

Chart 1

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

US\$ converted @ fluctuating exchange rate

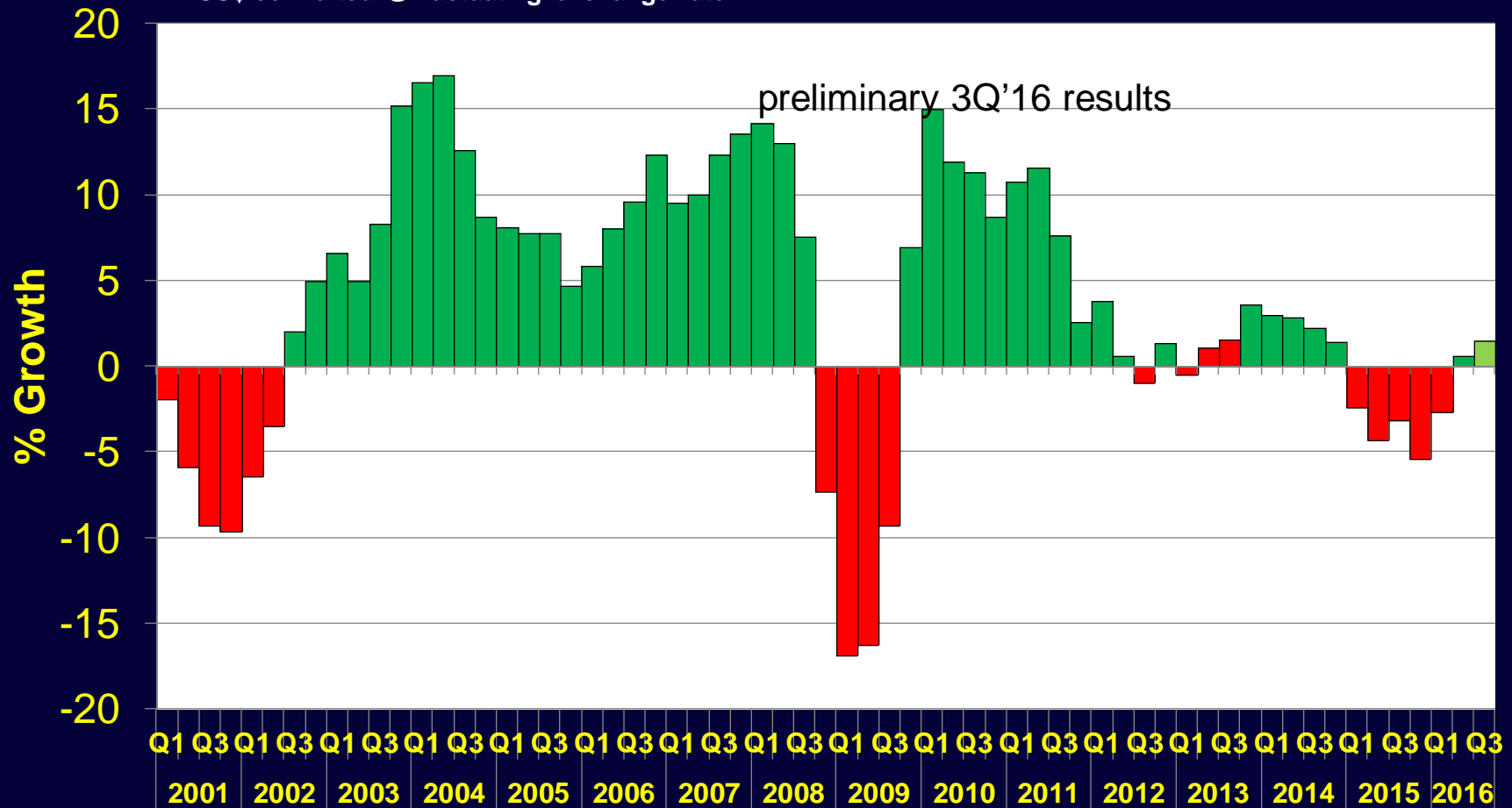
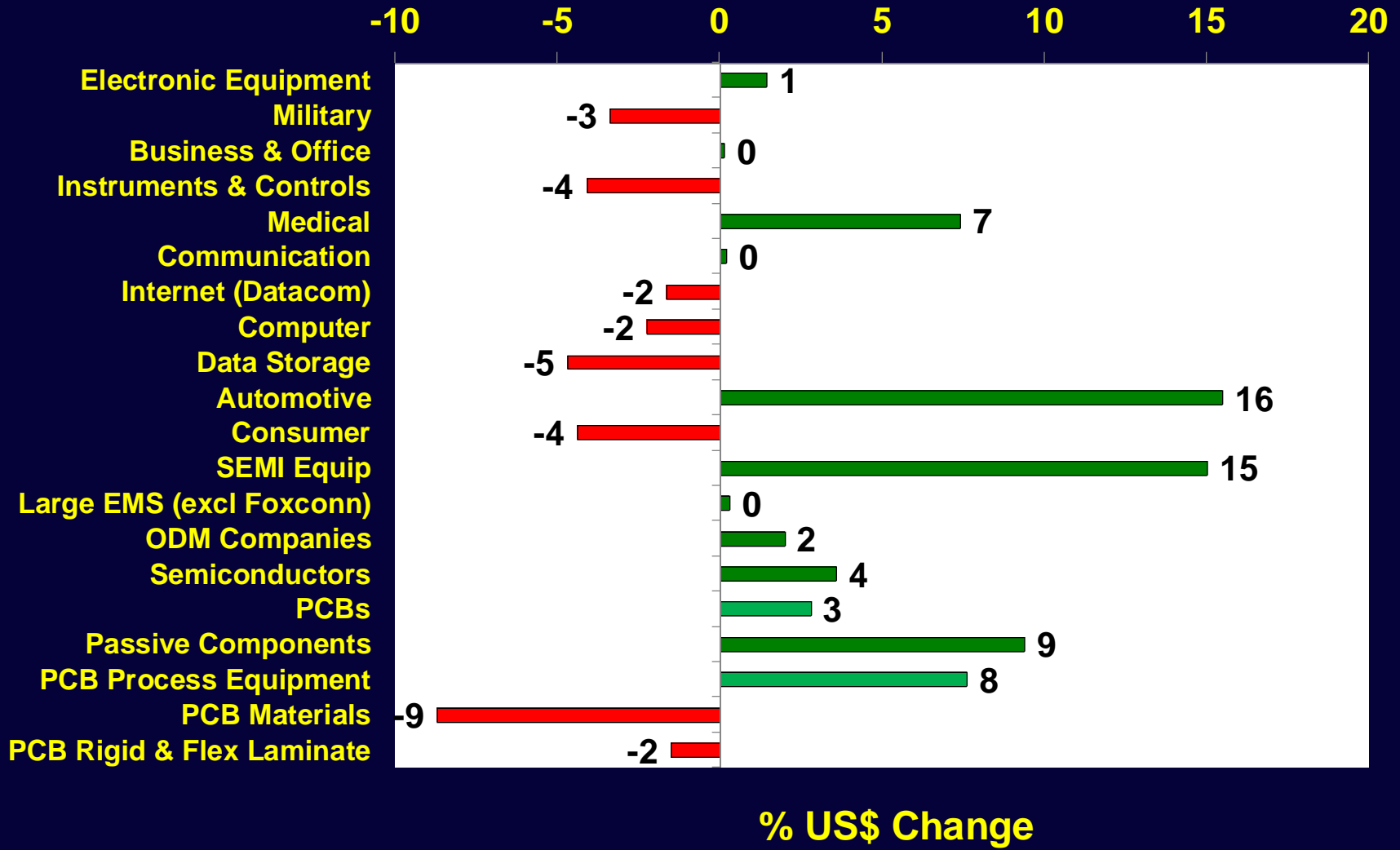


Chart 2

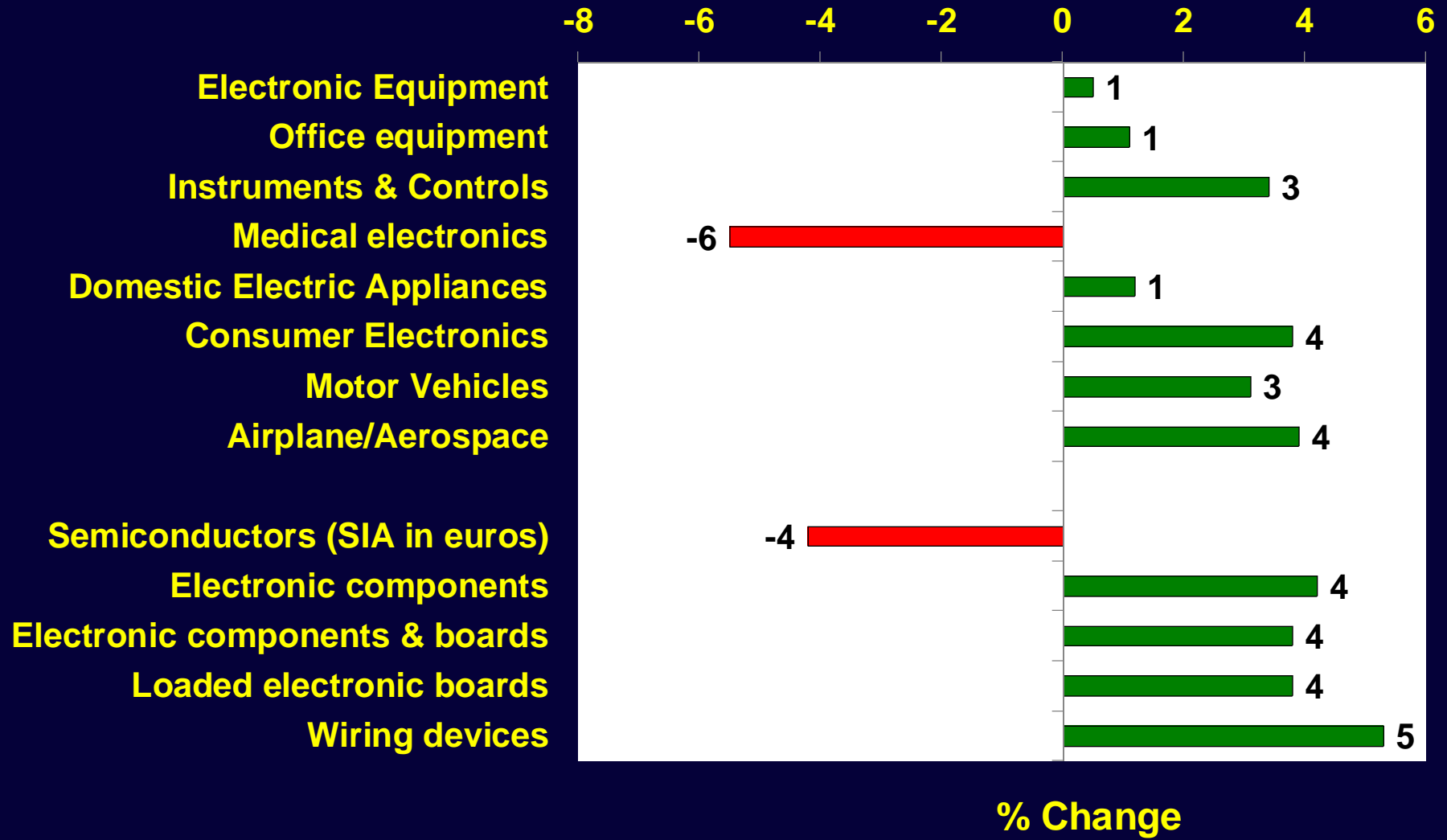
# Global Electronic Supply Chain Growth 3Q'16 vs. 3Q'15 (preliminary estimate)



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

Chart 3

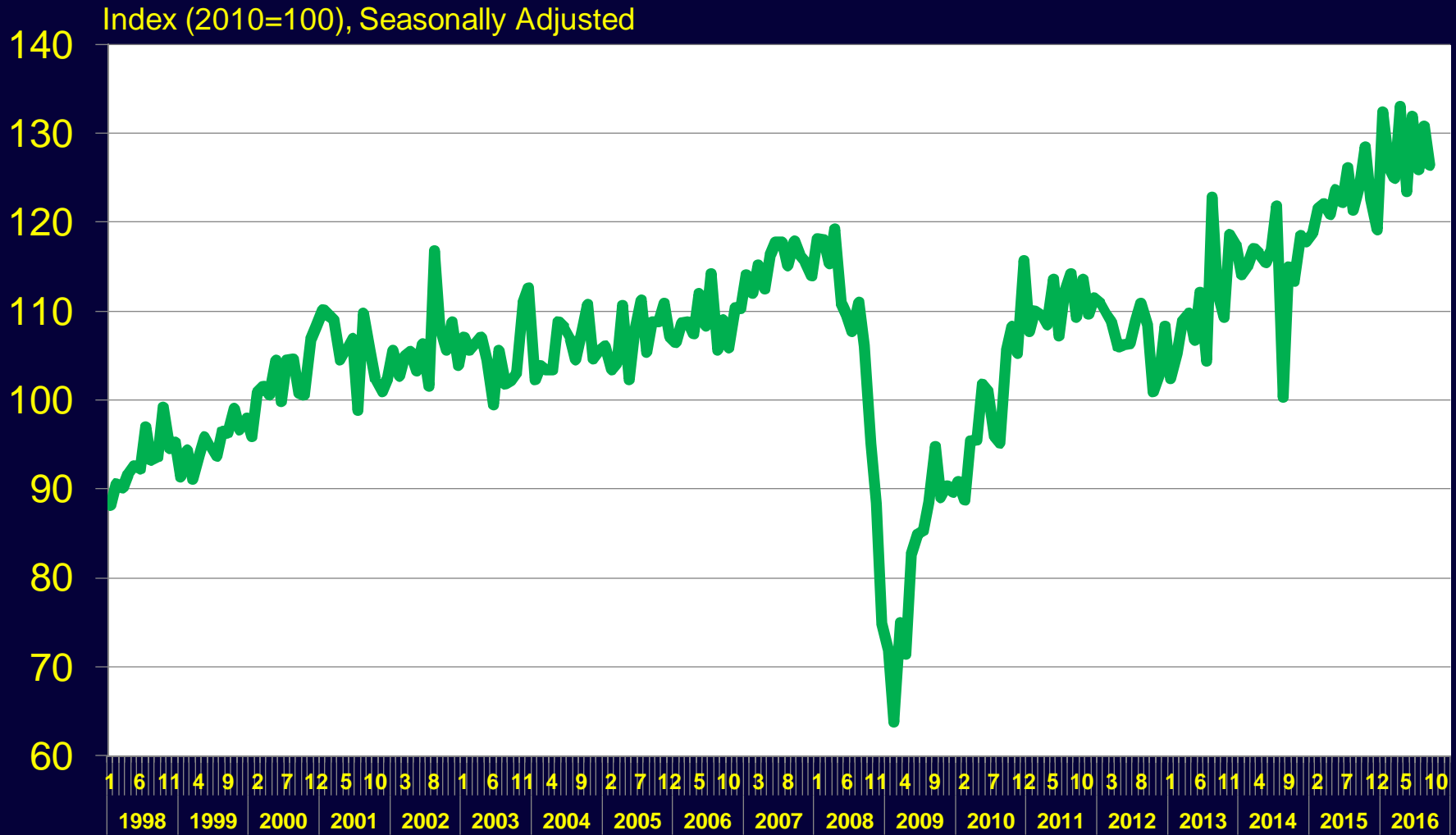
# European Electronic Supply Chain Growth 3Q'16 vs 3Q'15



Euro denominated growth rates; Eurostat, SIA & Custer Consulting Group

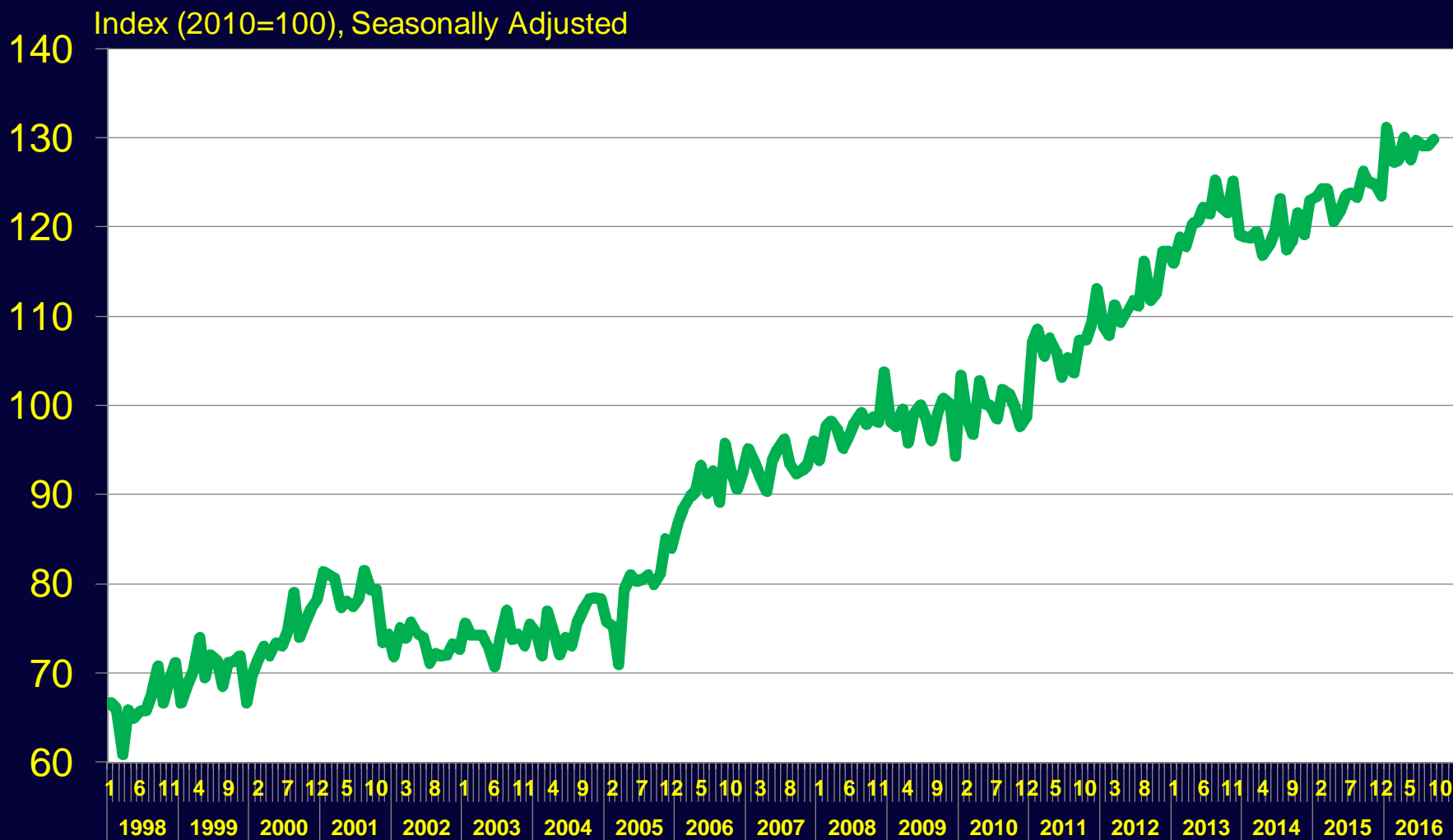
Chart 4

# European Motor Vehicle Production



Eurostat, C291 category, EU 27 countries

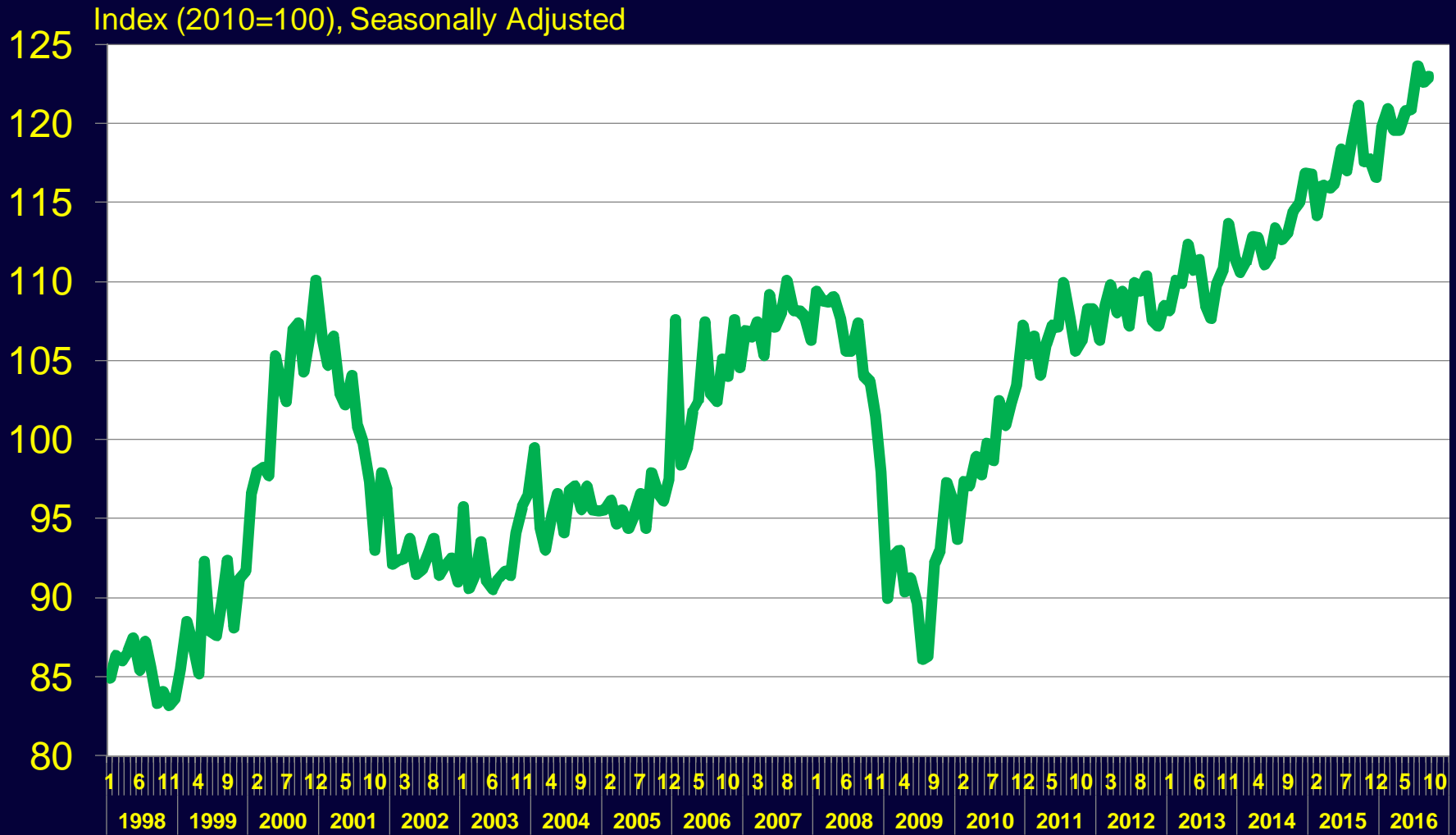
# Chart 5 European Production - Aircraft, Spacecraft & Related Equipment



Eurostat, C303 category, EU 27 countries

Chart 6

# European Production - Instruments & Appliances for Measuring, Testing & Navigation



Eurostat, C2651 category, EU 27 countries

Chart 7

# European Loaded Electronic Board Production



Eurostat, C2612

Chart 8

# European Loaded Electronic Board Production



Eurostat, C2612



Chart 9

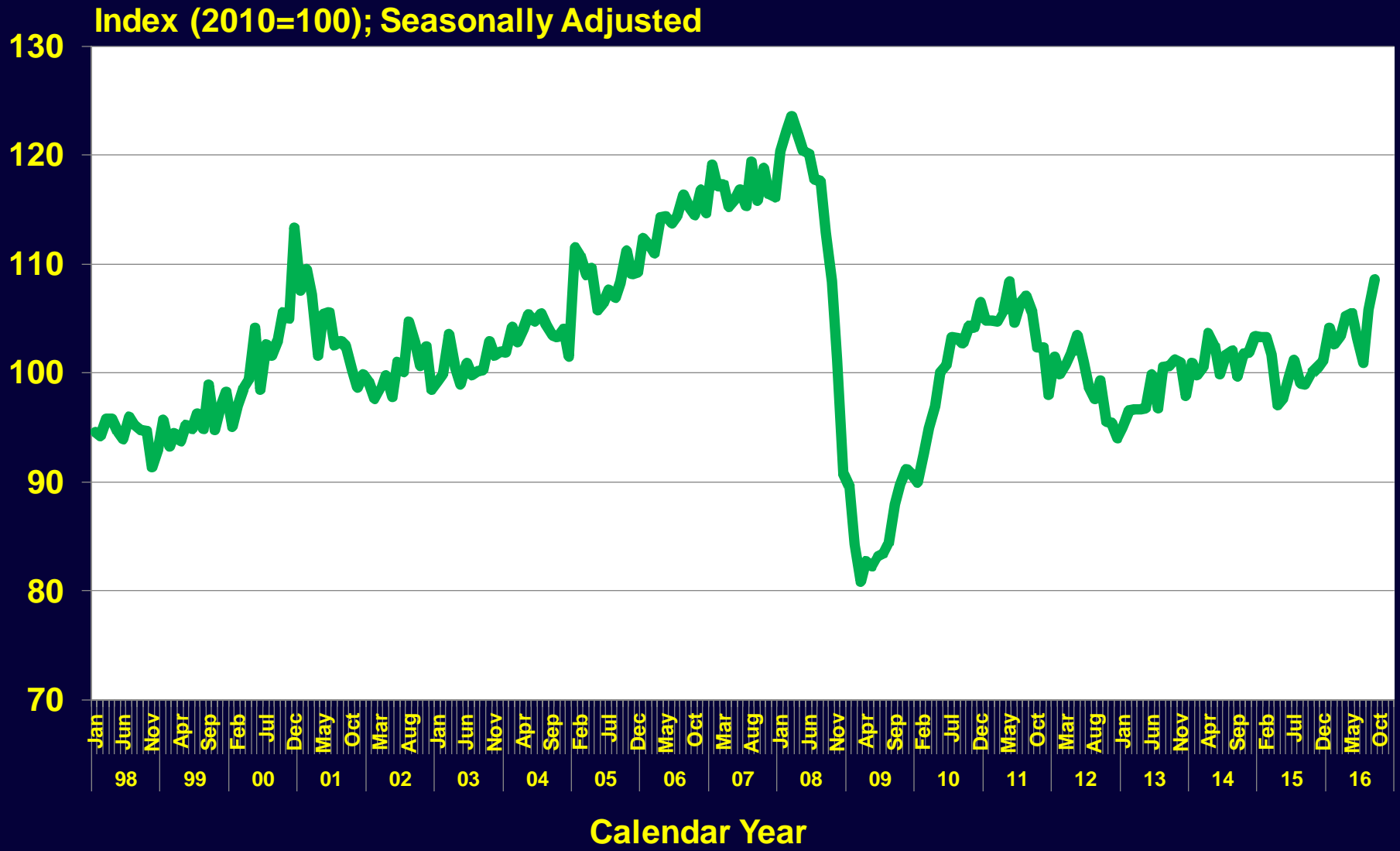
# European Loaded Electronic Board Production



Eurostat, C2612

Chart 10

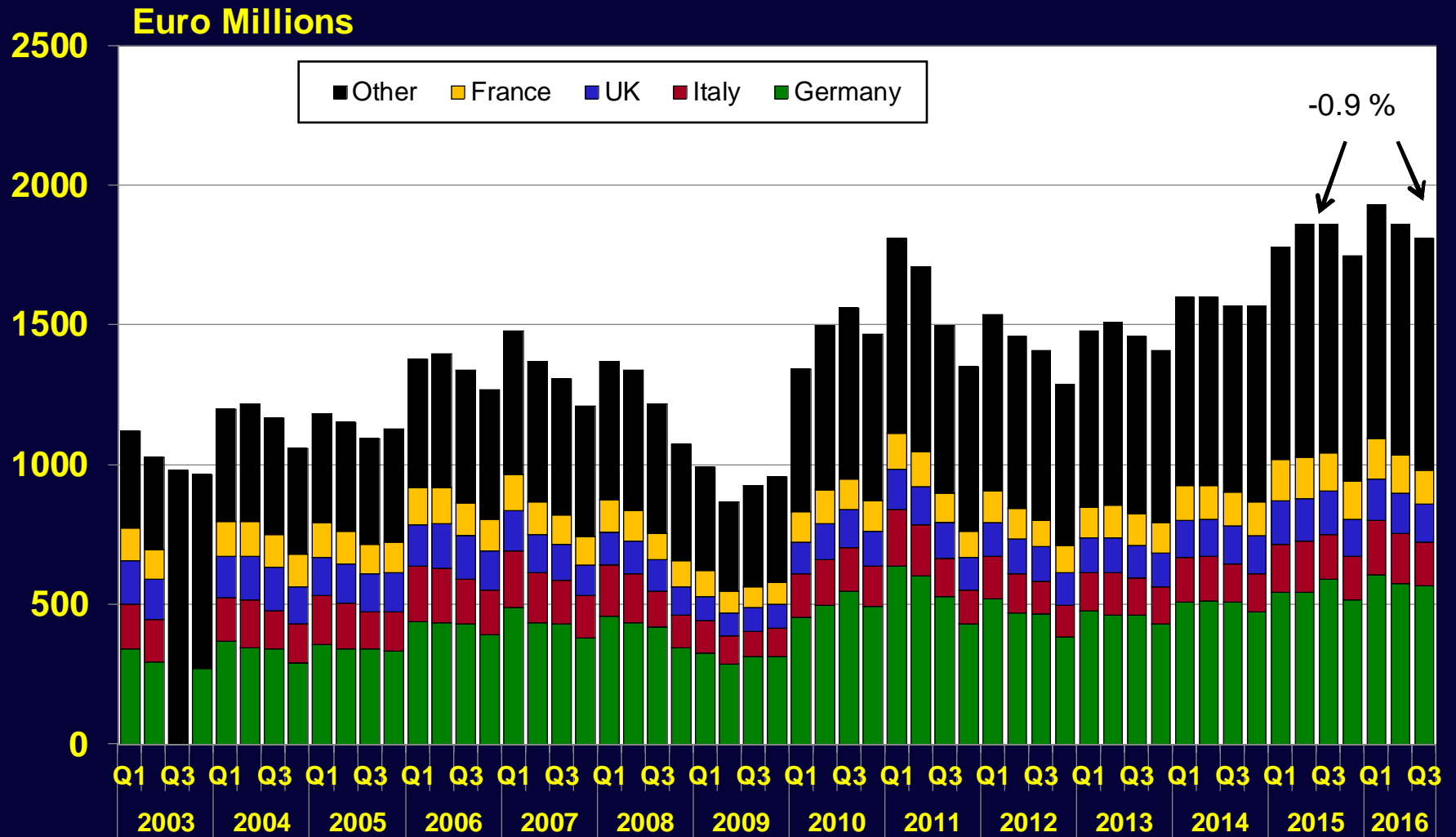
# European Electronic Wiring Devices



Eurostat

Chart 11

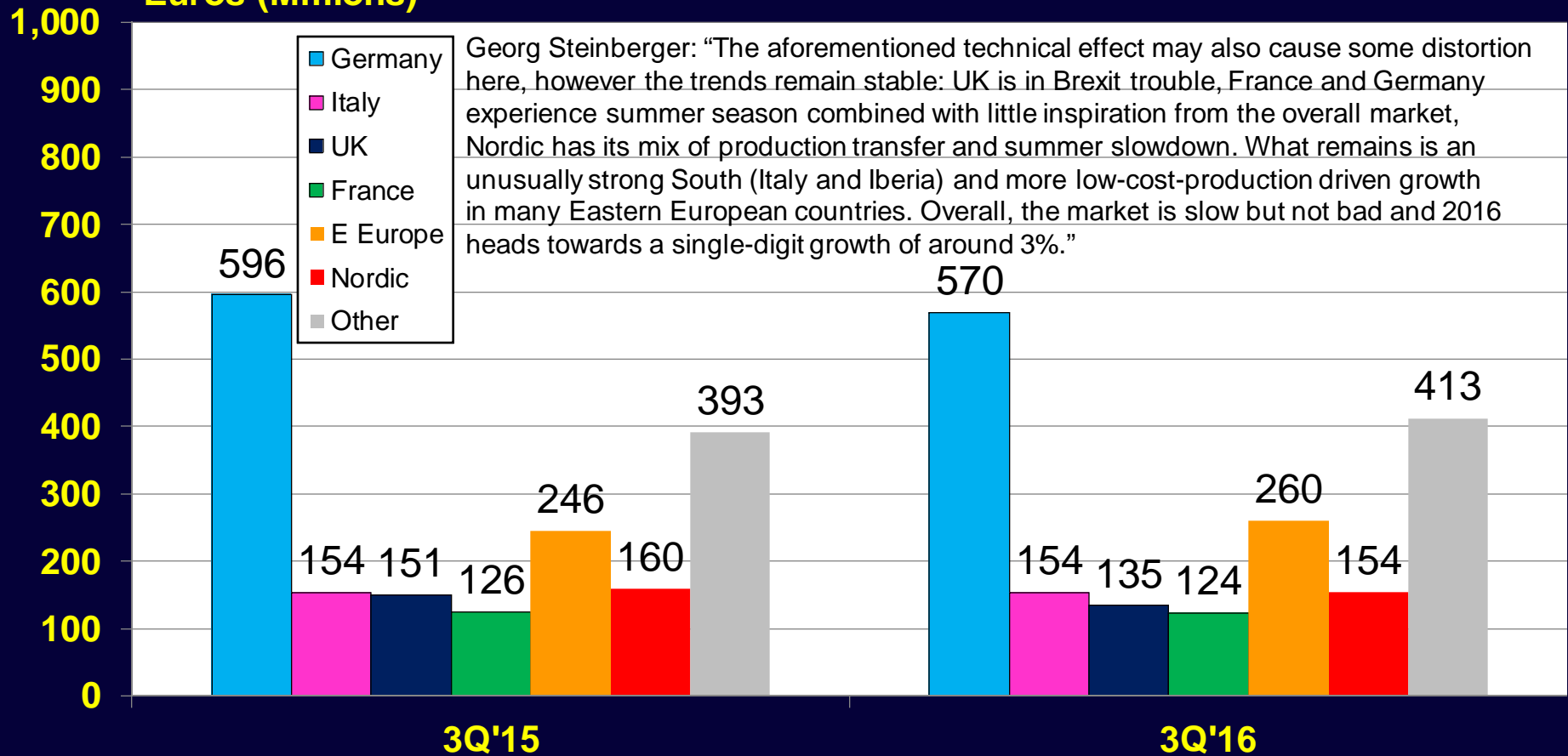
# DMASS - European Semiconductor Distribution Industry



# DMASS

## European Semiconductor Distribution Industry

Euros (Millions)



Georg Steinberger: "The aforementioned technical effect may also cause some distortion here, however the trends remain stable: UK is in Brexit trouble, France and Germany experience summer season combined with little inspiration from the overall market, Nordic has its mix of production transfer and summer slowdown. What remains is an unusually strong South (Italy and Iberia) and more low-cost-production driven growth in many Eastern European countries. Overall, the market is slow but not bad and 2016 heads towards a single-digit growth of around 3%."

"Growth rate for semiconductor distribution slips into negative during summer. Technical effects. Israel, Eastern Europe and Benelux surprisingly strong. Analog remains stable stronghold"

Chart 13

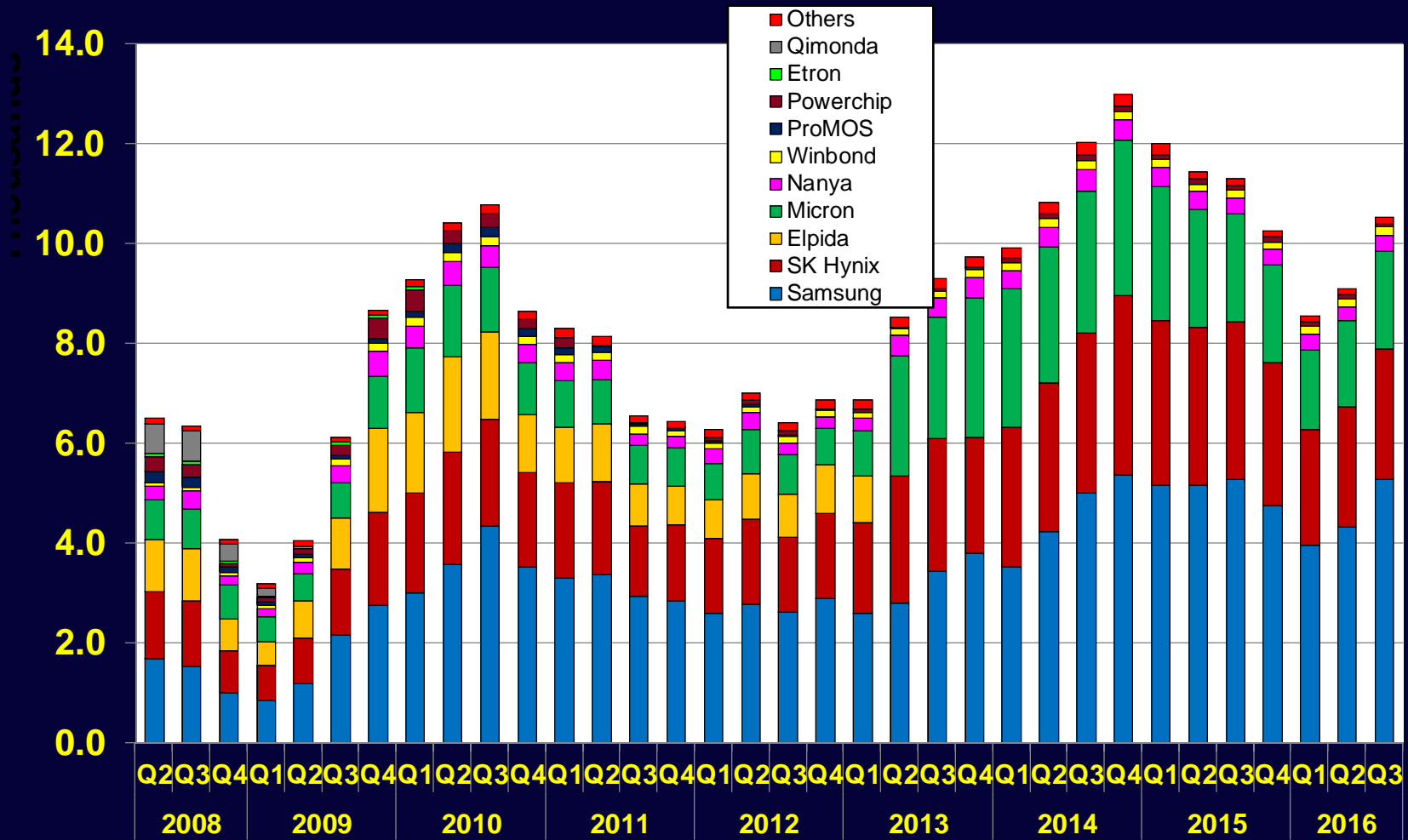
## 2016 Forecasted Semiconductor Sales Leaders including Foundries (\$M)

<u>Rank</u>	<u>Maker</u>	<u>2016F</u>	<u>16/15 Growth</u>
1	Intel	56,313	8%
2	Samsung Electronics	43,535	4%
3	TSMC	29,324	11%
4	Qualcomm	15,436	- 4%
5	Broacom	15,332	1%
6	SK Hynix	14,234	-15%
7	Micron	12,842	-11%
8	TI	12,349	2%
9	Toshiba	10,922	16%
10	NXP	9,498	-10%
11	MediaTek	8,610	29%
12	Infineon	7,343	6%
13	ST	6,944	1%
14	Apple	6,493	17%
15	Sony	6,466	3%
16	Nvidia	6,340	35%
17	Renesas	5,751	1%
18	GlobalFoundries	5,085	-11%
19	ON Semi	4,858	0%
20	UMC	4,455	0%
	Total including Foundries	282,130	3%
	Total without Foundries	243,266	3%

Chart 14

# Branded DRAM Revenue

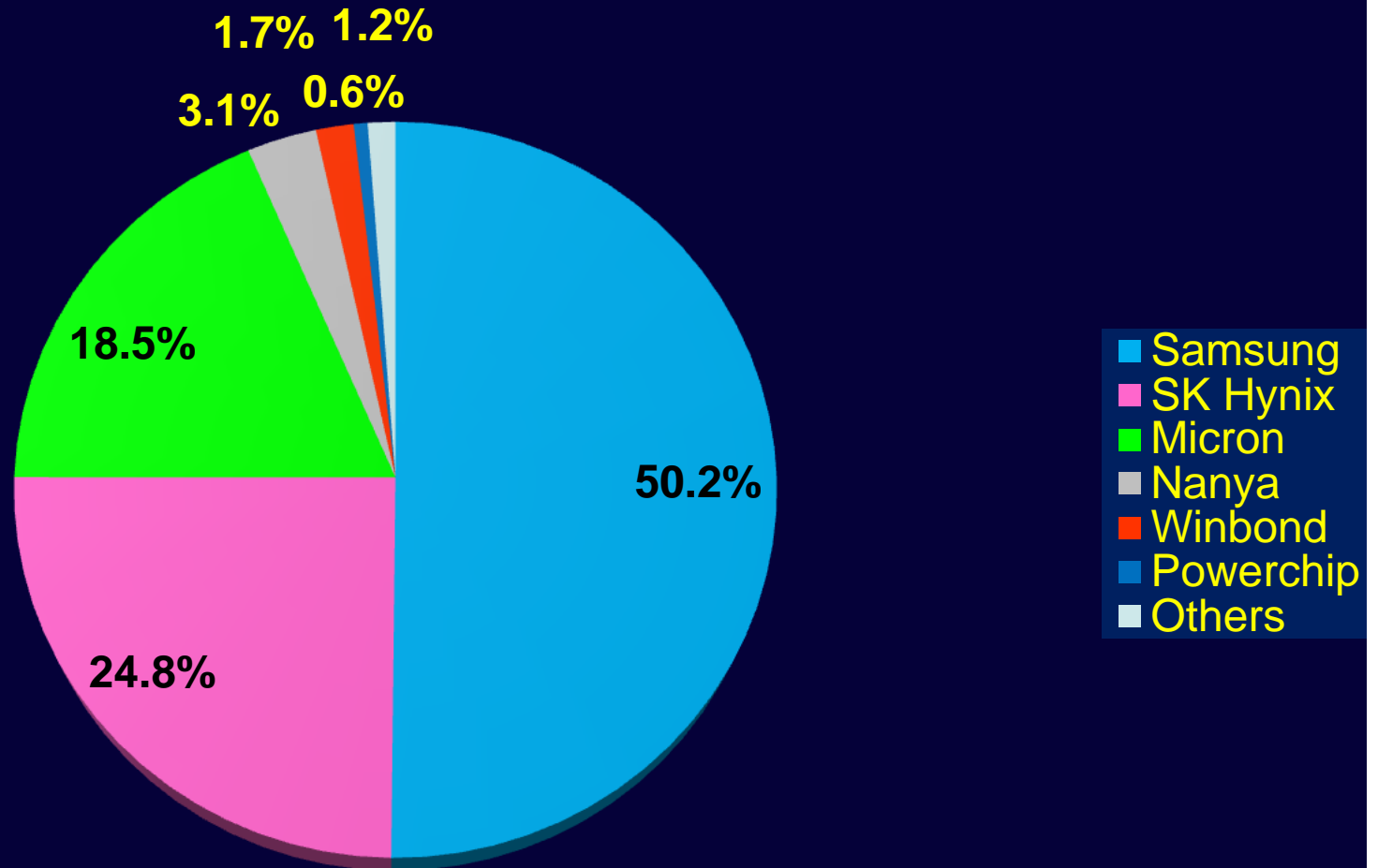
US\$ (Billions)



DRAMeXchange 11/2016 & earlier reports

Chart 15

# Branded DRAM Revenues 3Q'16

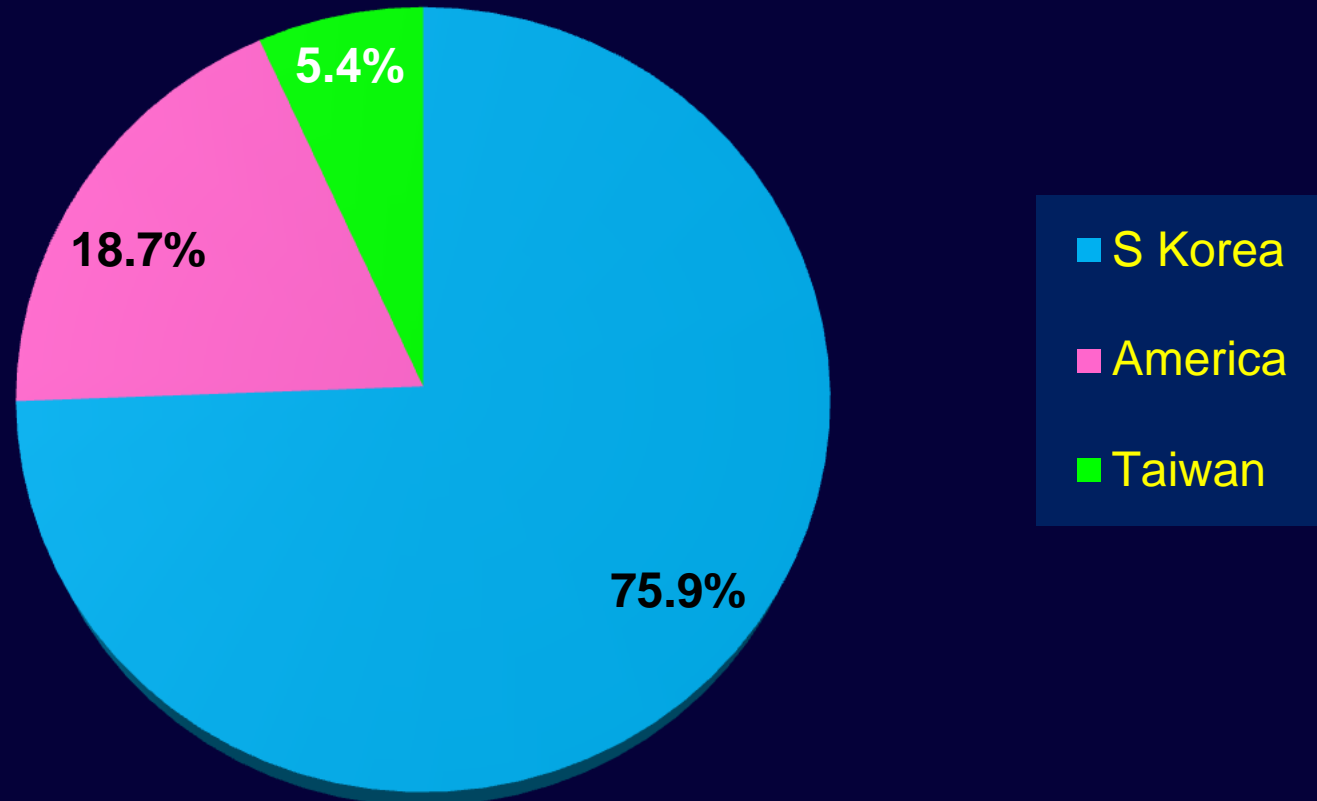


\$9,101 B  
2Q'16

3Q'16 Total: US\$10,536 Billion

Chart 16

## Regional Branded DRAM Market Share 3Q'16



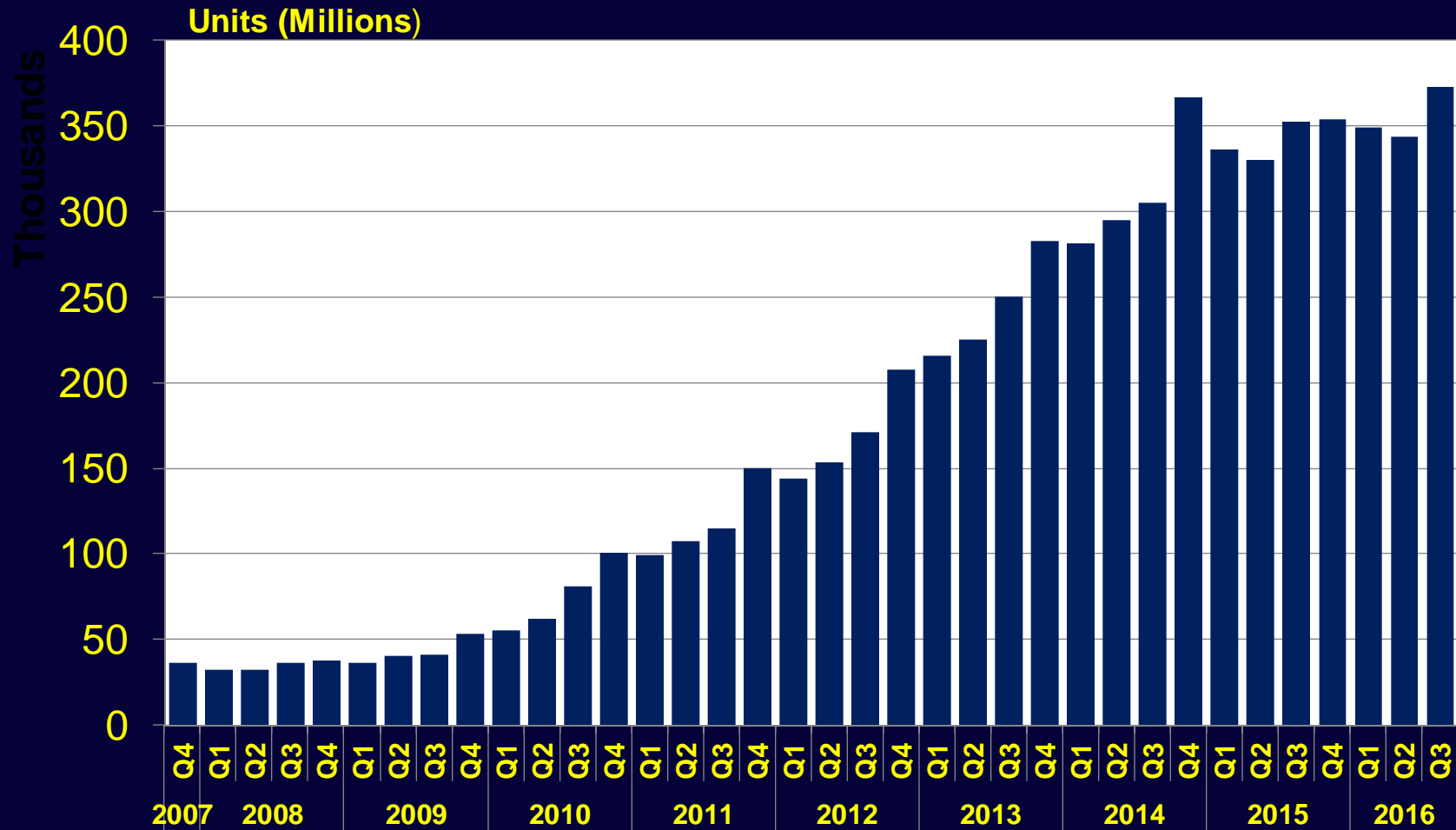
**3Q'16 Total: US\$ 10.5 Billion**

Market shares above do not include "other" smaller producers



Chart 17

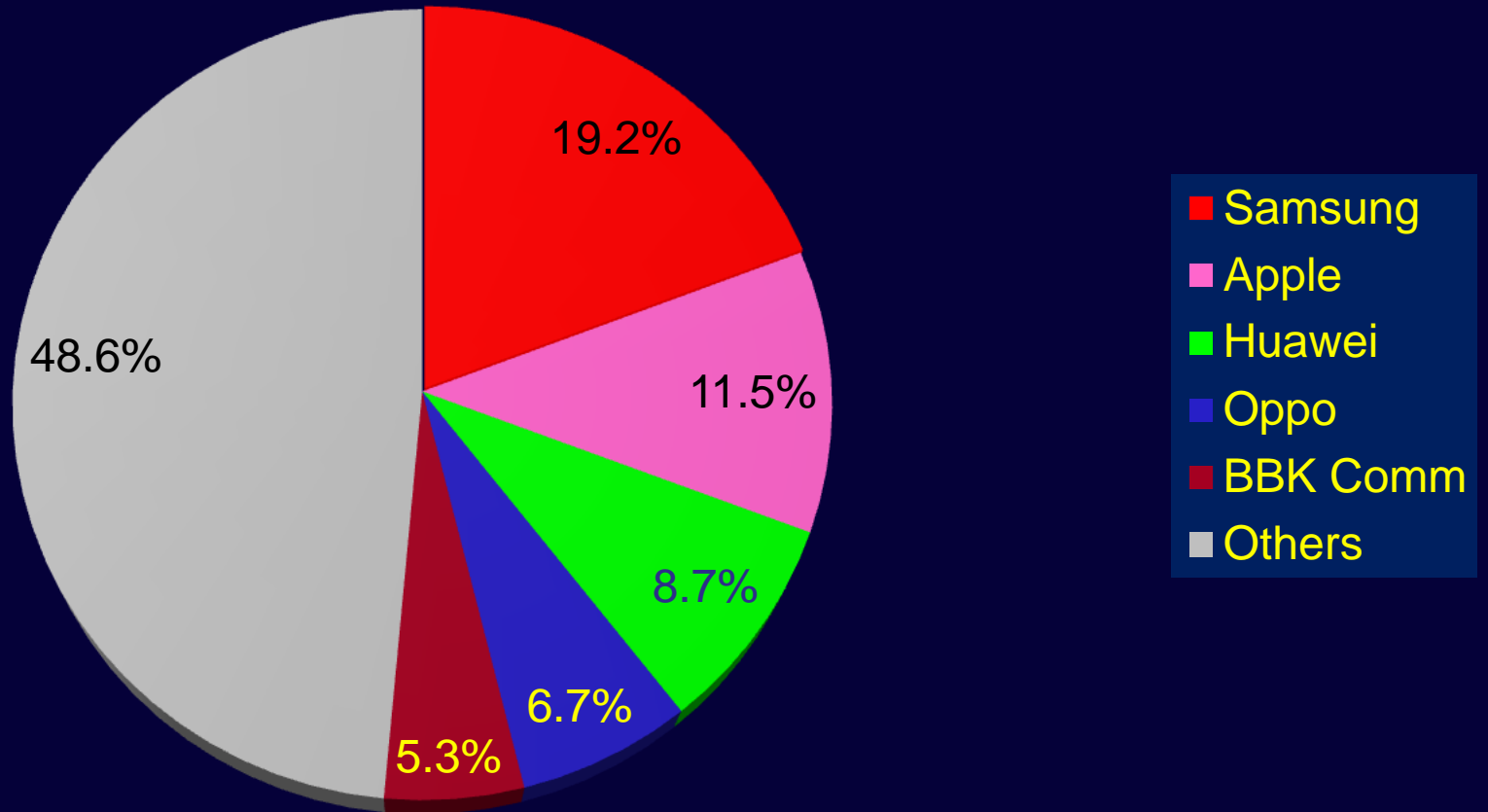
# Smartphone Unit Shipments to End Users World



Gartner Dataquest 11/16 & prior reports

Chart 18

# World Smartphone Sales 3Q'16

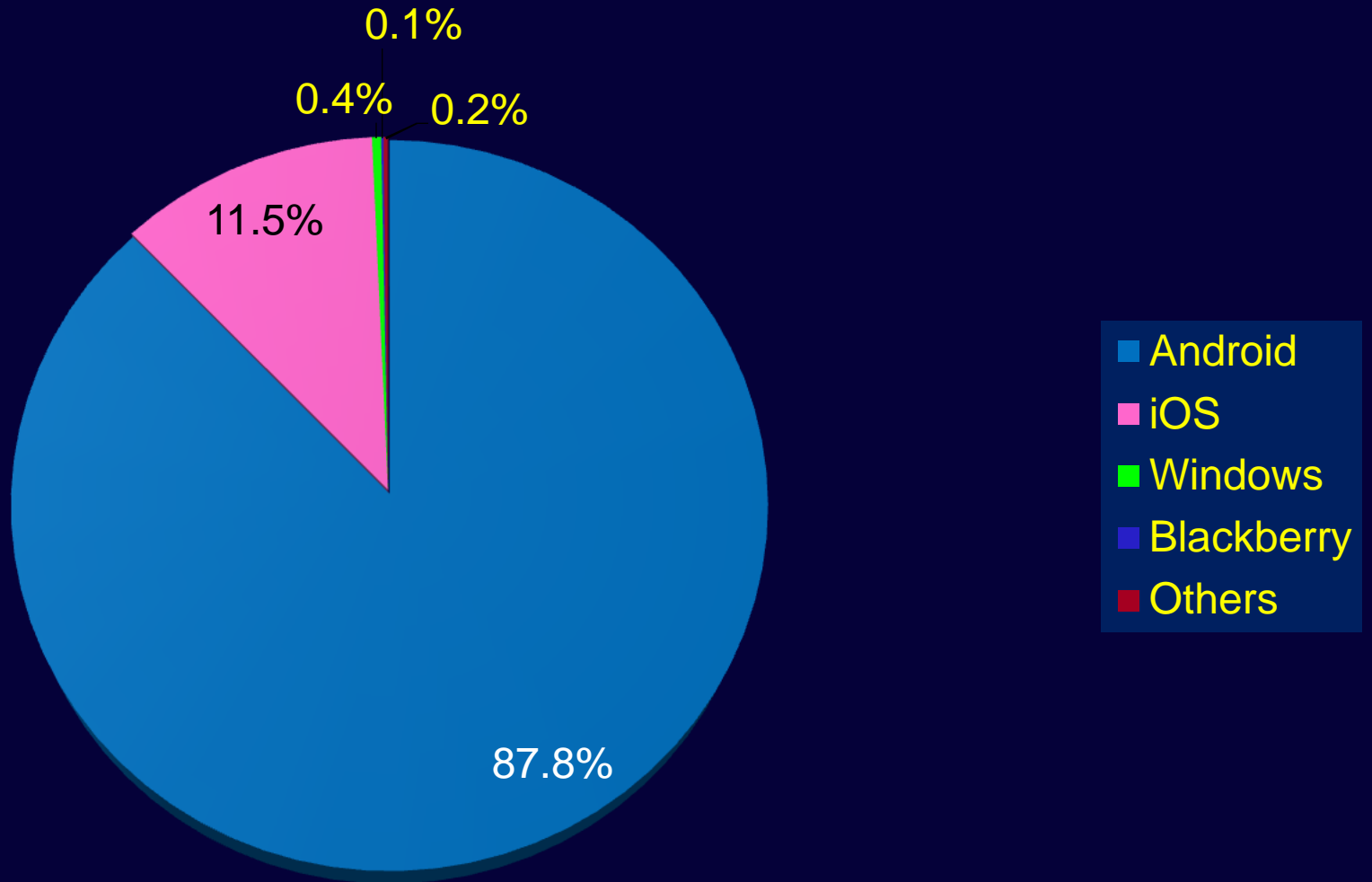


3Q'15  
354.2 M

**3Q'16 TOTAL: 373.3 Units**

Chart 19

# World Smartphone Sales 3Q'16 by Operating System



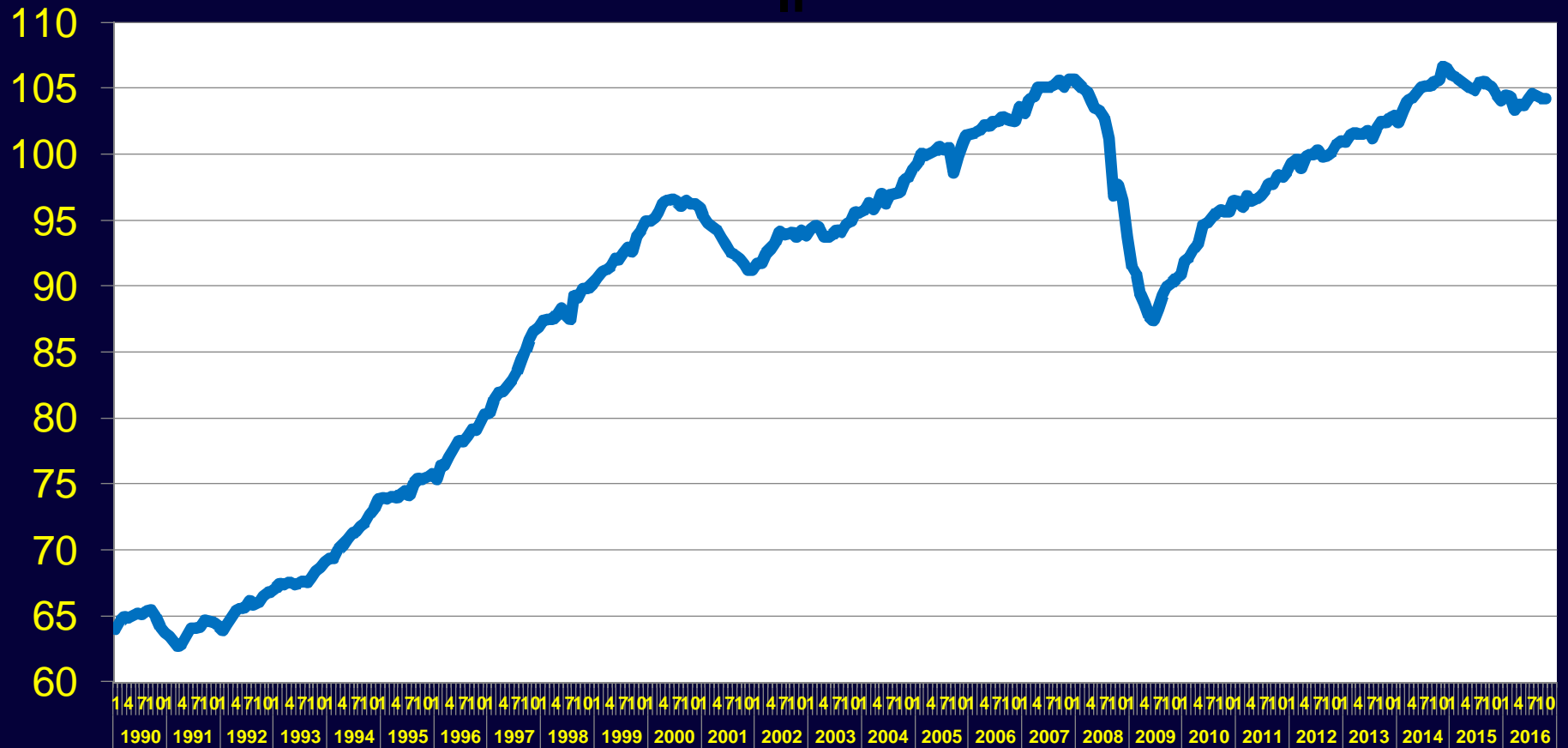
**3Q'16 TOTAL: 373.3 Units**

Chart 20

# U.S. Industrial Production

Index (2012=100)

IP



# Industrial Production – World

## % Change vs. One Year Earlier

Britain	+ 0.3 Sep
Czech Republic	+ 2.7 Sep
France	- 1.1 Sep
Germany	+ 1.3 Sep
Italy	+ 1.8 Sep
Netherlands	+ 2.4 Sep
Russia	- 0.8 Sep
Spain	+ 1.2 Sep
Euro Area	+ 1.2 Sep
Canada	- 0.1 Aug
USA	- 0.9 Oct
China	+ 6.1 Oct
India	+ 0.7 Sep
Malaysia	+ 3.2 Sep
Vietnam	+ 7.0 Oct
Singapore	+ 6.7 Sep
S Korea	- 2.0 Sep
Taiwan	+ 5.0 Sep
Thailand	+ 0.6 Sep
Japan	+ 0.9 Sep