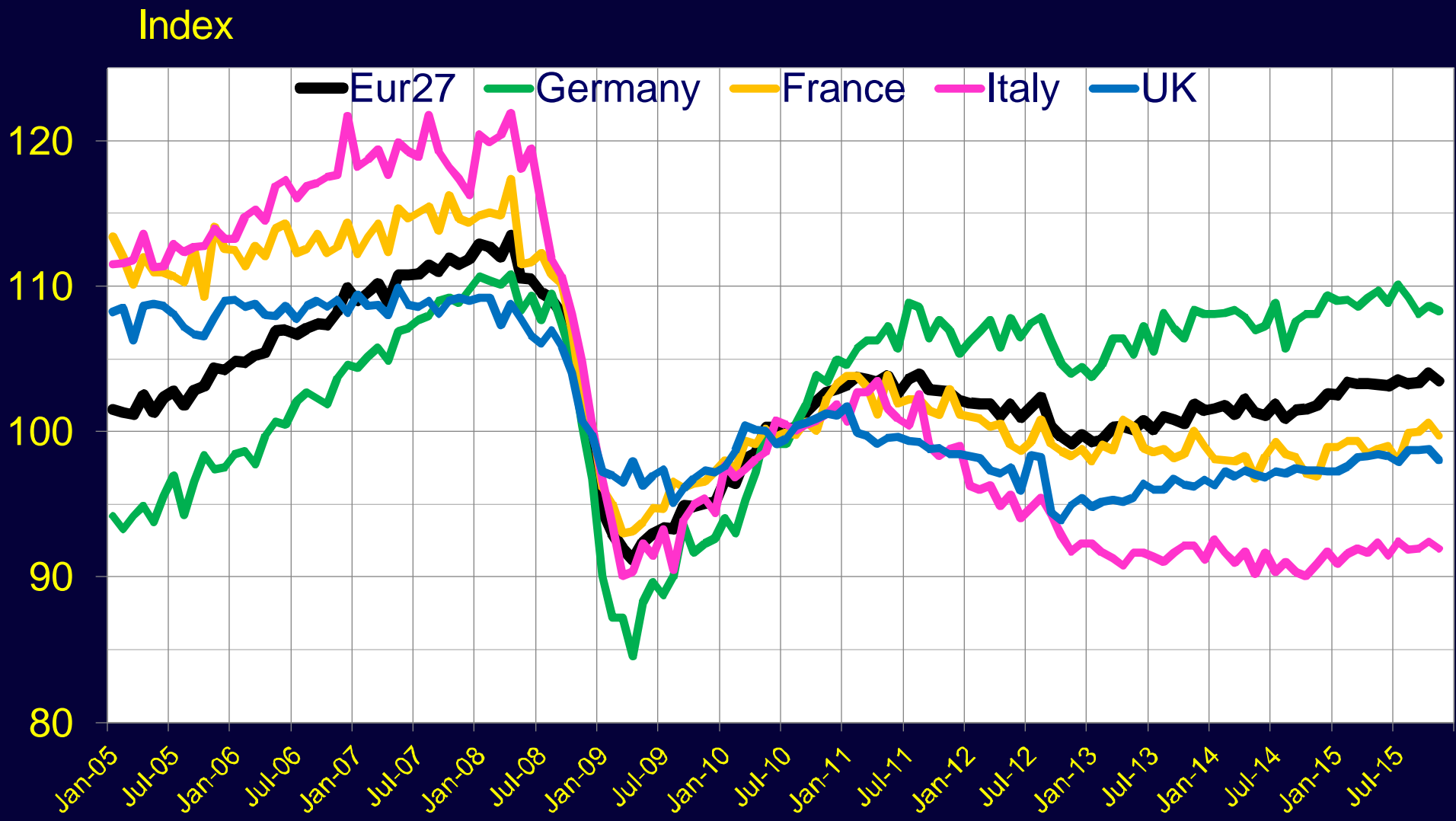


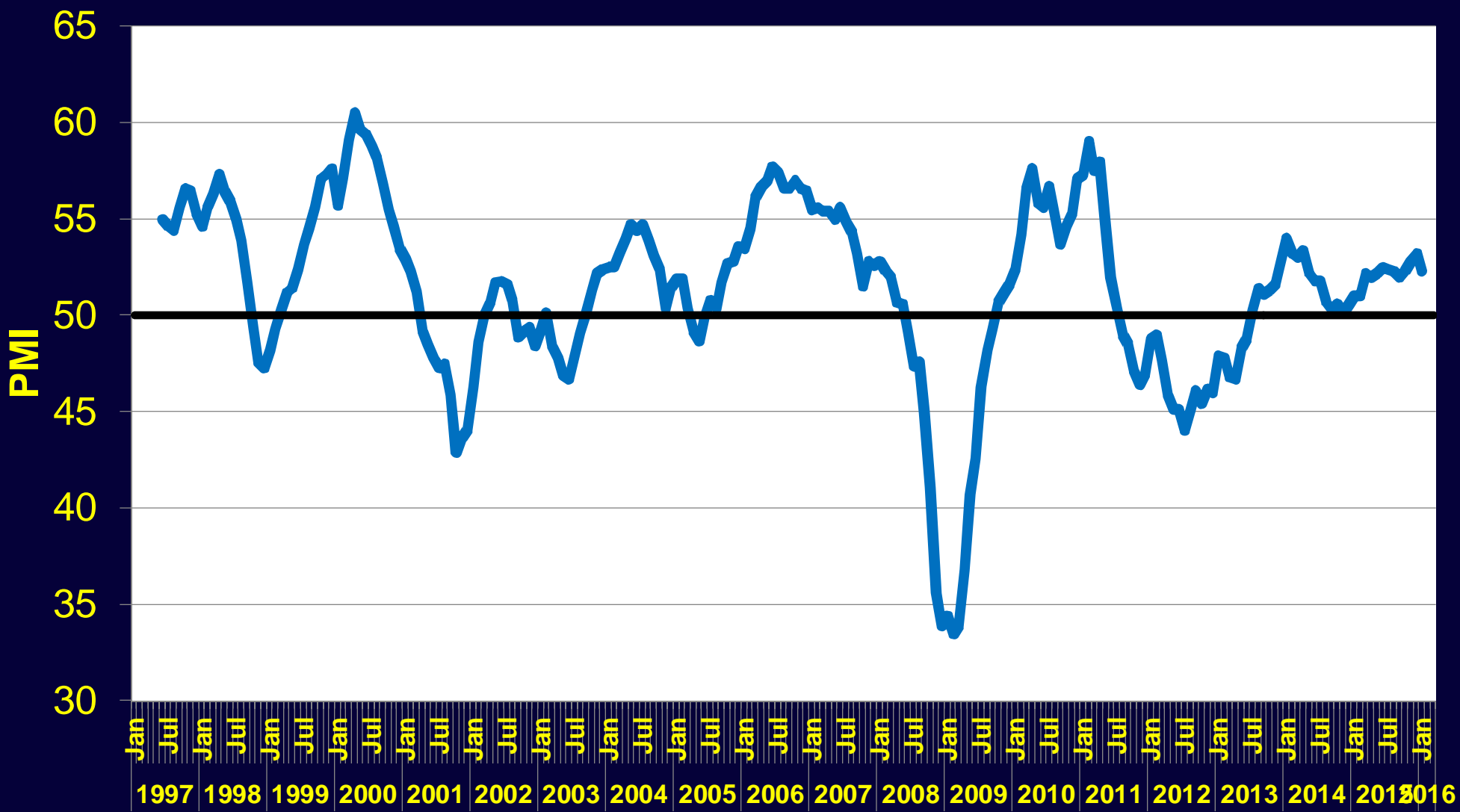
# Industrial Production - Europe

Index (2010 Avg. Month = 100, Seasonally Adjusted)

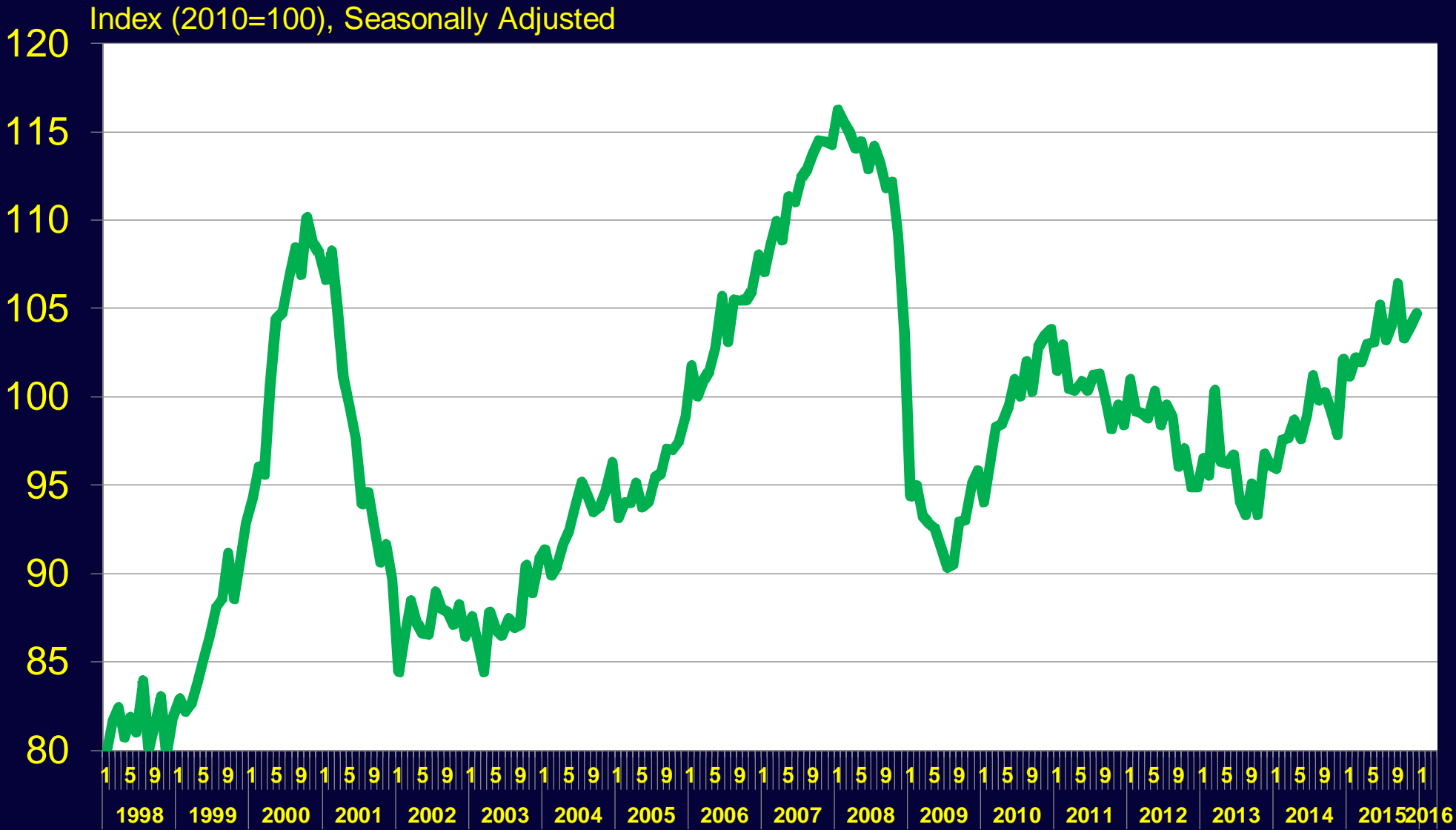


# Eurozone "Purchasing Managers" Index

Diffusion Index, >50 = Growth



# European Computer, Electronic & Optical Products Production



# Europe- EU27

## Manufacture of computer, electronic & optical products

12/12 & 3/12 Rate of Change

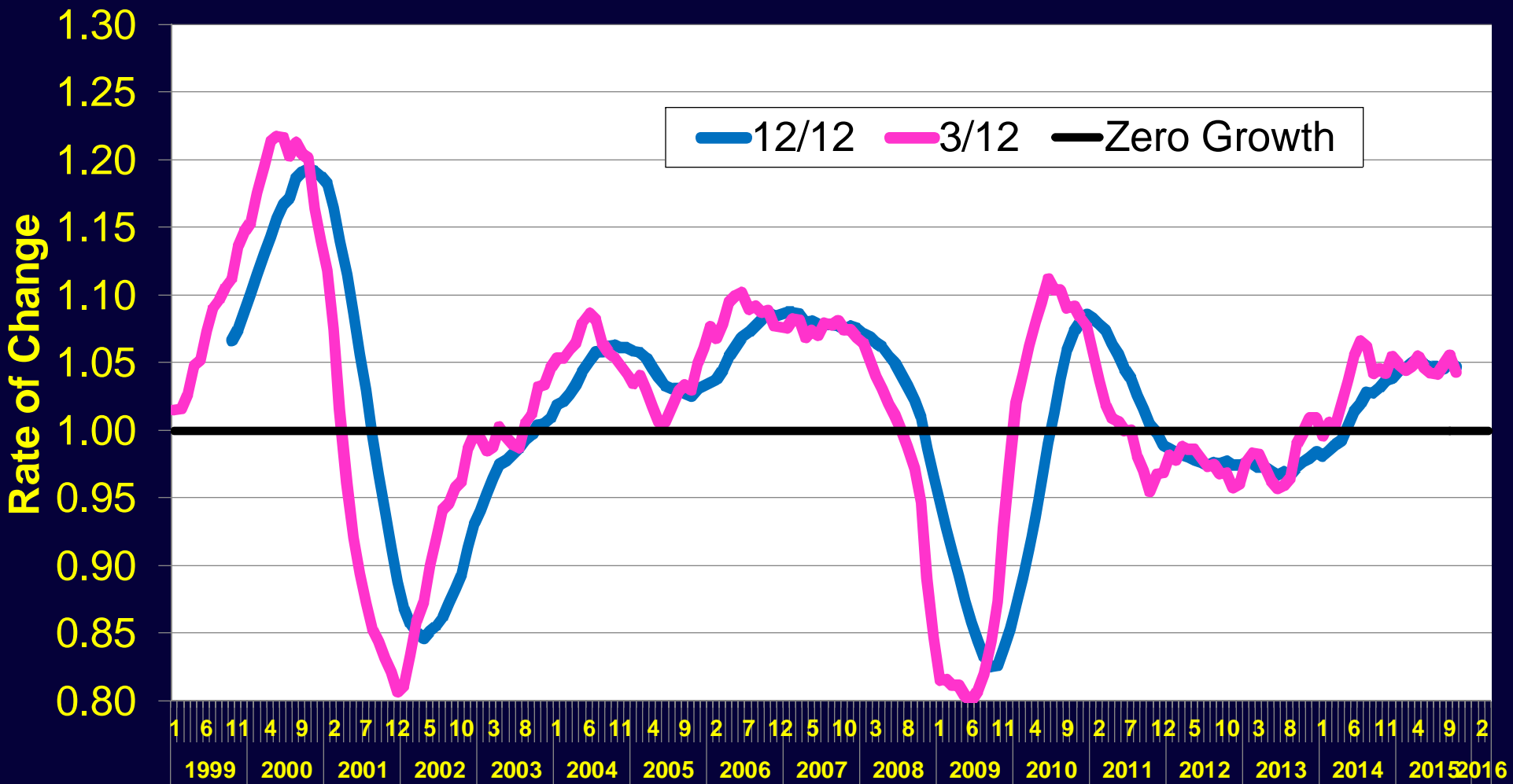
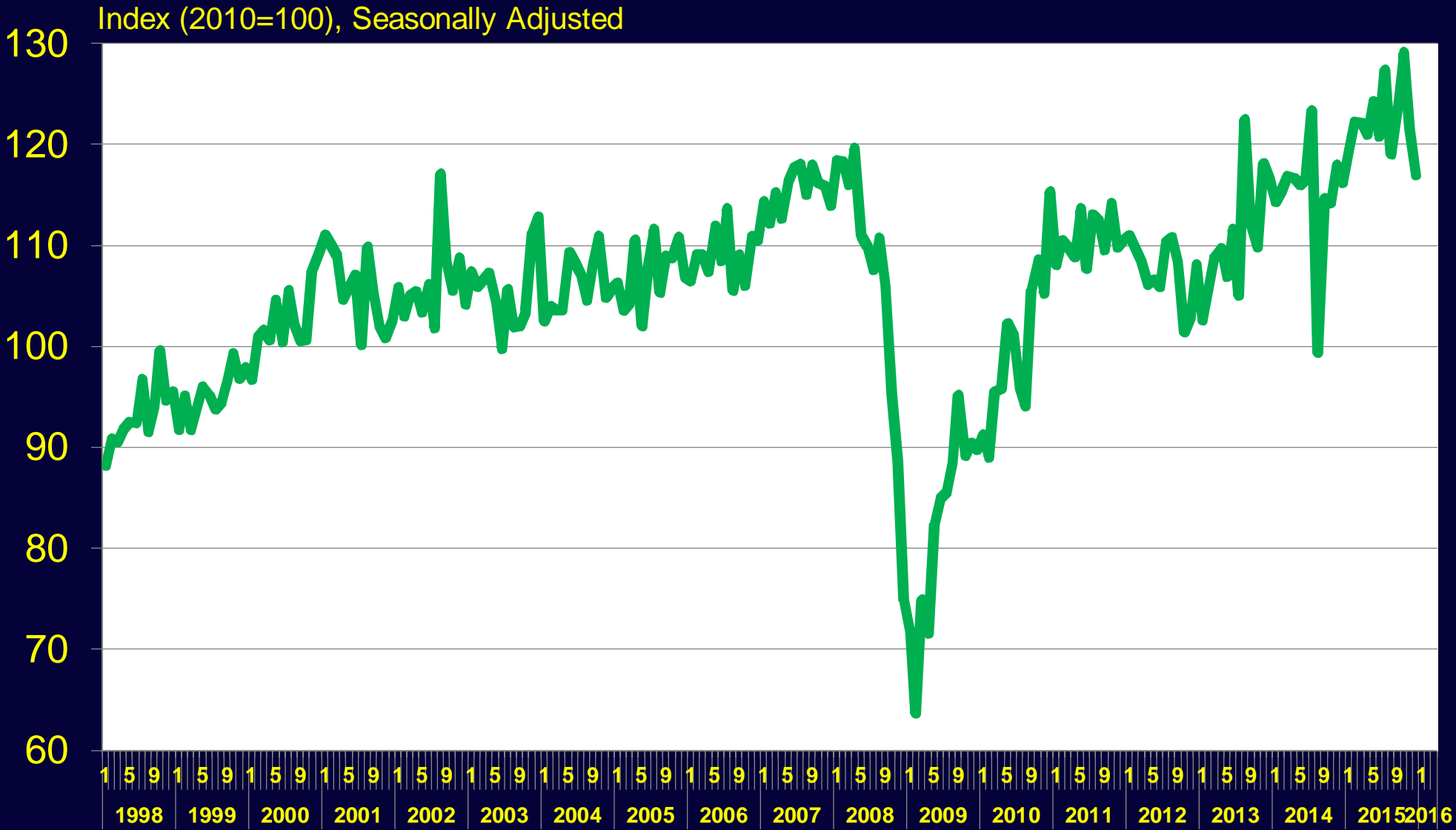


Chart 5

# European Motor Vehicle Production



Eurostat, C291 category, EU 27 countries

# European Production - Aircraft, Spacecraft & Related Equipment

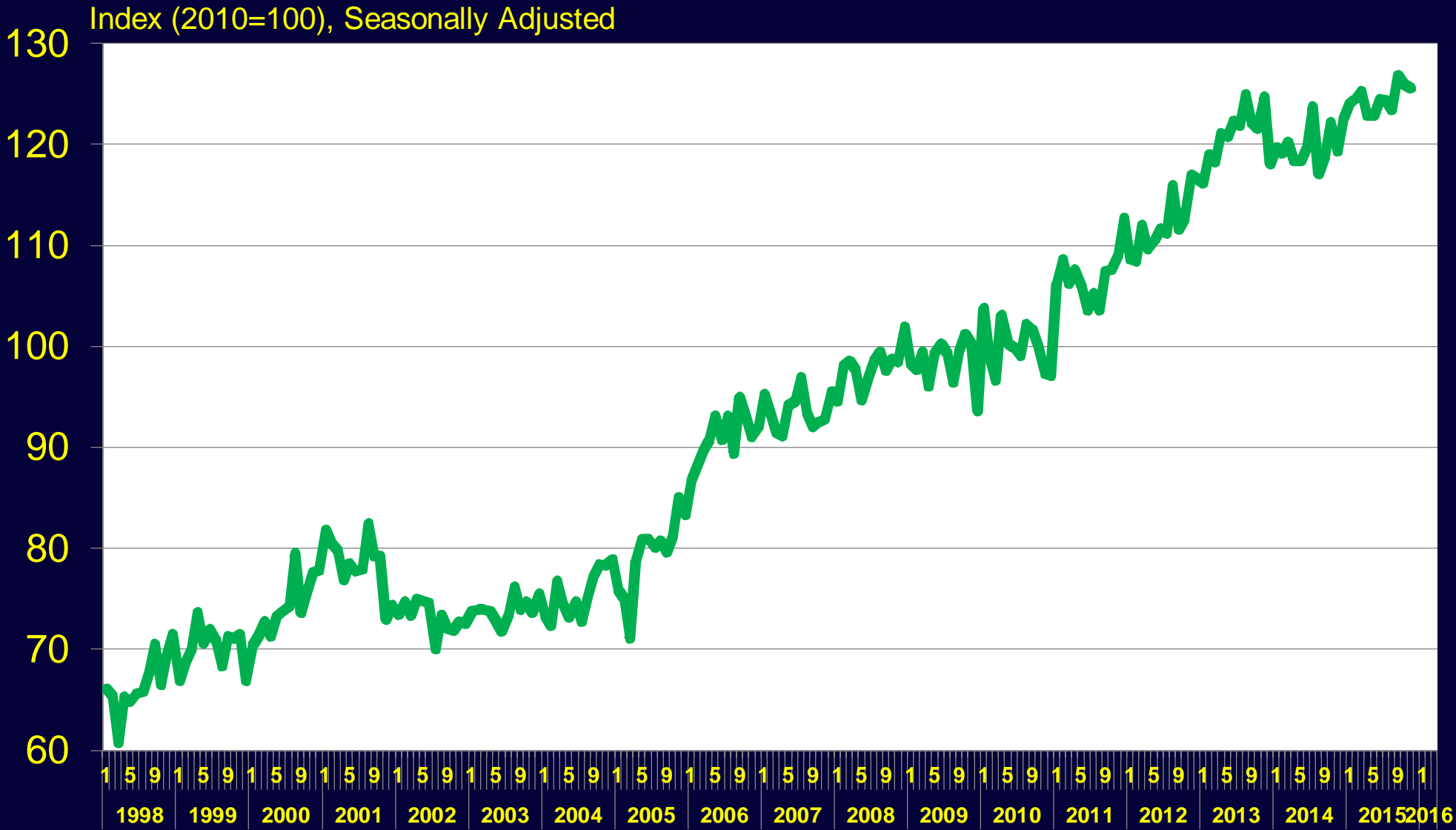
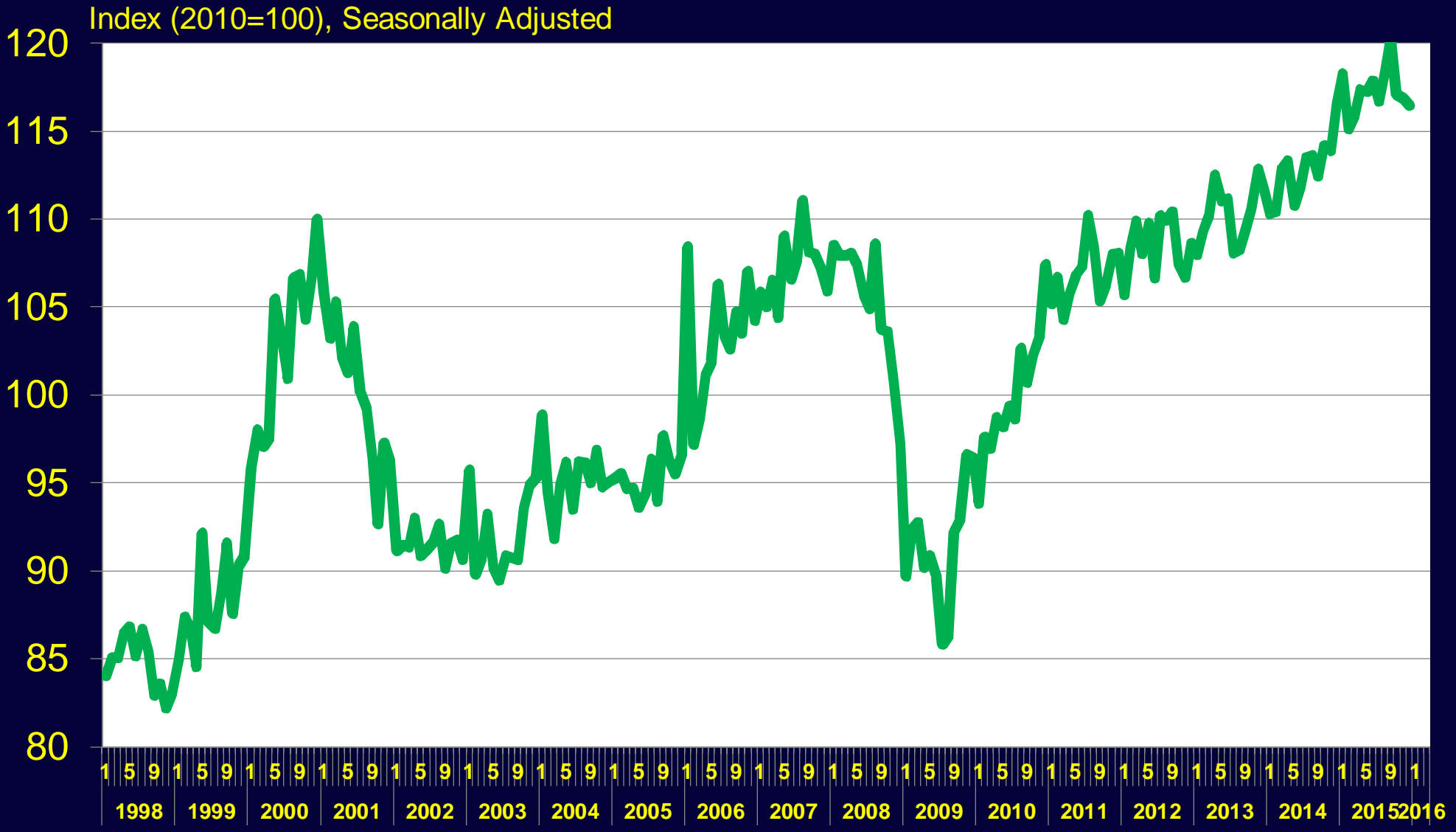


Chart 7

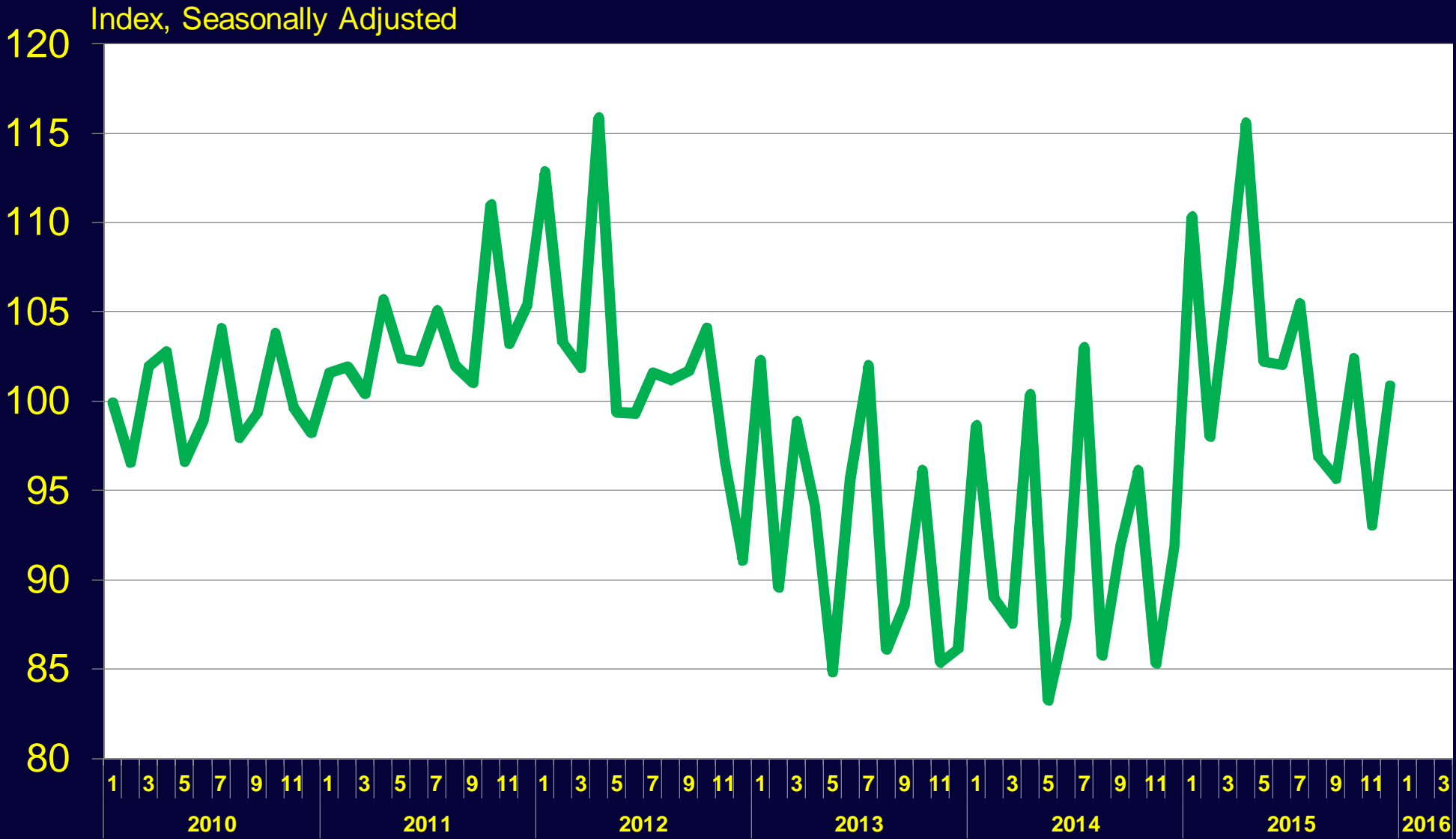
# European Production - Instruments & Appliances for Measuring, Testing & Navigation



Eurostat, C2651 category, EU 27 countries

Chart 8

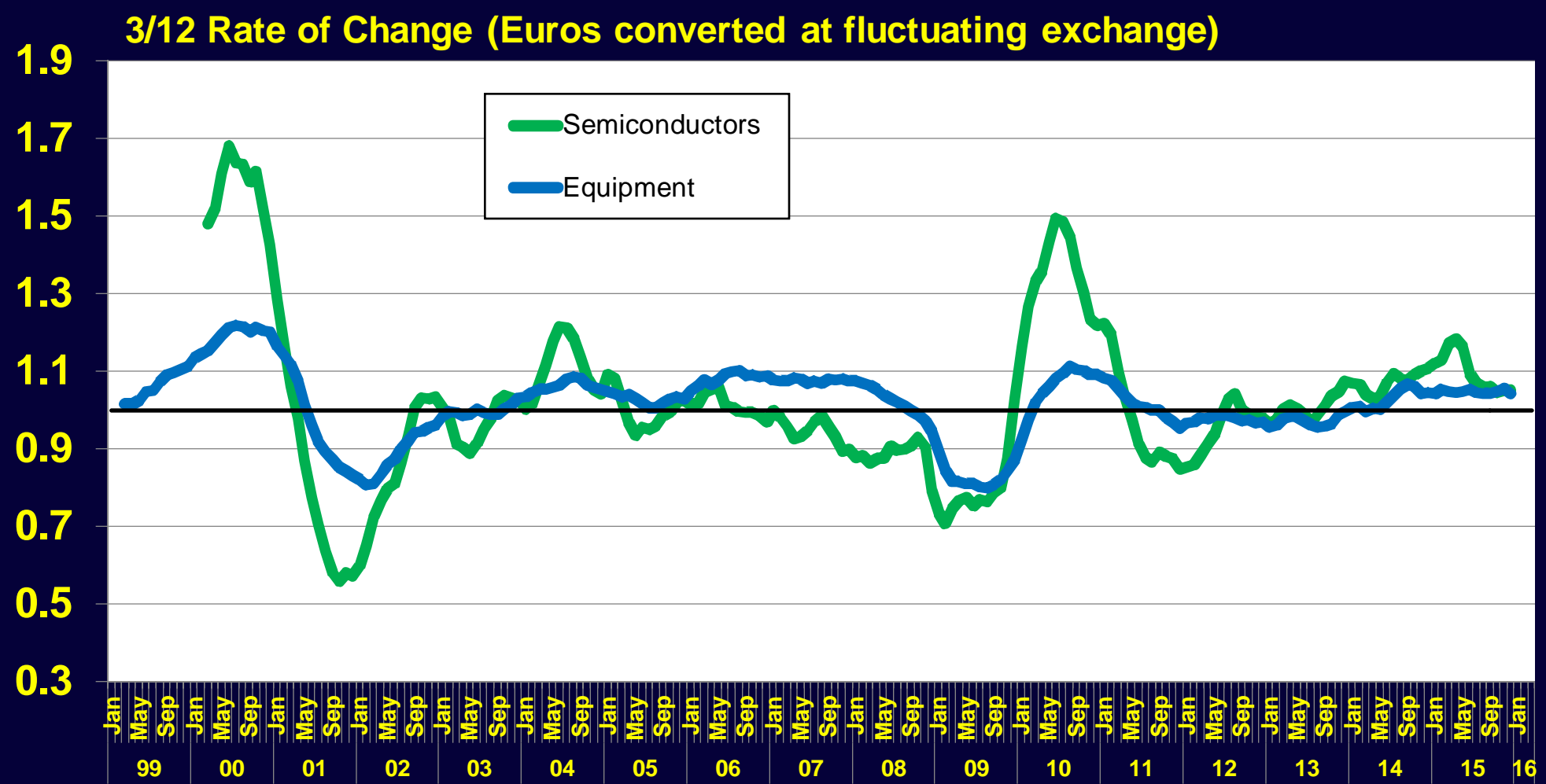
# European Production - Irradiation, Electromedical & Electrotherapeutic Equipment



Eurostat, C266 category, EU 27 countries



# Semiconductor Shipments to Europe vs. European Electronic Equipment Production



Total \$ Semiconductor Shipments from All Countries to Europe [www.sia-online.org/](http://www.sia-online.org/), Eurostat class C26, EU27, European Computer, Electronic & Optical products Production

# European Loaded Electronic Board Production

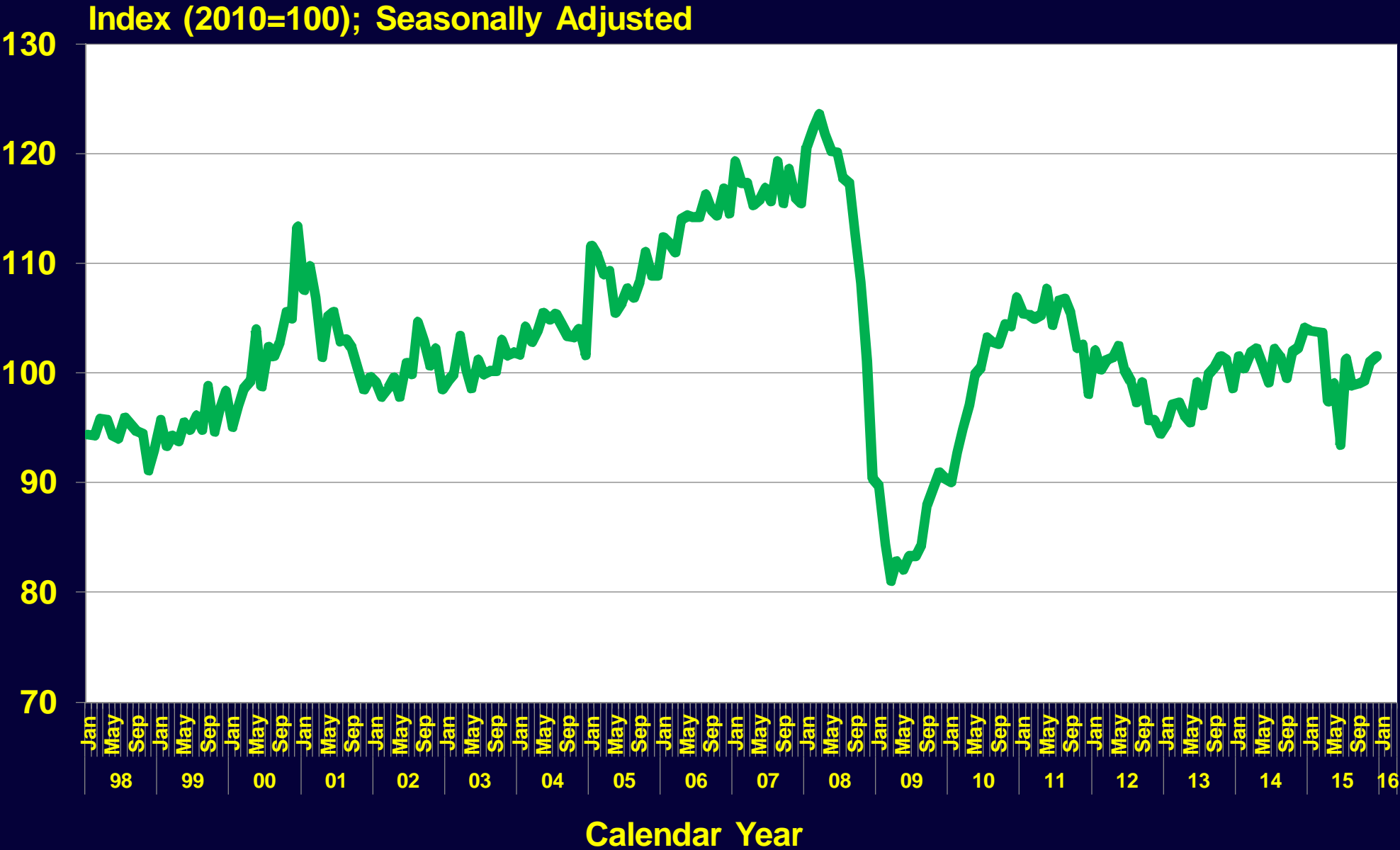


# European Electronic Components & Board Production

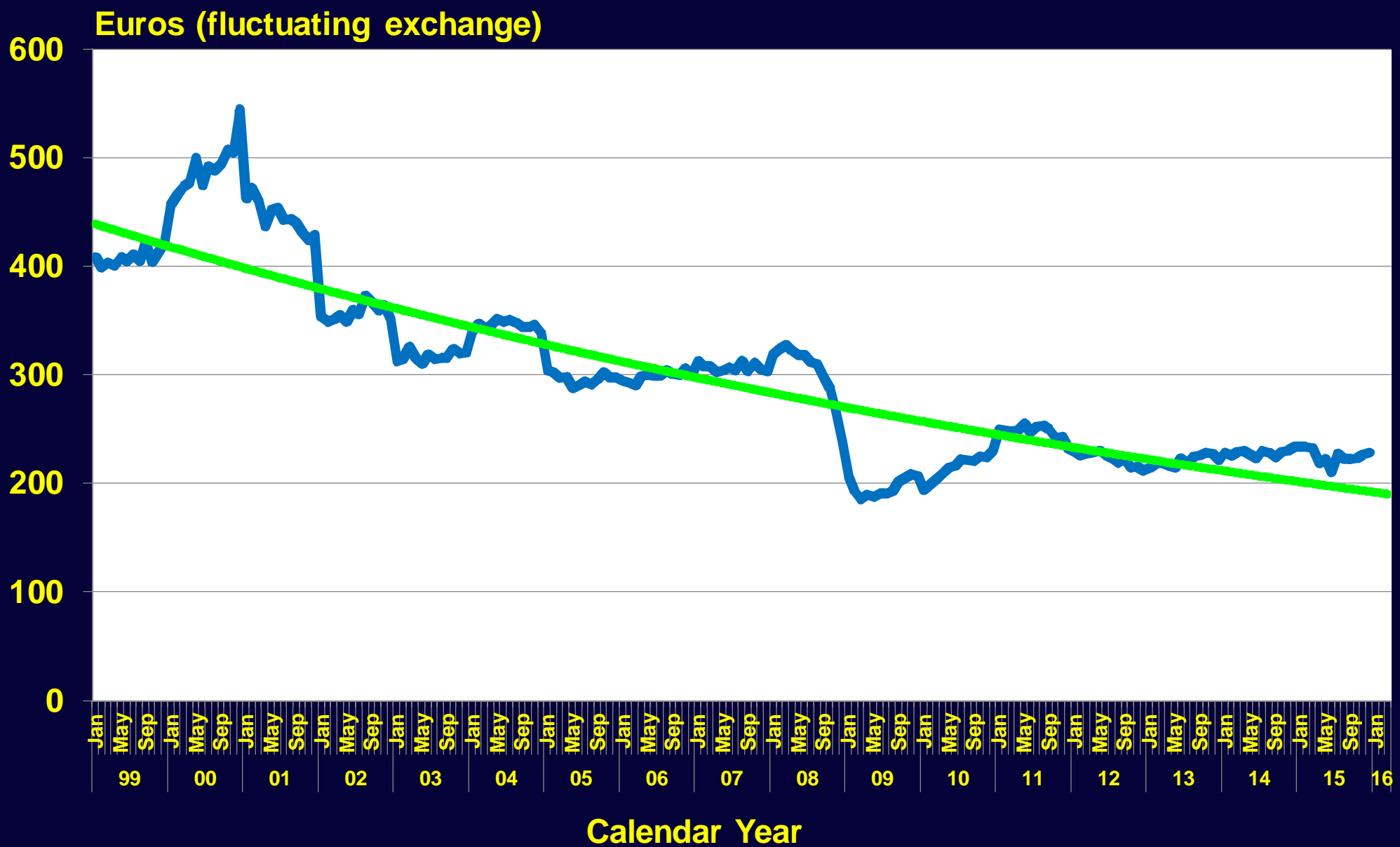
Index (2010=100); Seasonally Adjusted



# European Electronic Wiring Devices

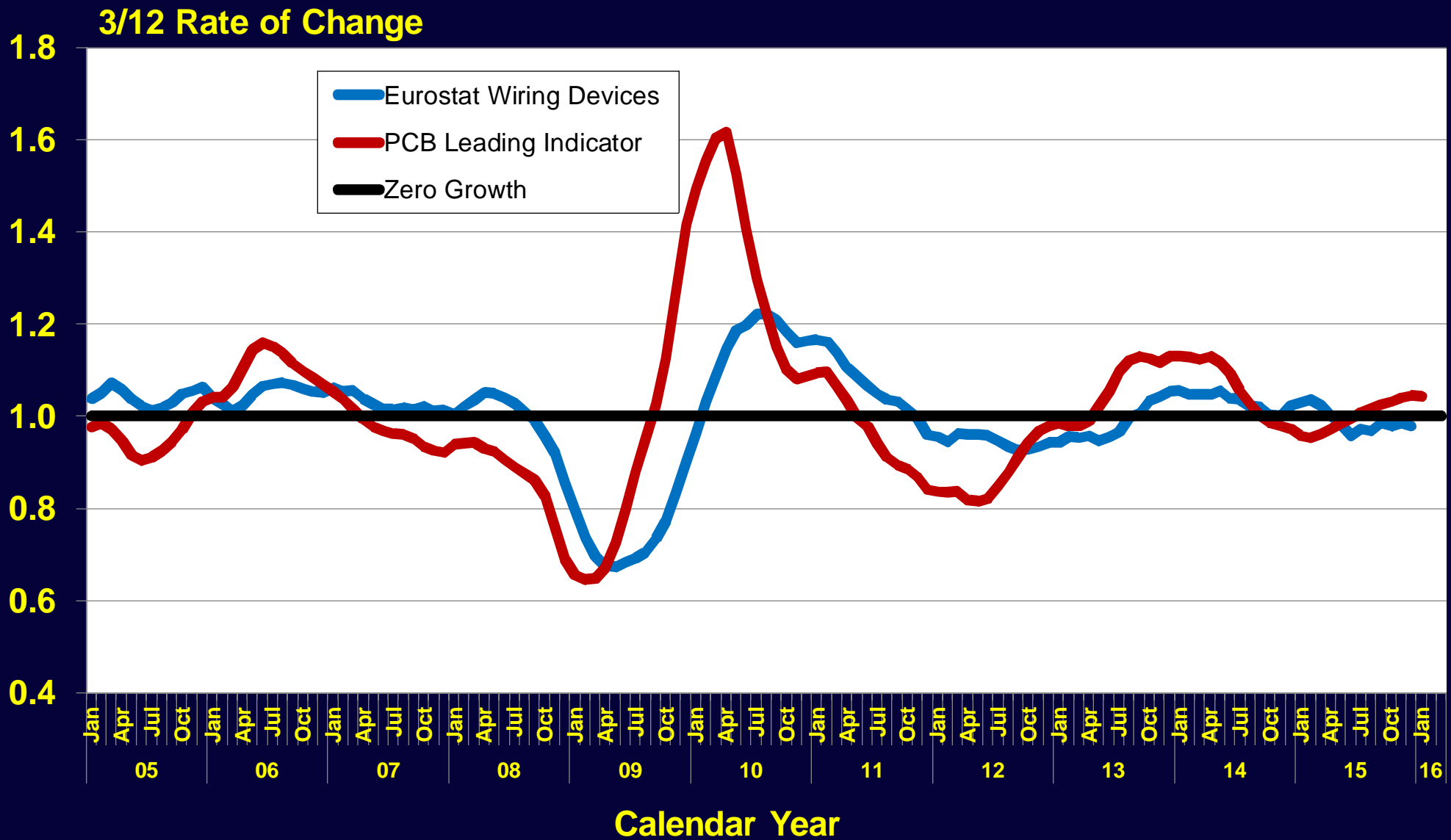


# European PCB Monthly Shipments



Source: Custer Consulting Group estimate based upon industry data

# Europe PMI Leading Indicator vs. Europe Wiring Devices



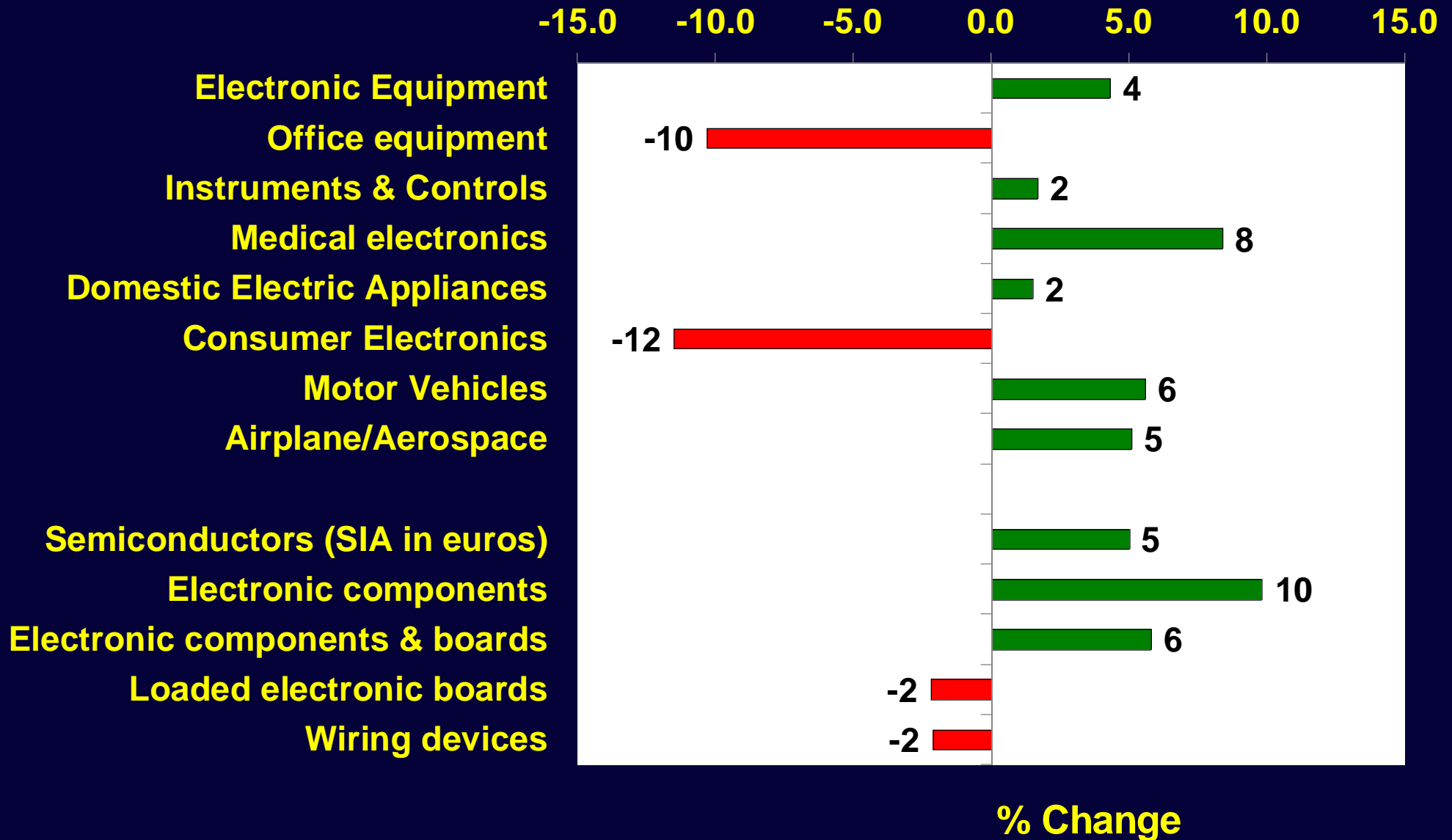
Source: Custer Consulting Group

# Present Growth Rates (%)

## European Electronics Industry

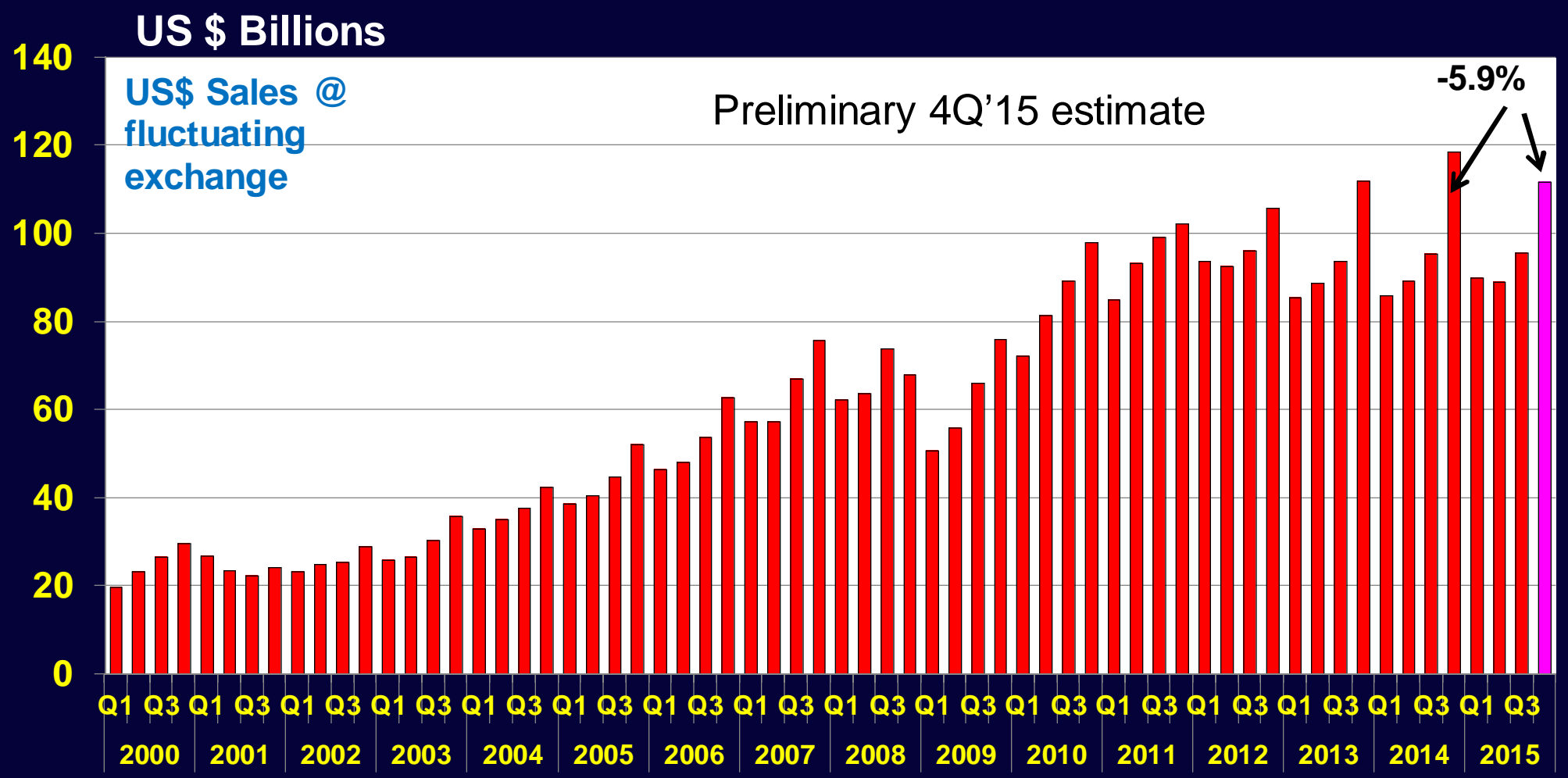
	Latest Month	Annual Growth Rate	3-Month Growth Rate
<b>ELECTRONIC EQUIPMENT SHIPMENTS (Index CY 2010 =100)</b>			
Computer, Electronic & Optical Products	12/15	104.7	104.3
Components & Boards	12/15	103.0	105.8
Components	12/15	104.4	109.8
Wiring Devices	12/15	98.7	97.9
Loaded Electronic Boards	12/15	99.6	97.8
Office Equipment	12/15	82.4	89.7
Consumer Electronics	12/15	92.6	88.5
Electric Domestic Appliances	12/15	100.4	101.5
Electronic Instruments	12/15	104.0	101.7
Medical Electronics	12/15	111.6	108.4
Motor Vehicles	12/15	106.2	105.6
Air & Space Aircraft	12/15	104.1	105.1
Semiconductor Shipments (Eur) to Europe	12/15	109.4	105.0
Industrial Production	11/15	101.6	101.3

# European Electronic Supply Chain Growth 4Q'15 vs 4Q'14





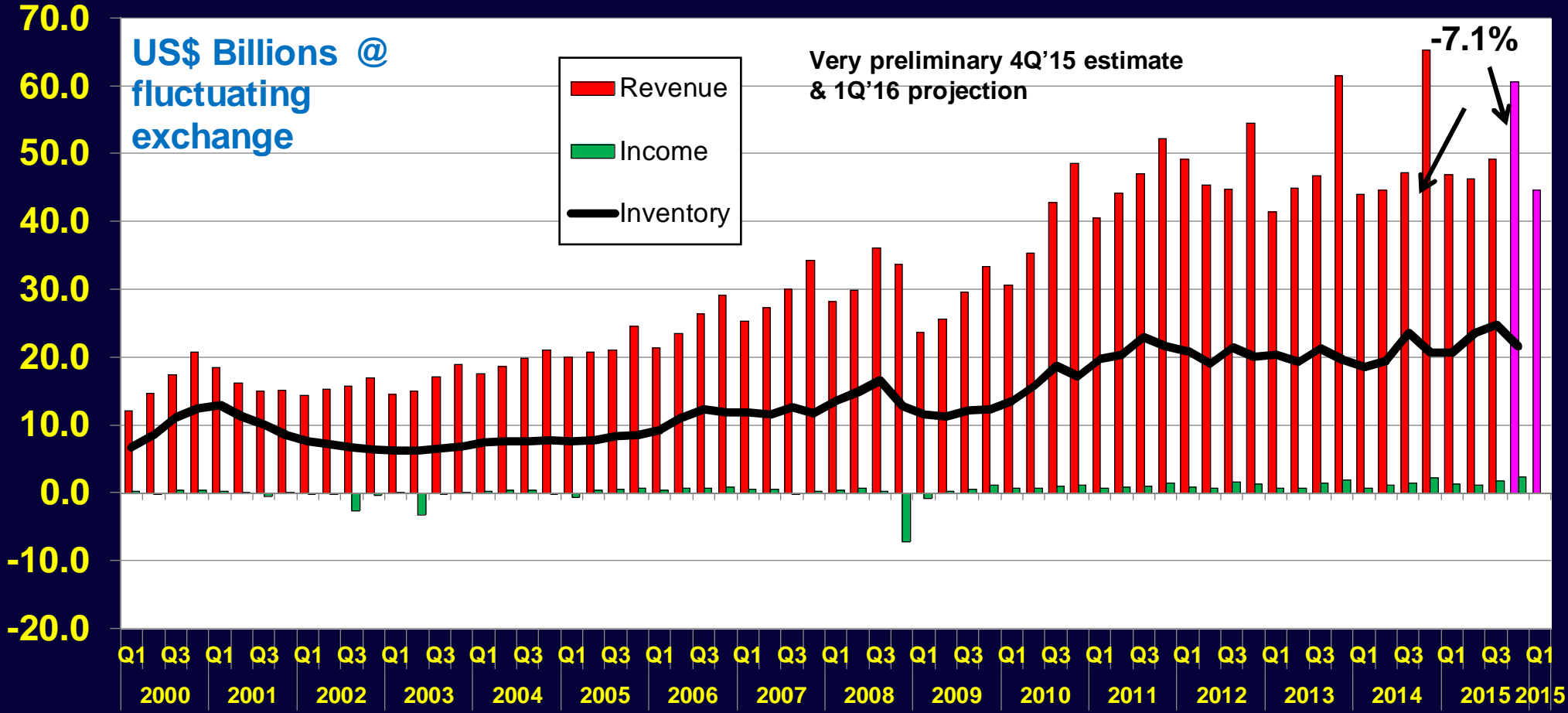
# Global EMS & ODM Companies Composite of 52 Public Companies Revenue



# Large EMS Providers

## Composite of 9 Public Companies

### Revenue, Net Income & Inventory



Benchmark+Pemstar, Celestica, Flextronics+Solectron, Foxconn, Jabil, Plexus, Sanmina, Sypris, Venture Mfg

# Large Global EMS Providers

## 2014 vs. 2015 Sales (\$M)

		<u>2014</u>	<u>2015</u>	<u>2015/2014</u> <u>Growth %</u>
Hon Hai (Foxconn)	Taiwan	138,765	141,717	+2%
Flextronics	Singapore	26,920	24,598	-9%
Jabil Circuit	USA	15,969	18,557	+16%
Sanmina-SCI	USA	6,439	6,238	-3%
Celestica	Canada	5,631	5,639	0%
Benchmark Elec	USA	2,797	2,541	-9%
Plexus	USA	2,509	2,606	+4%
Venture Mfg	Singapore	1,945	1,928	-1%
Sypris	USA	355	153	-57%
<b>Total</b>		<b>201,331</b>	<b>204,291</b>	<b>+1.5%</b>

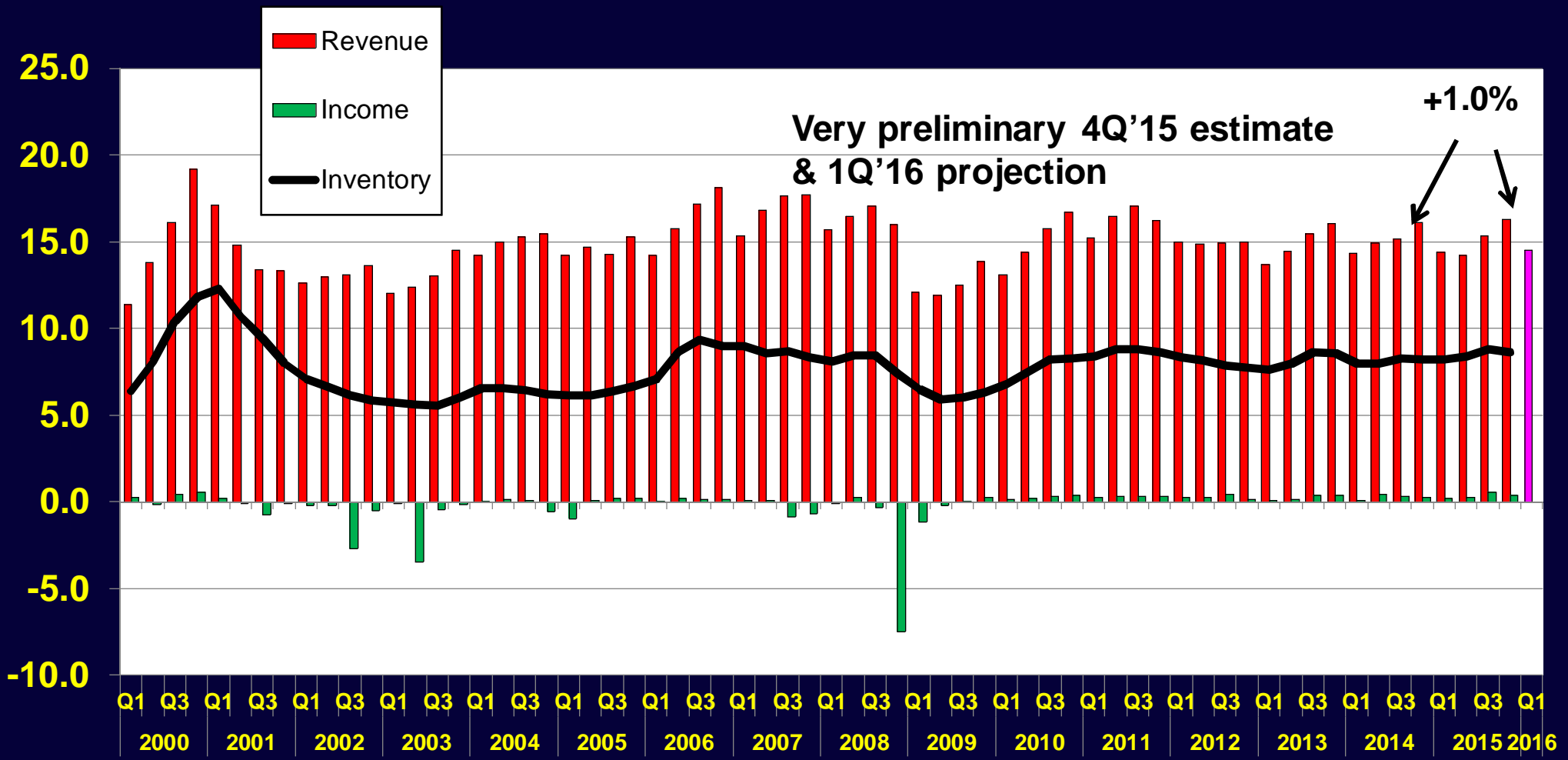
Sources: Company data

Local currency converted at fluctuating exchange

# Large U.S EMS Providers

## Composite of 6 Public Companies

### Revenue, Net Income & Inventory



Benchmark+Pemstar, Celestica, Flex+Solectron, Jabil, Plexus, Sanmina

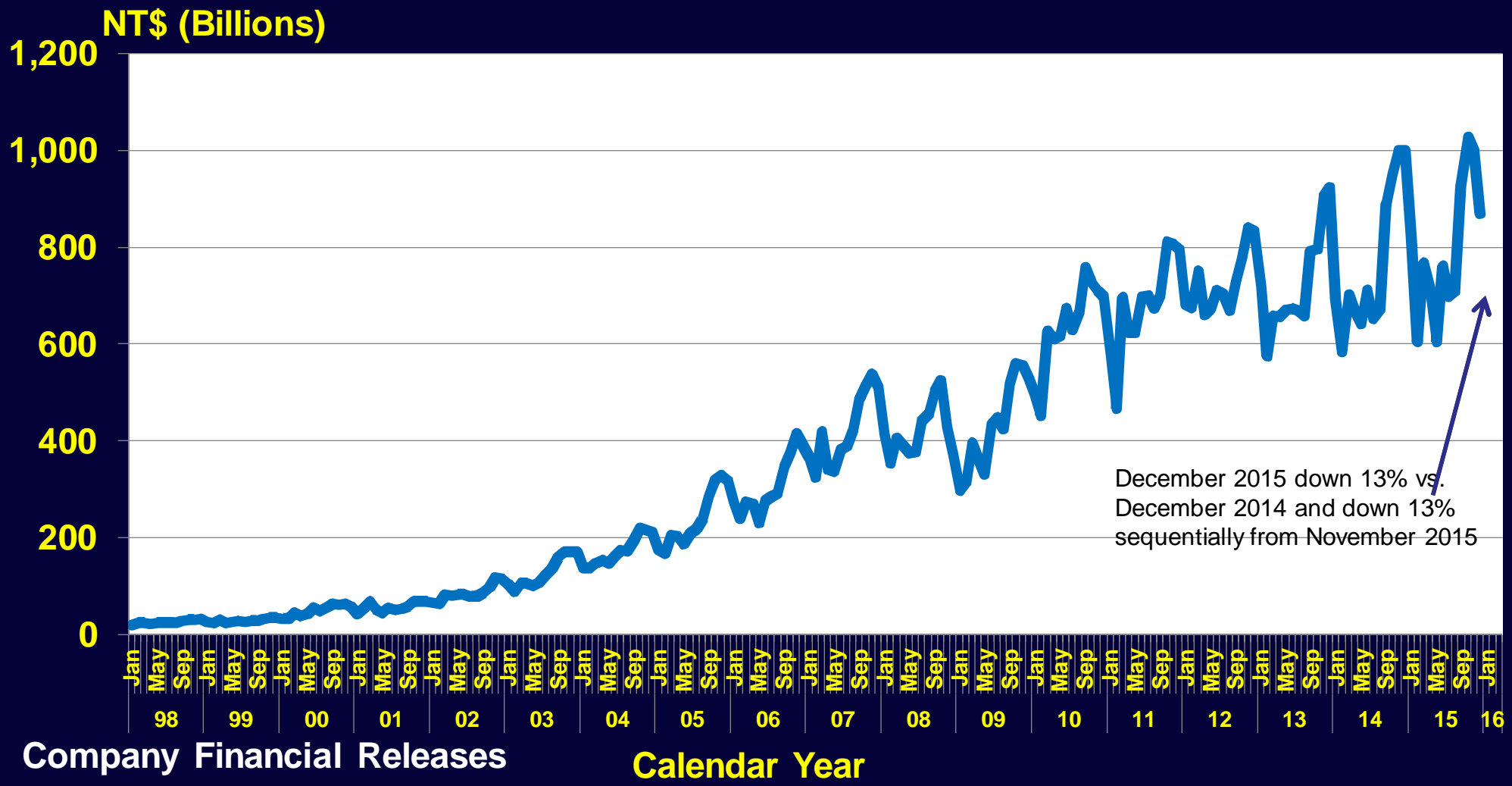
# Large Taiwan ODM Providers

## 2014 vs. 2015 Sales (\$M)

	<u>2014</u>	<u>2015</u>	<u>2015/2014 Growth %</u>
Foxconn (Hon Hai)	139,032	141,202	+1.6%
Pegatron	33,632	38,224	+13.7%
Quanta Computer	30,566	31,726	+3.8%
Compal Electronics	27,909	26,685	-4.4%
Wistron	19,534	19,631	+0.5%
Asustek Computer	15,747	14,875	-5.5%
Inventec	14,376	12,456	-13.4%
Chimei Innolux	14,145	11,469	-18.9%
Lite On Technology	7,611	6,828	-10.3%
<b>Total</b>	<b>302,551</b>	<b>303,094</b>	<b>+0.2%</b>

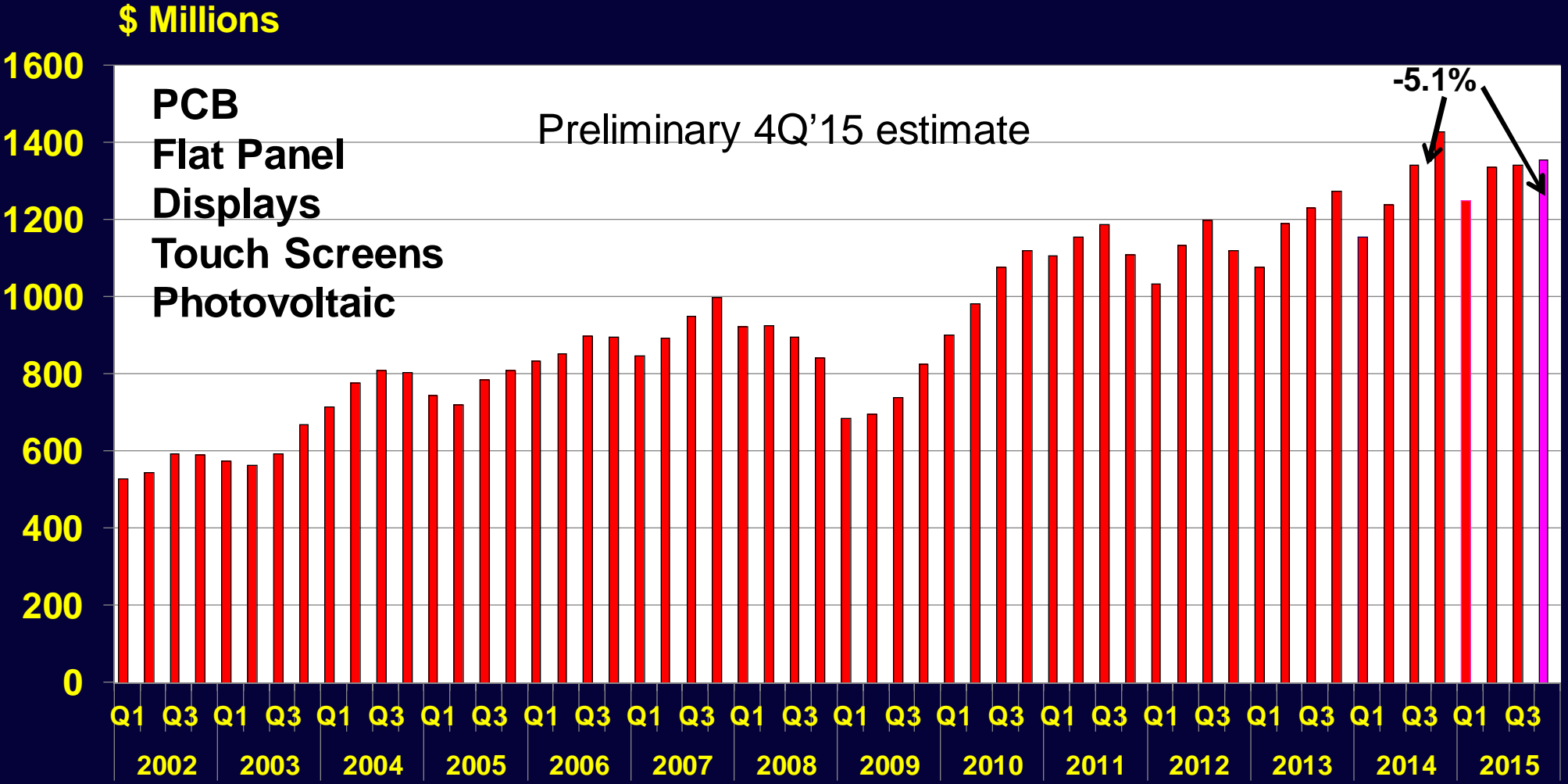
Source: Company data, NT\$ converted at constant avg 2015 exchange (31.75 NT\$ = 1US\$)  
Consolidated company sales

# Taiwan ODM Companies Composite Sales of 11 Large Manufacturers



Company Financial Releases  
 Calendar Year  
 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

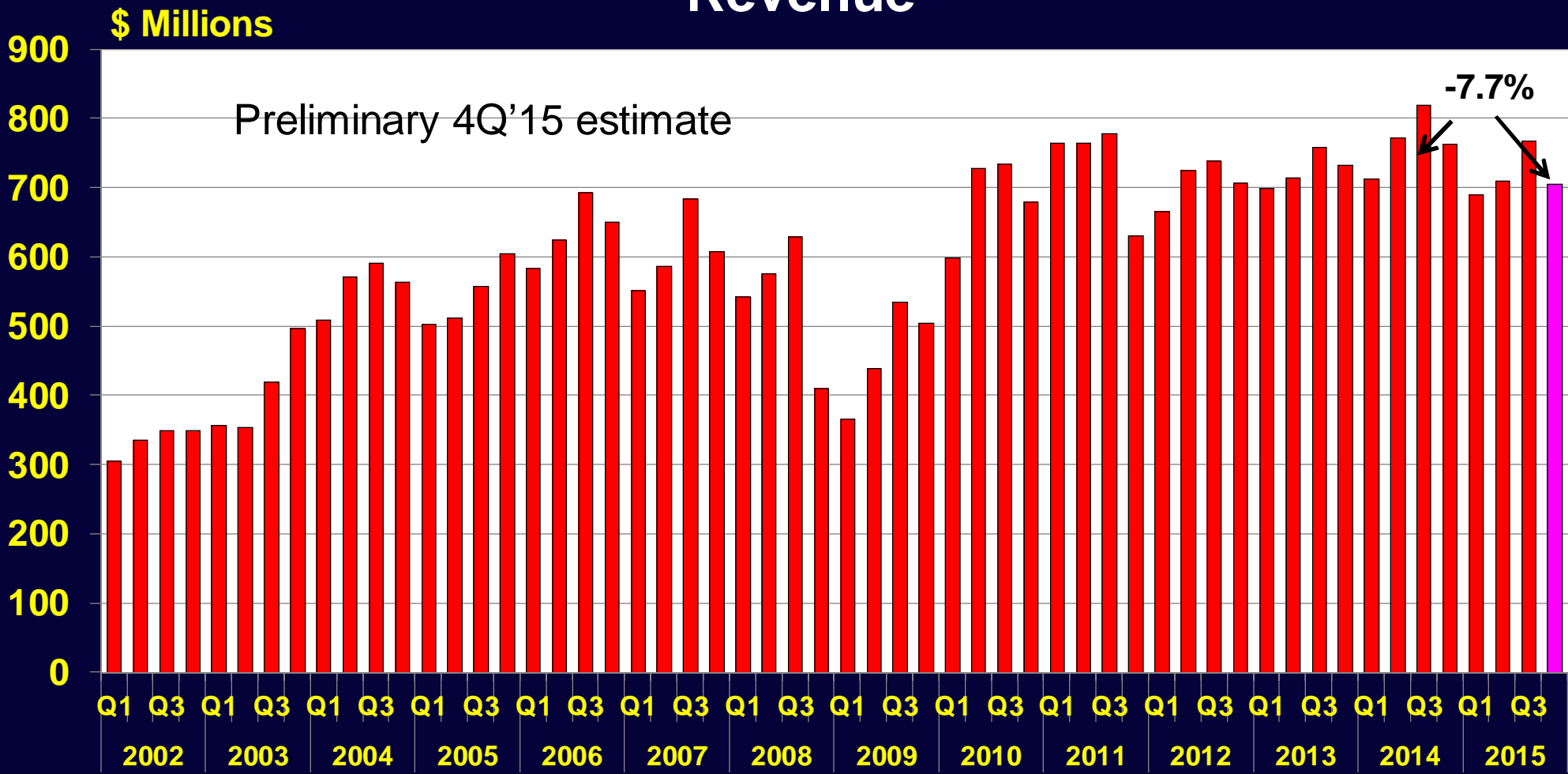
# Process Equipment Related Suppliers Composite of 10 Companies Revenue



C-Sun, Tailing Technology, Camtek, ESI, GSI Group, Mentor Graphics, Nordson, Coherent, Orbotech

# Rigid & Flex Laminate Suppliers Composite of 13 Companies

## Revenue

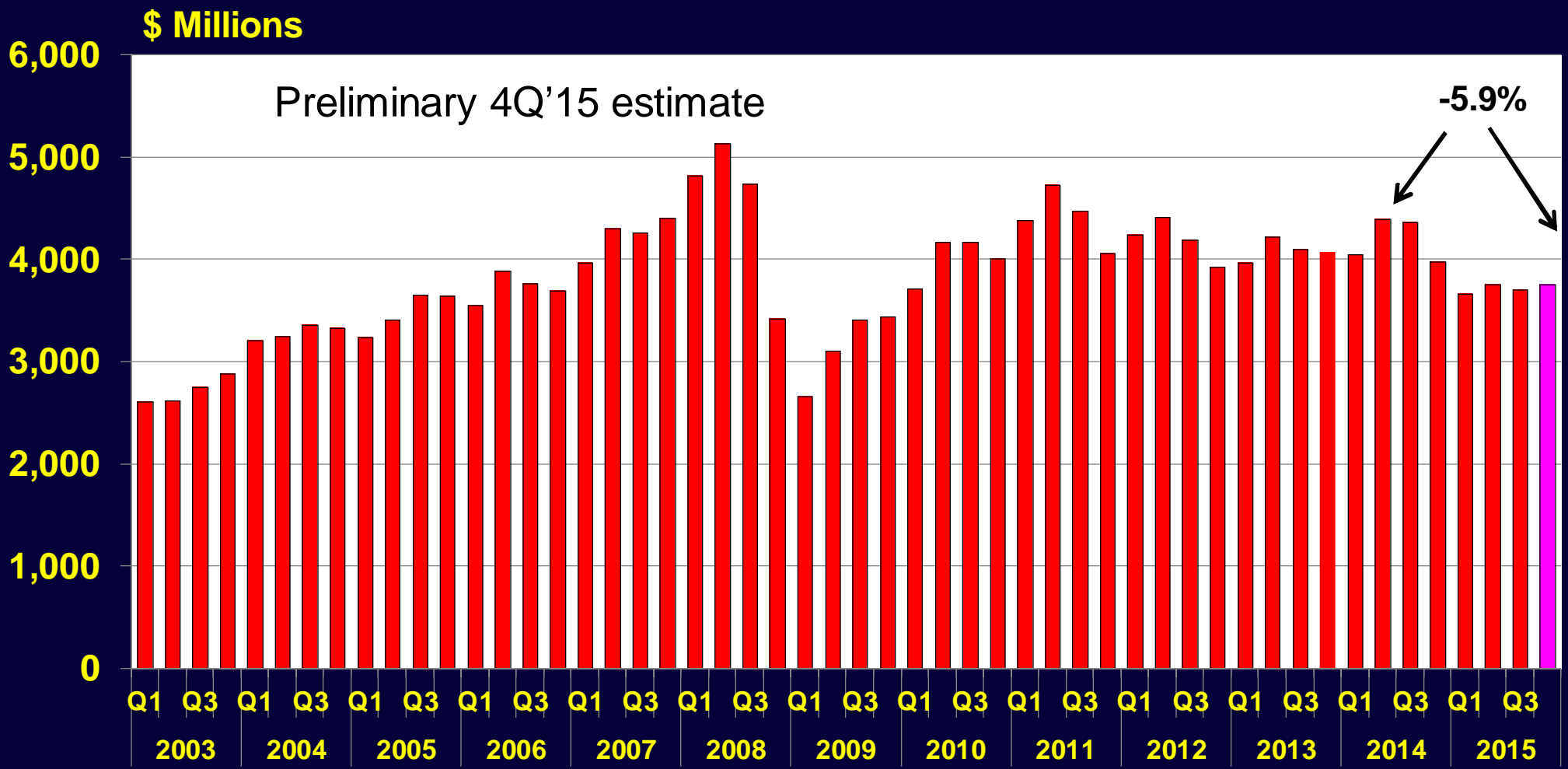


Arisawa, Arlon Electronic Materials, Elite Materials, Hwa Woei, Iteq, Microcosm, Park Electrochemical, Rogers, Shinemore, Taiflex, Thinflex, Top Union, Uniplus

NT\$ converted at fluctuating exchange



# Material Suppliers (excluding laminate) Composite of 14 Companies Revenue

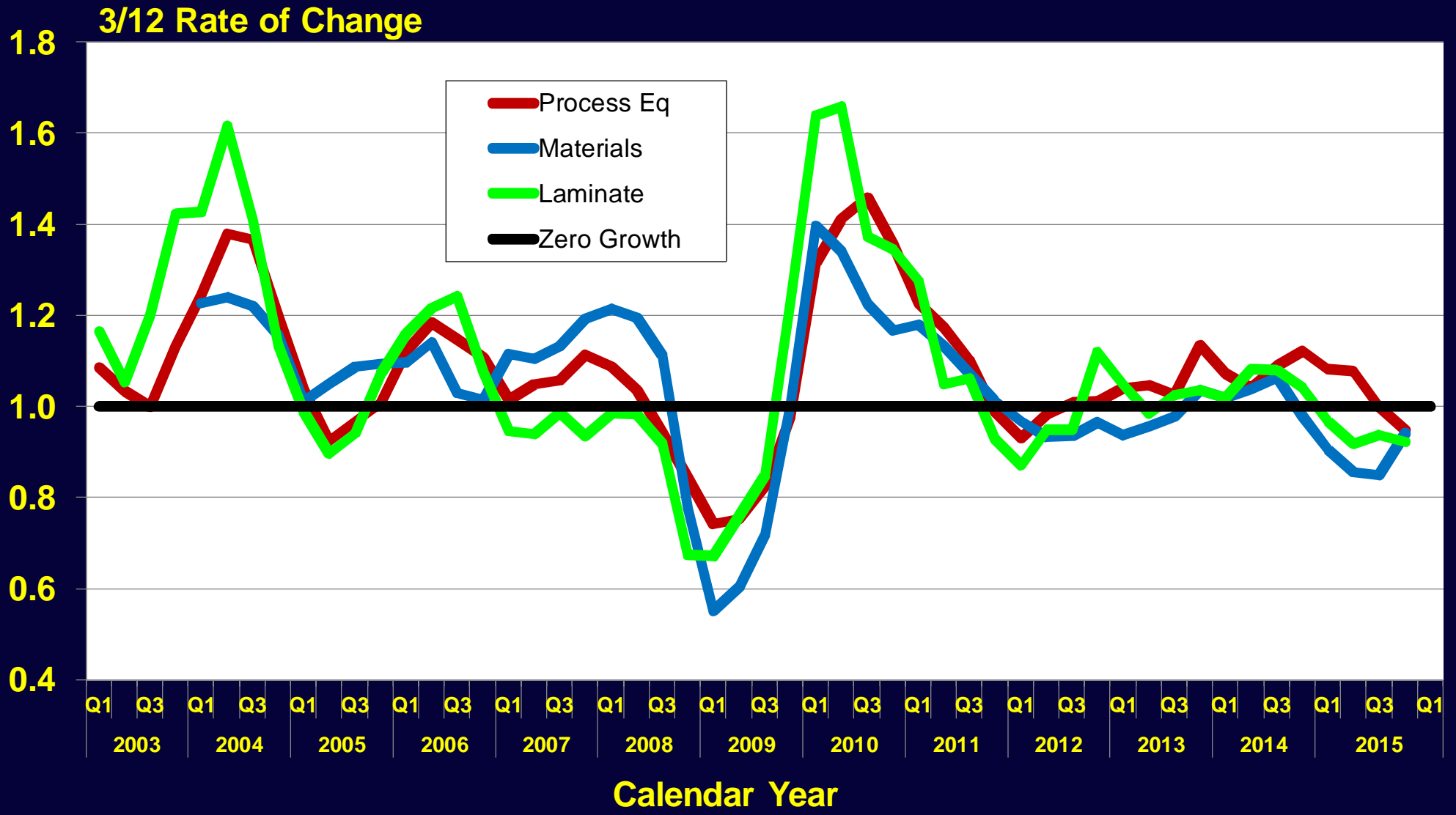


Momentive, OM Group, Taiwan Glass, Baotech, Glotech, Shenmao, Wahlee, Topoint, Cabot Micro, Chemtura, Cookson Elec, Eternal Chemical, Hexcel, Chang Wah

NT\$ & GBP converted to US\$ at fluctuating exchange

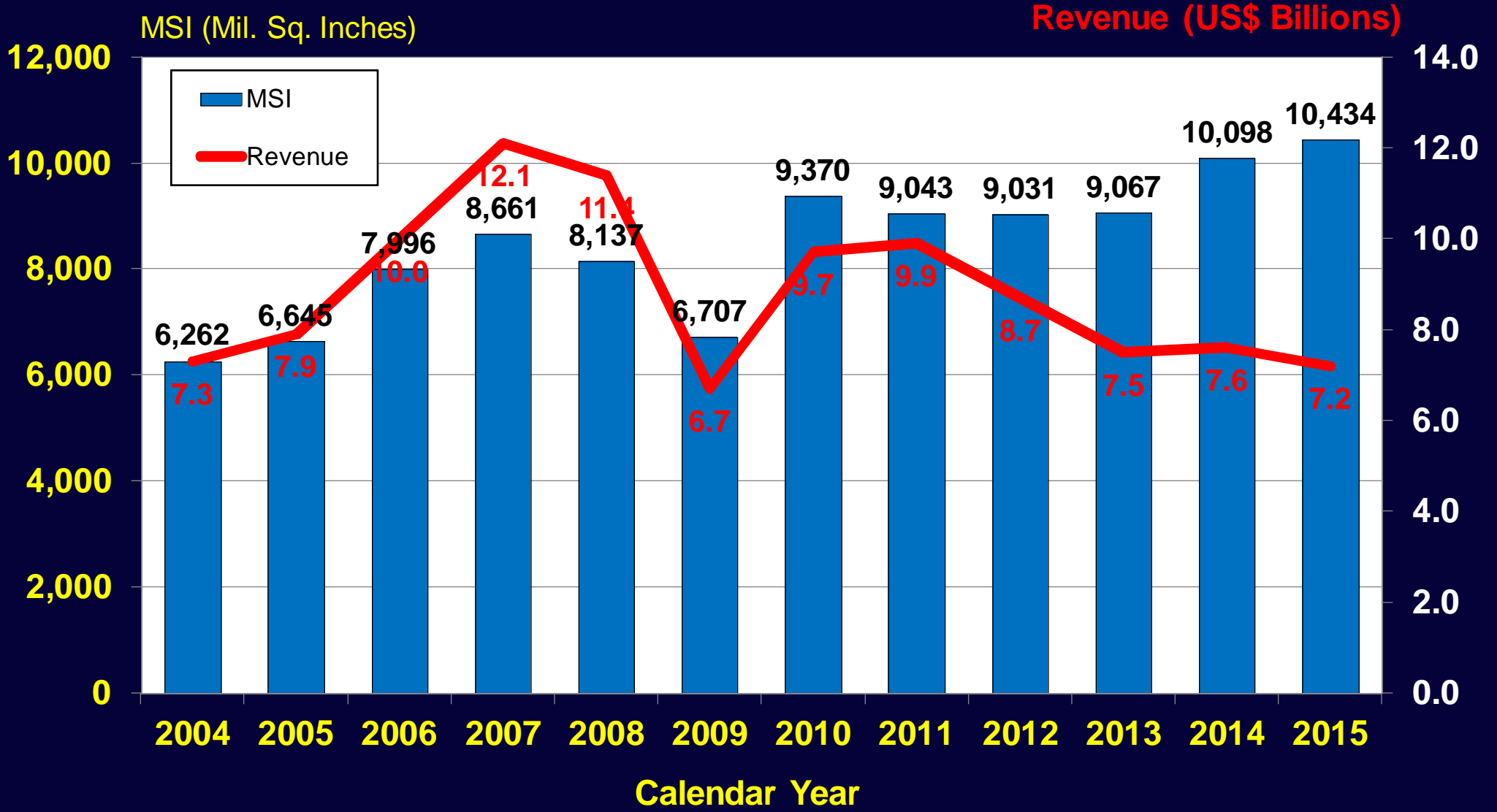
# Global Growth Rates

## Process Equipment, Materials & Laminate



Company Financials of 12 Laminate suppliers, 13 material suppliers & 8 Process Equipment Suppliers

# Silicon Wafer Shipments



SEMI 2/2016; semiconductors only, does not include solar applications

# Semiconductor Supply Chain

	<b>2015 World GDP \$78.4 Trillion</b>		
	2014	2015	2016
	in US\$ Billion		
WW Electronic Equipment Production	1454	1423	1457
Semiconductor Market	356	354	367
SEMI Capital Spending	66	66	65
SEMI Materials	44	46	48
SEMI R&D Spending	56	56	

# Digital Still Cameras Built-in & Interchangeable Lens

