

Dodge Data and Analytics

U.S. Construction Outlook

August 3, 2017

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Today's Agenda

- Macroeconomic overview
- Multifamily outlook
- Nonresidential outlook
- Value specification rates
- Questions

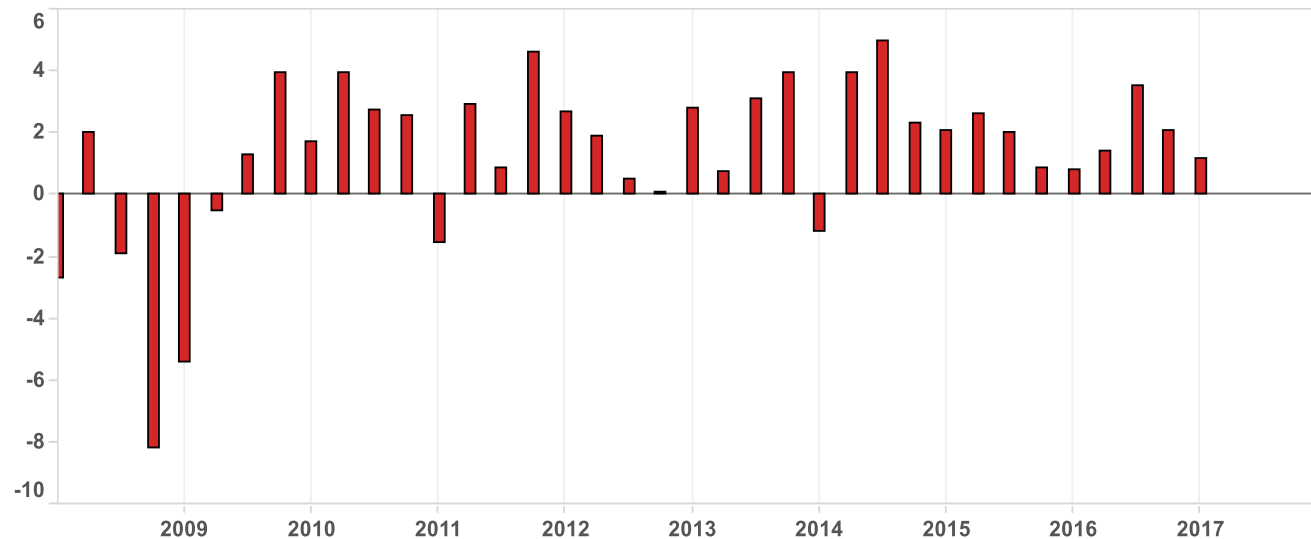


U.S. Macroeconomic Overview

Economic growth to be accelerate in 2017 and 2018

Key Economic Forecasts

U.S. Gross Domestic Product
(Annualized Quarterly Percent Change)



Source: Bureau of Economic Analysis

GDP

2016: 1.6%

2017: 2.3%

2018: 2.6%

Unemployment Rate

2016: 4.9%

2017: 4.4%

2018: 4.2%

CPI

2016: 1.3%

2017: 2.2%

2018: 2.5%

Fed Funds Rate

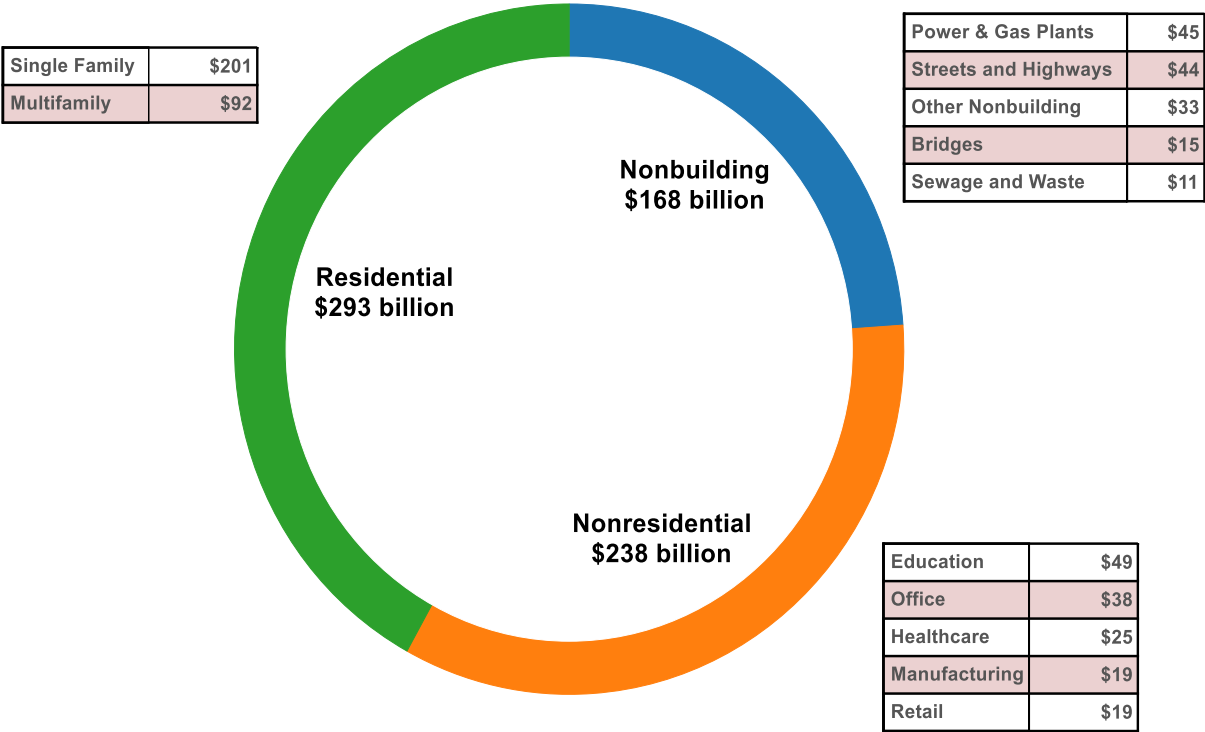
2016: 0.40%

2017: 0.98%

2018: 1.92%

Relative Size of U.S. Construction Starts Market

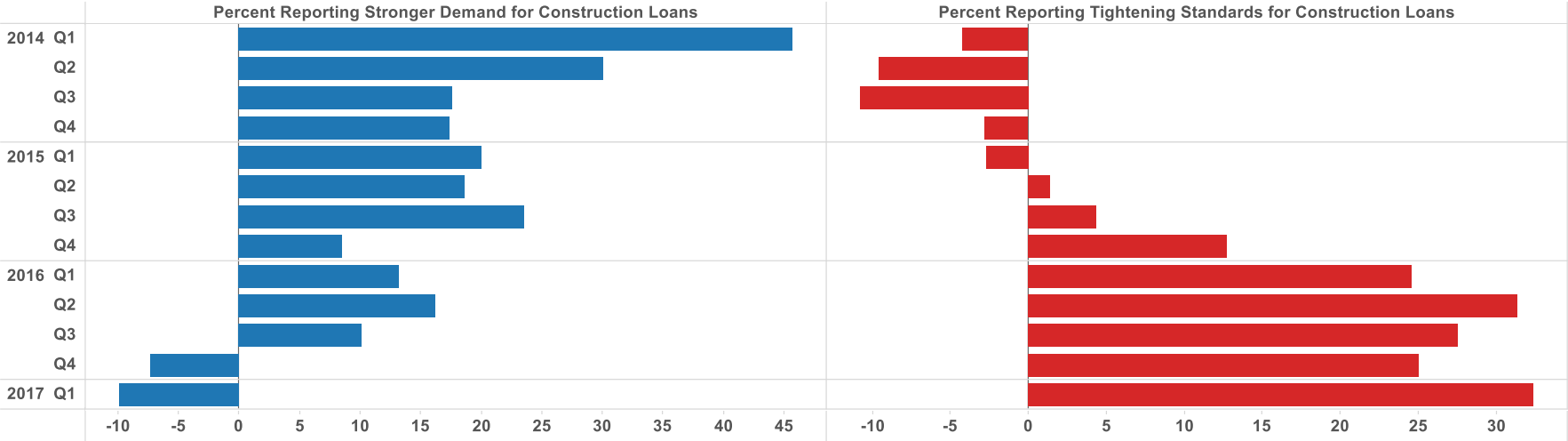
2016 size of market - \$698 billion



U.S. Macroeconomic Overview

Demand for CRE loans falling and standards tightening

Survey of Bank Lending Officers
Construction Loans



	2016 Q4	2017 Q1
Stronger Demand for Multifamily Loans (%)	-7.2	-8.3
Stronger Demand for Nonres Loans (%)	2.9	-5.6

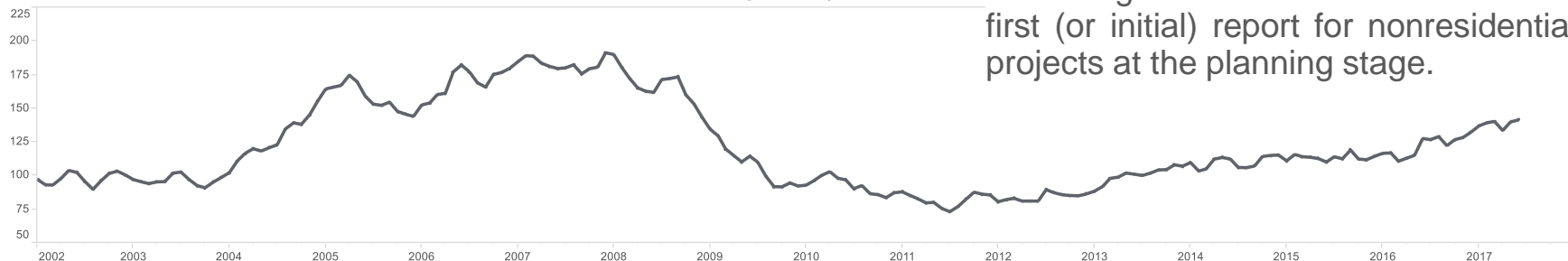
	2016 Q4	2017 Q1
Tightening Standards for Multifamily Loans (%)	33.3	36.1
Tightening Standards for Nonres Loans (%)	13.0	12.5

Source: U.S. Federal Reserve Board

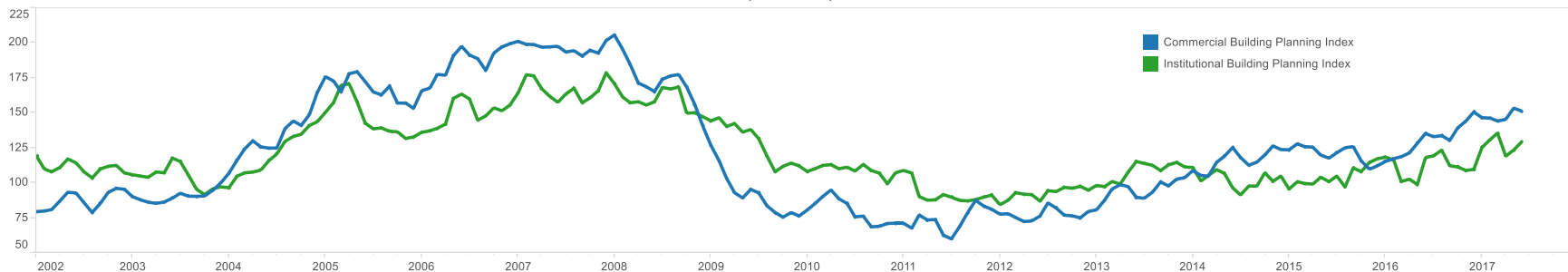
U.S. Construction Market Indicators

The Dodge Momentum Index offers insight on what's ahead

Dodge Momentum Index
(2000=100)

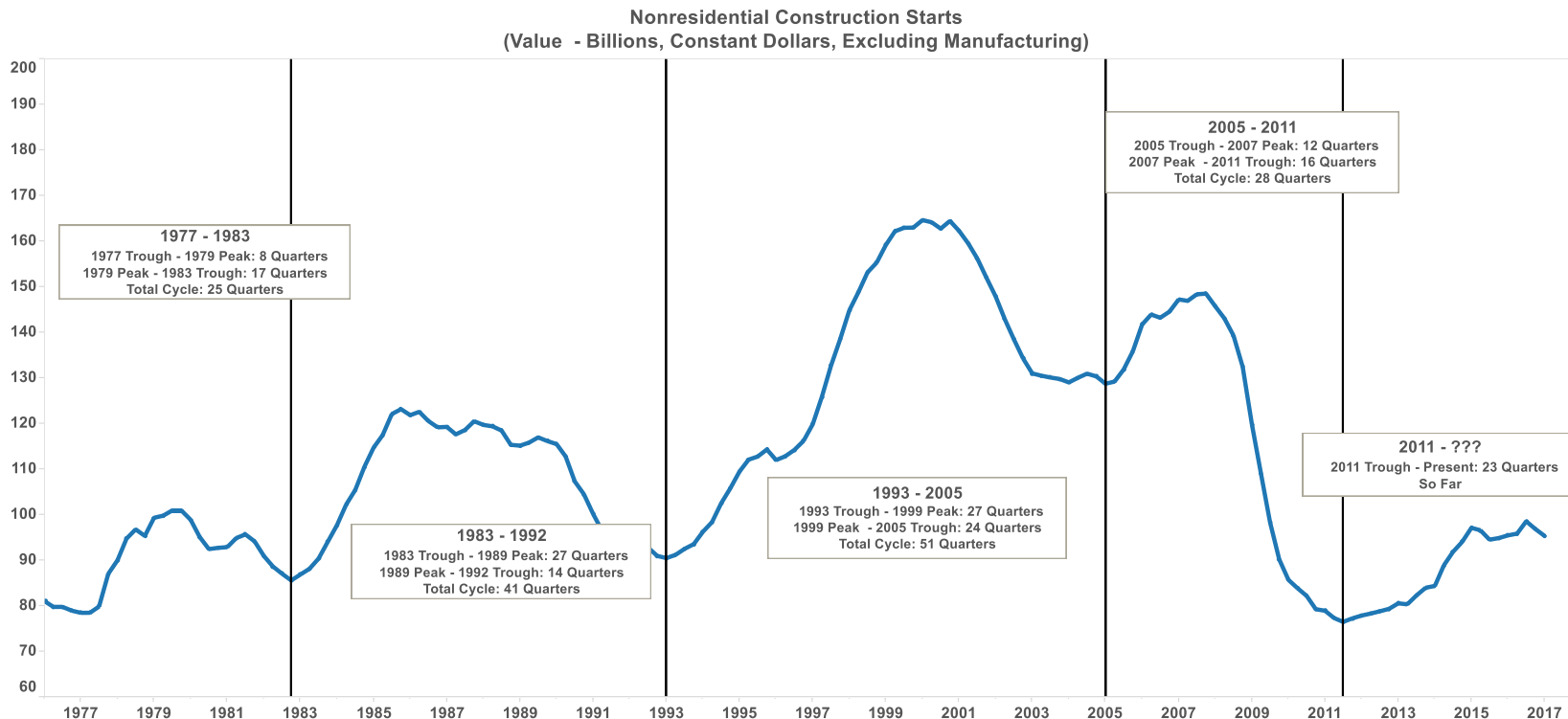


Dodge Momentum Index Components
(2000=100)



Recovery in Place, But a Long Road Back

Nonresidential construction market cycles



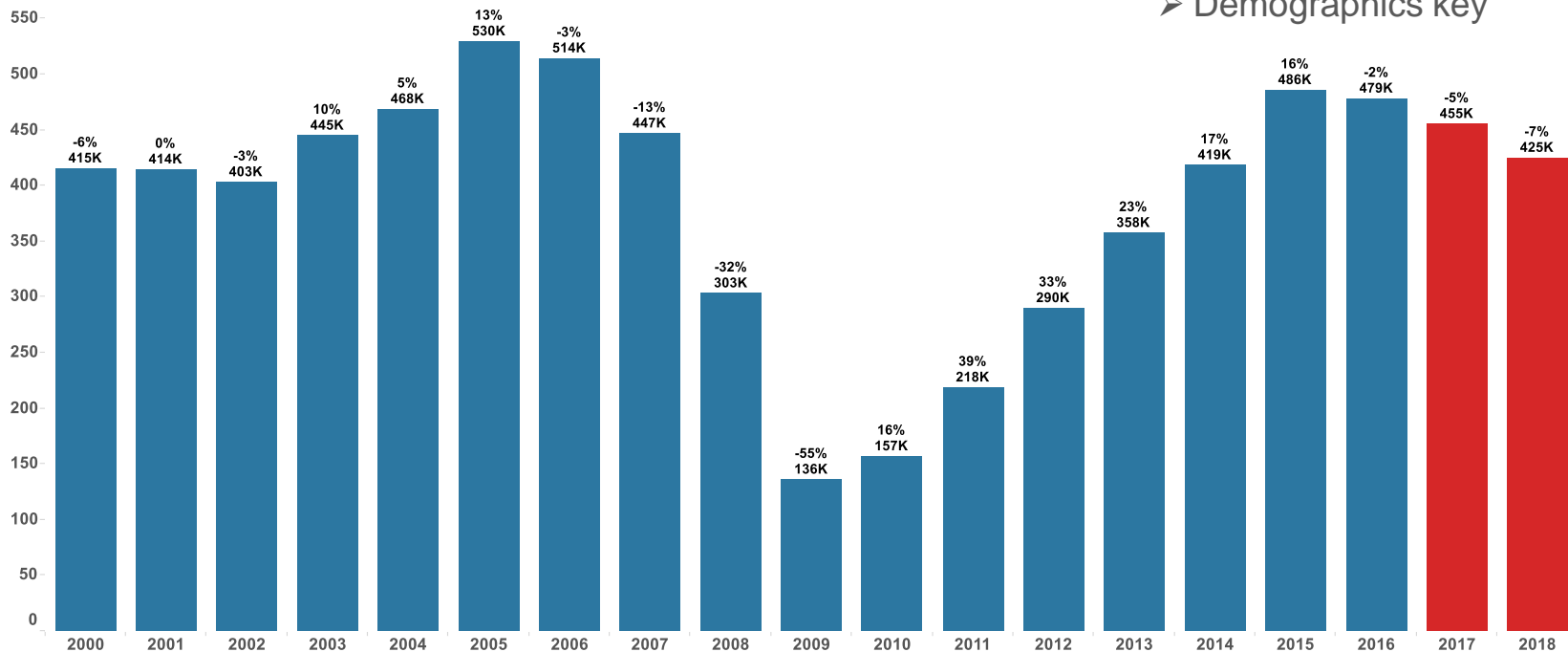
U.S. Multifamily Outlook

U.S. Multifamily Housing Starts

Multifamily cycle shifted in 2016 after six years of growth

Multifamily Construction Starts
(Thousands of Units)

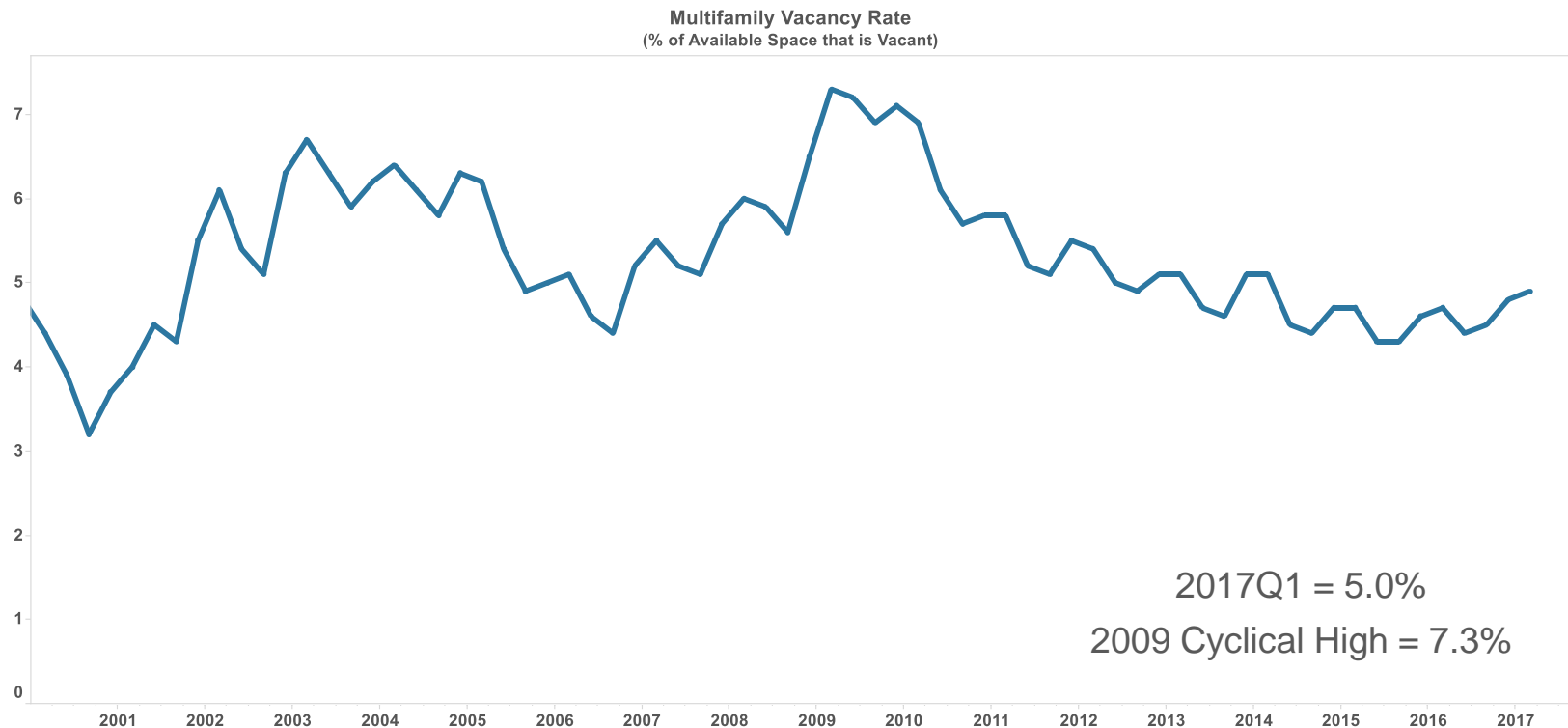
- Rental markets remain tight
- Demographics key



Source: Dodge Data & Analytics

U.S. Multifamily Housing Starts

Multifamily vacancy rates have started to rise



Source: CB Richard Ellis Econometric Advisors

U.S. Multifamily Housing Starts

Highest and lowest multifamily vacancy rates – 2017Q1

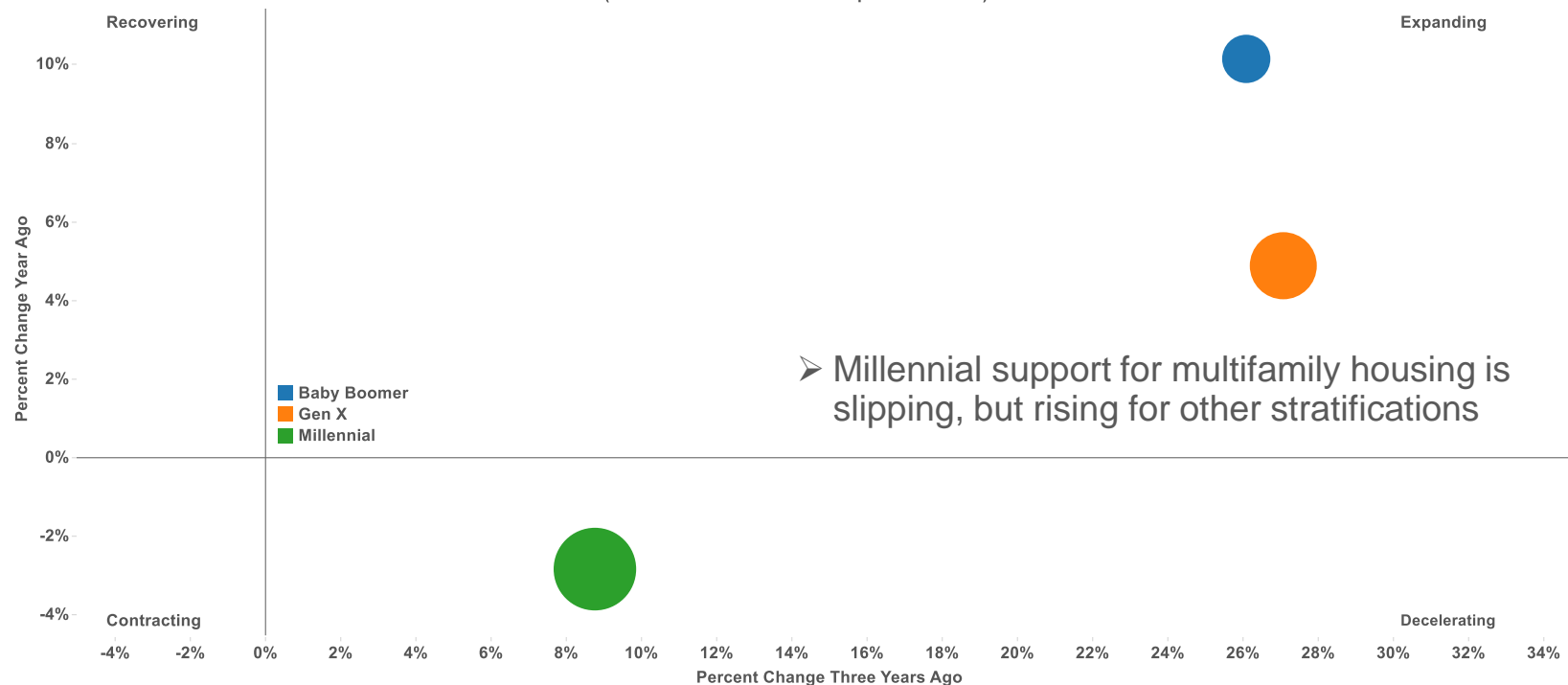
Lowest Vacancy Rates				Highest Vacancy Rates			
	2017Q1 Vacancy Rate	2016Q1 Vacancy Rate	Difference		2017Q1 Vacancy Rate	2016Q1 Vacancy Rate	Difference
Minneapolis	2.8	4.1	-1.3	Oklahoma City	9.2	7.9	1.3
Newark	3.1	3.5	-0.4	Tulsa	8.7	7.3	1.4
New York	3.5	3.4	0.1	El Paso	8.5	8.2	0.3
Long Island	3.7	3.3	0.4	Houston	8.2	6.5	1.7
Detroit	3.8	3.8	0.0	Birmingham	7.8	7.5	0.3
Ventura	3.9	4.0	-0.1	Pittsburgh	7.6	7.2	0.4
Los Angeles	3.9	3.7	0.2	San Antonio	7.1	6.6	0.5
Orange Coun..	4.0	4.2	-0.2	Indianapolis	6.5	7.0	-0.5
Miami	4.0	3.1	0.9	Memphis	6.5	7.1	-0.6
Sacramento	4.1	4.1	0.0	St. Louis	6.3	6.8	-0.5

Source: CB Richard Ellis Econometric Advisors

U.S. Multifamily Housing Starts

Expenditures on rented housing by demographic group

Expenditure Growth - Rented Housing
(Size of circle indicates 2015 expenditure value)

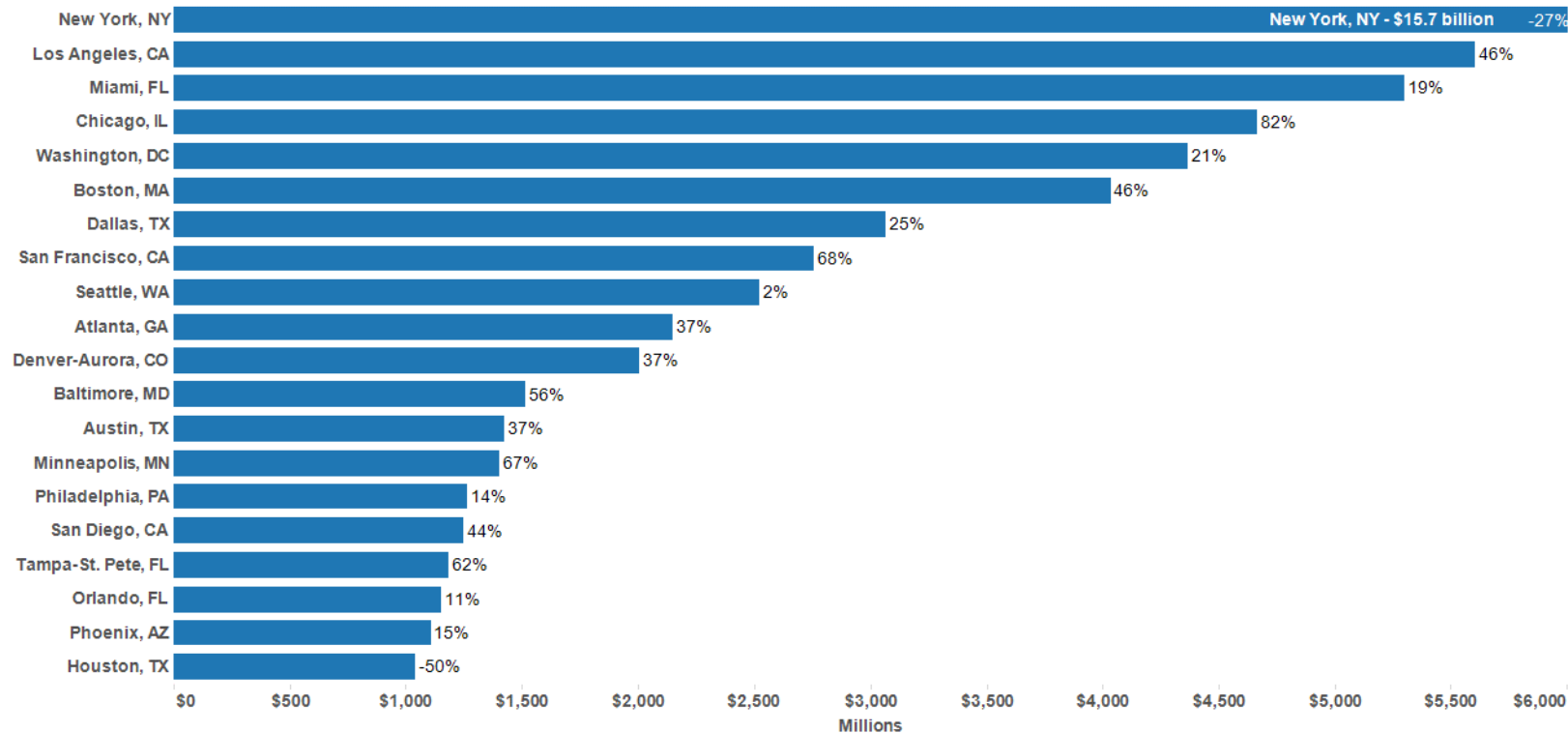


➤ Millennial support for multifamily housing is slipping, but rising for other stratifications

Source: Bureau of Labor Statistics

U.S. Multifamily Housing Starts

Top metros in 2016 ranked by dollar value



Source: Dodge Data & Analytics

U.S. Multifamily Housing Starts

Year-to-date largest multifamily projects – through May 2017

Title	City/State	Start Month	Millions	Area (Thou. SF)	Units
One Grant Park Chicago, IL Phase 1	Chicago, Illinois	2017:01	\$615	993	792
Wall Street Tower Mixed Use Building	New York, New York	2017:05	\$450	447	244
City Point Apartment Building	Brooklyn, New York	2017:01	\$423	705	750
The Crossing @ Jamaica Station Mixed-Use	Jamaica, New York	2017:01	\$394	714	669
Oceanwide Center Tower	San Francisco, California	2017:04	\$387	650	265
One Beverly Hills Mixed Use	Beverly Hills, California	2017:04	\$349	697	193
Retail/Apartment Building Tower	Brooklyn, New York	2017:01	\$266	442	417
Santa Clara Square Apartments	Santa Clara, California	2017:01	\$260	2,000	1,800
One South Halsted Apartment Tower	Chicago, Illinois	2017:04	\$249	622	492
AVA Hollywood Mixed-Use	Los Angeles, California	2017:01	\$215	620	695
Essex Inn & Essex on the Park Apartments	Chicago, Illinois	2017:05	\$200	500	479
300 M NE Street Residential	Washington, D.C.	2017:03	\$188	466	426
988 Halekauwila Workforce Housing Tower	Honolulu, Hawaii	2017:01	\$181	512	424
Transbay Block 1 - 40 Story Tower	San Francisco, California	2017:04	\$177	591	391
The Residences at 399 Congress	Boston, Massachusetts	2017:05	\$177	377	414

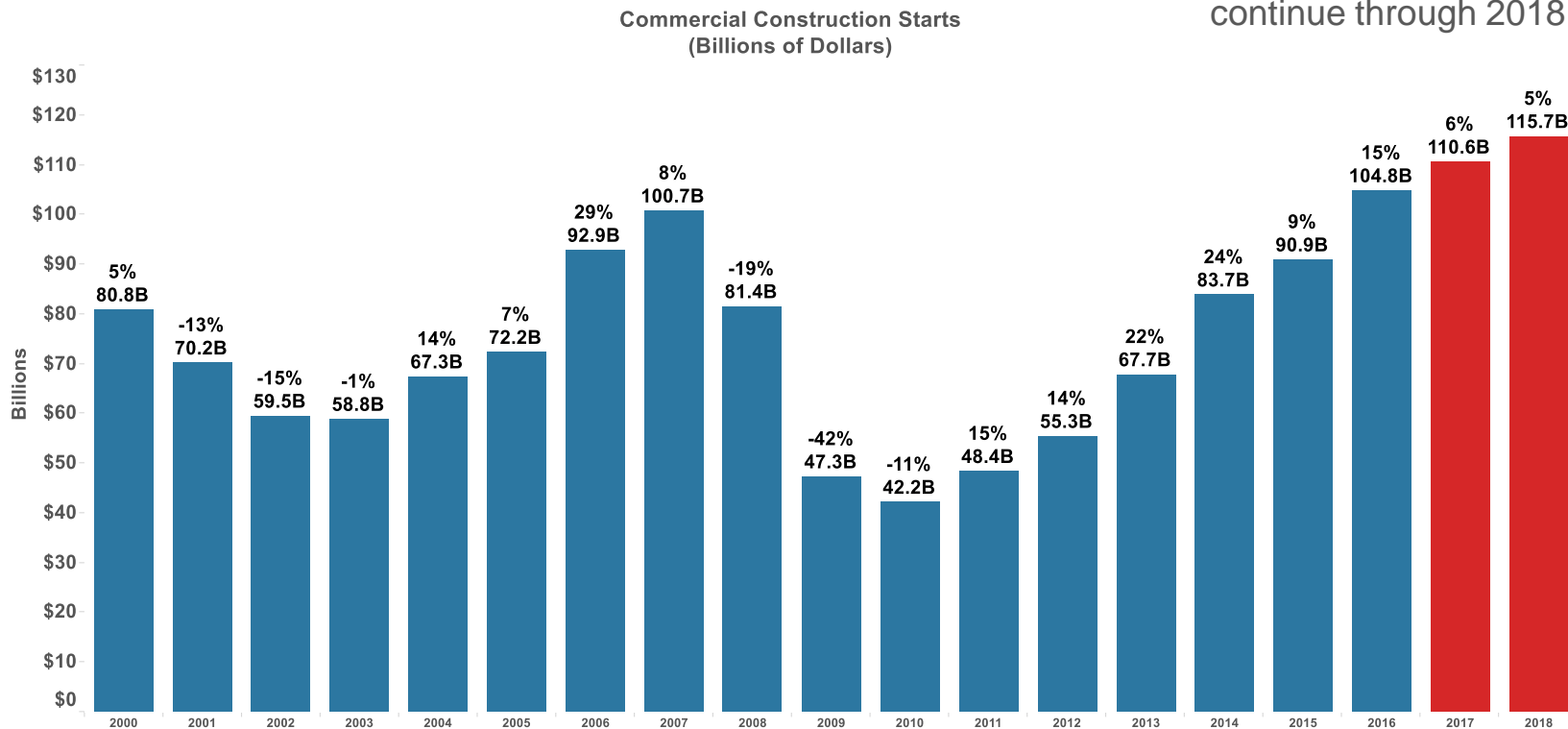
Source: Dodge Data & Analytics

Commercial Construction Outlook

U.S. Commercial Building Starts

Commercial construction has made great progress

➤ Moderate pace of growth to continue through 2018



Source: Dodge Data & Analytics

DODGE DATA & ANALYTICS

Includes stores, offices, warehouses, hotels, parking, and manufacturing

U.S. Retail Building Starts

Store construction making slow progress due to weak single family starts

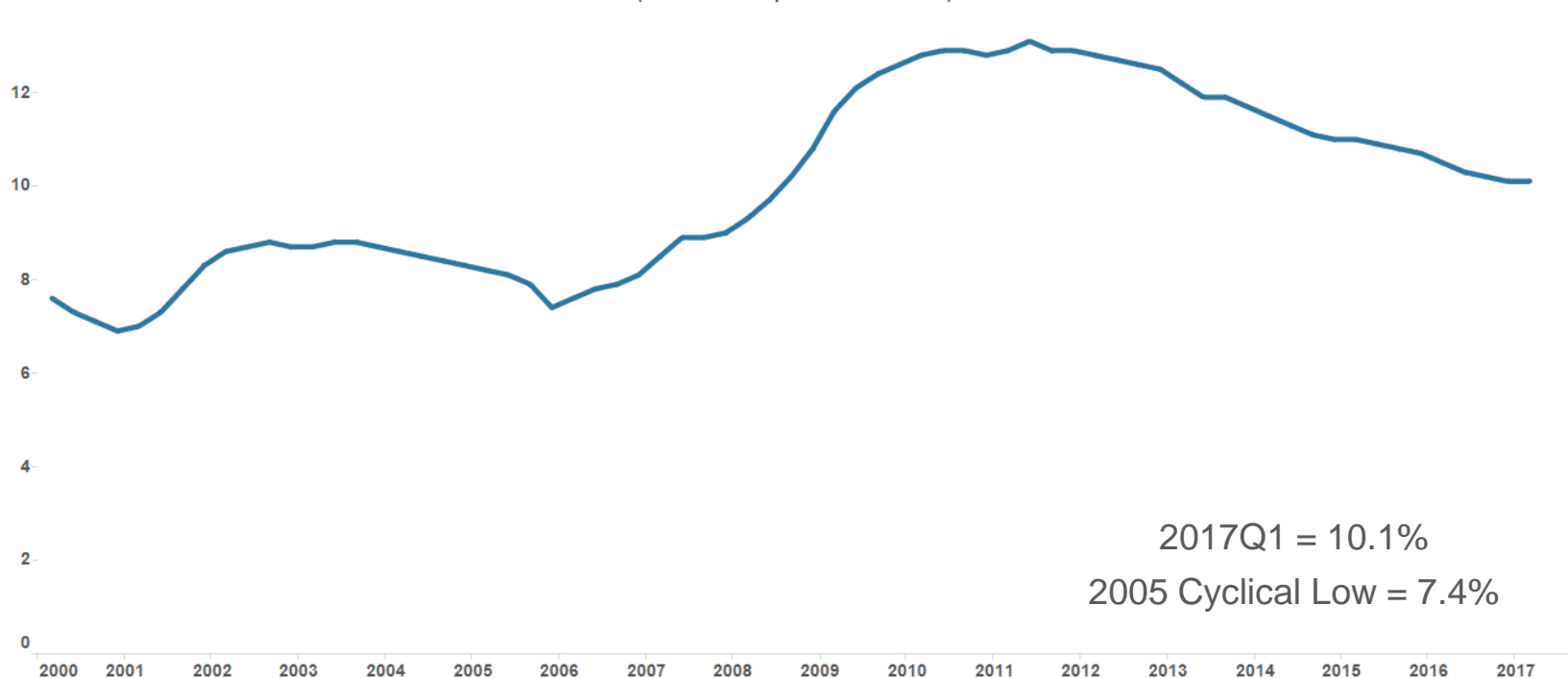


Source: Dodge Data & Analytics

U.S. Retail Building Starts

Retail vacancy rates are falling ... slowly

Retail Vacancy Rate
(% of Available Space that is Available)

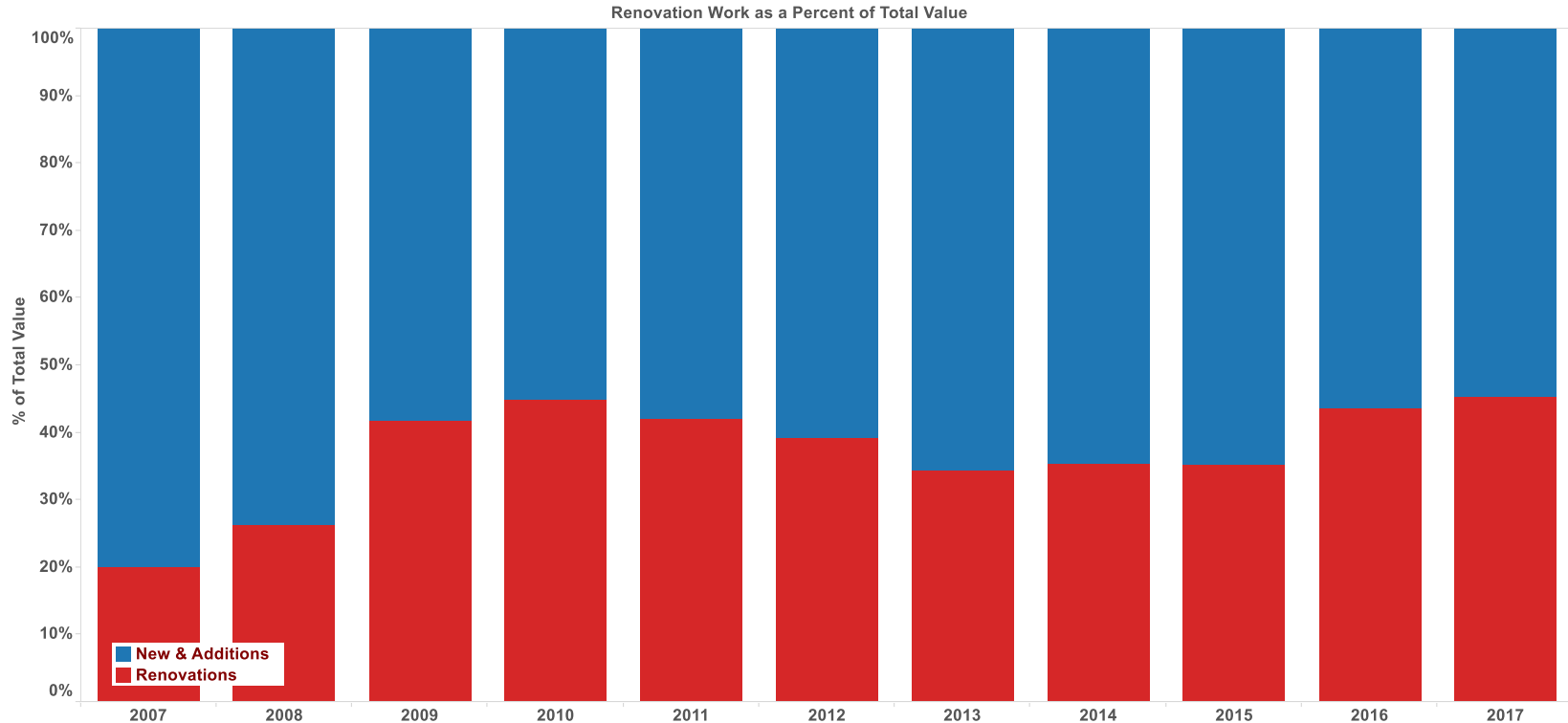


2017Q1 = 10.1%
2005 Cyclical Low = 7.4%

Source: CB Richard Ellis Econometric Advisors

U.S. Retail Building Starts

Renovations becoming more significant portion of total work



Source: Dodge Data & Analytics

U.S. Retail Building Starts

Retail chains in 2016 ranked by starts value

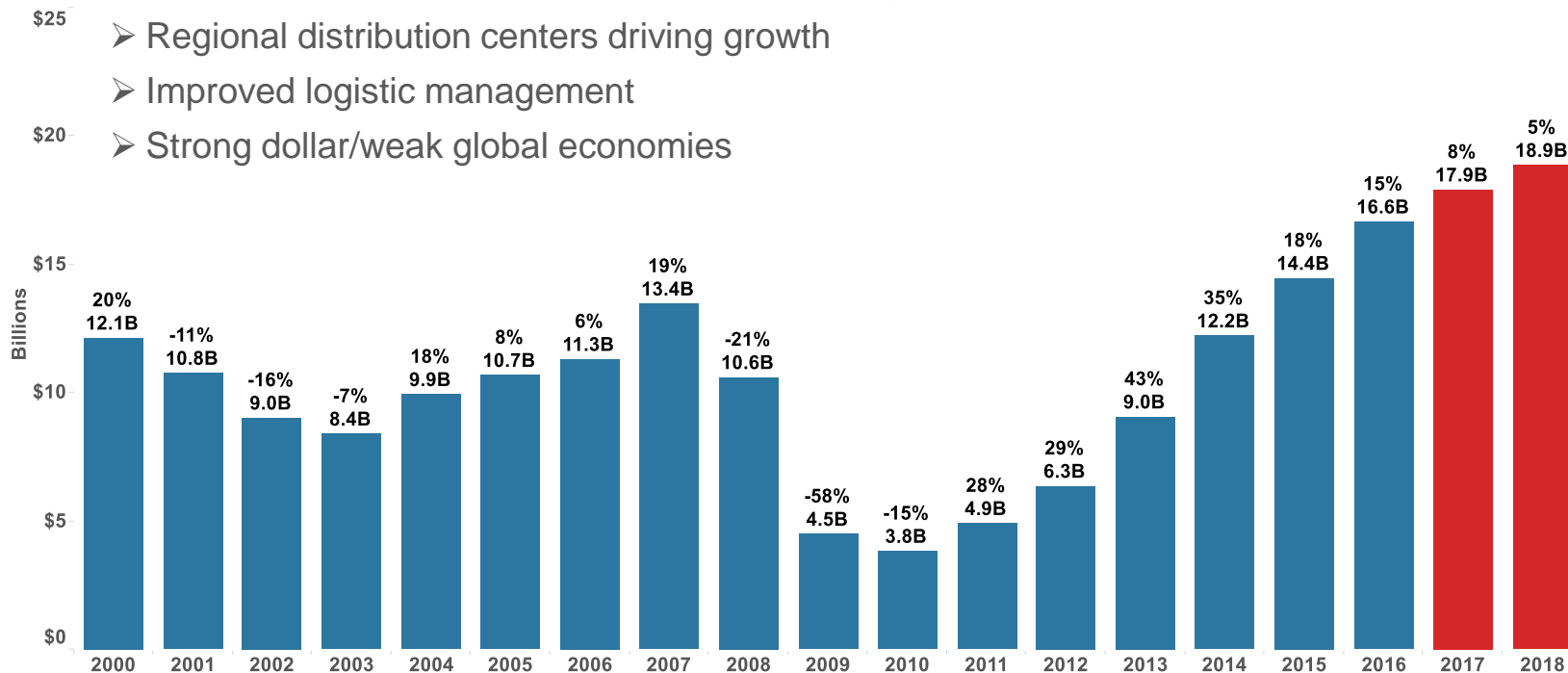
Rank	Retail Chains	2014	2015	2016	Rank	Retail Chains	2014	2015	2016
1	Walmart	\$2,186 8%	\$1,631 -25%	\$1,332 -18%	11	Nordstrom Stores	\$306 138%	\$159 -48%	\$121 -24%
2	Kroger Grocery Store	\$247 -26%	\$443 79%	\$357 -19%	12	Lowe's Home Center	\$60 -8%	\$79 32%	\$112 41%
3	Dollar General	\$253 3%	\$248 -2%	\$280 13%	13	McDonald's Restaurant	\$136 -25%	\$67 -50%	\$106 58%
4	Publix Super Market	\$107 3%	\$148 38%	\$256 73%	14	O'Reilly Auto Parts Store	\$113 35%	\$91 -20%	\$104 14%
5	Costco Warehouse Store	\$161 2%	\$195 21%	\$220 12%	15	Tractor Supply Store	\$100 15%	\$85 -15%	\$101 20%
6	IKEA Furniture Store	\$50 -57%	\$88 77%	\$199 127%	16	Target	\$114 -46%	\$40 -65%	\$99 147%
7	Aldi Food Store	\$108 19%	\$178 65%	\$159 -11%	17	Meijer Supermarket	\$126 16%	\$151 19%	\$99 -34%
8	Dick's Sporting Goods	\$130 6%	\$129 0%	\$146 13%	18	Family Dollar	\$210 -5%	\$145 -31%	\$93 -36%
9	CVS Pharmacy	\$213 -1%	\$193 -10%	\$129 -33%	19	AutoZone Auto Parts Store	\$79 -6%	\$89 12%	\$92 3%
10	Lidl Grocery Store			\$128	20	HEB Grocery Store	\$185 120%	\$110 -41%	\$89 -19%

Source: Dodge Data & Analytics

U.S. Warehouse Building Starts

Warehouse construction continues to see healthy growth

Warehouse Construction Starts
(Billions of Dollars)

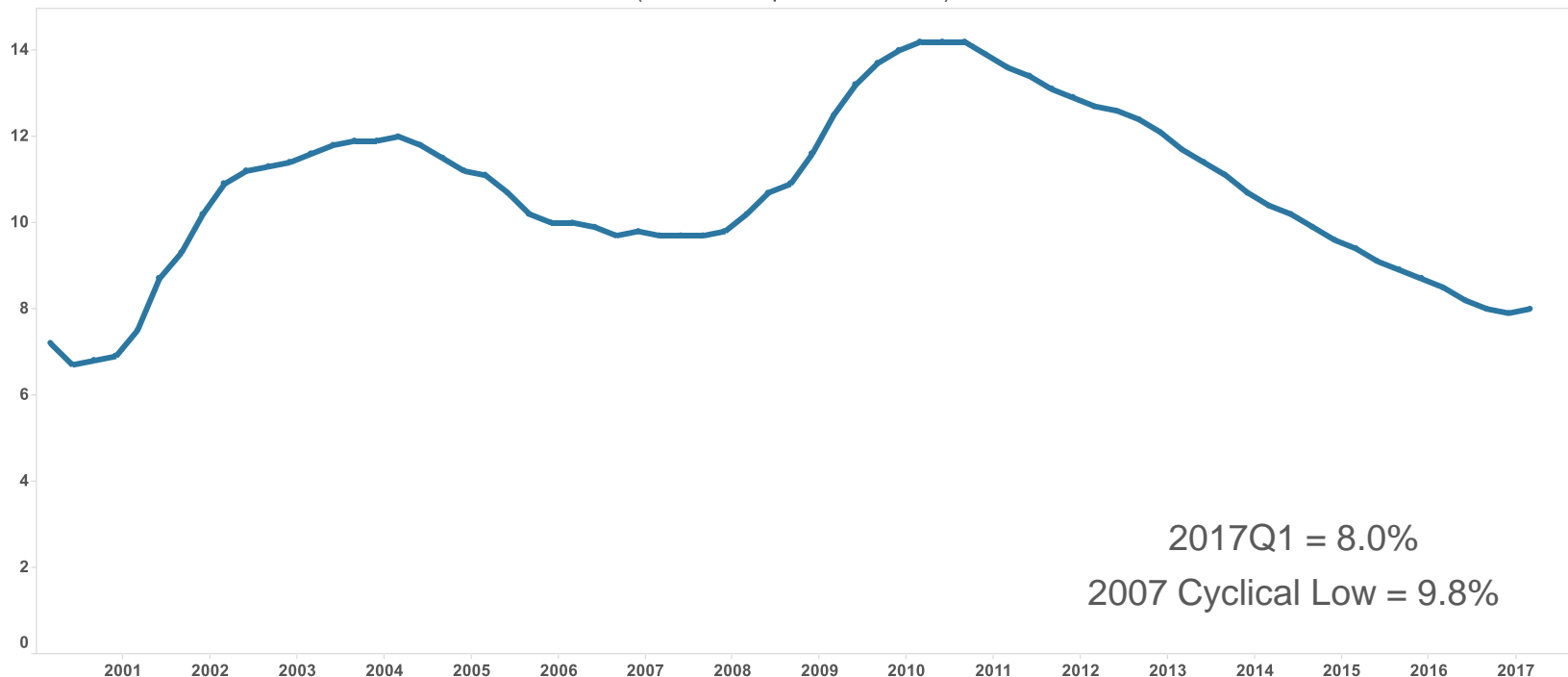


Source: Dodge Data & Analytics

U.S. Warehouse Building Starts

Warehouse vacancy rate ticks up

Warehouse Availability Rate
(% of Available Space that is Available)



2017Q1 = 8.0%
2007 Cyclical Low = 9.8%

Source: CB Richard Ellis Econometric Advisors

U.S. Warehouse Building Starts

Year-to-date largest warehouse projects – through May 2017

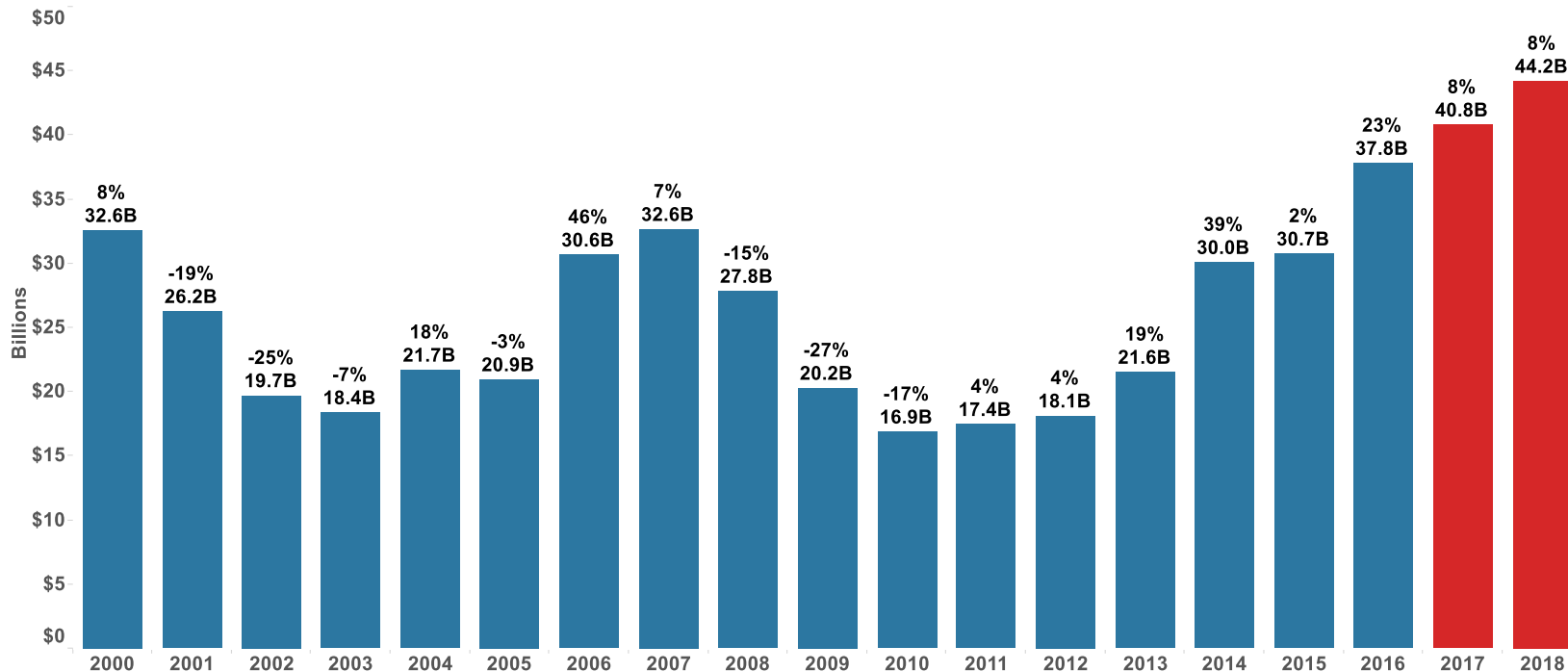
Title	City/State	Start Month	Millions	Area (Thou. SF)
Amazon Fulfillment Center (Katy, Texas)	Brookshire, Texas	2017:05	\$160	1,000
Wal-Mart Distribution Center 7067	Mobile, Alabama	2017:03	\$135	2,954
UPS Package Distribution Hub	Salt Lake City, Utah	2017:02	\$125	832
UPS Logistics Center at Brown Field	Atlanta, Georgia	2017:02	\$120	2,768
CVS Health Distribution Ctr (Project Toto)	Kansas City, Missouri	2017:04	\$110	762
ULTA Distribution Center	Fresno, California	2017:04	\$110	671
Distribution Center & Office	Logan Township, New Jersey	2017:03	\$100	1,016
Amazon Fulfillment Center Bldg 1	Aurora, Illinois	2017:02	\$93	955
USPS Distribution Center	Portland, Oregon	2017:01	\$87	800
Warehouse & Office Building	East Windsor, New Jersey	2017:03	\$84	478
Fed Ex Distribution Center - Boylston	Boylston, Massachusetts	2017:05	\$84	362
Distribution Warehouse Buildings	Cranbury, New Jersey	2017:02	\$78	758
Liberty at Spring Creek Warehouse Bldg	Macungie, Pennsylvania	2017:01	\$75	1,100
Amazon Fulfillment Center #2	Coppell, Texas	2017:01	\$75	1,000
Arcadia Logistics Center Phase 1	Arcadia, California	2017:02	\$69	698

Source: Dodge Data & Analytics

U.S. Office Building Starts

Construction sputters, but moves forward

Office Construction Starts
(Billions of Dollars)



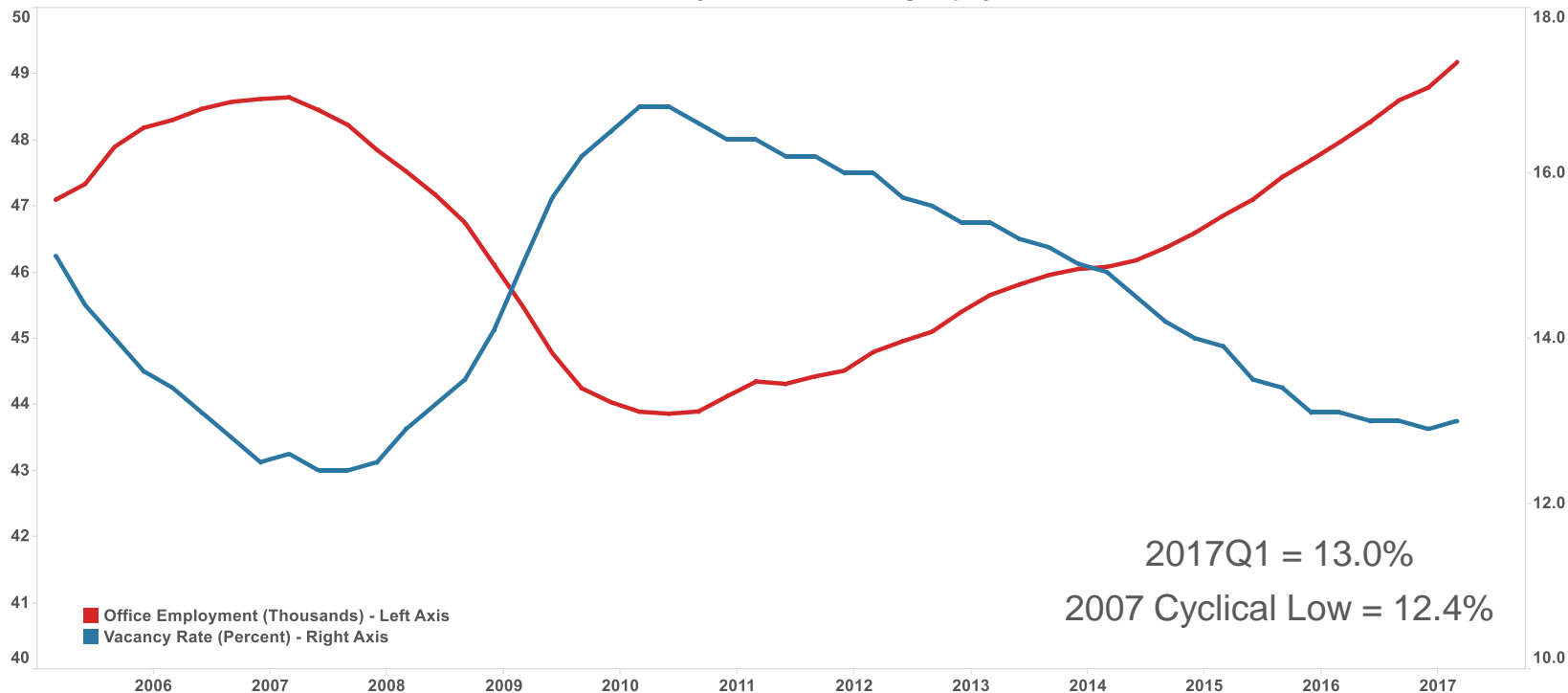
- Data centers/HQs driving growth
- Speculative development pickup up

Source: Dodge Data & Analytics

U.S. Office Building Starts

Office vacancy rates move higher in 17Q1, but employment also up

U.S. Office Vacancy Rate vs. Office-Using Employment



Source: CB Richard Ellis Econometric Advisors

U.S. Office Building Starts

Highest and lowest vacancy rates – 2017Q1

Lowest Vacancy Rates

	2017Q1 Vacancy Rate	2016Q1 Vacancy Rate	Difference
Albany, NY	6.4	8.0	-1.6
Raleigh, NC	7.0	8.8	-1.8
San Francisco, CA	7.2	6.3	0.9
Nashville, TN	8.0	6.5	1.5
Long Island	8.1	8.9	-0.8
Austin, TX	8.2	7.7	0.5
Seattle	8.4	9.3	-0.9
Oklahoma City	8.9	9.6	-0.7
Oakland	9.3	9.9	-0.6
San Jose	9.3	8.5	0.8

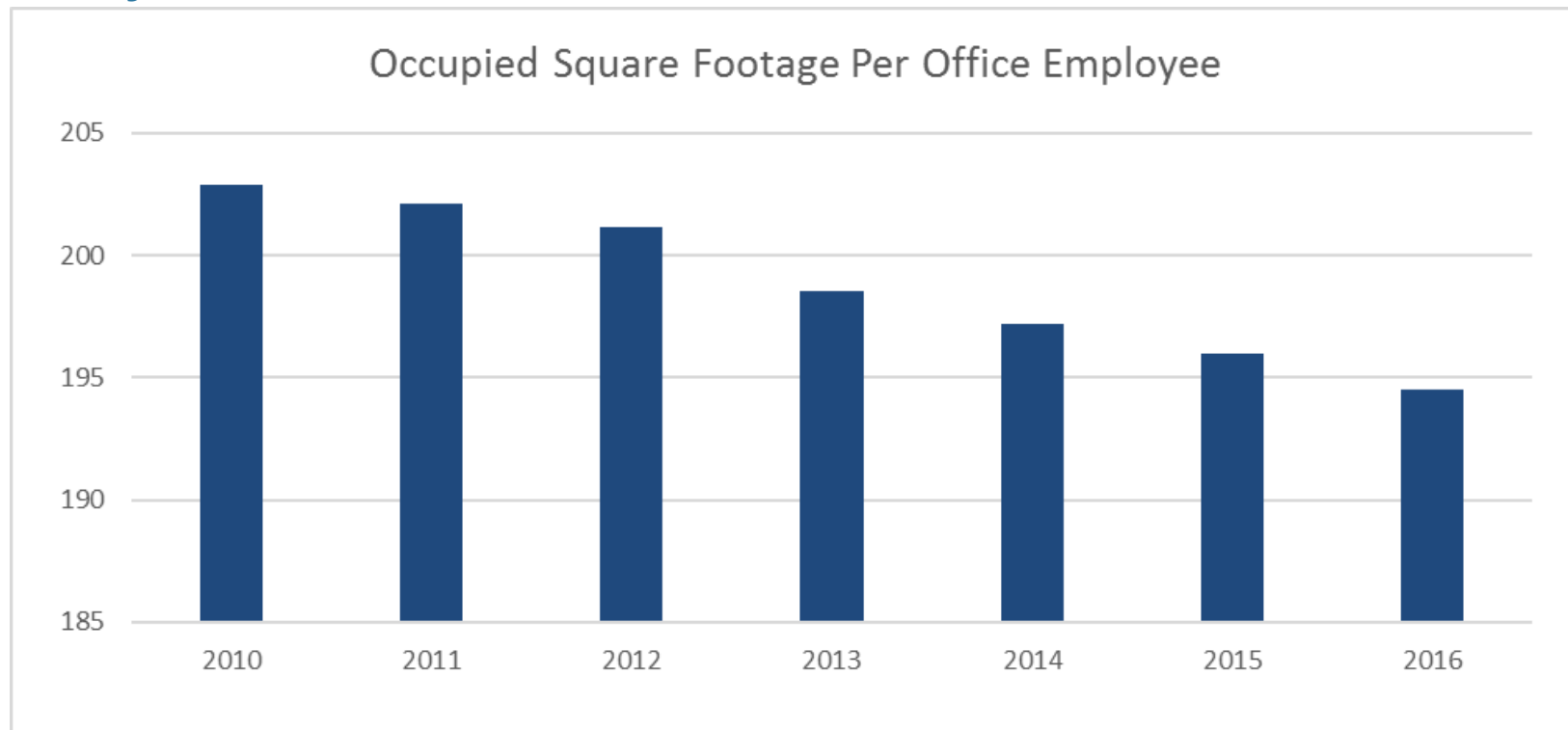
Highest Vacancy Rates

	2017Q1 Vacancy Rate	2016Q1 Vacancy Rate	Difference
Albuquerque, NM	22.2	22.6	-0.4
Houston	20.2	16.1	4.1
Newark, NJ	19.3	21.0	-1.7
Las Vegas, NV	18.7	20.9	-2.2
Dallas, TX	17.7	17.5	0.2
Hartford	17.3	17.1	0.2
Fort Worth	16.9	15.4	1.5
Phoenix, AZ	16.7	18.4	-1.7
Cincinnati, OH	16.6	17.5	-0.9
Minneapolis	16.5	15.7	0.8

Source: CB Richard Ellis Econometric Advisors

U.S. Office Building Starts

Honey, I Shrunk the Cubicle...



Source: Dodge Data & Analytics/ Bureau of Labor Statistics

U.S. Office Building Starts

Year-to-date largest office projects – through May 2017

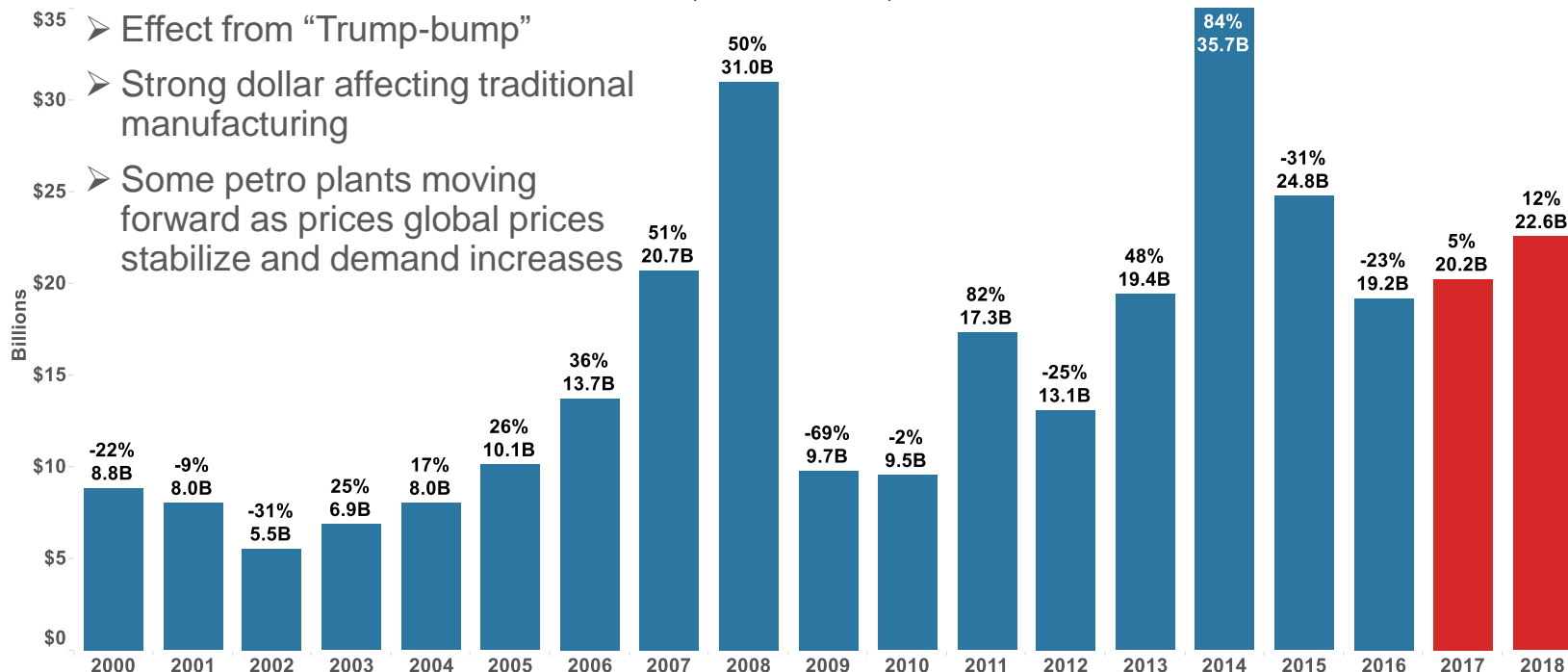
Title	City/State	Start Month	Millions	Area (Thou. SF)
Oceanwide Center Tower	San Francisco, California	2017:04	\$780	1,300
McClellan Business Park Data Center	McClellan, California	2017:01	\$600	1,000
East Campus Building 2	Fort Meade, Maryland	2017:03	\$525	898
Northern Virginia Sterling V Data Center	Sterling, Virginia	2017:01	\$395	654
Golden State Warriors Arena (Chase Center)	San Francisco, California	2017:02	\$361	580
Mixed Use Office - Red Hoek Point	Brooklyn, New York	2017:01	\$329	886
Uptown Office/ Retail Development	Charlotte, North Carolina	2017:04	\$321	1,065
Facebook Data Center Bldg 3	Fort Worth, Texas	2017:04	\$300	500
LG Corporate Headquarters Office	Englewood Cliffs, New Jersey	2017:03	\$289	351
Coda Building Office/Parking	Atlanta, Georgia	2017:02	\$229	755
2 + U Office Tower	Seattle, Washington	2017:03	\$210	690
American Airlines Trinity Campus	Fort Worth, Texas	2017:05	\$200	1,800
Centene II Clayton Phase 1 and 2A	Clayton, Missouri	2017:03	\$169	731
General Electric Global Headquarters	Boston, Massachusetts	2017:05	\$166	293
Erie Insurance Office Complex	Erie, Pennsylvania	2017:04	\$135	346

Source: Dodge Data & Analytics

U.S. Manufacturing Building Starts

How much manufacturing will come back to U.S?

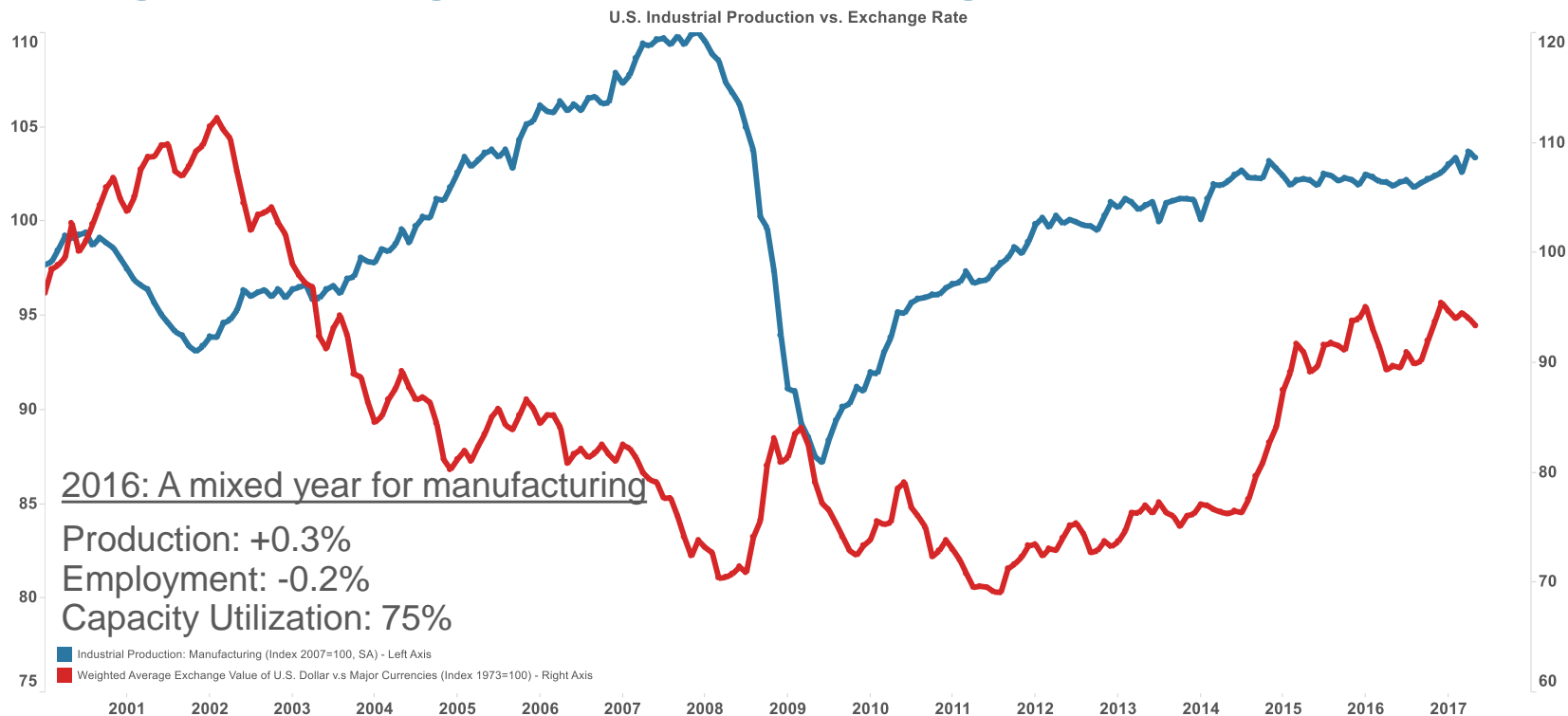
Manufacturing Construction Starts
(Billions of Dollars)



Source: Dodge Data & Analytics

U.S. Manufacturing Building Starts

Strong dollar having effect on manufacturing output



Source: U.S. Federal Reserve Board

U.S. Manufacturing Building Starts

Year-to-date largest manufacturing projects – through May 2017

Title	City/State	Start Month	Millions	Area (Thou. SF)
Chevron Richmond Refinery Modernization	Richmond, California	2017:02	\$985	0
Monsanto Plant	Luling, Louisiana	2017:05	\$975	0
Hyperzone polyethylene (PE) plant	La Porte, Texas	2017:05	\$385	0
Pork/Hog Processing Facility	Eagle Grove, Iowa	2017:04	\$240	650
Allergan Plant Expansion	Waco, Texas	2017:01	\$200	322
Arauco USA Wood Processing Facility	Grayling, Michigan	2017:04	\$200	820
Dry-Mill Corn Ethanol	Atlantic, Iowa	2017:04	\$190	0
Sofidel Group Mfg Facility - Phase 1	Pickaway Township, Ohio	2017:01	\$150	1,400
AI-Corn Clean Fuel Ethanol Plant	Claremont, Minnesota	2017:04	\$146	0
CoorsTek Center for Advanced Materials	Golden, Colorado	2017:05	\$120	0
Oxea Propanol 2 Plant Expansion	Bay City, Texas	2017:04	\$110	0
Mercedes-Benz Van Manufacturing Facility	North Charleston, South Caro..	2017:02	\$100	1,100
Carbon Cycle Energy Biogas Facility	Warsaw, North Carolina	2017:03	\$87	0
OneWeb Satellite Manufacturing	Merritt Island, Florida	2017:04	\$85	150
Michelin Distribution Center Phase 1	Spartanburg, South Carolina	2017:03	\$75	1,095

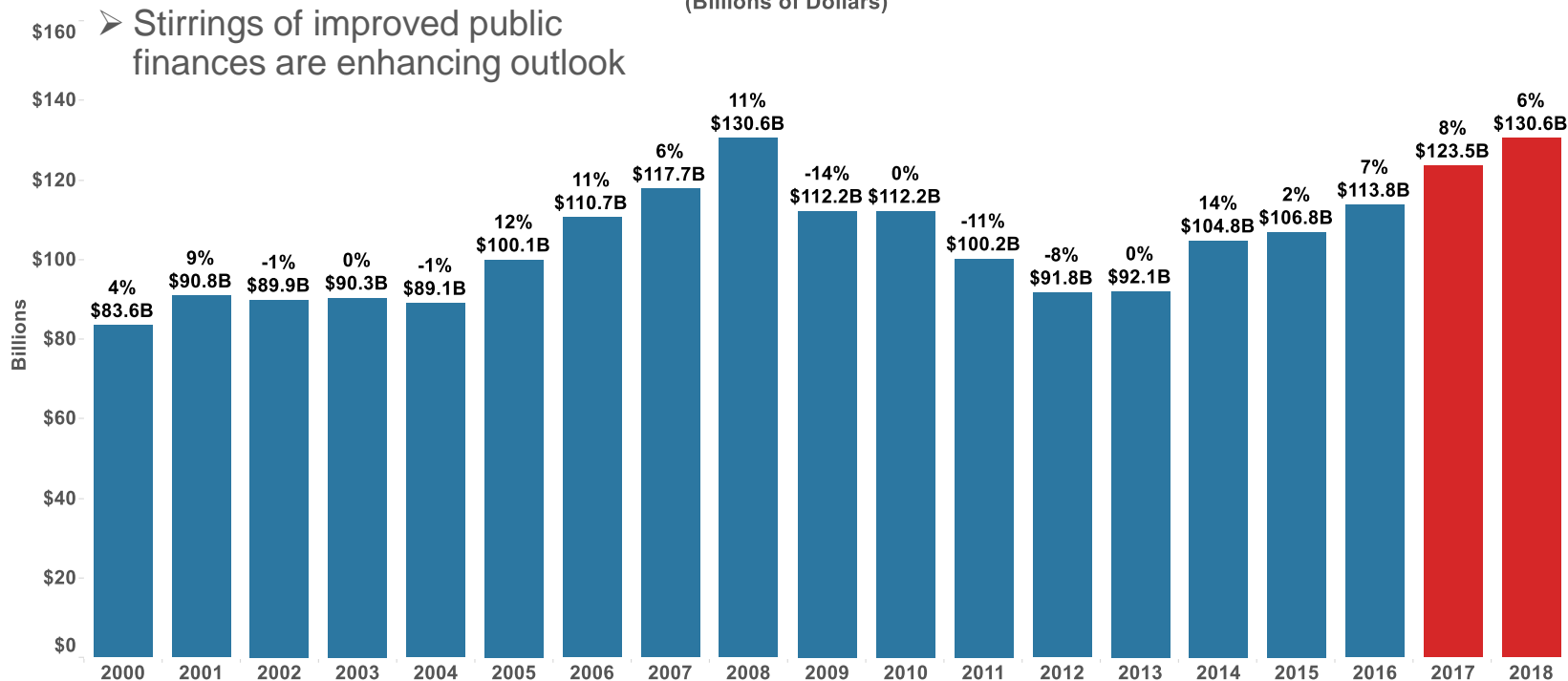
Source: Dodge Data & Analytics

Institutional Construction Outlook

U.S. Institutional Building Starts

Institutional buildings are beginning to turn corner

Institutional Construction Starts
(Billions of Dollars)

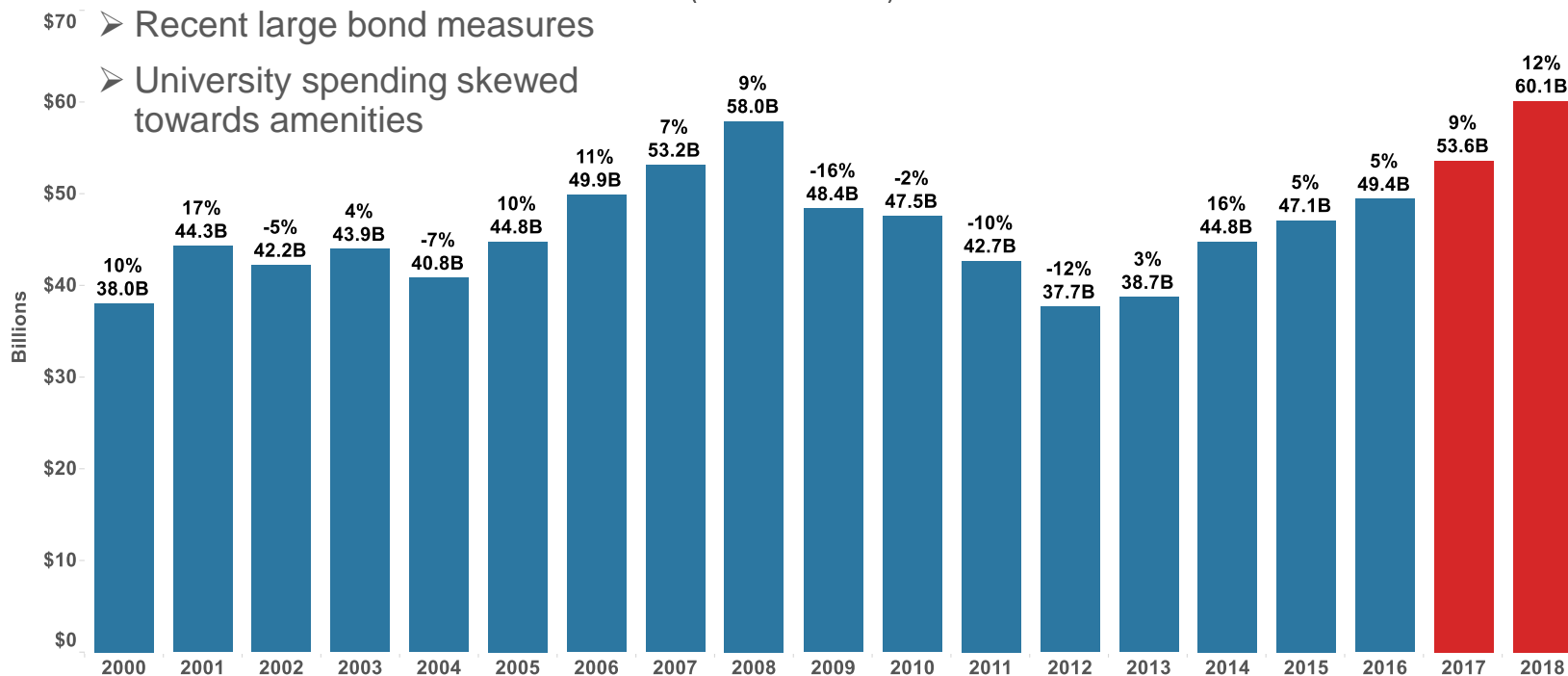


Source: Dodge Data & Analytics

U.S. Education Building Starts

Education building starts on the move

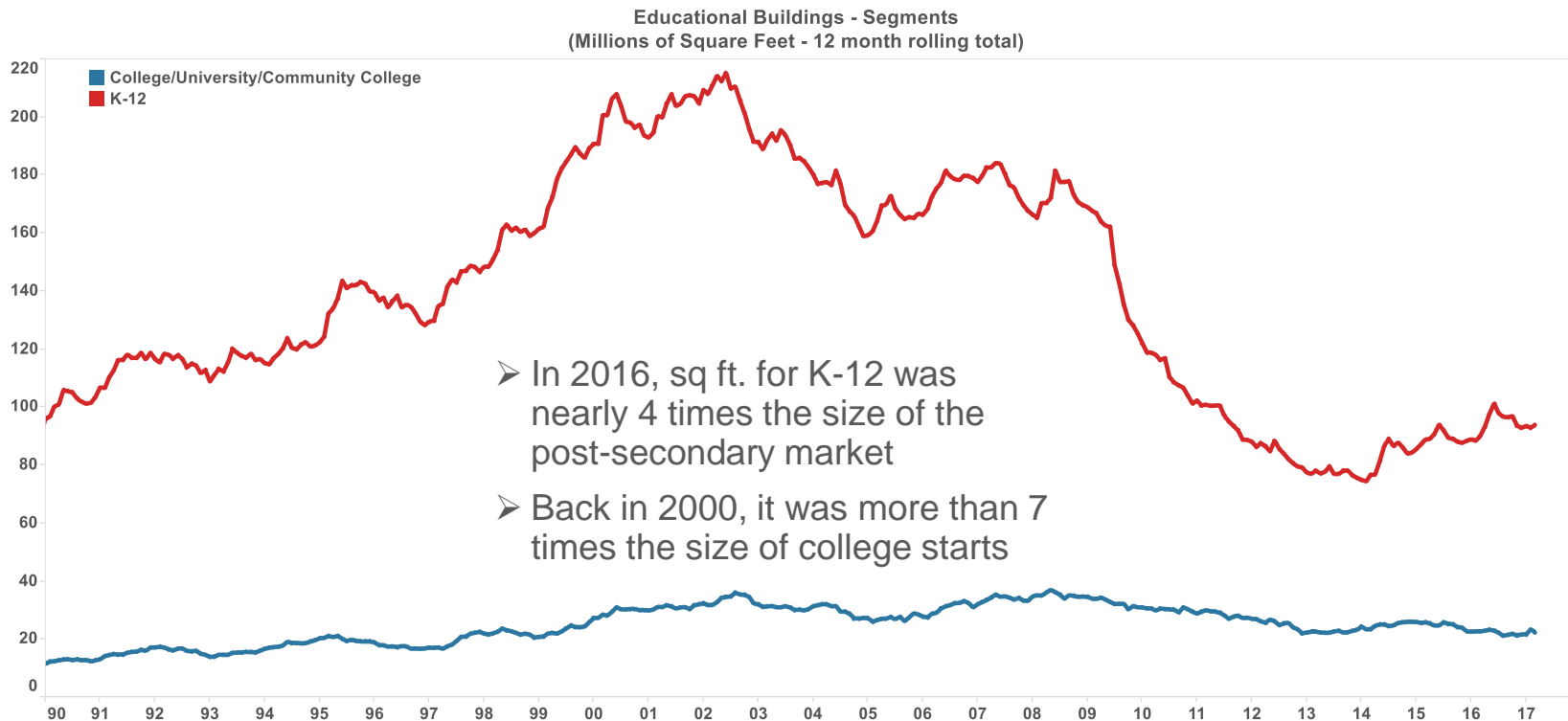
Education Construction Starts
(Billions of Dollars)



Source: Dodge Data & Analytics

U.S. Education Building Starts

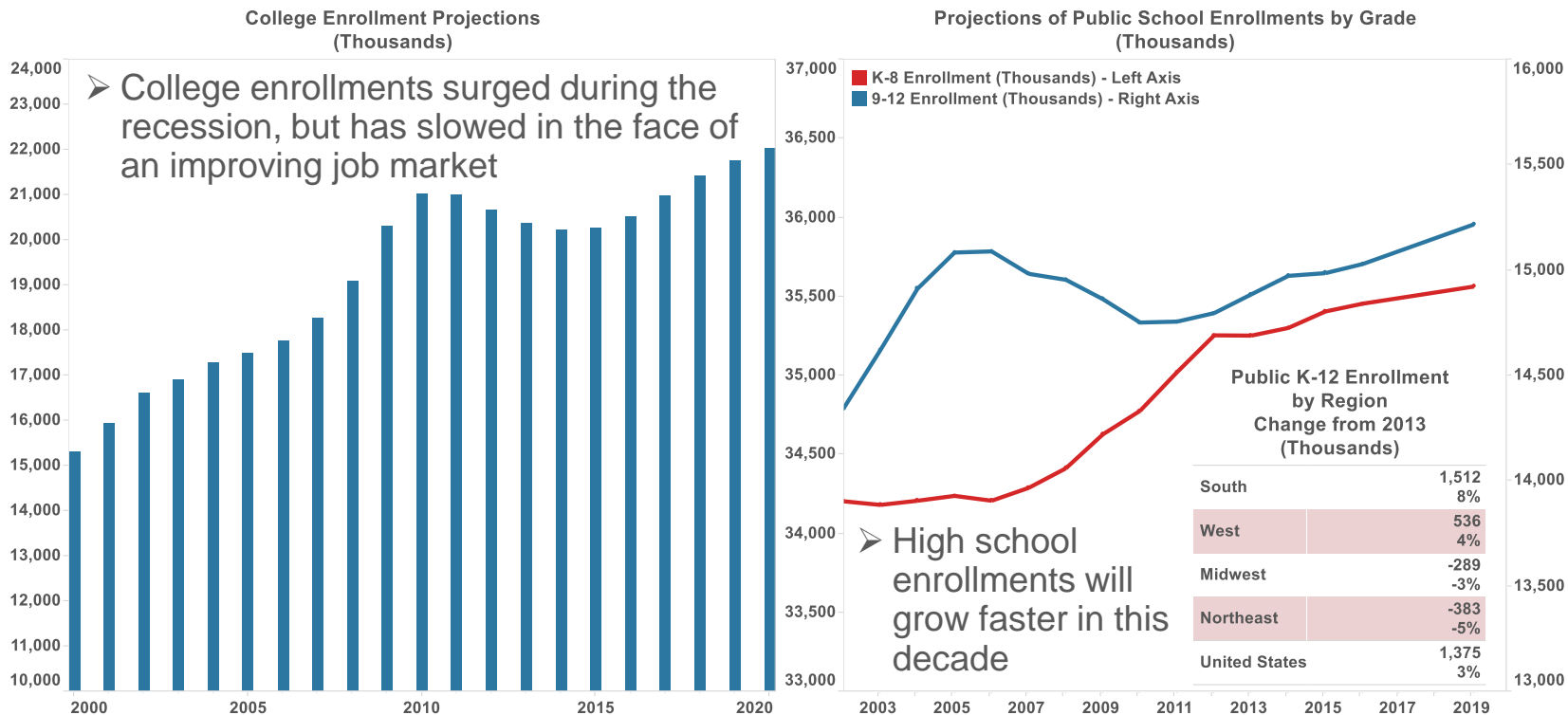
K-12 starts are larger, but more volatile than college/university starts



Source: Dodge Data & Analytics

U.S. Education Building Starts

Enrollment growth ultimately drives activity for many segments

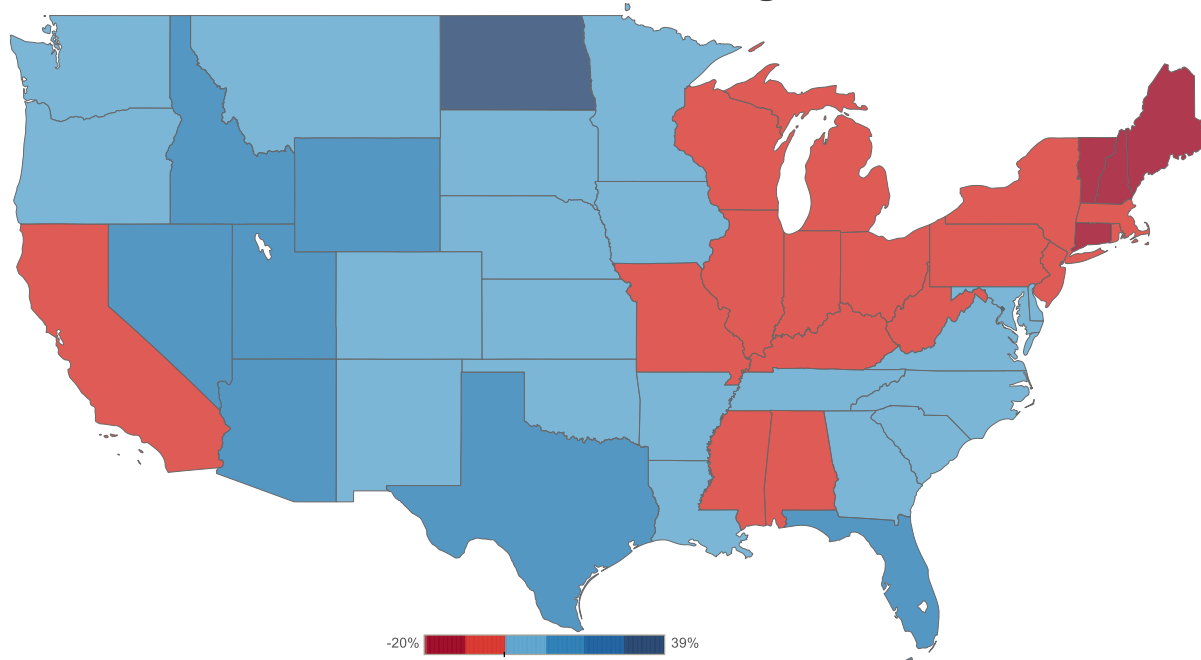


Source: National Center for Education Statistics

U.S. Education Building Starts

Public school enrollment growth is strongest in South and West

K-12 Public School Enrollment Growth
2013-2025, Percent Change



Source: National Center for Education Statistics

Top College Endowments

Stock market volatility caused endowment growth to decline 1.9% in FY2016

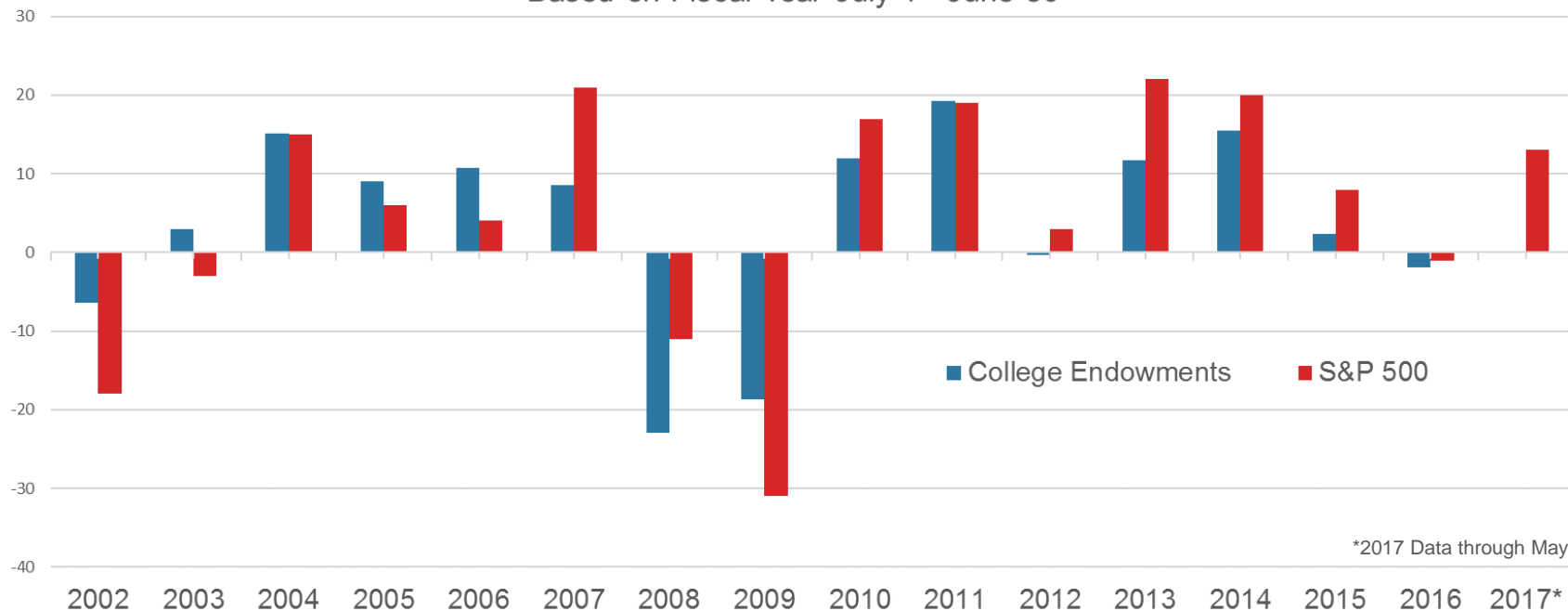
National Ranking	Institution	FY 2016 (\$, billions)	FY 2015 (\$, billions)	Percent Change
1	Harvard University	34.4	36.4	-5
2	Yale University	25.4	25.6	-1
3	The University of Texas System	24.2	24.1	1
4	Stanford University	22.4	22.2	1
5	Princeton University	22.2	22.7	-3
6	Massachusetts Institute of Technology	13.2	13.5	-2
7	University of Pennsylvania	10.7	10.1	6
8	Texas A&M	10.5	10.4	1
9	University of Michigan	9.7	10.0	-2
10	Northwestern University	9.6	10.2	-5

Source: National Association of College and University Business Officers

U.S. Education Building Starts

College amenity construction fueled by stock market gains

One-Year Returns on College Endowments vs. S&P 500
Based on Fiscal Year July 1 - June 30



*2017 Data through May

Source: National Association of College and University Business Officers

U.S. Education Building Starts

Year-to-date largest education projects – through May 2017

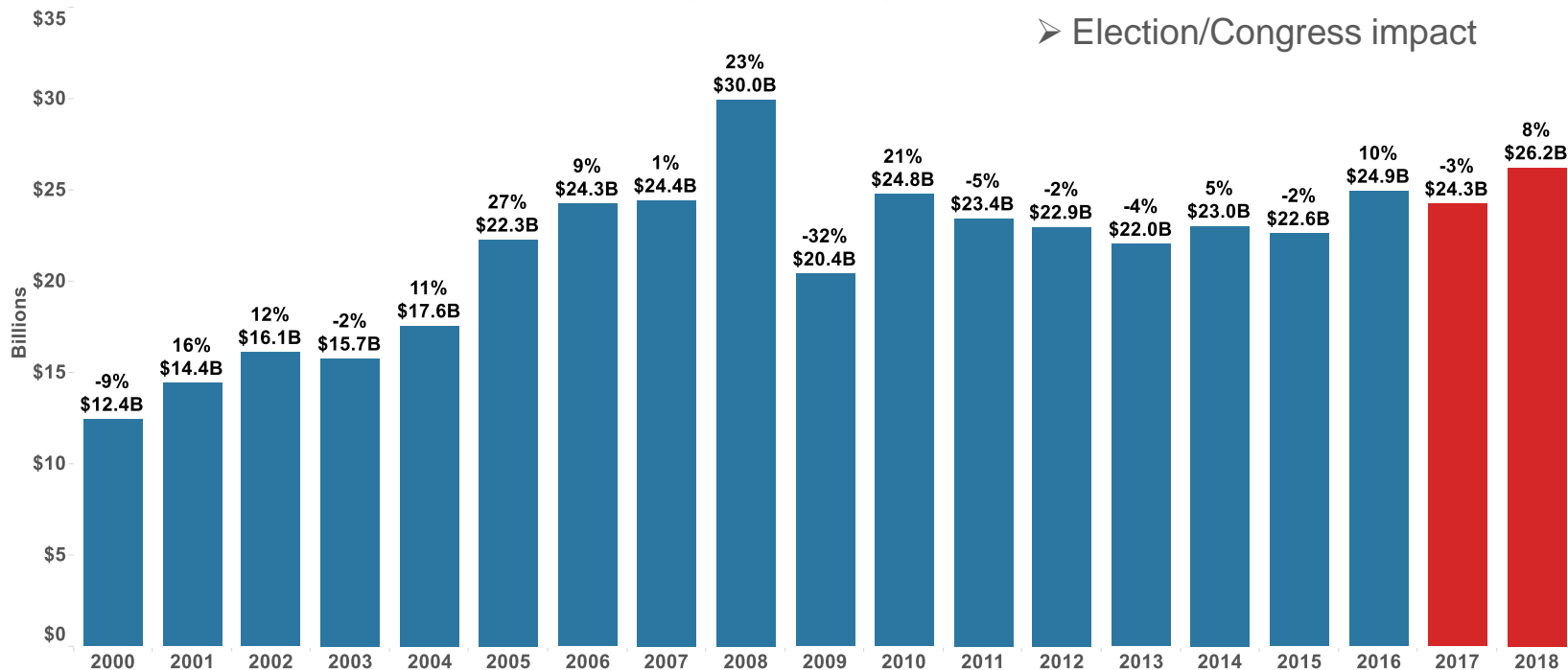
Title	City/State	Start Month	Millions	Area (Thou. SF)
Seattle Children's Research Institute	Seattle, Washington	2017:03	\$289	419
Chem-H Building - Stanford Chemistry	Palo Alto, California	2017:01	\$252	235
Zipper Building - NYU Greenwich Village	New York, New York	2017:02	\$218	588
Temple Library and Classroom Facility	Philadelphia, Pennsylvania	2017:03	\$170	225
Mount Si High School	Snoqualmie, Washington	2017:04	\$166	355
John A Paulson School of Engineering	Allston, Massachusetts	2017:02	\$150	297
UW Medicine Lake Union Phase 3.2	Seattle, Washington	2017:01	\$143	164
Billerica Memorial High School	Billerica, Massachusetts	2017:04	\$141	320
Columbia U Business Sch Kravis Building	New York, New York	2017:04	\$138	250
Gilmer Hall & Chemistry Building (Renovation)	Charlottesville, Virginia	2017:03	\$138	0
Castaic Area High School	Castaic, California	2017:01	\$126	216
Chemical Engineering Building	University Park, Pennsylvania	2017:01	\$117	195
UNMC Center for Advanced Learning	Omaha, Nebraska	2017:02	\$113	136
National Museum of the US Army (NMUSA)	Fort Belvoir, Virginia	2017:04	\$111	188
Brearley School Academic Building	New York, New York	2017:02	\$108	90

Source: Dodge Data & Analytics

U.S. Healthcare Building Starts

Recovery in healthcare facilities kept on hold

Healthcare Construction Starts
(Billions of Dollars)



- Uncertainty affecting activity
- Long-term support from demographics and new technology
- Election/Congress impact

Source: Dodge Data & Analytics

U.S. Healthcare Building Starts

Top states for total and age 65+ population growth from 2010-2030

Population Change 2010-2030
(Thousands)

Total Population, All Ages		Over 65	
United States	43,031 14%	United States	29,374 66%
Texas	7,669 29%	Florida	3,932 108%
Florida	7,626 39%	California	3,567 74%
California	6,562 17%	Texas	2,563 86%
Arizona	3,056 46%	Arizona	1,254 123%
North Carolina	2,330 24%	New York	1,216 43%
Georgia	1,919 19%	North Carolina	990 70%
Washington	1,858 27%	Pennsylvania	904 43%
Virginia	1,388 17%	Georgia	896 75%
Nevada	1,227 44%	Virginia	767 69%
Colorado	942 18%	Illinois	766 44%

Source: Moody's Analytics

U.S. Healthcare Building Starts

Year-to-date largest healthcare projects – through May 2017

Title	City/State	Start Month	Millions	Area (Thou. SF)
The Marcus Tower at Piedmont Hospital	Atlanta, Georgia	2017:05	\$455	870
UCHealth Highlands Ranch Hospital	Highlands Ranch, Colorado	2017:05	\$289	434
Methodist University Hospital New Tower	Memphis, Tennessee	2017:03	\$265	440
Sands Constellation Center for Critical Care Tower	Rochester, New York	2017:05	\$254	312
Banner University Medical Ctr Patient Tower	Phoenix, Arizona	2017:01	\$239	675
North Alabama Medical Ctr	Florence, Alabama	2017:03	\$230	485
WMC Ambulatory Care Pavilion	Valhalla, New York	2017:01	\$230	280
UCHealth Greeley Hospital & Health Center	Greeley, Colorado	2017:05	\$185	265
The Lakeland Medical Center Pavilion	Saint Joseph, Michigan	2017:04	\$160	260
Henry Mayo Newhall Hospital Patient Tower	Santa Clarita, California	2017:04	\$151	160
Tahlequah Outpatient Health Center	Tahlequah, Oklahoma	2017:05	\$130	479
UCSF Precision Cancer Medicine Bldg	San Francisco, California	2017:02	\$127	170
Sloan Kettering Cancer Center Outpatient Facility	Uniondale, New York	2017:02	\$126	140
West Houston Outpatient Center	Houston, Texas	2017:02	\$114	240
Jackson Memorial Hospital Main Campus Floor	Miami, Florida	2017:02	\$113	0

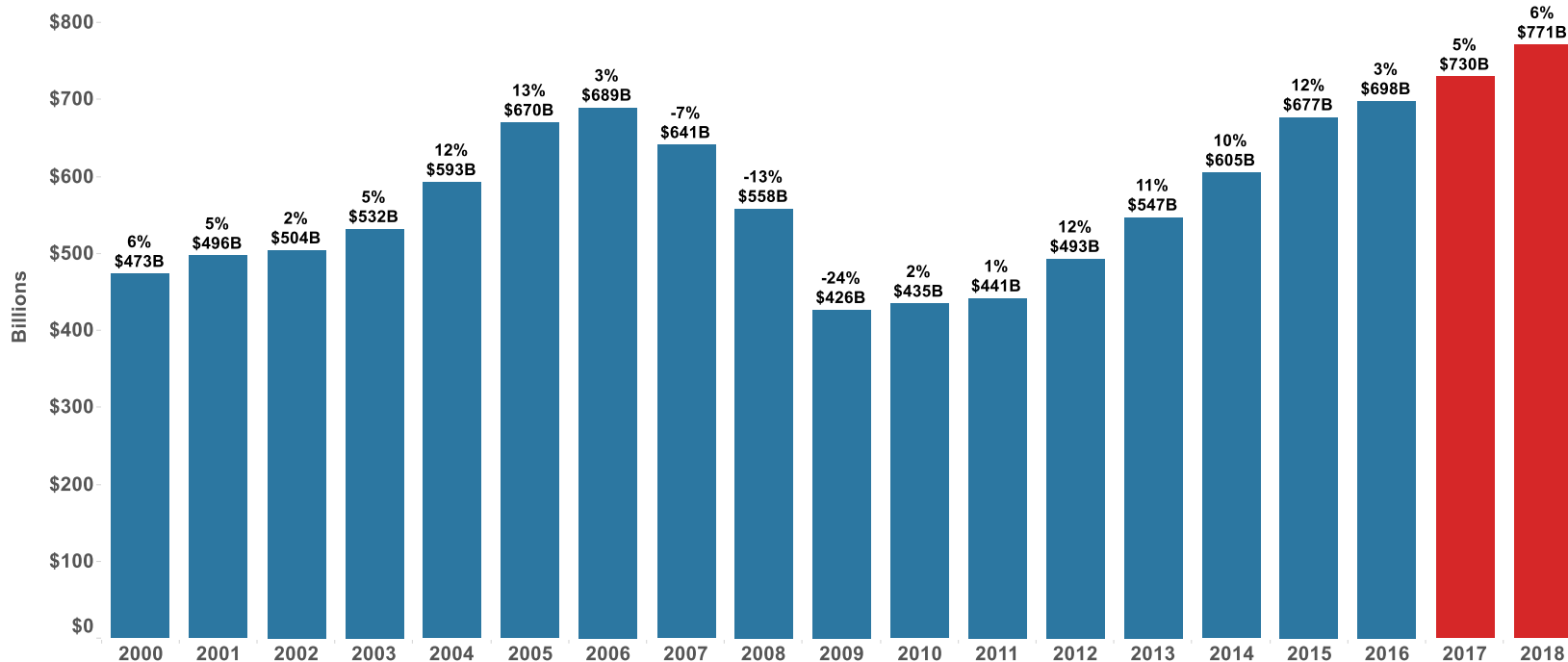
Source: Dodge Data & Analytics

Total Construction Outlook

U.S. Total Construction Starts

Total Construction to rise 5% in 2017 and 6% in 2018

Total U.S. Construction Starts
(Billions of Dollars)



Source: Dodge Data & Analytics

U.S. Total Construction Starts

Total construction is expected to be up 5% in 2017 and 6% in 2018

U.S. Construction Starts
(Billions of Dollars)

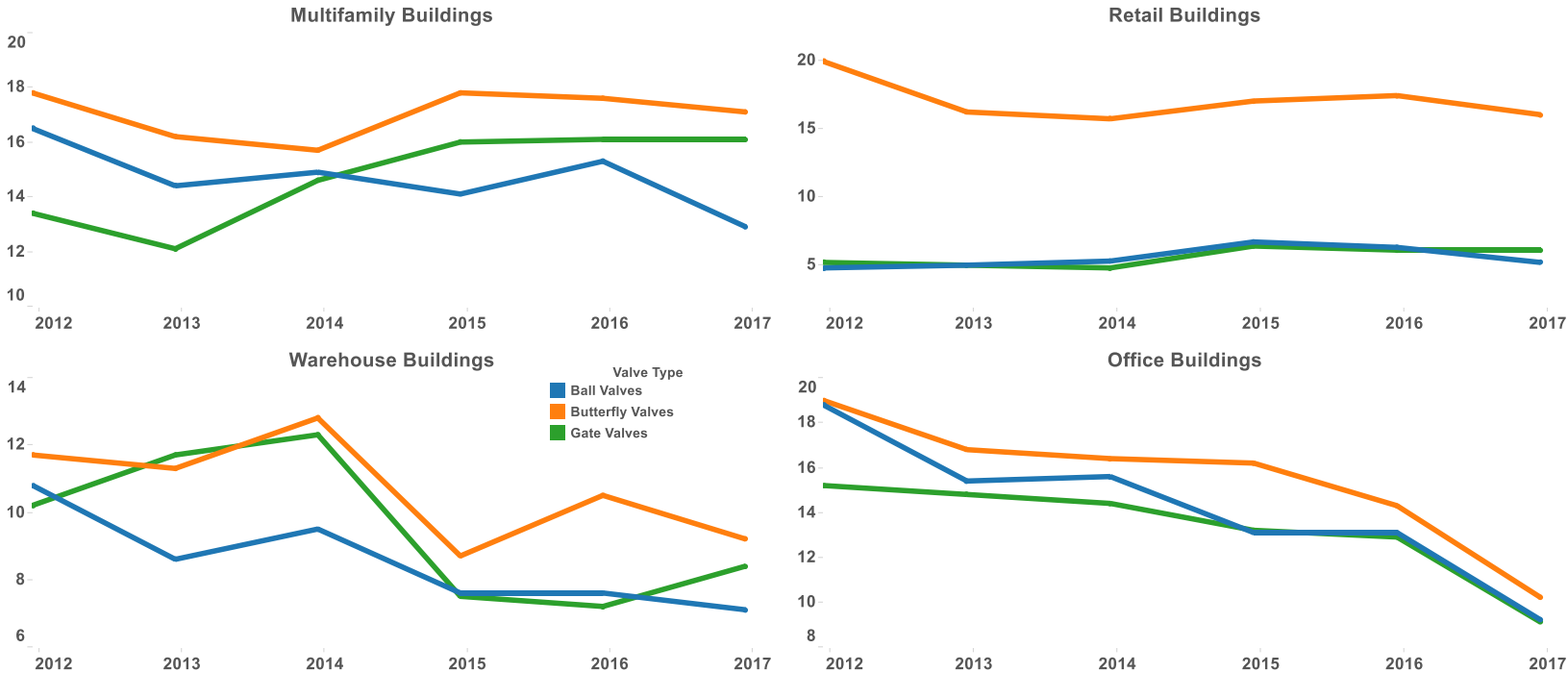
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Residential	\$122	\$127	\$167	\$211	\$234	\$272	\$293	\$316	\$337
		4%	31%	27%	11%	16%	8%	8%	7%
Nonbuilding	\$149	\$148	\$166	\$157	\$147	\$183	\$168	\$160	\$164
		-1%	12%	-5%	-7%	24%	-8%	-5%	3%
Institutional	\$112	\$100	\$92	\$92	\$105	\$107	\$114	\$123	\$131
		-11%	-8%	0%	14%	2%	7%	8%	6%
Commercial	\$42	\$48	\$55	\$68	\$84	\$91	\$105	\$111	\$116
		15%	14%	22%	24%	9%	15%	6%	5%
Industrial	\$10	\$17	\$13	\$19	\$36	\$25	\$19	\$20	\$23
		82%	-25%	48%	84%	-31%	-23%	5%	12%
Total Construction	\$435	\$441	\$493	\$547	\$605	\$677	\$698	\$730	\$771
		1%	12%	11%	10%	12%	3%	5%	6%

Source: Dodge Data & Analytics

Multifamily and Commercial Building Specification Data

Valve specification rates through 2017Q2

Valve Specification Rates..

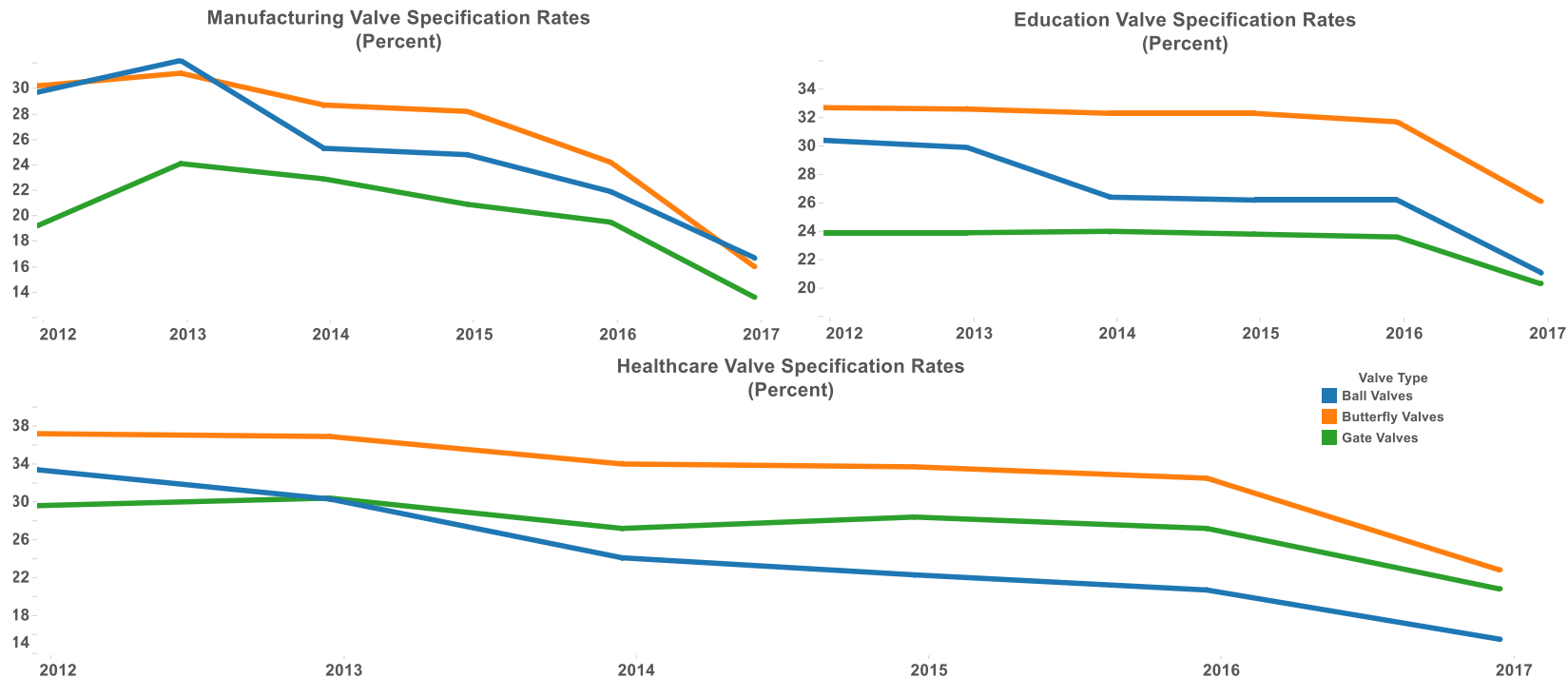


Source: Dodge Data & Analytics

Mfg and Institutional Building Specification Data

Valve specification rates through 2017Q2

Valve Specification Rates..



Source: Dodge Data & Analytics

Thank You!



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