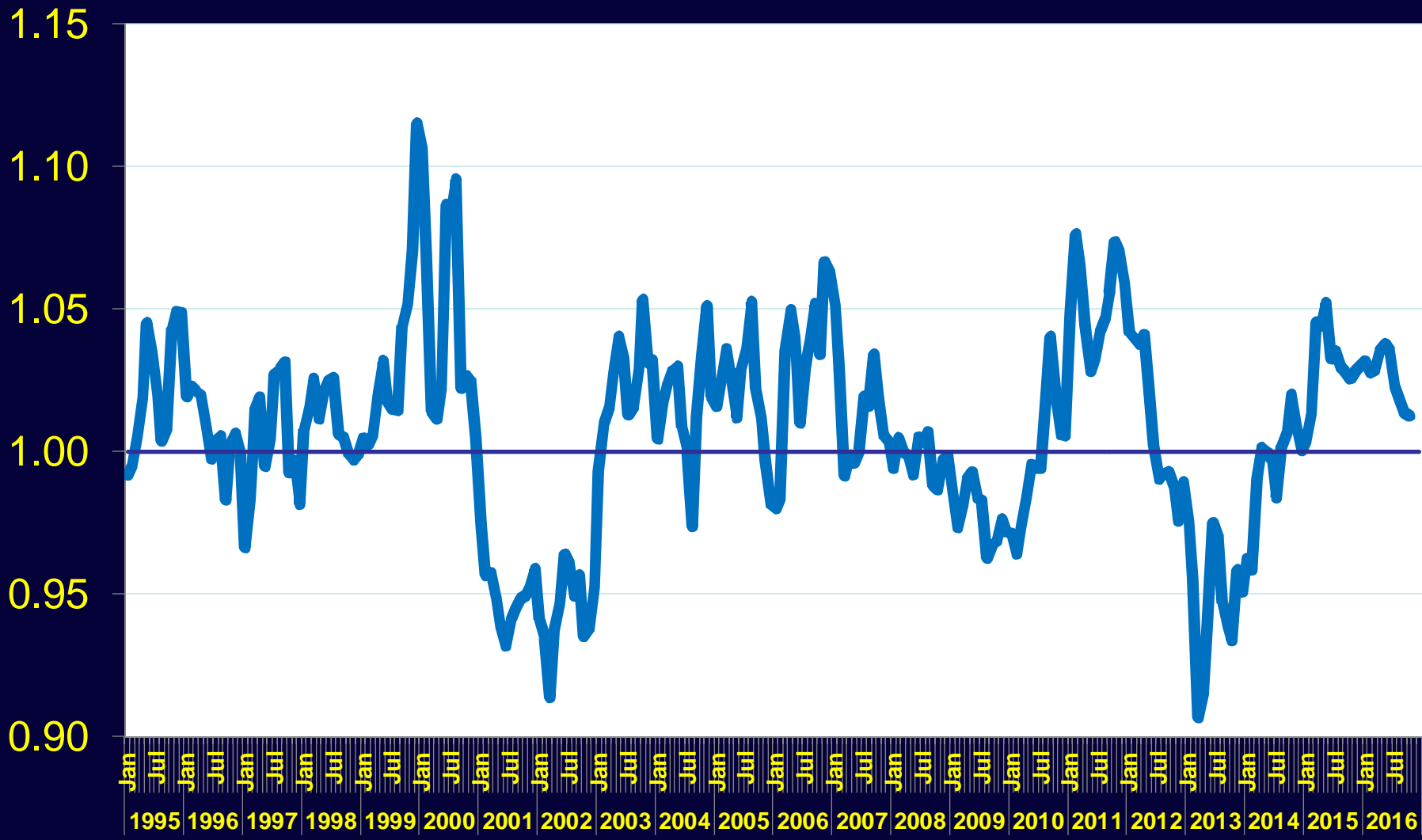


Chart 14

# U.S. Electronic Equipment Book/Bill Ratio

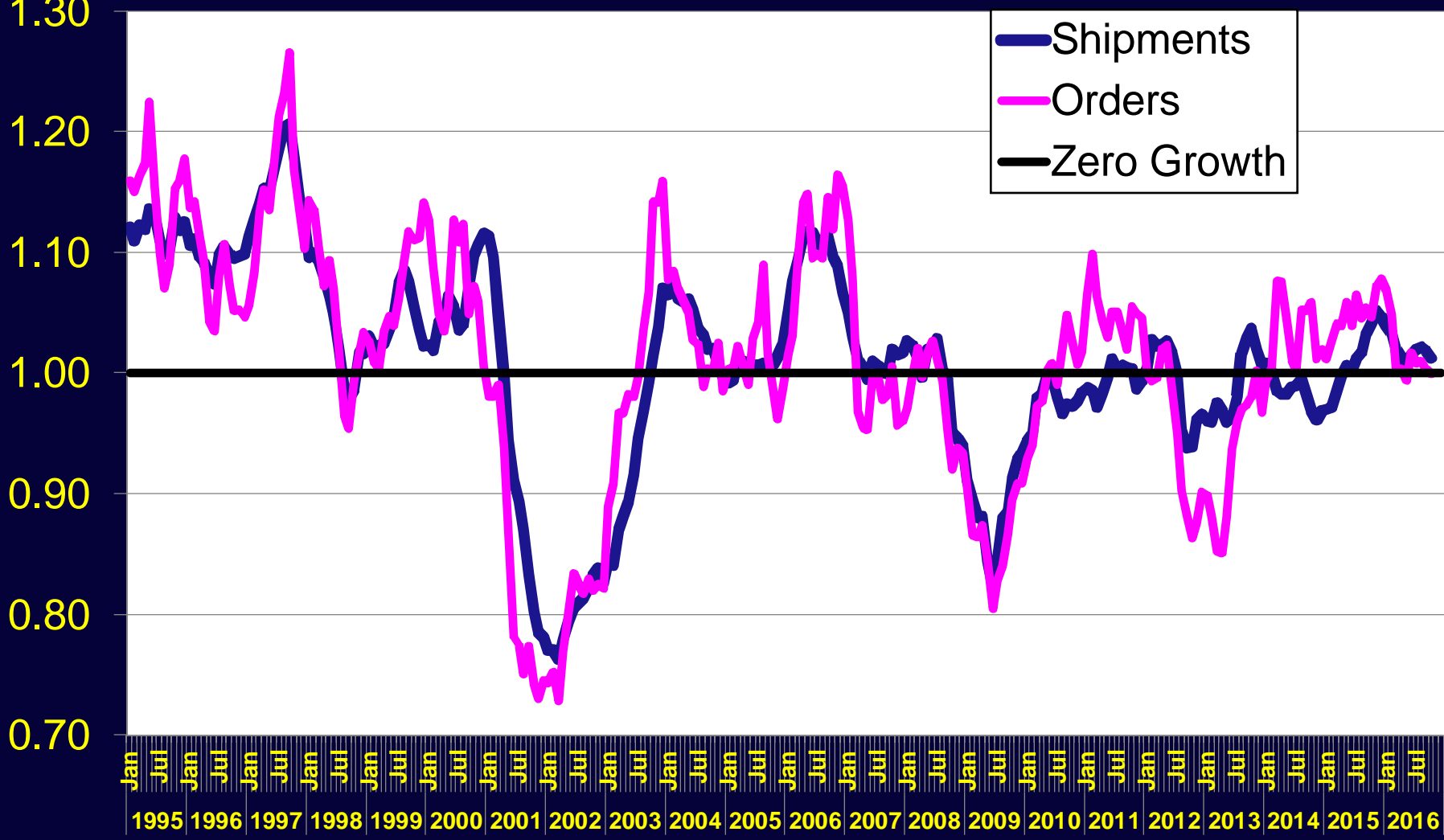
## 3-Month Average



# U.S. Electronic Equipment Order & Shipment Growth

Computer, Communications, Measurement & Control and Military

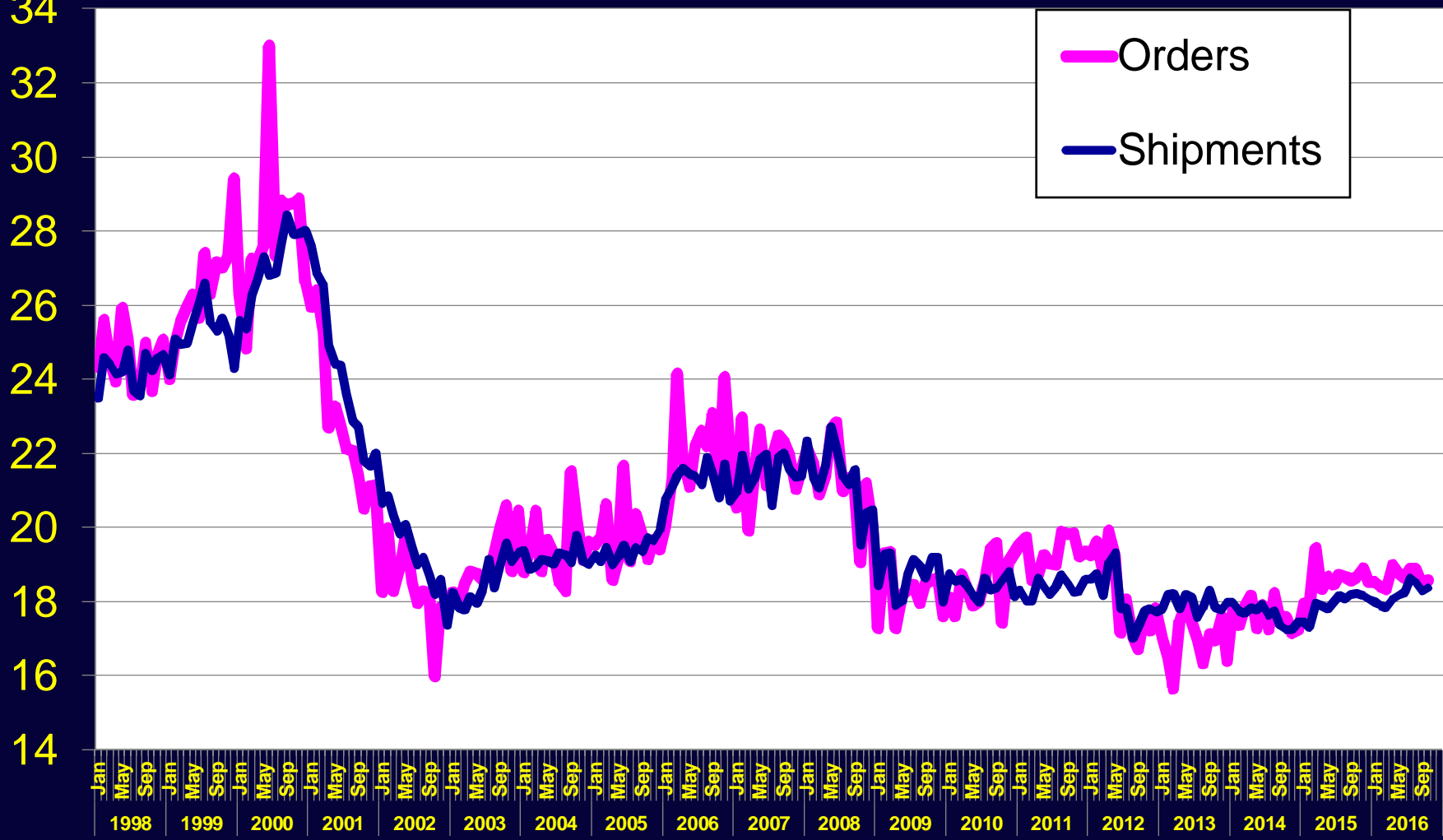
3/12 Rate of Change



# U.S. Electronic Equipment Orders & Shipments

Computer, Communications, Measurement & Control and Military

\$ Billions (monthly, seasonally adjusted)

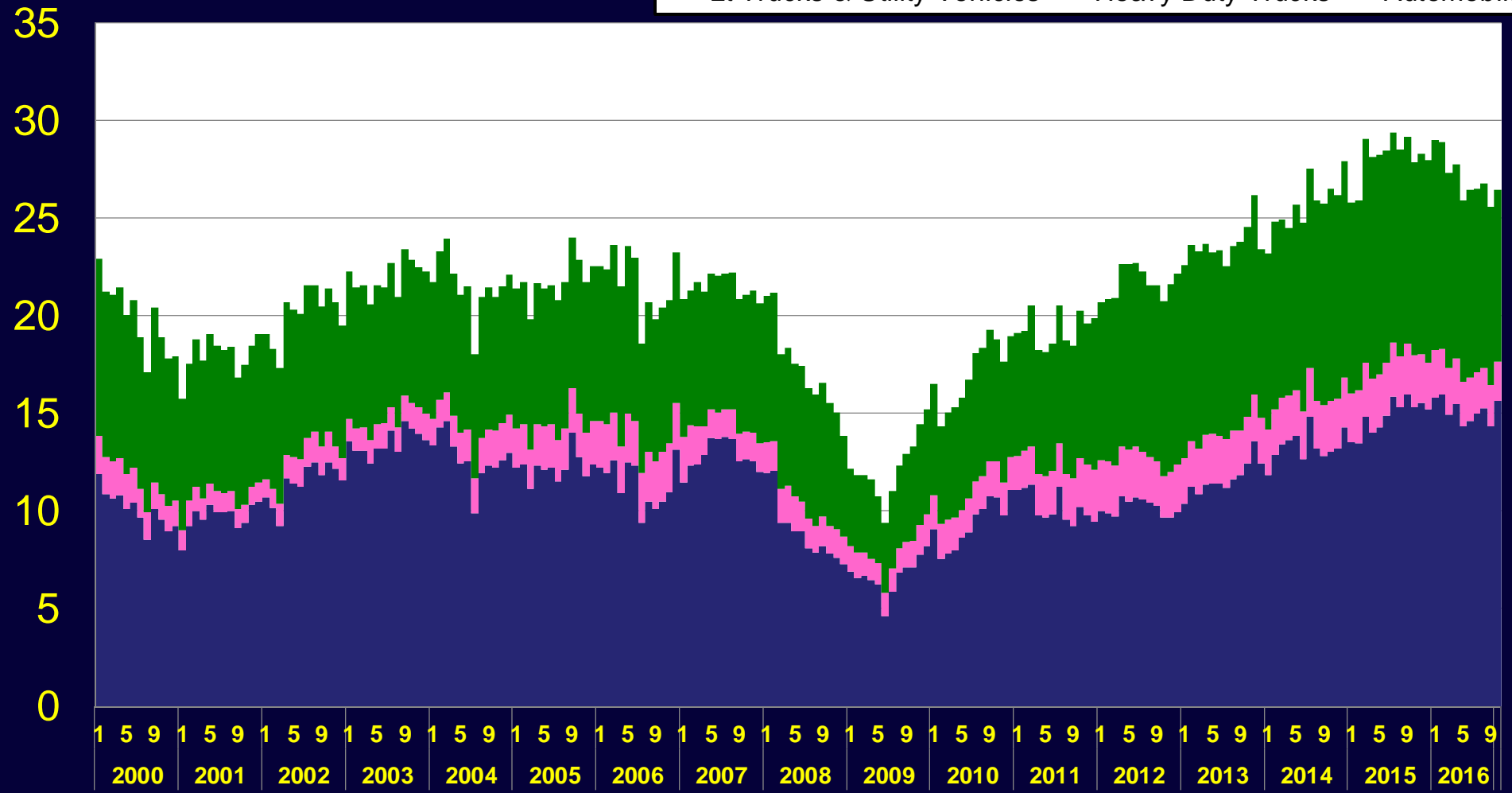




# U.S. Vehicle Shipments

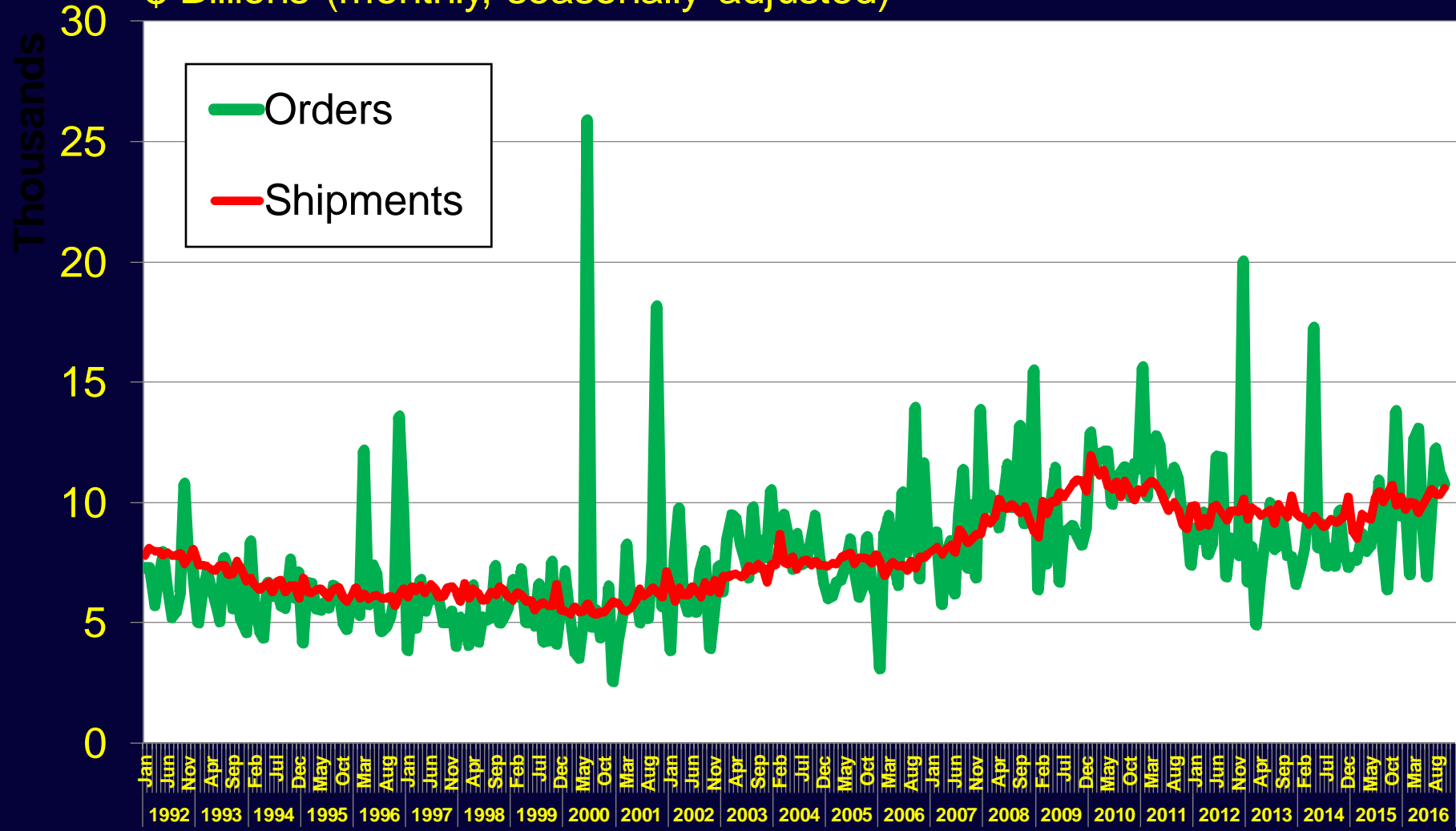
US\$ Billion

■ Lt Trucks & Utility Vehicles ■ Heavy Duty Trucks ■ Automobiles

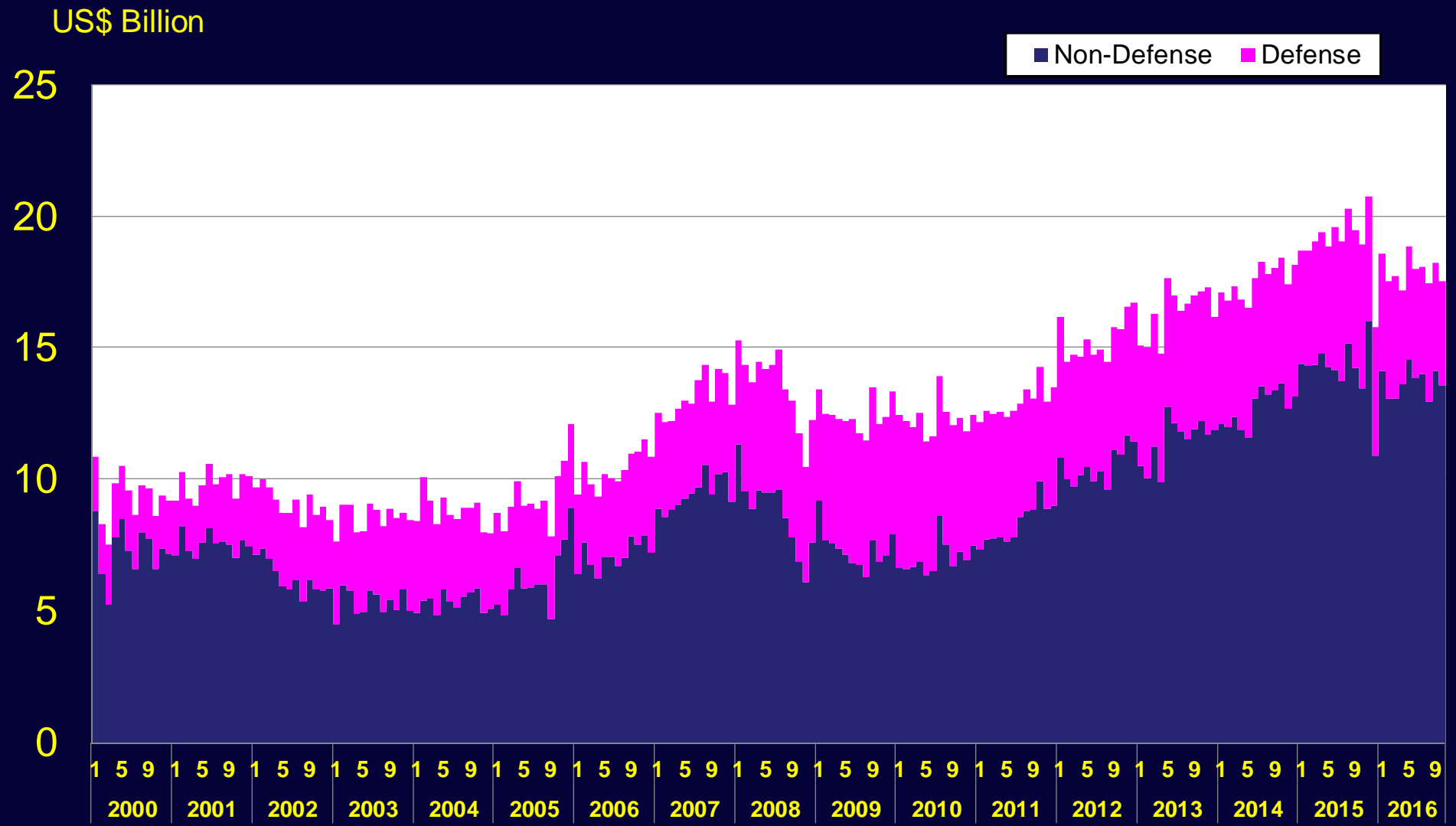


# U.S. Defense Capital Goods Orders & Shipments

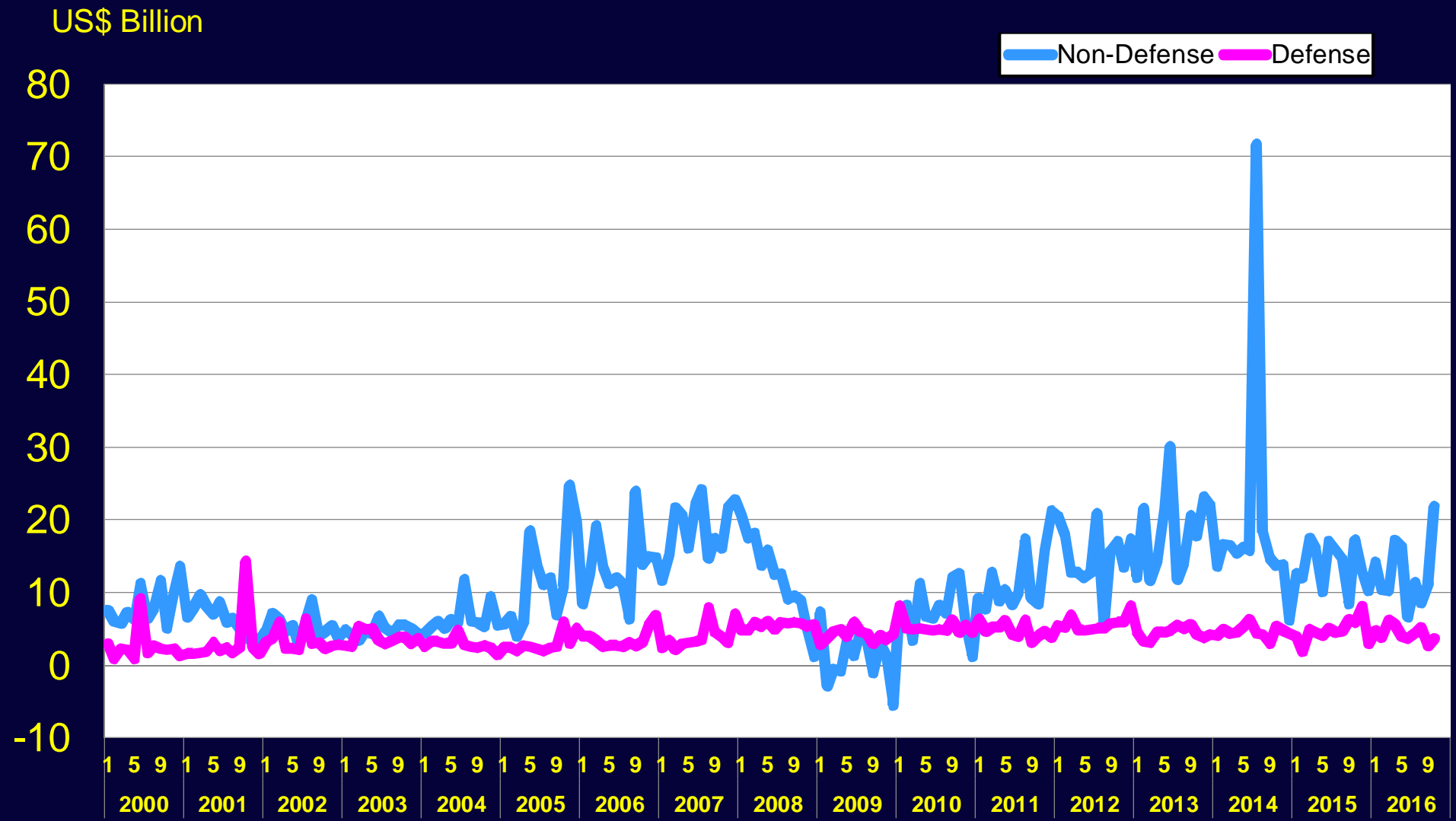
\$ Billions (monthly, seasonally adjusted)



# U.S. Aircraft & Parts Shipments



# U.S. Aircraft & Parts Orders



# U.S. Military Electronics Orders & Shipments Defense Communication & Search & Navigation Equipment

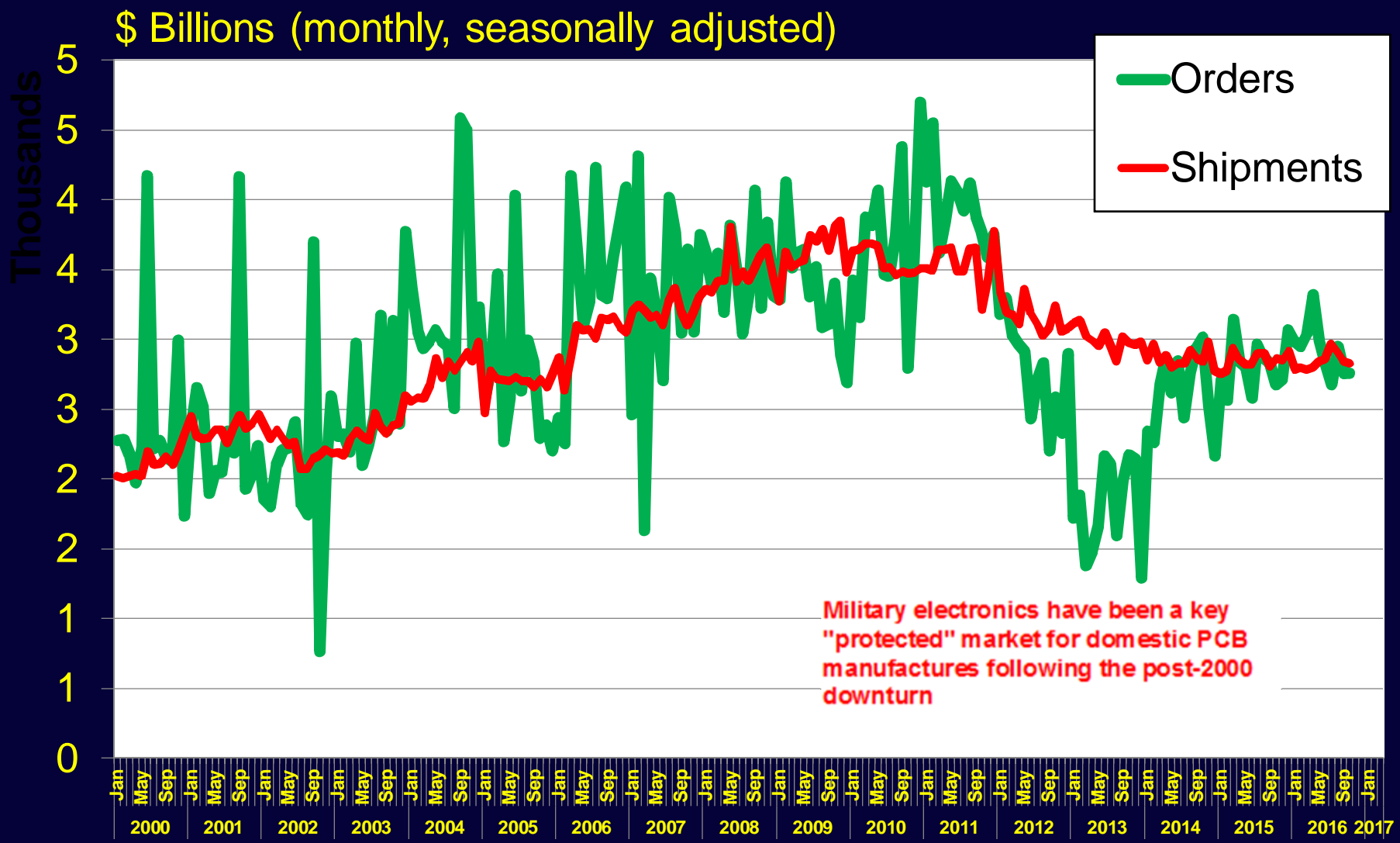
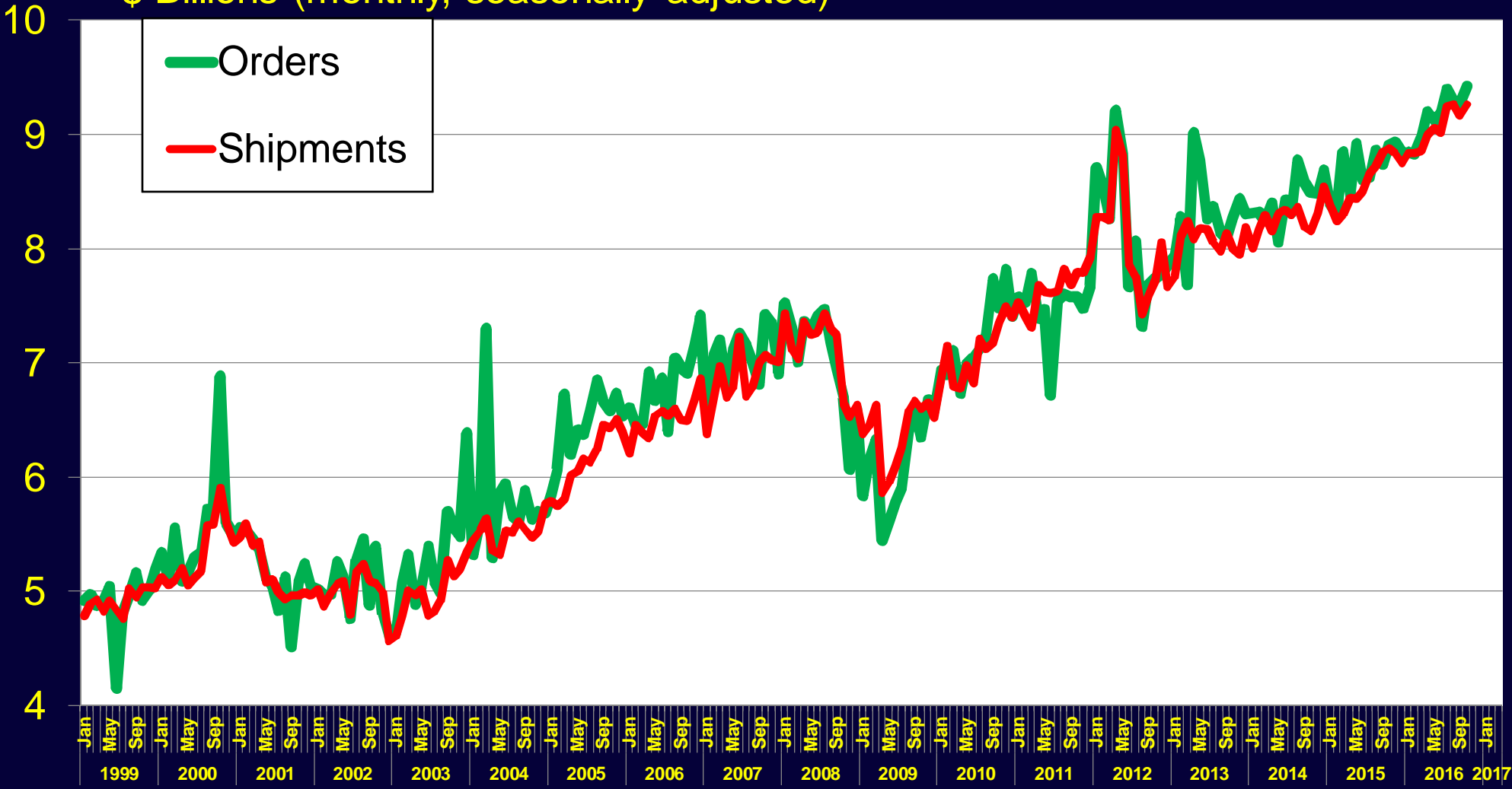


Chart 22

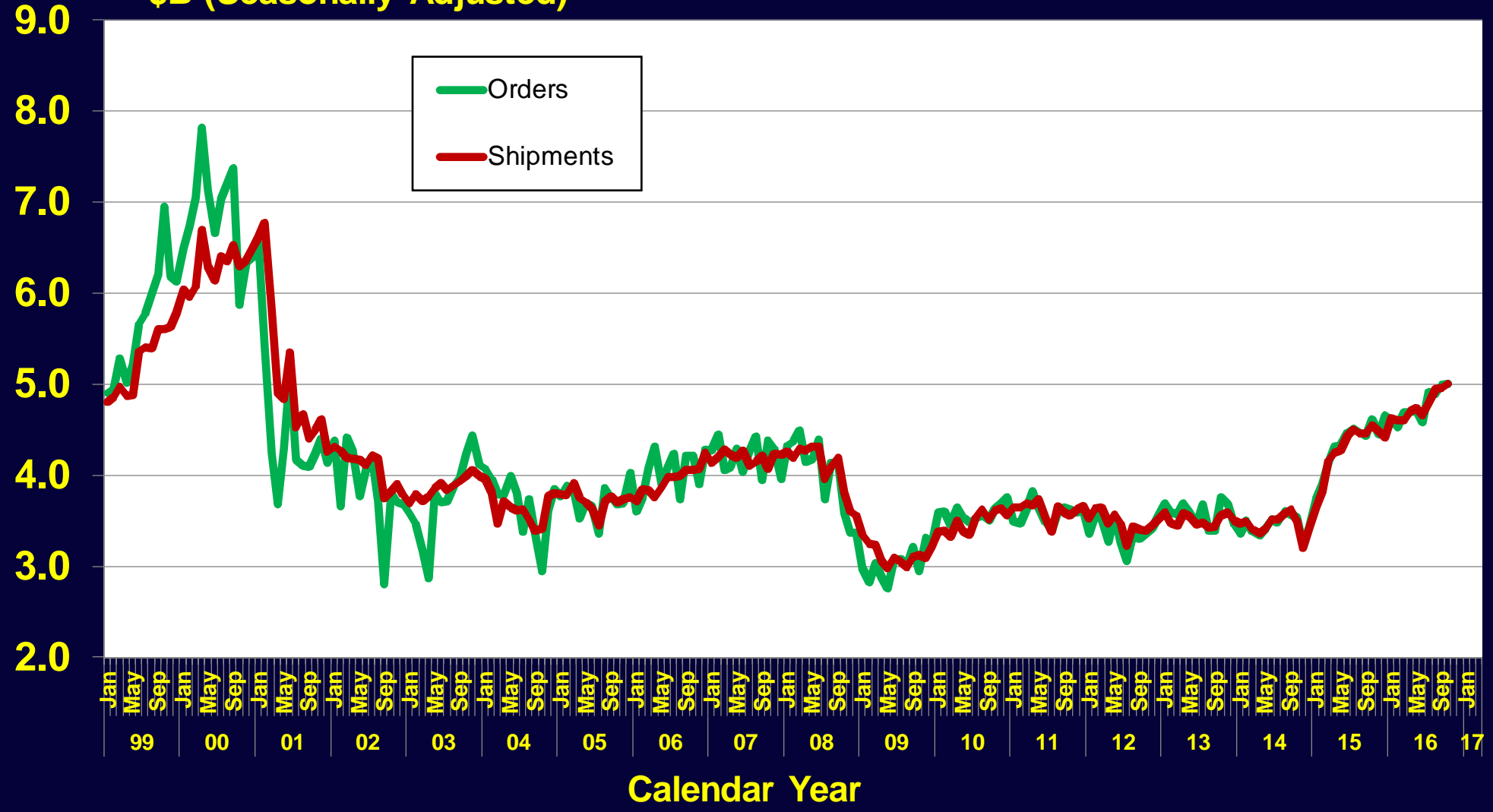
# U.S. Electromedical, Measurement & Control Equipment Orders & Shipments

\$ Billions (monthly, seasonally adjusted)



# U.S. Production: "Other" Electronic Components (excludes semiconductors) Orders & Shipments

\$B (Seasonally Adjusted)



# Present Growth Rates (%)

## U.S. Economy & Electronics Industry

	Latest Month	Annual Growth	3-Month Growth
<b>Electronic Component \$</b>			
Rigid & Flex PCB Orders (N Amer)	10/16	99.8	102.3
Rigid & Flex PCB Shipments (N Amer)	10/16	102.2	96.9
Electronic Component Orders	10/16	114.5	110.2
Electronic Component Shipments	10/16	114.9	110.6
Semiconductor Shipments to N America	10/16	90.2	100.2
<b>U.S. Electronic Equipment Orders \$</b>			
Computer & Related	10/16	86.7	85.9
Communication	10/16	98.8	94.7
Medical, Measurement & Control	10/16	105.3	105.5
Search & Navigation	10/16	106.1	100.0
Defense Capital Goods	10/16	126.4	144.1
Military Electronics	10/16	106.2	97.9
Total Electronic Equipment	10/16	102.0	100.0
<b>U.S. Industrial Production</b>	10/16	98.7	99.0

NOTE: 3 month growth rates compare most recent 3 months to same 3 months one year earlier

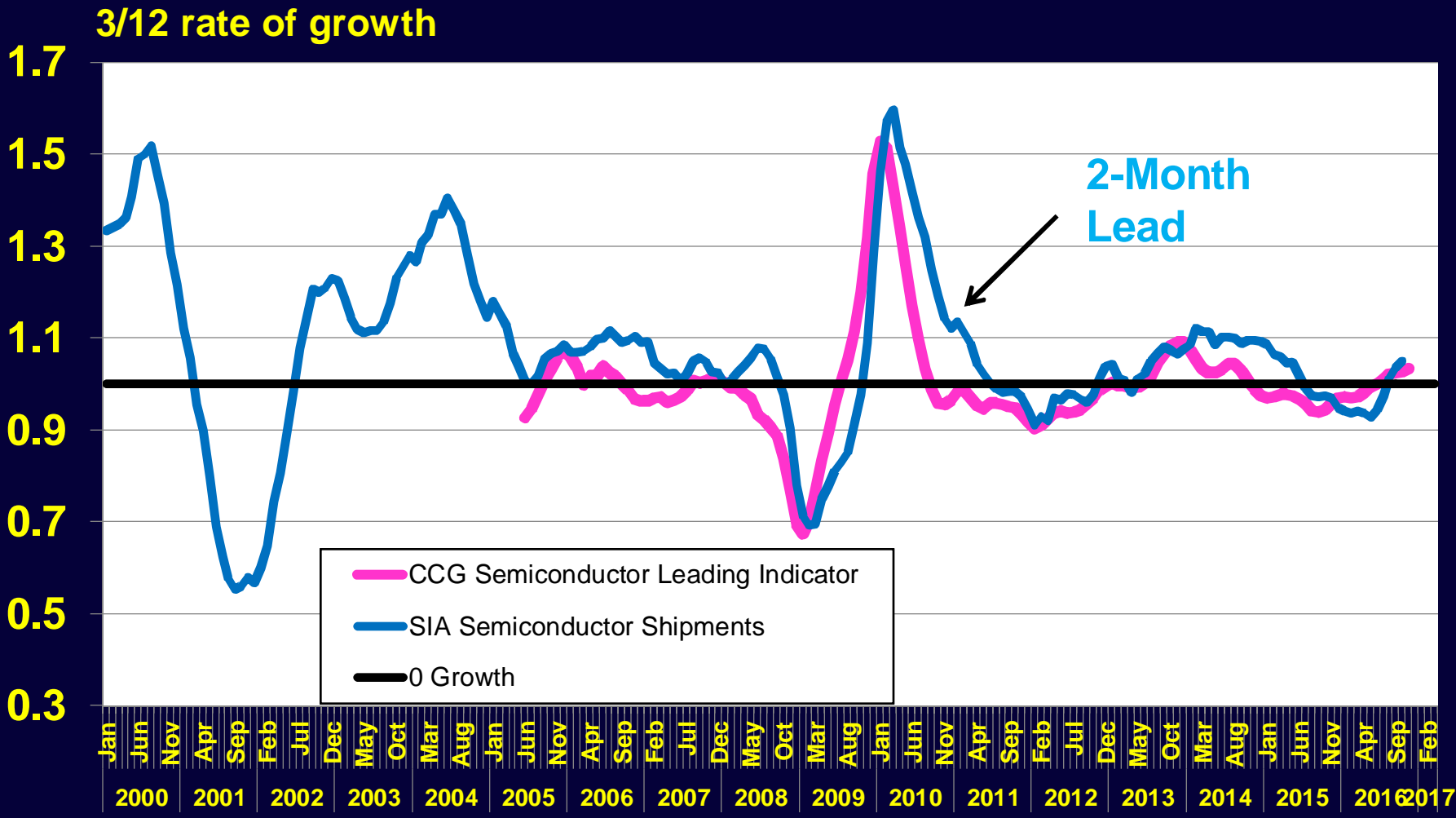


Chart 25

# Monthly Semiconductor Shipments \$ Billions (3-month avg in US\$)

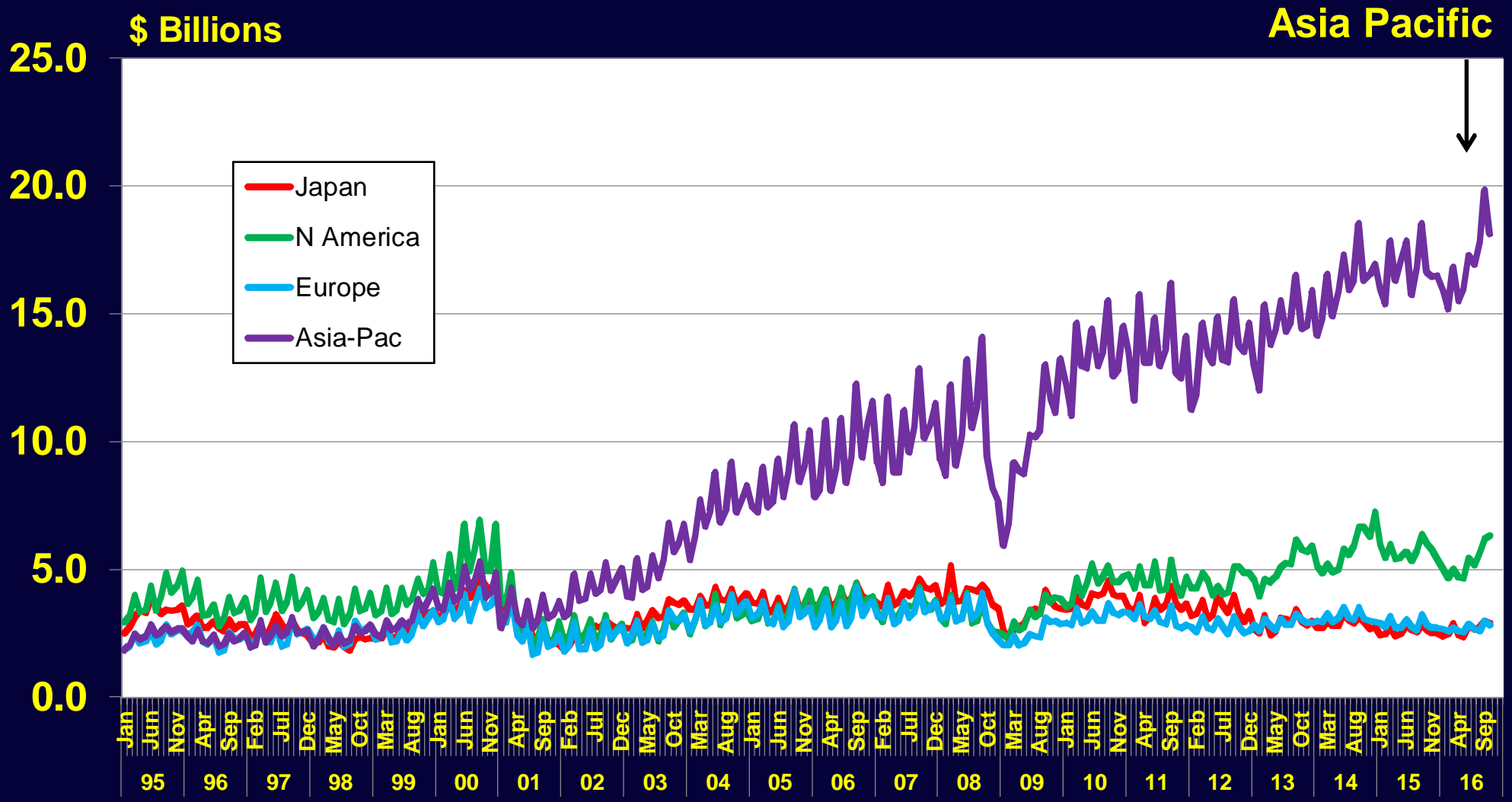
	<u>10/15</u>	<u>10/16</u>	<u>% CH</u>
Americas	6.05	6.06	0.1%
Europe	2.91	2.82	- 3.0%
Japan	2.70	2.89	+ 7.2%
China	8.58	9.78	+ 14.0%
Asia Pacific / All Other	8.75	8.91	+ 1.9%
Total	28.97	30.45	+ 5.1%

# CCG Semiconductor Leading Indicator vs. Global Semiconductor Shipments



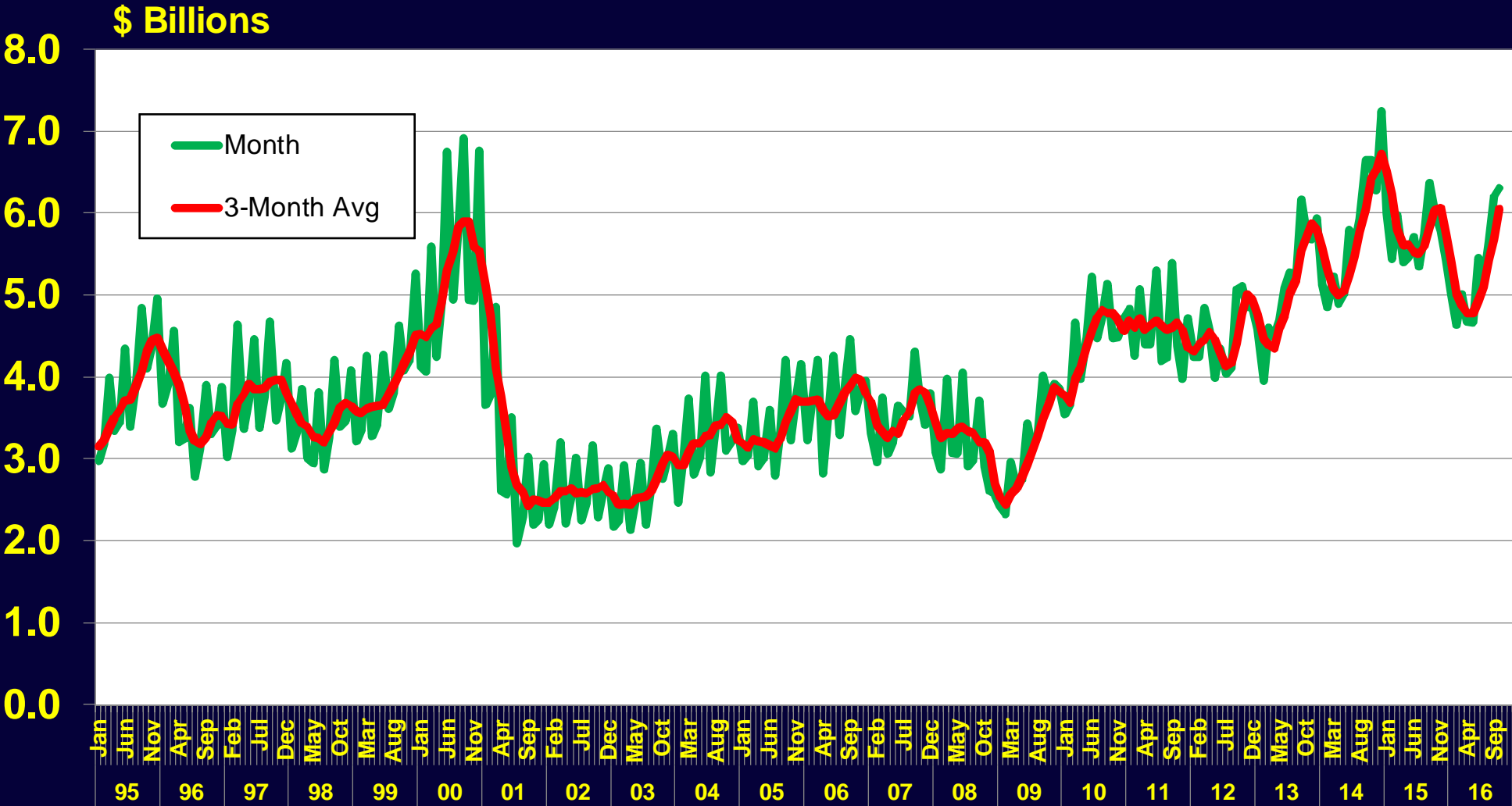
# Total Semiconductor Shipments to an Area

## Monthly Shipments - Reporting Firms

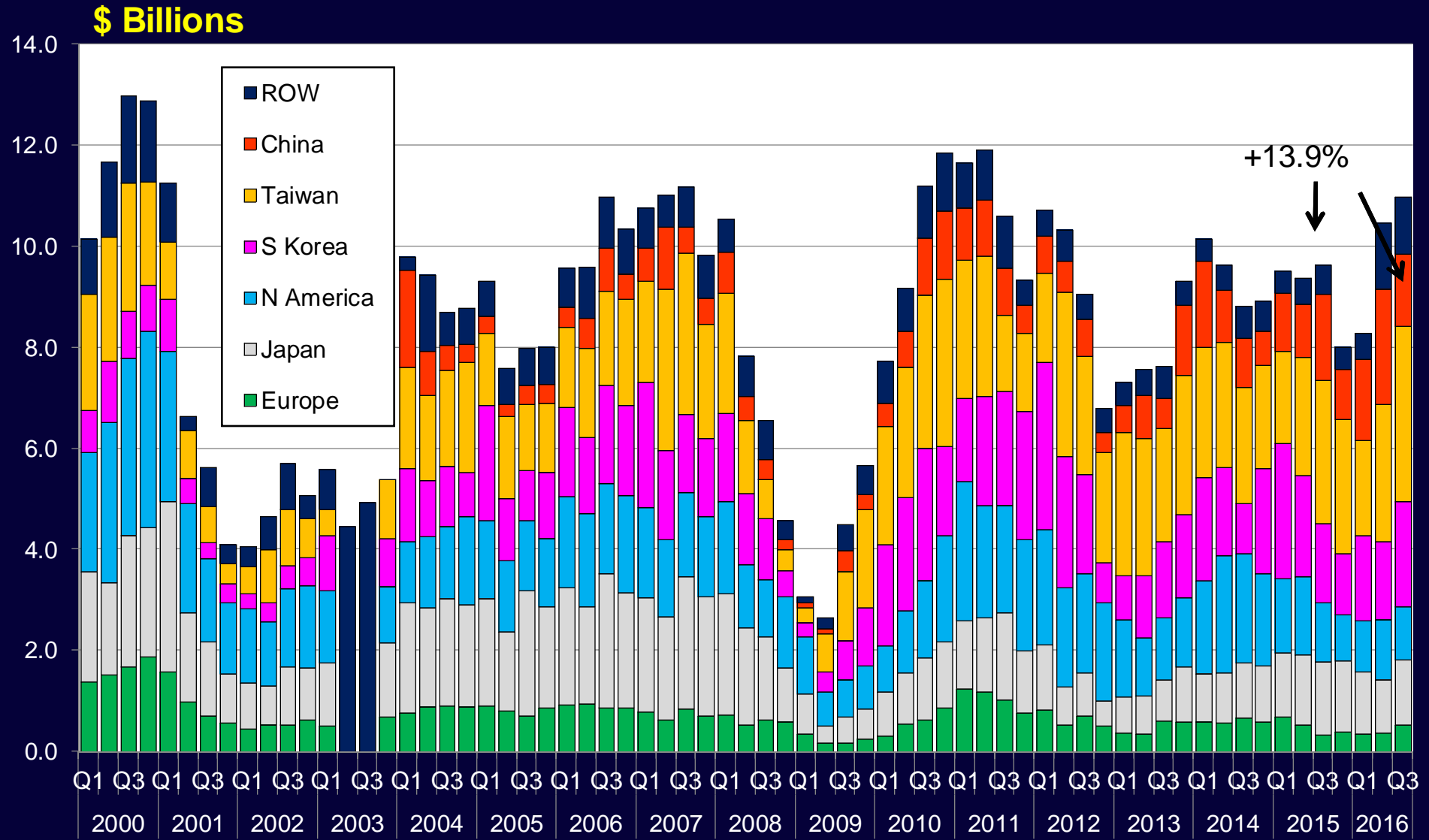


# N American Semiconductor Shipments

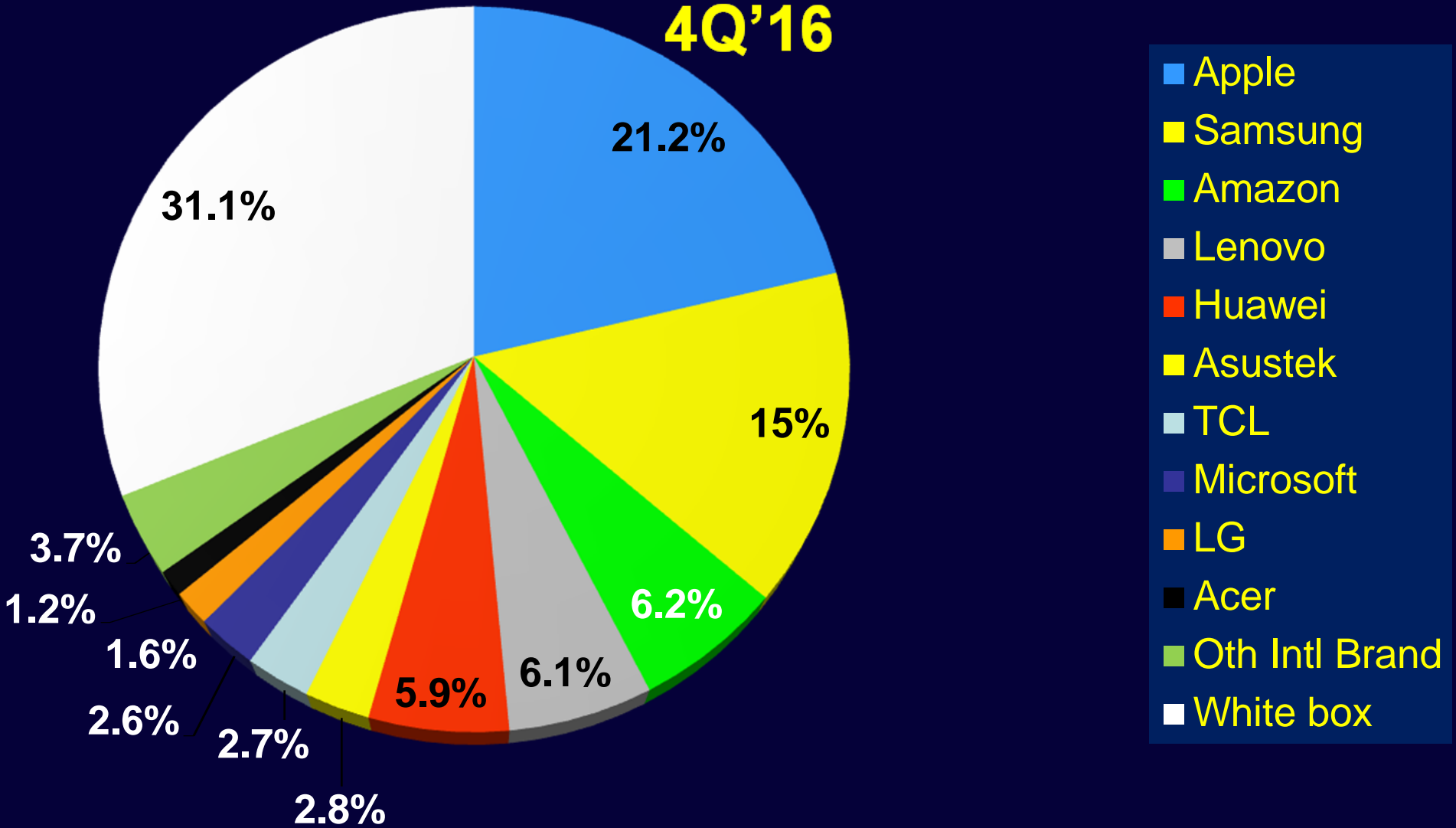
## Monthly & 3-Month Average Shipments



# Semiconductor Capital Equipment Shipments by Area



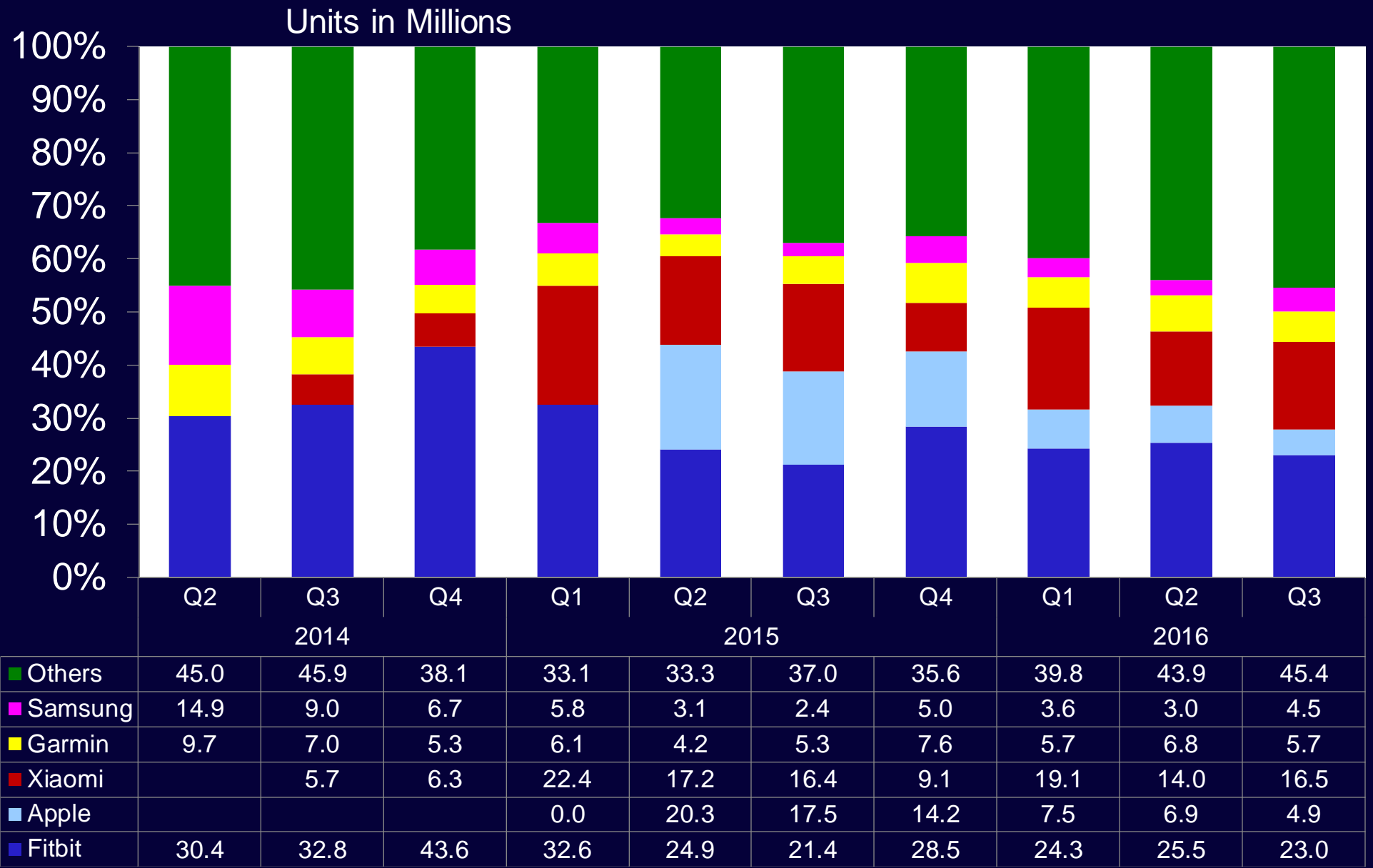
# Global Tablet Shipments 4Q'16



**TOTAL: 51.3 Million Units**

# Wearable Vendors

## Global % Share of Largest Suppliers

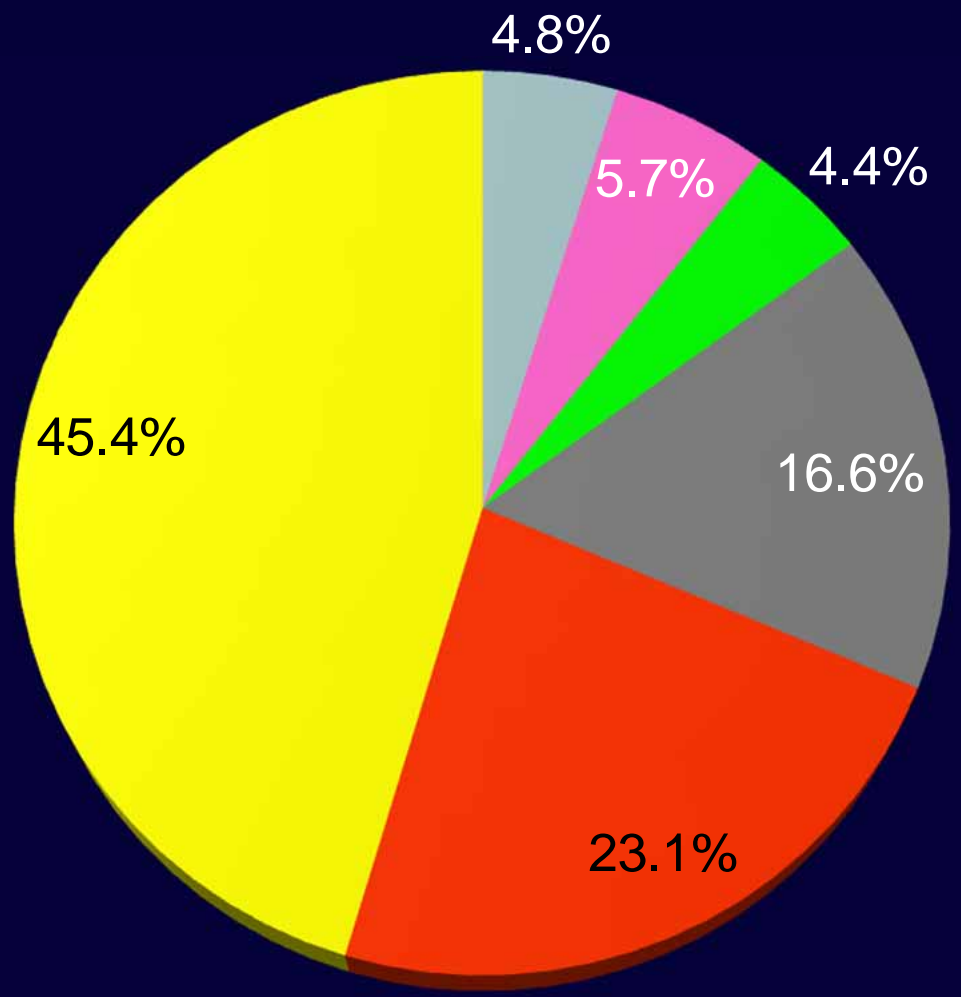


**IDC 12/16 & prior reports**

# Wearable Device Vendors

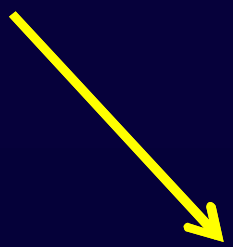
## 3Q'16

Units



- Apple
- Garmin
- Samsung
- Xiaomi
- Fitbit
- Others

**3Q'15 Total**  
**22.3 Million Units**



**3Q'16 Total: 23 Million Units**