Chart 1

Monthly Semiconductor Shipments
$ Billions (3-month avg in US$)

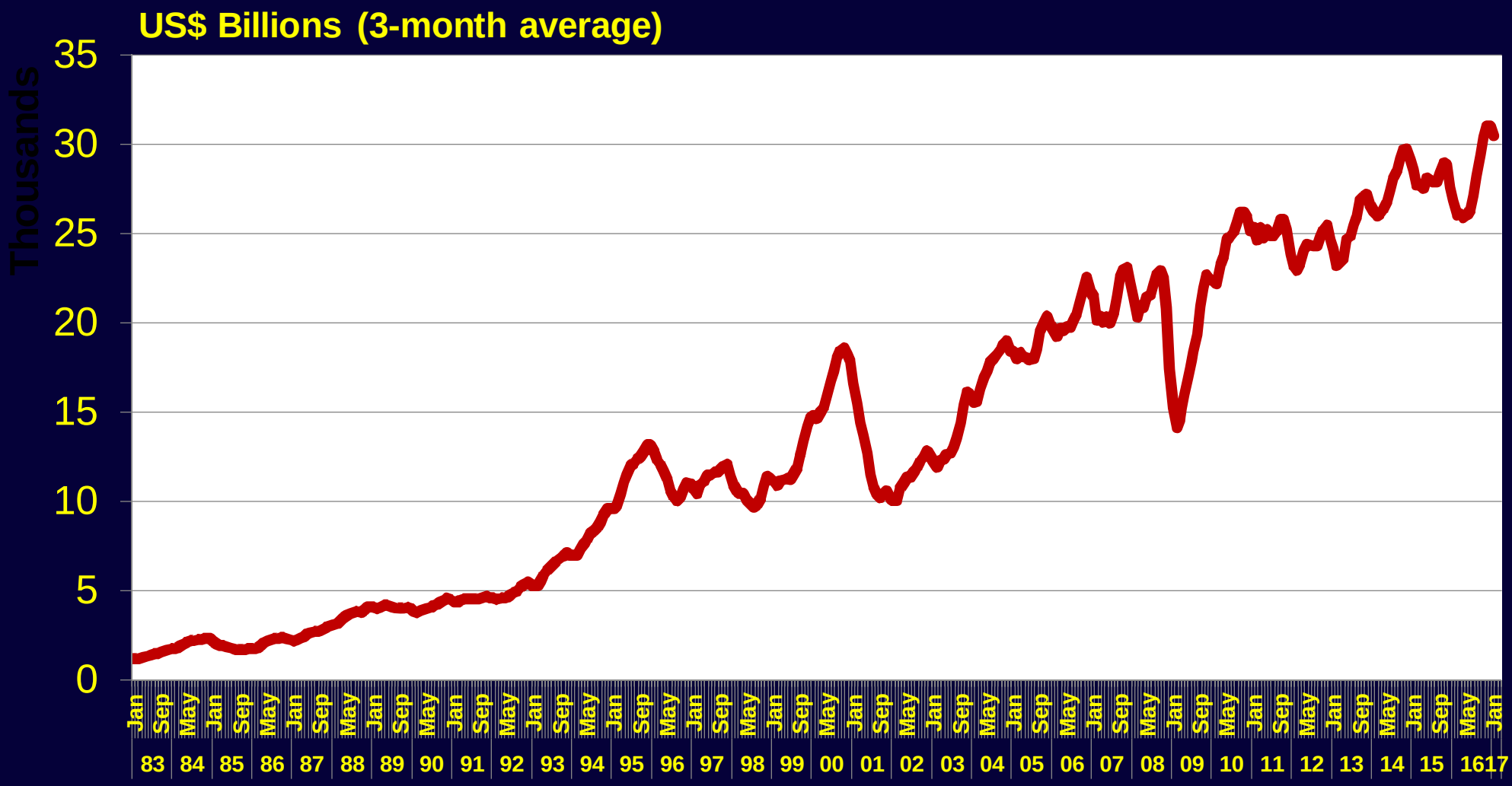
	1/16	1/17	% CH
Americas	5.41	6.13	+ 13.3%
Europe	2.71	2.84	+ 4.8%
Japan	2.49	2.79	+ 12.3%
China	8.42	10.15	+ 20.5%
Asia Pacific / All Other	7.86	8.72	+ 11.0%
Total	26.89	30.63	+ 13.9%

SIA www.sia-online.org/

Chart 2

World Semiconductor Shipments

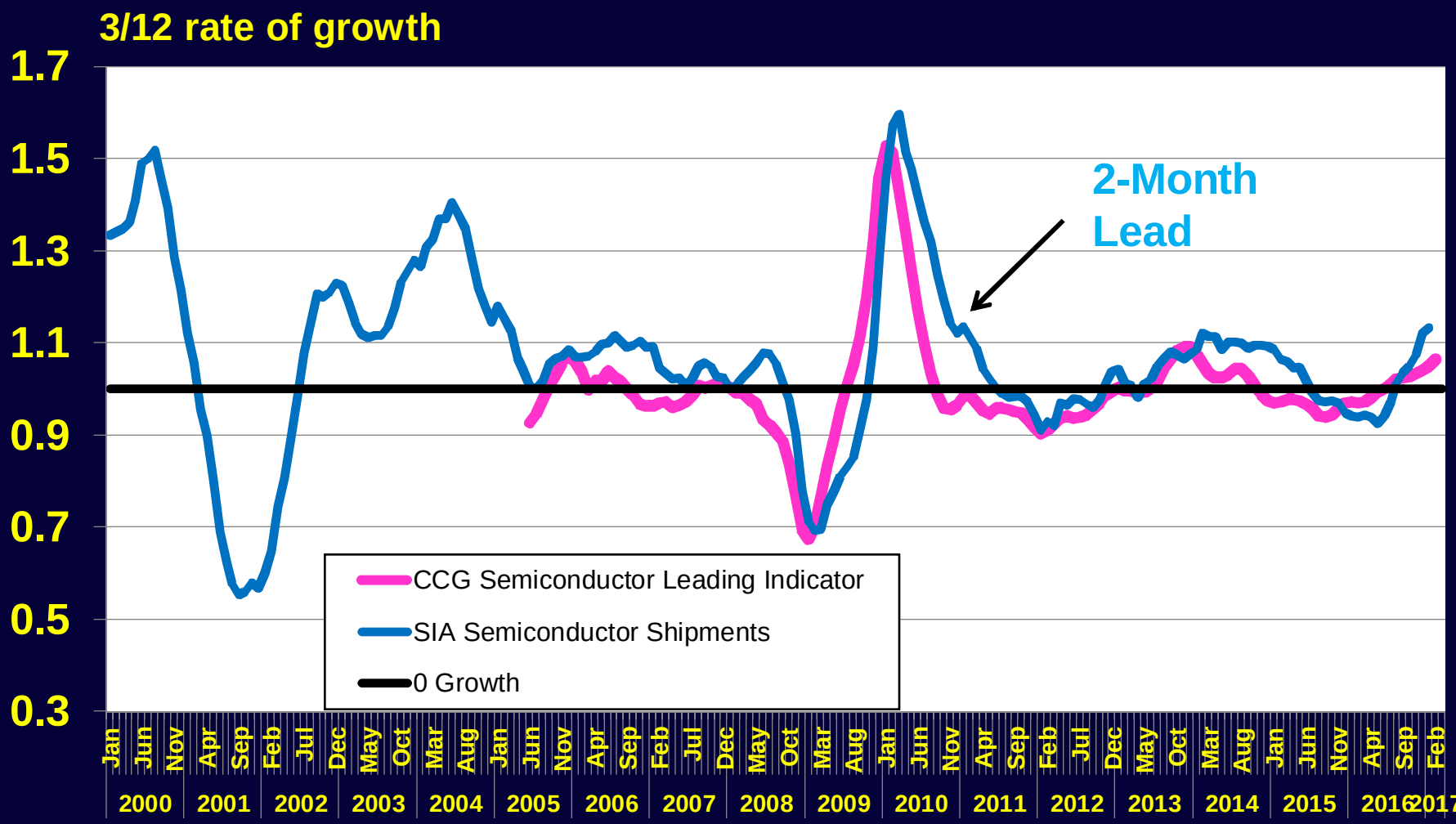
Monthly US$



SIA

Chart 3

CCG Semiconductor Leading Indicator vs. Global Semiconductor Shipments

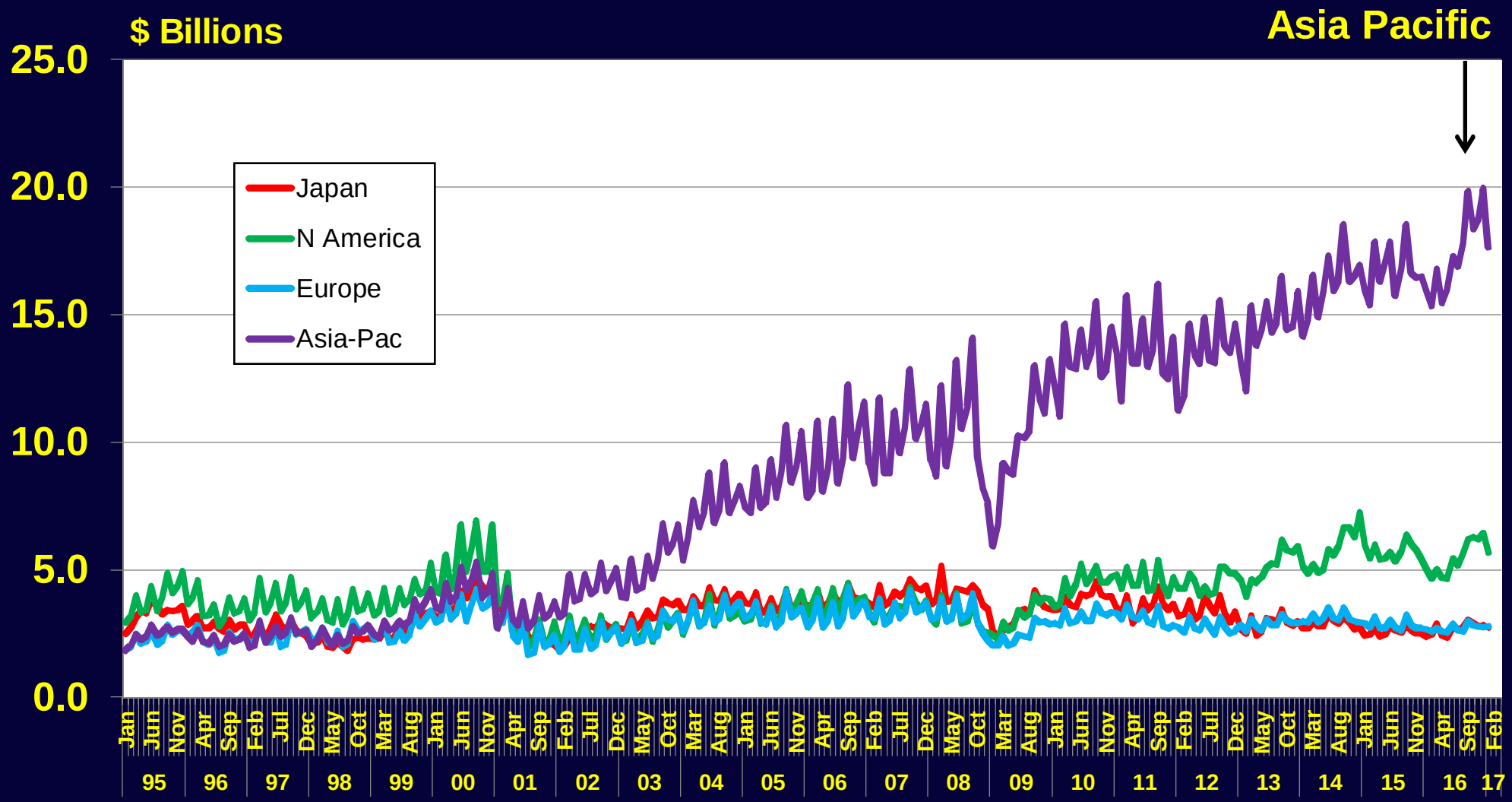


http://www.census.gov/indicator/www/m3/

Chart 4

Total Semiconductor Shipments to an Area

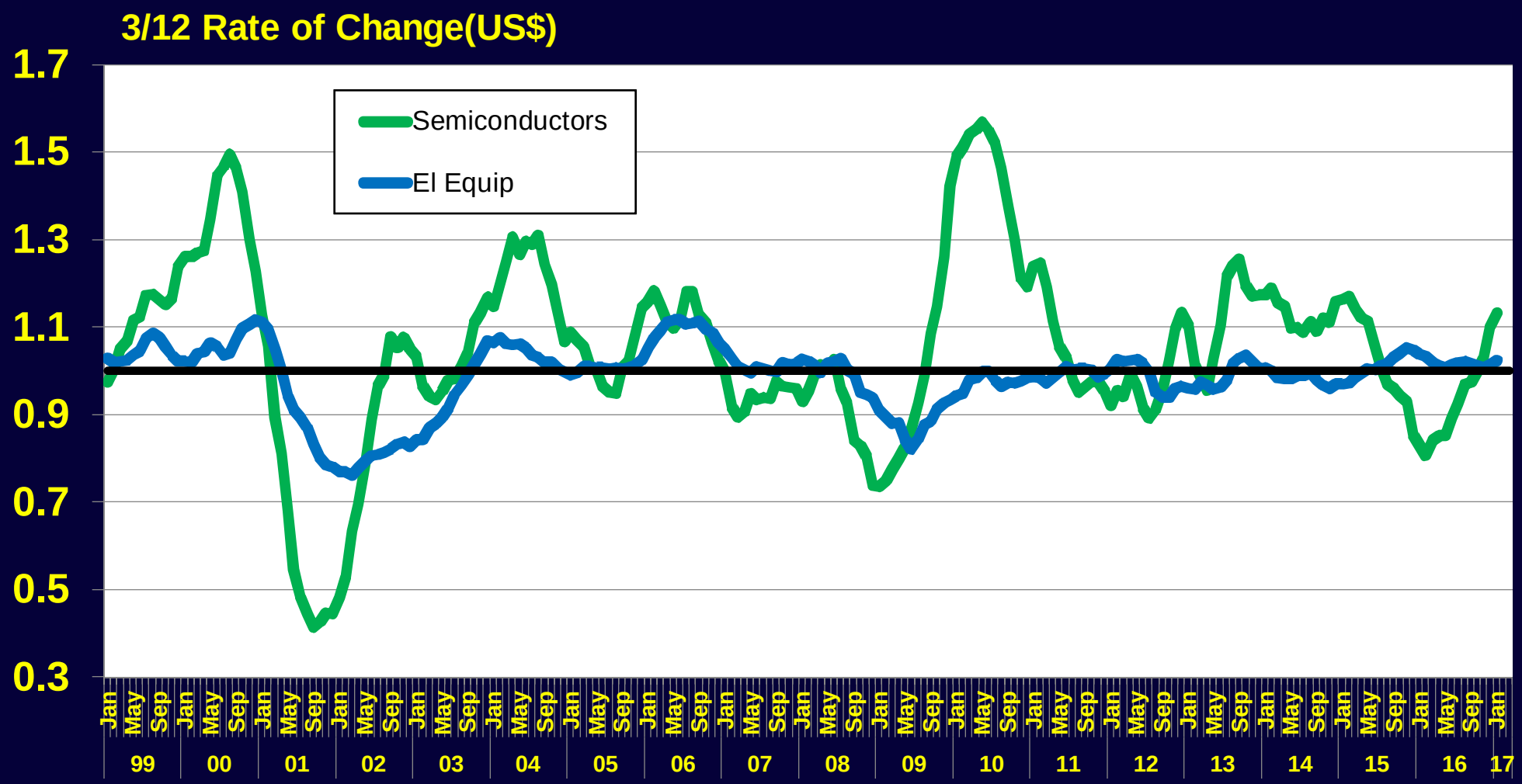
Monthly Shipments - Reporting Firms



www.wsts.org,
www.sia-online.org/

Chart 5

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

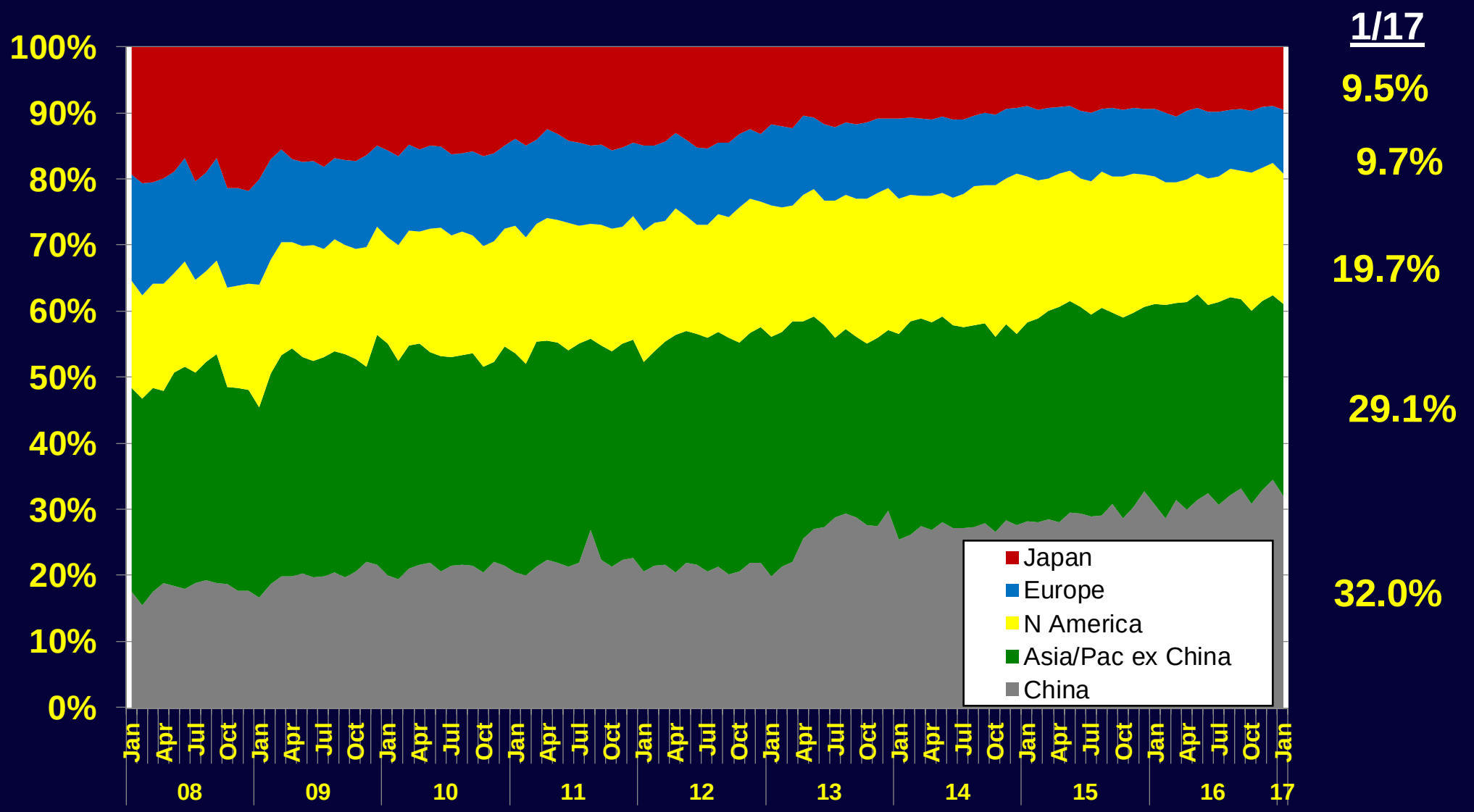


Total $ Semiconductor Shipments from All Countries to N. America www.sia-online.org/
U.S. Electronic Equipment Shipments www.census.gov/indicator/www/m3/

Chart 6

Total Semiconductor Shipments to an Area

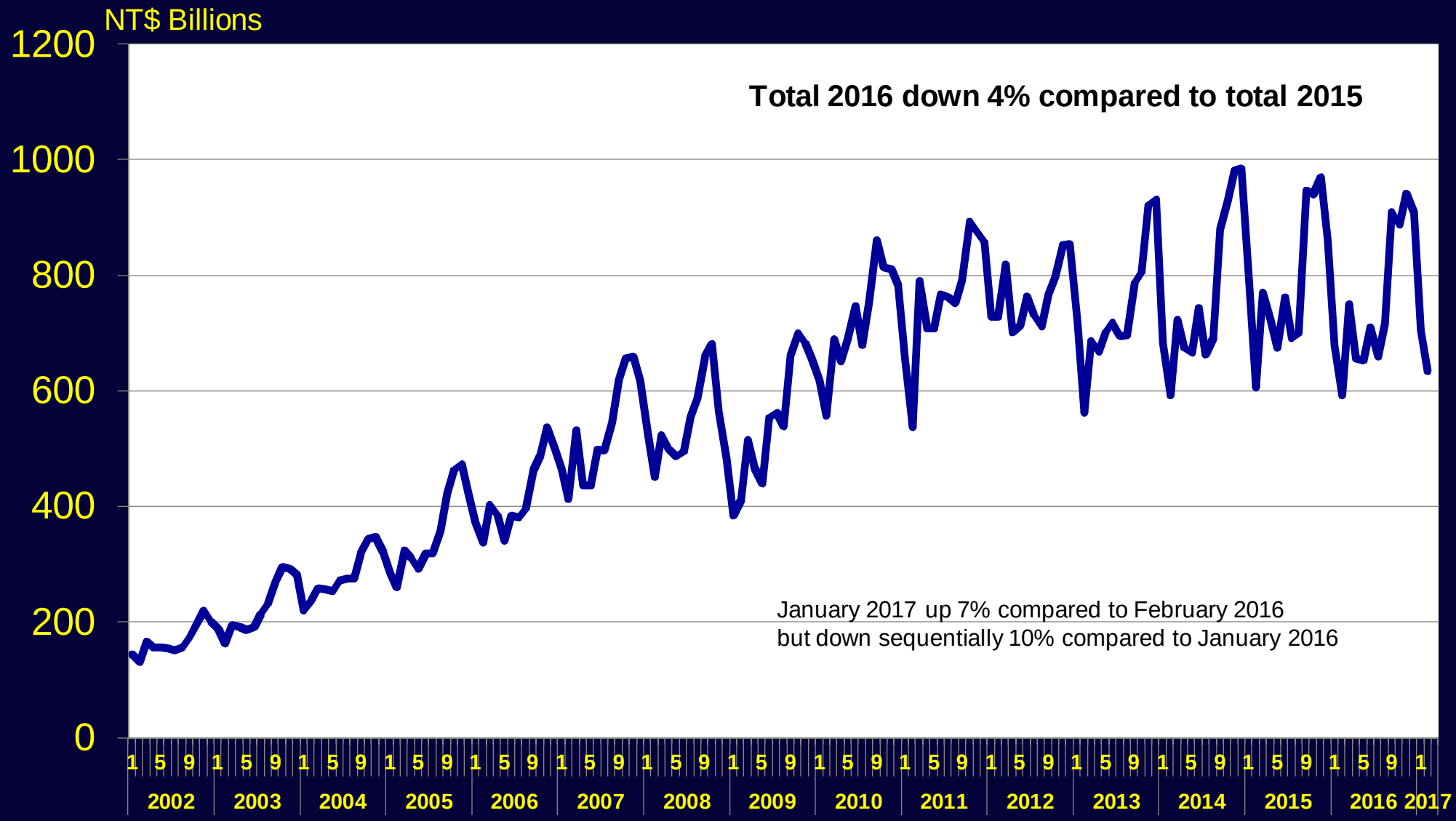
Monthly Shipments - Reporting Firms



www.wsts.org

Chart 7

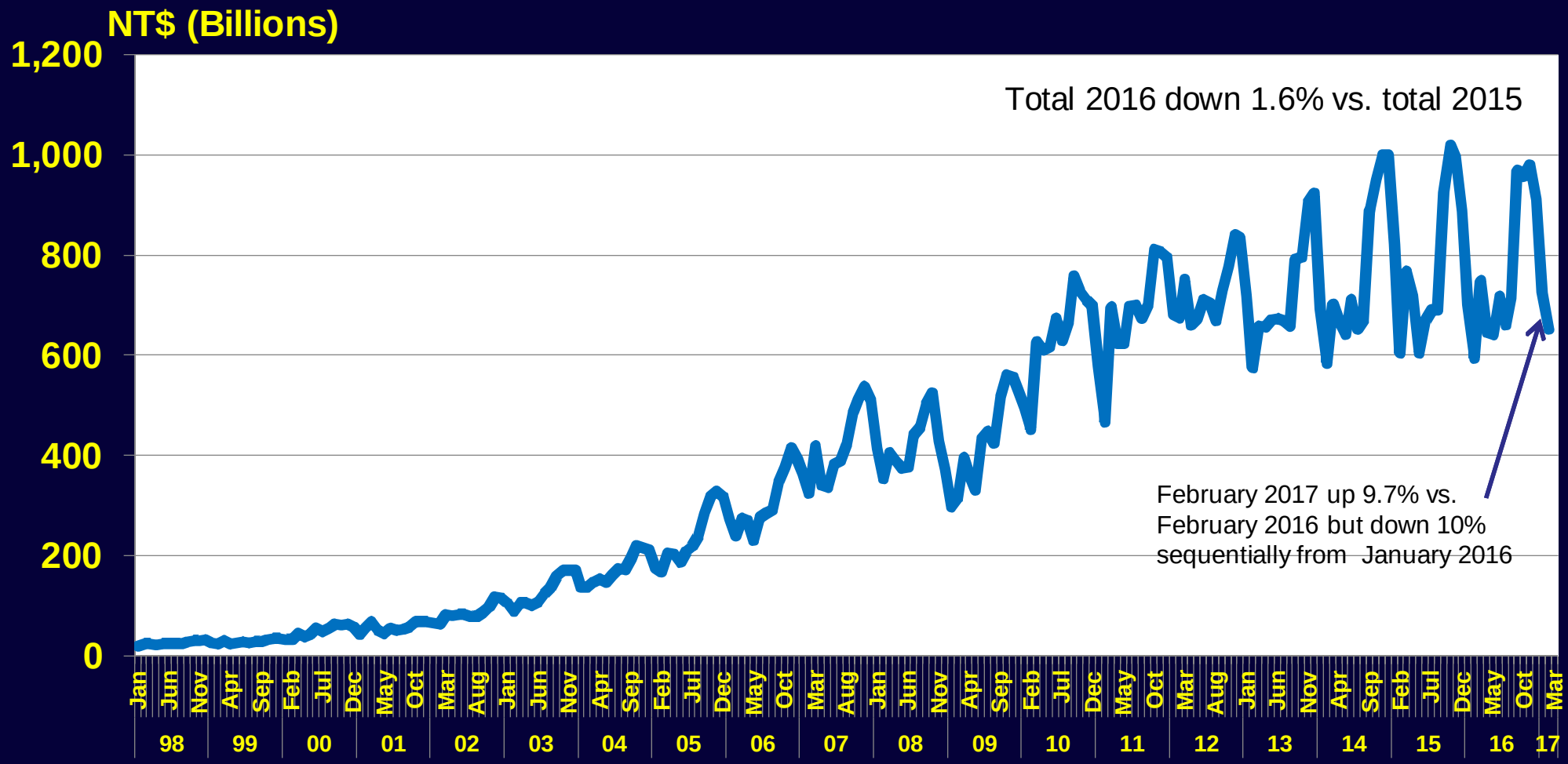
Taiwan/China Electronic Equipment Producers
Composite of 101 Manufacturers
Consolidated Revenue



Taiwan listed companies, often with significant manufacturing in China

Chart 8

Taiwan ODM Companies
Composite Sales of 11 Large Manufacturers



Company Financial Releases

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

Chart 9

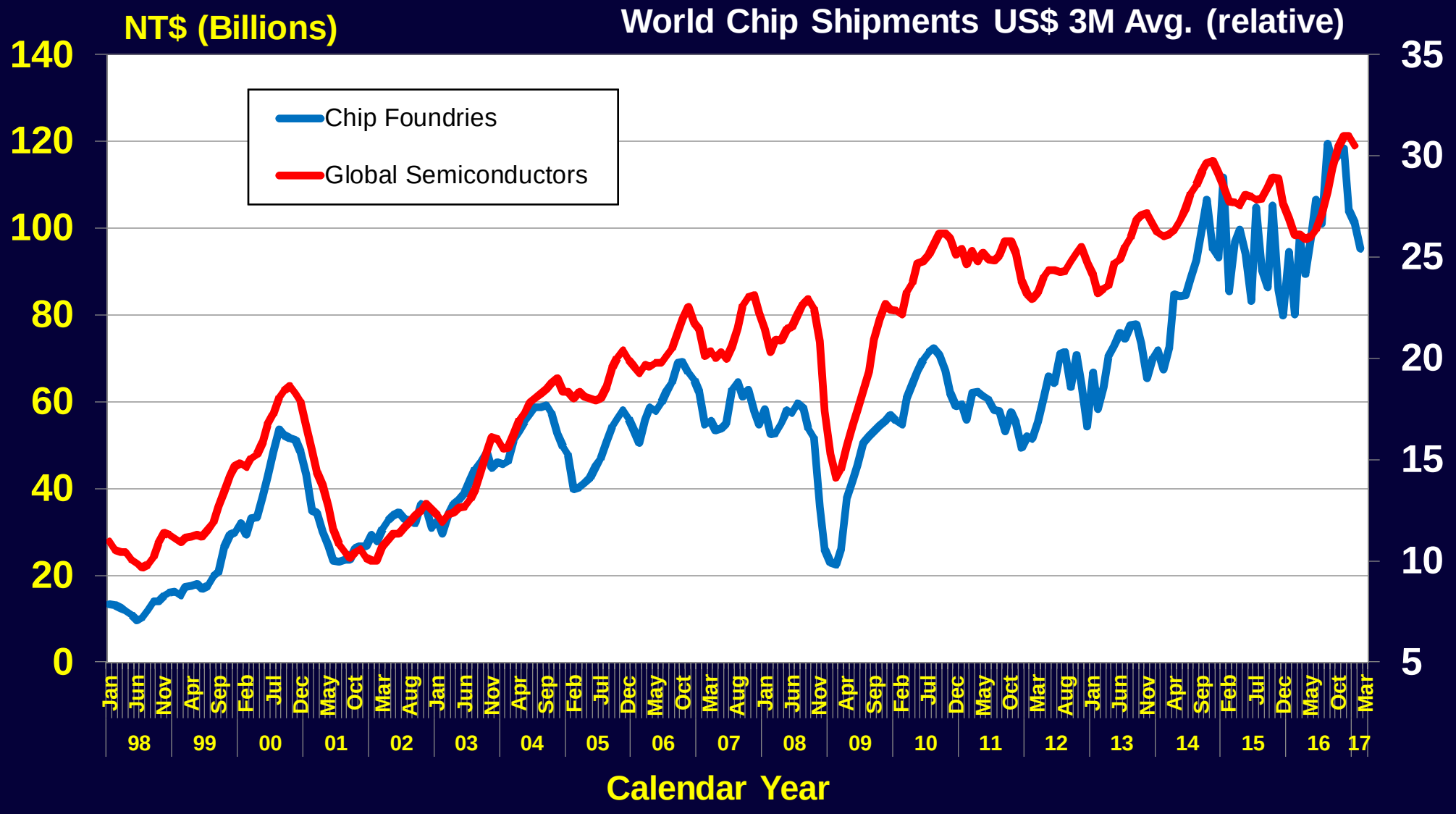
Taiwan Wafer Foundries
Composite of 14 Manufacturers



VIA Technologies, Advance Microelectronics, Advance Wireless Semiconductor, Episil Technologies, Inotera Memories, Macronix Intl, Mosel Vitelic, Powerchip Semi, Precision Silicon, ProMOS Tech, TSMC, United Microelectronics, Vanguard International Semi, Winbond Electronics

Chart 10

Taiwan Wafer Foundry Composite vs. Global Semiconductor Revenues

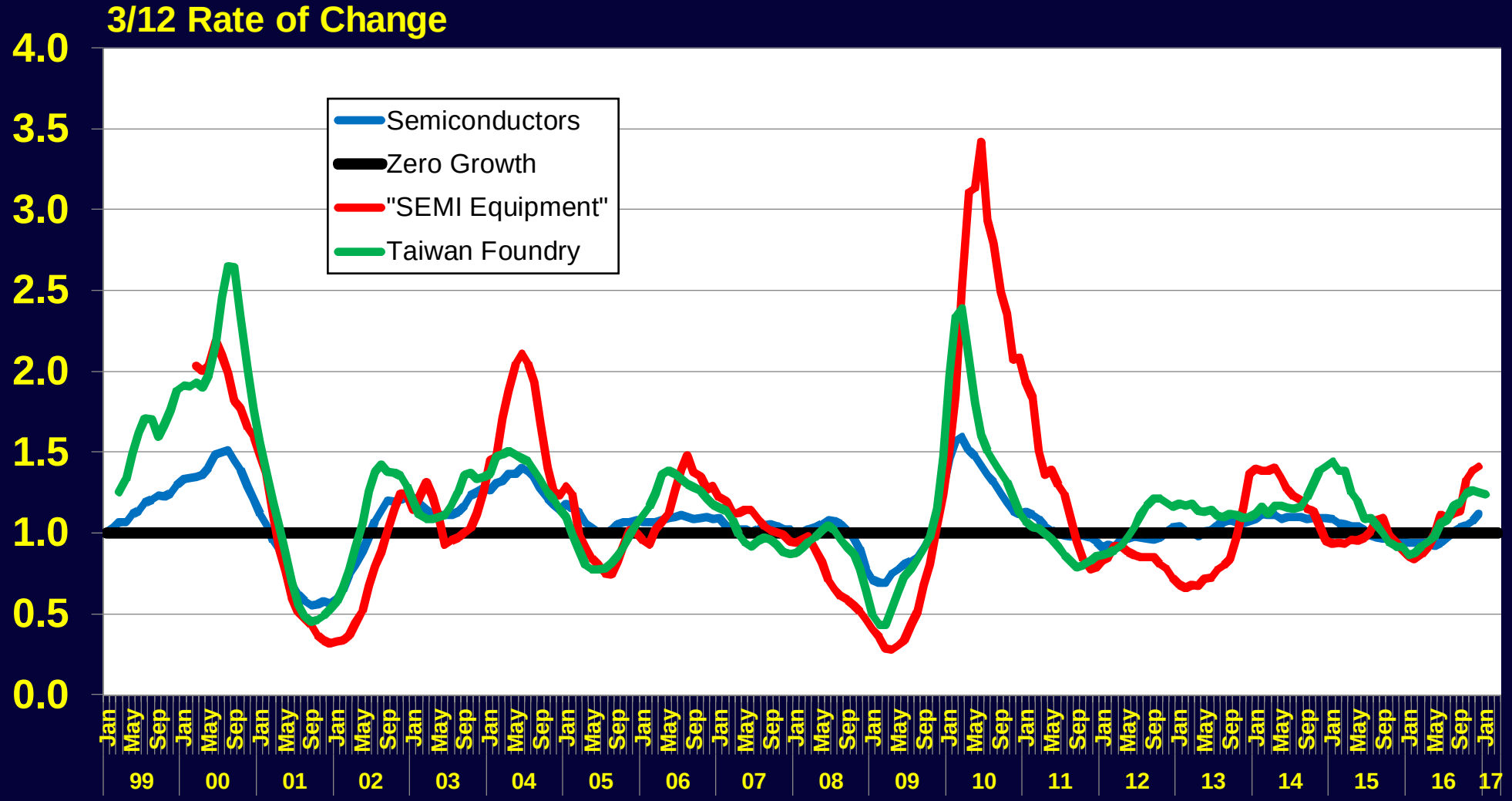


14 Taiwan Company Financial Releases & SIA

Chart 11

Global Semiconductor & Global Semiconductor Capital & Taiwan Foundry Equipment

3-Month Shipment Growth Rates on $ Basis



Sources: SIA; Semiconductor Equipment Association of Japan, www.semi.org, Custer Consulting Group SEMI equipment sector composite growth

Chart 12

Taiwan Package & Test Companies Composite of 20 Manufacturers



ASE, Ardentec, ChipMOS Tech, Chipbond Tech, E'dale Tech, Formosa, Advance Tech, Fupo Elec, Greatek Elec, International Semiconductor Tech, King Yuan Elec, Lingsen Precision, Orient Semiconductor, Powertech Tech, Signality System, Sigurg Microelectronics, SPIL, Thalin Semiconductor, Vate Tech, Walton Advanced Tech

Chart 13

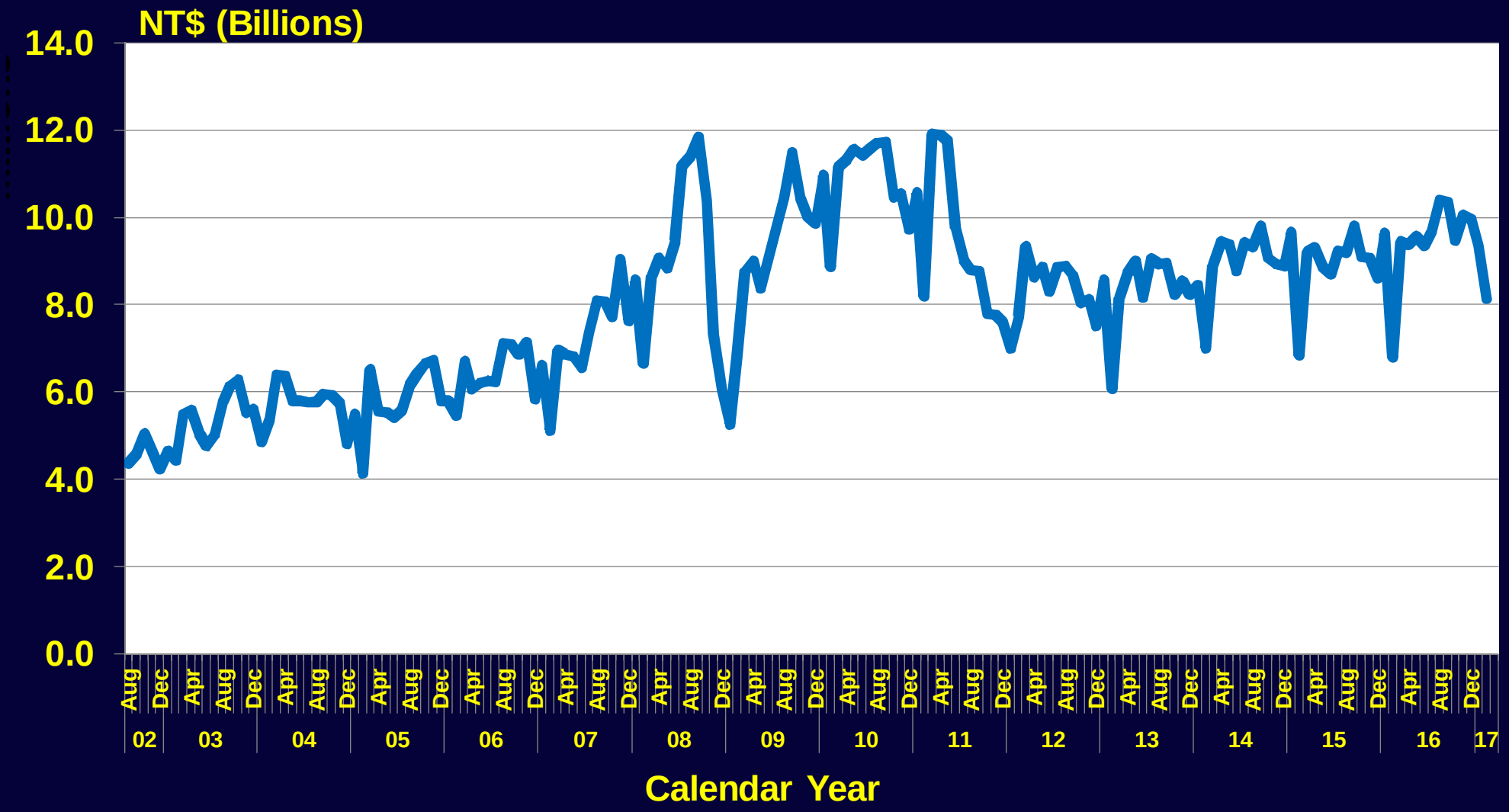
Taiwan Memory Companies
Composite of 8 Manufacturers



Silicon Integrated Systems, Inotera Memories, Macronix Intl, Mosel Vitelic, NanYa Tech, Powerchip Semiconductor, ProMOS, Winbond Elec

Chart 14

Taiwan Passive Component Companies Composite Sales of 25 Manufacturers



Chilsin Electronics, Cyntec, (FCE) Feei Cheng Enterprise, Holy Stone Enterprise, 3H (Honey Hope Honesty Enterprise), HJC (Hua Jung Components), Inpaq, Jaan Chem Technological, Kaimei Electronic, King Core Electronics, Laser Tek, Leatec Fine Ceramics, Lelon Electronics, Linton Technology, PTTC (Polytronics Technology Corp), PDC (Prosperity Dielectrics Co), Ralec Electronic, Ta-I Technology, Taiwan Alpha Electronic, Team Young Advanced Ceramics, Teapo Electronic, Thinking Electronic Industrial, WTC (Walsin Technology Corp), Yageo, YCTC (Yeh-Chiang Technology Corp)

Chart 15

Taiwan Solar/Photovoltaic Panel Companies
Composite of 27 Manufacturers

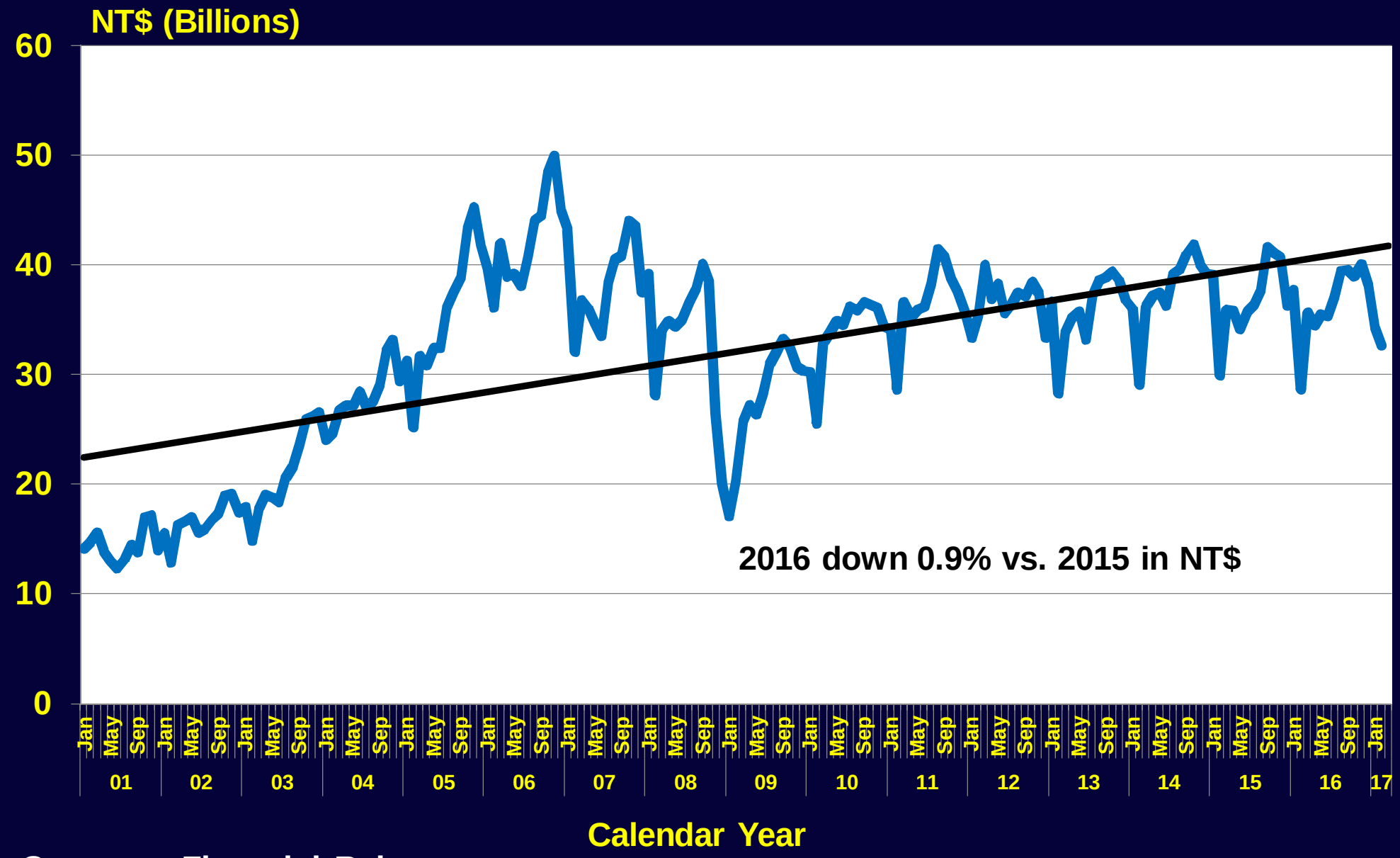


Acter, Big Sun Energy Technology, Chen Full Intl, Danen Technology, Daxon Technology, DelSolar, Delta Electronics, e_TON Solar Tec, Invetec Group, Eversol, Gigasolar materials, Gintech, Green Energy Technology (GET), Higher Way Elec, Kenmec Mechanical, Ligitek, Motech, Neo Solar Power, Phoenixtec Power Co (PPC), Powermate, Precision Silicon, Sino-American Silicon Products (SAS), Solar Applied Materials Technology, Solartech Energy Corp, Sunrise Global Solar Energy, Sysgration, Tainenergy Tech, Tera Autotec, Tyntek, Wafer Works, Wholetech System Hitech

Chart 16

Taiwan Rigid & Flex PCB Shipments

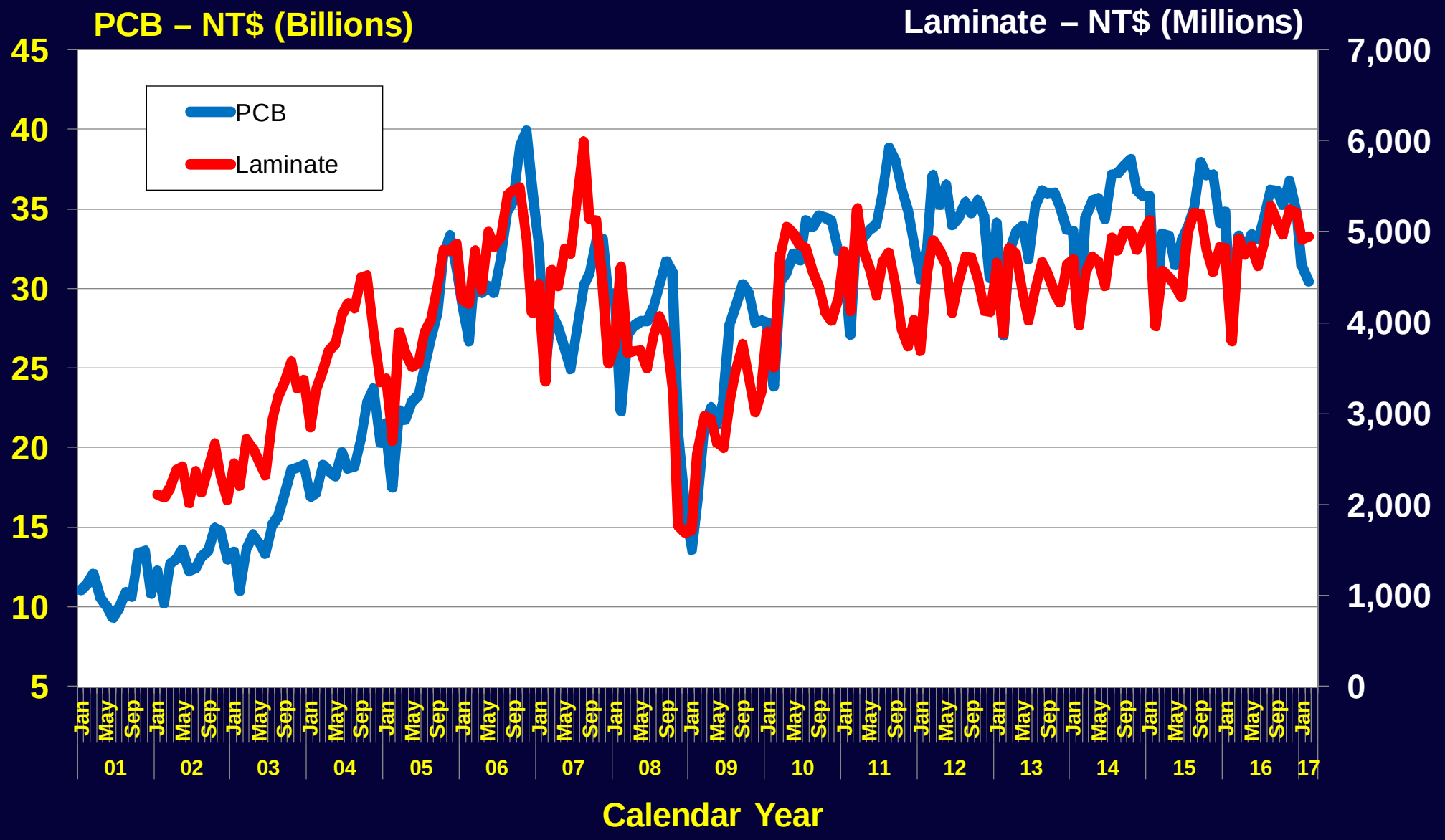
Broad Composite of 46 Taiwan-listed Manufacturers



Company Financial Releases

Chart 17

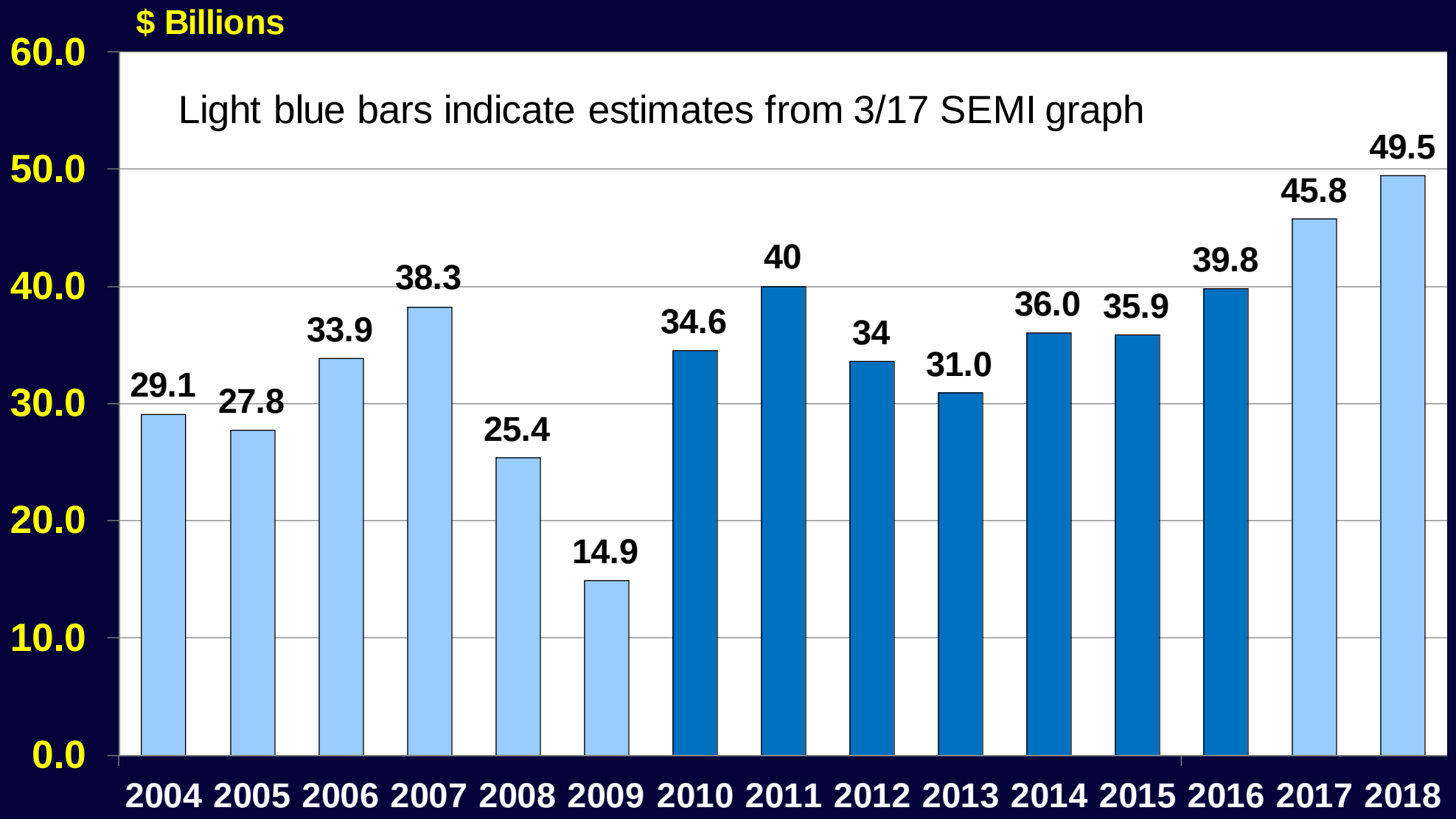
Taiwan Shipments
42 Rigid PCB & 8 Laminate Manufacturers



Company Financial Releases

Chart 18

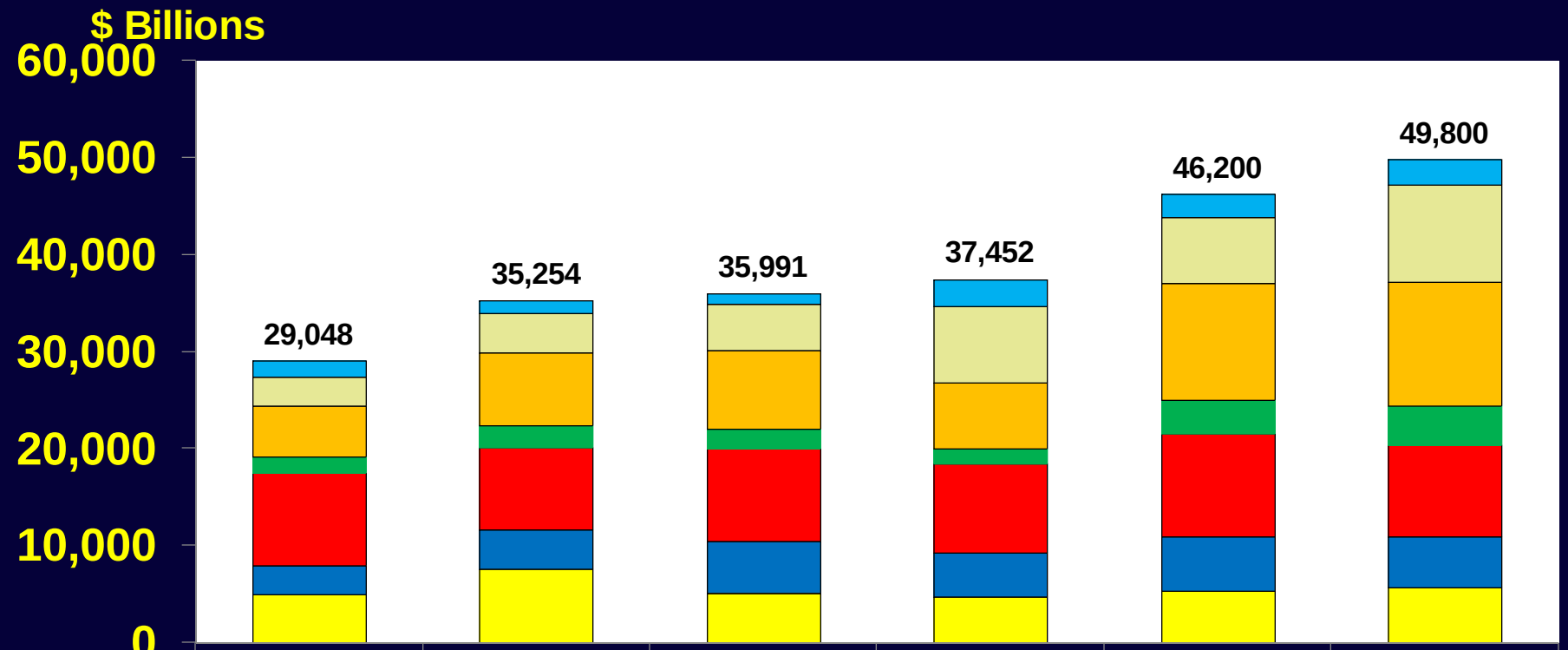
World Fab Front End Equipment Capital Spending (including Discretes & LED)



SEMI 3/17 & prior reports (approximate values taken from SEMI graph)

Chart 19

Fab Equipment Spending Front End (including new, used, in-house)

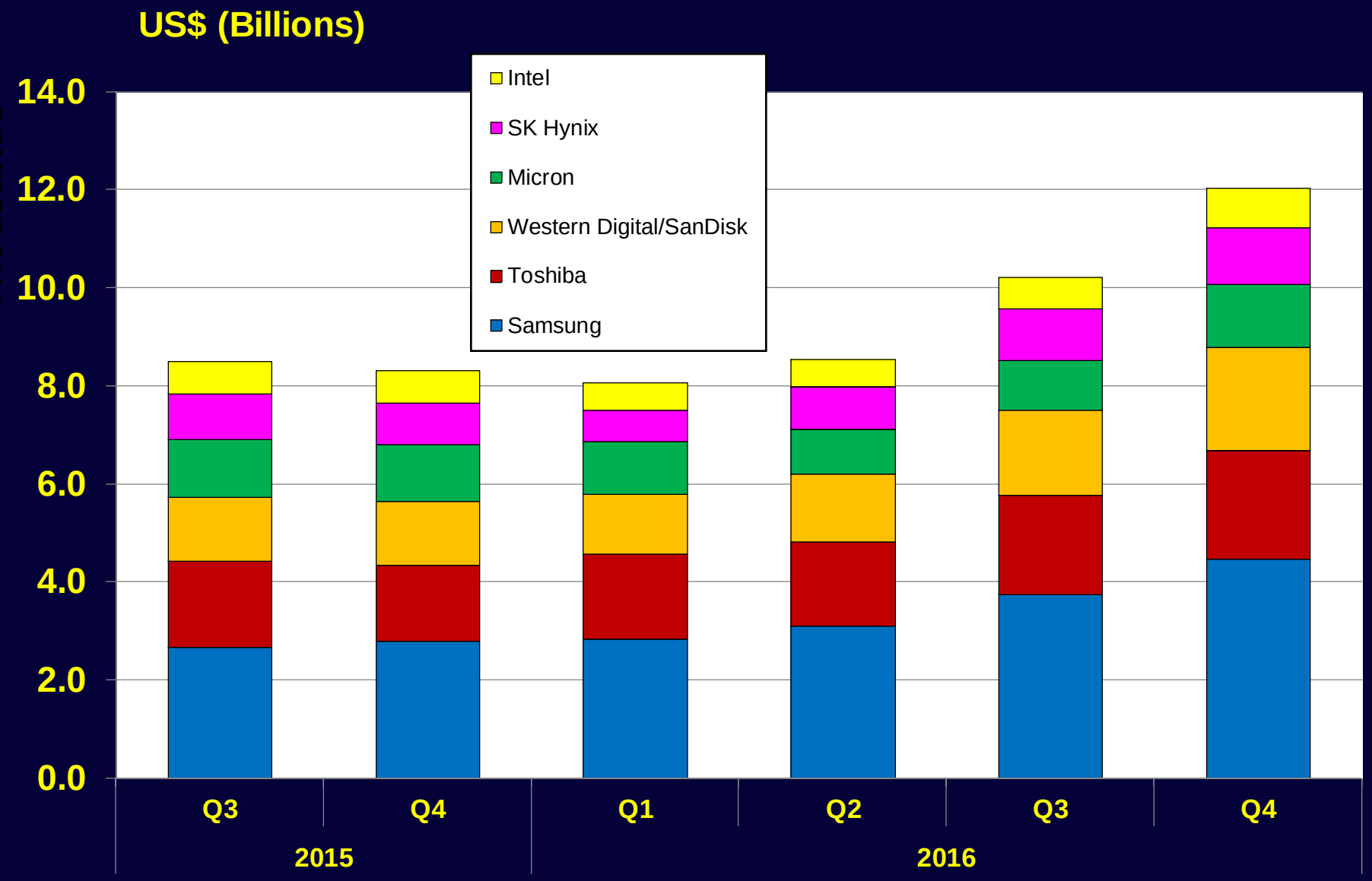


	2013	2014	2015	2016	2017	2018
Total	29,048	35,254	35,991	37,452	46,200	49,800
SE Asia	1,695	1,286	1,079	2,778	2,400	2,600
China	2,999	4,058	4,787	7,869	6,700	10,000
S Korea	5,140	7,588	8,083	6,797	12,100	12,800
Europe & Mid East	1,745	2,182	2,104	1,530	3,400	4,000
Taiwan	9,472	8,478	9,505	9,268	10,700	9,500
Japan	3,055	4,023	5,402	4,496	5,600	5,200
Americas	4,942	7,639	5,031	4,714	5,300	5,700

SEMI 3/2017 & prior reports

Chart 20

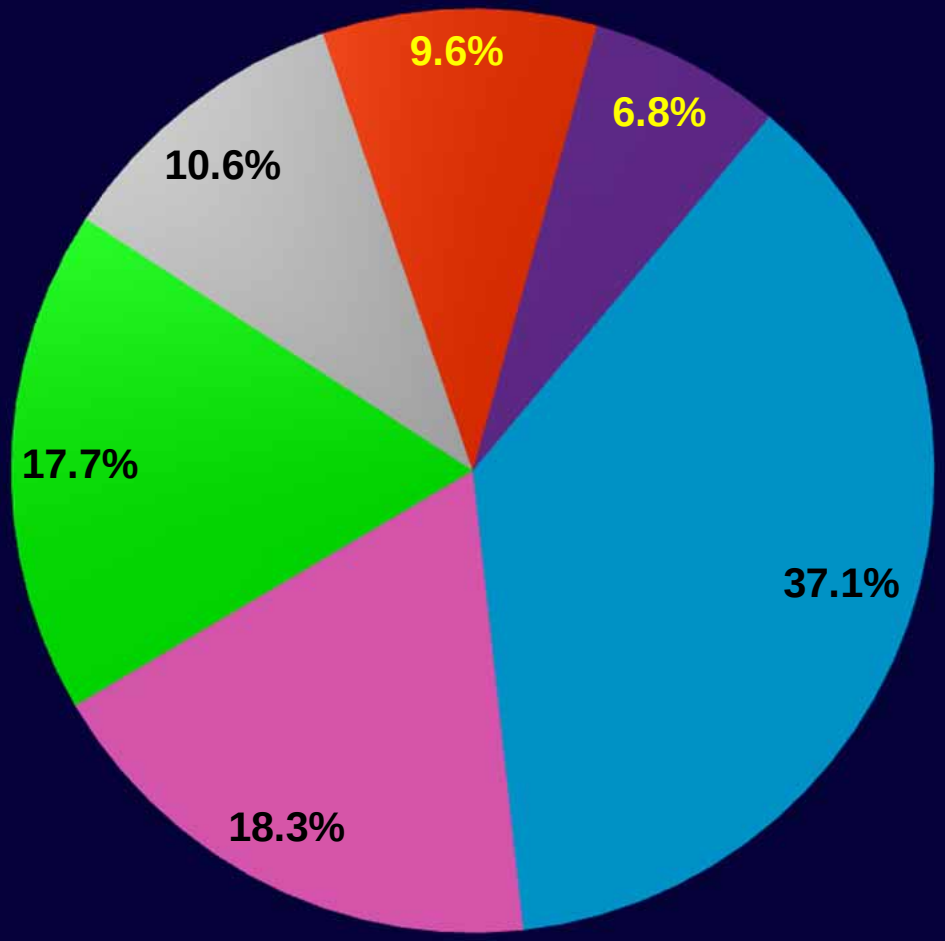
Branded NAND Flash Suppliers



TrendForce 3/2017 & earlier reports

Chart 21

NAND Flash Market 4Q'16

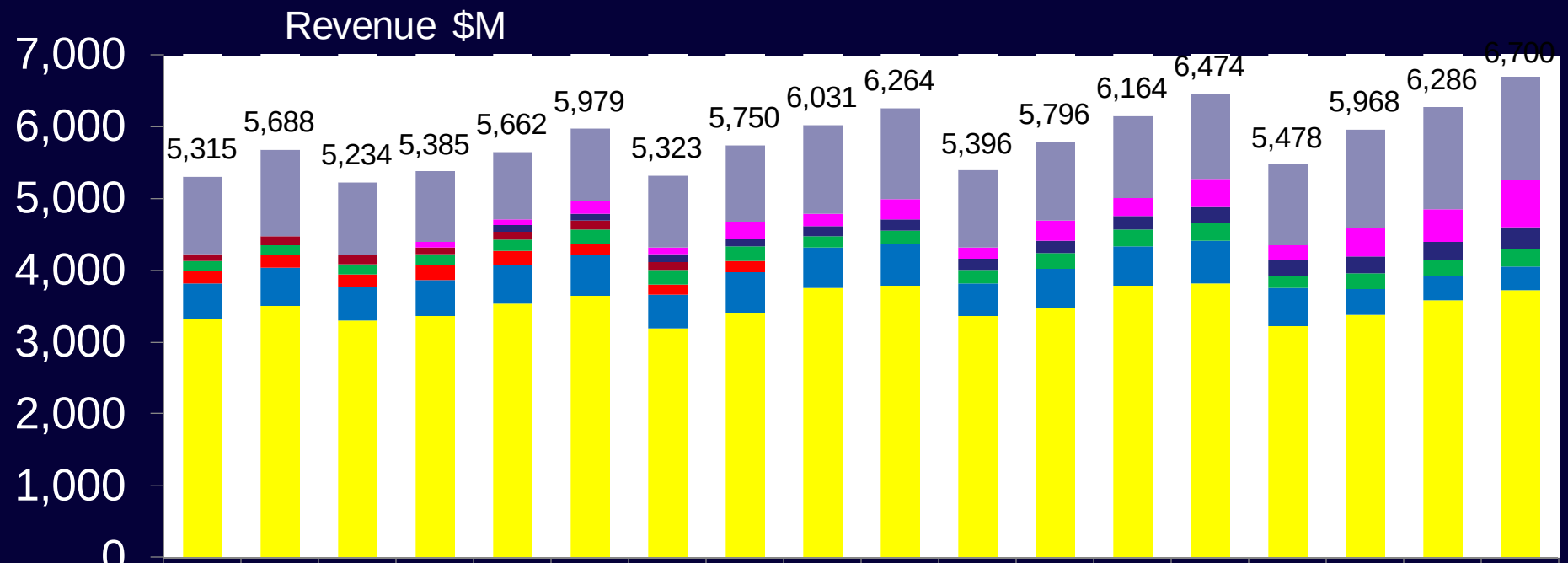


4Q'16 Total 12,046 US$ (million)

TrendForce 3/17

Chart 22

Ethernet Switch (Layer 2/3) Revenues by Vendor



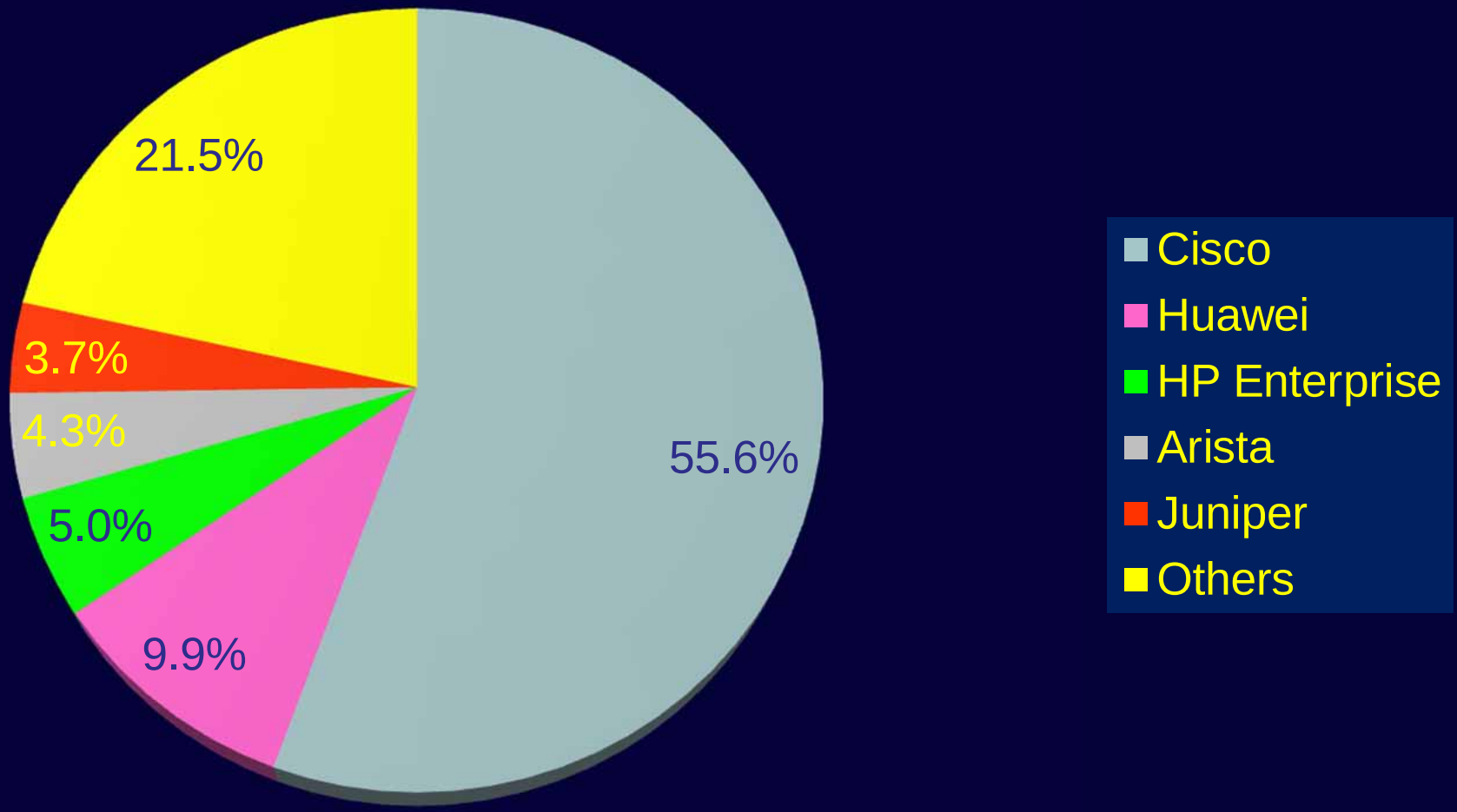
	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016
Total	5315	5688	5234	5385	5662	5979	5323	5750	6031	6264	5396	5796	6164	6474	5478	5968	6286	6700
Others	1081	1210	1024	983	954	1015	993	1072	1231	1260	1073	1101	1156	1198	1117	1385	1426	1440
Huawei				73	79	172	108	223	173	283	159	271	237	394	212	390	453	661
Arista					87	99	101	122	140	159	160	174	193	217	212	236	254	289
Dell	97	122	124	96	111	121	113											
Juniper	143	144	130	161	151	201	200	203	165	185	187	216	231	244	174	207	222	251
Alcatel-Lucent	167	173	185	199	204	163	137	147										
HP Enterprise	498	533	460	508	532	552	481	569	559	587	450	553	555	593	532	360	345	337
Cisco	3329	3507	3310	3365	3544	3655	3191	3415	3762	3791	3366	3481	3792	3828	3231	3390	3586	3722

IDC 3/17 & prior

Chart 23

Layer 2/3 Ethernet Switch Vendors 4Q'16

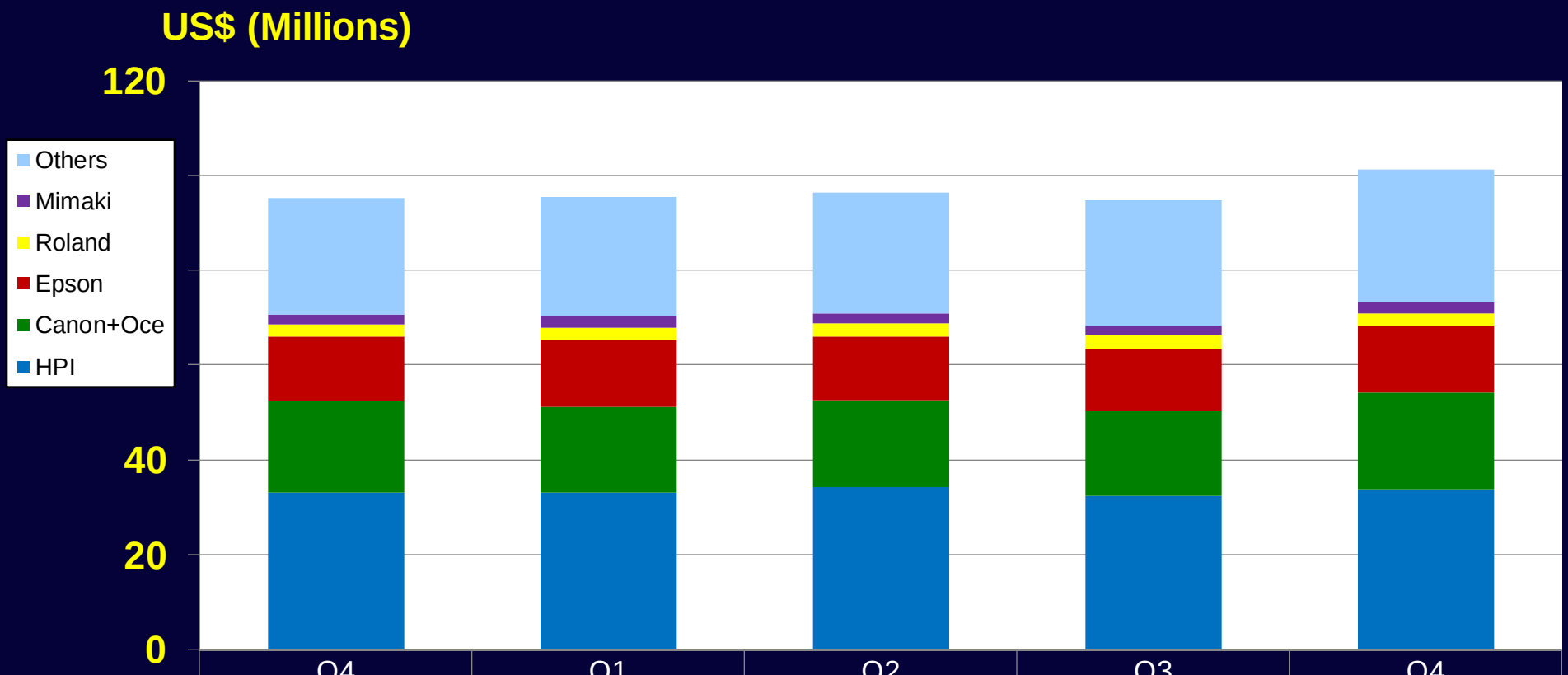
$



4Q'16 World Total US$ 6.7 Billion

Chart 24

World Large Format Printers
Vendor Revenue

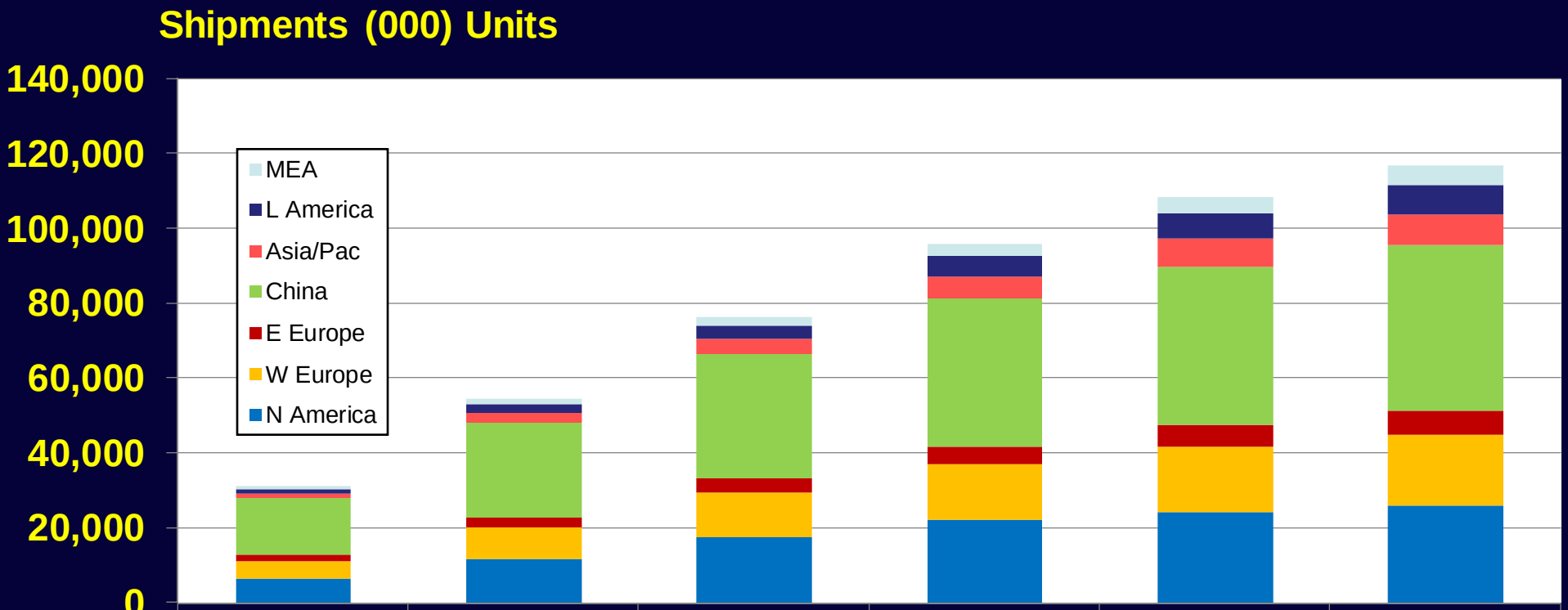


	Q4	Q1	Q2	Q3	Q4
	2016				
Others	24.6	25.1	25.4	26.4	28.0
Mimaki	2.1	2.4	2.2	2.1	2.2
Roland	2.6	2.7	2.8	2.9	2.6
Epson	13.6	14.1	13.4	13.2	14.3
Canon+Oce	19.2	18.2	18.4	17.9	20.3
HPI	33.2	33.1	34.4	32.4	33.9

IDC 3/17

Chart 25

4K TV Shipment Forecast



	631 2015	1,168 2016	1,591 2017	2,322 2018	3,175 2019	3,935 2020
MEA	800	1,329	2,189	3,269	4,362	5,204
L America	1,225	2,380	3,628	5,405	6,724	7,758
Asia/Pac	1,355	2,588	3,960	5,777	7,366	8,093
China	15,152	25,347	33,257	39,604	42,481	44,488
E Europe	1,589	2,612	3,880	4,885	5,765	6,436
W Europe	4,827	8,538	11,838	14,899	17,311	18,832
N America	6,326	11,676	17,606	22,054	24,353	25,938

HIS 3/17