

U.S. Electronic Equipment Book/Bill Ratio

3-Month Average



Chart 2

U.S. Electronic Equipment Order & Shipment Growth

Computer, Communications, Measurement & Control and Military

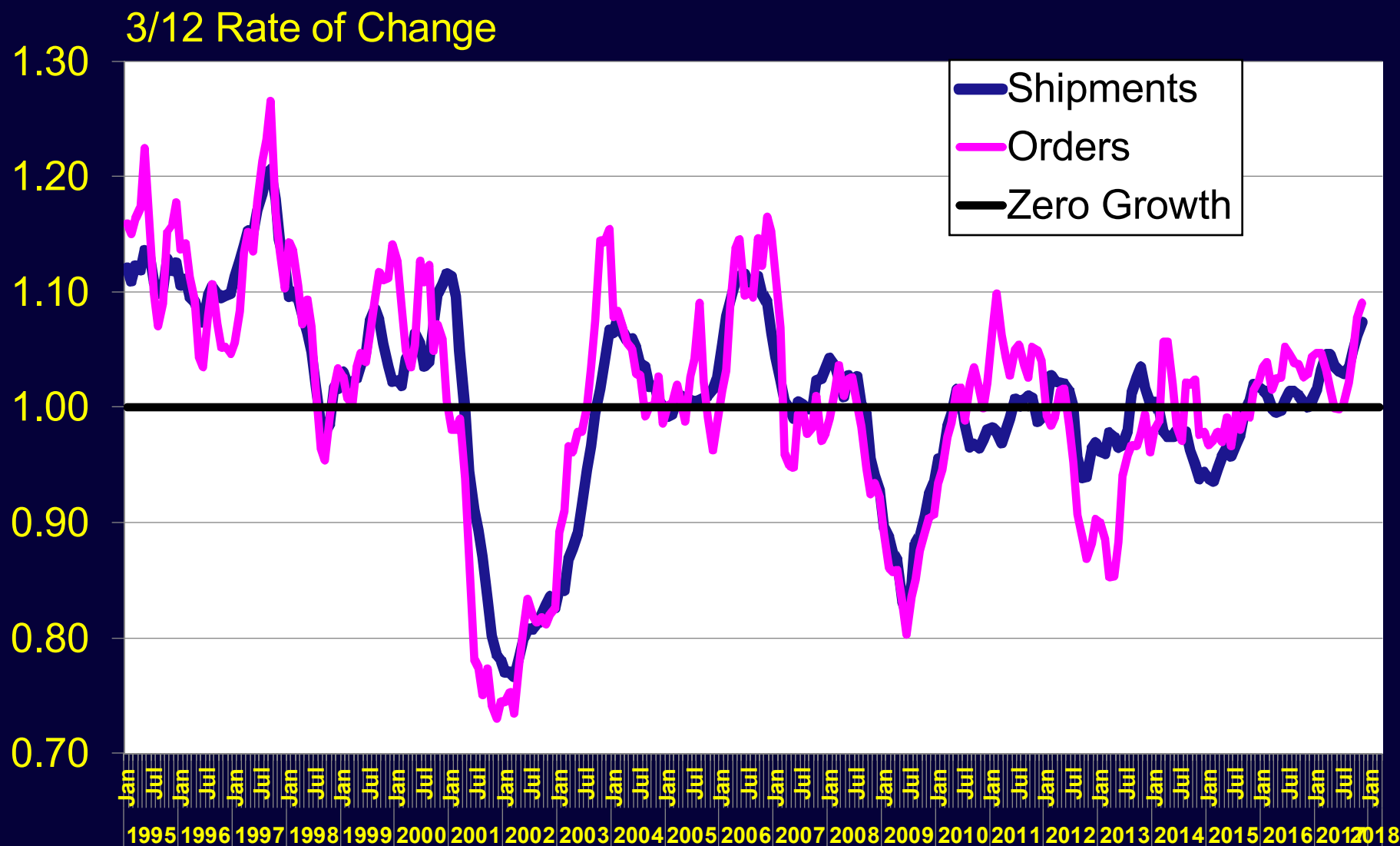


Chart 3

U.S. Electronic Equipment Orders & Shipments

Computer, Communications, Measurement & Control and Military

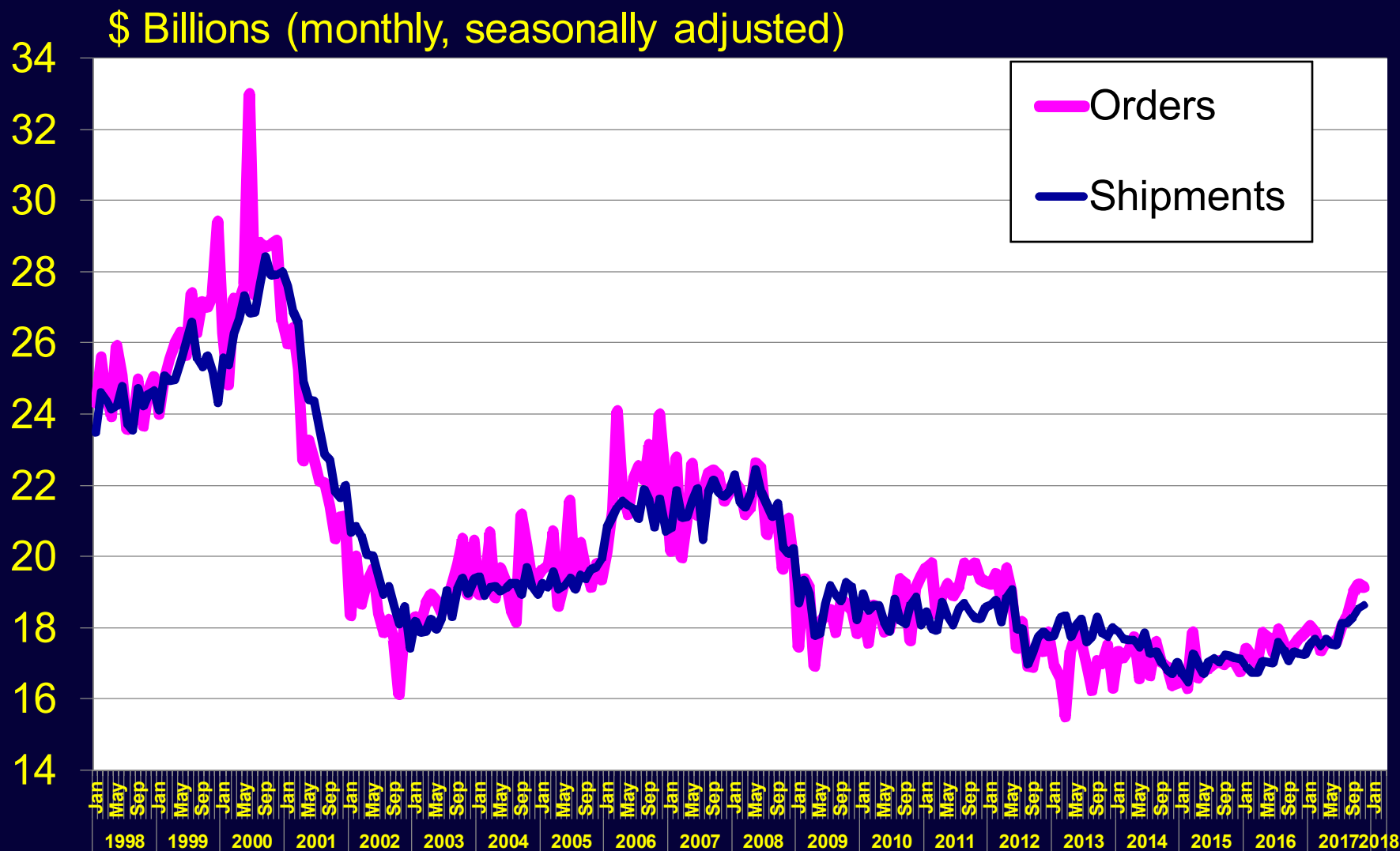


Chart 4

U.S. Communication Equipment Orders & Shipments

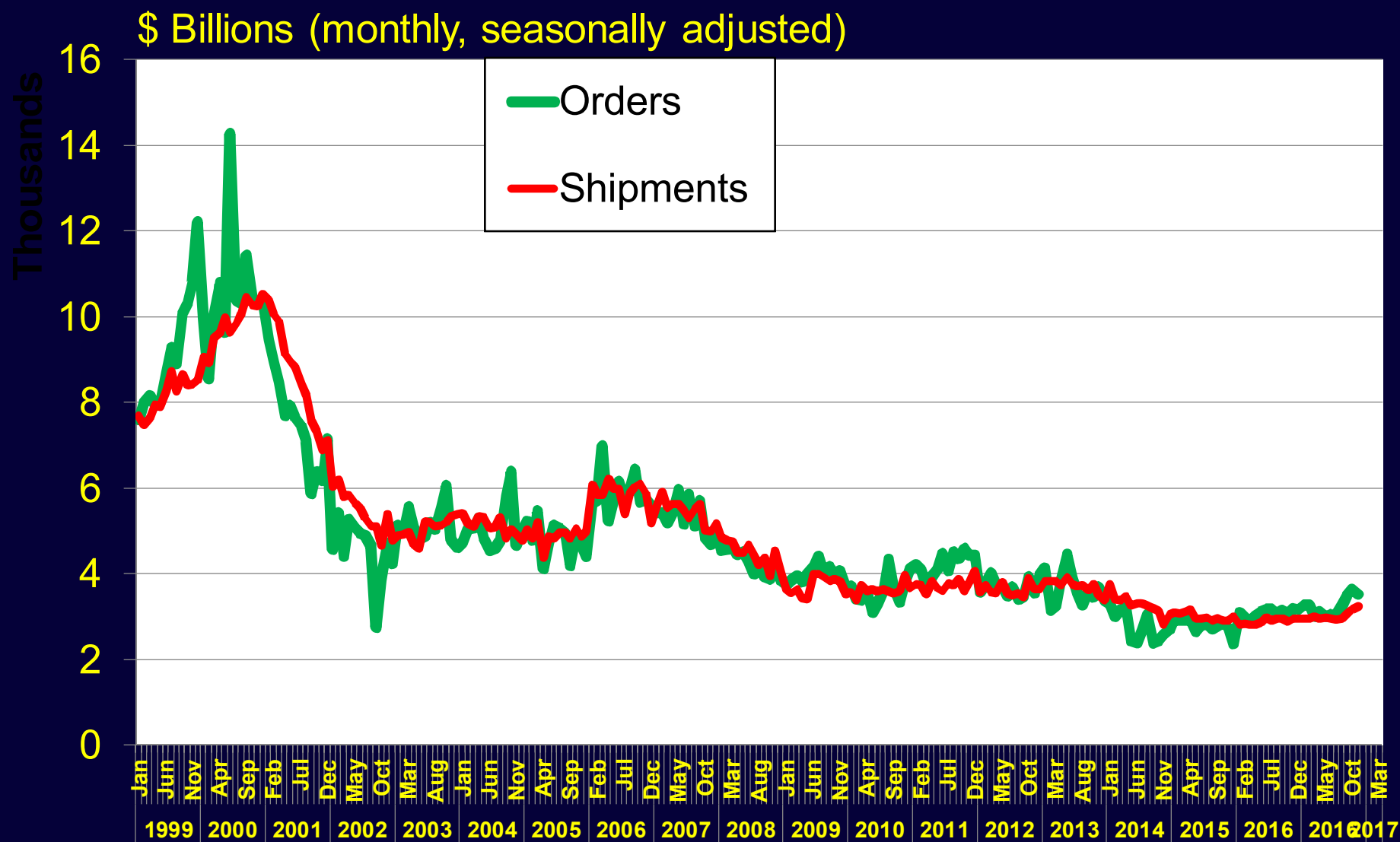


Chart 5

U.S. Computers & Related Products Orders & Shipments

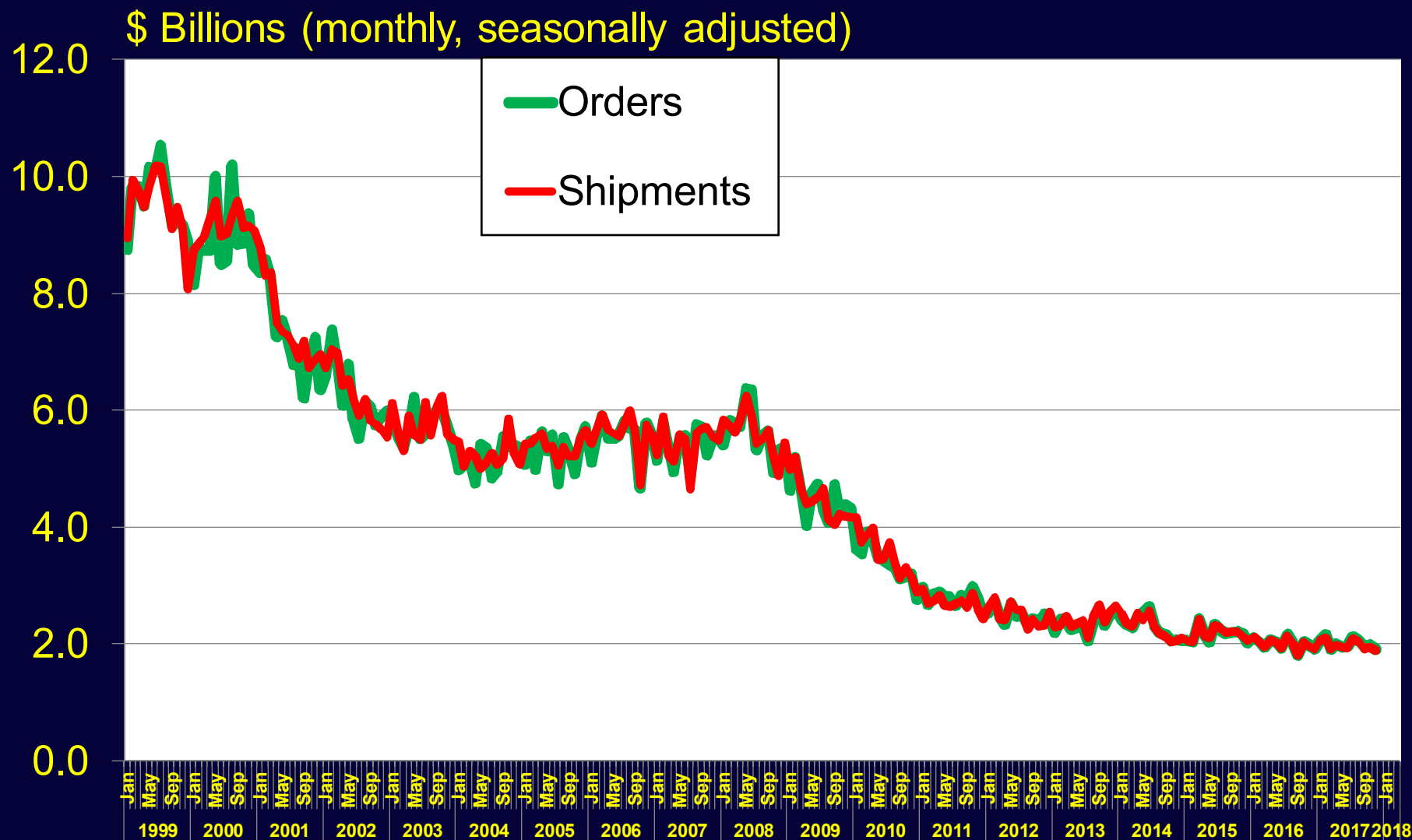


Chart 6

U.S. Defense Capital Goods Orders & Shipments

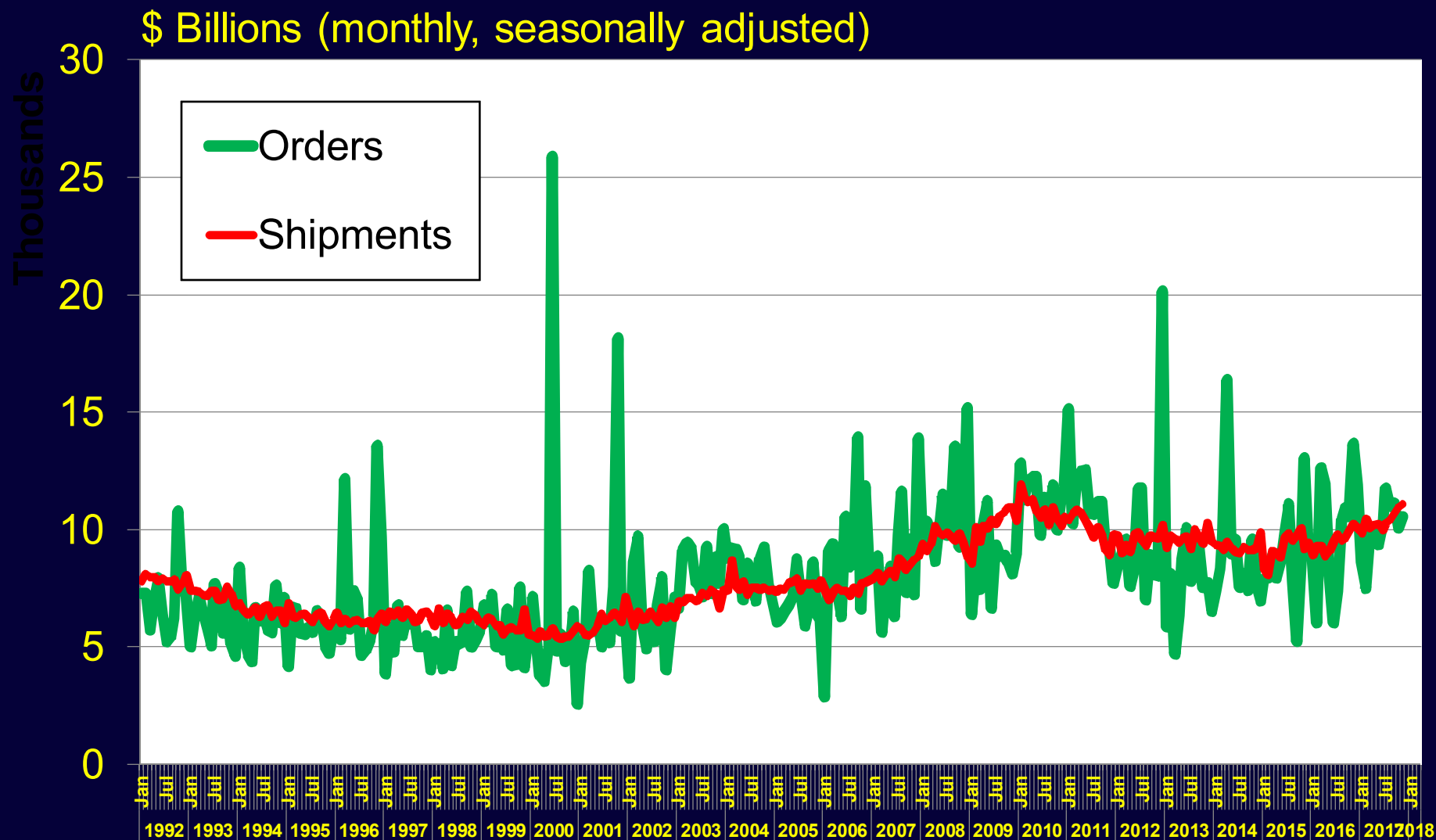


Chart 7

U.S. Aircraft & Parts Shipments

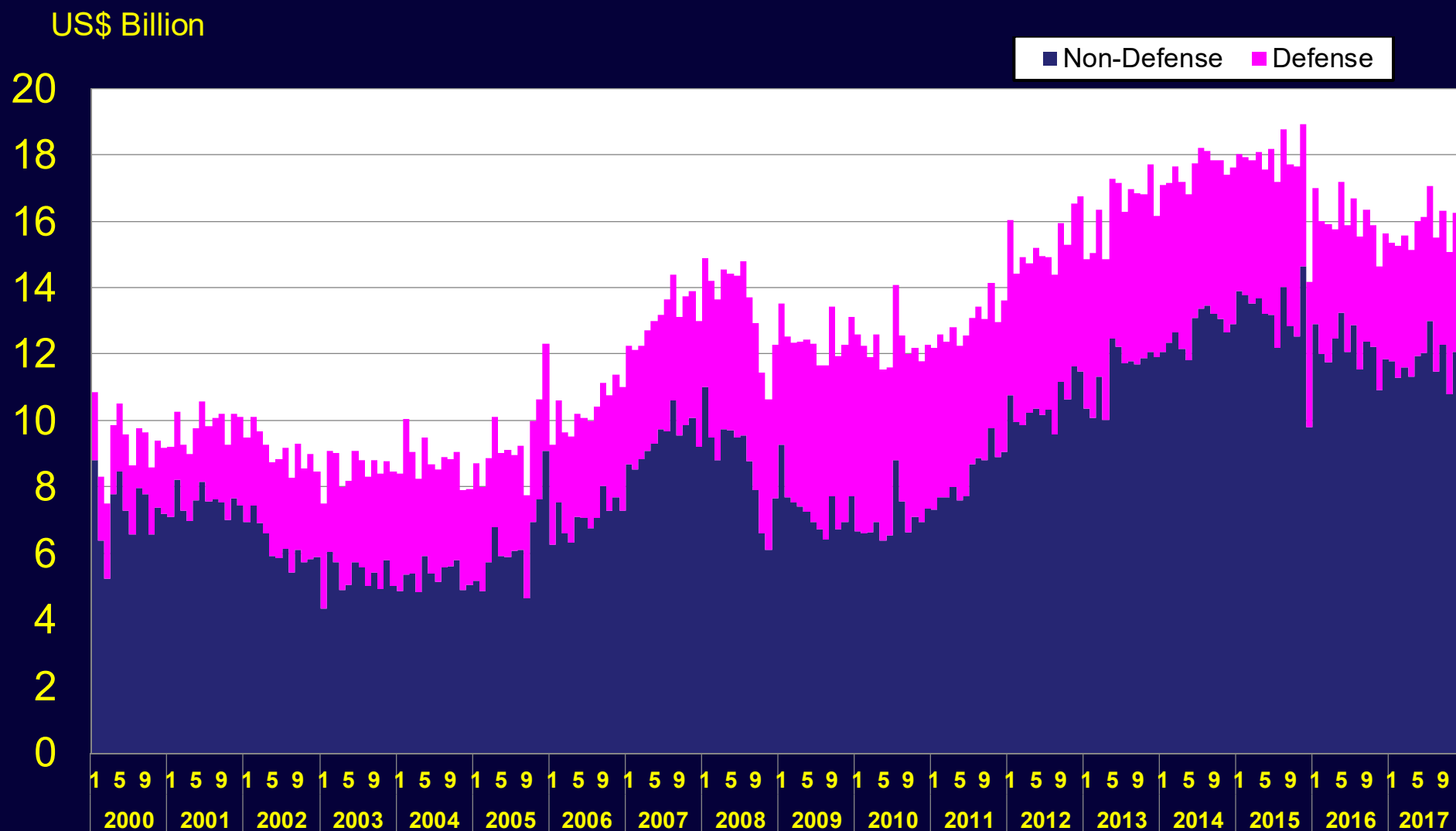


Chart 8

U.S. Aircraft & Parts Orders

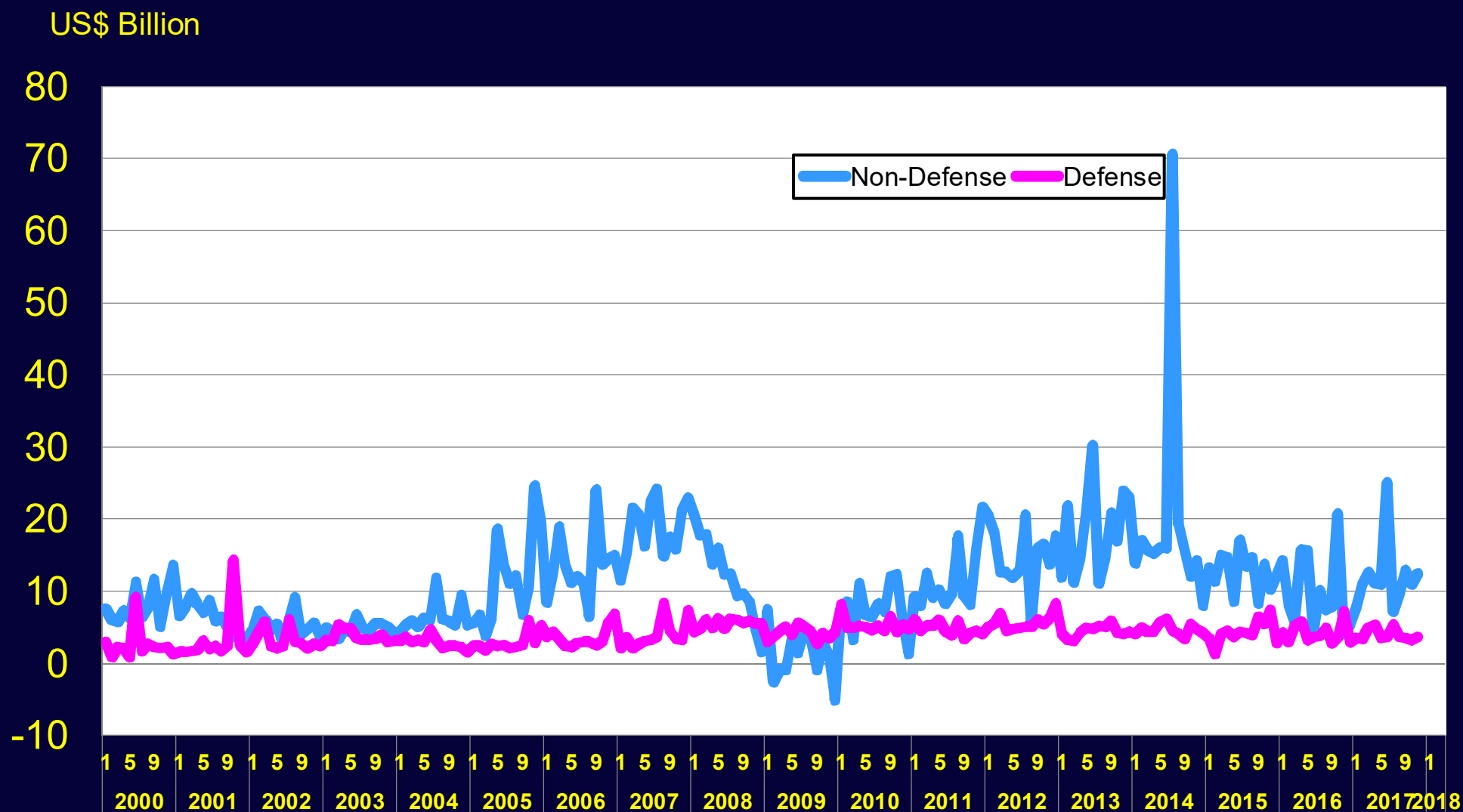
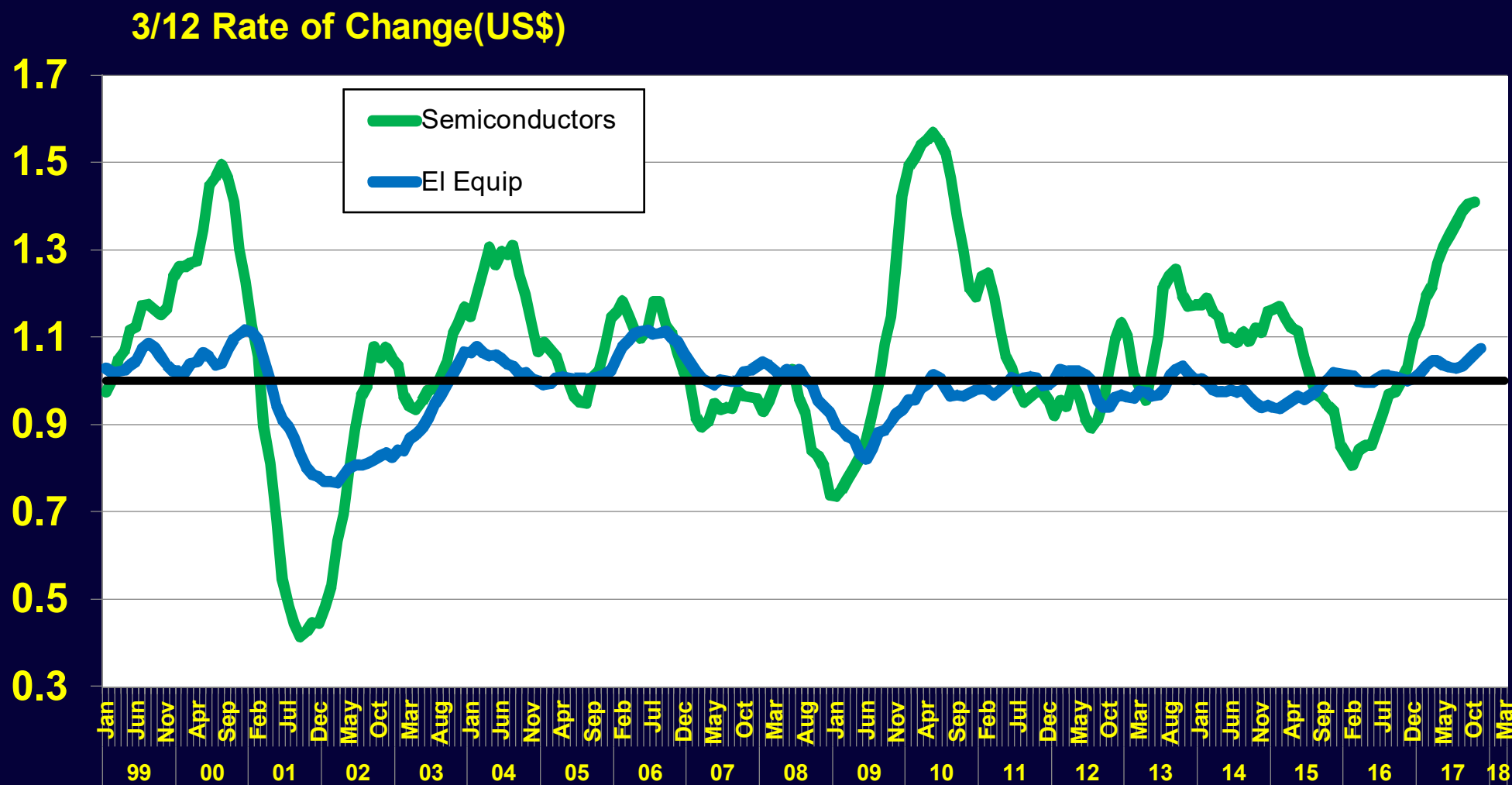


Chart 9

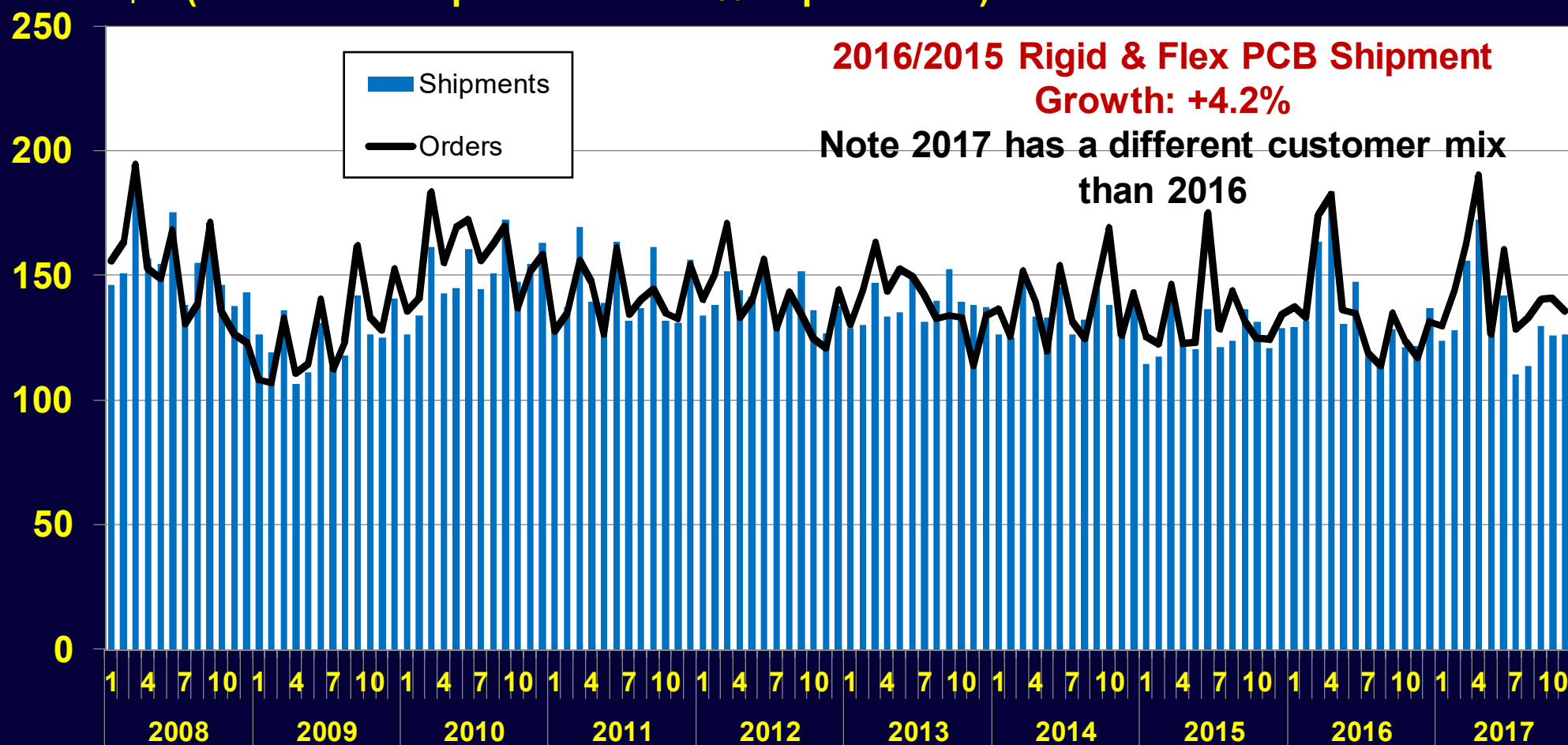
Semiconductor Shipments to N. America vs. U.S Electronic Equipment Production



Total \$ Semiconductor Shipments from All Countries to N. America www.sia-online.org/
U.S. Electronic Equipment Shipments www.census.gov/indicator/www/m3/

N American Rigid & Flexible PCB Shipments & Orders

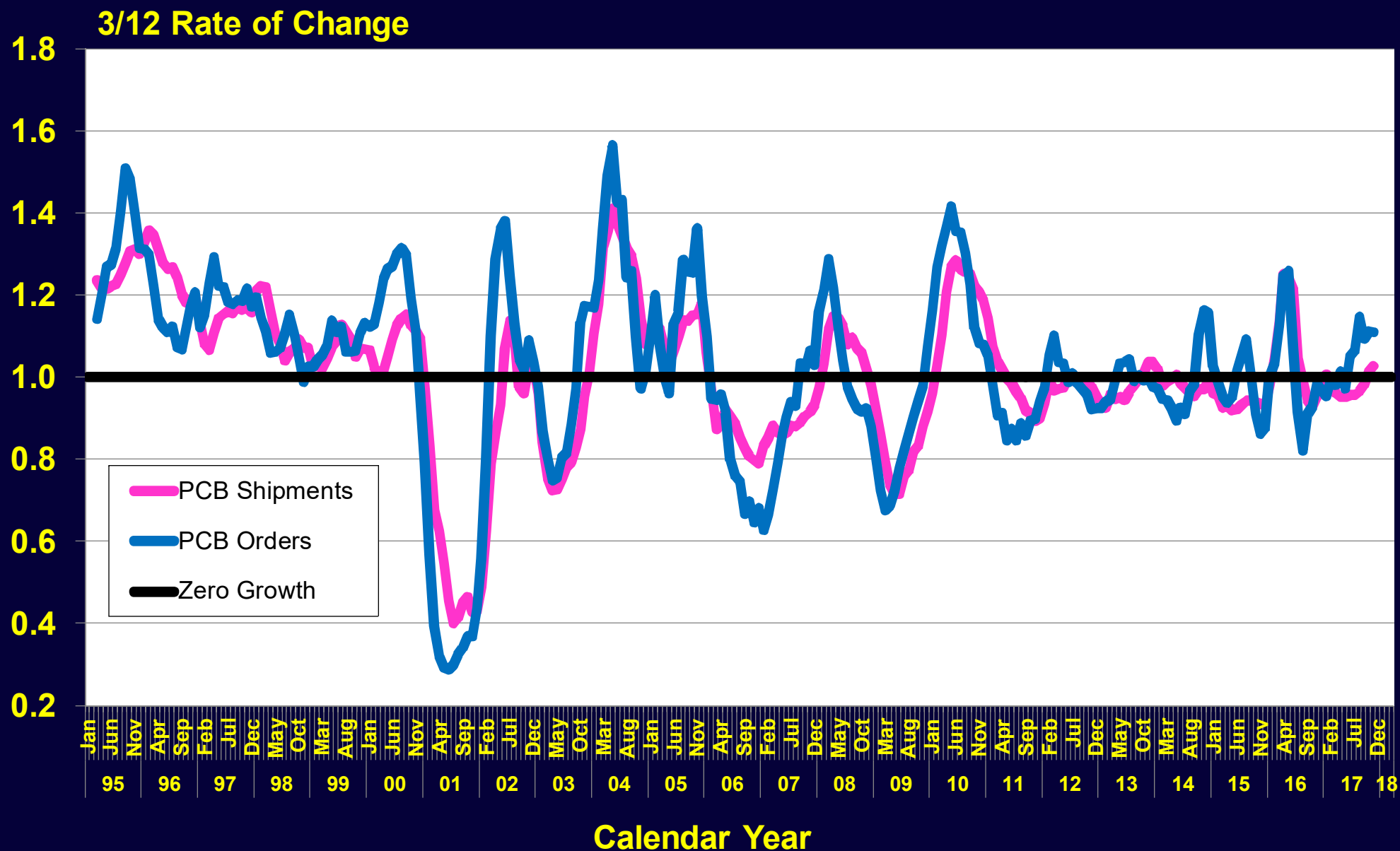
\$M (statistical sample of about 50% of producers)



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

Chart 11

N. America Rigid & Flexible PCB Orders & Shipments



Data: IPC T/MRC & <http://www.census.gov/indicator/www/m3/>

Rigid & Flexible PCB Book/Bill

N. America

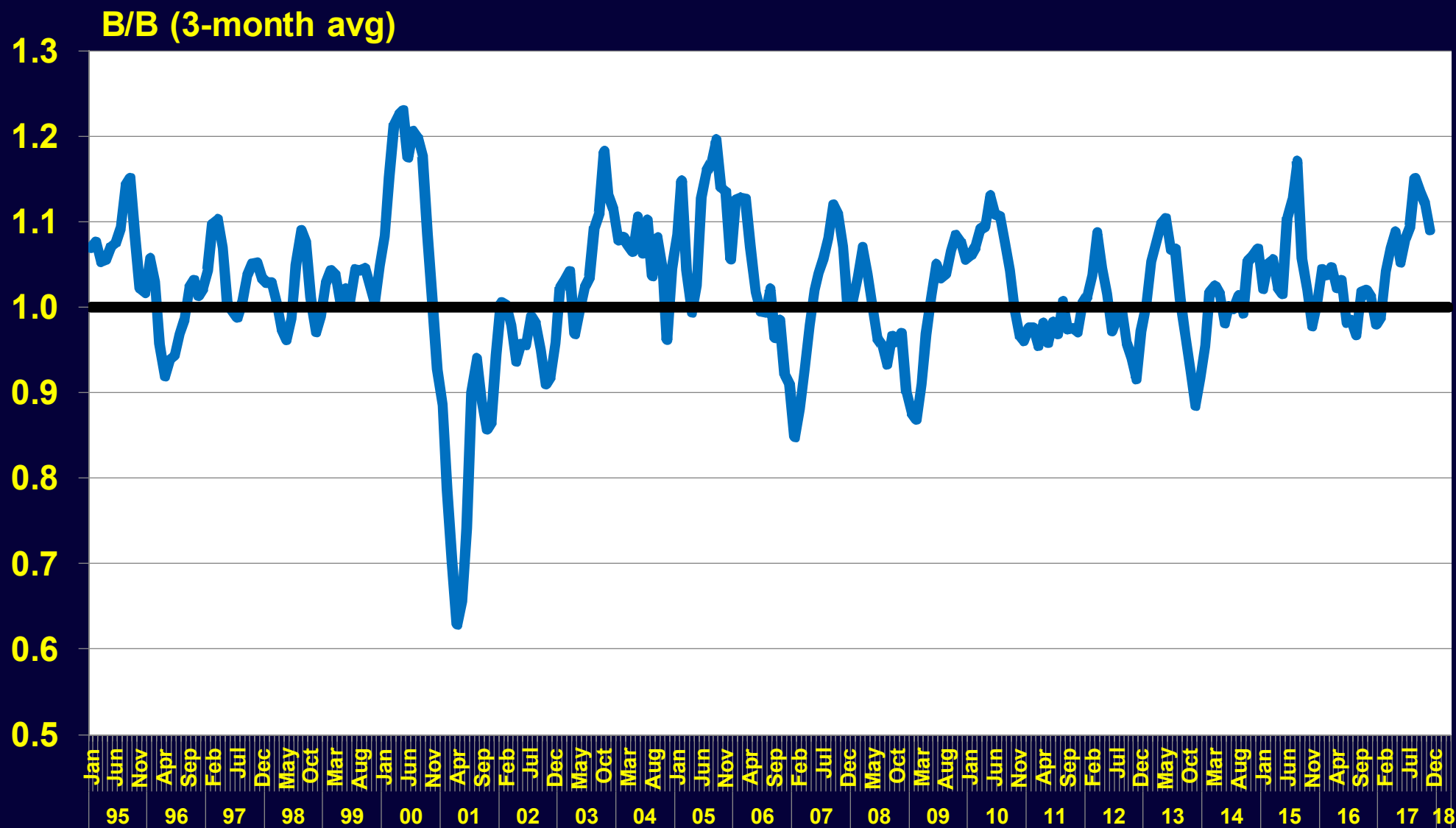
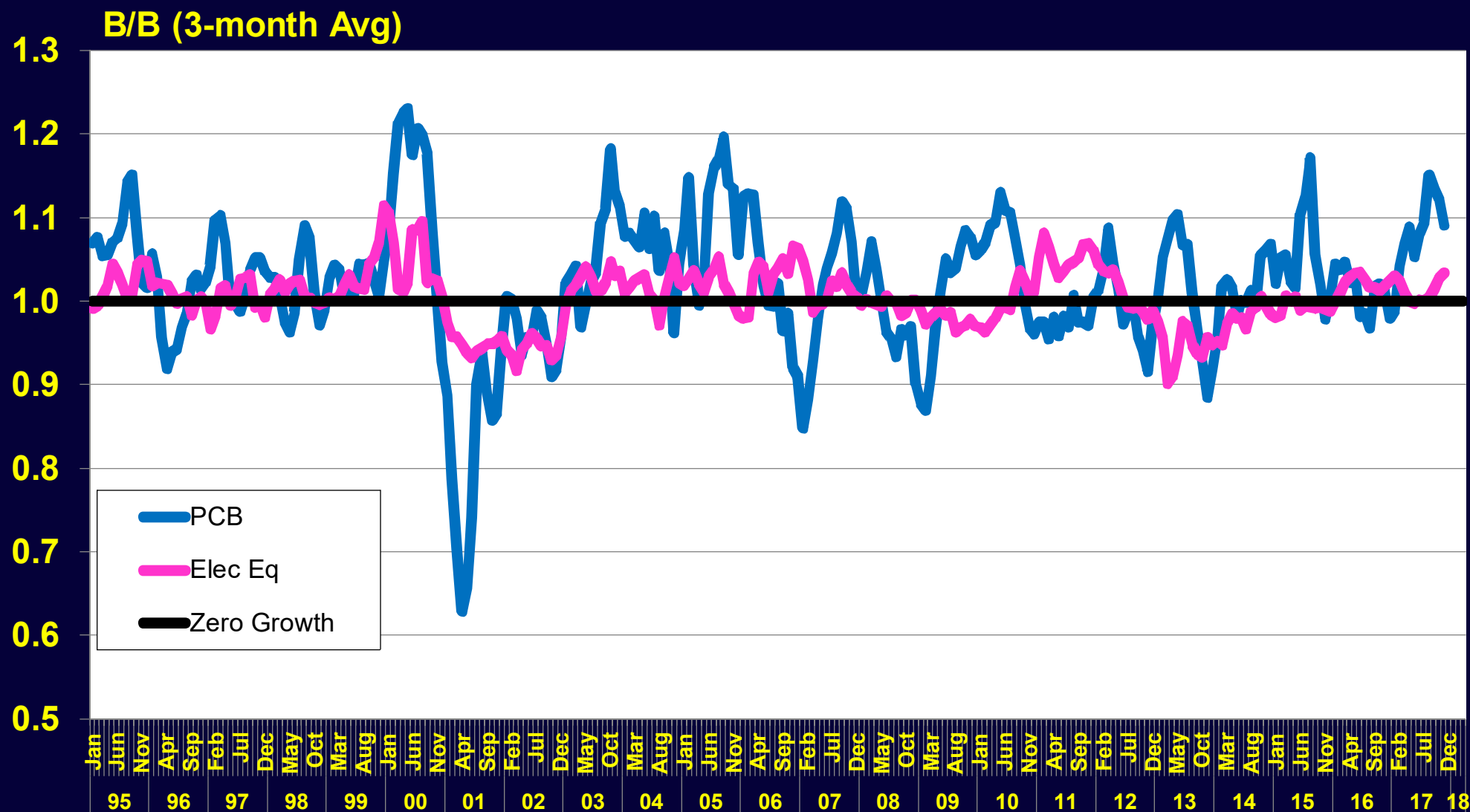


Chart 13

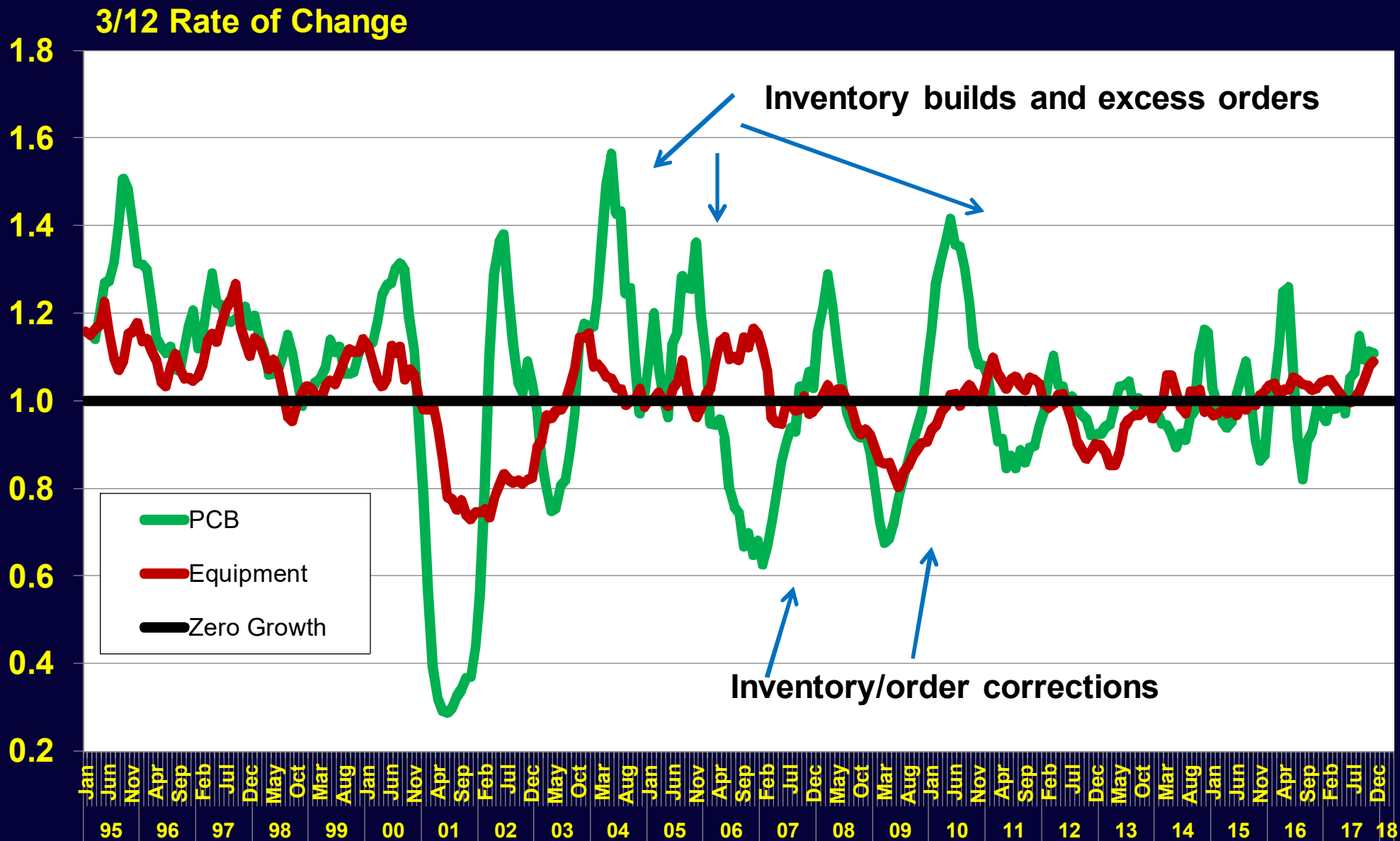
N American Rigid & Flex PCB & U.S. Electronic Equipment Book/Bill Ratios



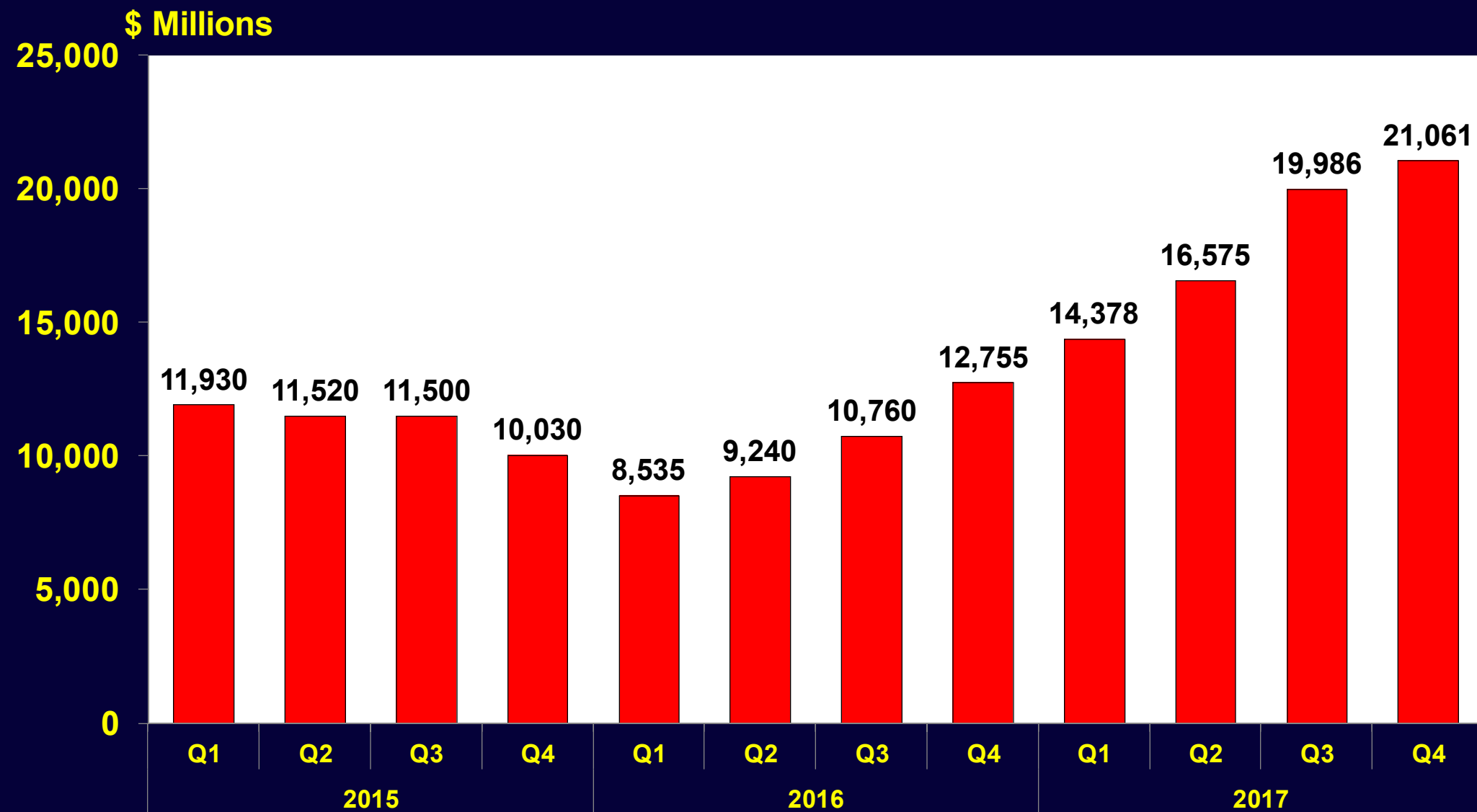
IPC, DOC

Chart 14

U.S. Electronic Equipment vs. Rigid & Flex PCBs \$ Order Growth



Quarterly DRAM Revenue (\$M)



World Defense Spending \$B

2017

Rank	Country	2016	Rank	Country	2017
1	US	636.2	1	US	642.9
2	China	182.9	2	China	192.5
3	India	52.7	3	India	52.4
4	Russia	52.3	4	UK	51.2
5	UK	50.5	5	Saudi Arabia	50.9
6	Saudi Arabia	50.0	6	Russia	47.0
7	Japan	46.9	7	France	45.6
8	France	45.6	8	Japan	44.5
9	Germany	35.4	9	Germany	37.5
10	South Korea	33.6	10	S Korea	34.7
11	Australia	27.6	11	Brazil	28.9
12	Brazil	25.7	12	Australia	28.9
13	Italy	23.1	13	Italy	23.1
14	UAE	18.7	14	UAE	19.8
15	Canada	14.7	15	Iran	16.3
16	Taiwan	14.2	16	Canada	15.0
17	Israel	14.2	17	Israel	15.0
18	Iran	13.7	18	Taiwan	13.8
19	Turkey	12.3	19	Turkey	12.1
20	Spain	10.9	20	Pakistan	11.1
	Top 20	1361.2		Top 20	1383.2
				Others	233.5
				Total	1616.7

2018 Forecast \$1670

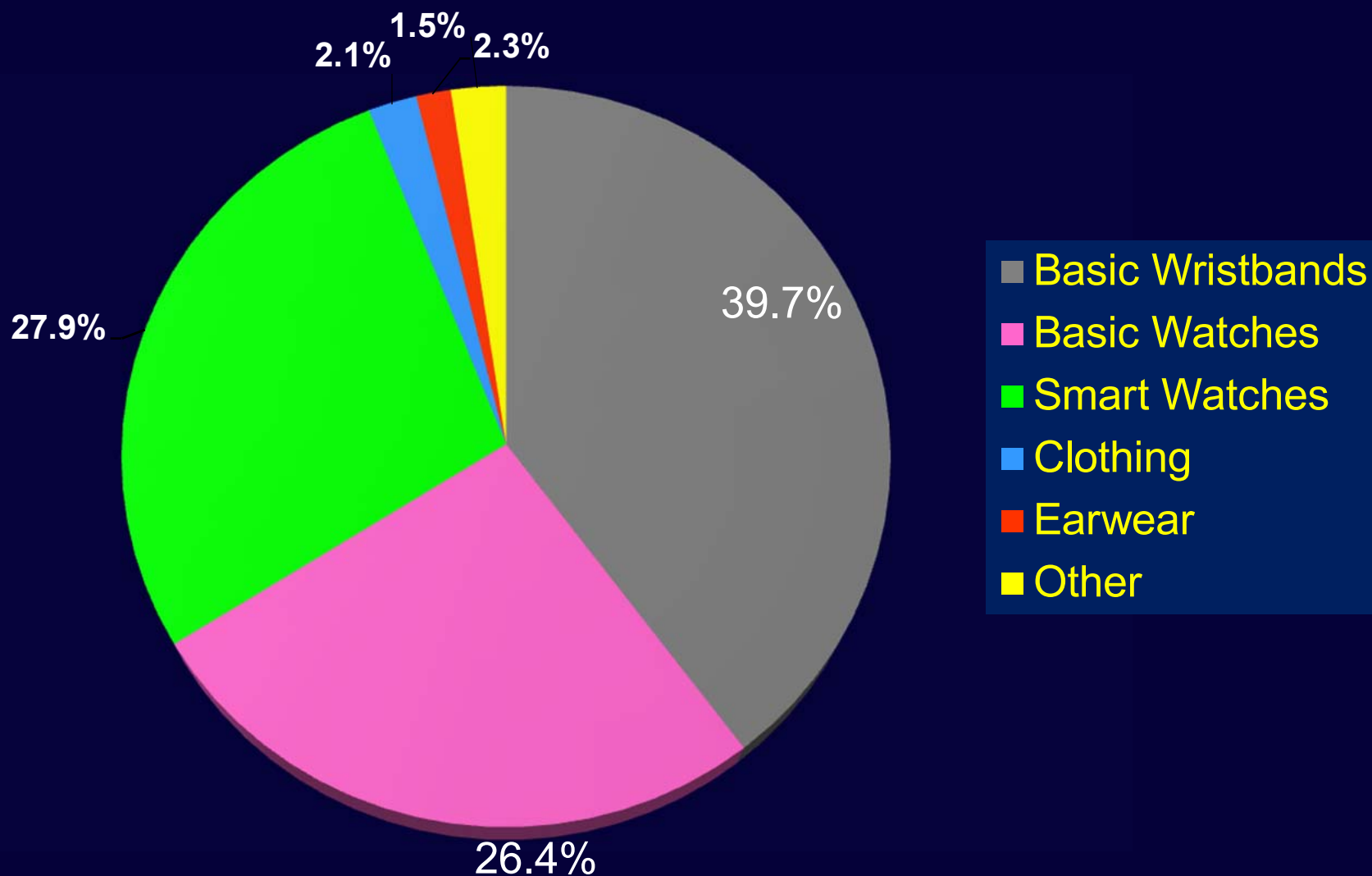
Chart 17 **Wearable Device Shipments Worldwide**

Units (millions)



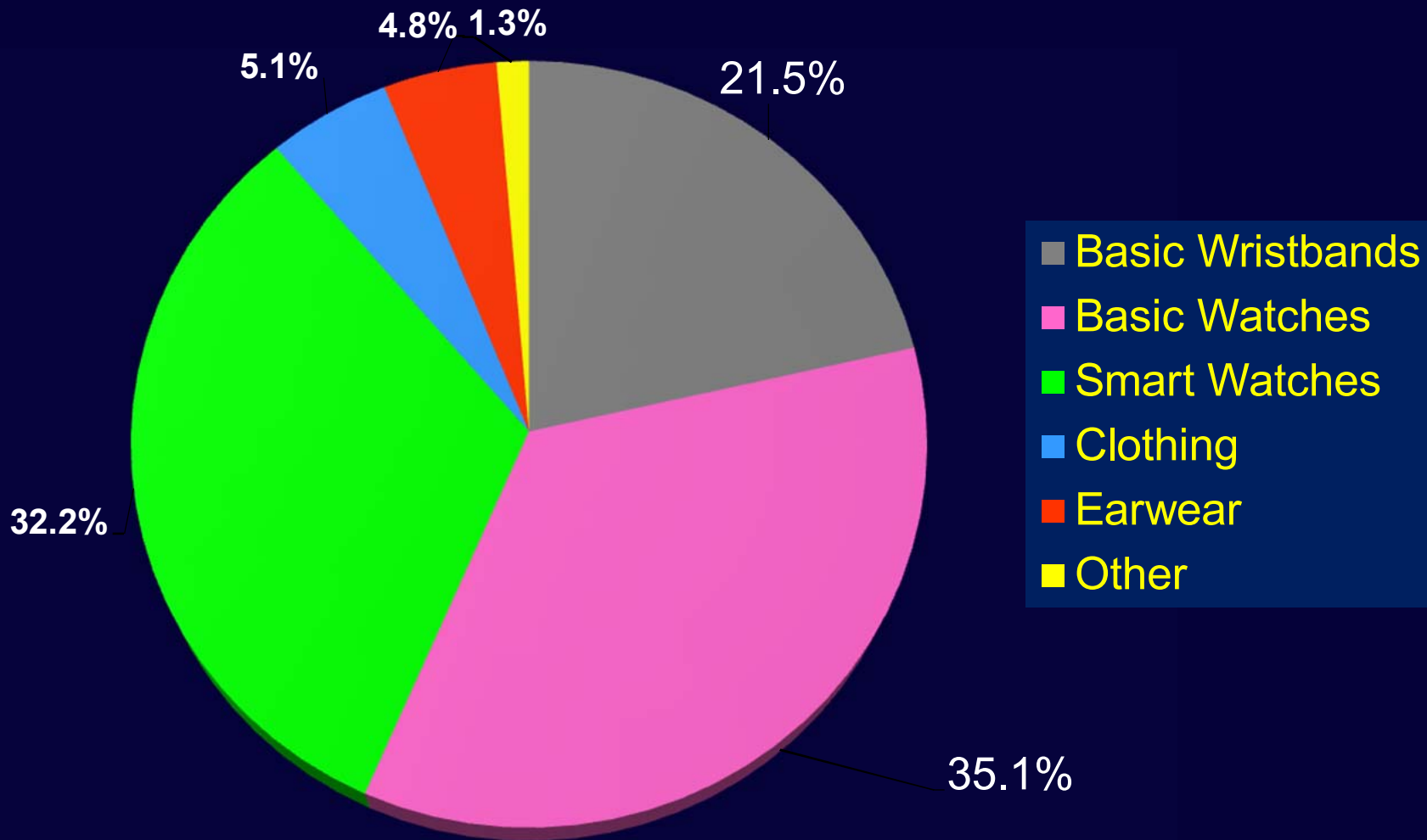
	2017	2018	2019	2020	2021
total	113.3				222.3
Others	2.7				3.0
Earwear	1.7				10.6
Clothing	2.4				11.5
Smart Watches	31.6				71.5
Basic Watches	29.9				78.0
Basic Wristbands	45.0				47.7

Wearable Devices Units 2017



Forecasted 2017 Total: 113 Million Units

Wearable Devices Units 2021



Forecasted 2021 Total: 22 Million Units

Chinese IC Design Companies

Revenue (RMB 100 million)

Rank	Companies	2016	2017E	Growth %
1	HiSilicon	303	387	27.7%
2	Unigroup Spreadtrum RDA	125	110	-12.0%
3	Sanechips (ZTE Microelectronics)	56	75	33.9%
4	Huada Semiconductor	47.6	52.3	9.9%
5	Goodix	30.8	39.3	27.5%
6	Beijing Smartchip Microelectronics	35.6	38.7	8.8%
7	Silan Microelectronics	23.8	27.3	15.1%
8	WillSemi	21.6	23.6	9.1%
9	Vimicro	20.5	22.5	9.8%
10	GigaDevice	14.9	21.2	42.7%

Chart 21

U.S. GDP Growth

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

