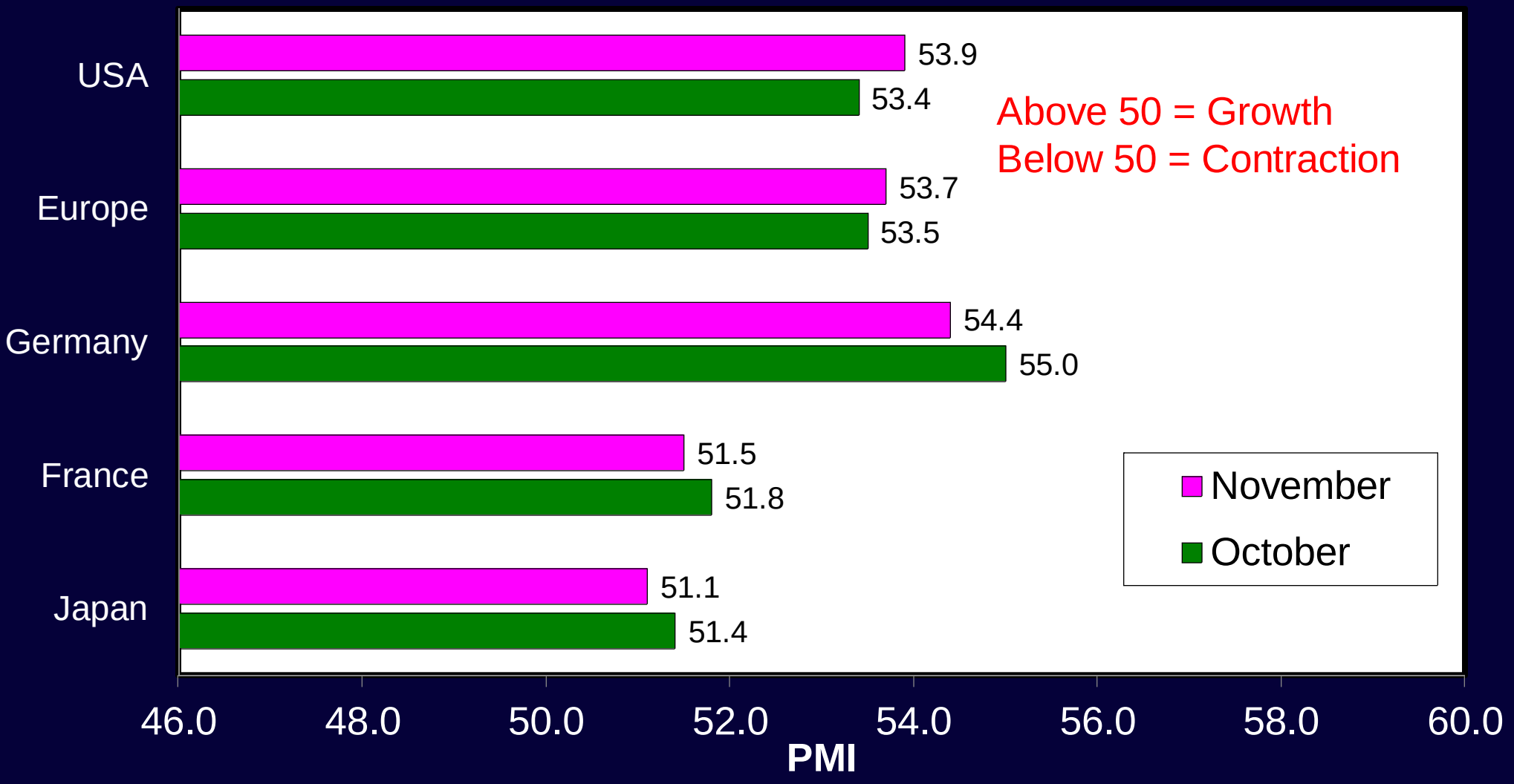
Chart 1

Purchasing Managers' Indices
November (Flash) vs. October 2016

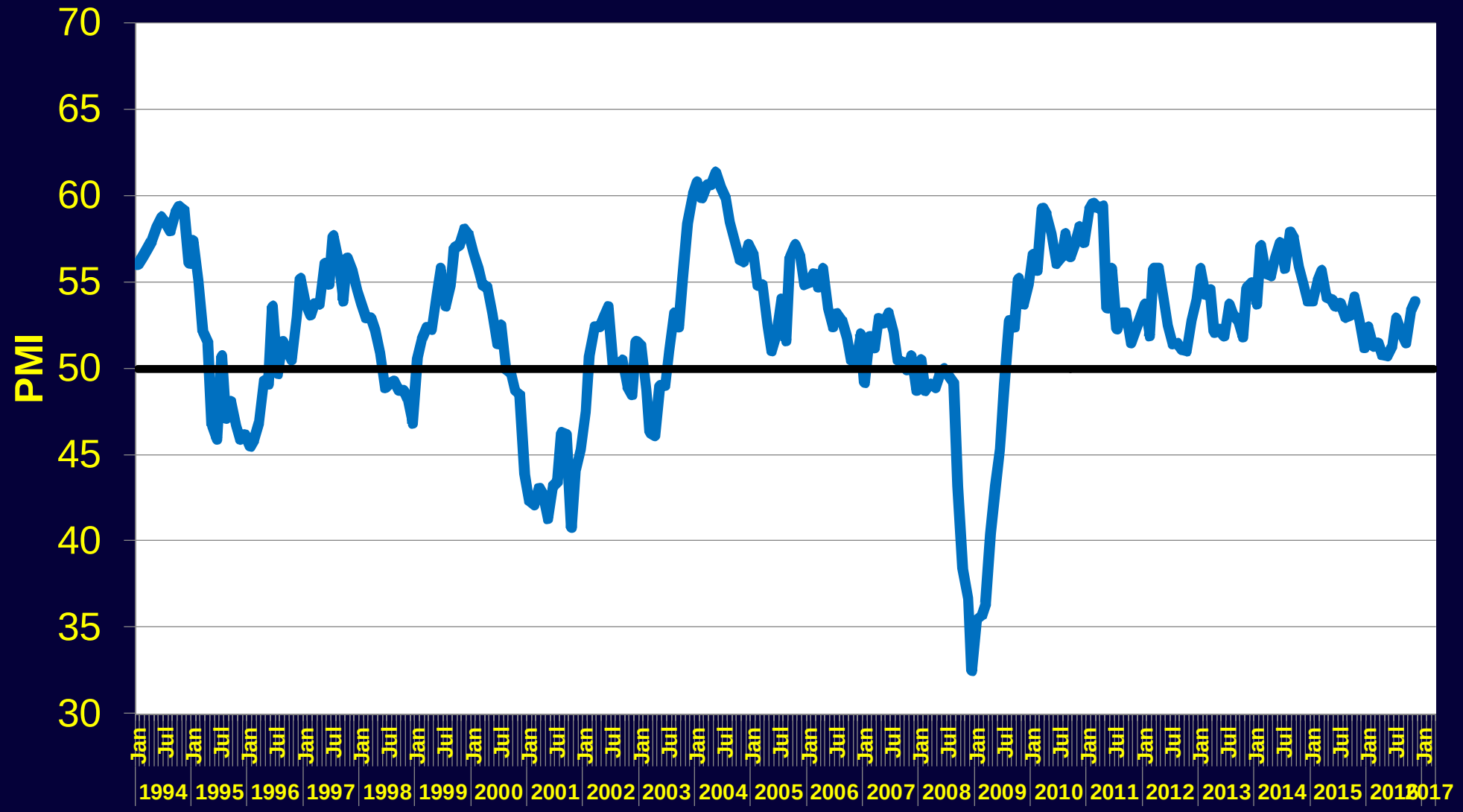


Markit Economics

Chart 2

U.S "Purchasing Managers" Index
Markit Economics

Diffusion Index, >50 = Growth

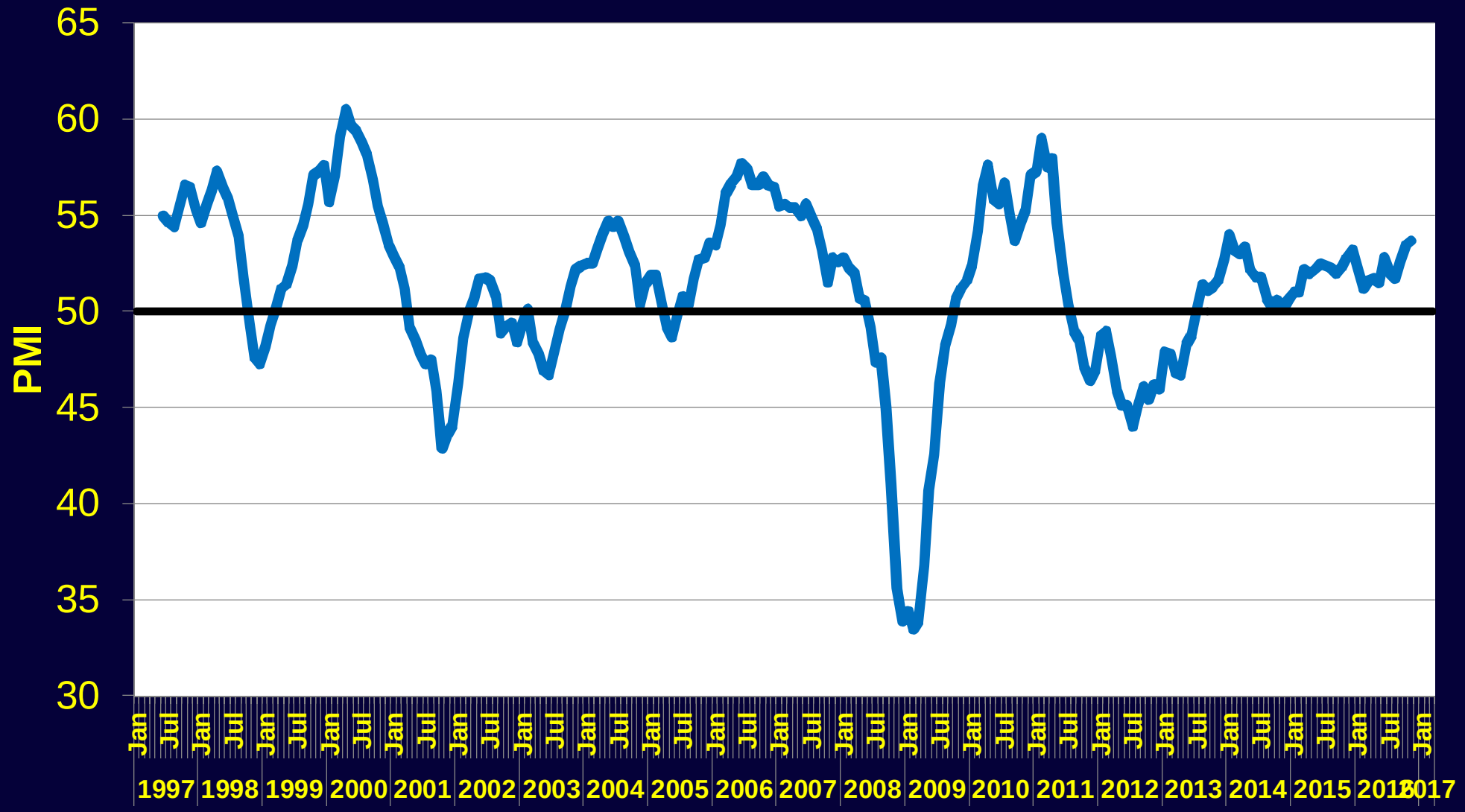


Markit Economics

Chart 3

Eurozone "Purchasing Managers" Index

Diffusion Index, >50 = Growth

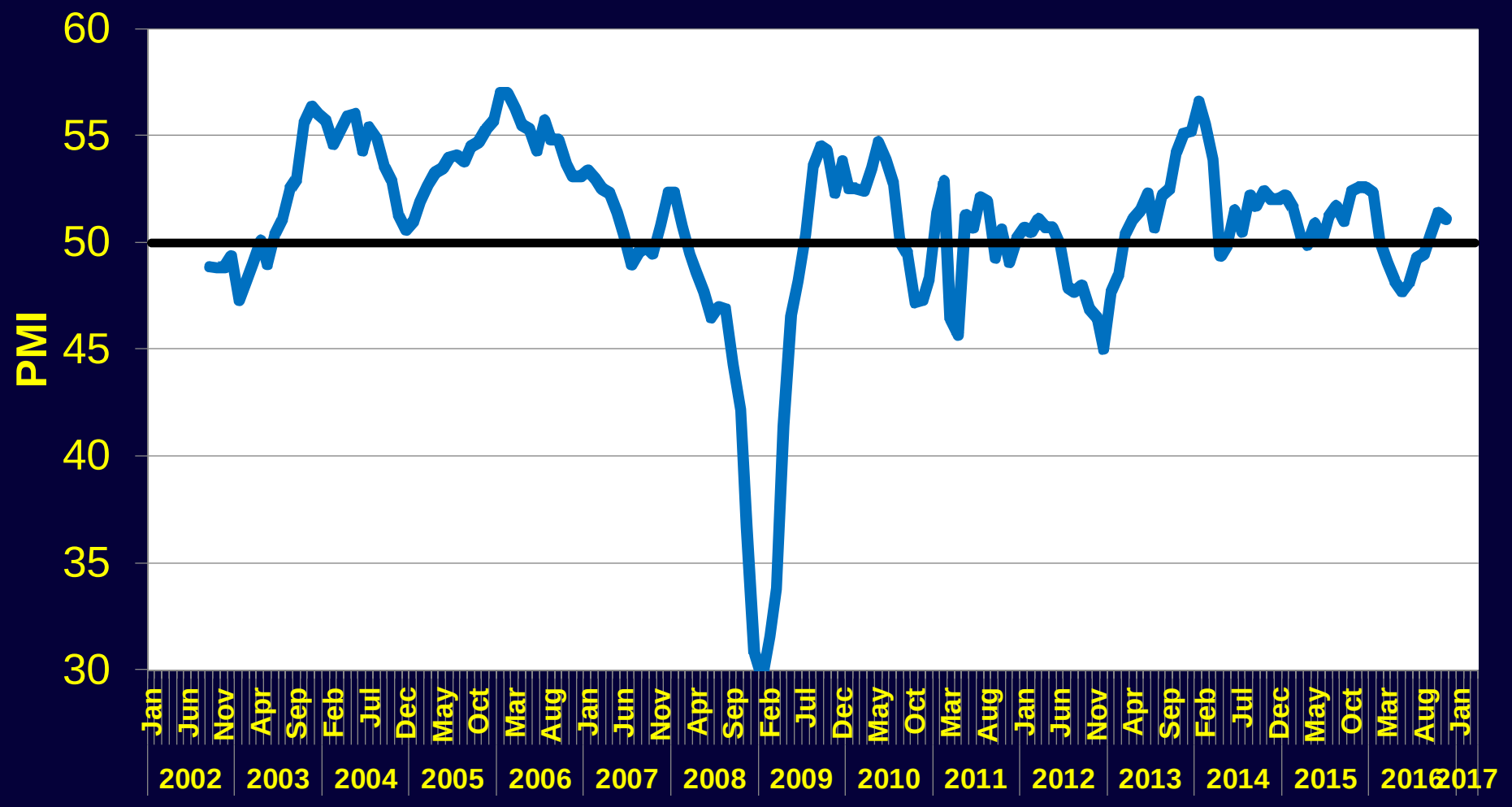


Markit Economics

Chart 4

Japan "Purchasing Managers" Index

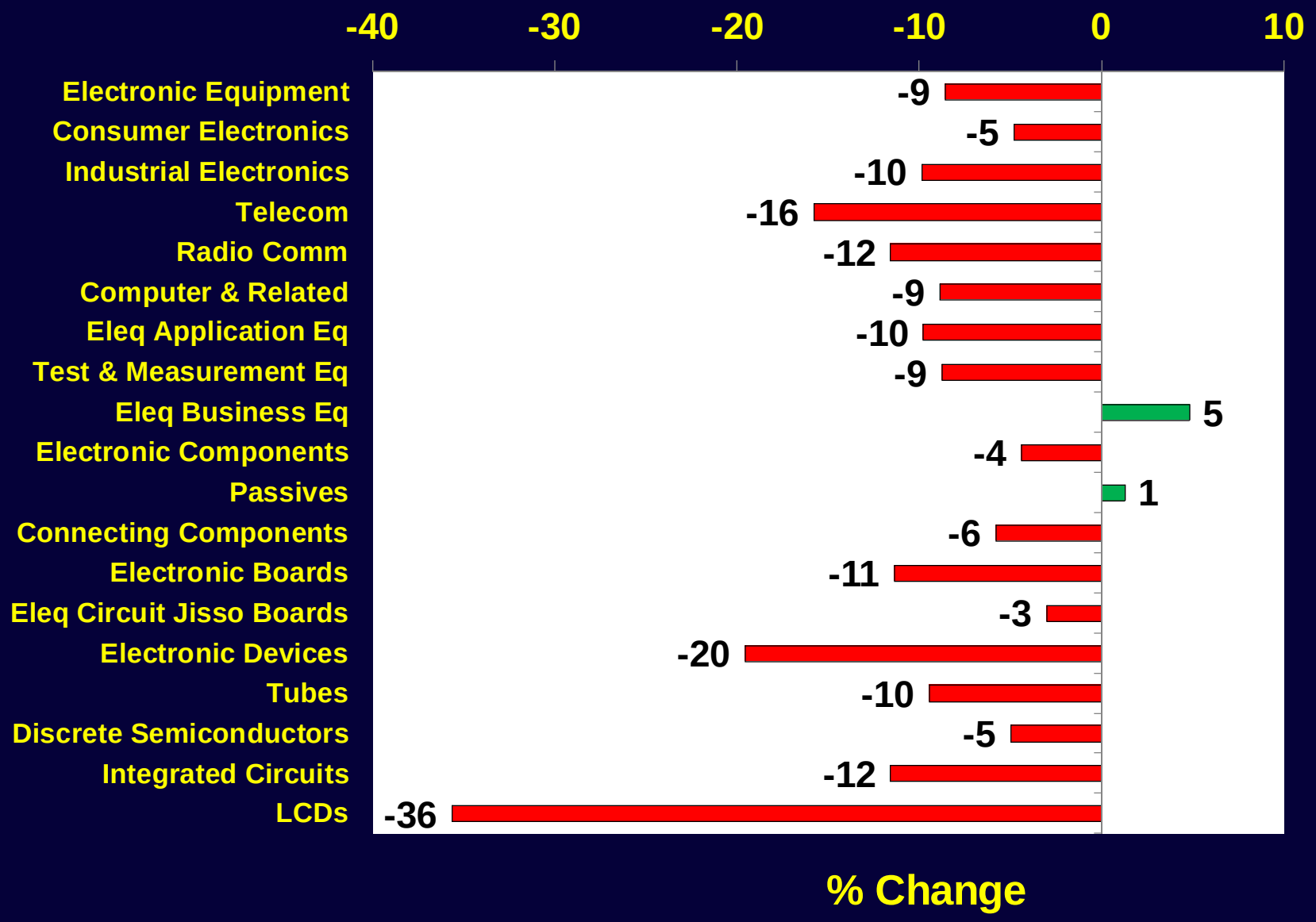
>50 = Growth



Nomura/JMMA

Chart 5

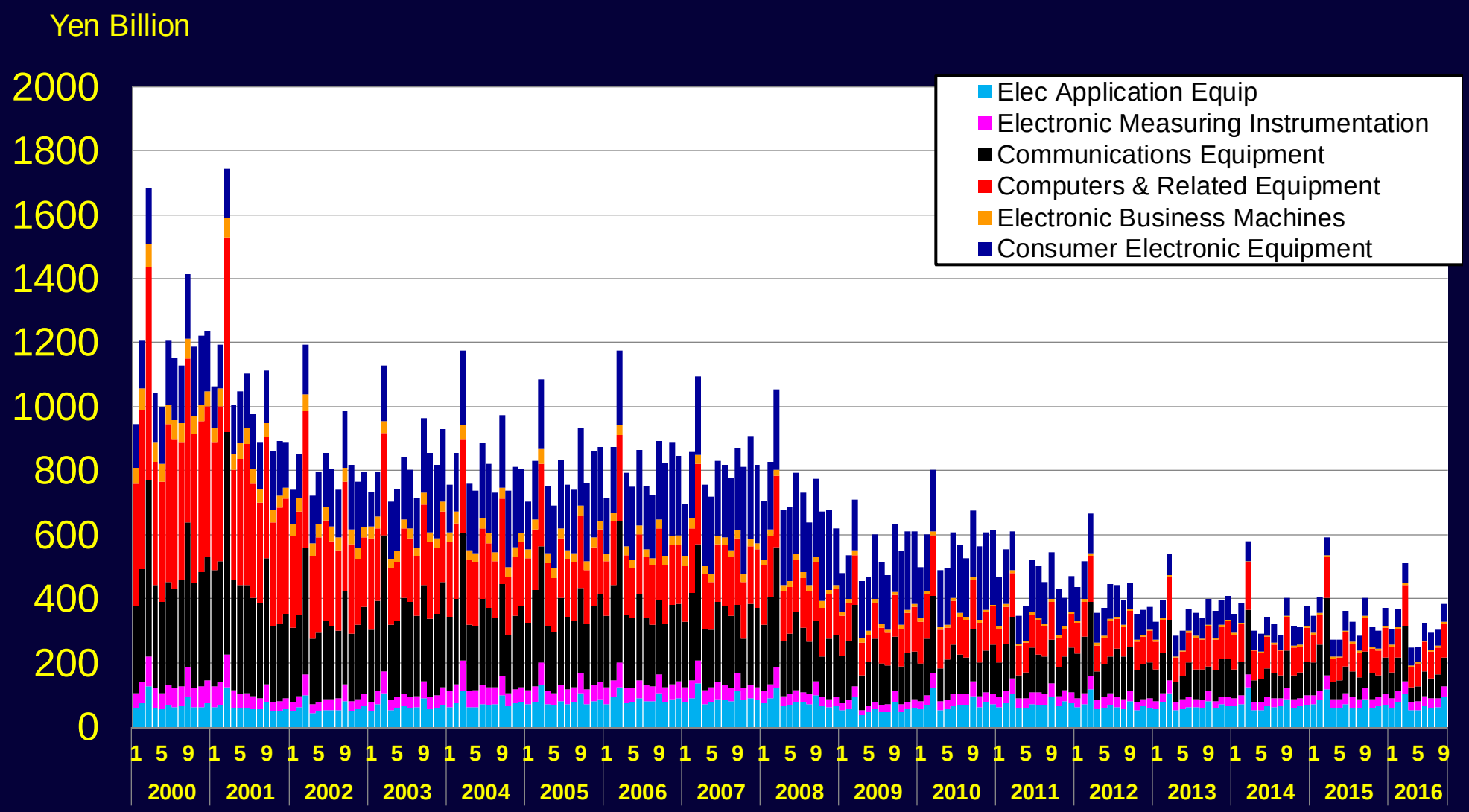
Japan Electronic Supply Chain Growth 3Q'16 vs 3Q'15 (domestic production in Yen)



JEITA 11/16

Chart 6

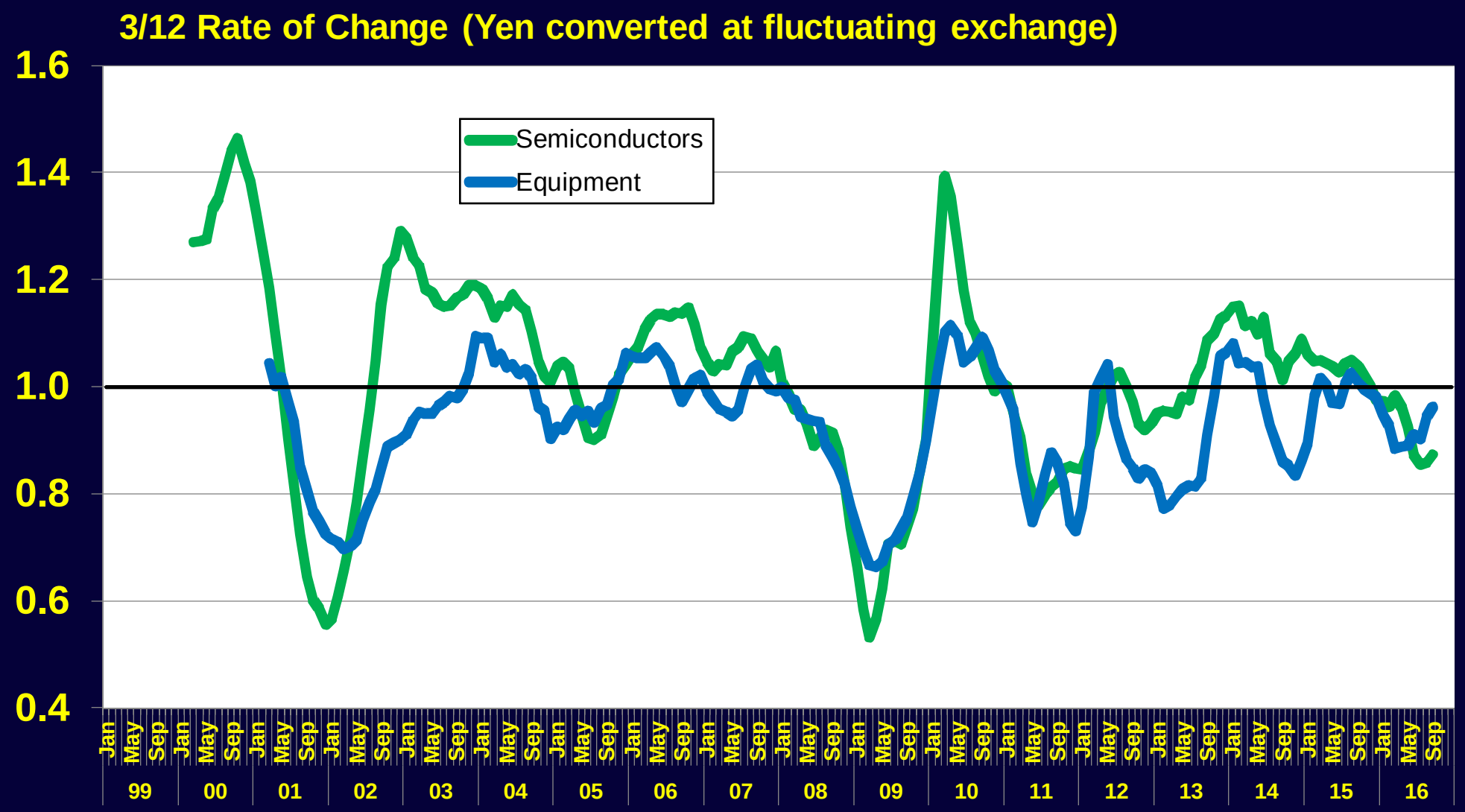
Japan Electronic Equipment Production by Month 2000 to Present



JEITA www.jeita.or.jp/

Chart 7

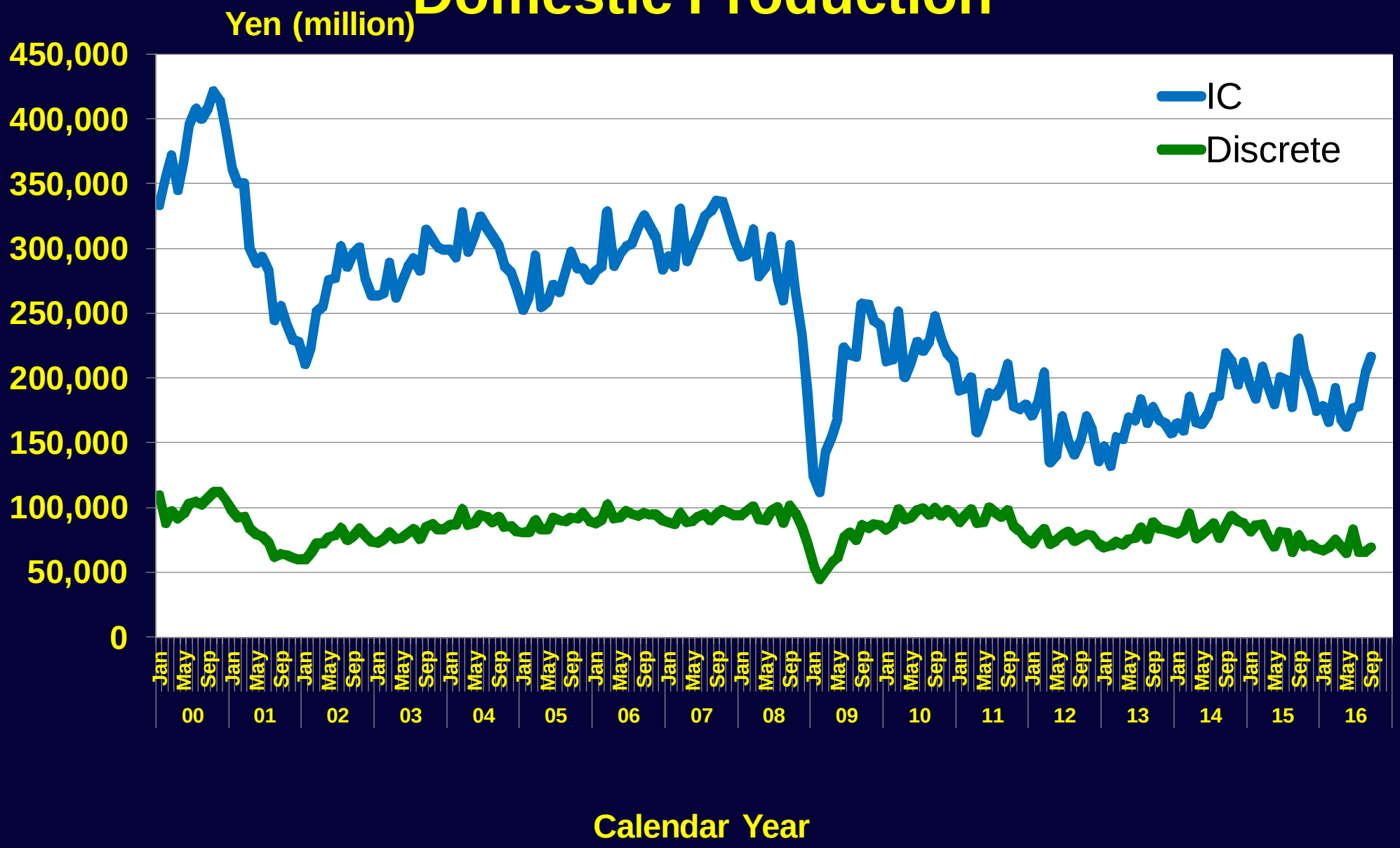
Semiconductor Shipments to Japan vs. Japanese Electronic Equipment Production



Total $ Semiconductor Shipments from All Countries to Japan www.sia-online.org/, JEITA www.jeita.or.jp/

Chart 8

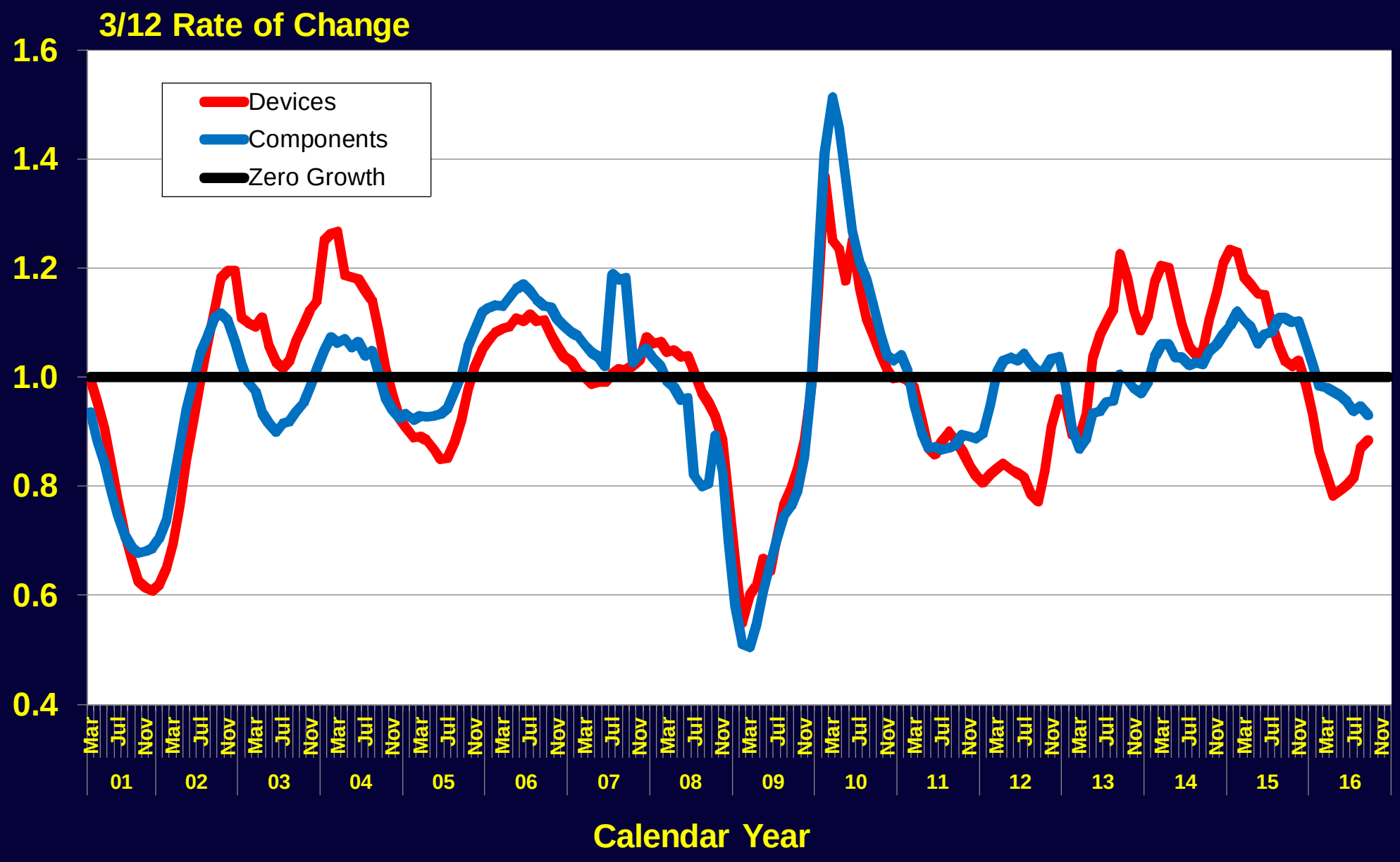
Japan Integrated Circuit & Discrete Semiconductor Domestic Production



http://www.jeita.or.jp/

Chart 9

Japanese Electronic Component & Device Production



JEITA www.jeita.or.jp/

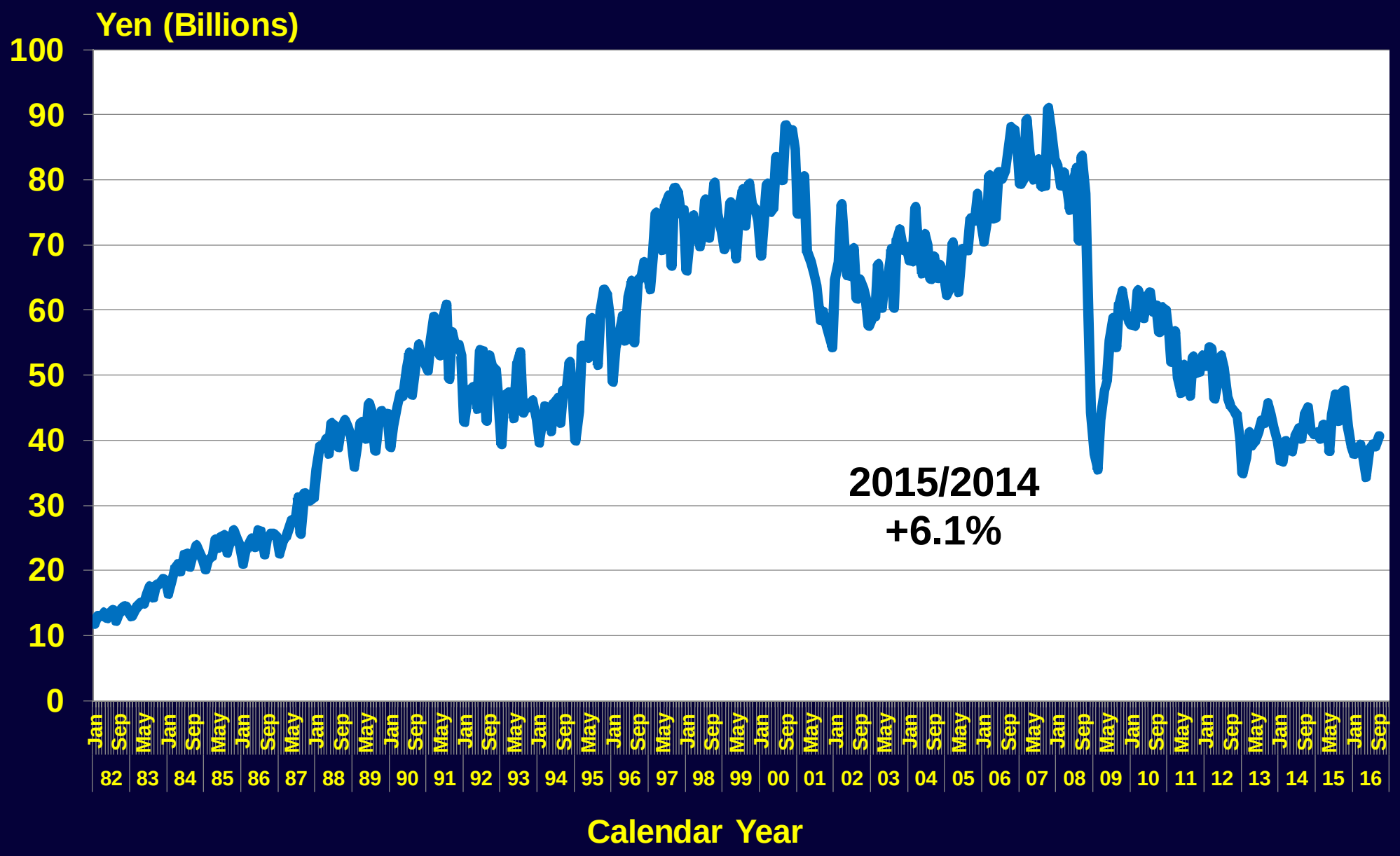
Chart 10

Japan Passive Component Domestic Production

http://www.jeita.or.jp/

Chart 11

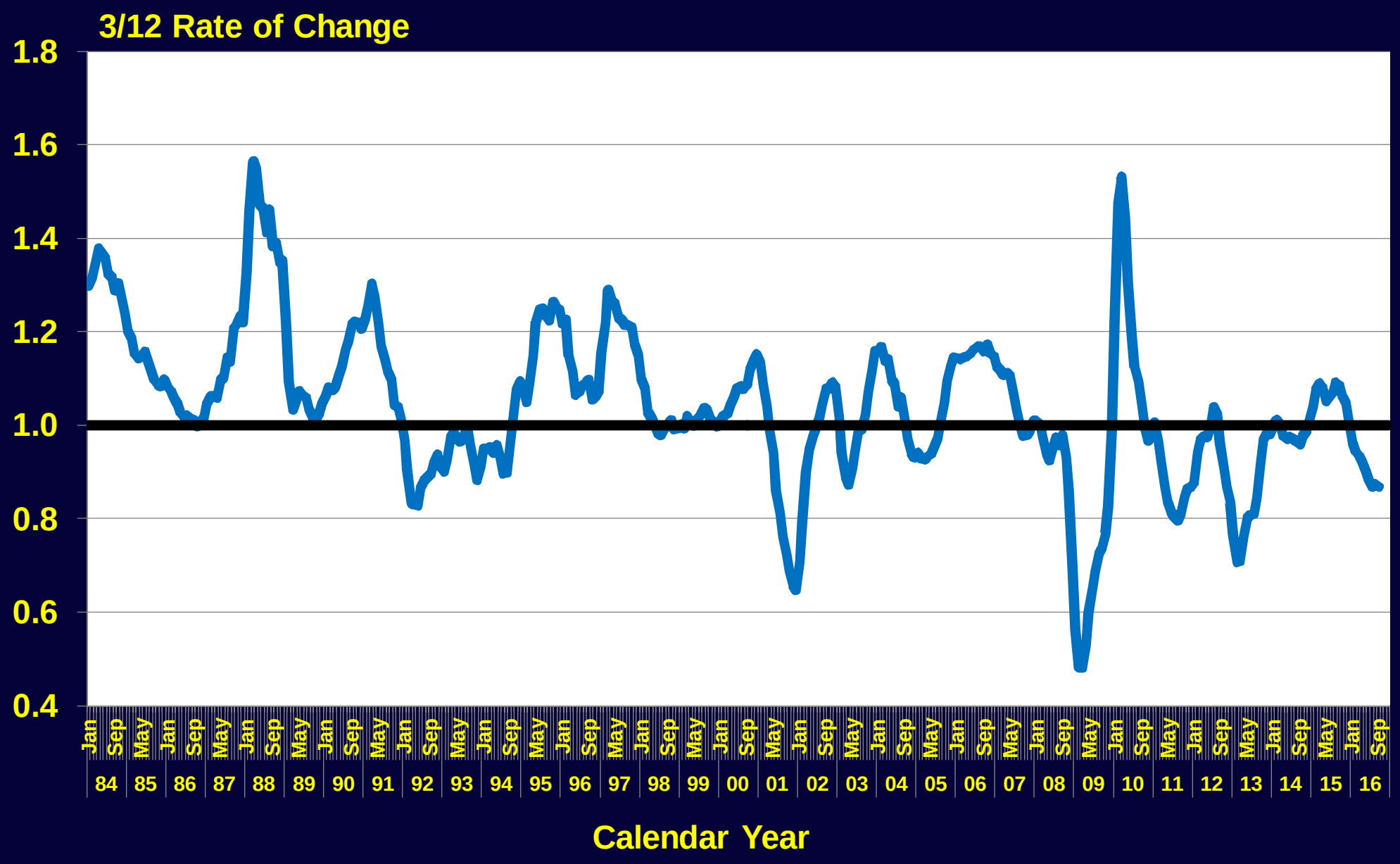
Japan PCB Production



JEITA

Chart 12

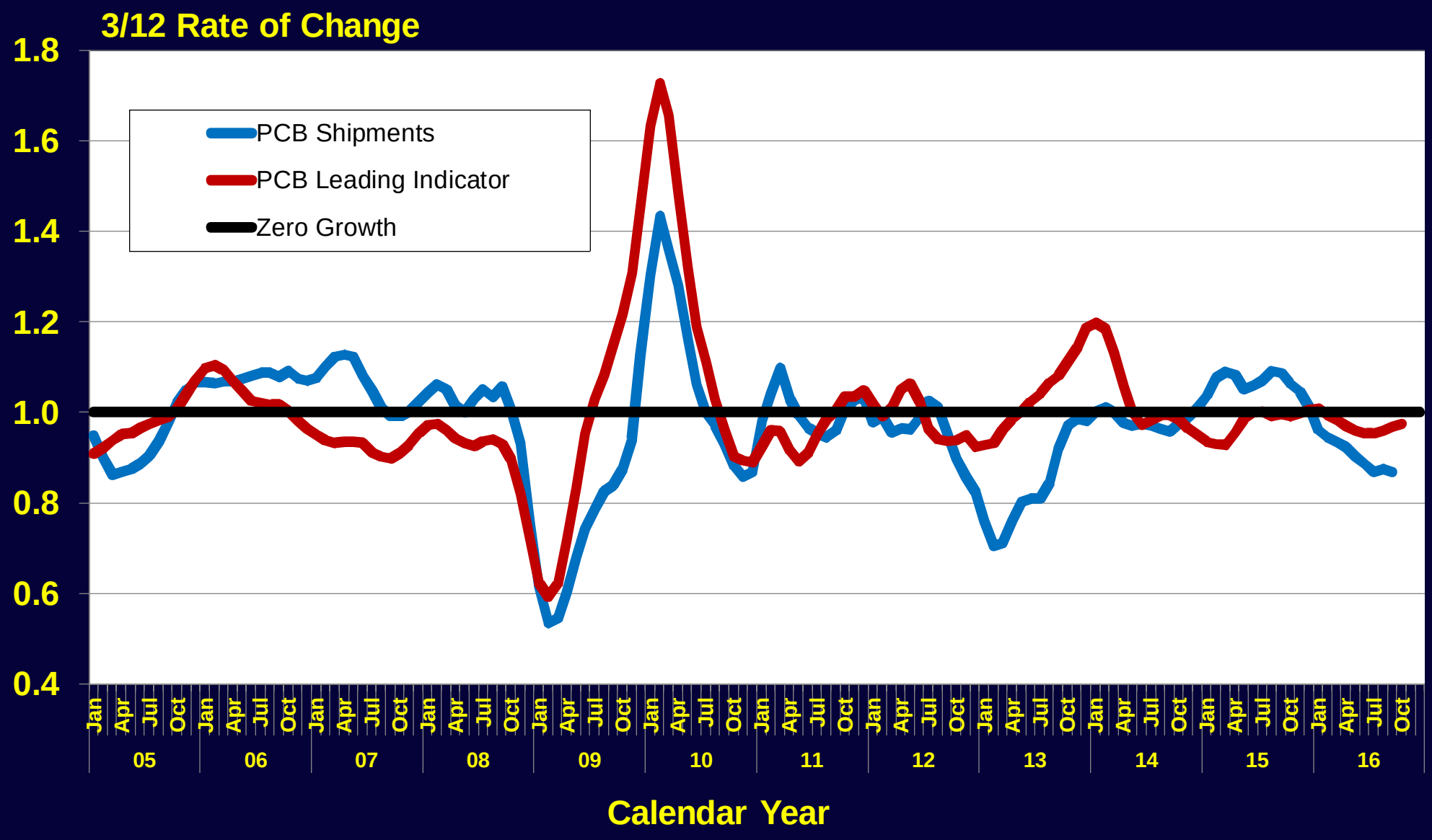
Japan PCB Production



JEITA

Chart 13

Japan PMI PCB Leading Indicator vs. Japan PCB Shipments



Source: Custer Consulting Group

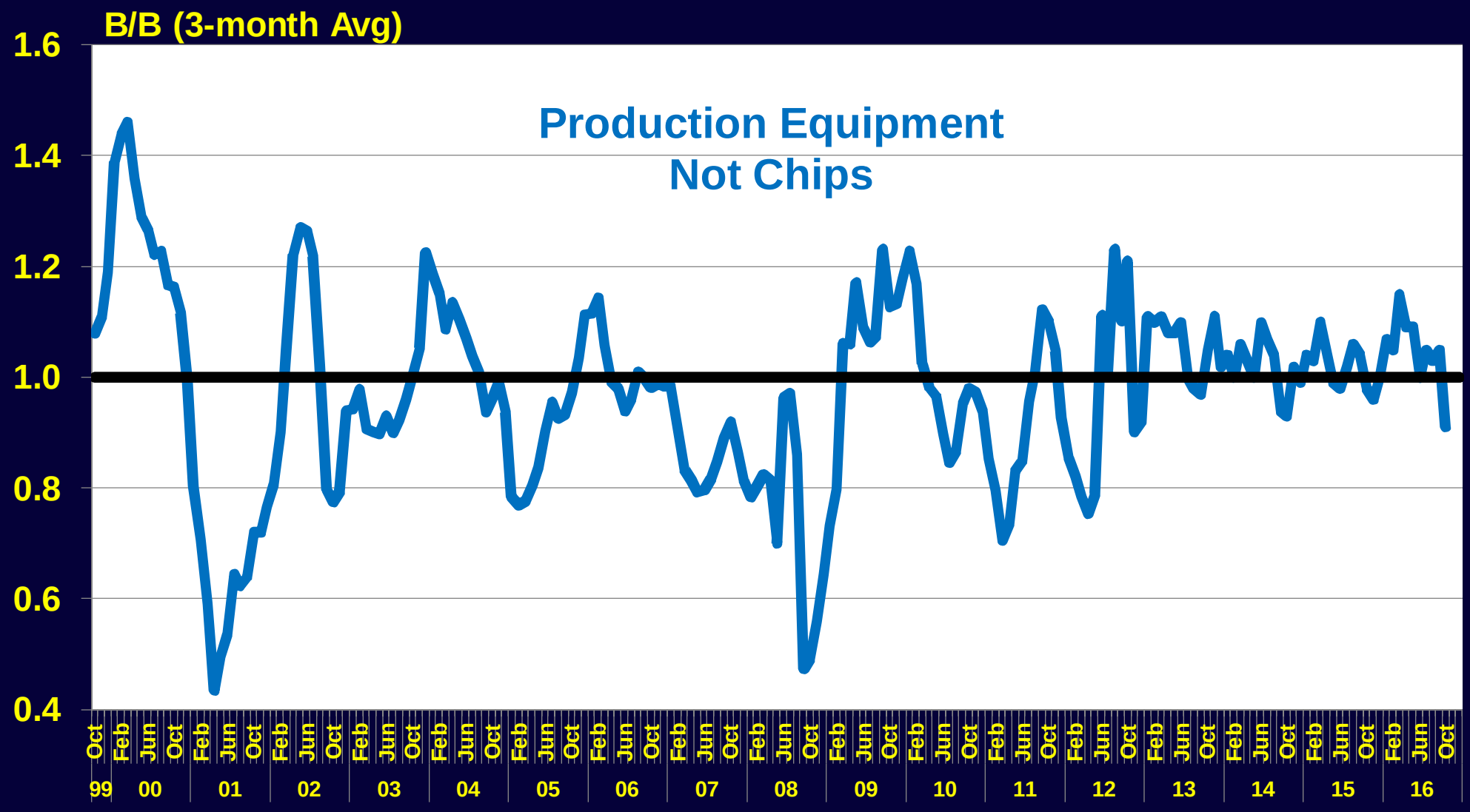
Chart 14

Copper, High Grade (HG, Comex)

http://futures.tradingcharts.com/chart/CP/B9

Chart 15

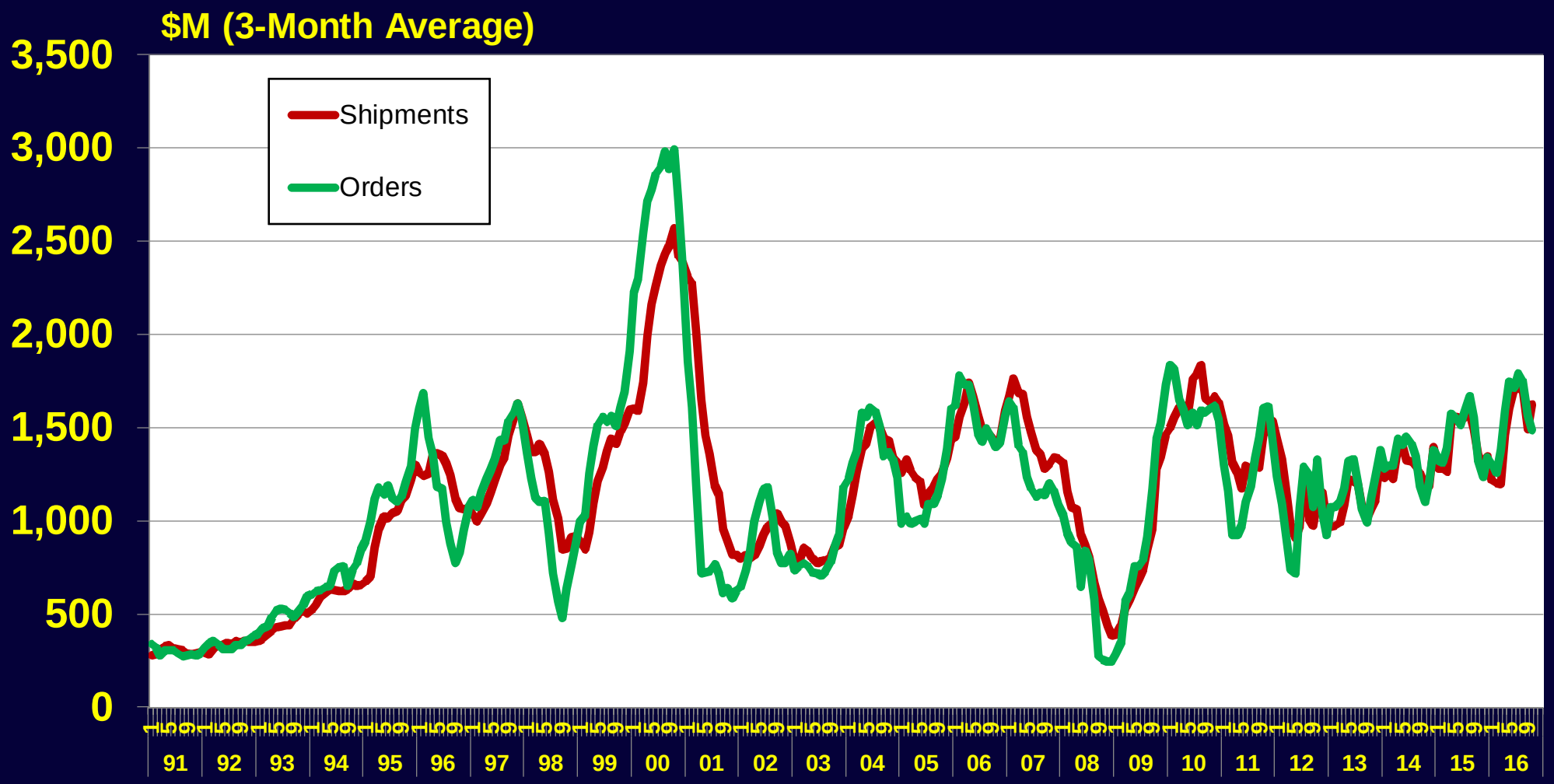
N American Semiconductor Equipment Industry Book/Bill Ratio



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

Chart 16

N American Semiconductor Equipment Industry Shipments & Orders



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

Chart 17

World Electronic Equipment Production By Type

+1.29%

Annual Rate $B (converted @ fluctuating exchange rates)

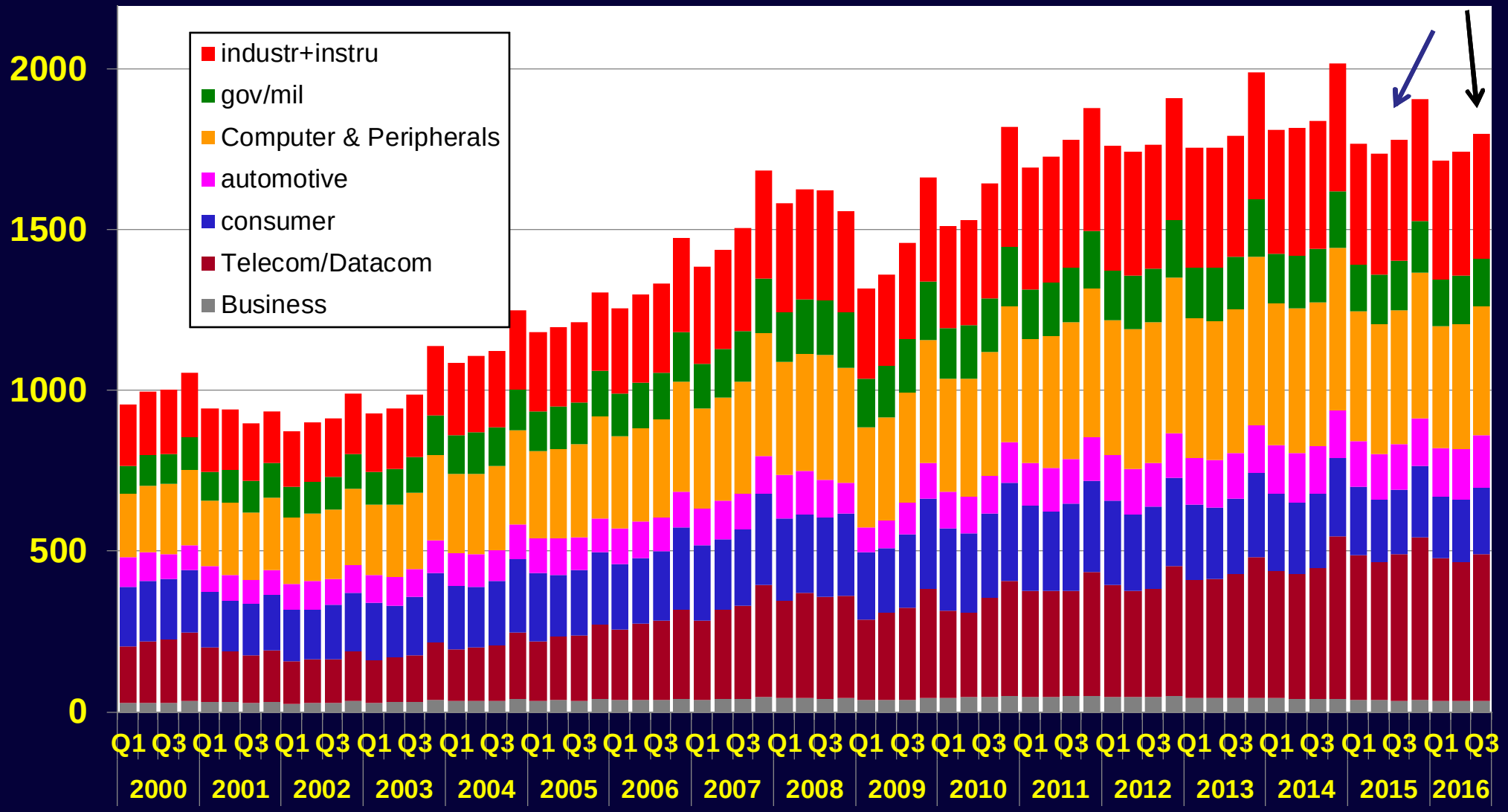
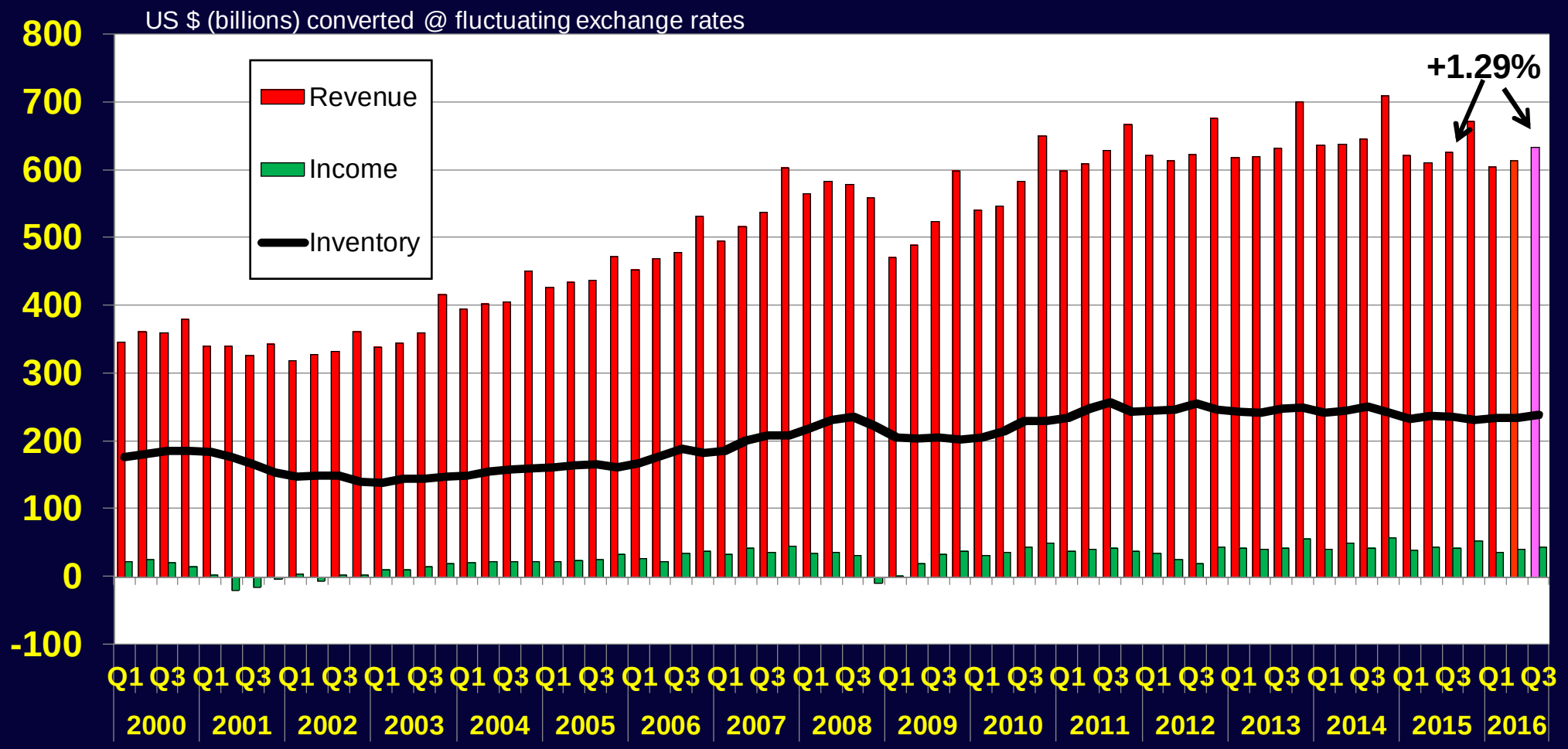


Chart 18

Electronic Equipment Suppliers Composite of 213 Public Companies

Revenue, Net Income & Inventory

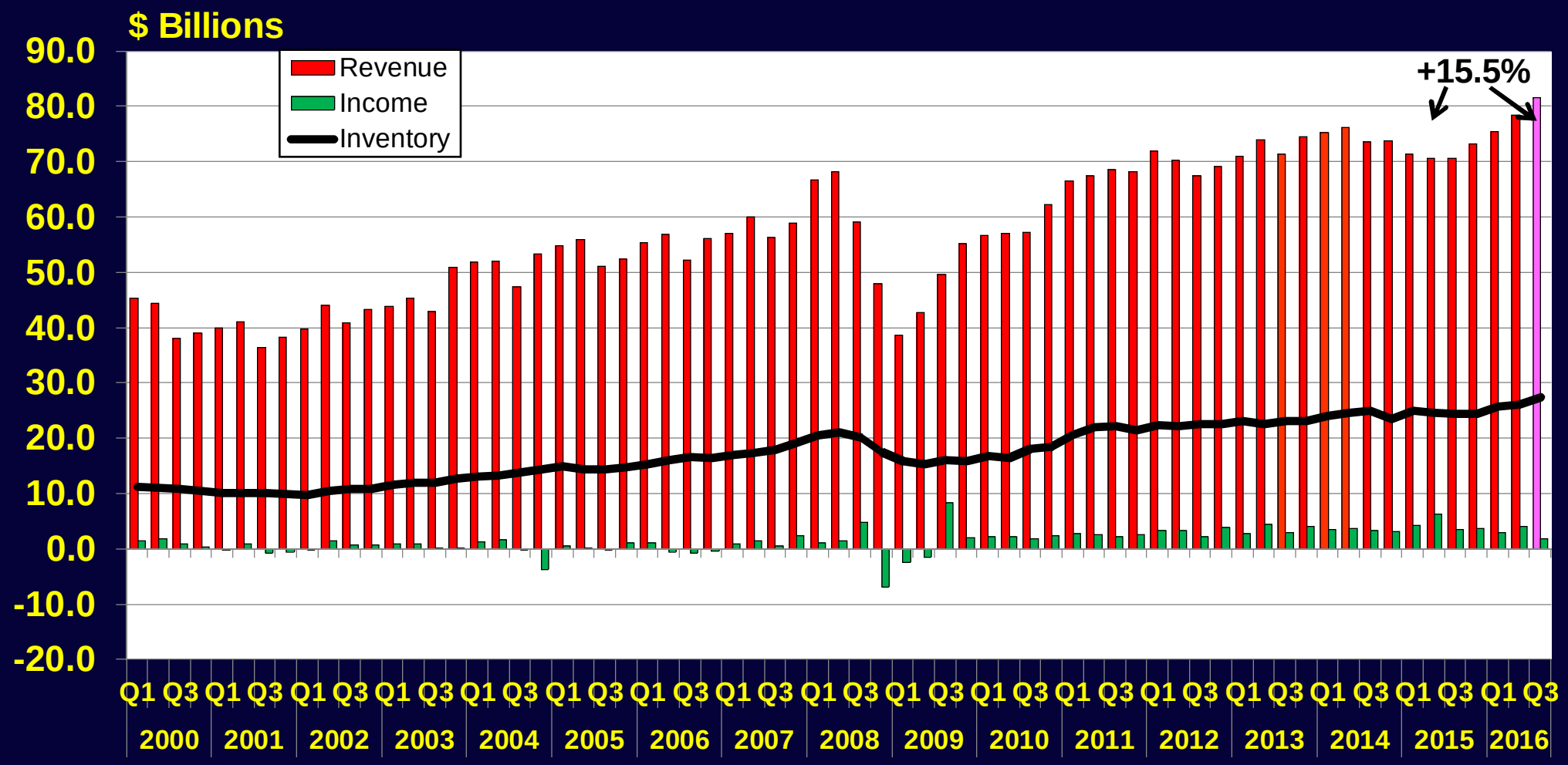


Computer 13, Internet 13, Storage 17, Communication 30, SEMI 40, Medical 21, Instruments 16, Military 21, Business & Office 6, Consumer 21, Automotive 15

Chart 19

Automotive Equipment Suppliers Composite of 15 Public Companies

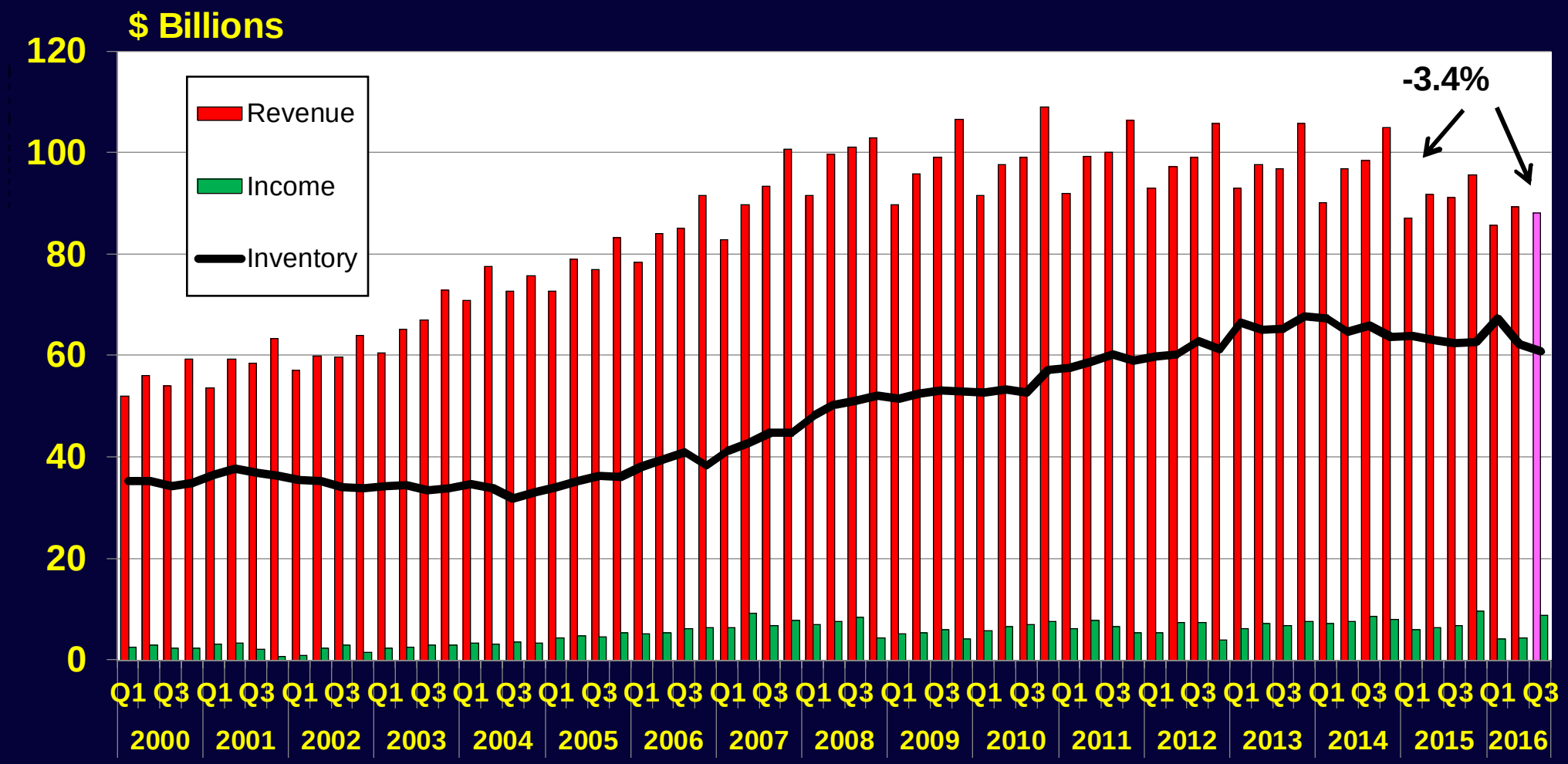
Revenue, Net Income & Inventory



Autoliv, Borg Warner, Continental AG, Delphi, Denso, Federal Mogul, Gentex, Hella, Johnson Controls, Lear, Magna, TRW Automotive, Valeo, Visteon, ZF Friedrichshafen

Chart 20

Military Equipment
Composite of 21 Public Companies
Revenue, Net Income & Inventory

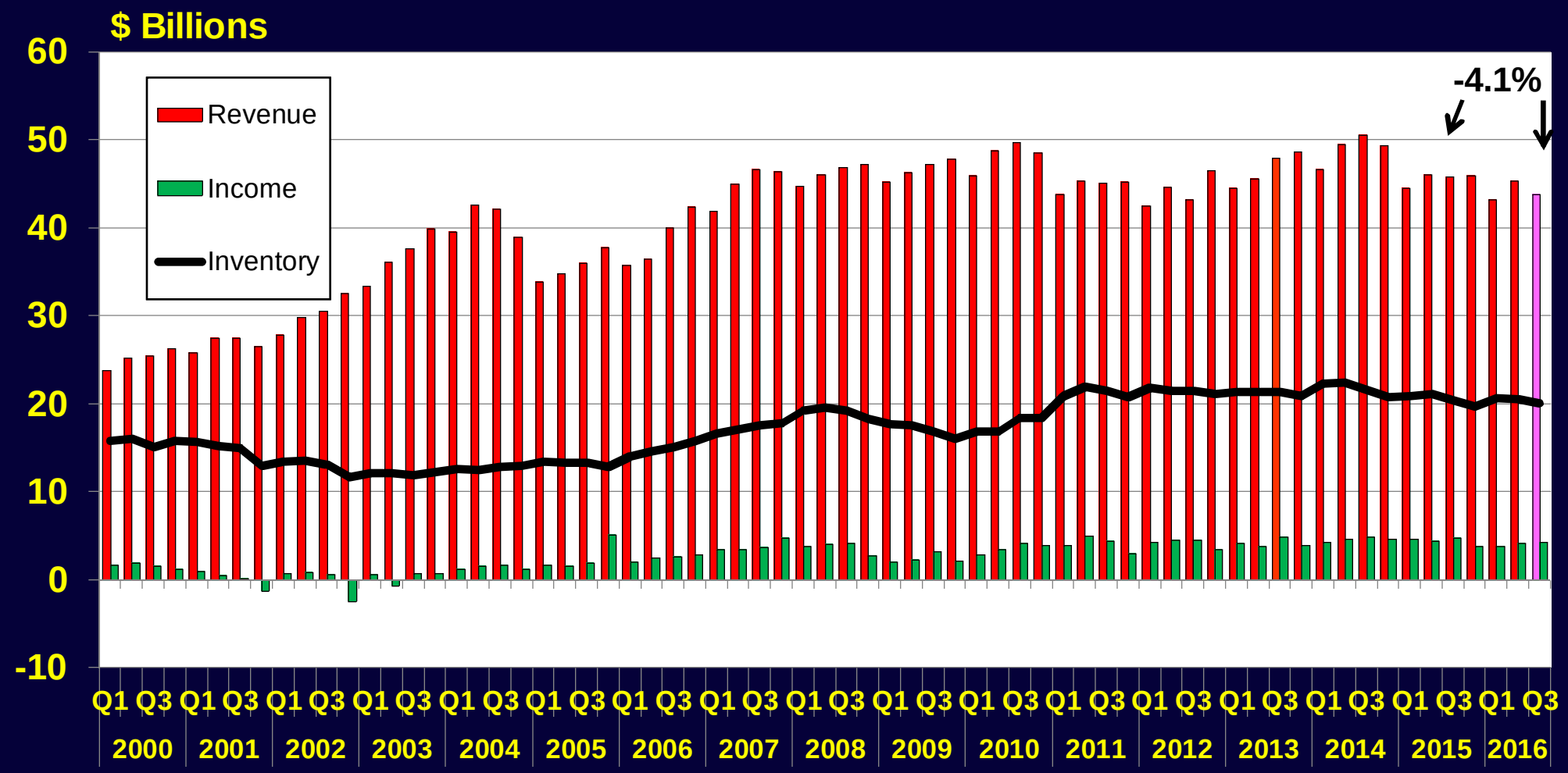


Boeing (military portion), EADS (military portion), Finmeccinica,General Dynamics, Halliburton, Harris, Honeywell (military portion), L-3 Communications, Lockheed, Moog, Northrop Grumman, Raytheon, Rockwell Collins, Textron, Thales, United Technology

Chart 21

Instruments & Control Equipment Composite of 16 Public Companies

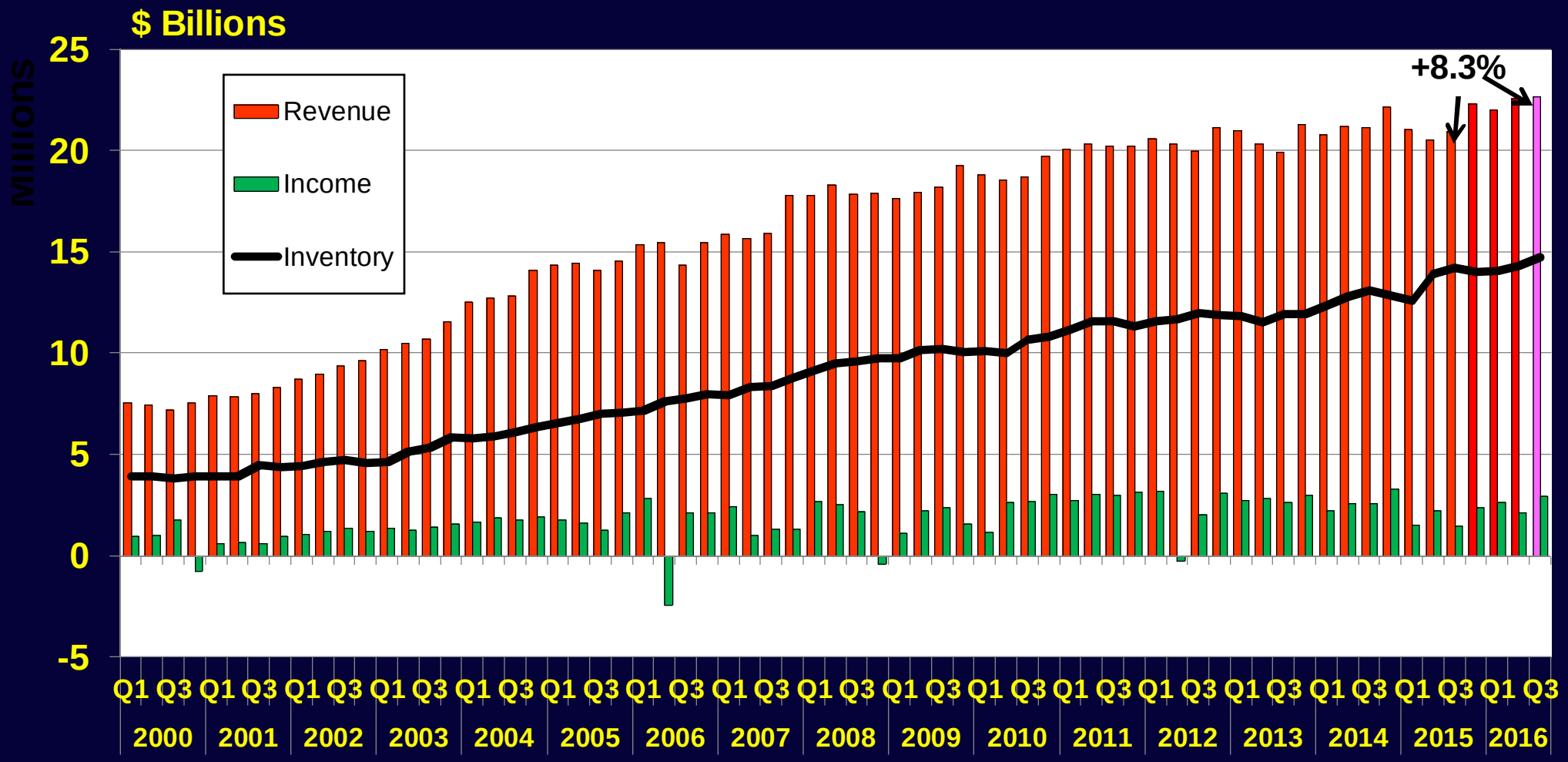
Revenue, Net Income & Inventory



ABB, Agilent, Ametek, Emerson, Itron, Keysight, National Instruments, PerkinElmer, Rockwell Automation, Rotork, Teledyne, ThermoFisher, Woodward Govenor

Chart 22

Medical Equipment
Composite of 21 Public Companies
Revenue, Net Income & Inventory



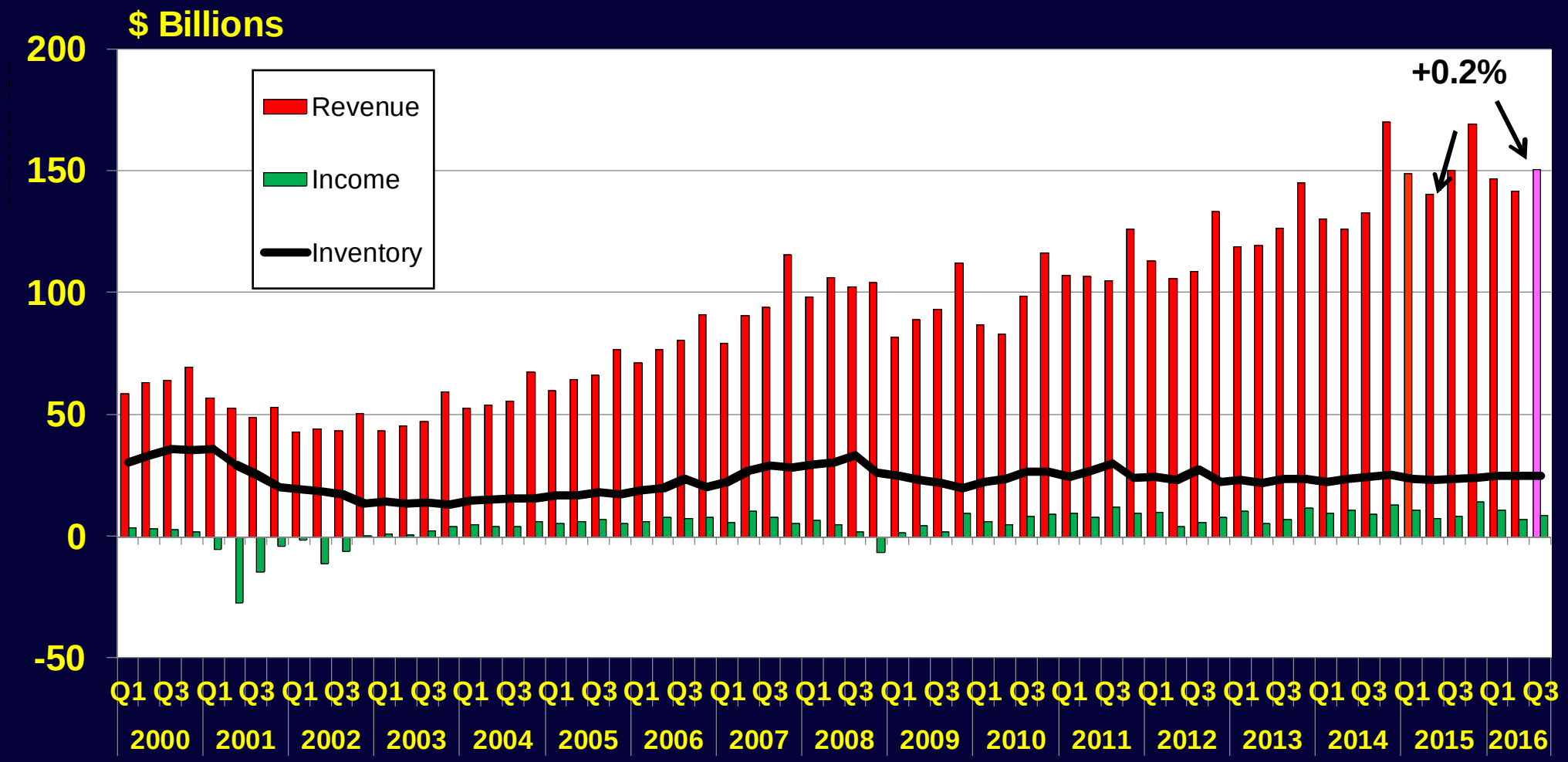
Analogic, Bio-Rad Laboratories, Boston Scientific, Bruker, CareFusion, Covidien, Draeger, Guidant, Hill-Rom, Intuitive Surgical, Invacare, Medtronic, ResMed, St Jude Medical, Smith & Nephew, STERIS, Stryker, Varian Medical, Waters, Zimmer

Chart 23

Communication Equipment Suppliers Composite of 30 Companies

10 mobile phone makers, 20 other telecom equipment makers plus estimate of other mobile makers

Revenue, Net Income & Inventory

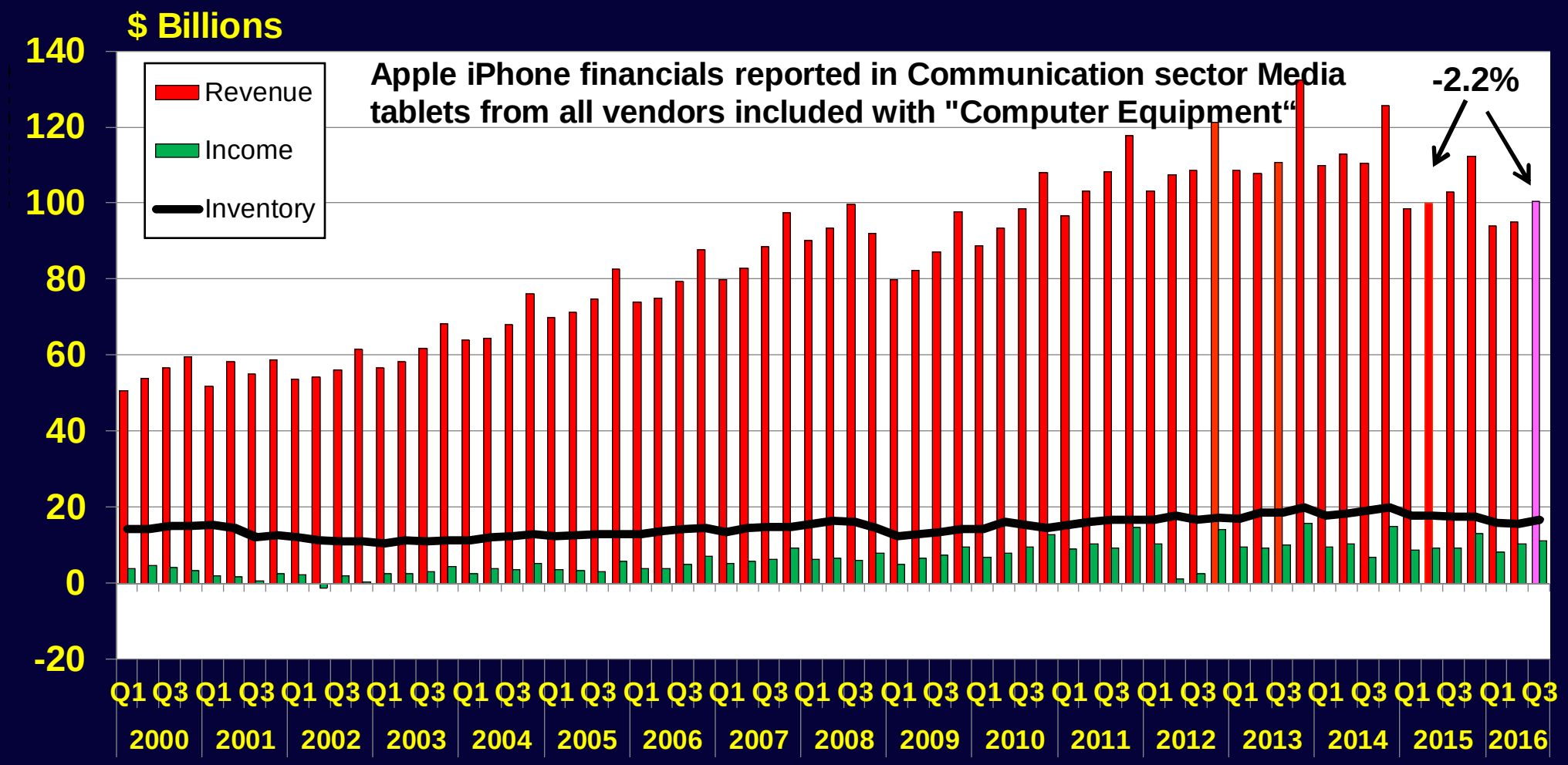


3COM, ADC Telecom, Alcatel+Lucent, Ciena, Ericsson, Motorola Solutions,, Nokia, Polycom, TellLabs, Palm, Adva Optical Networking,Arris Group,AudioCodes,Broadsoft,Fabrinet,Gigamon,Infinera,Ixia,Neophotonics,Radware ; Apple iPhone, HTC, Huawei Device, LG, Motorola Mobility, Nokia, RIM, Samsung, Sony Mobility, ZTE; Euros & Krona converted at fluctuating exchange; mobile phone volumes from company reports & Gartner Dataquest quarterly unit shipment estimates; historical data included for acquired companies

Chart 24

Computer Equipment Suppliers Composite of 13 Public Companies

Revenue, Net Income & Inventory



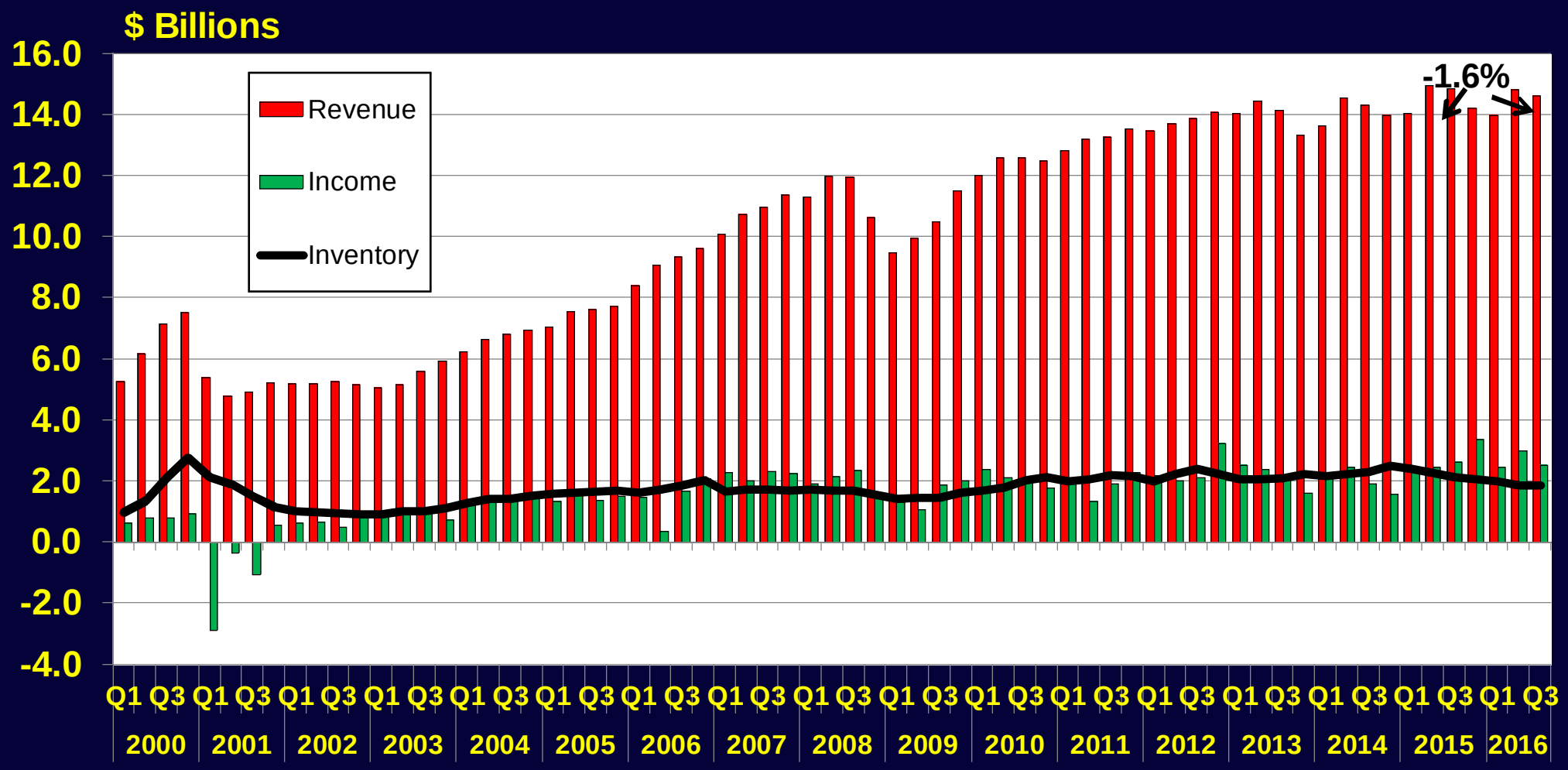
Acer+Gateway, Apple, Creative Tech, Cray, Dell, HP, IBM, Lenovo, Mercury, NCR, Sun Micro, Unisys

Other vendors media tablet sales estimated from unit shipments

Chart 25

Datacom "Internet" Equipment Suppliers Composite of 13 Public Companies

Revenue, Net Income & Inventory

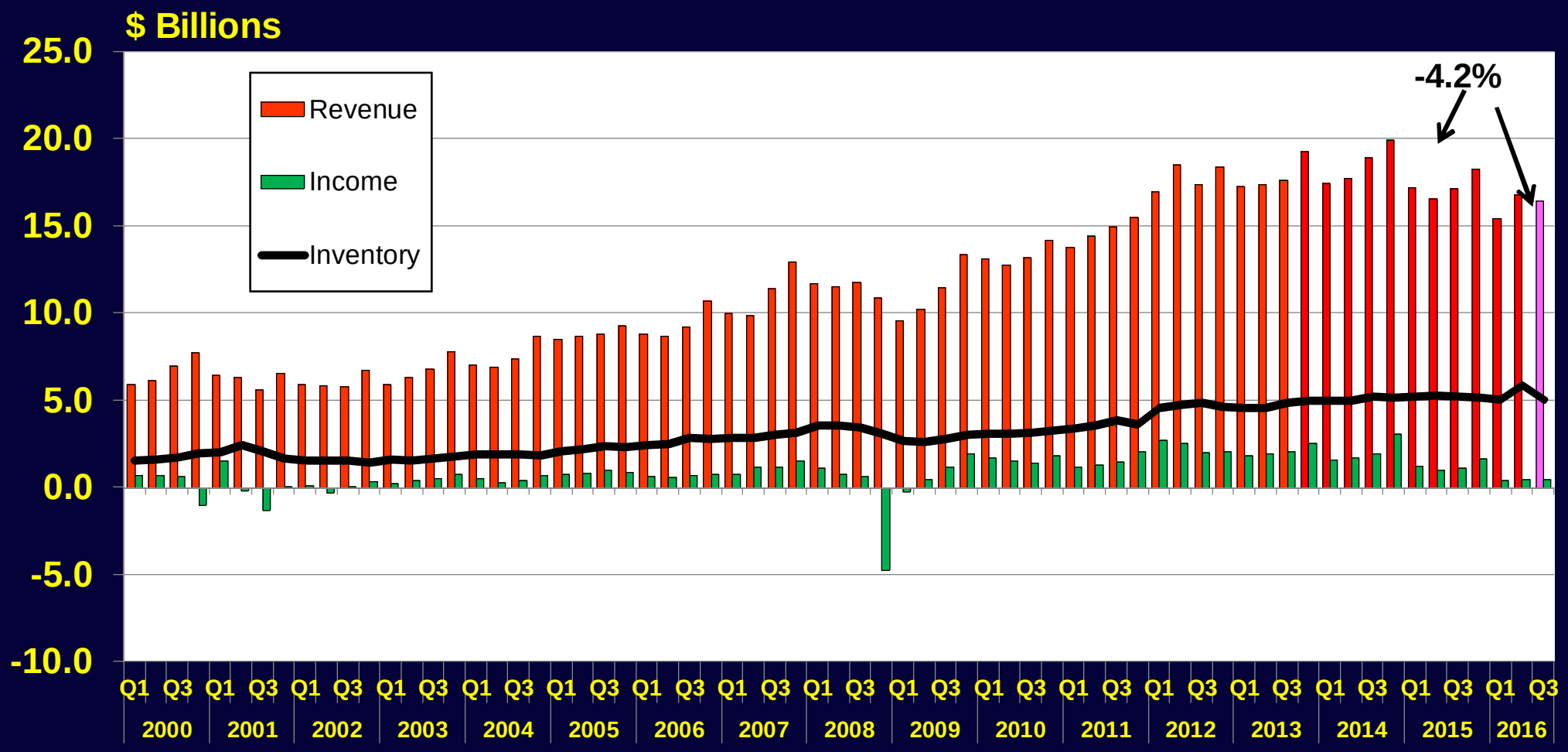


ADTRAN, Arista Networks, Cisco Systems, Extreme Networks, Juniper Networks, Netgear, Oclaro, Ruckus Networks, Sierra Wireless, Sonus Networks, Sonus, Sycamore, Ubiquiti Networks

Chart 26

Data Storage Equipment Suppliers Composite of 17 Public Companies

Revenue, Net Income & Inventory

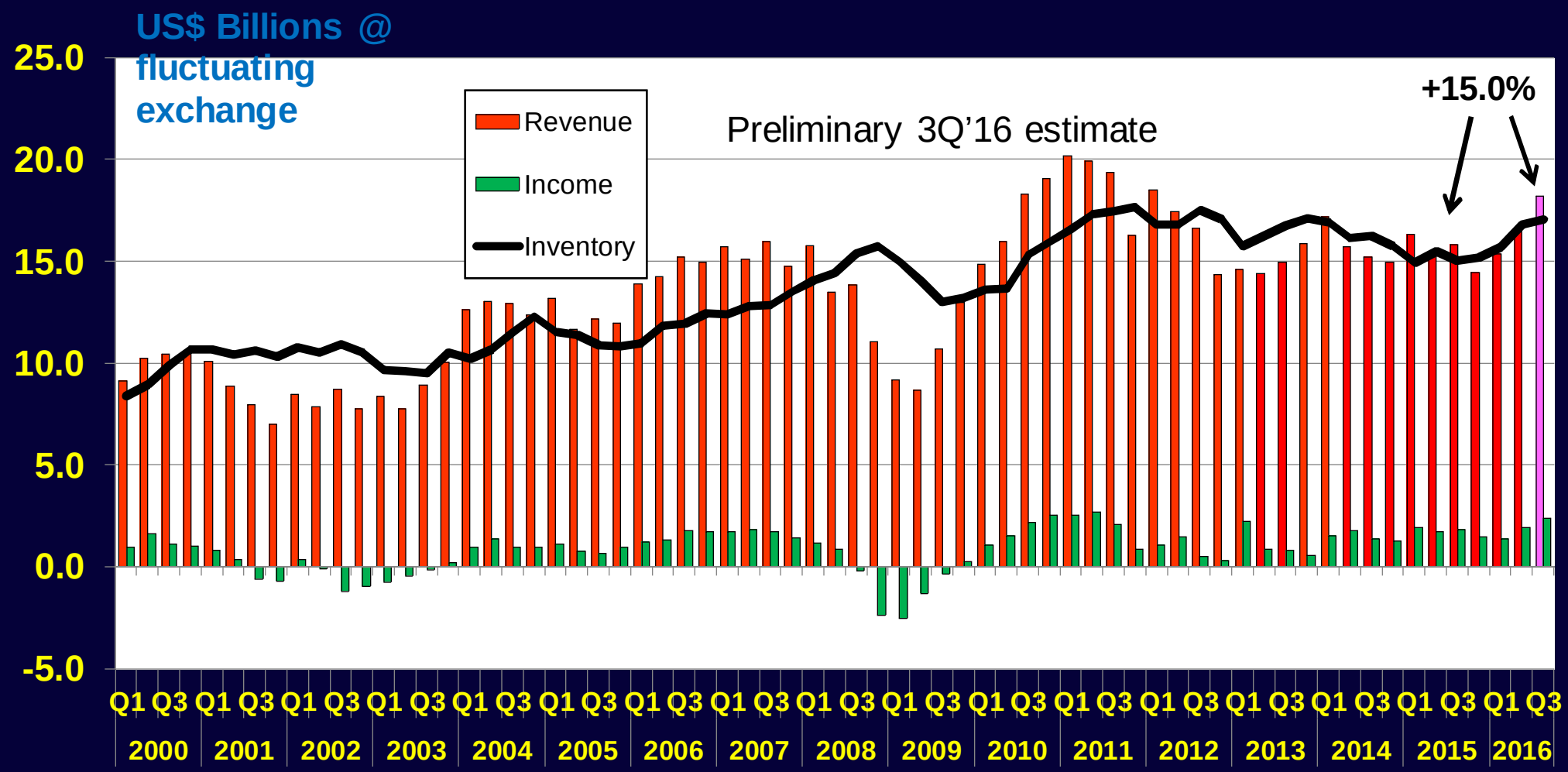


Brocade, Concurrent, Datalink, EMC, Iomega, Lexar, Maxtor, Network Appliance, Netlist, Nimble Storage, Qlogic, Quantum, Seagate, Storage Technology, Super Micro Computer, Western Digital, SanDisk. Companies now no longer operating were included in historical data until they shut down

Chart 27

Semiconductor Fab, Test & Measurement Composite of 40 Public Companies

Revenue, Net Income & Inventory



Advantest, Applied Materials, ASM Intl, ASML, Axcelis, Brooks Automation, BTU, Cohu, CollabRx, Dainippon Screen, Disco, Electroglas, Entegris, FEI, FormFactor,FSI, Hitachi Hi Tech, Hitachi Kokosai, KLA-Tencor, Ibis, Intervac, Kulicke & Soffa, Lam Research, Mattson,MKS Instrument, Novellus Systems, Photon Dynamics, Rudolph Technologies, Teradyne, Tokyo Electron, Ultra Clear, Ultratech Stepper, Varian Semiconductor, Veeco, Xcerra (LTX-Credence)

Chart 28

Solar/Photovoltaic Financials
Composite of 90 Public Global Companies
Revenue, Net Income & Inventory

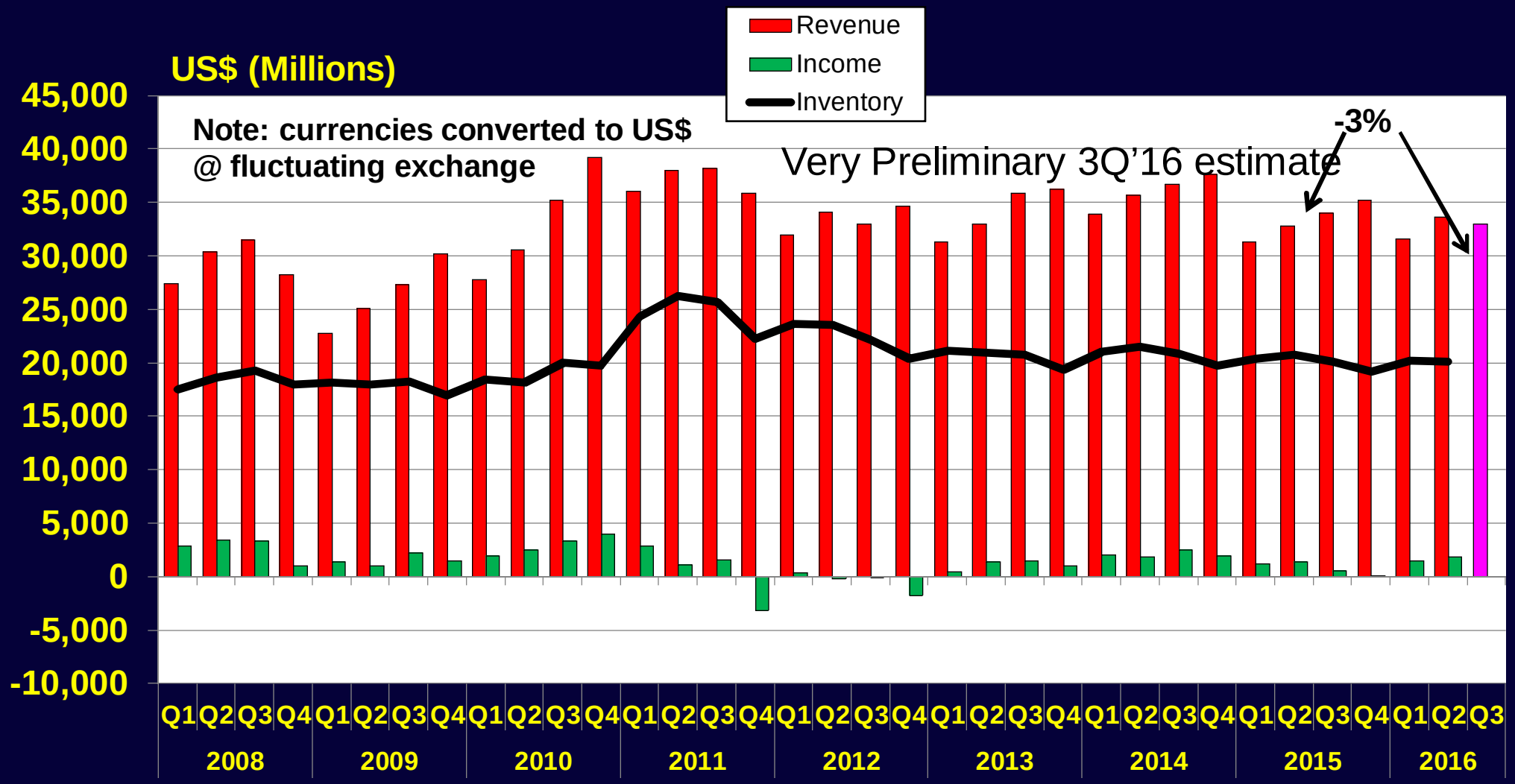
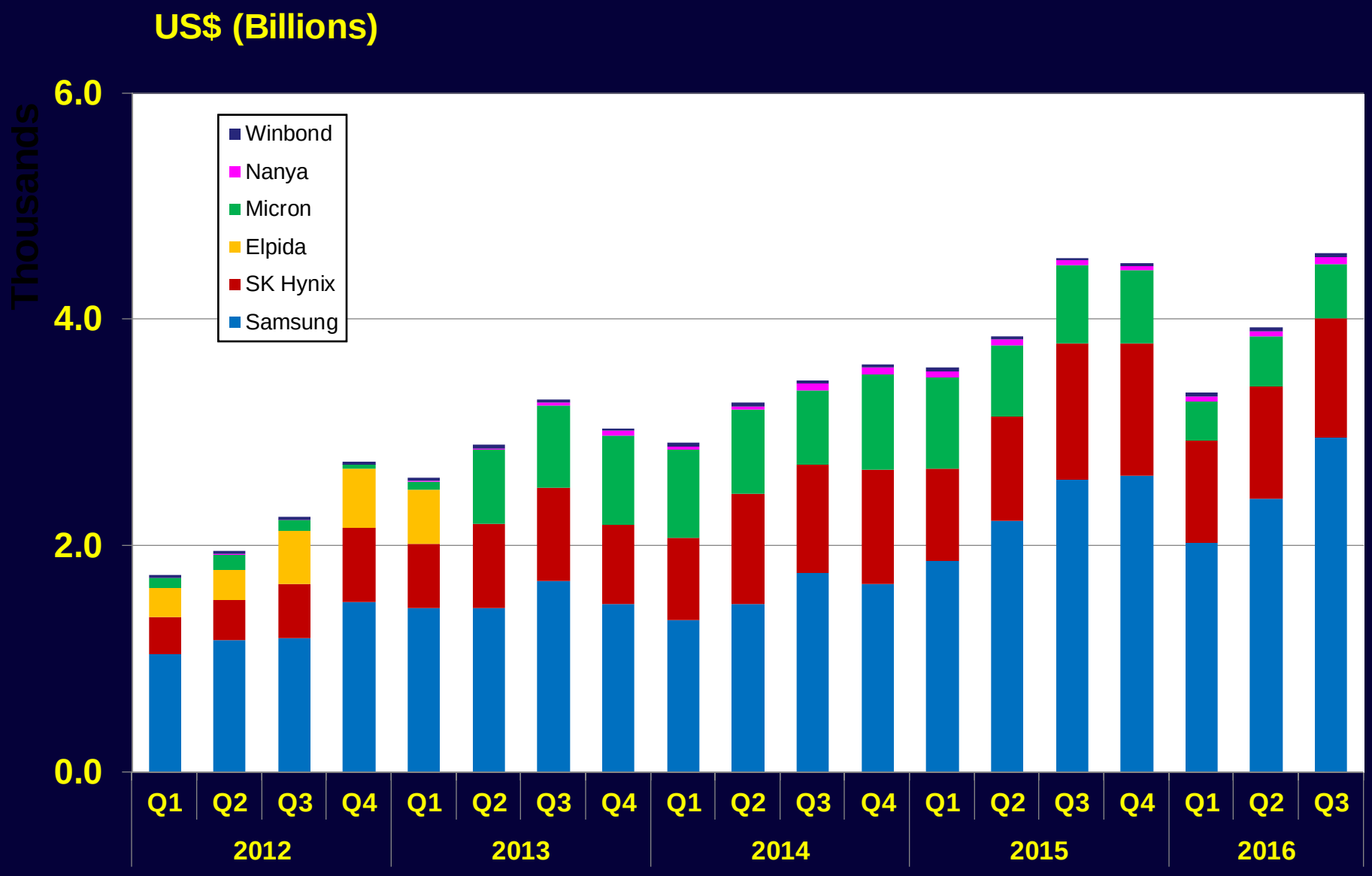


Chart 29

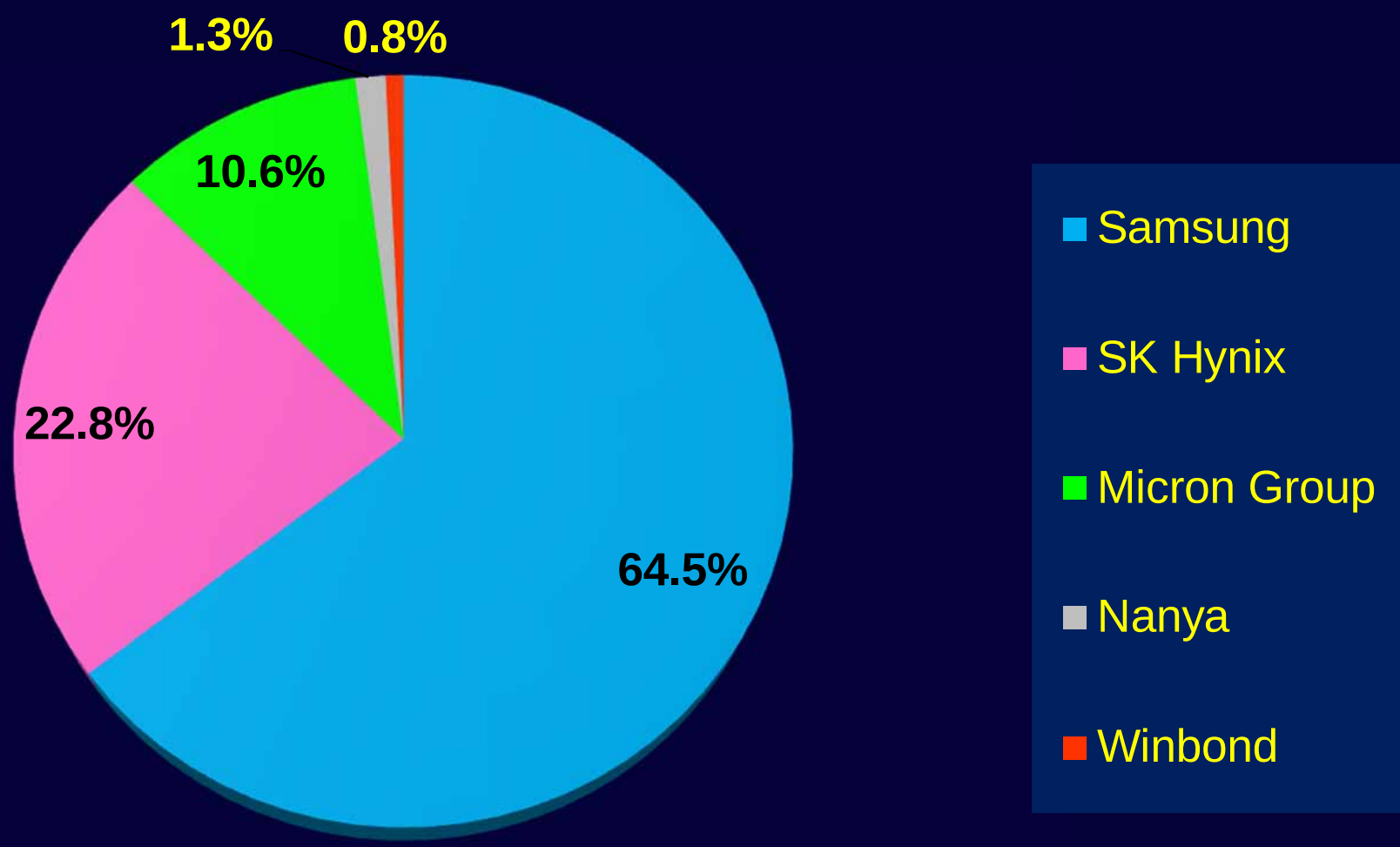
Mobile DRAM Revenue



DRAMeXchange 11/16 & prior reports

Chart 30

Mobile DRAM Revenues 3Q'16



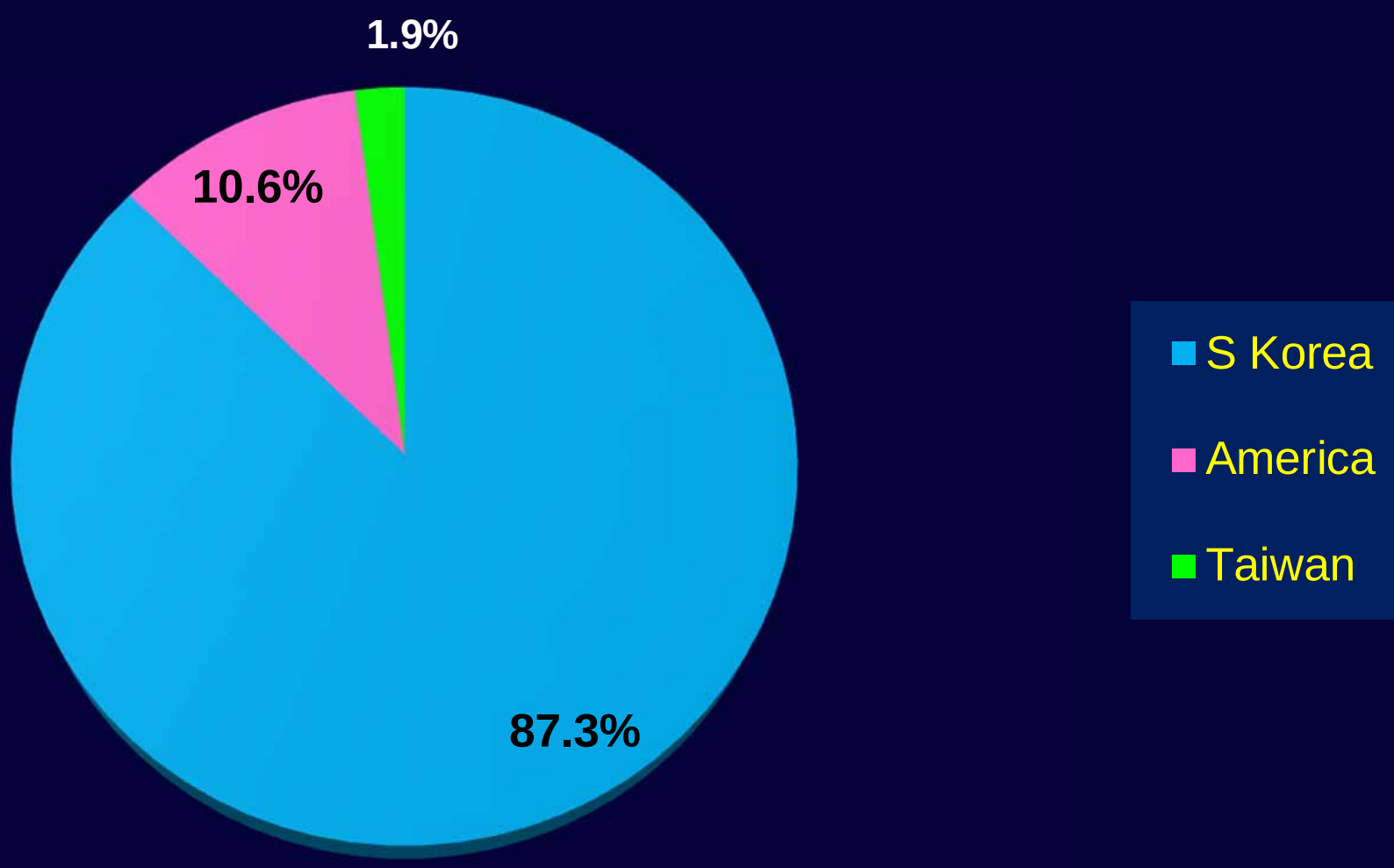
$3.929 B
2Q'16

3Q'16 Total: US$4.588 Billion

DRAMeXchange 11/16

Chart 31

Mobile DRAM Market Share by Region 3Q'16



DRAMeXchange 11/16