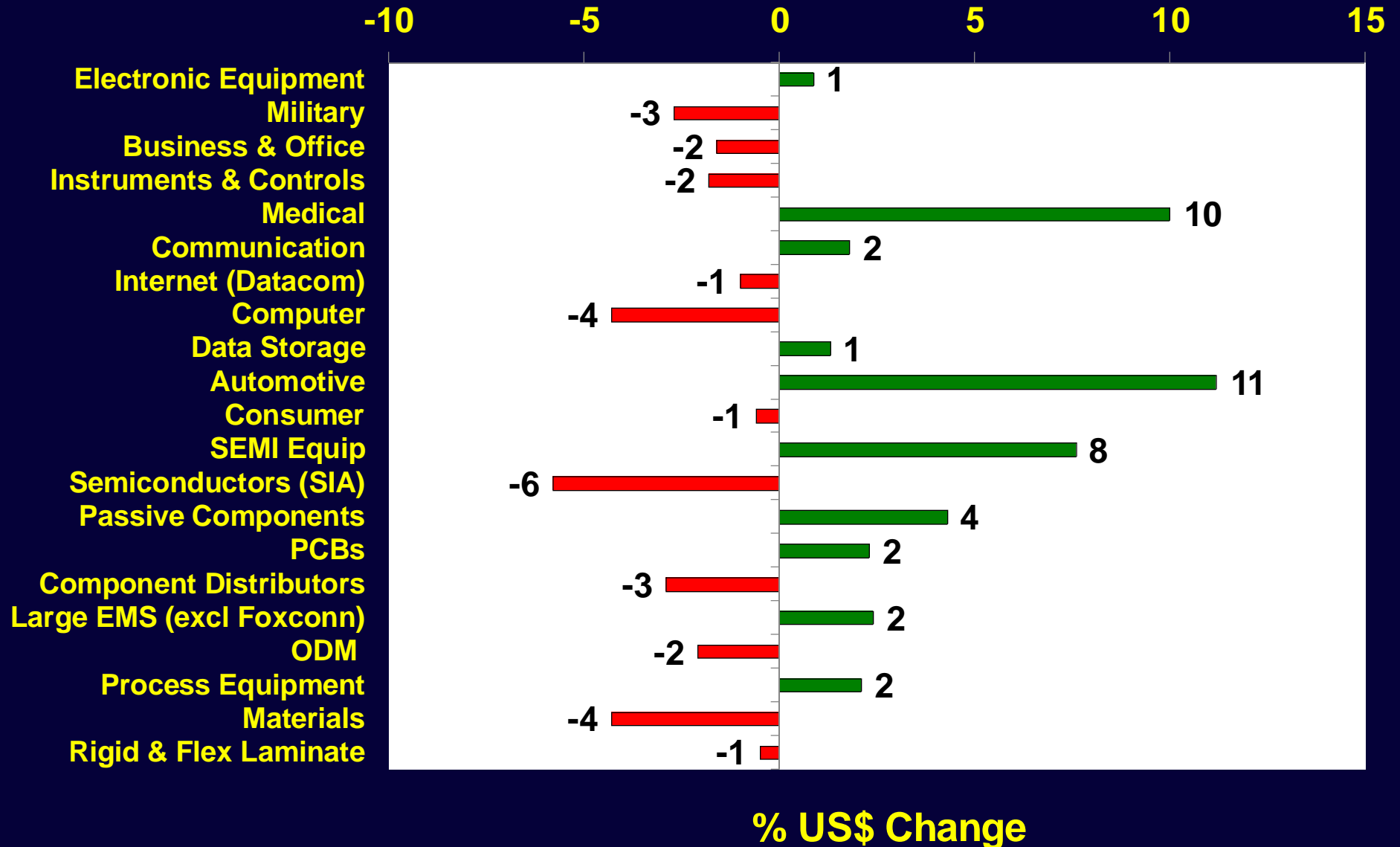


Chart 1

# Global Electronic Supply Chain Growth 2Q'16 vs. 2Q'15



US\$ equivalent at fluctuating exchange; based upon industry composites including acquisitions

# World Electronic Equipment Production By Type

+0.9%

Annual Rate \$B (converted @ fluctuating exchange rates)

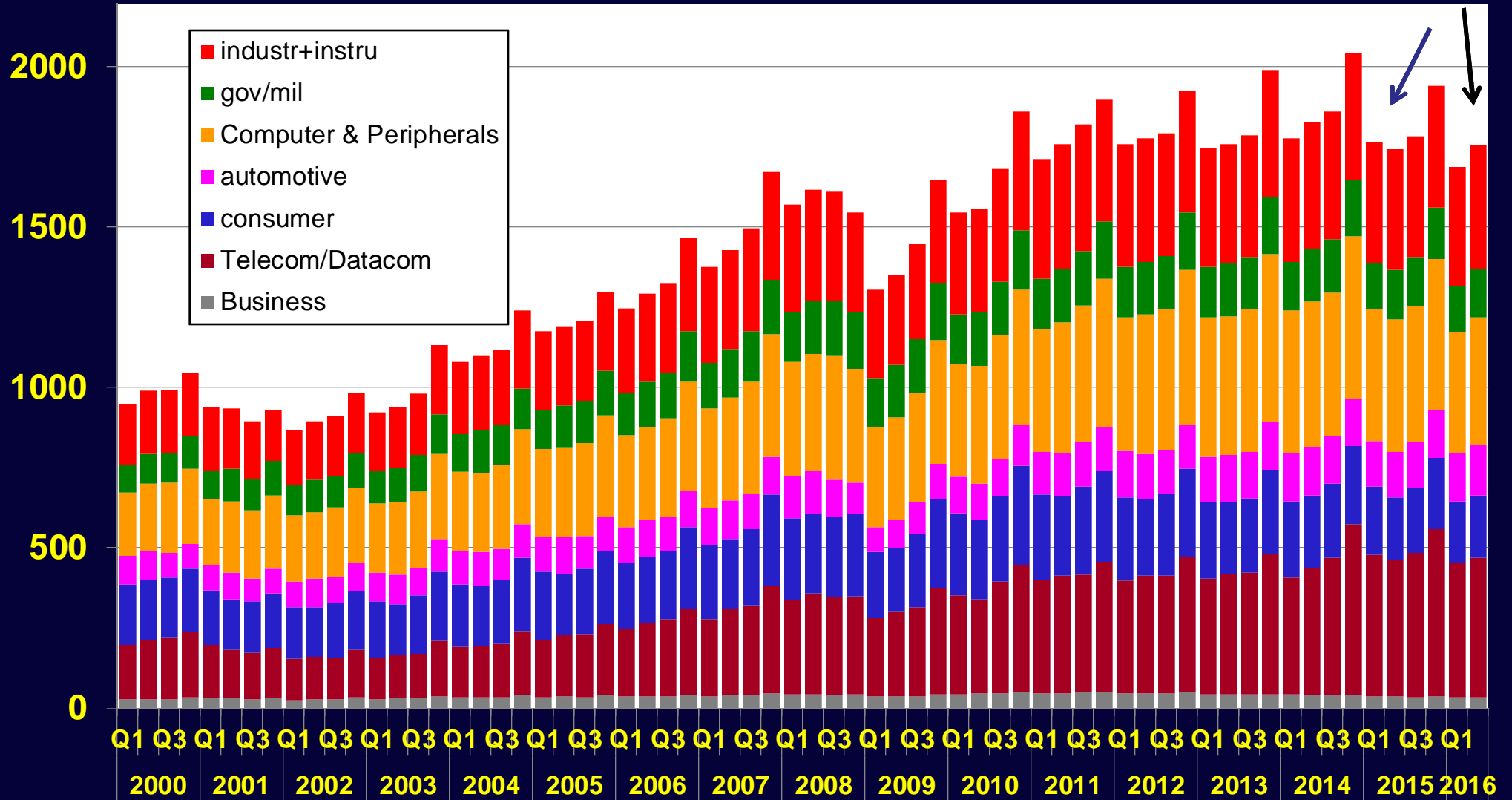
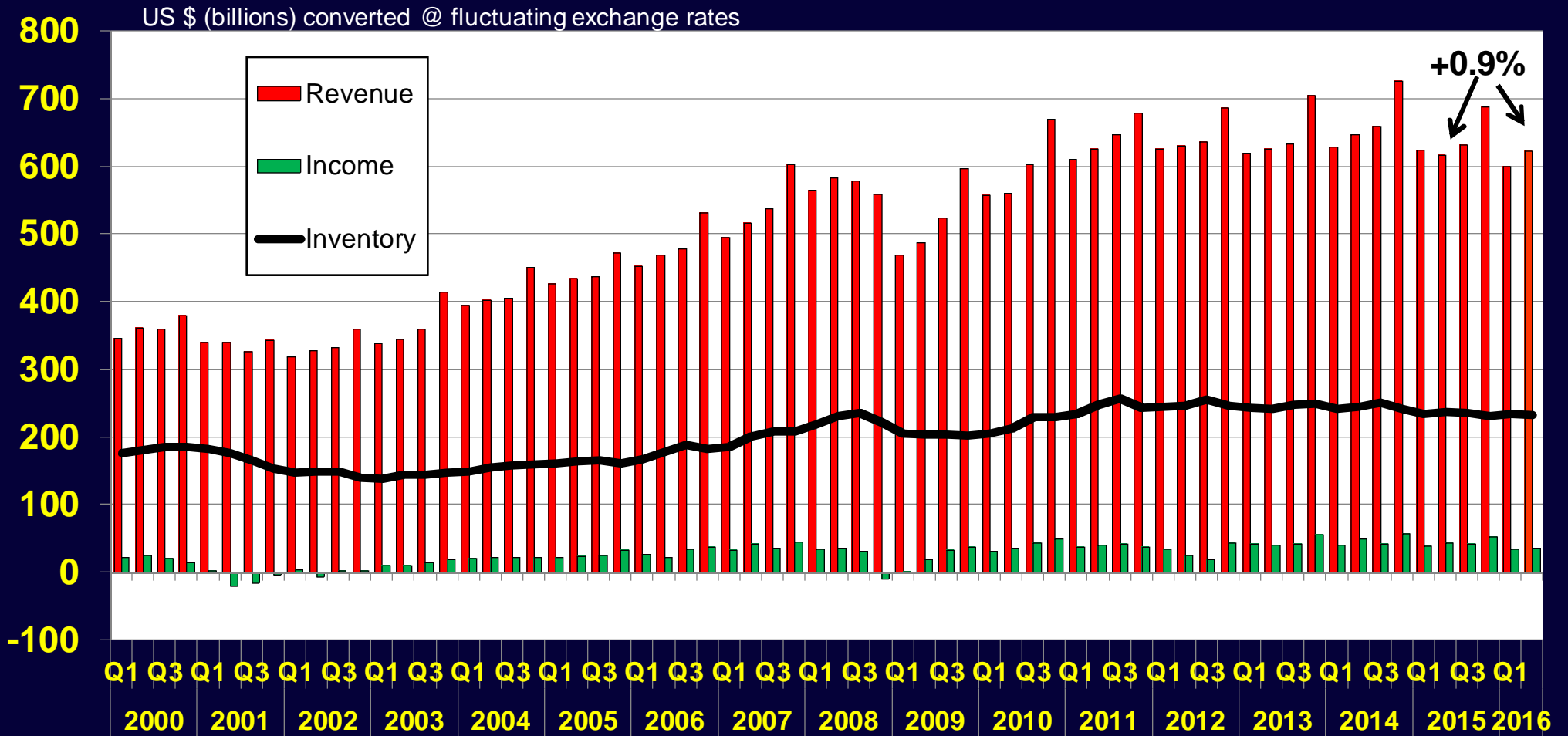


Chart 3

# Electronic Equipment Suppliers Composite of 213 Public Companies

## Revenue, Net Income & Inventory

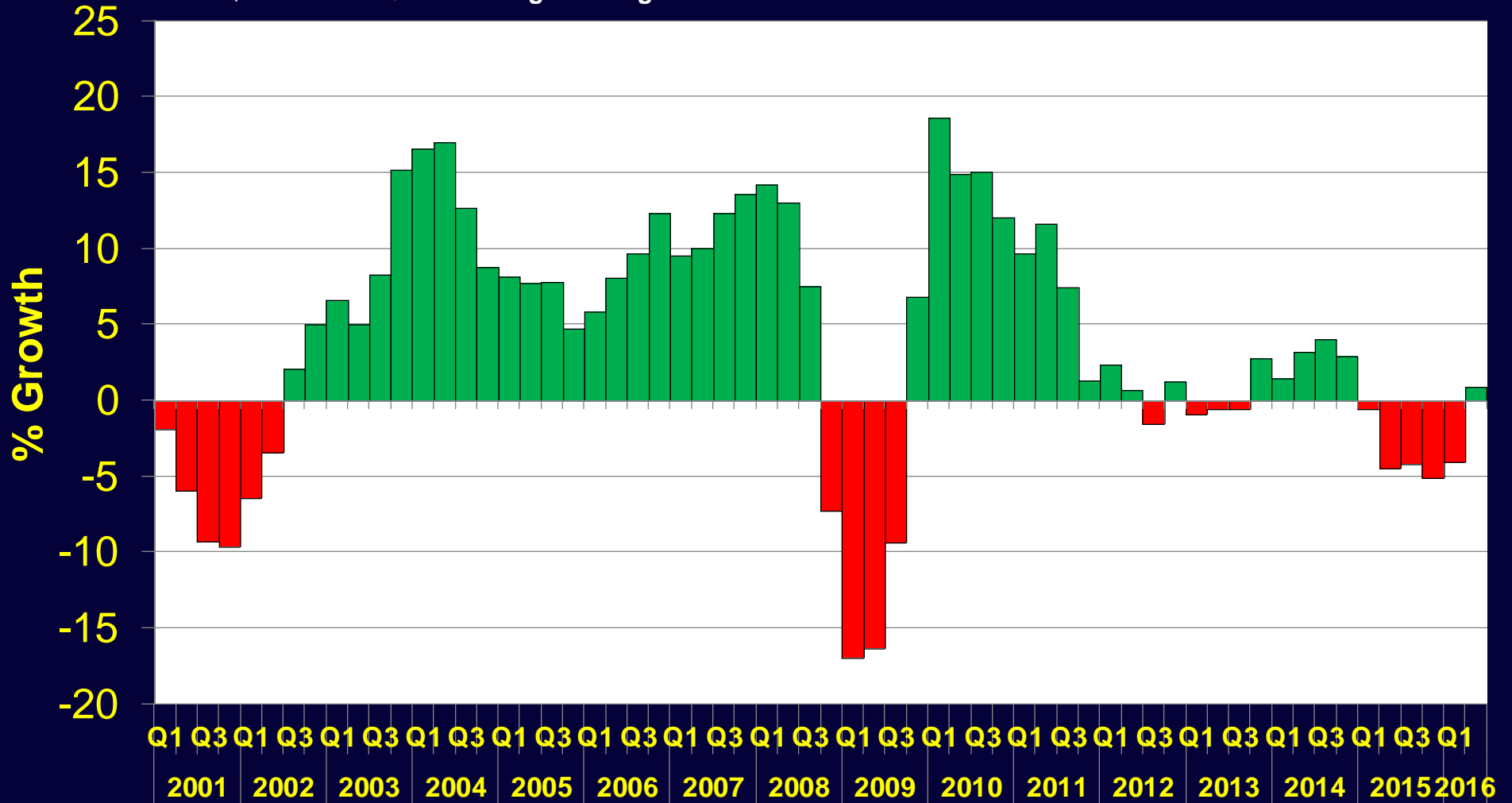


Computer 13, Internet 13, Storage 17, Communication 30, SEMI 40, Medical 21, Instruments 16, Military 21, Business & Office 6, Consumer 21, Automotive 15

Chart 4

# Electronic Equipment Suppliers Composite of 213 Public Companies Quarterly Revenue Growth

US\$ converted @ fluctuating exchange rate



# Purchasing Managers' Indices August vs. July 2016

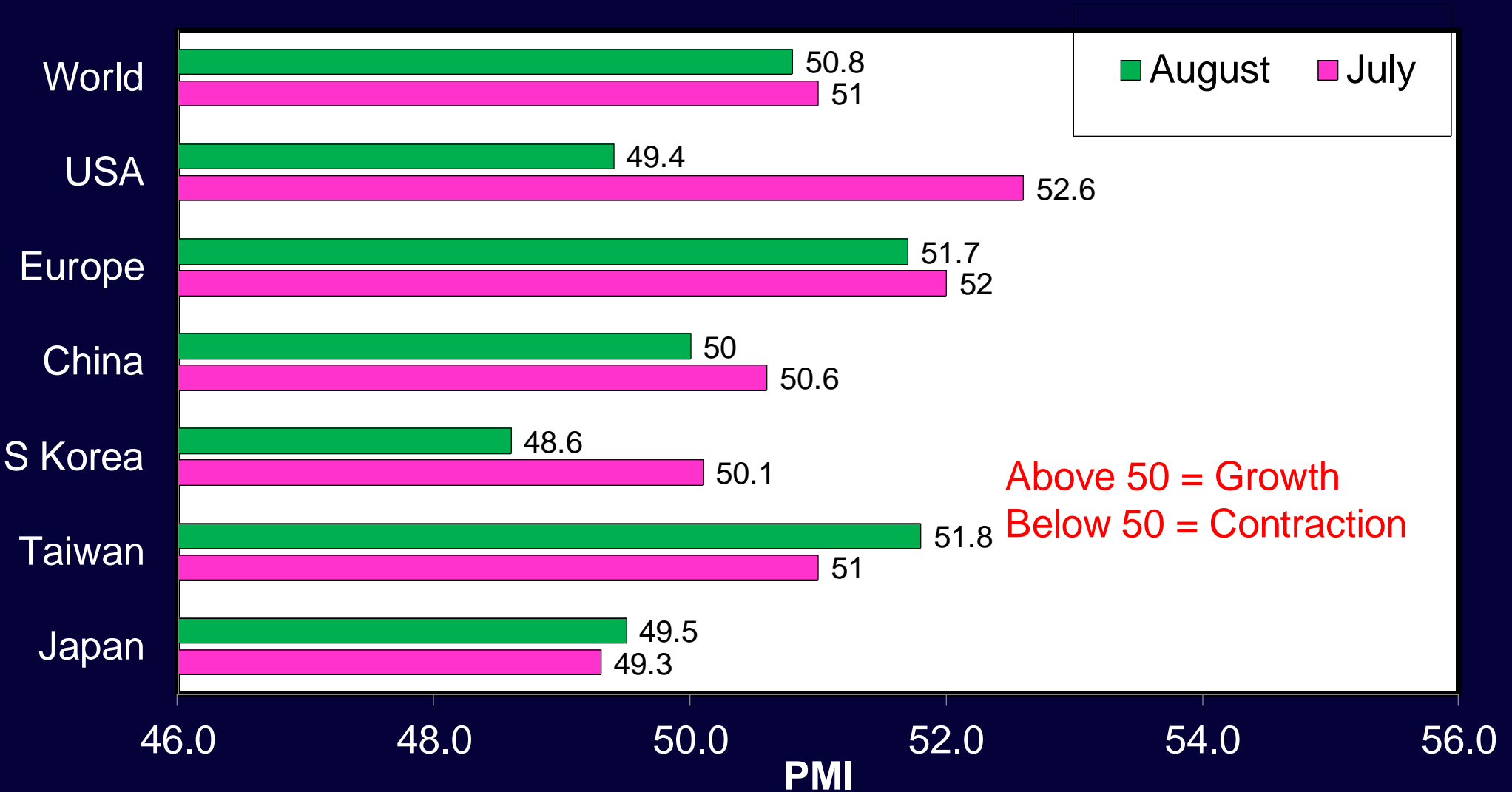
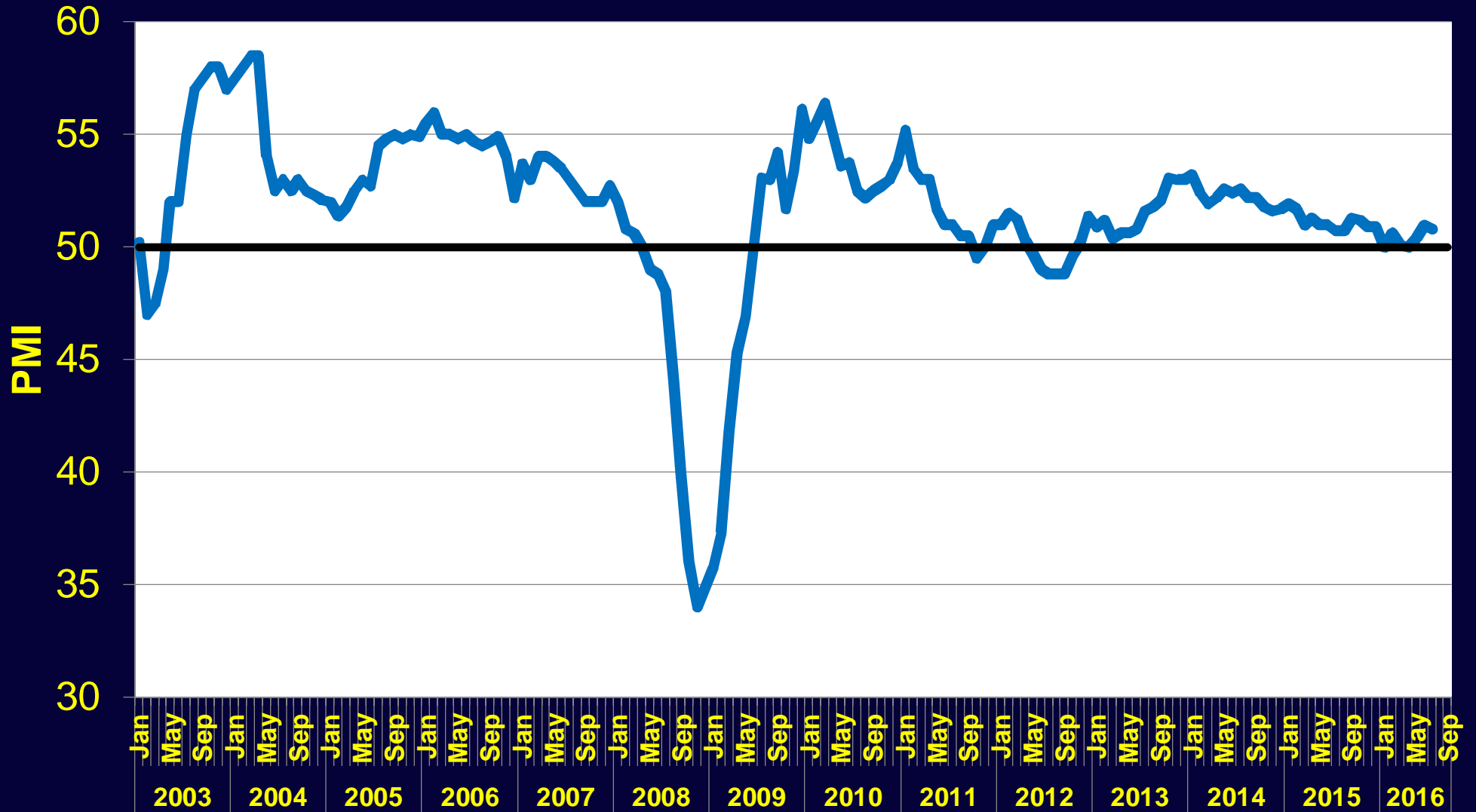


Chart 6

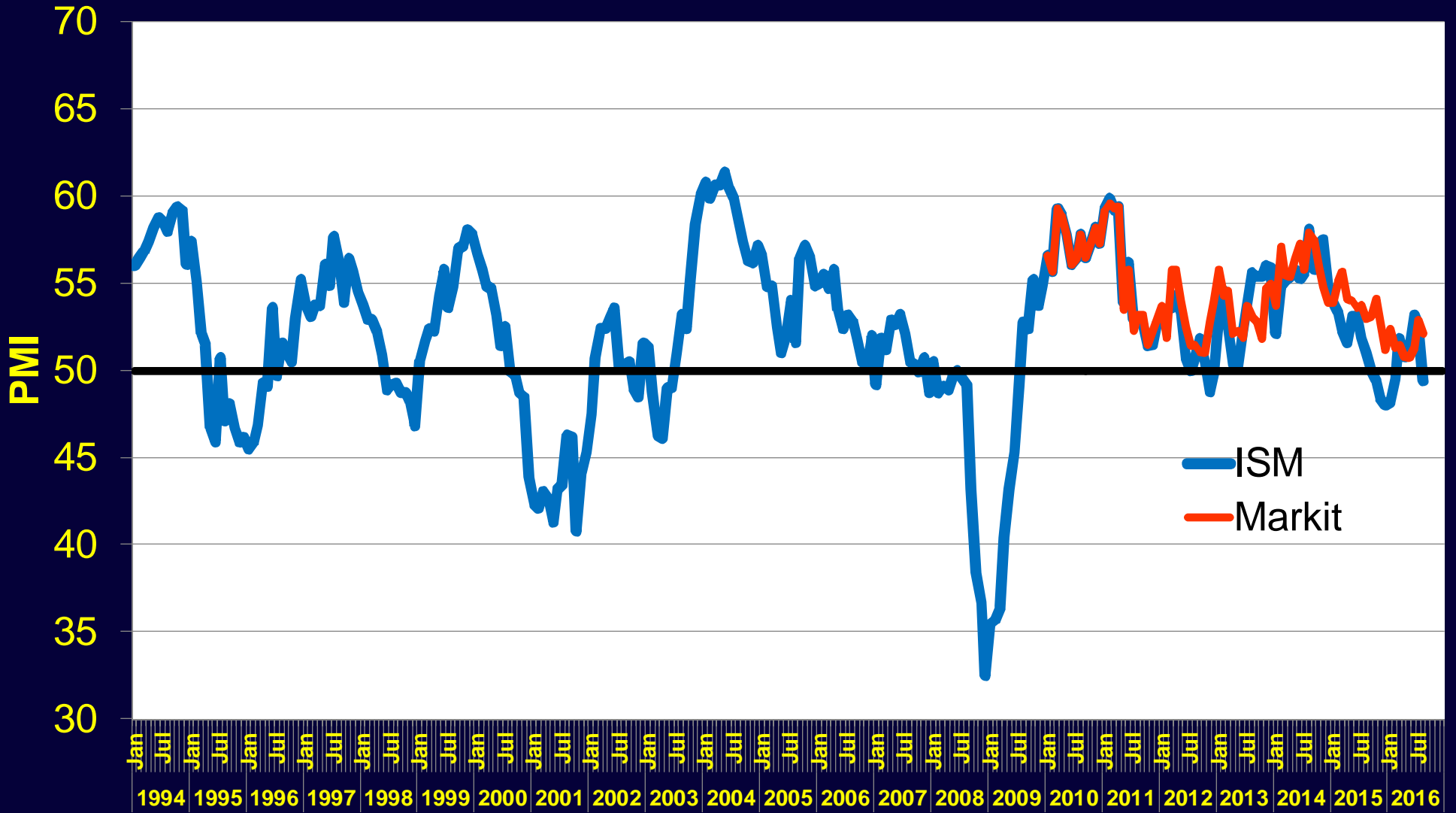
# Global "Purchasing Managers" Index

Diffusion Index, >50 = Growth



# U.S "Purchasing Managers" Indices ISM vs. Markit Economics

Diffusion Index, >50 = Growth



# European Purchasing Managers' Indices August vs. July 2016

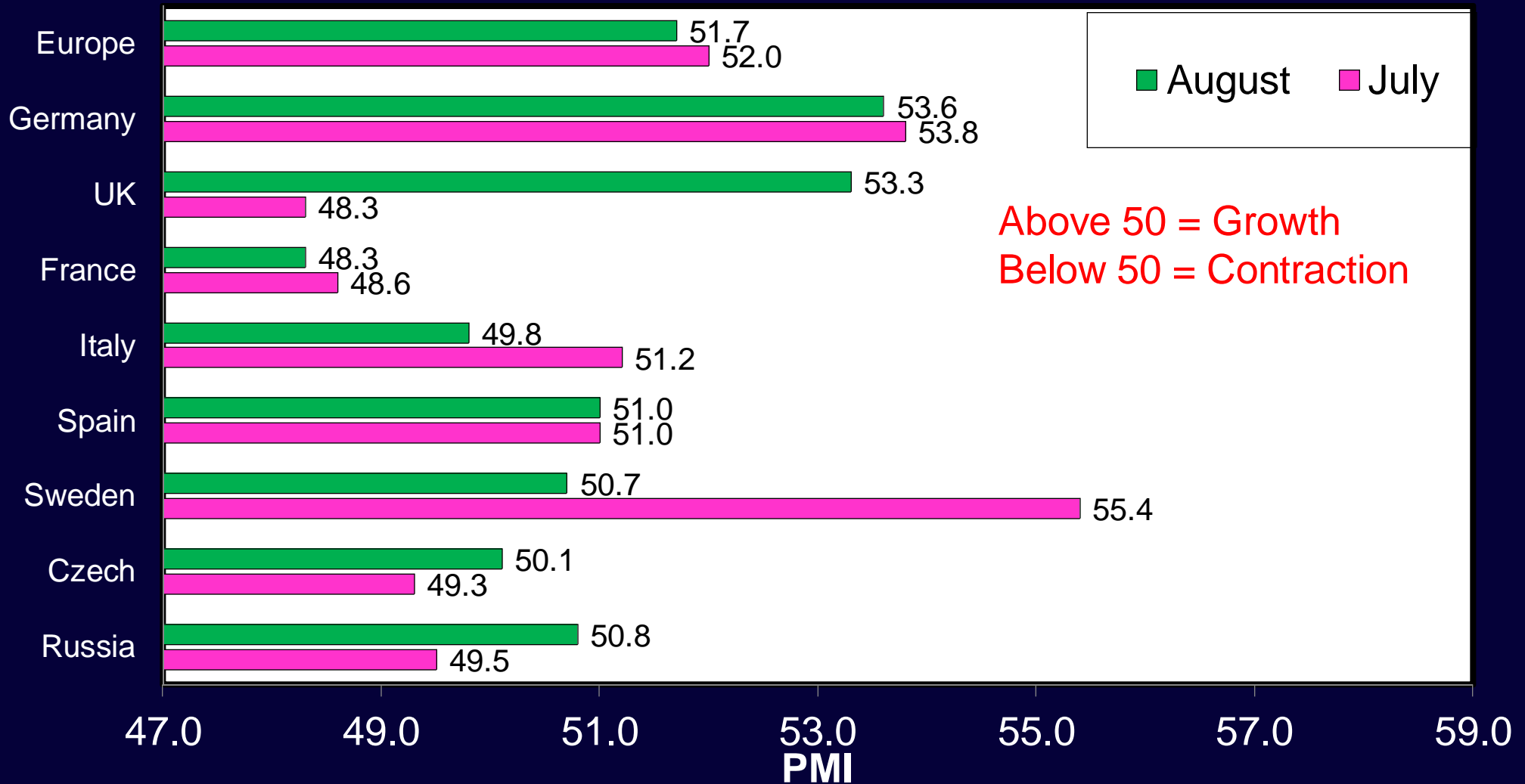
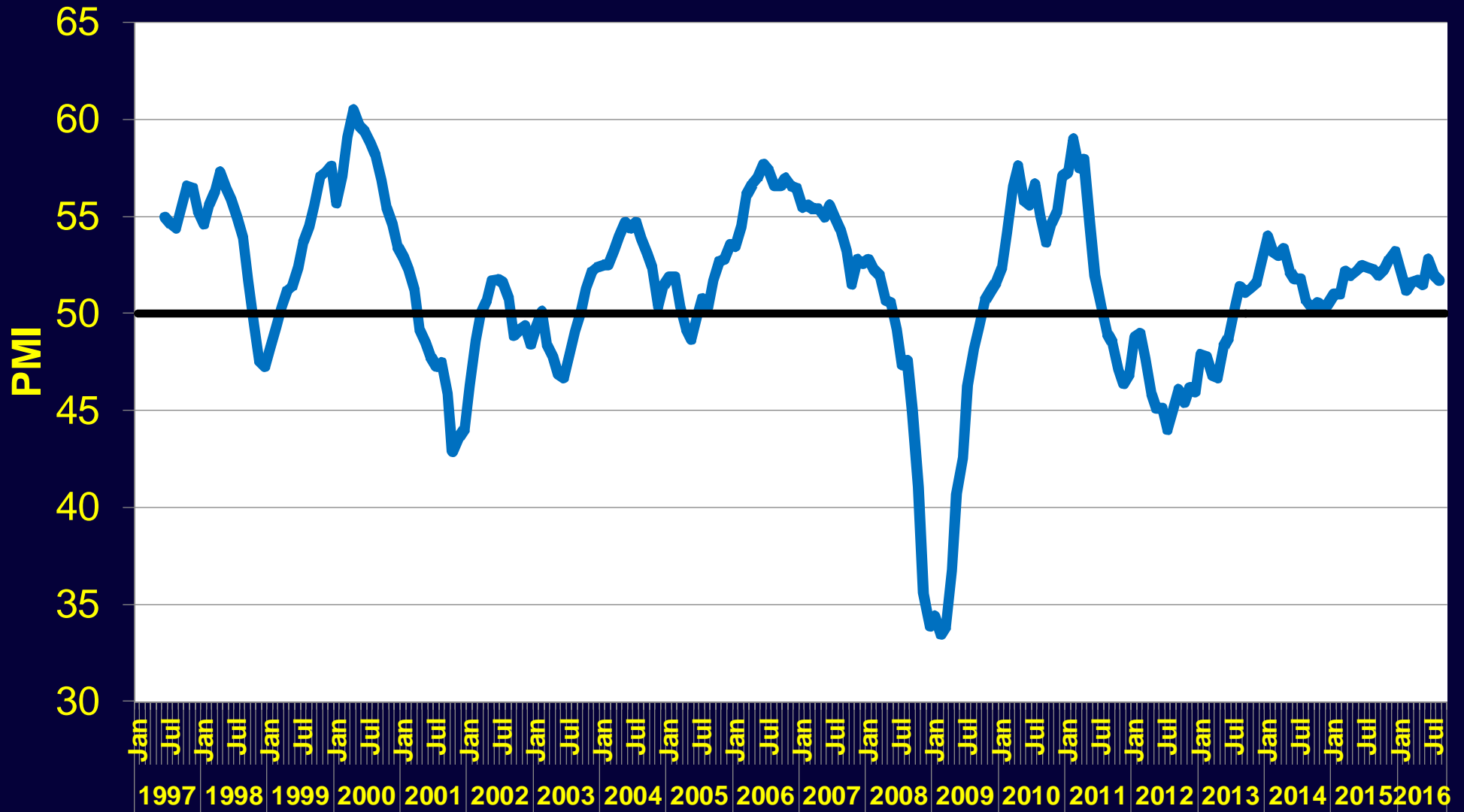




Chart 9

# Eurozone "Purchasing Managers" Index

Diffusion Index, >50 = Growth



# Asian Purchasing Managers' Indices August vs. July 2016

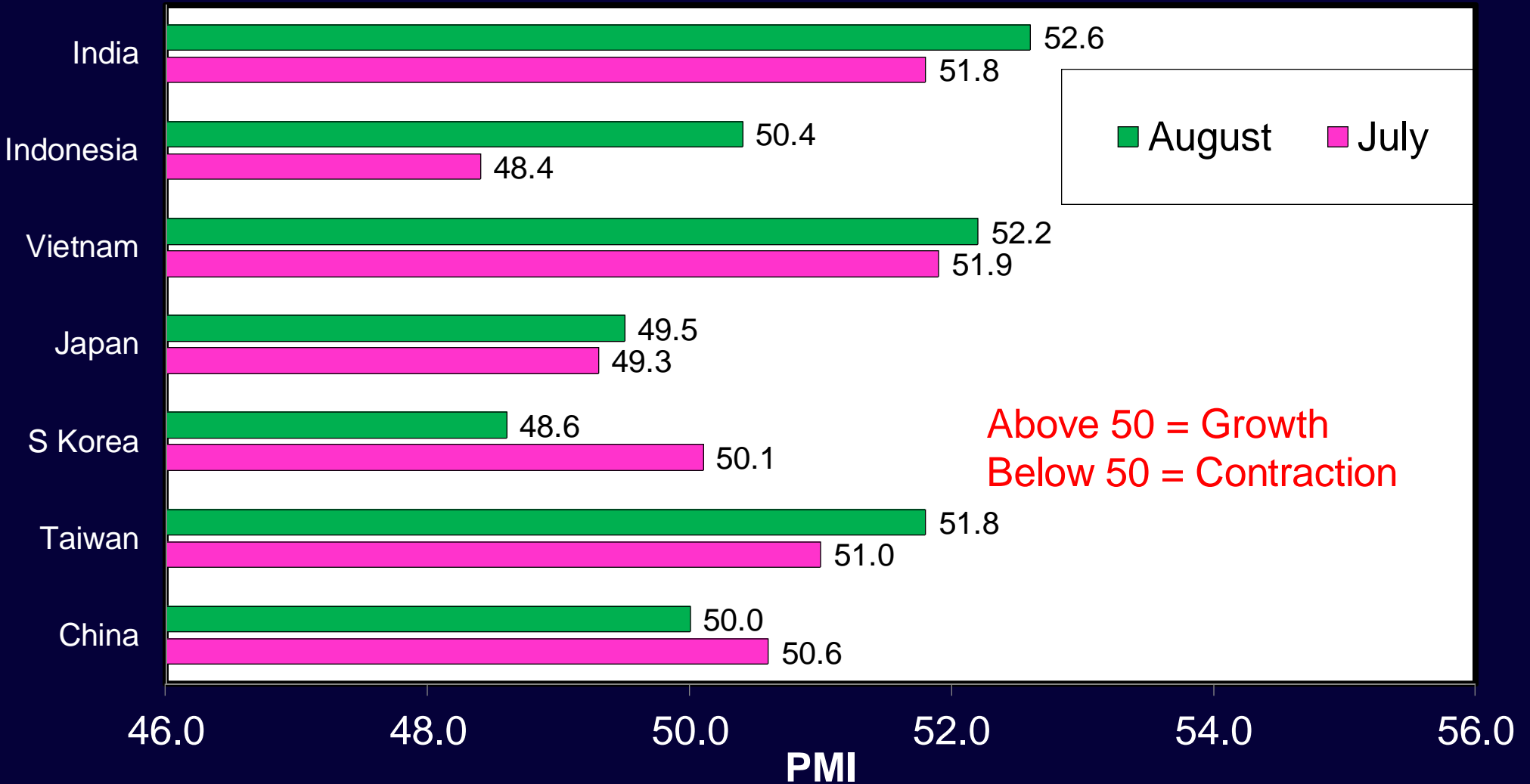


Chart 11

# China "Purchasing Managers" Index

Diffusion Index, >50 = Growth

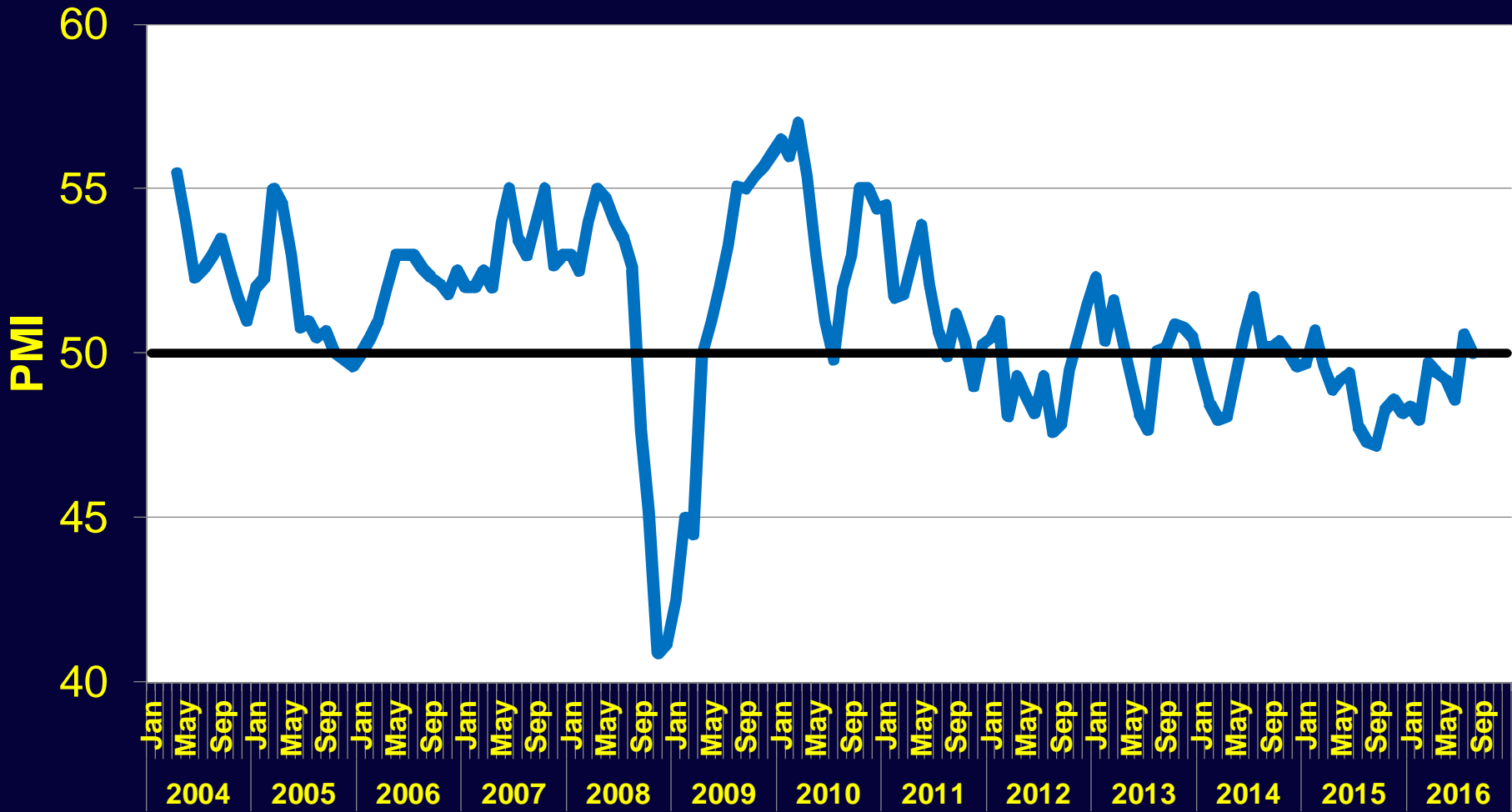


Chart 12

# Taiwan "Purchasing Managers" Index

Diffusion Index, >50 = Growth

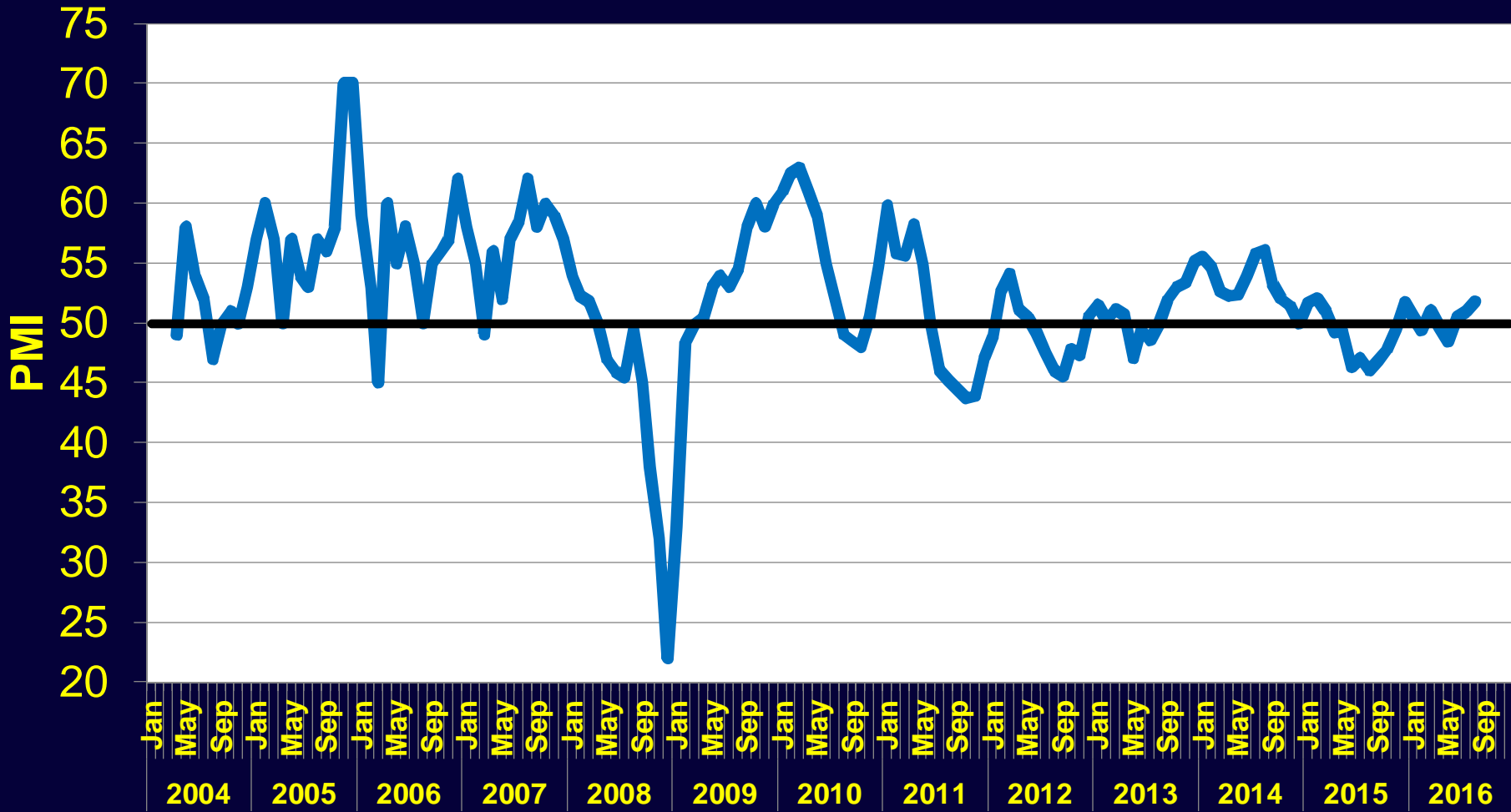


Chart 13

# S Korea "Purchasing Managers" Index

Diffusion Index, >50 = Growth

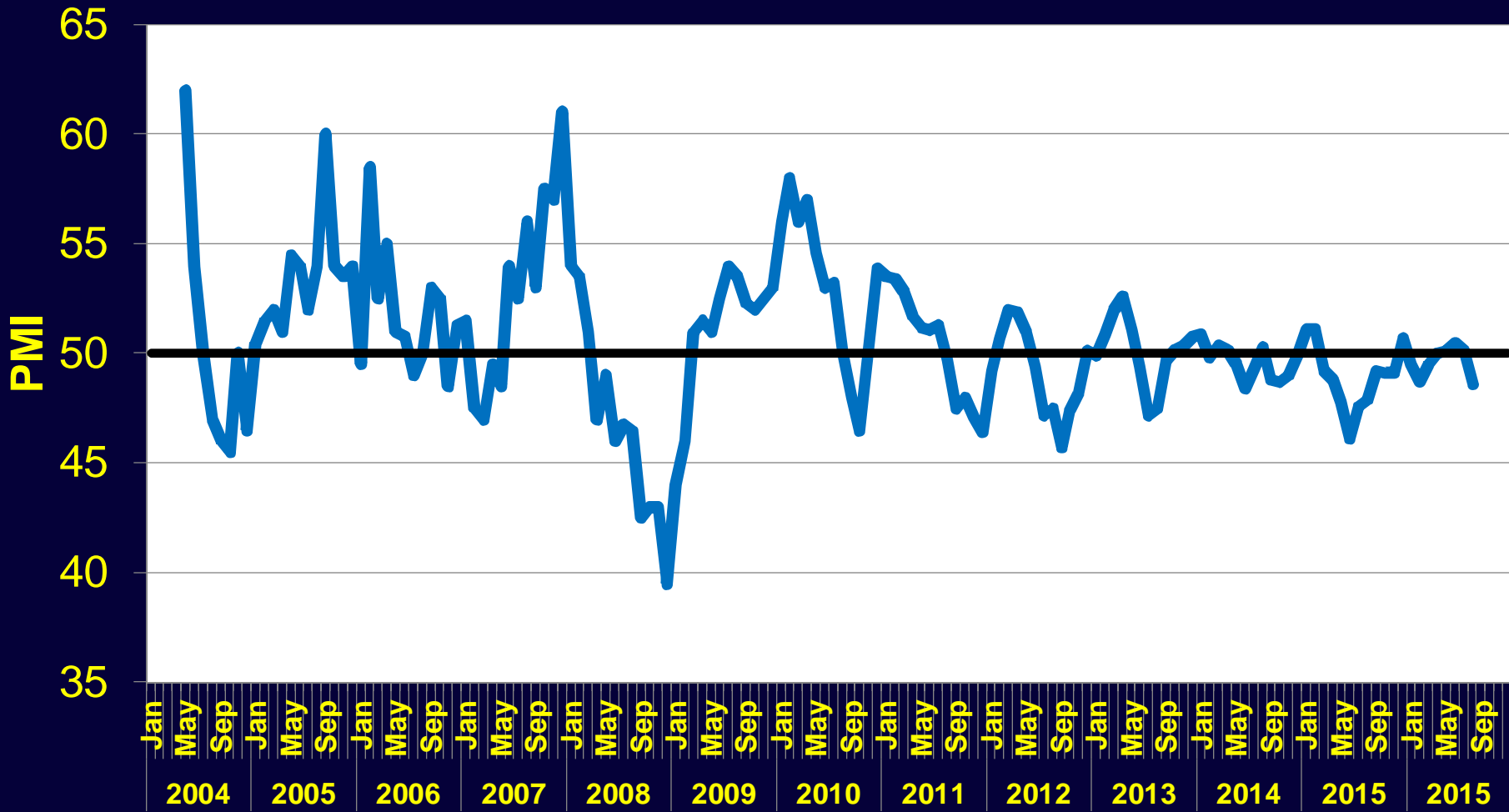


Chart 14

# Japan "Purchasing Managers" Index

Diffusion Index, >50 = Growth

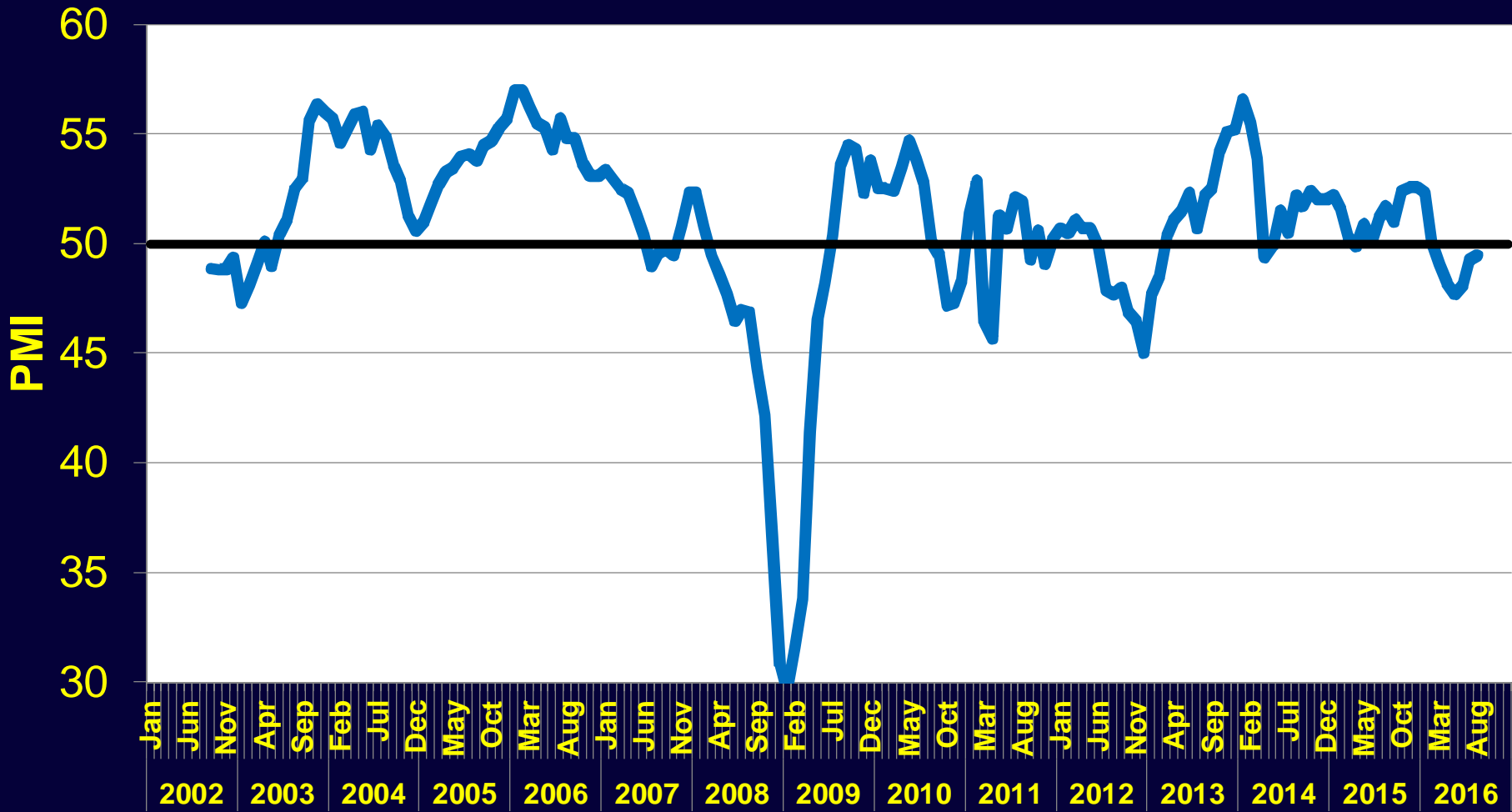


Chart 15

# U.S. Electronic Equipment Order & Shipment Growth

Computer, Communications, Measurement & Control and Military

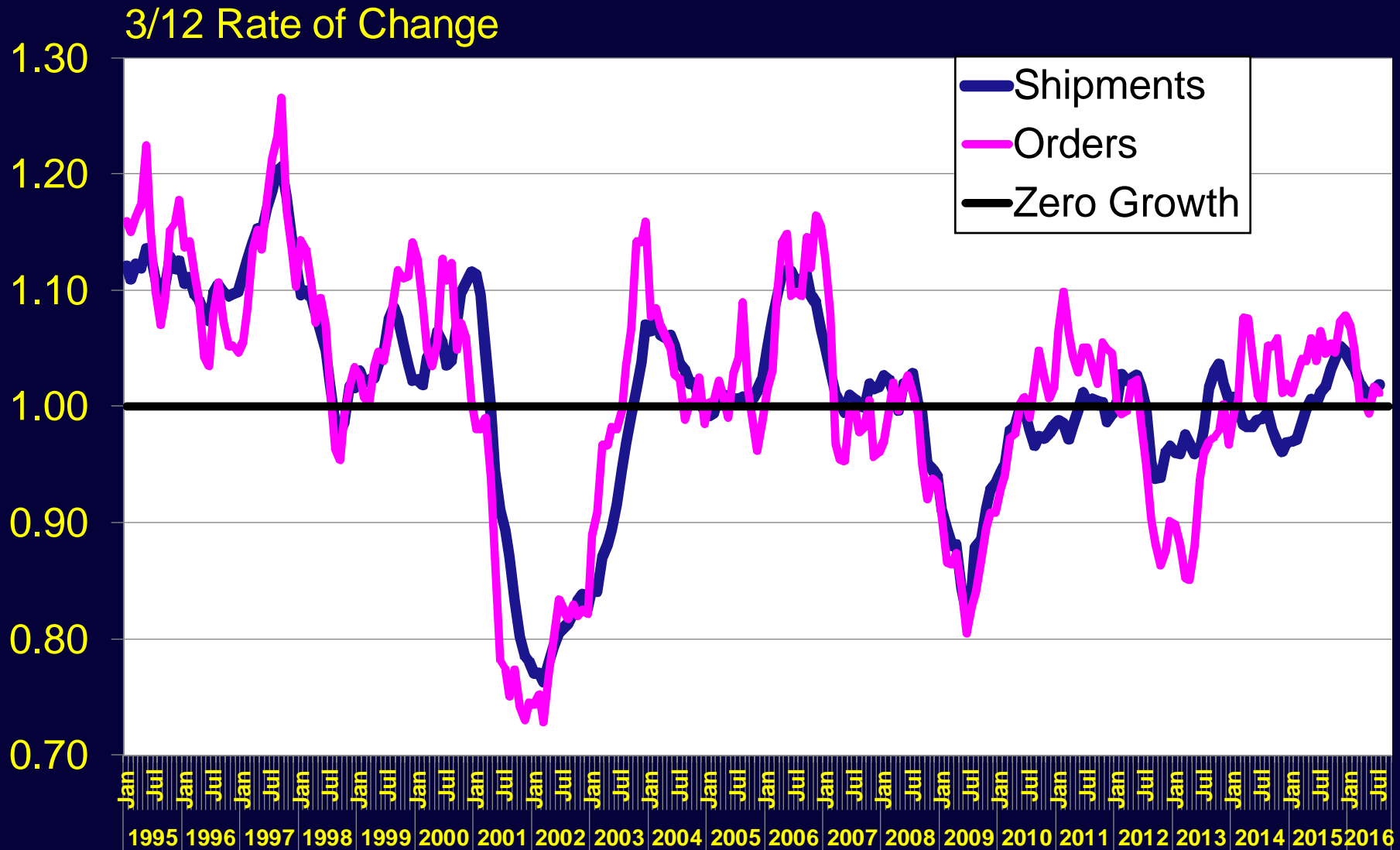
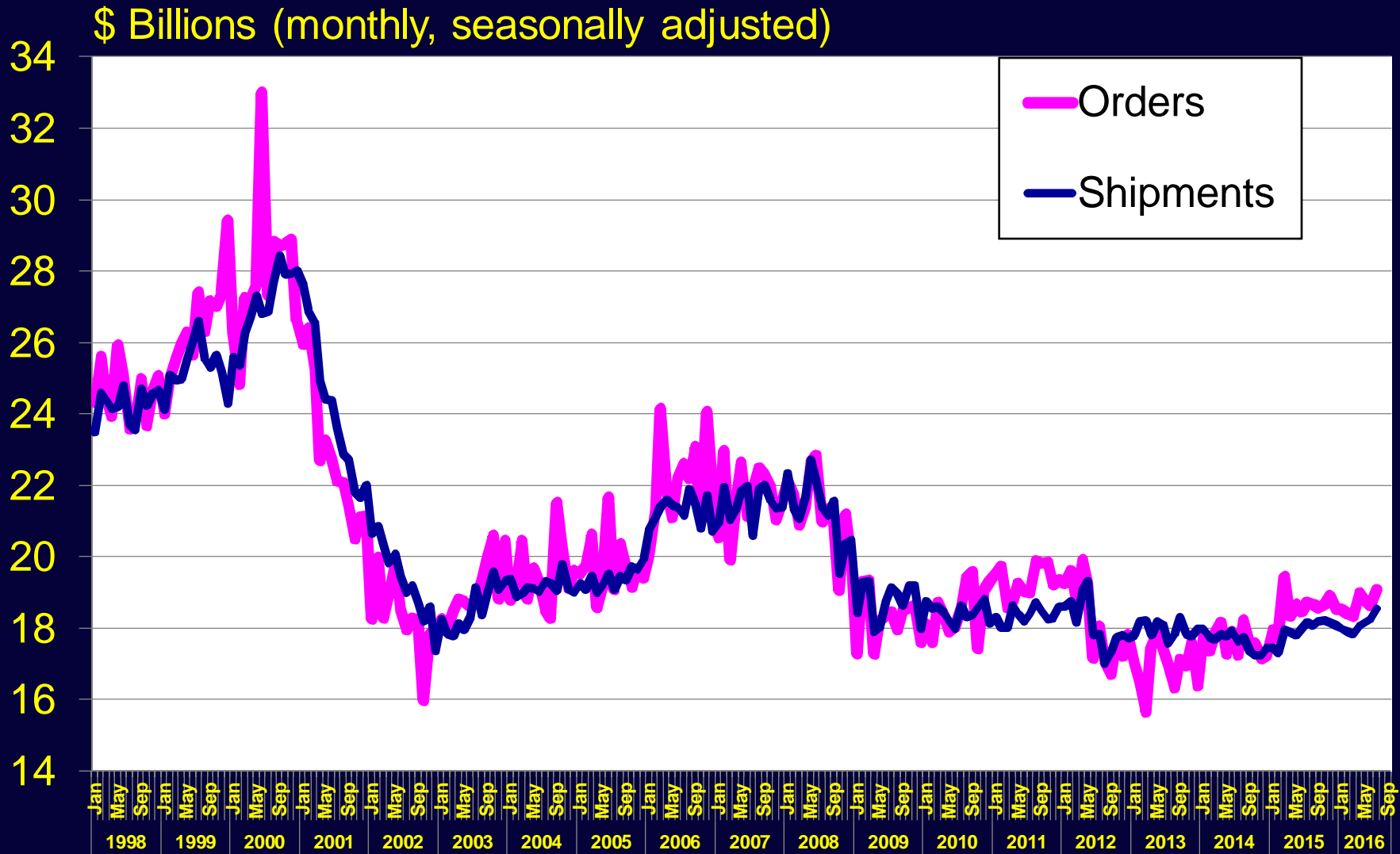


Chart 16

# U.S. Electronic Equipment Orders & Shipments

Computer, Communications, Measurement & Control and Military





# U.S. Electronic Equipment Orders

## Monthly Data

\$ Billions (monthly, seasonally adjusted)

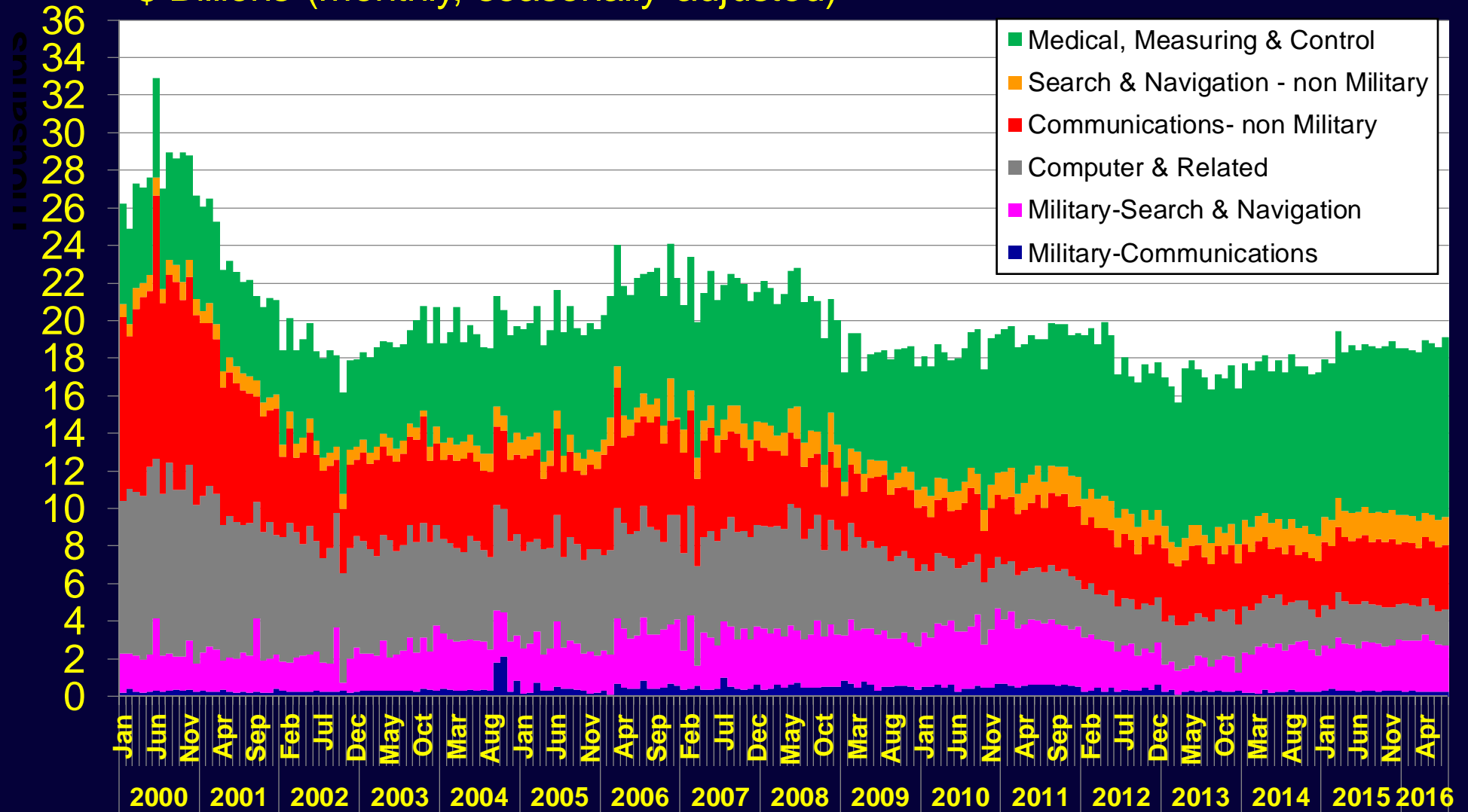
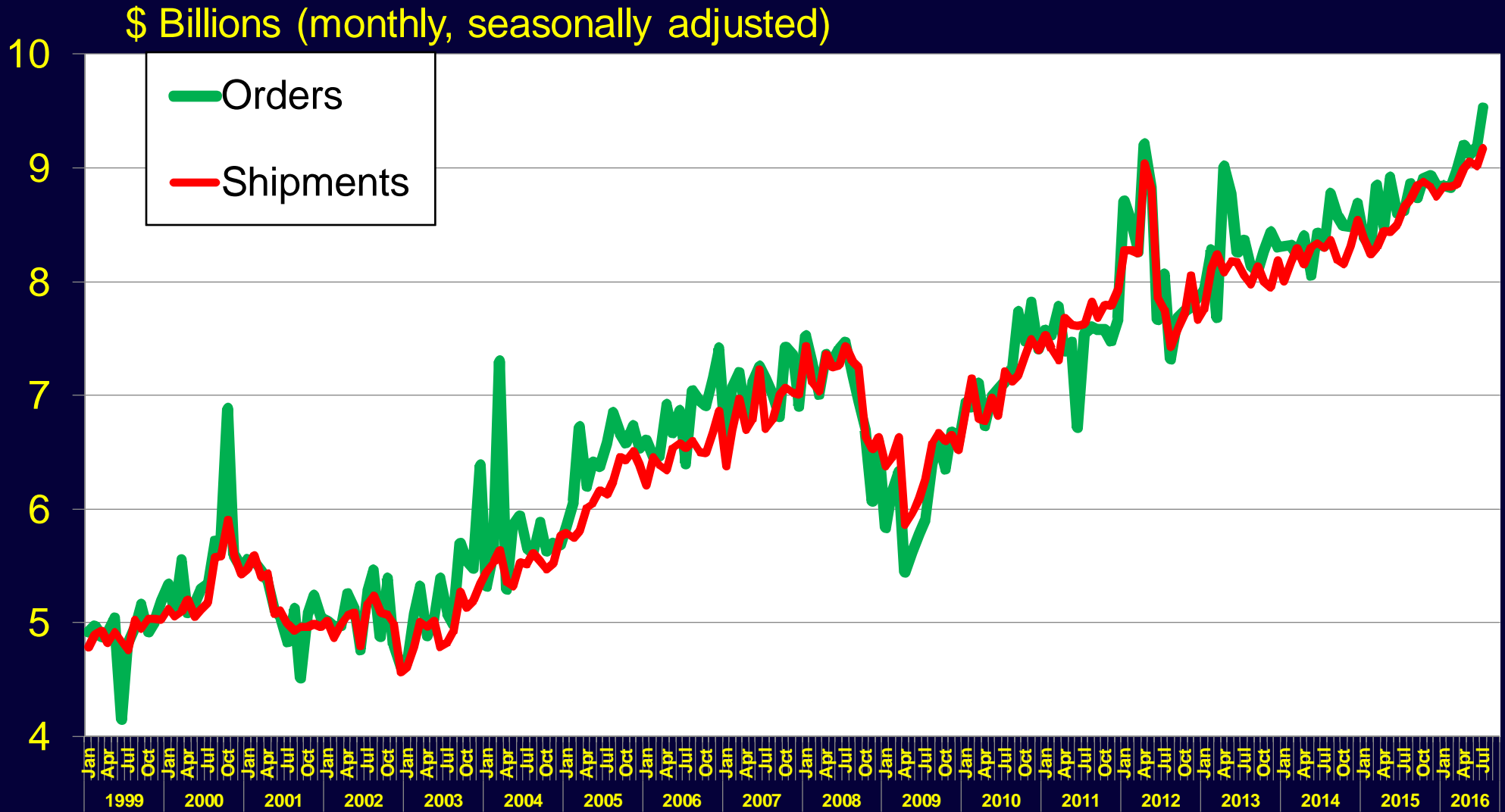
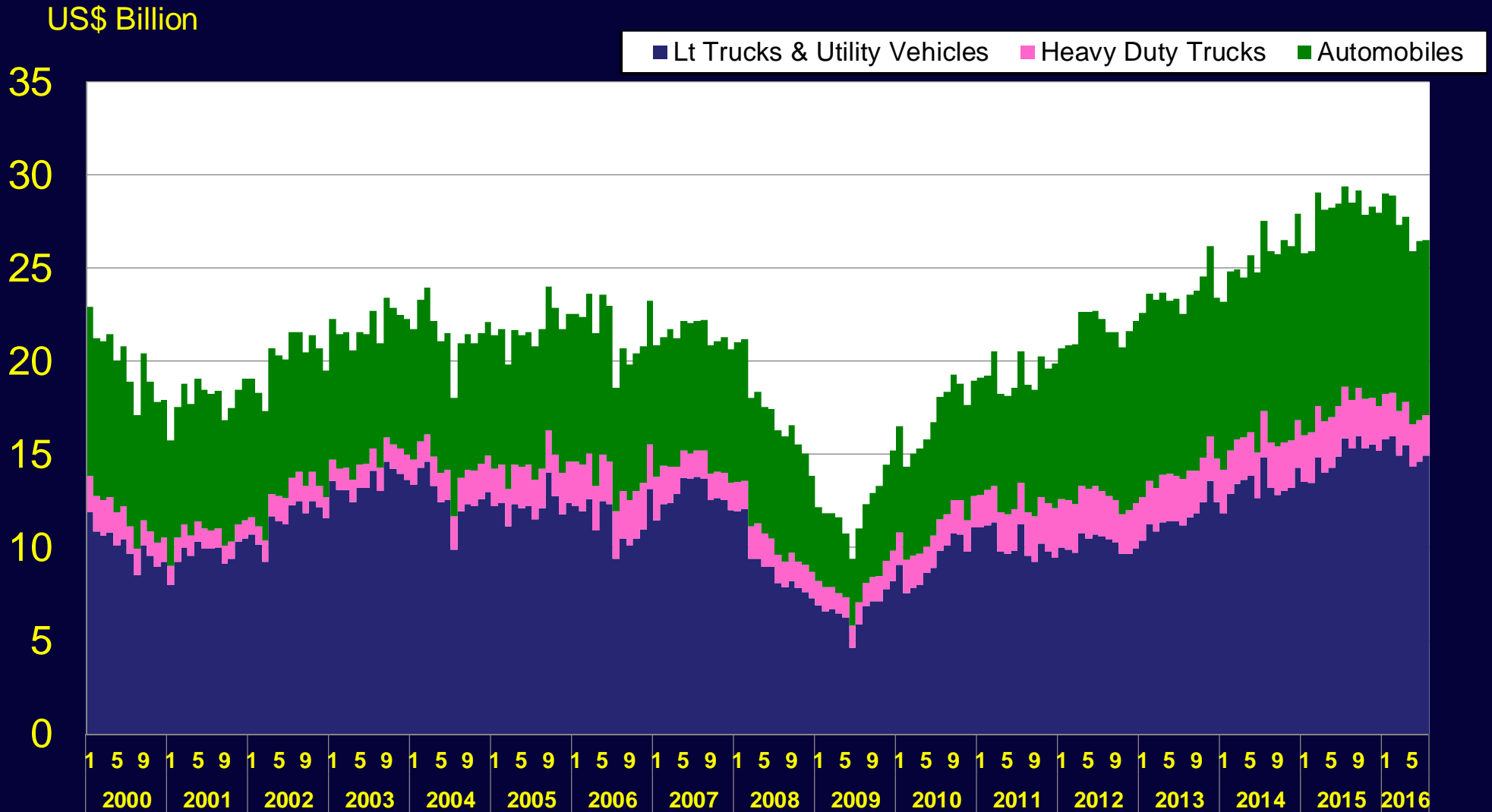


Chart 18

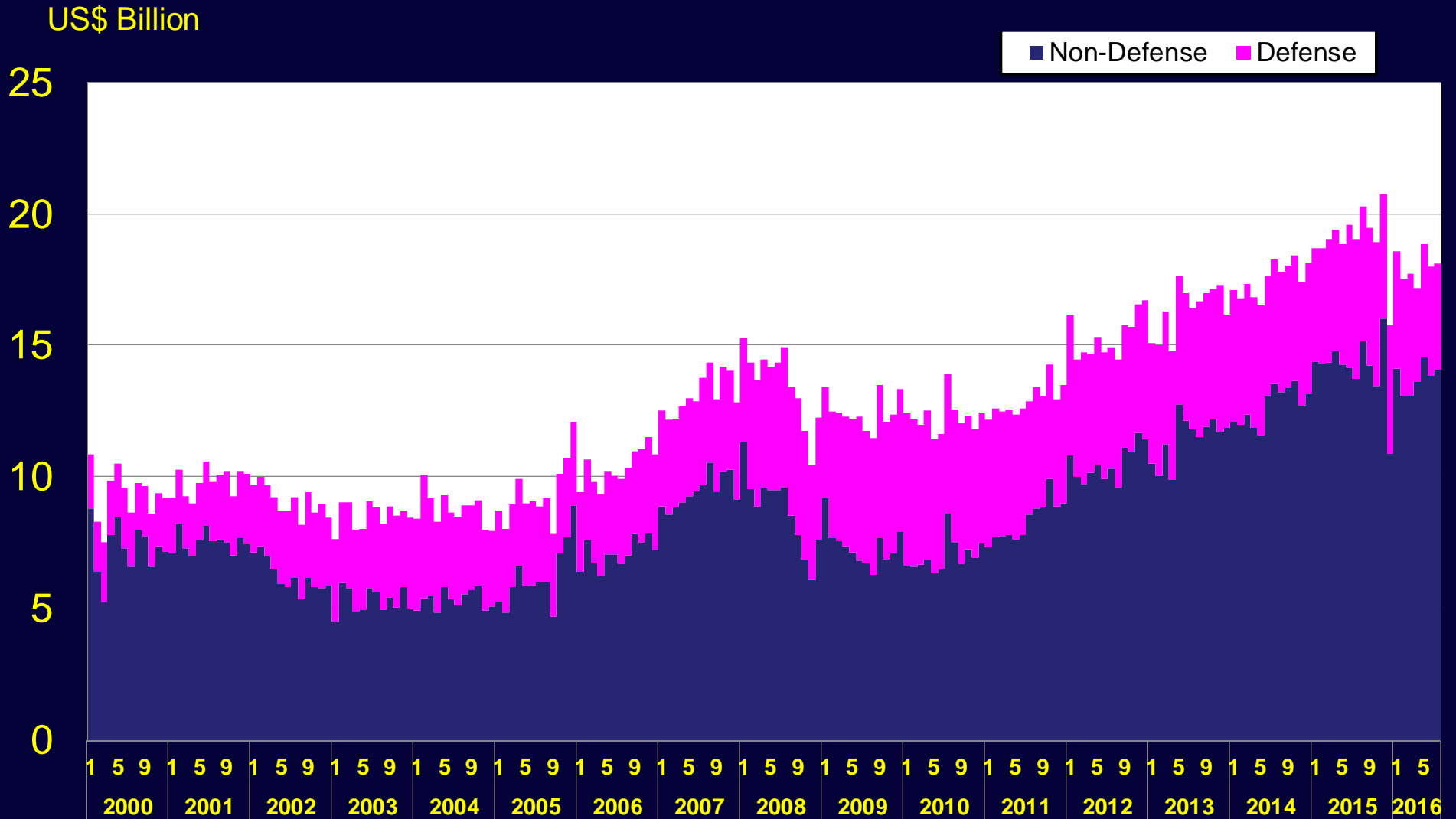
# U.S. Electromedical, Measurement & Control Equipment Orders & Shipments



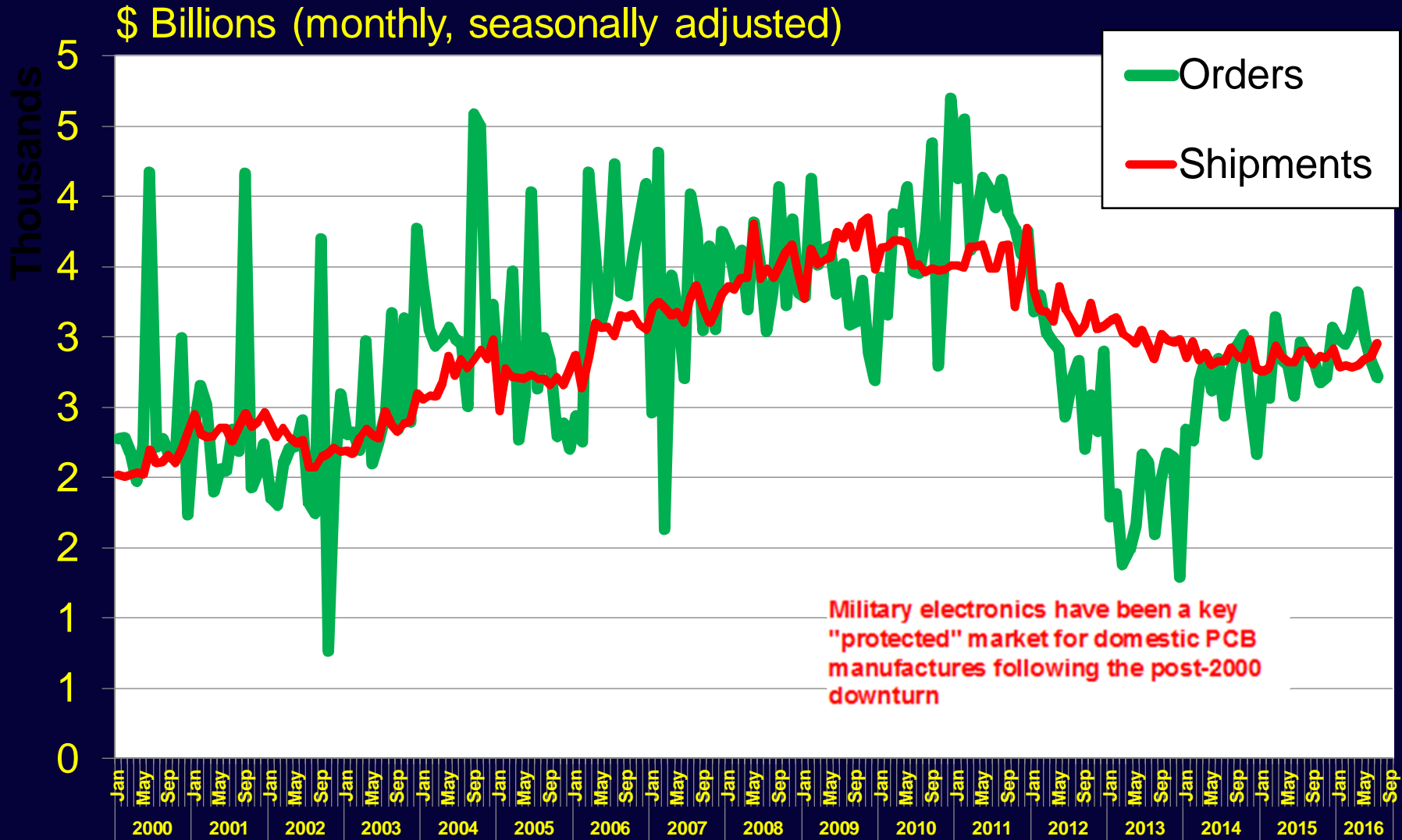
# U.S. Vehicle Shipments



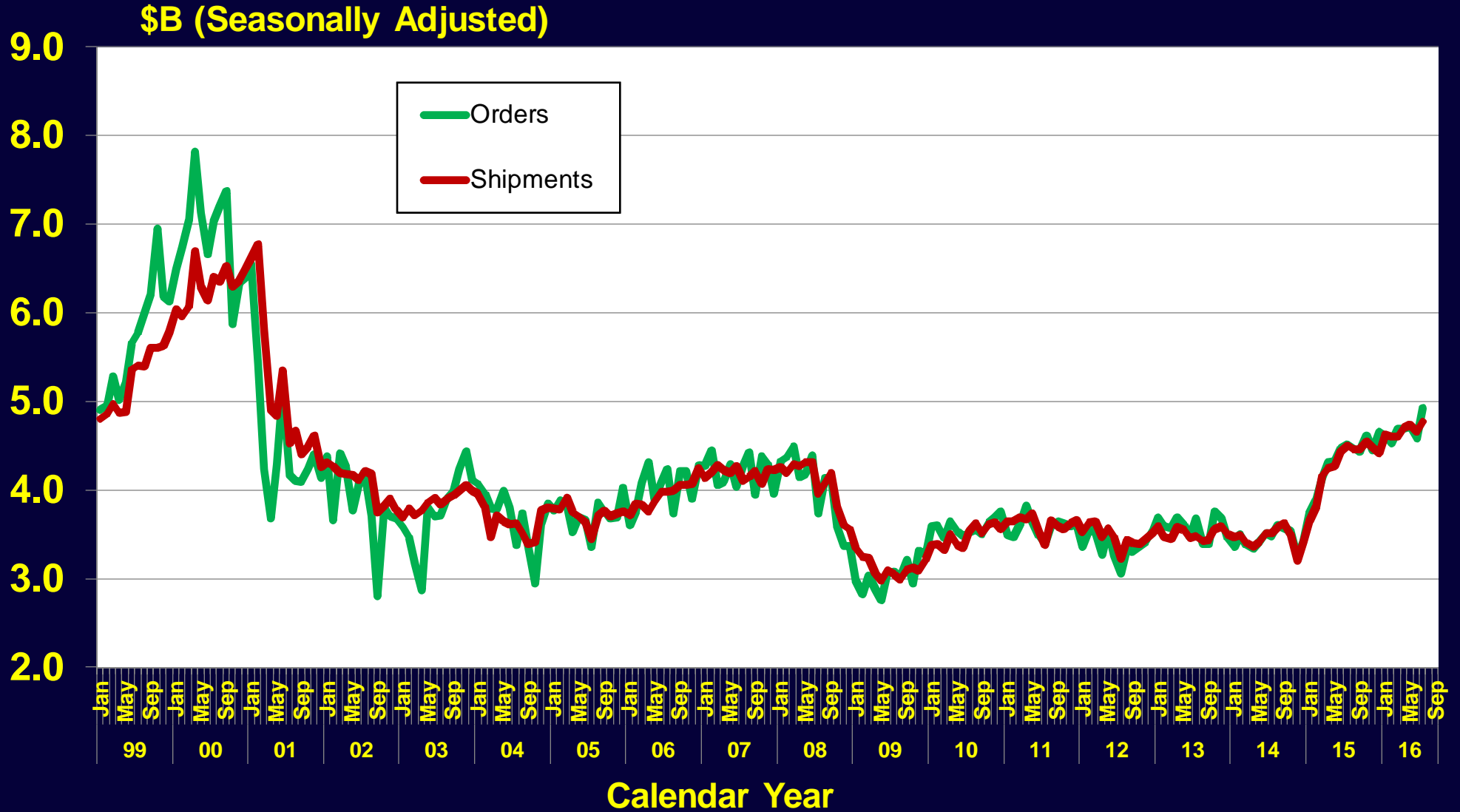
# U.S. Aircraft & Parts Shipments



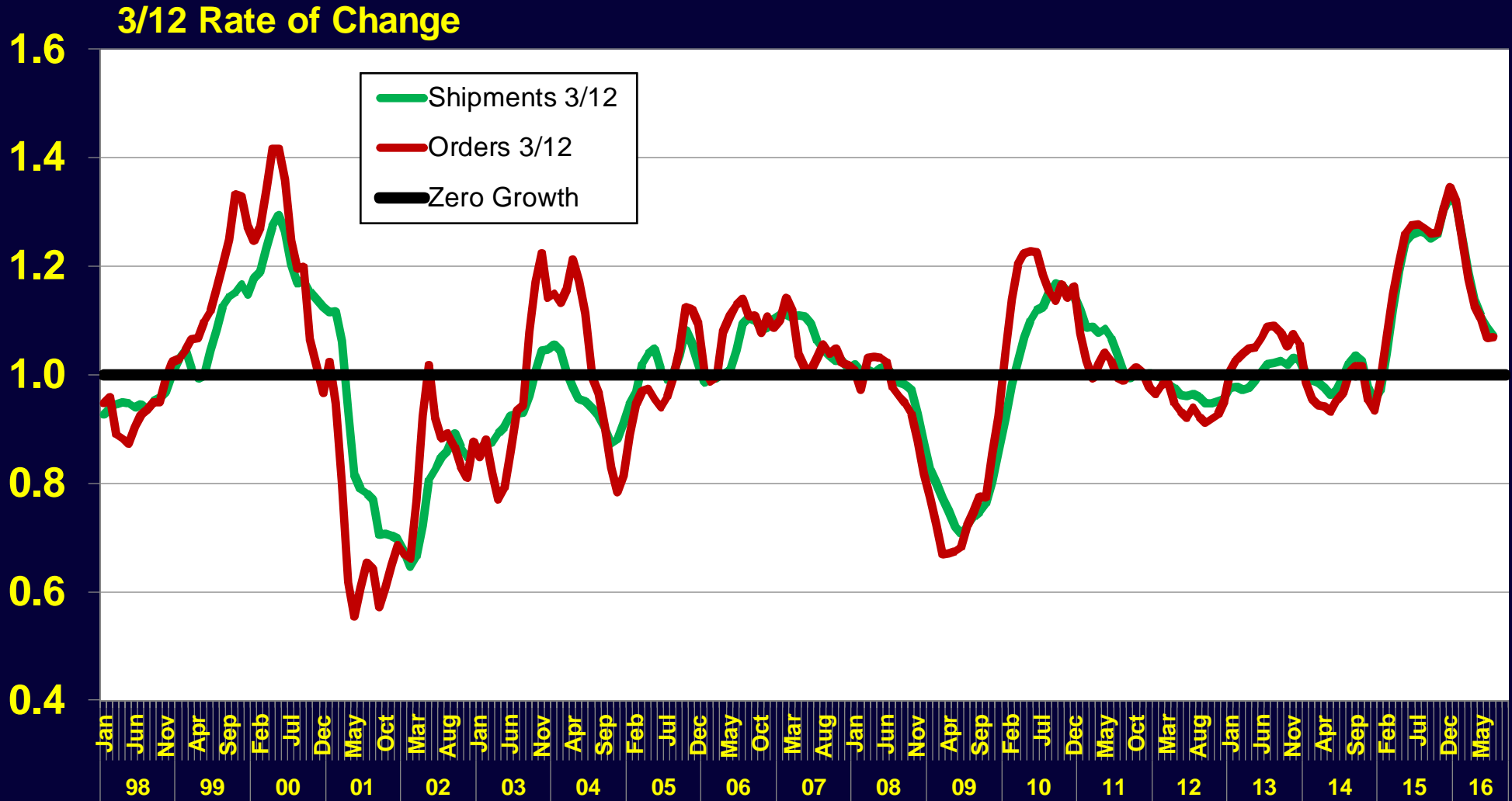
# U.S. Military Electronics Orders & Shipments Defense Communication & Search & Navigation Equipment



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



# U.S. Passive Component Orders & Shipments



# Present Growth Rates (%)

## U.S. Economy & Electronics Industry

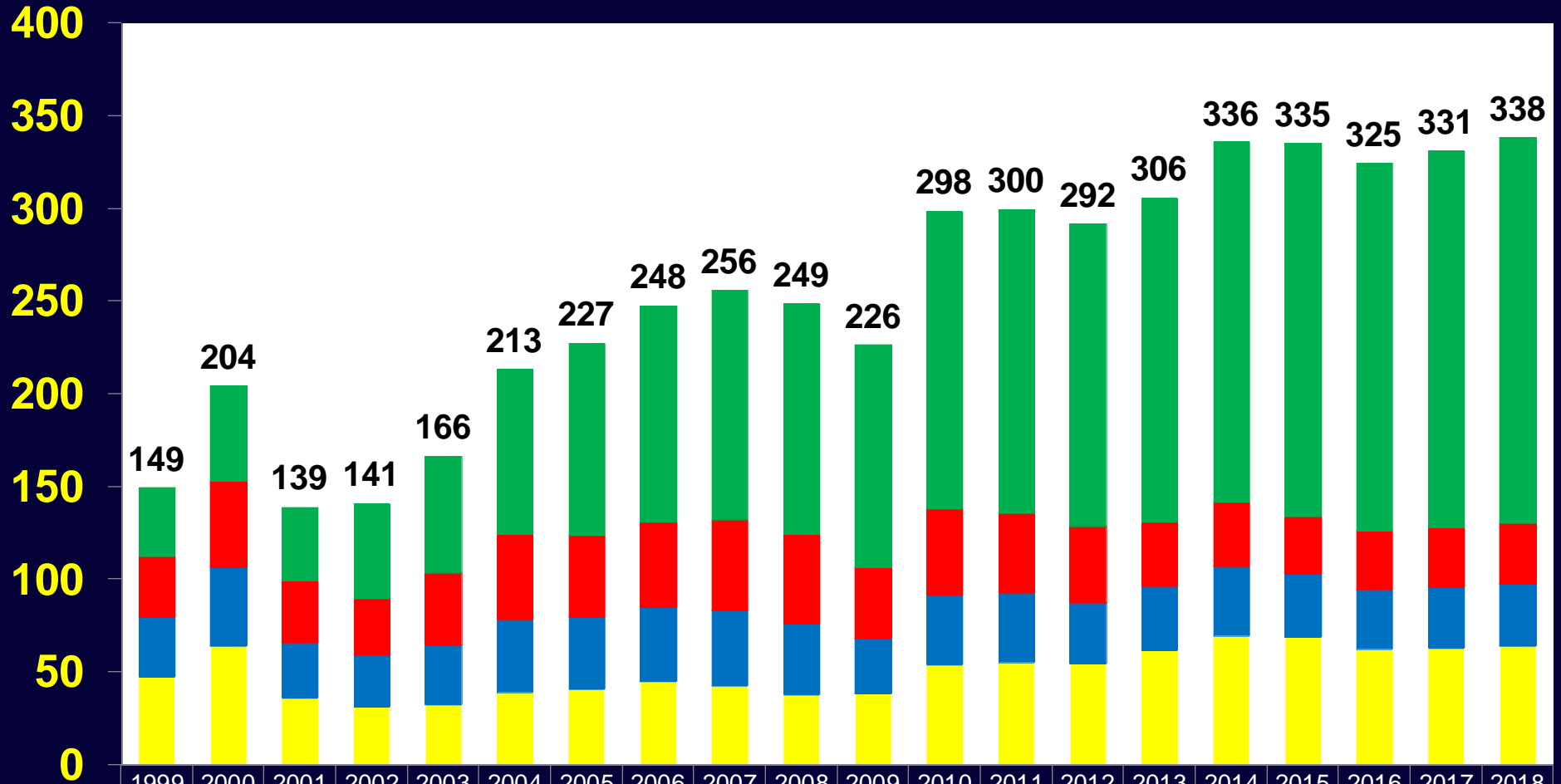
	Latest Month	Annual Growth	3-Month Growth
<b>Electronic Component \$</b>			
Rigid & Flex PCB Orders (N Amer)	7/16	98.8	88.2
Rigid & Flex PCB Shipments (N Amer)	7/16	103.5	105.0
Electronic Component Orders	7/16	118.5	107.0
Electronic Component Shipments	7/16	118.7	107.3
Semiconductor Shipments to N America	6/16	88.7	89.1
<b>U.S. Electronic Equipment Orders \$</b>			
Computer & Related	7/16	88.8	84.0
Communication	7/16	105.6	99.0
Medical, Measurement & Control	7/16	104.7	106.5
Search & Navigation	7/16	106.0	101.2
Defense Capital Goods	7/16	114.4	90.1
Military Electronics	7/16	106.0	102.2
Total Electronic Equipment	7/16	103.2	101.2
<b>U.S. Industrial Production</b>	7/16	98.9	99.2

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

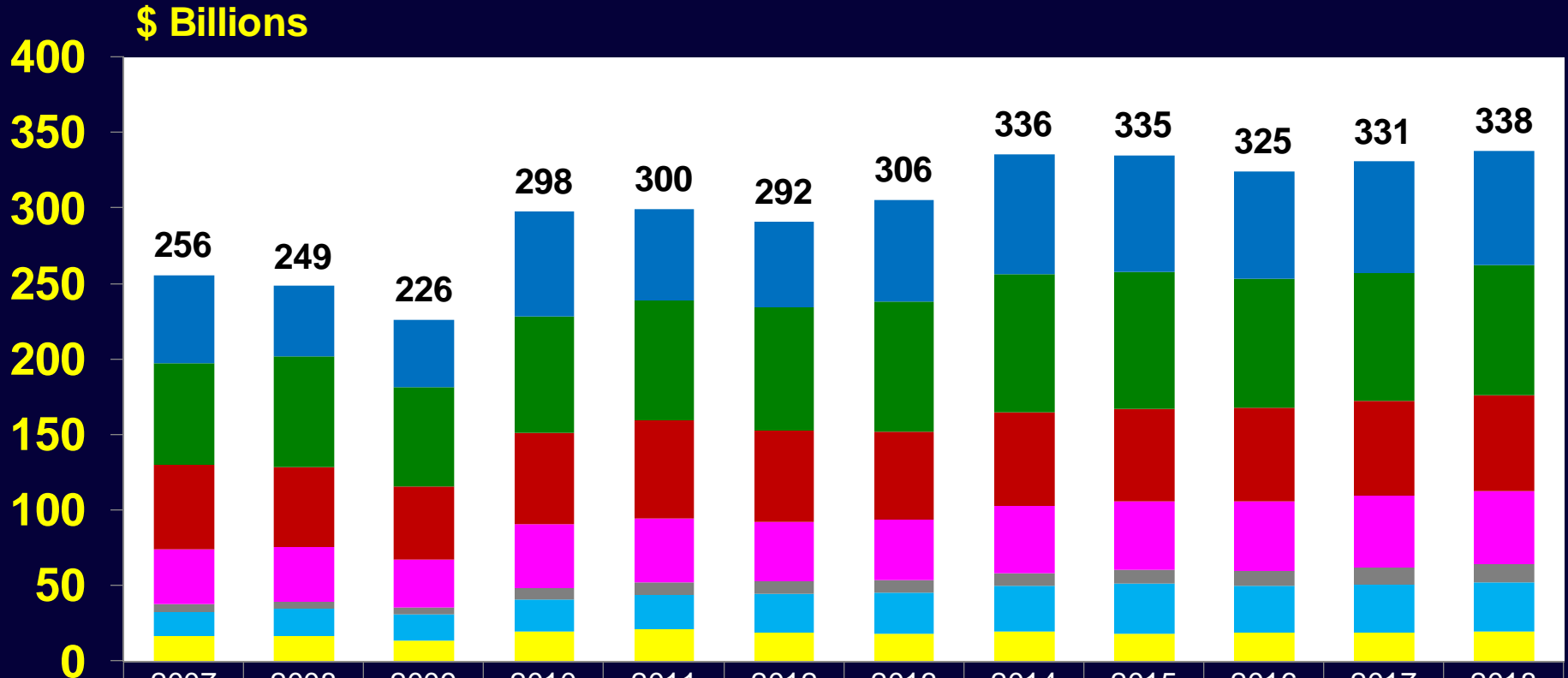


Chart 25

# Worldwide Semiconductor Market by Geography WSTS Forecast

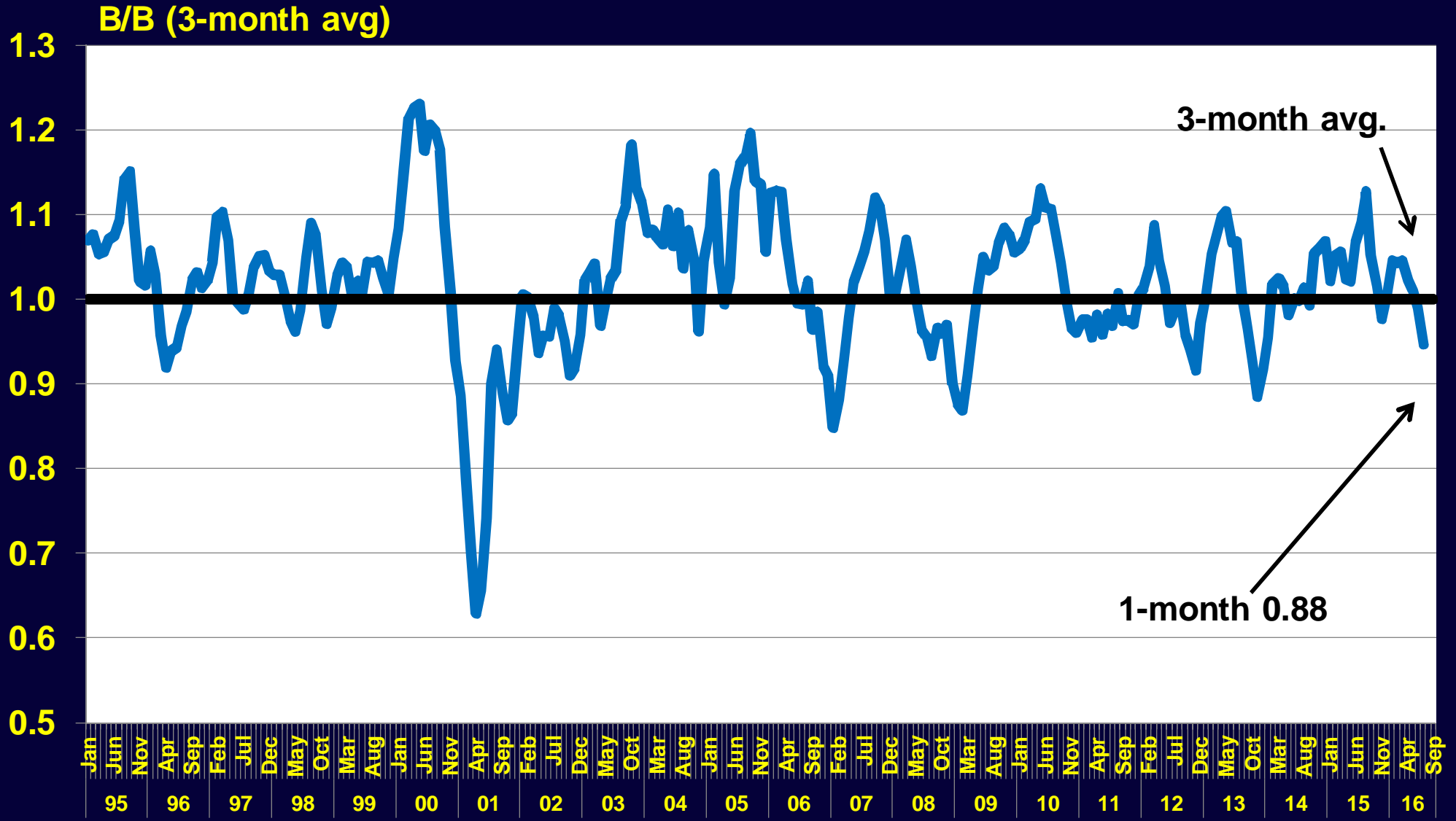


# Worldwide Semiconductor Market by Type WSTS Forecast

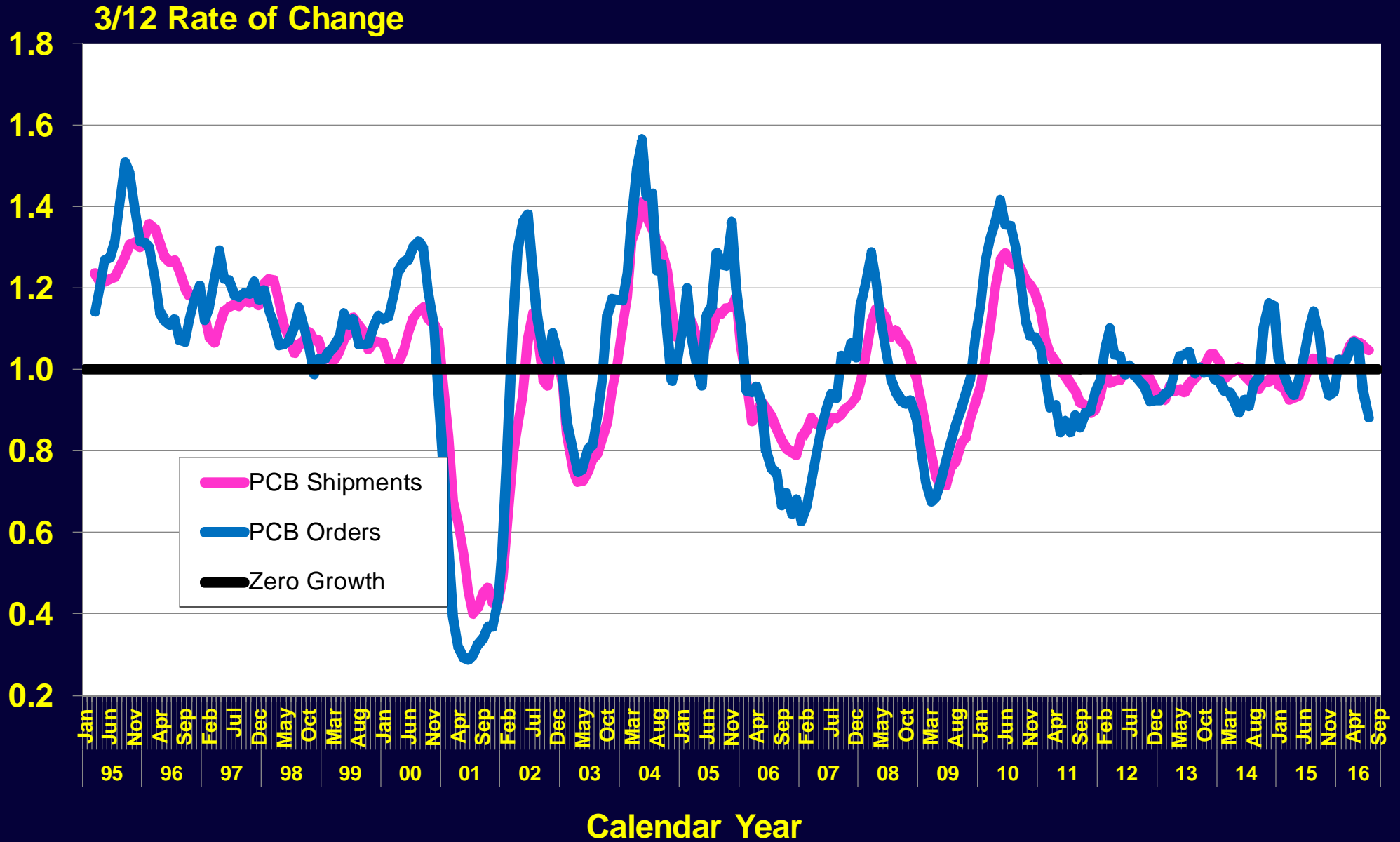


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total	255646	248604	226314	298316	299522	291561	305582	335842	335168	324550	331000	338288
IC-Memory	57854	46348	44797	69614	60749	56995	67043	79232	77205	71164	73791	75737
IC-Logic	67292	73531	65215	77377	78782	81703	85928	91633	90753	85547	84942	85882
IC-Micro	56211	53140	48330	60633	65204	60238	58686	62072	61298	61514	62488	63567
IC-Analog	36453	35637	32001	42285	42338	39303	40117	44365	45228	45940	47478	48833
Sensors	5126	5111	4753	6903	7970	8009	8036	8502	8816	10474	11198	11546
Optoelectronics	15901	17902	17043	21702	23092	26175	27571	29868	33256	30916	31552	32642
Discrete	16809	16935	14175	19802	21387	19138	18201	20170	18612	18995	19551	20081

# Rigid & Flexible PCB Book/Bill N. America

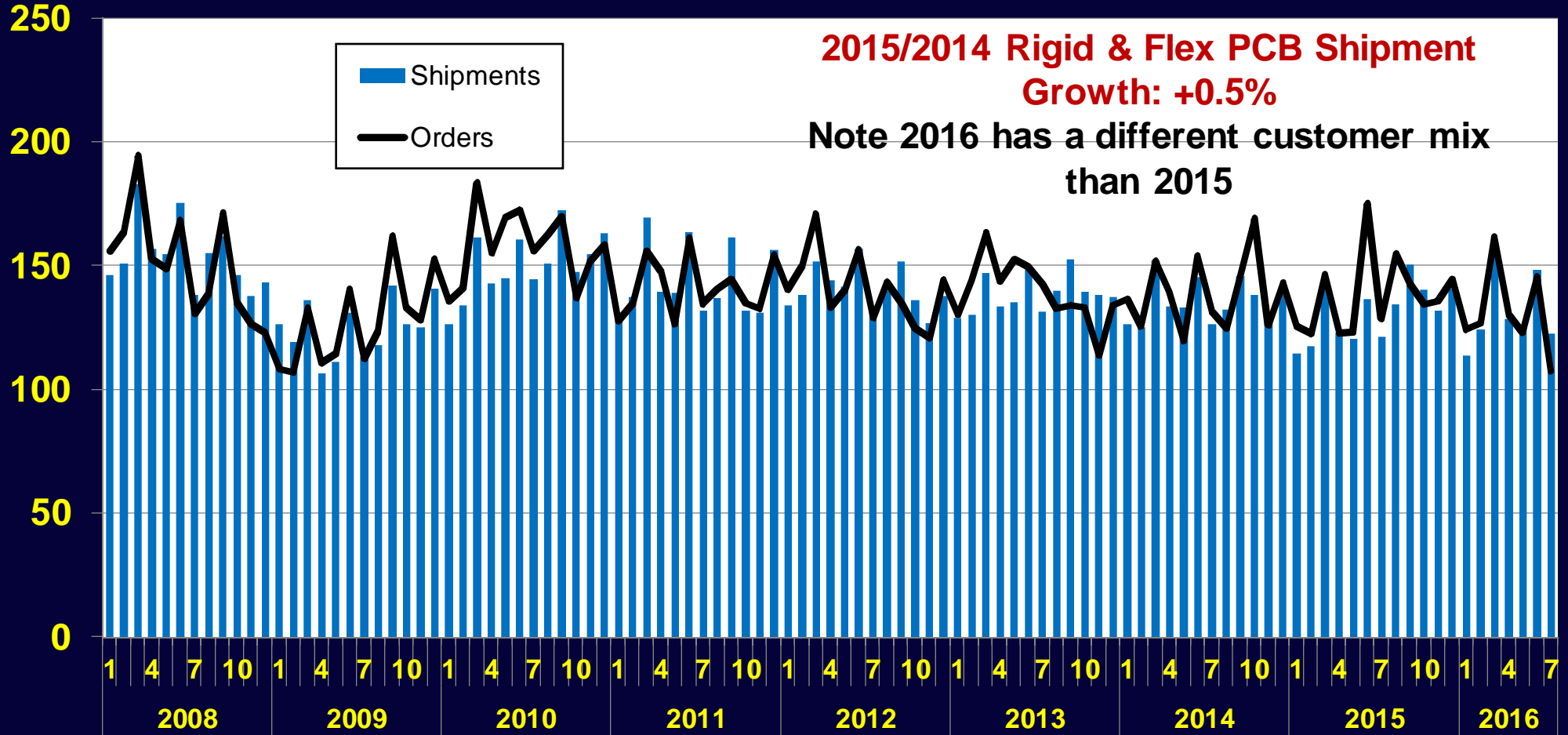


# N. America Rigid & Flexible PCB Orders & Shipments



# N American Rigid & Flexible PCB Shipments & Orders

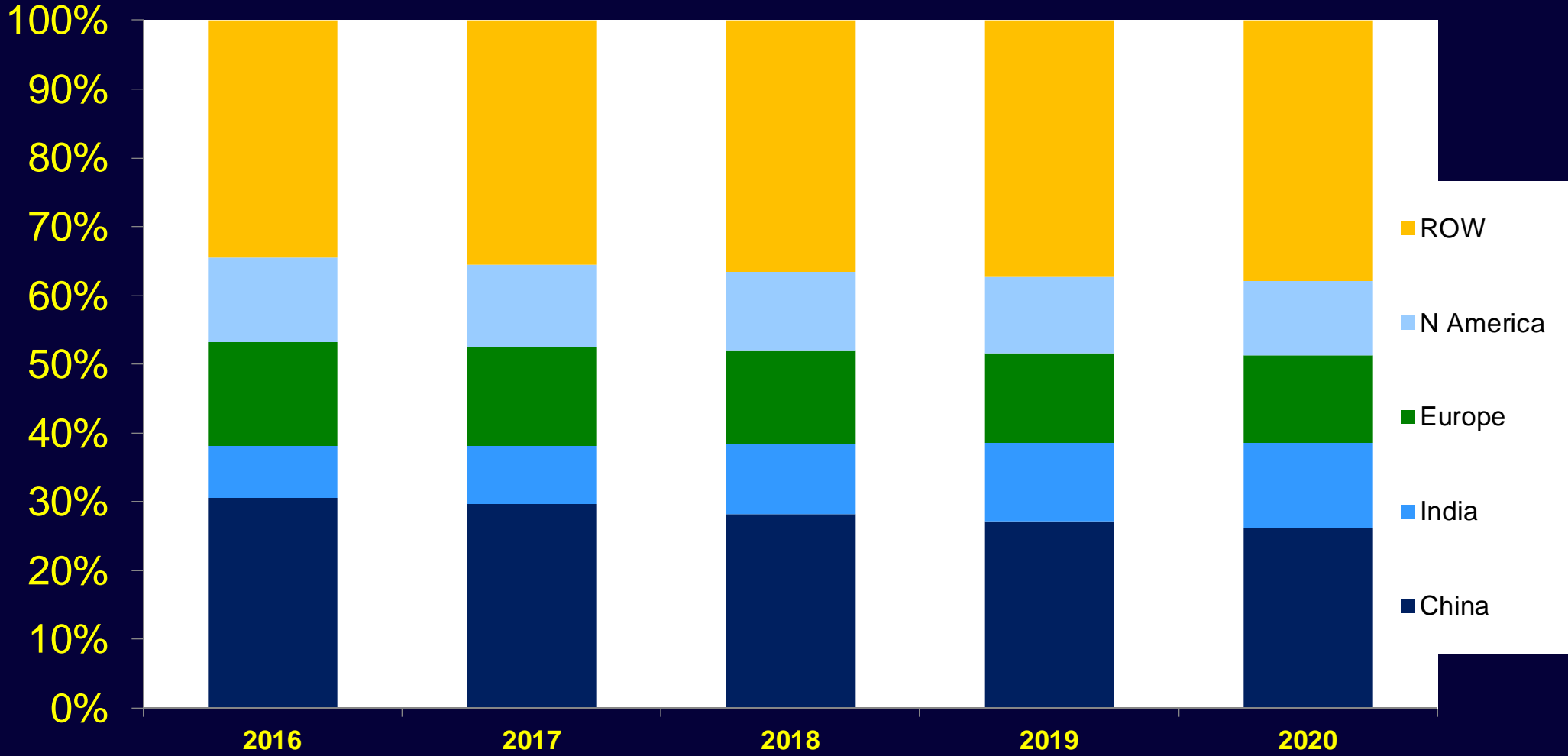
\$M (statistical sample of about 50% of producers)



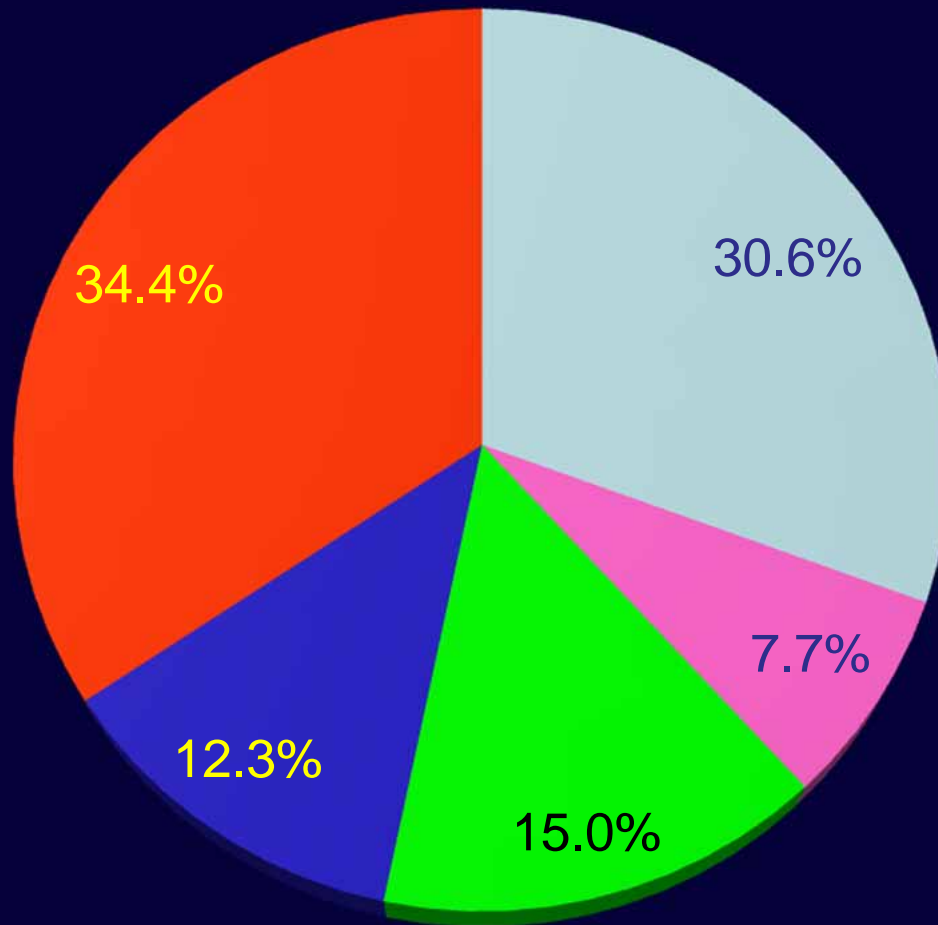
Note: IPC survey captures "market" not domestic production. About 15% of the above represents imported boards resold by N American PCB producers in survey.

# Smartphone Shipments by Region

Share %



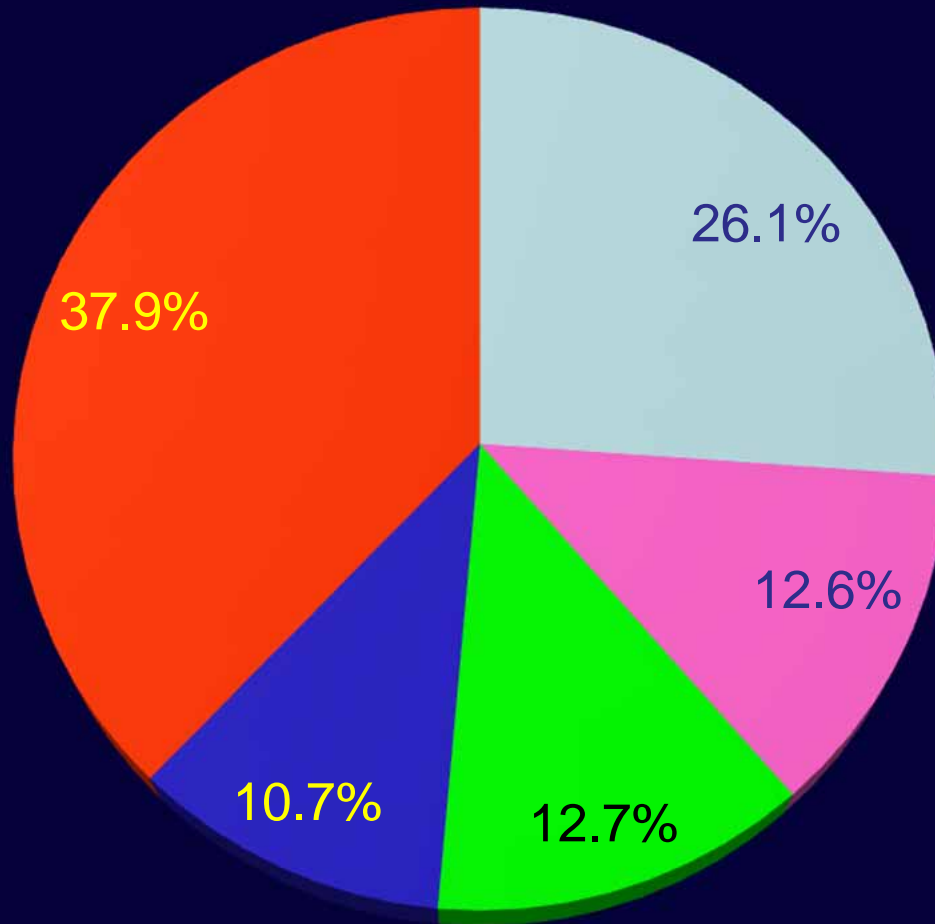
# World Smartphone Sales 2016 by Region



- China
- India
- Europe
- N America
- ROW

**TOTAL: 1461 Million Units**

# World Smartphone Sales 2020 by Region



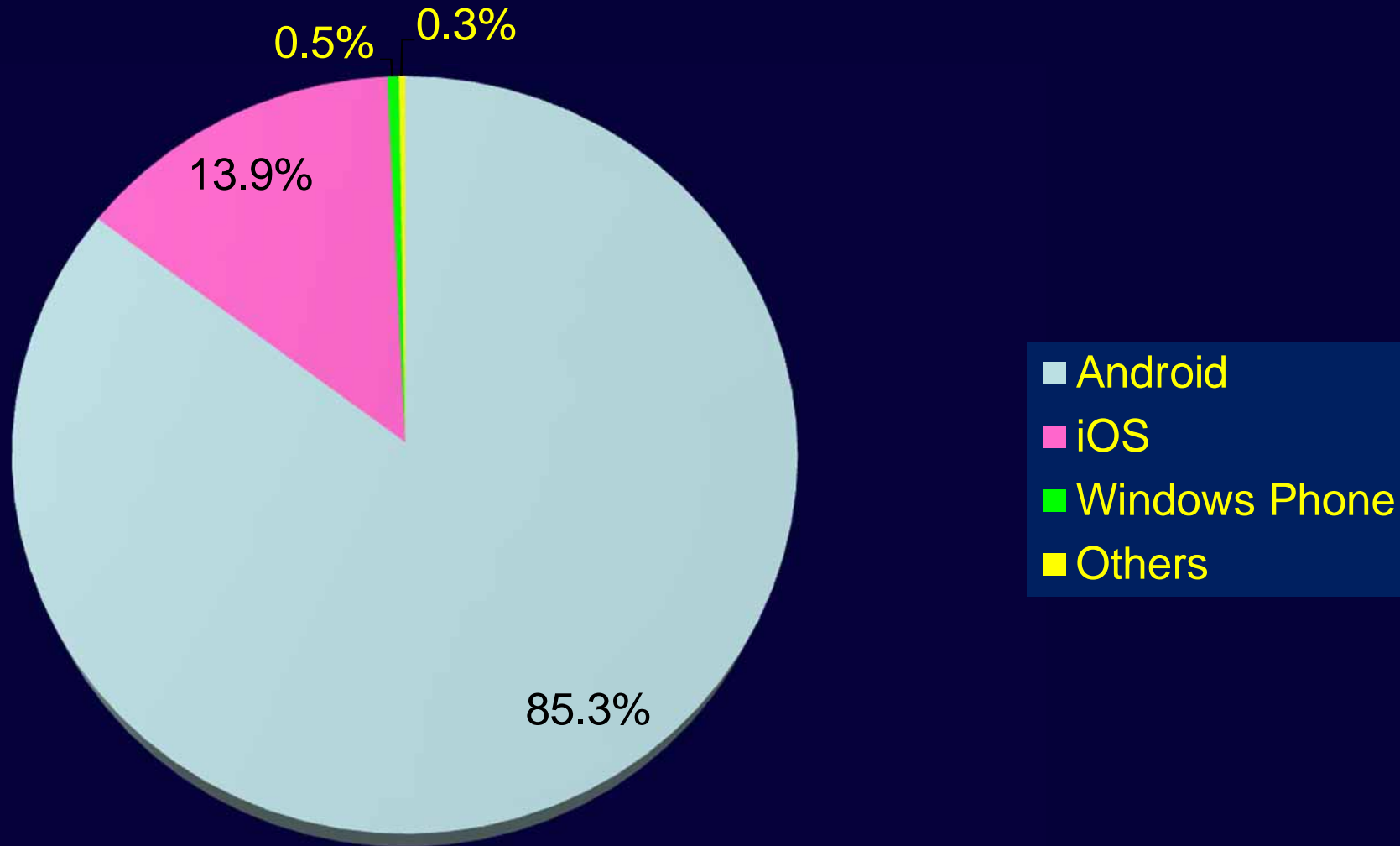
- China
- India
- Europe
- N America
- ROW

**TOTAL: 1759 Million Units**



# World Smartphone Sales by Operating System 2016

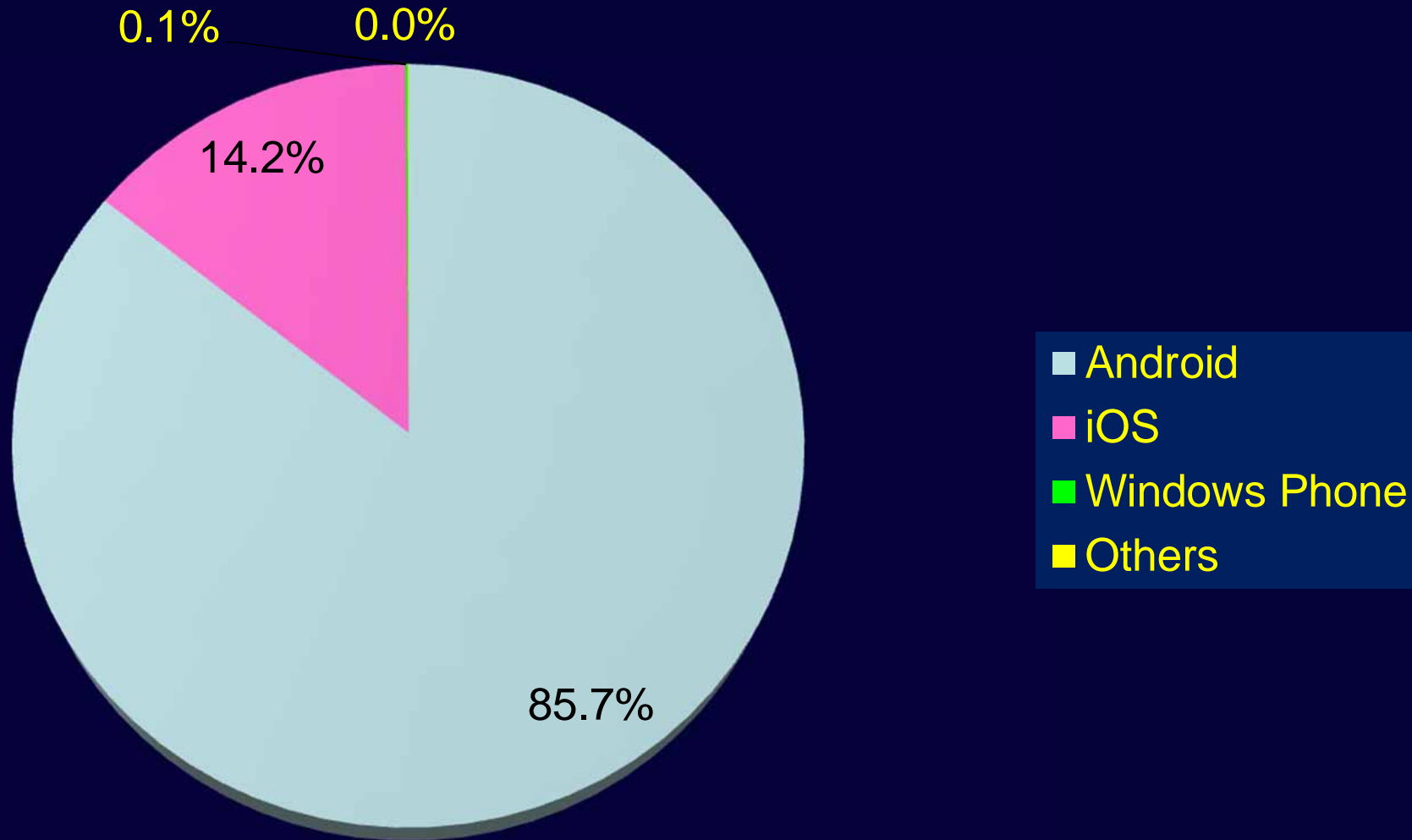
Units



**TOTAL: 1,461 Million Units**

# World Smartphone Sales by Operating System 2020

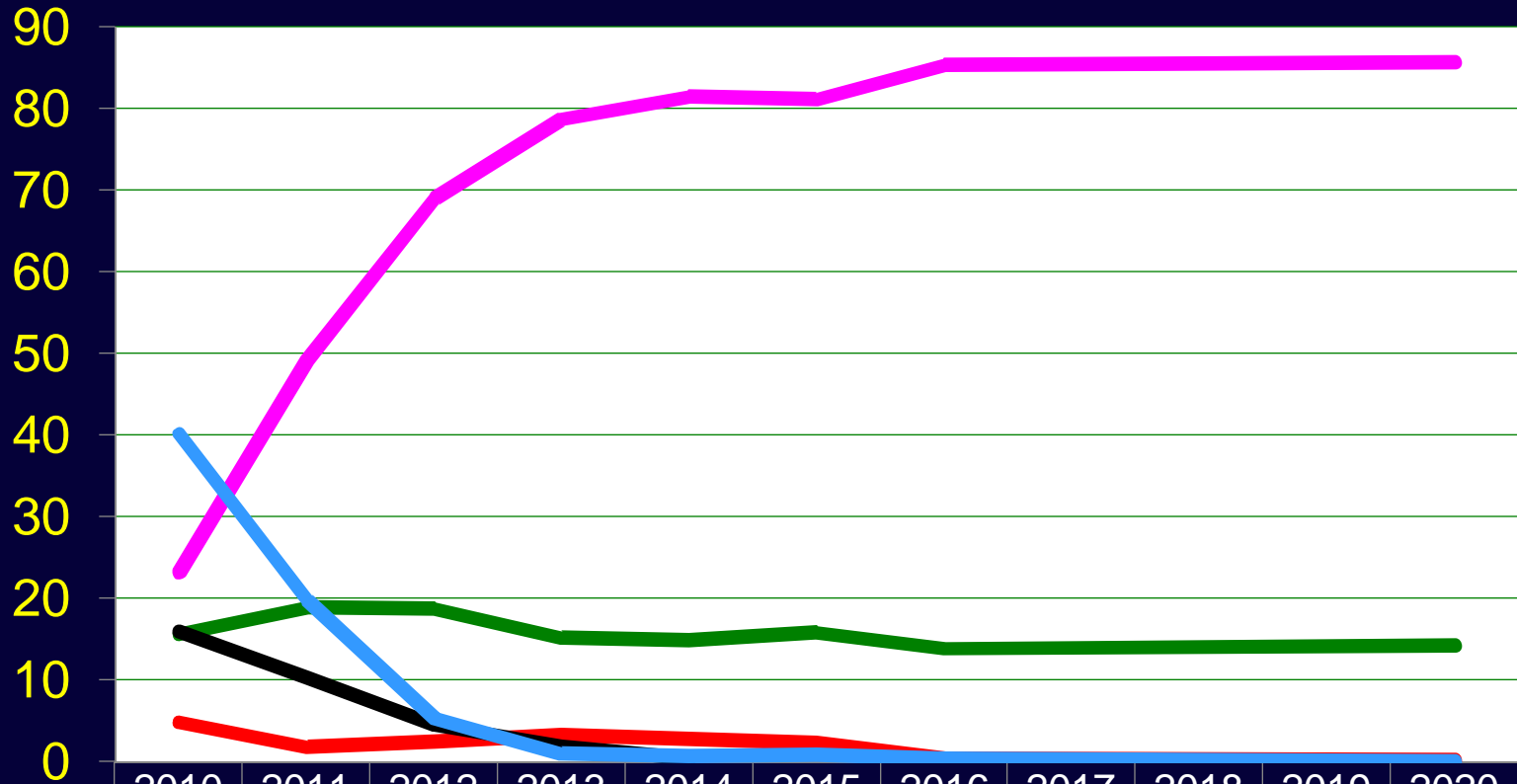
Units



**TOTAL: 1,759 Million Units**

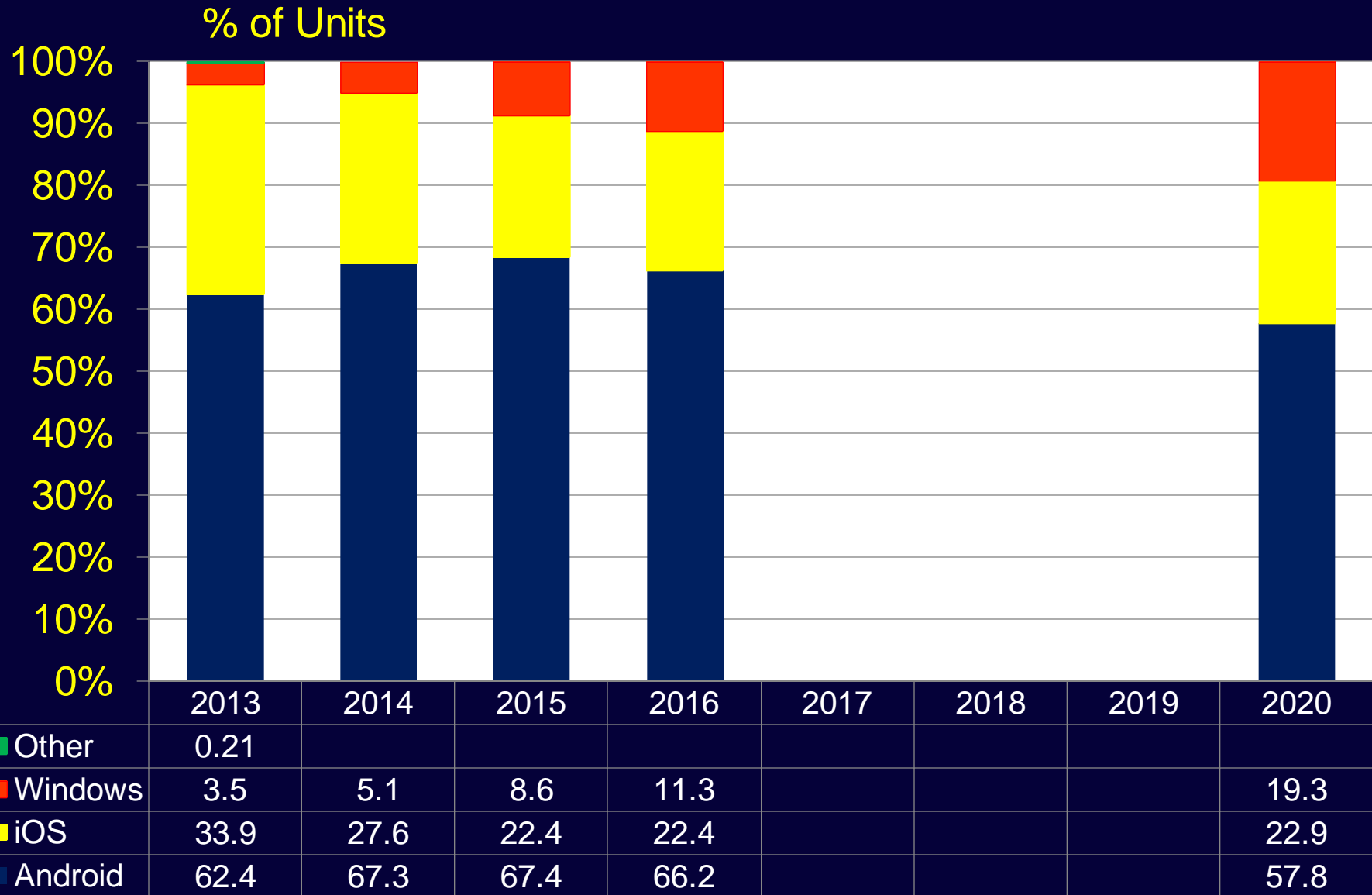
# World Smartphone Market

% Share

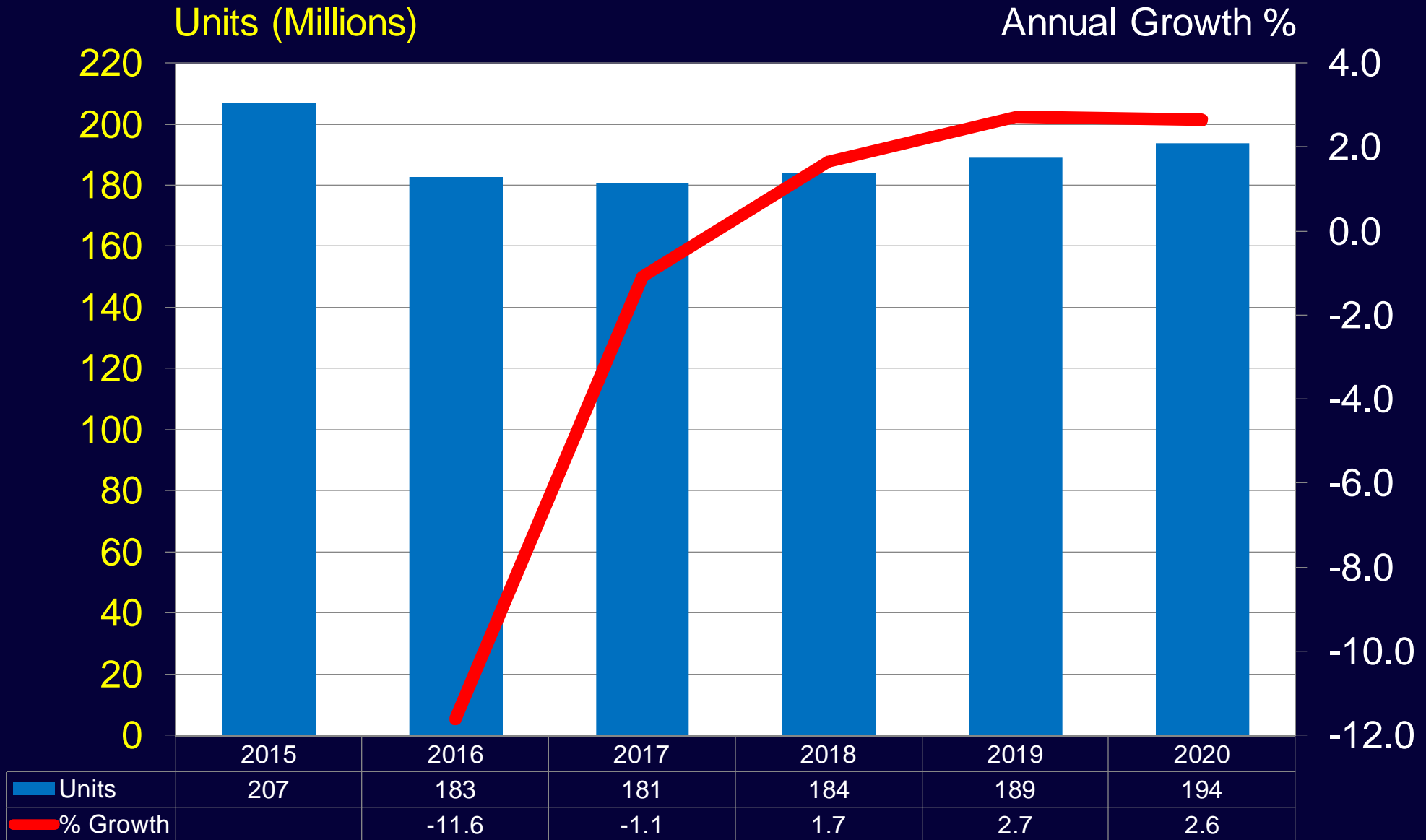


	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Android	23.3	49.2	69.0	78.8	81.5	81.2	85.3				85.7
Windows Phone	4.9	1.8	2.5	3.3	2.7	2.2	0.5				0.1
iOS	15.6	18.8	18.7	15.1	14.8	15.8	13.9				14.2
Blackberry OS	16.0	10.3	4.5	1.9	0.4						
Others	40.2	19.8	5.4	1.0	0.6	0.8	0.3				0.0

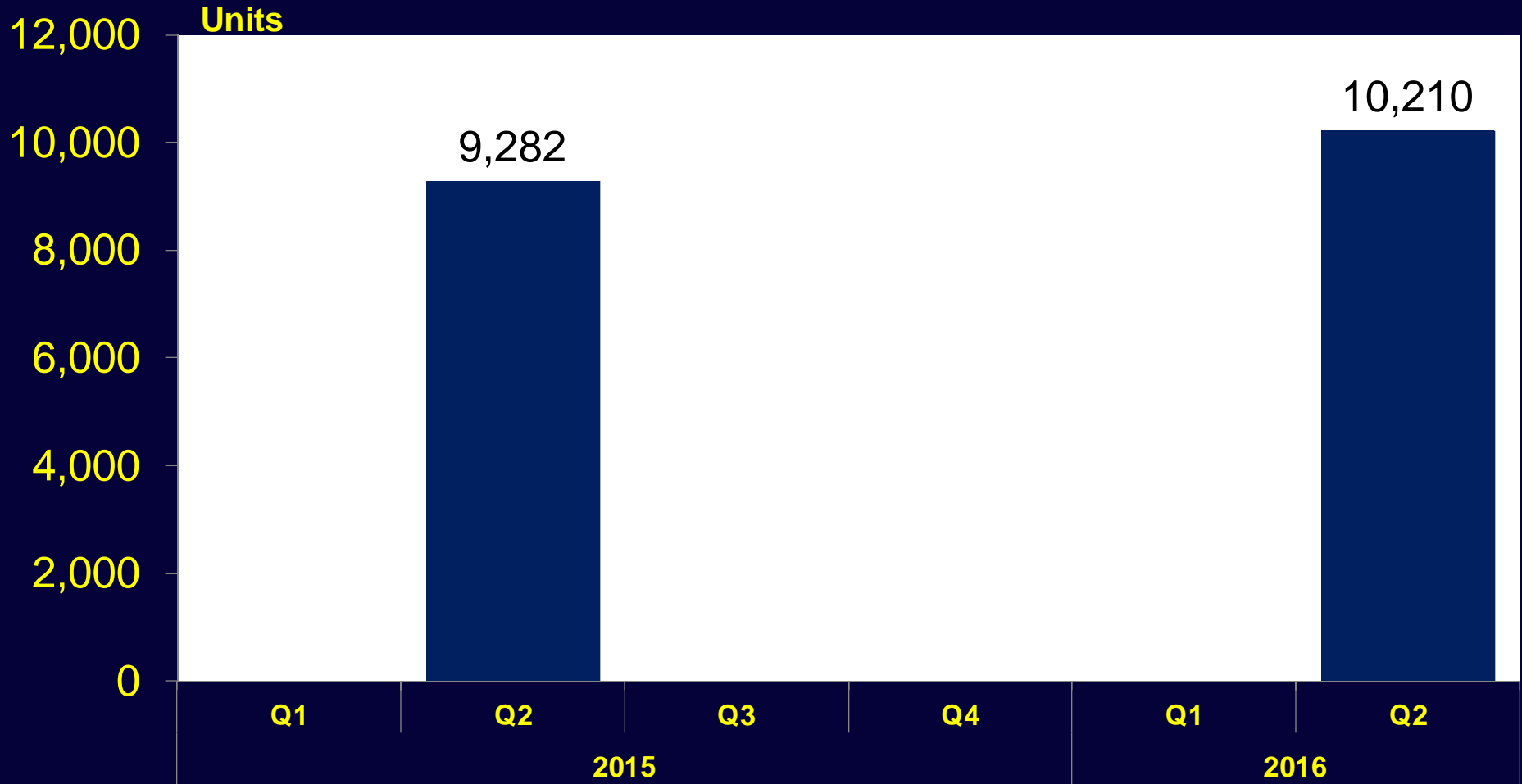
# Media Tablet plus 2-in-1 Shipments by Operating System



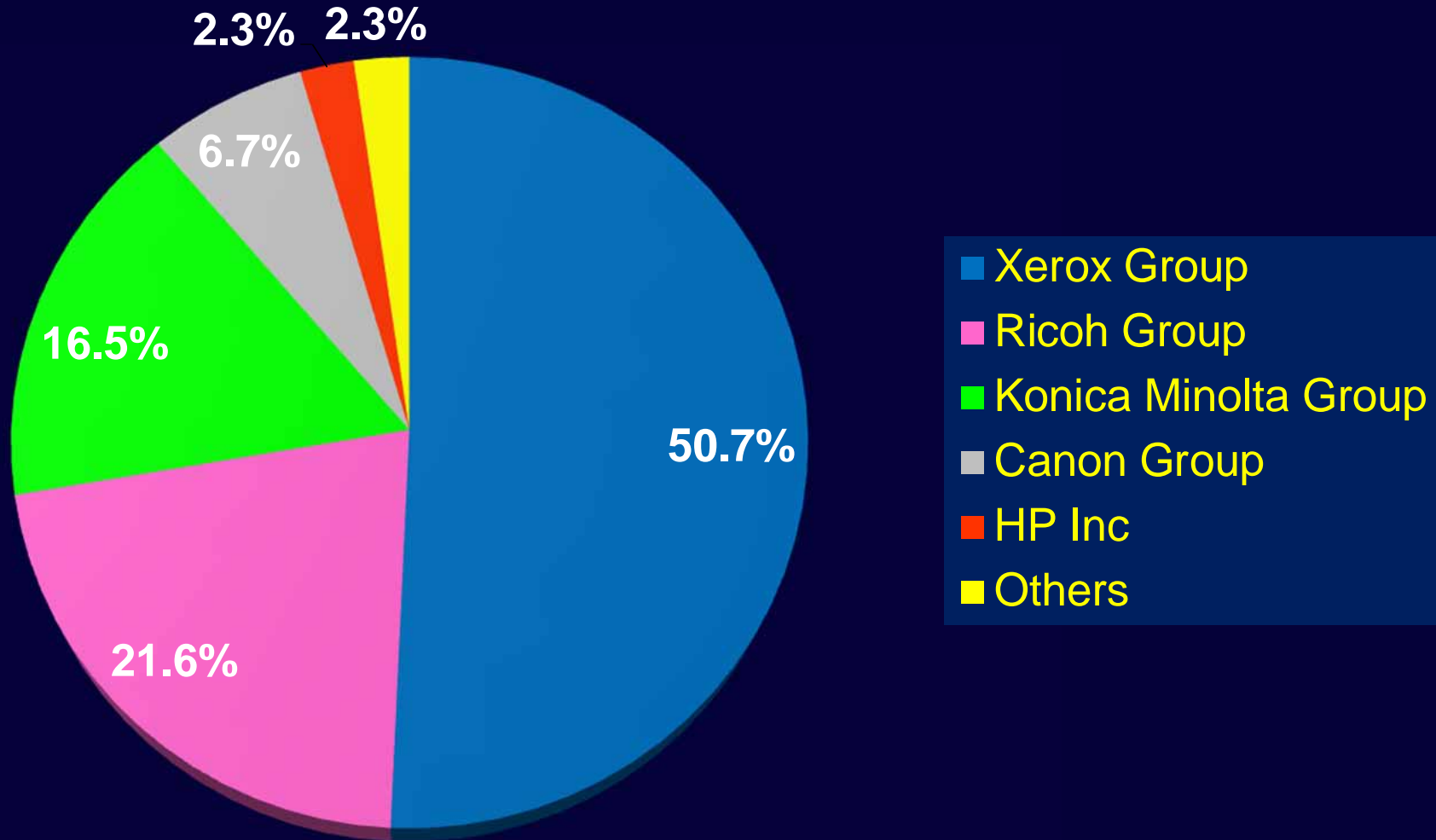
# World Tablet Forecast Slate plus Detachable



# World Production Printer Shipments

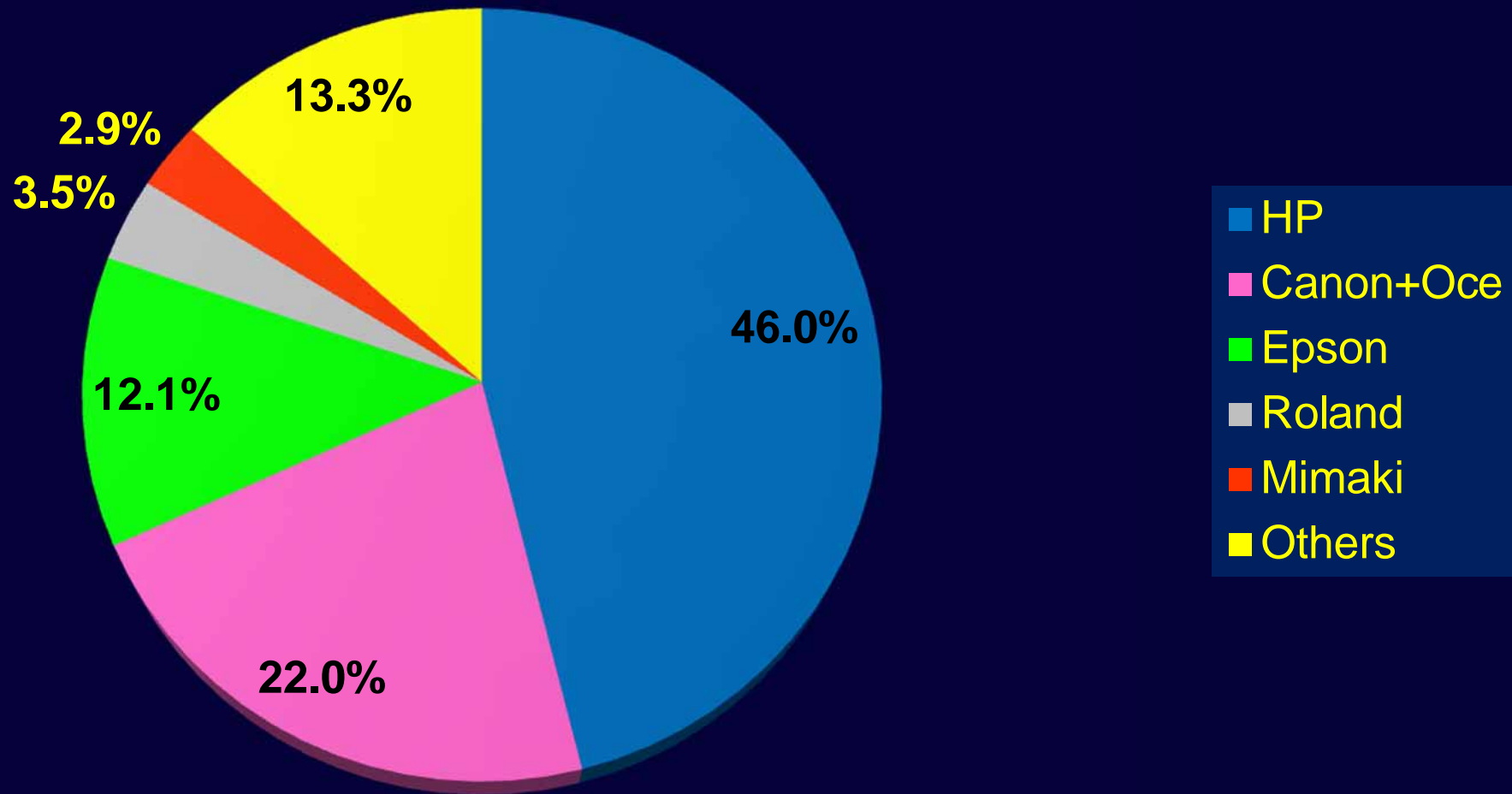


# World Production Printer Shipments 2Q'16



**TOTAL: 10,210 Units**

# World Large Format Printer Unit Shipments 2Q'16





# Domestic Service Robots

