

Chart 1

# U.S. Electronic Equipment Book/Bill Ratio

## 3-Month Average

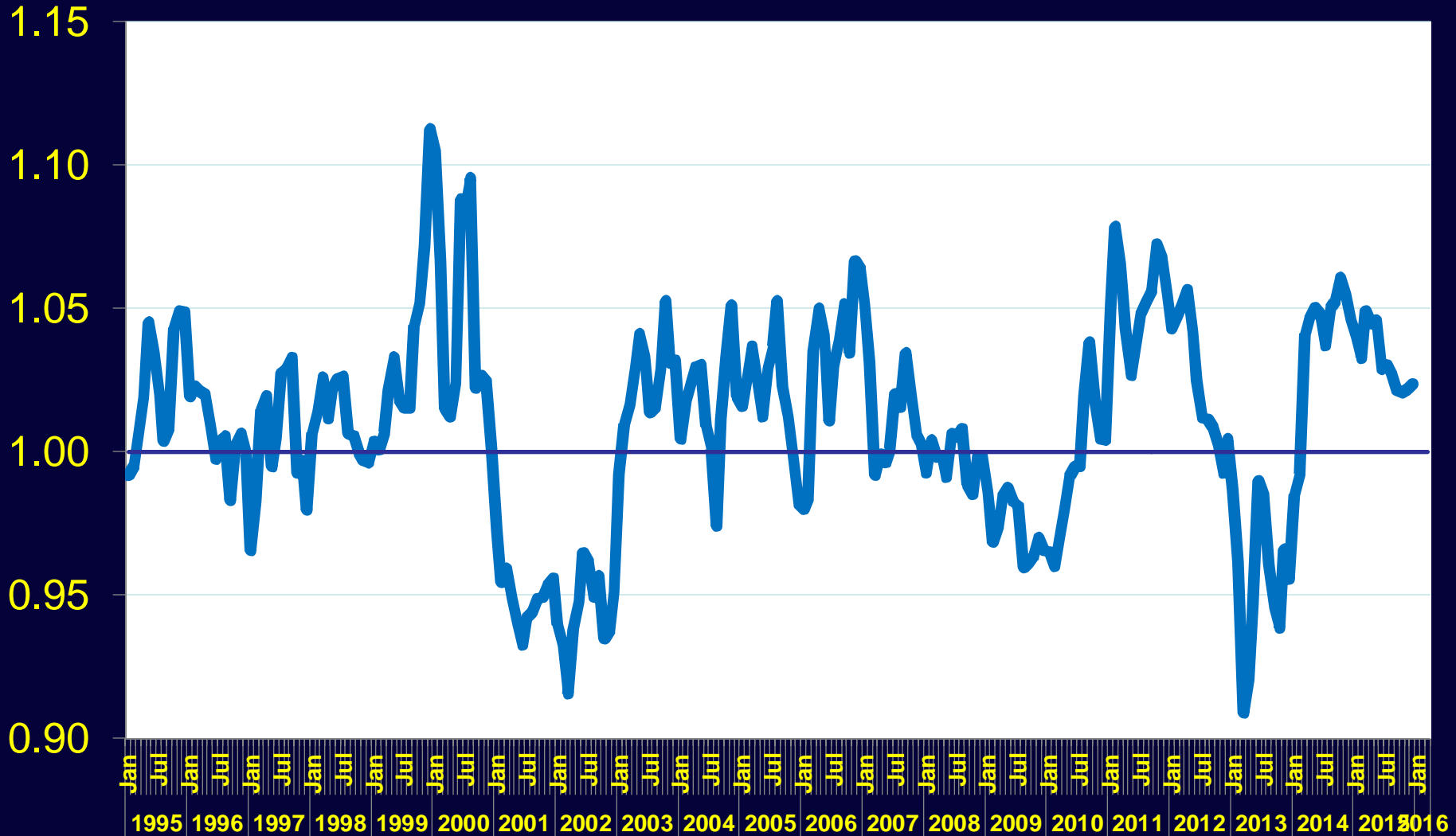


Chart 2

# U.S. Electronic Equipment Orders & Shipments

## Computer, Communications, Measurement & Control and Military

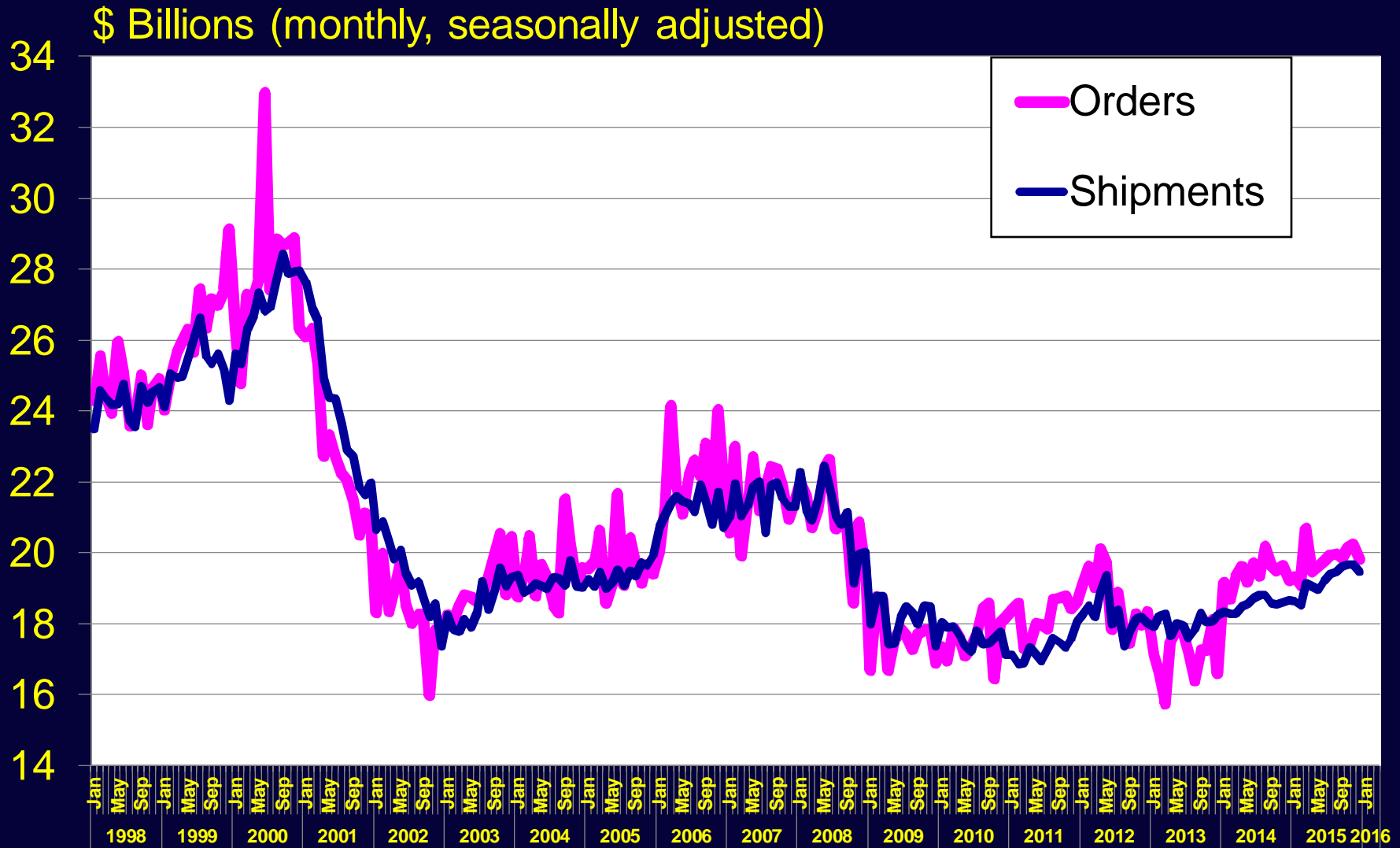


Chart 3

# U.S. Electronic Equipment Order & Shipment Growth

Computer, Communications, Measurement & Control and Military

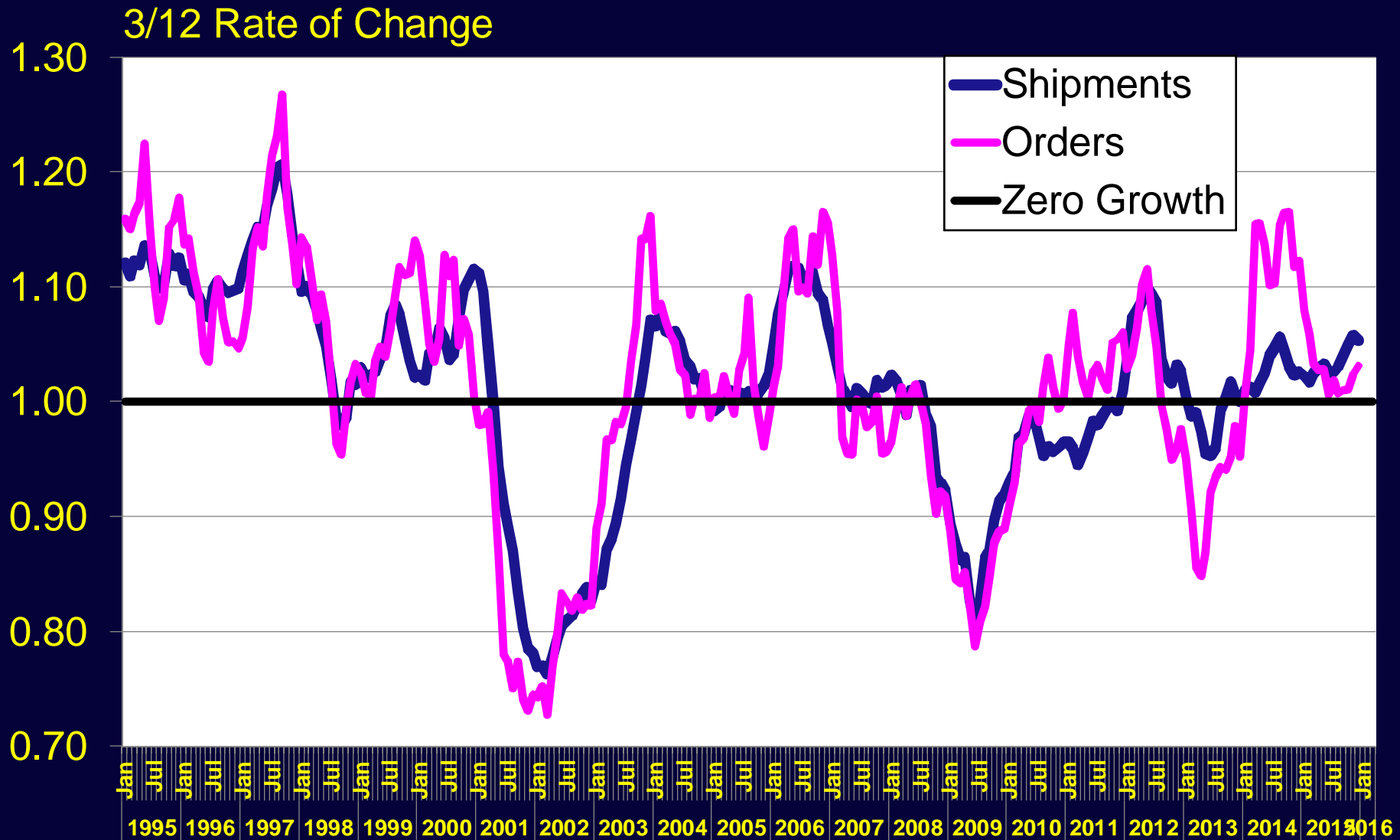


Chart 4

# U.S. Electronic Equipment Inventories vs. Orders

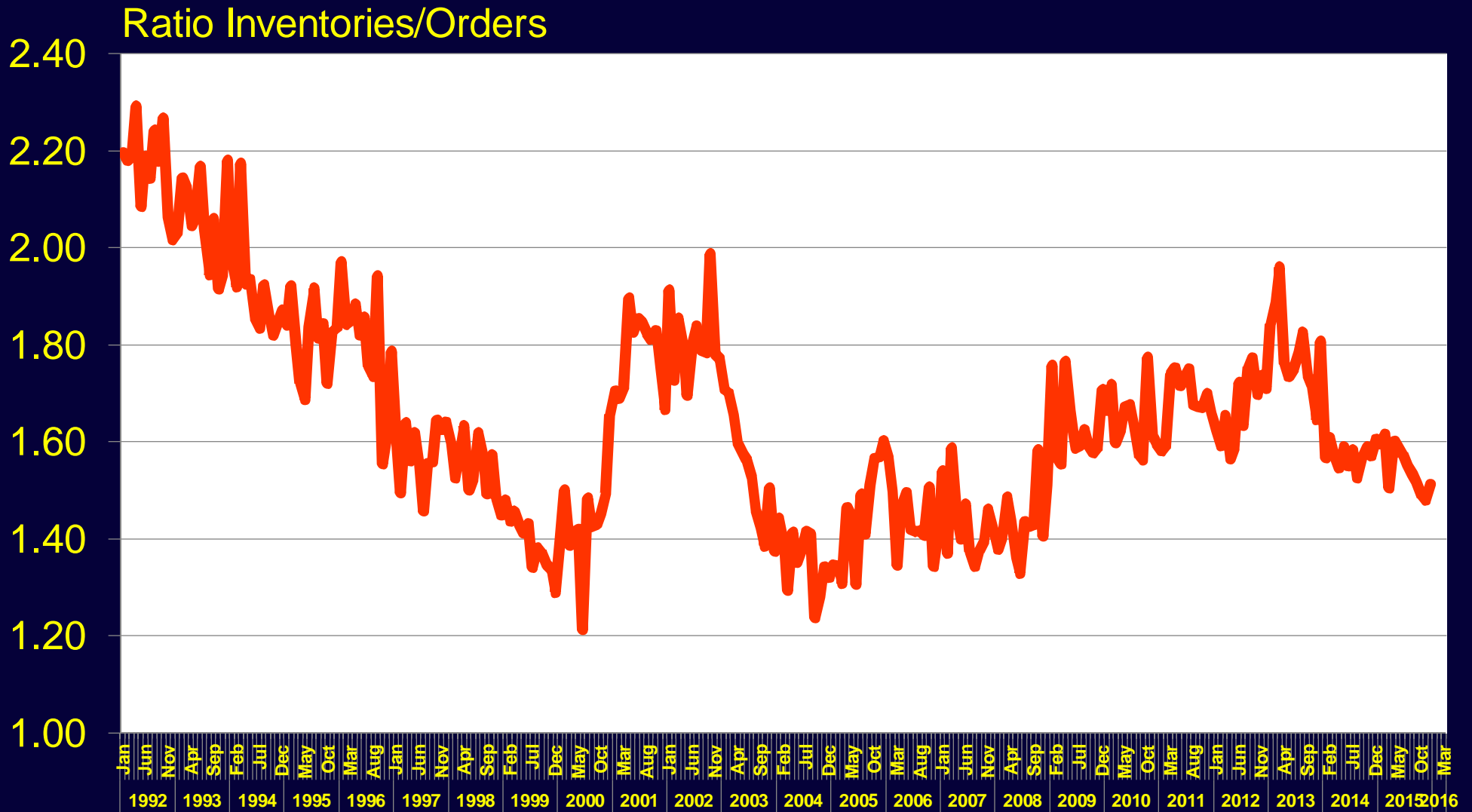


Chart 5

# U.S. Communication Equipment Orders & Shipments

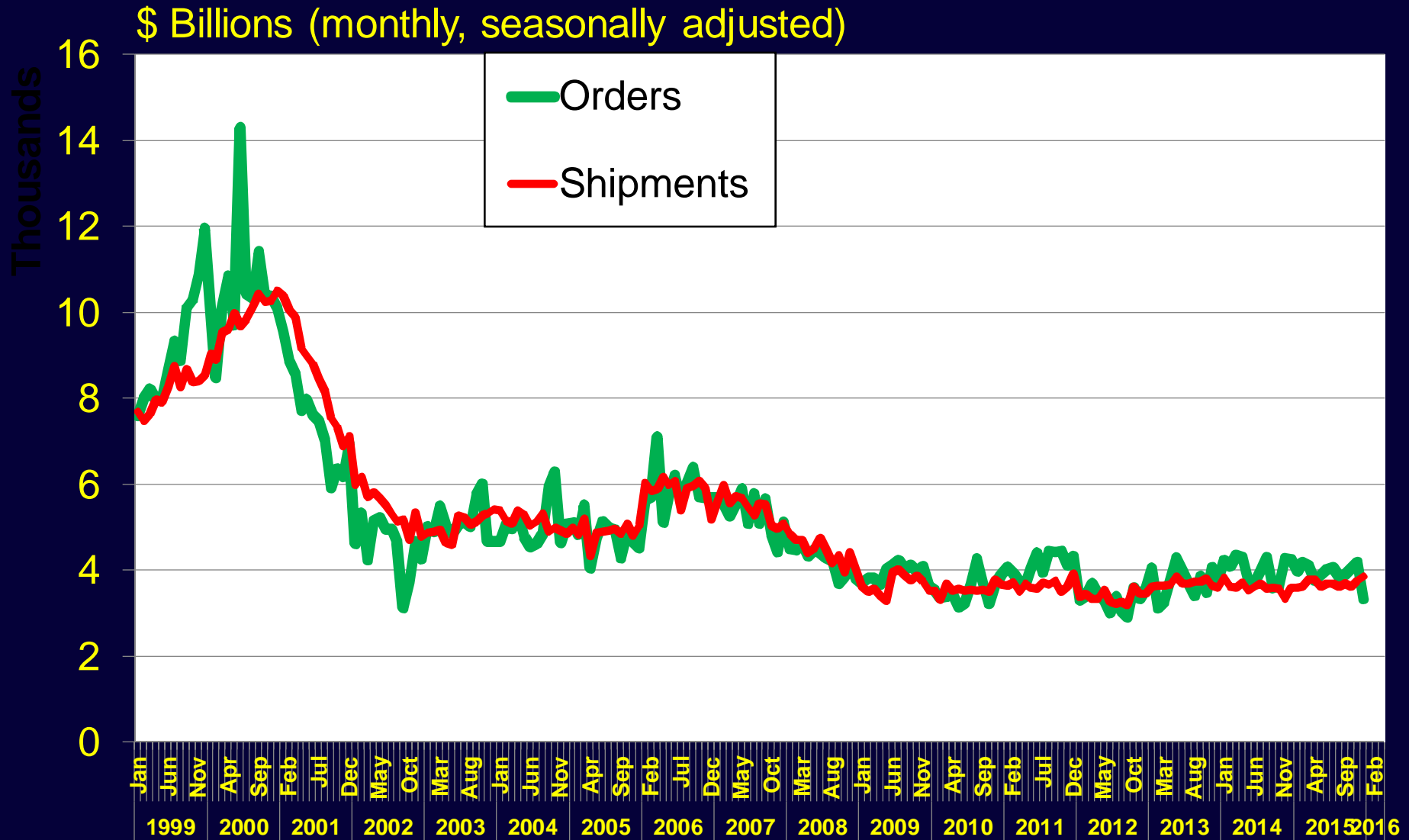
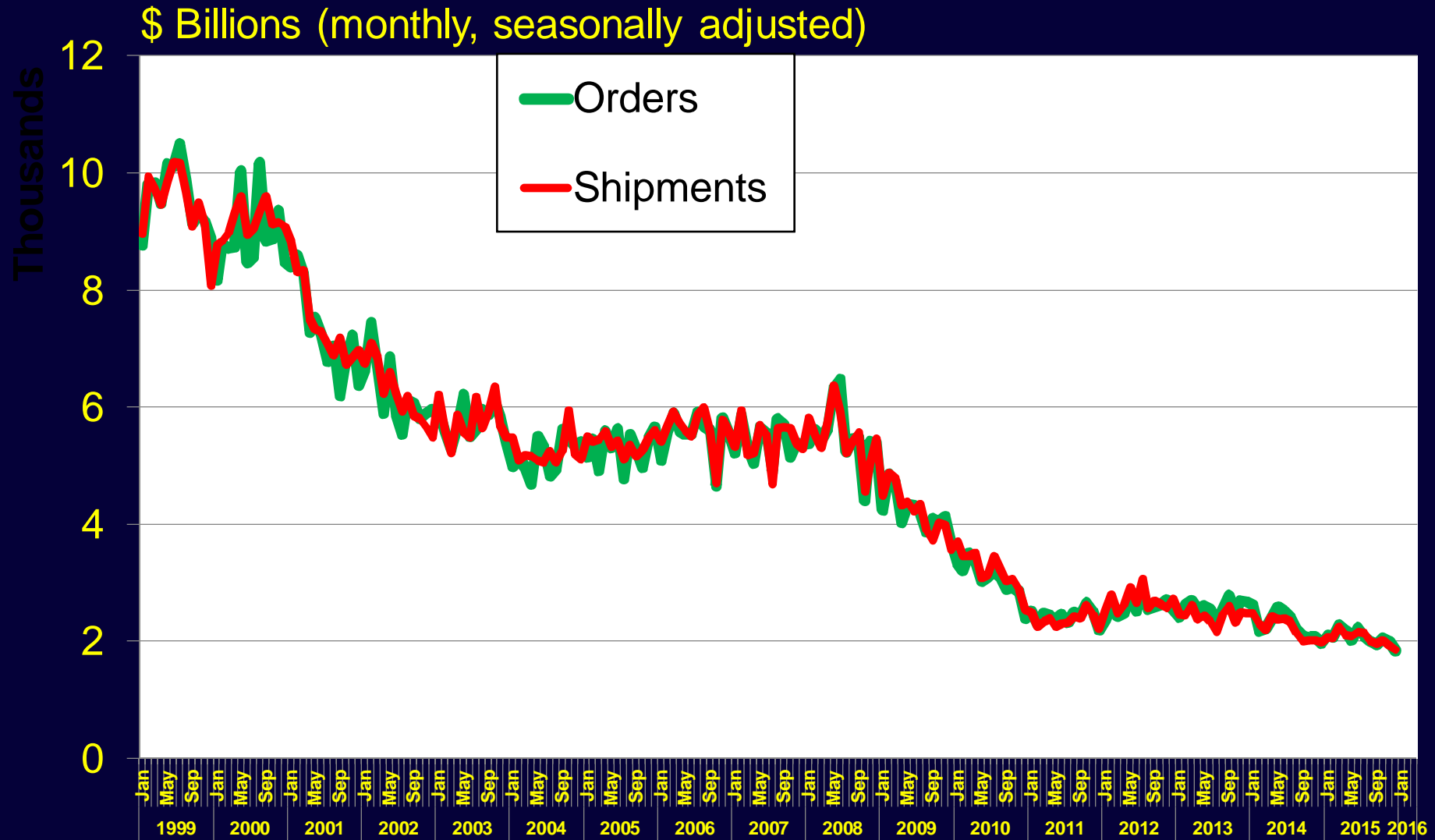
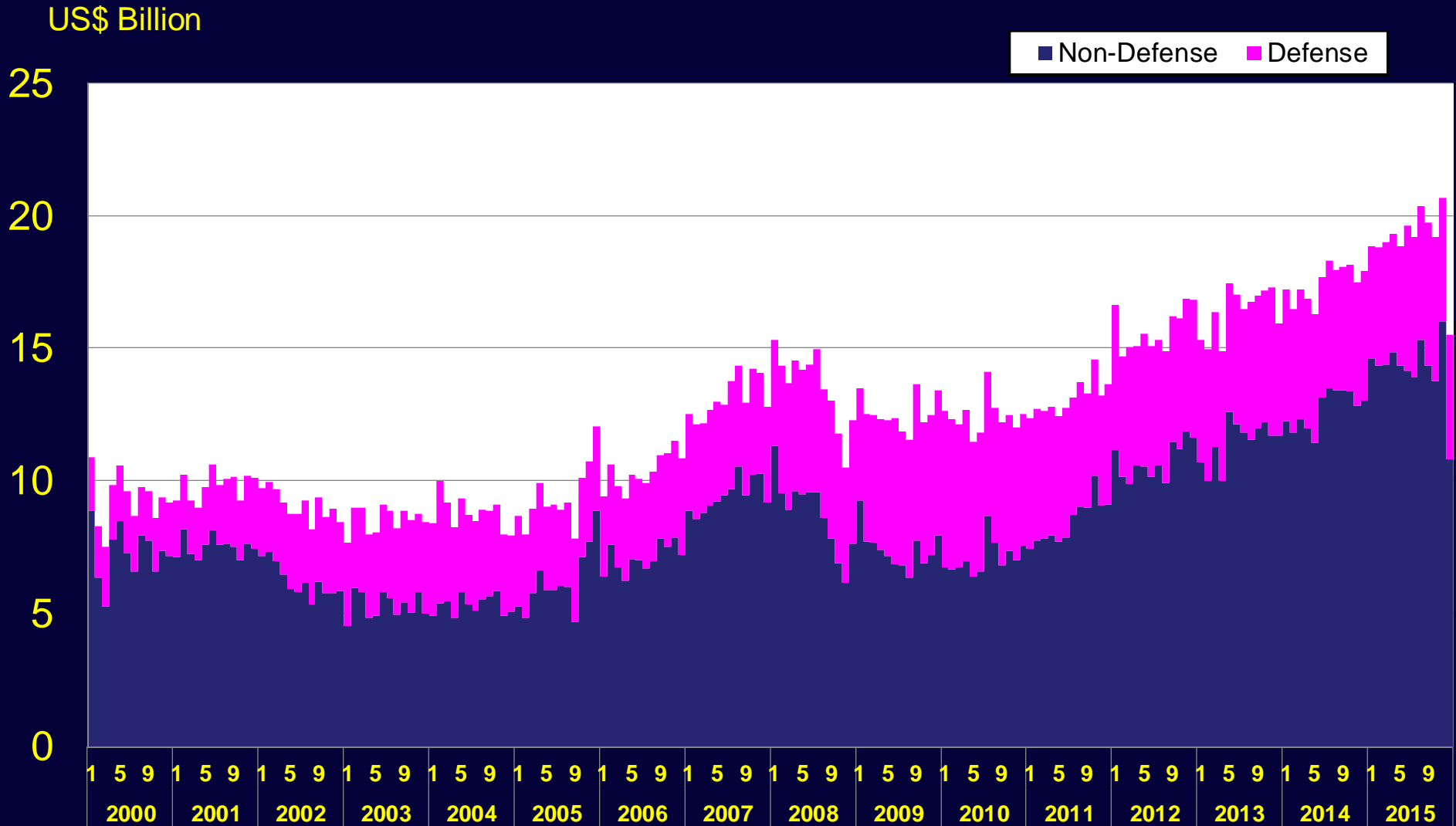


Chart 6

# U.S. Computers & Related Products Orders & Shipments



# U.S. Aircraft & Parts Shipments



# U.S. Aircraft & Parts Orders

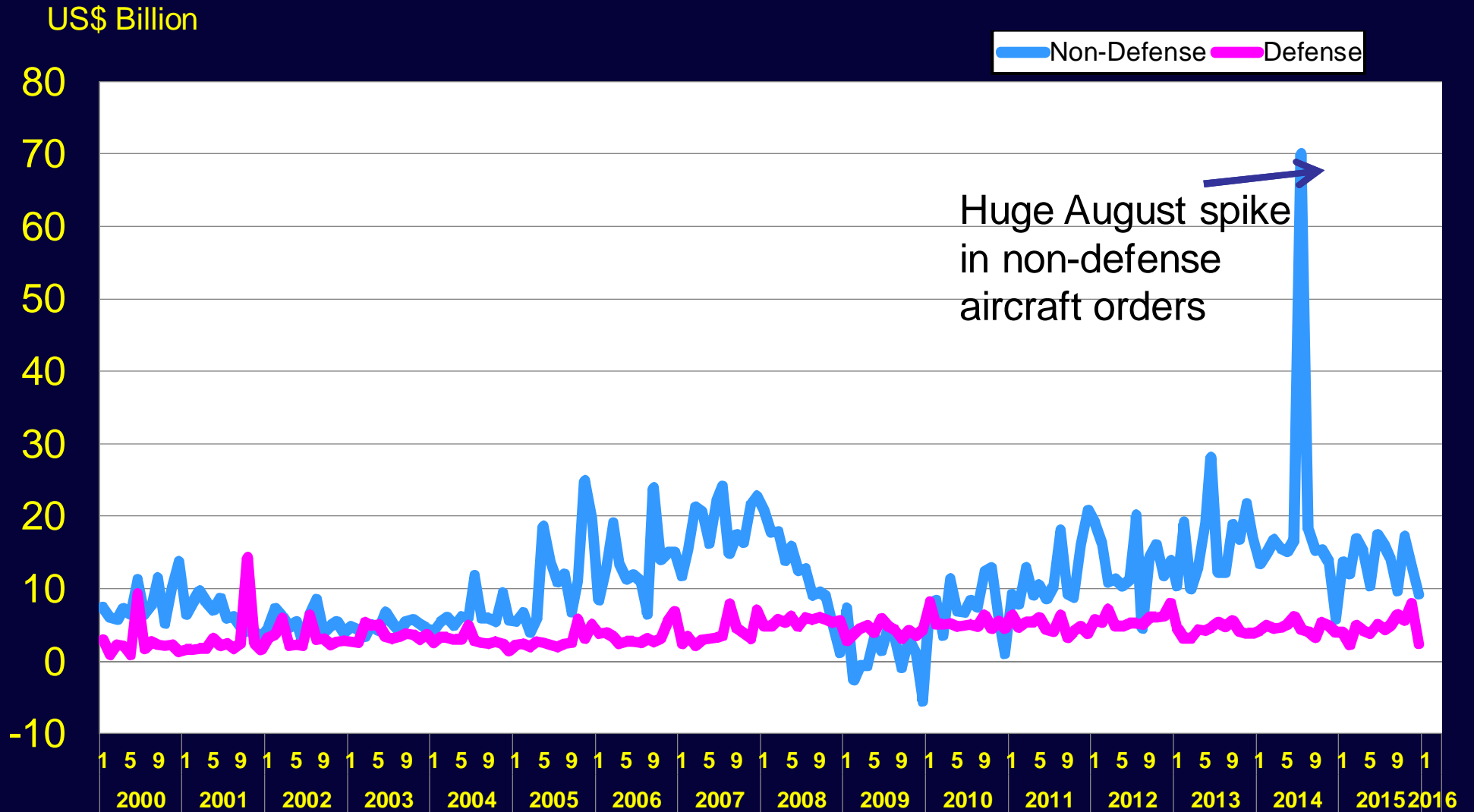




Chart 9

# U.S. Defense Capital Goods Orders & Shipments

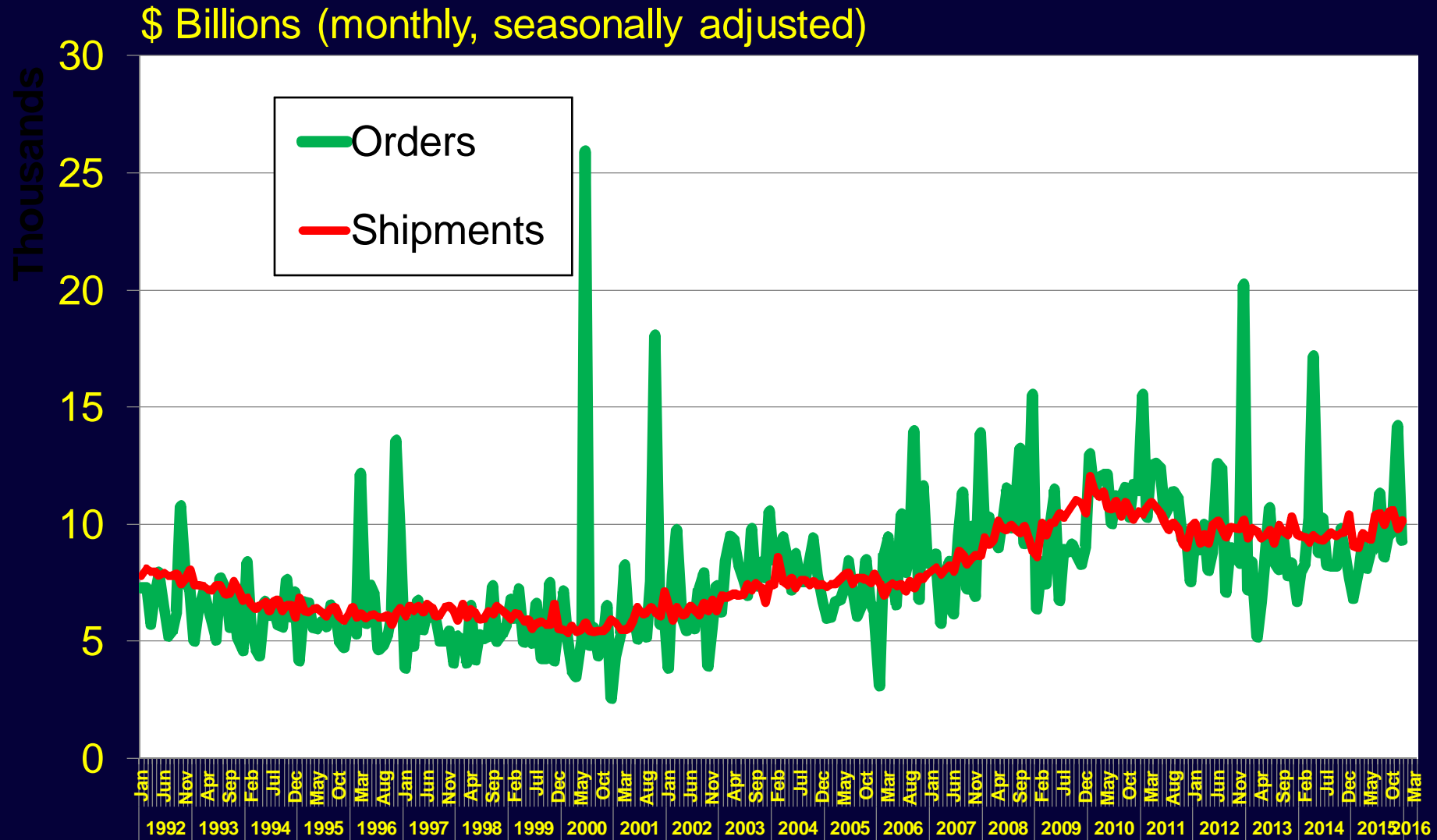
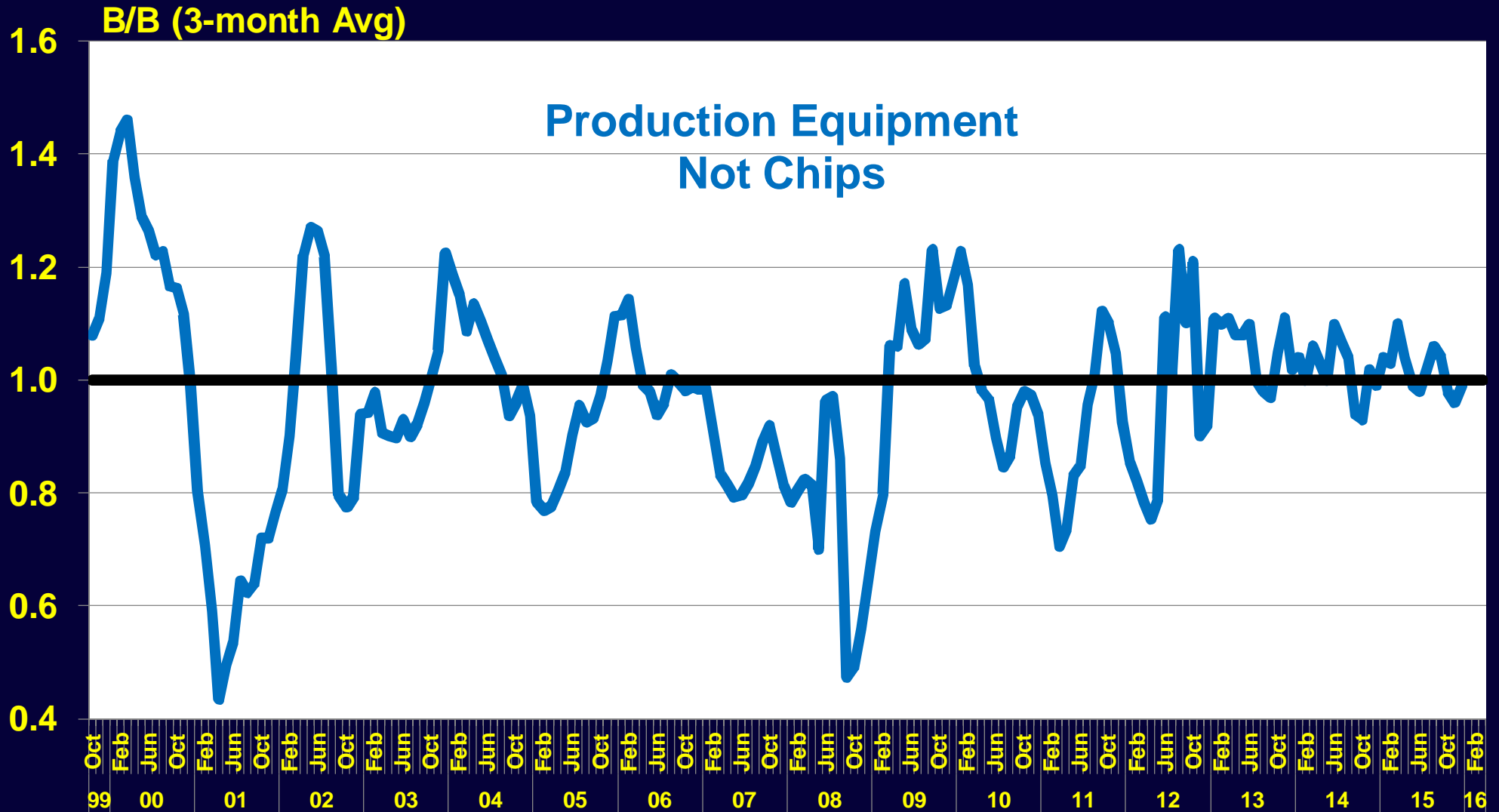


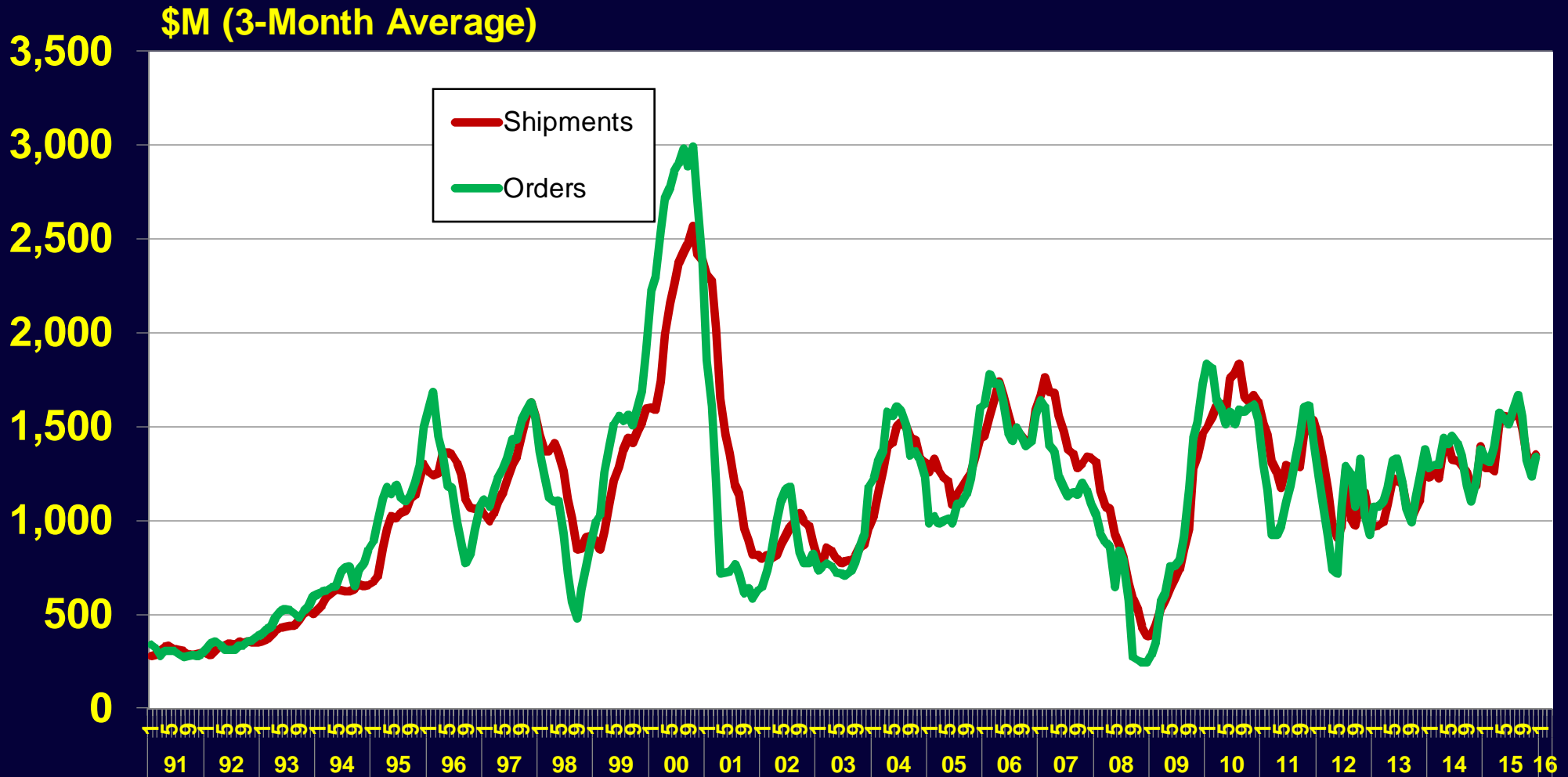
Chart 10

# N American Semiconductor Equipment Industry Book/Bill Ratio



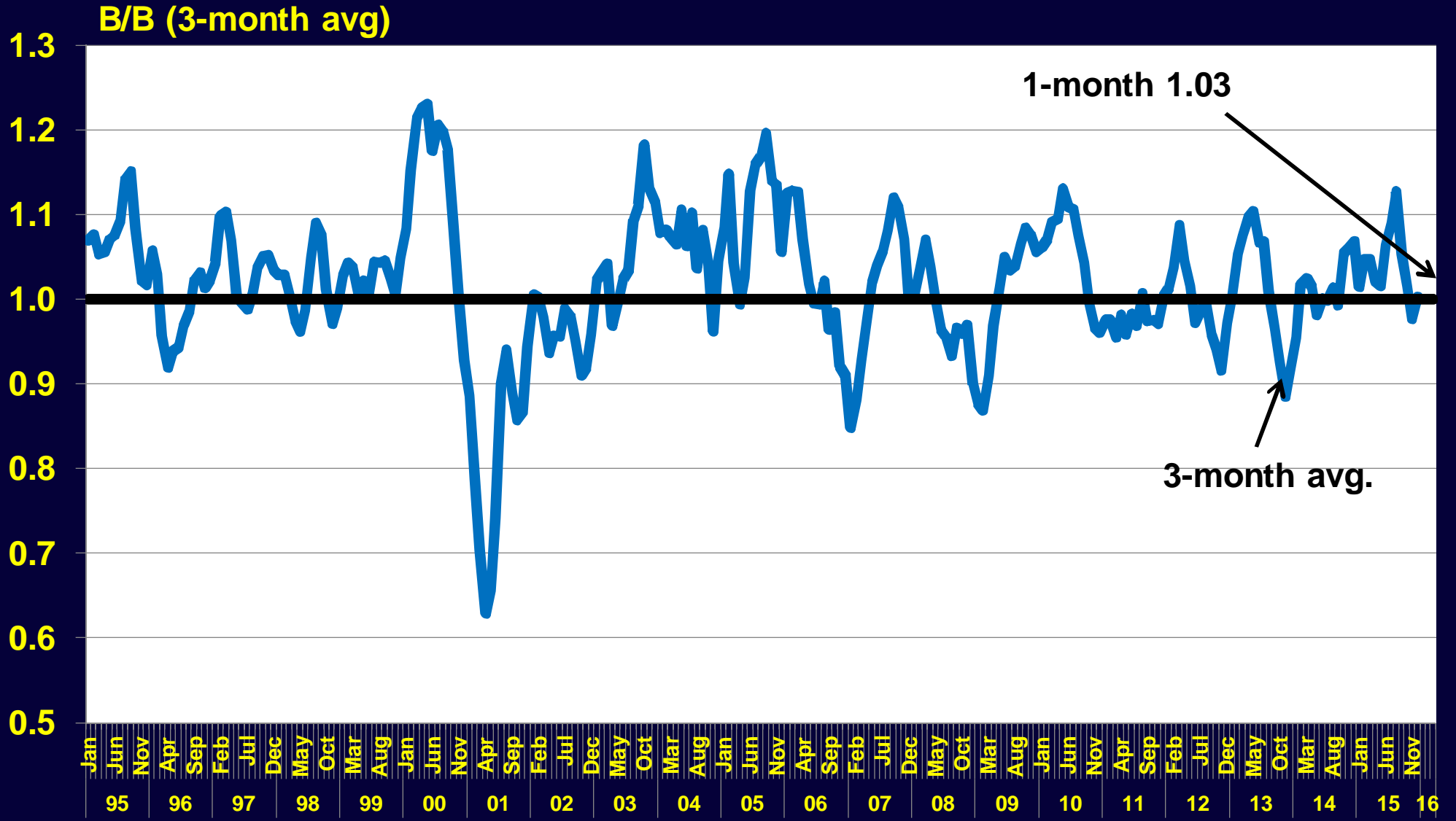
**SOURCE Semiconductor Equipment and Materials International**  
<http://www.semi.org>

# N American Semiconductor Equipment Industry Shipments & Orders

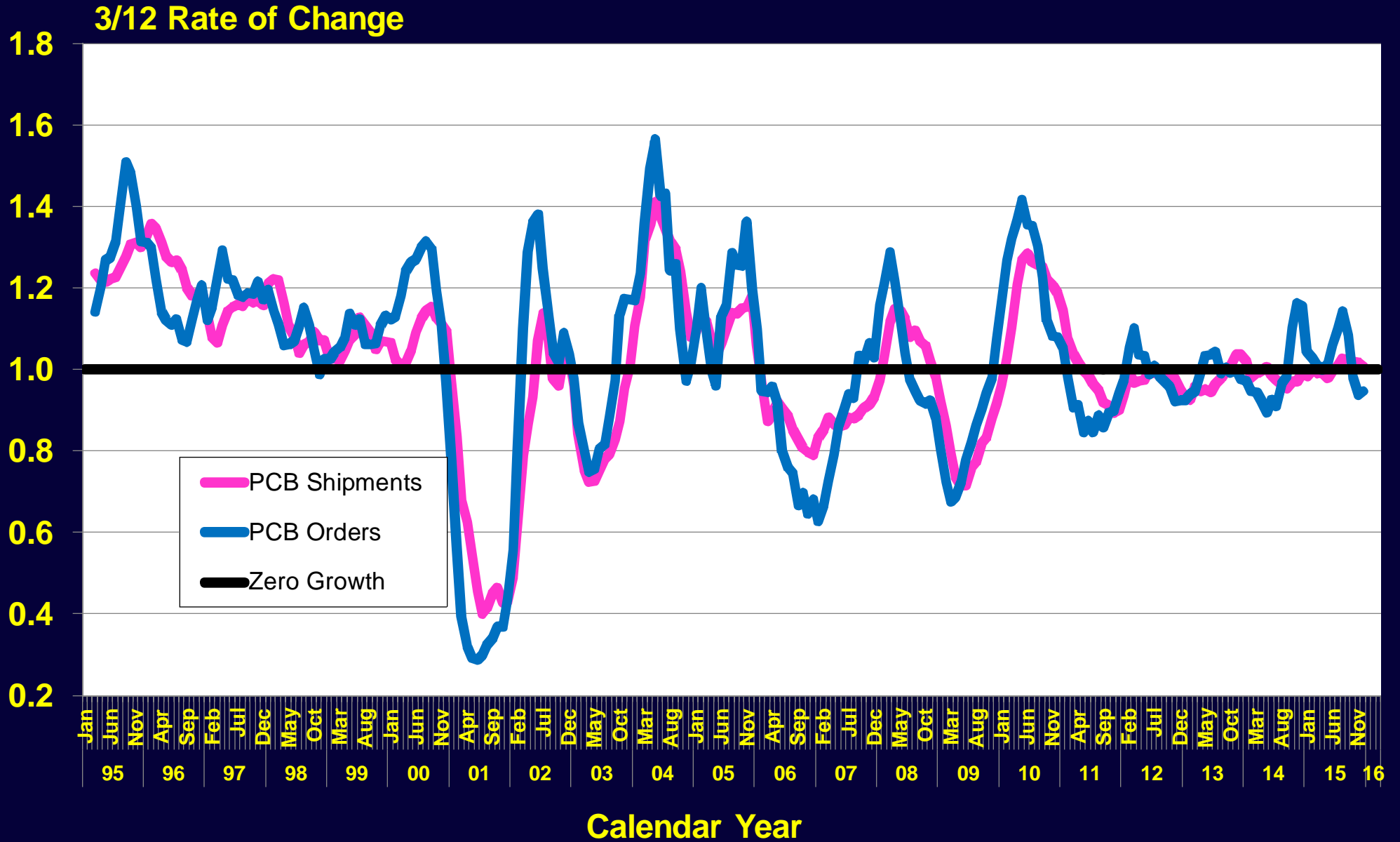


SOURCE Semiconductor Equipment and Materials International  
<http://www.semi.org>

# Rigid & Flexible PCB Book/Bill N. America

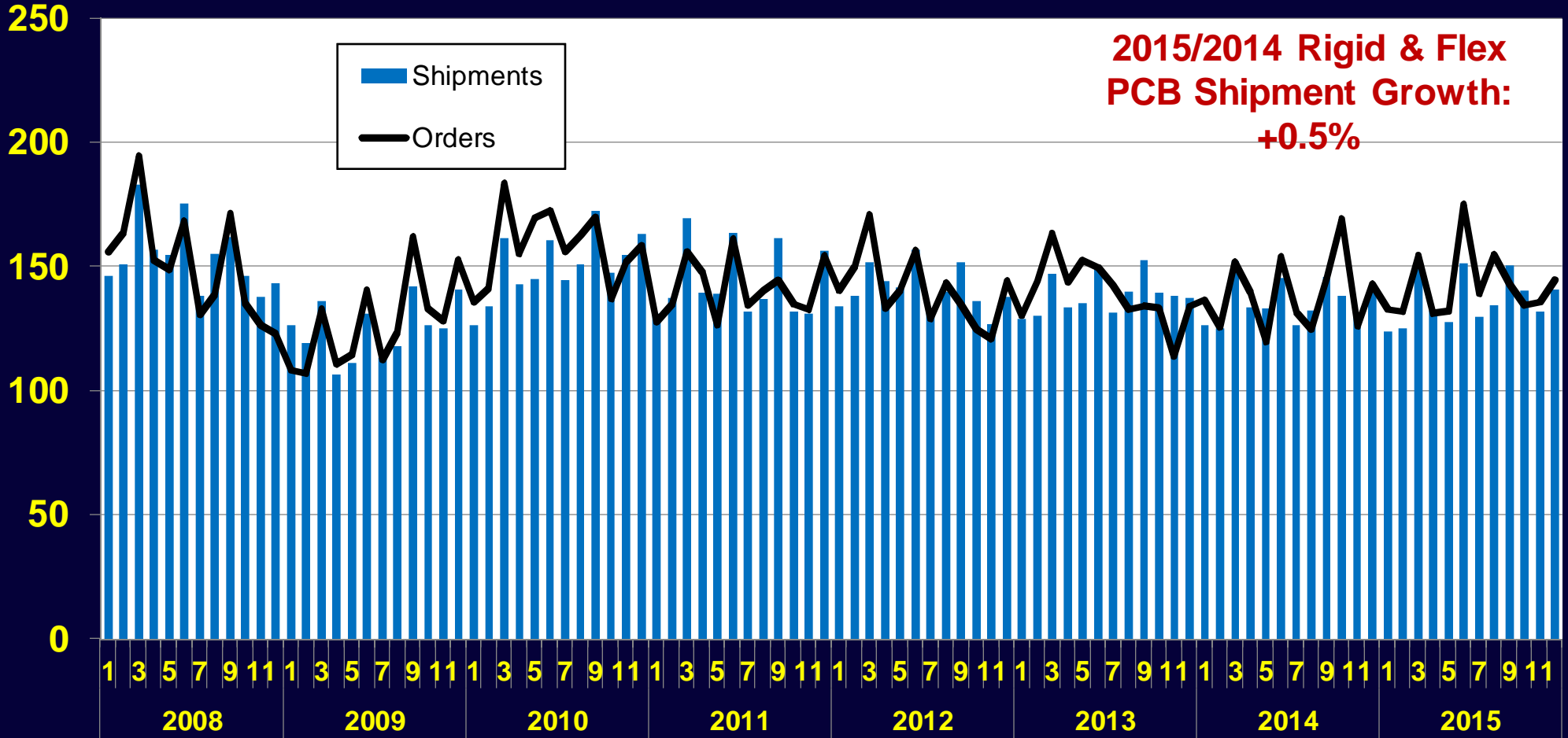


# N. America Rigid & Flexible PCB Orders & Shipments



# N American Rigid & Flexible PCB Shipments & Orders

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

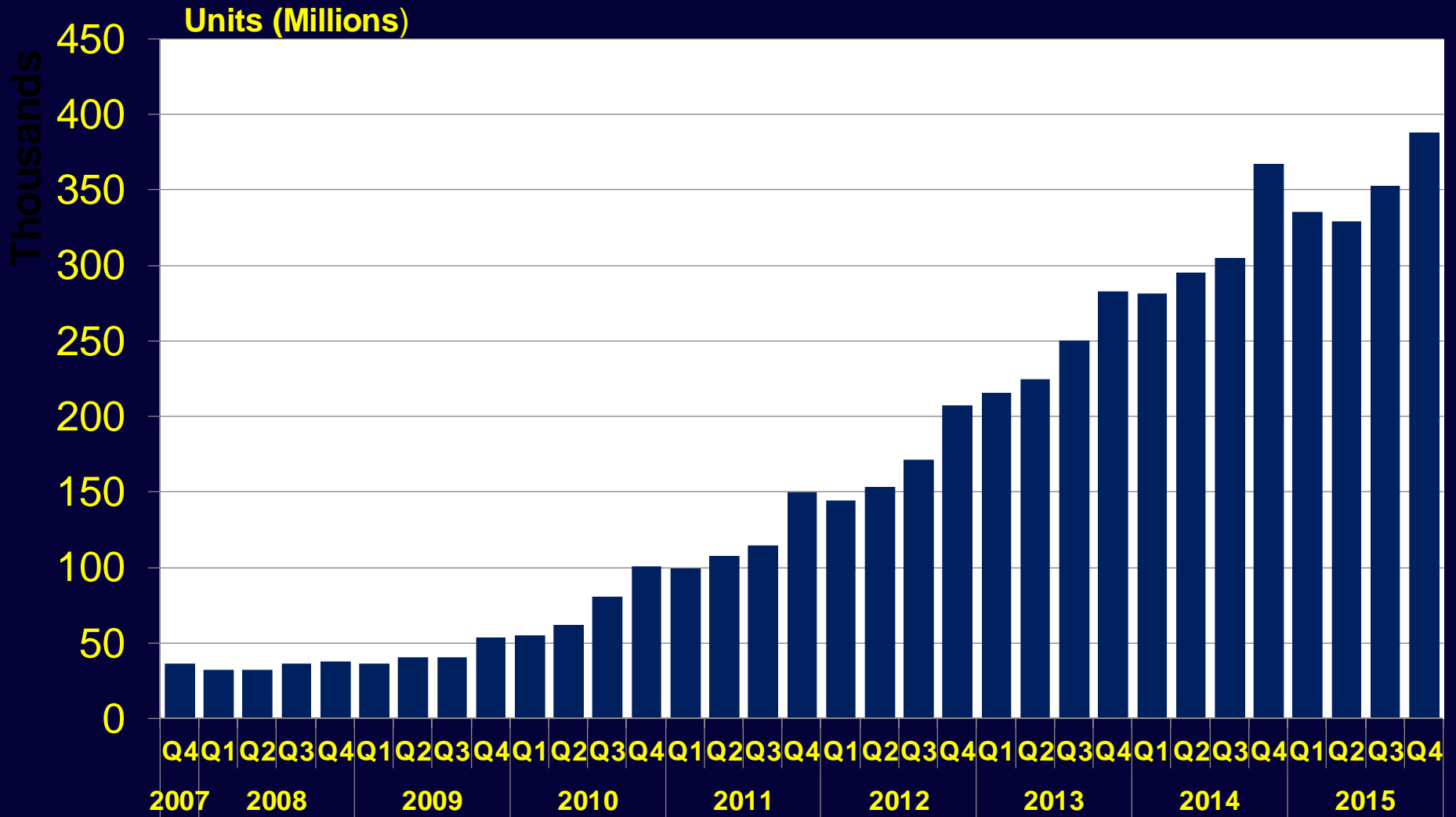


Note: IPC survey captures "market" not domestic production. About 15% of the above represents imported boards resold by N American PCB producers in survey.

## Top World Customers by Semiconductor Design, TAM (US\$ Billion)

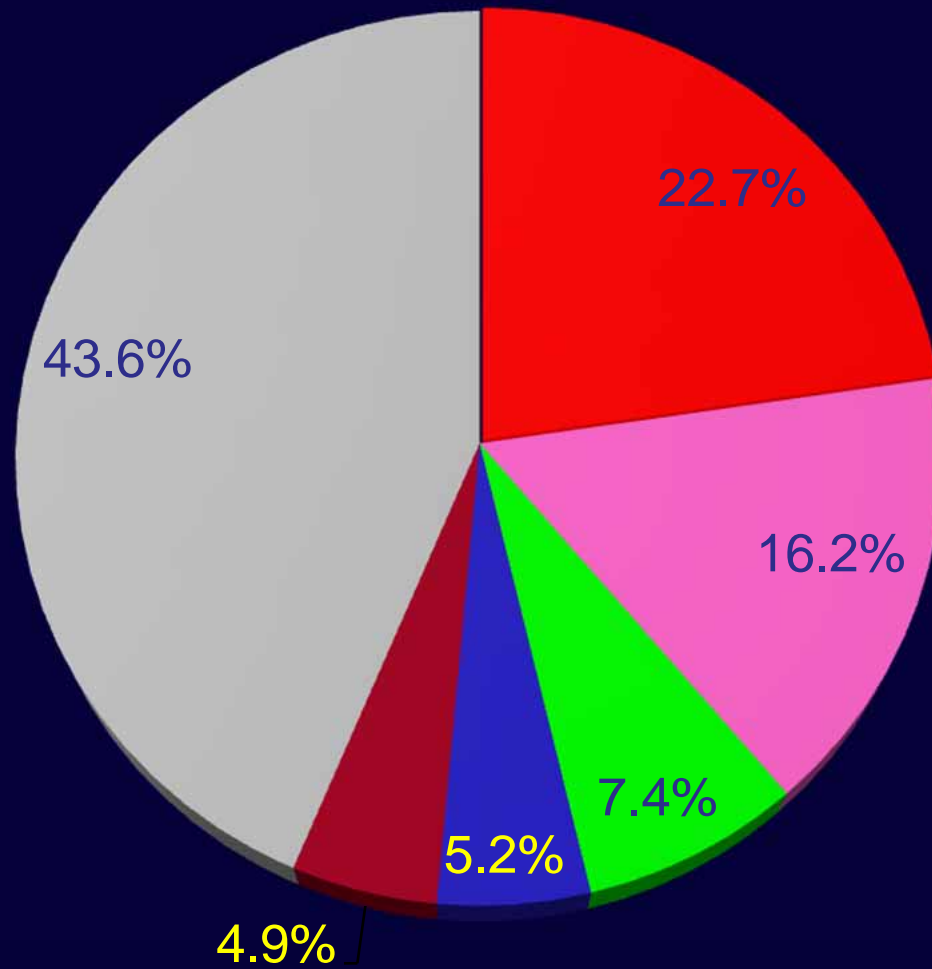
	<u>2014</u>	<u>2015</u>	<u>% CH</u>
<b>Samsung</b>	<b>30,989</b>	<b>29,867</b>	<b>-3.6</b>
<b>Apple</b>	<b>27,177</b>	<b>29,116</b>	<b>7.1</b>
<b>Lenovo</b>	<b>13,743</b>	<b>13,329</b>	<b>-3.0</b>
<b>Dell</b>	<b>10,880</b>	<b>10,686</b>	<b>-1.8</b>
<b>HP, Inc.</b>	<b>15,616</b>	<b>8,634</b>	<b>-44.7</b>
<b>Huawei</b>	<b>6,040</b>	<b>7,020</b>	<b>16.2</b>
<b>Sony</b>	<b>7,631</b>	<b>6,947</b>	<b>-9.0</b>
<b>HP Enterprise</b>	<b>0</b>	<b>6,473</b>	<b>-</b>
<b>LG Electronics</b>	<b>5,743</b>	<b>5,533</b>	<b>-3.7</b>
<b>Cisco Systems</b>	<b>5,817</b>	<b>5,430</b>	<b>-6.7</b>
<b>Others</b>	<b>216,695</b>	<b>210,684</b>	<b>-2.8</b>
<b>Total</b>	<b>340,331</b>	<b>333,718</b>	<b>-1.9</b>

# Smartphone Unit Shipments to End Users World



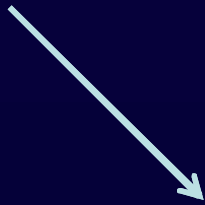


# World Smartphone Sales 2015



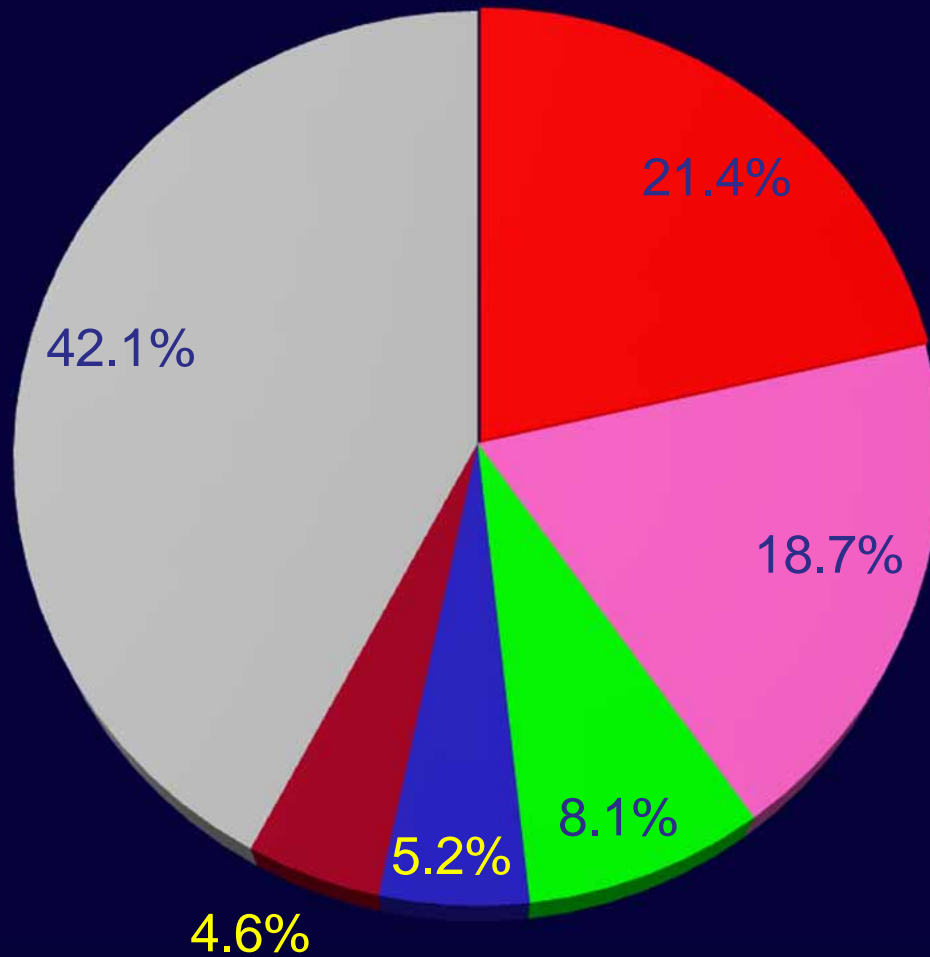
- Samsung
- Apple
- Huawei
- Lenovo
- Xiaomi
- Others

2014  
1,302 M



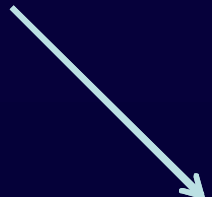
**TOTAL: 1,433 Million Units**

# World Smartphone Sales 4Q'15



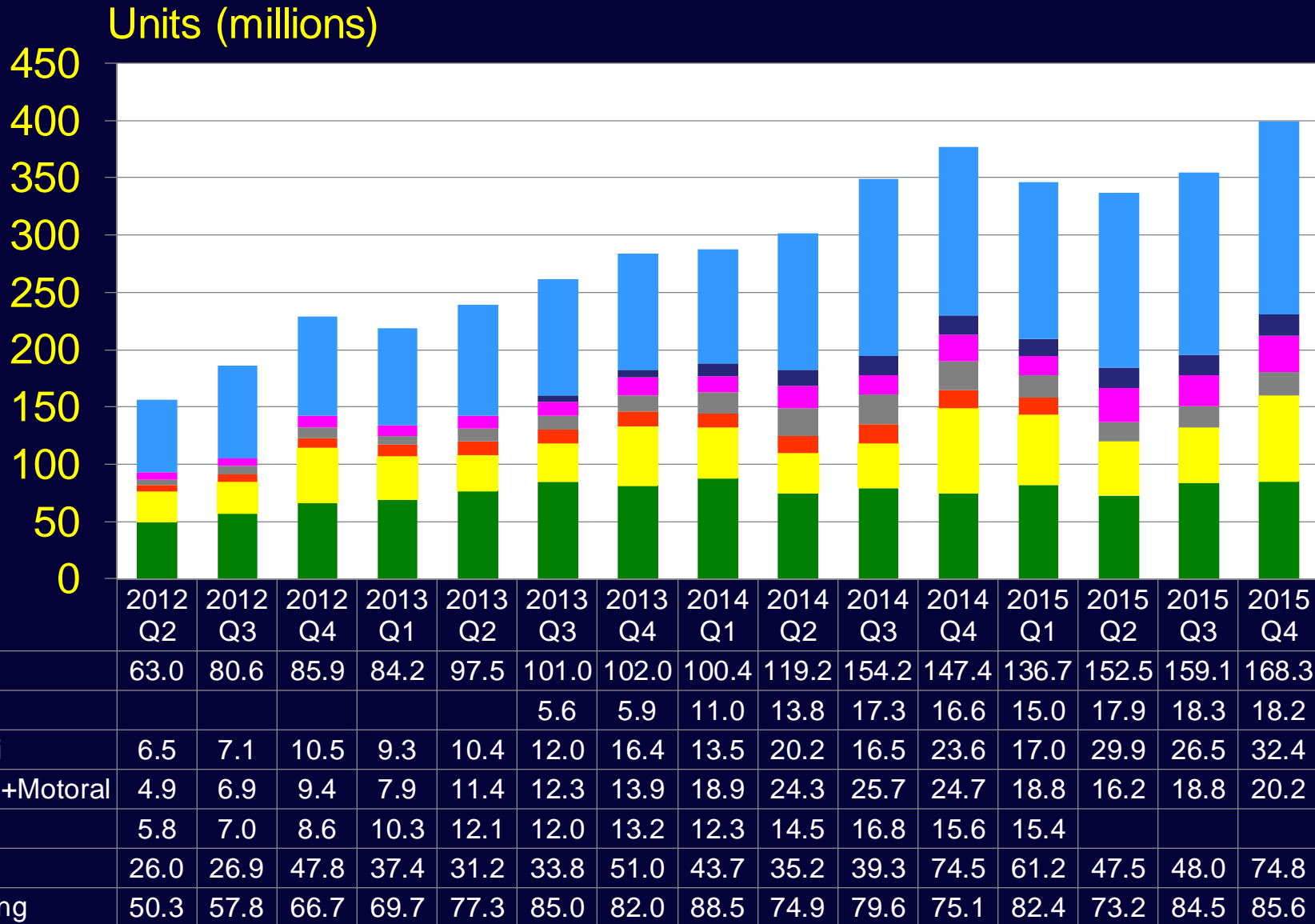
- Samsung
- Apple
- Huawei
- Lenovo
- Xiaomi
- Others

4Q'14  
377.8 M

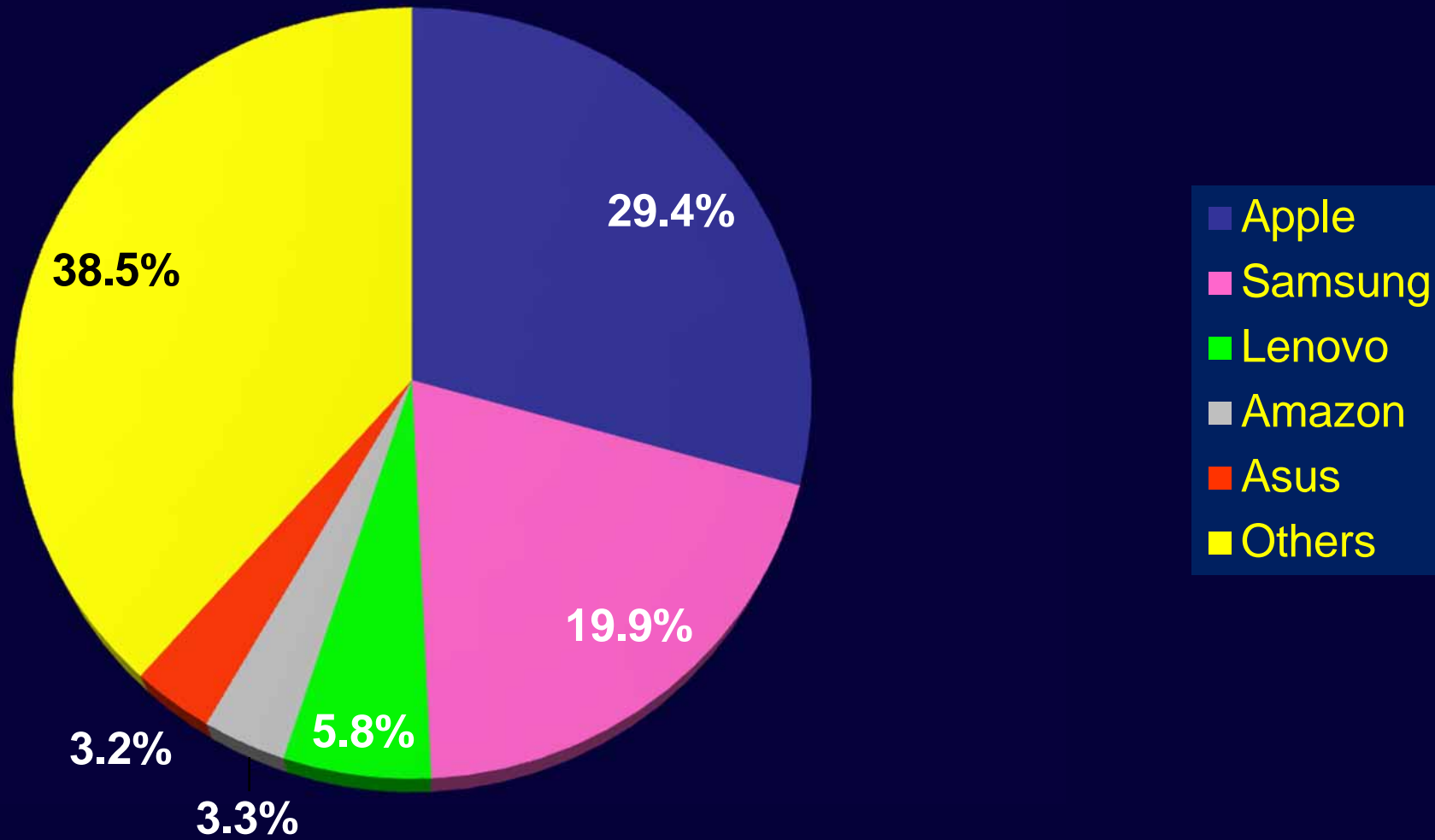


**4Q'15 TOTAL: 399.5 Units**

# Smartphones World Top Vendors

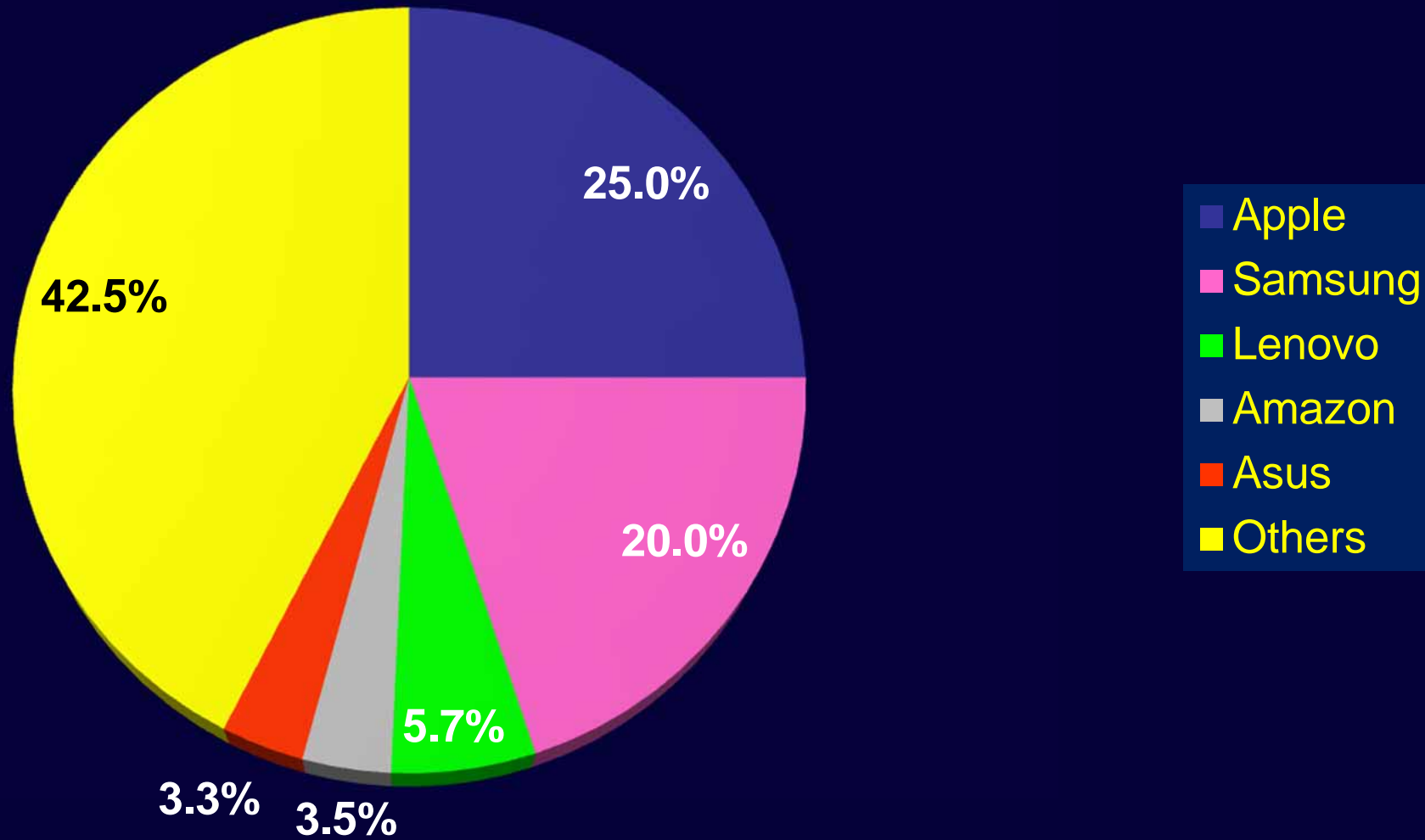


# Media Tablet World Shipments 2015



**TOTAL: 168.5 Million Units**

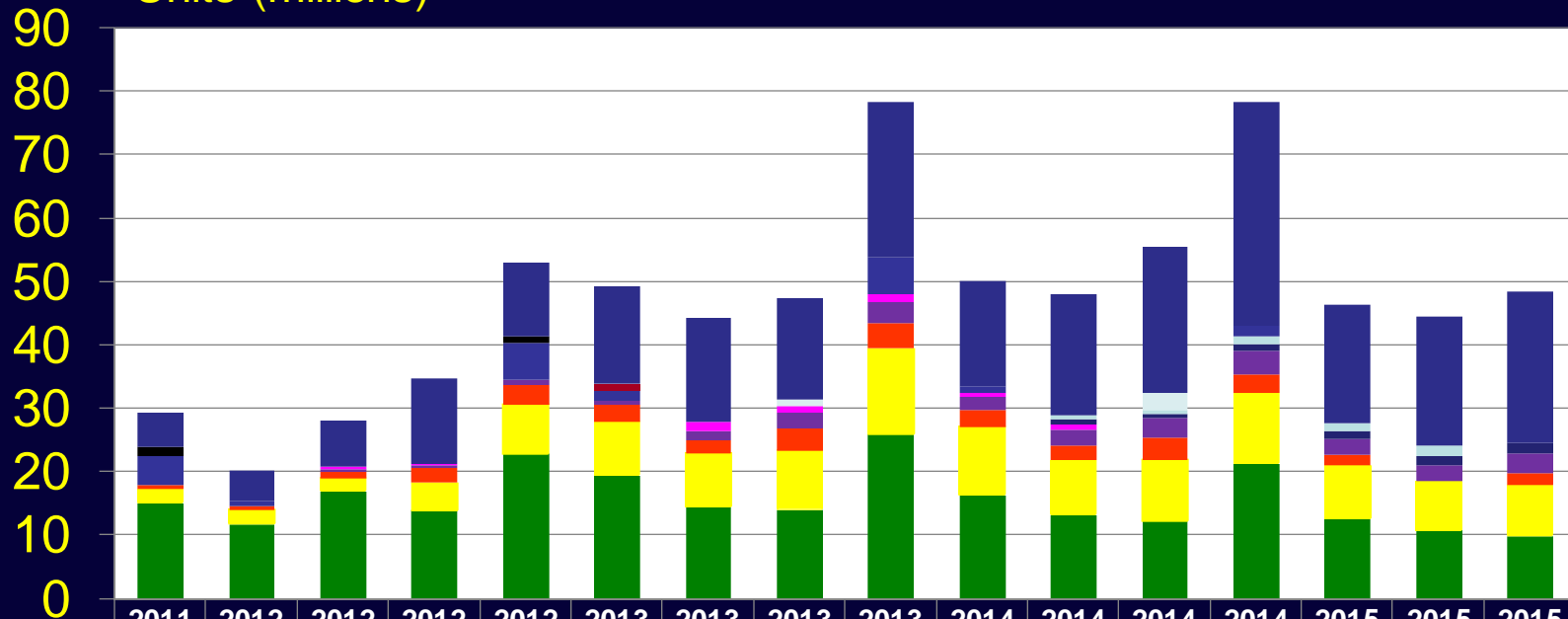
# Media Tablet World Shipments 2016 estimated



**TOTAL: 151.8 Million Units**

# Media Tablets World Top 5 Vendors

Units (millions)



	2011 Q4	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3
Others	5.5	4.9	7.4	13.5	11.6	15.5	16.4	16.0	24.6	16.6	19.1	23.0	35.2	18.6	20.4	23.9
RCA								0.9				2.6				
Barnes & Noble	1.4				1.0											
Microsoft		0.0				0.9										
Amazon	4.7	0.7			5.9	1.8			5.8	1.0			1.7			
LG Electronics											0.5	0.7	1.3	1.4	1.6	
Huawei											0.8	0.7	1.0	1.1	1.6	1.8
Acer			0.4	0.3			1.5	1.2	1.1	0.7	1.0					
Lenovo			0.4	0.4	0.8	0.6	1.5	2.3	3.4	2.0	2.4	3.1	3.7	2.5	2.5	3.1
Asus	0.6	0.6	0.9	2.3	3.1	2.6	2.0	3.6	4.0	2.6	2.3	3.4	3.0	1.8		1.9
Samsung	2.2	2.3	2.1	4.3	7.8	8.5	8.4	9.3	13.5	10.8	8.6	9.7	11.1	8.4	7.6	8.0
Apple	15.1	11.8	17.0	14.0	22.9	19.5	14.6	14.1	26.0	16.4	13.3	12.3	21.4	12.6	10.9	9.9

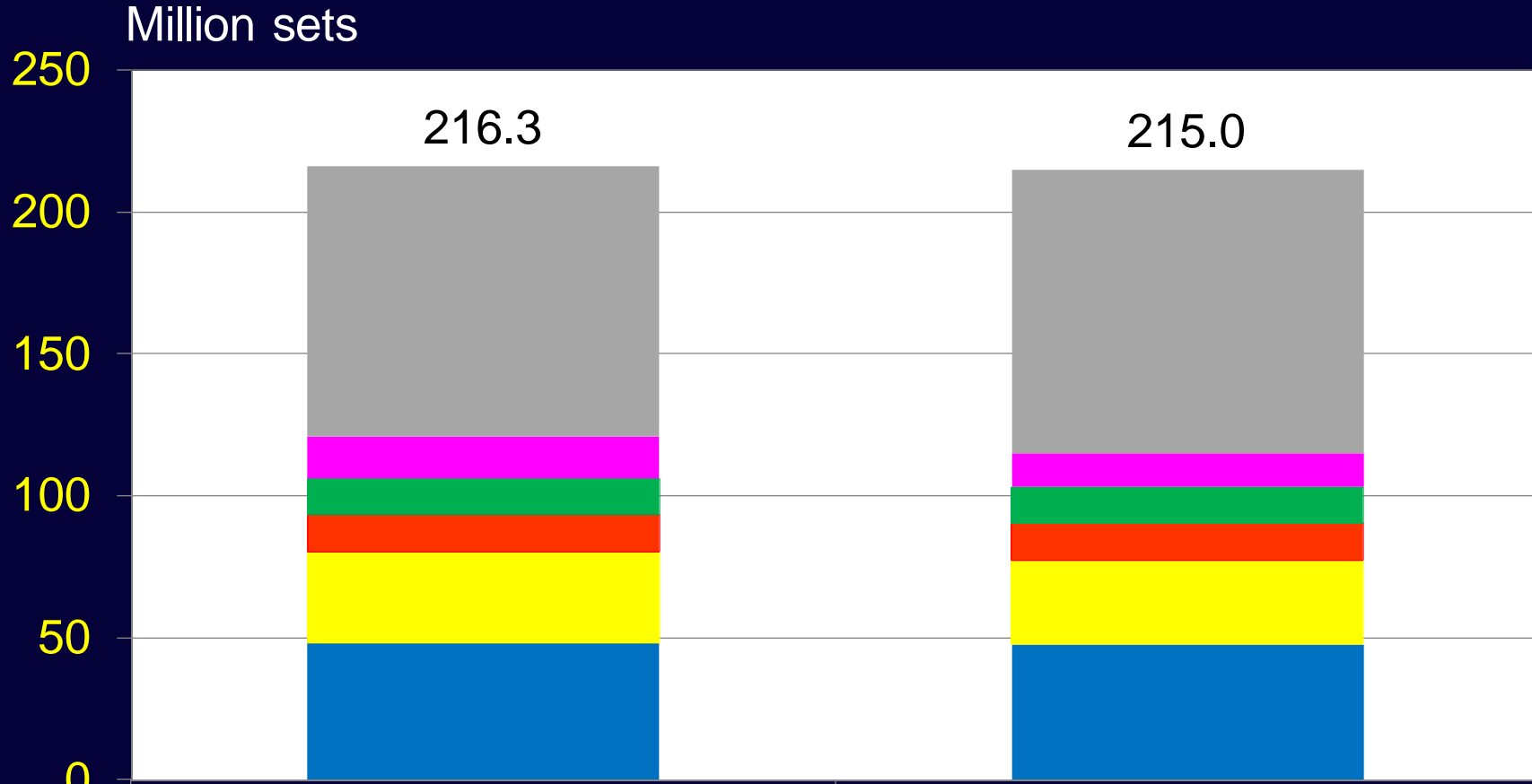
# Semiconductor R&D Expenditures

## US\$ millions

2015			2014		2015	
<u>Rank</u>	<u>Company</u>	<u>Type</u>	Semiconductor <u>Sales</u>	<u>R&amp;D Expend.</u>	Semiconductor <u>Sales</u>	<u>R&amp;D Expend.</u>
1	Intel	IDM	51,400	11,537	50,494	12,128
2	Qualcom m	Fabless	19,291	3,695	16,032	3,702
3	Samsung	IDM	37,810	2,965	41,606	3,125
4	Broadcom	Fabless	8,428	2,373	8,421	2,105
5	TSMC	Foundry	24,975	1,874	26,439	2,068
6	Micron	IDM	16,720	1,598	14,816	1,695
7	Toshiba	IDM	11,040	1,853	9,734	1,655
8	MediaTek	Fabless	7,032	1,430	6,699	1,460
9	SK Hynix	IDM	16,286	1,340	16,917	1,421
10	ST	IDM	7,384	1,520	6,840	1,409
	Top 10 Total		200,366	30,185	197,998	30,768

Chart 24

# World LCD TV Shipments



	2014	2015
Total	216.3	215.0
Others	95.2	99.7
Sony	15.0	12.1
Hisense	12.6	12.8
TCL	13.1	13.1
LGE	31.9	29.4
Samsung	48.5	47.9



# U.S. GDP Growth

## % Change vs. Prior Quarter (Chained 2009 \$)

