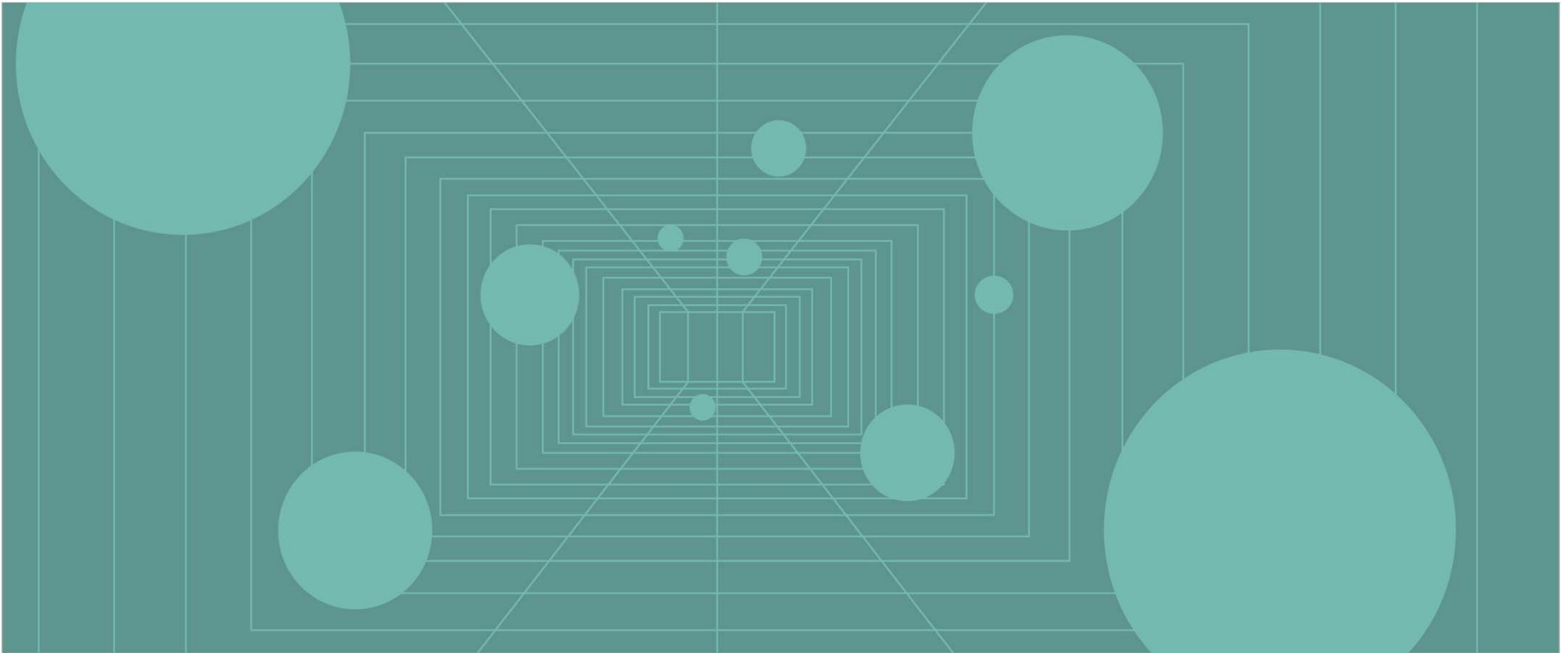


# UNDER THE MICROSCOPE

PRIVATE VS PUBLIC COMPANY OPERATING METRICS FOR US COMPANIES



# Table of Contents

<b>Introduction to Operating Metrics</b>	2
<b>Notes on the Data</b>	3
<b>Operating Metrics: Purchase the Company and Optimize Capital Structure</b>	
<b>Key Valuation Metric: EBITDA Purchase Price Multiple</b>	4
Total Universe	5
By Company Type	7
By Enterprise Value Segment	8
By Sector	9
<b>Key Capital Structure Metric: Leverage Multiple</b>	10
Total Universe	11
By Company Type	13
By Enterprise Value Segment	14
By Sector	15
<b>Operating Metrics: Improve the Performance of the Company and Transform the Business</b>	
<b>Key Performance Metric: Revenue Growth</b>	16
Total Universe	17
By Company Type	19
By Enterprise Value Segment	20
By Sector	21
<b>Key Performance Metric: EBITDA Growth</b>	22
Total Universe	23
By Company Type	25
By Enterprise Value Segment	26
By Sector	27
<b>Key Performance Metric: EBITDA Margin</b>	28
Total Universe	29
By Company Type	31
By Enterprise Value Segment	32
By Sector	33
<b>Exit Analyses</b>	
<b>Key Exit Metrics: Purchase Price Multiple Expansion and Leverage Compression</b>	34
<b>Key Exit Metrics: Revenue CAGR, EBITDA CAGR, Margin Expansion, and Revenue Purchase Price Multiple Expansion</b>	37
<b>Appendix: Revenue Purchase Price Multiple</b>	41

---

## Introduction to Operating Metrics

---

- The data in this report on operating metrics provide insights into key parts of the process by which private equity (PE) managers execute their strategy:
  - Purchasing the company and optimizing the capital structure
  - Improving the performance of the company and transforming the business
- PE managers aim to purchase companies at attractive prices, optimize their capital structures, and then—with operational improvements, revenue growth, and/or other acquisitions—seek to sell the company at a higher price.
- Similar metrics can be used to evaluate both private and public companies, though public market analysts typically focus on company earnings and price-earnings ratios rather than EBITDA (earnings before interest, tax, depreciation, and amortization) and use EBITDA multiples as their proxy for cash flow.
- Cambridge Associates has now captured and analyzed current and historical data from global PE funds for nine consecutive years. This year’s report includes data through the period ended December 31, 2019.
- Our analysis allows for the comparison of private and public companies across industry sectors and company sizes for various parts of the investment process. The data shed light on key levers and value drivers in private equity, as well as the risks and returns of private equity versus public equity.

## Notes on the Data

- Cambridge Associates collected information from PE firms of all sizes with broad mandates, as well as specialized and sector-focused strategies. The sample of private investments includes almost 5,000 US-based companies acquired by PE firms from 2000 through 2019 and is subject to change over time. The companies in the universe range in enterprise value from less than \$1 million to larger than \$65 billion.
- Within the report, depending on the metric analyzed, the set of companies included will vary. This is due to the acquisition and disposition of companies during the period analyzed. Additionally, this reflects the impact of a statistical tool, an interquartile range, used to screen for outliers as part of each calculation. Lastly, restatements in company data that sometimes occur may lead to changes in historical metrics.
- Operating metrics data were collected directly from investment managers and have not been independently verified.
- Unless specified, the exhibits include unrealized and realized investments.
- For comparisons between the total company universe and public markets, the Russell 2500™ Index was selected based on the market capitalization of the underlying stocks. When breaking down companies by enterprise value, other Russell indexes with more appropriate market cap ranges have been used.
- Sector classifications are based on the Global Industry Classification Standard (GICS). GICS was developed and is the exclusive property and a service mark of MSCI Inc. and S&P Global Market Intelligence LLC and is licensed for use by Cambridge Associates.
- Individual company operating metrics (e.g., revenue and EBITDA) have not been adjusted for acquisitions.
- The analyzed holding period for some companies represented in the dataset is short, and thus EBITDA growth rates may be muted initially, as PE owners do not seek to maximize EBITDA in the first several years of ownership.
- Any company with a negative metric for EBITDA, net debt, or revenue was excluded from analysis using that metric.
- Company counts for each analysis reflect all submitted transactions, excluding outliers. We eliminate “duplicate” transactions completed by the same firm across funds in a given year. For “club” or syndicated deals that involve two or more separate firms, there are two or more companies in our universe.
- When the operating metrics information is disaggregated into deal type, enterprise value, and sectors, the sample sizes are smaller and may be biased by one or several data points. Time periods with fewer than 15 observations have been marked NA.
- Past results are not an indication of future results, provide no guarantee for the future, and will not be constant over time.

---

## PURCHASE THE COMPANY AND OPTIMIZE CAPITAL STRUCTURE

- **EBITDA Purchase Price Multiple**
- Leverage Multiple

## Amid increasing valuations for private equity and public companies, PE has maintained its discount

From their nadir in 2009 to their new high in 2019, PE transaction multiples increased by slightly more than four turns of EBITDA

### AVERAGE EBITDA PURCHASE PRICE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Enterprise Value/EBITDA



#### Number of Companies

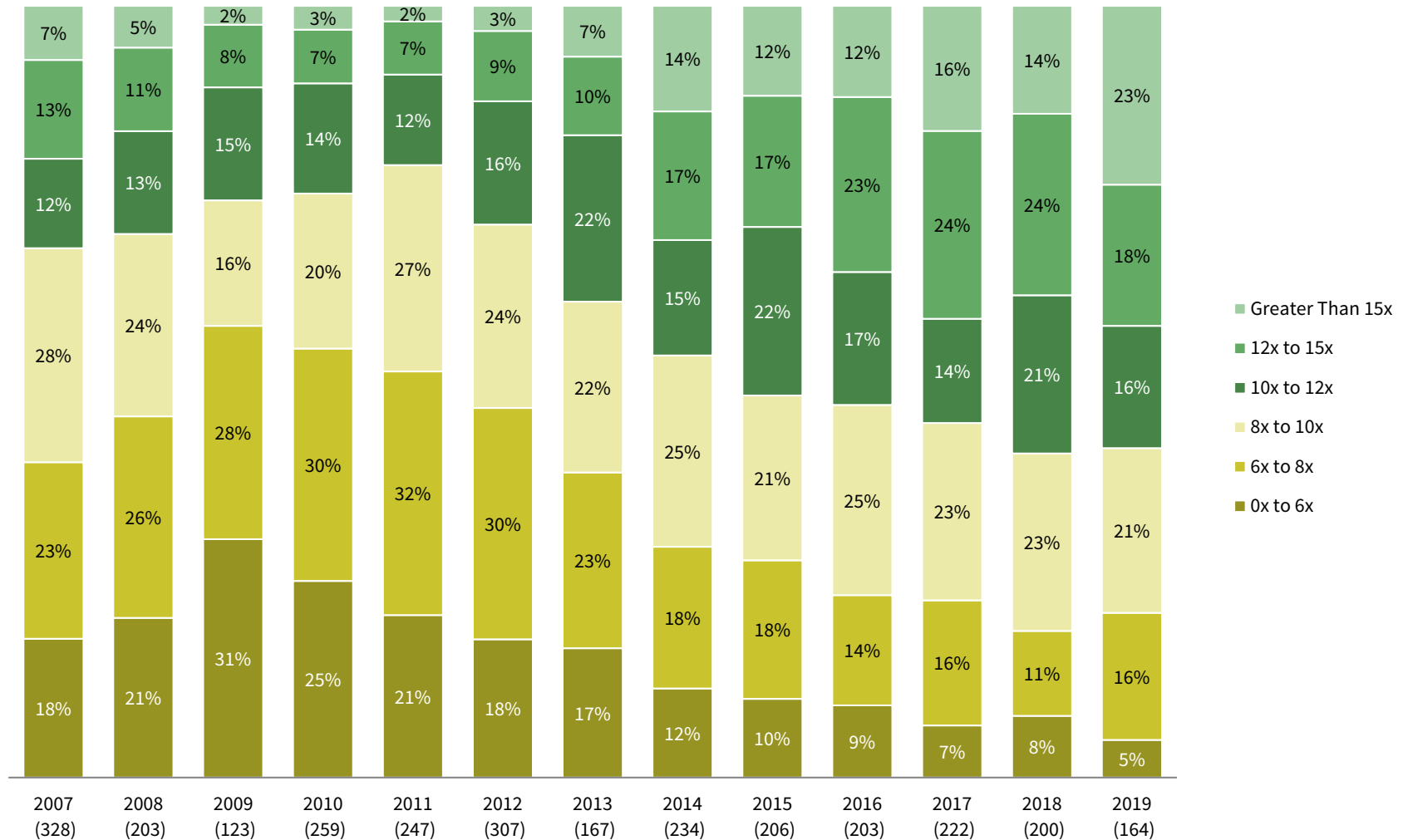
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Private Equity-Owned Companies	328	203	123	259	247	307	167	234	206	203	222	200	164
Russell 2500™ Index	1,492	1,520	1,596	1,666	1,637	1,678	1,655	1,672	1,649	1,623	1,604	1,580	1,534

## PPMs have shifted steadily toward the expensive end since 2011

In 2019, more companies (23%) transacted at a multiple of greater than 15x EBITDA than at any other PPM range shown

### AVERAGE EBITDA PURCHASE PRICE MULTIPLE BREAKDOWN OF PRIVATE EQUITY-OWNED COMPANIES

As of December 31, 2019 • Enterprise Value/EBITDA

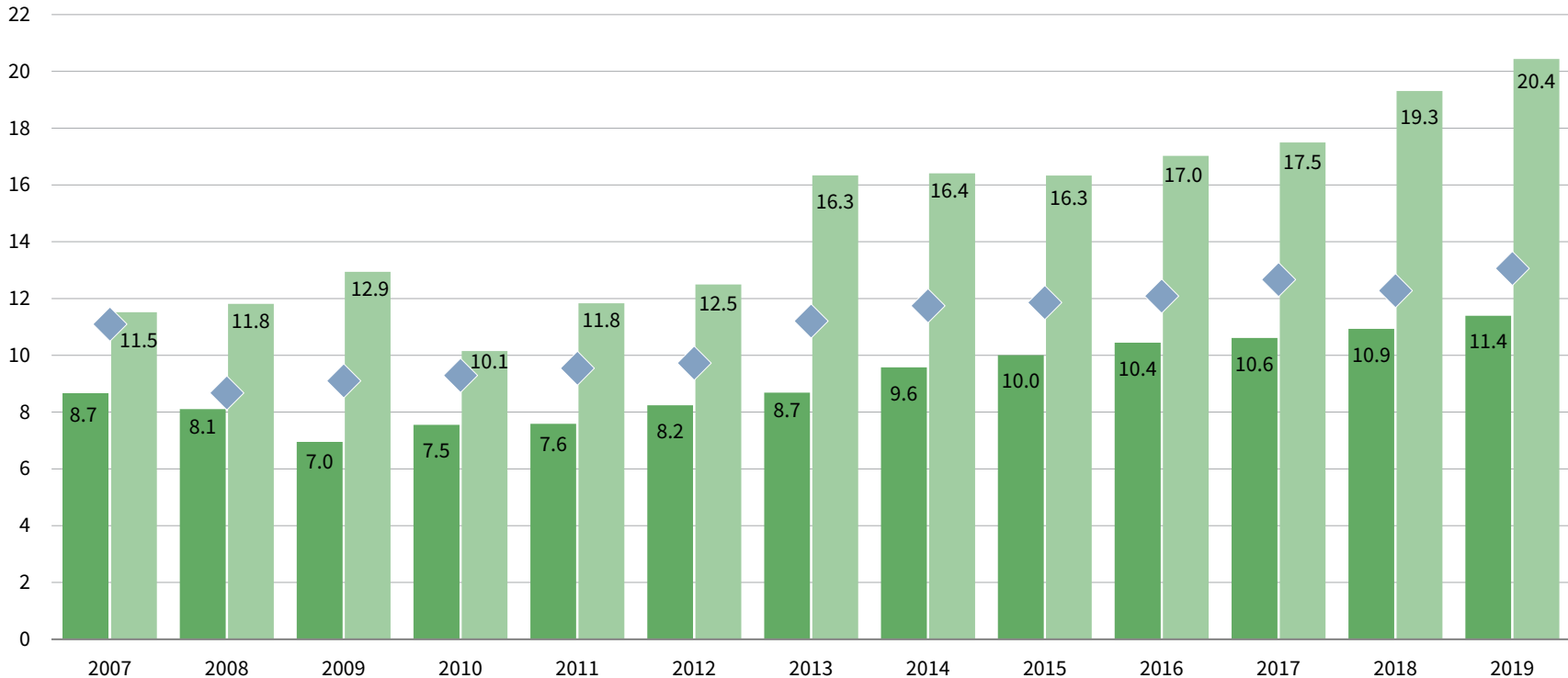


## Driven by technology and healthcare company transactions, growth equity multiples remain at a premium to buyouts and public companies

Buyout PPMs have increased steadily since 2009 but continue to trail those for public companies

### AVERAGE EBITDA PURCHASE PRICE MULTIPLES AT ACQUISITION OF BUYOUT AND GROWTH EQUITY COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Enterprise Value/EBITDA



#### Number of Companies

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Buyout Companies	255	156	94	200	196	252	124	185	166	162	171	162	110
Growth Equity Companies	60	41	28	55	42	51	44	47	34	42	43	34	40
Russell 2500™ Index	1,492	1,520	1,596	1,666	1,637	1,678	1,655	1,672	1,649	1,623	1,604	1,580	1,534



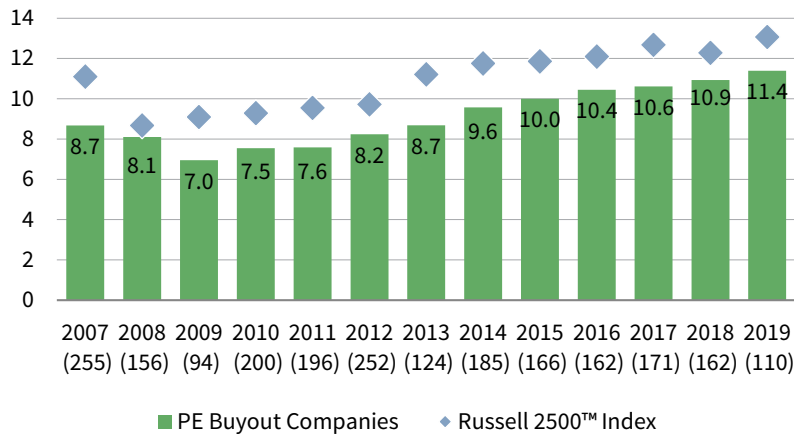
# In 2019, large company PPMs hit highest level yet

Small buyouts have maintained their healthy discount to public peers and larger private company transactions

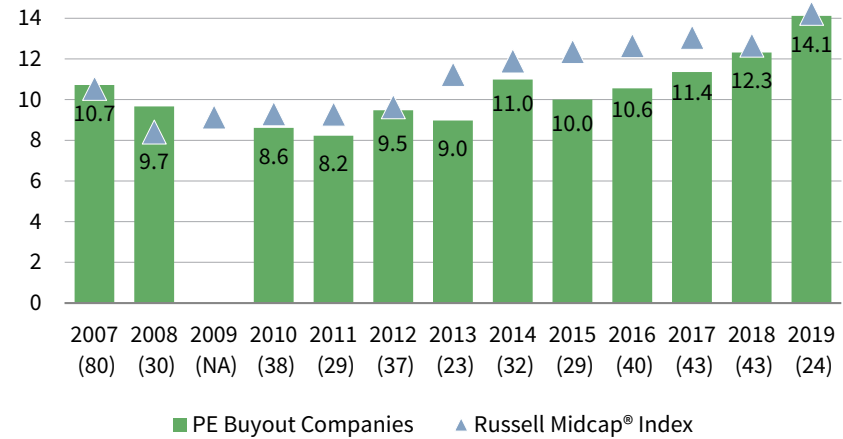
## AVERAGE EBITDA PURCHASE PRICE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY BUYOUT COMPANIES VS PUBLIC COMPANIES BY ENTERPRISE VALUE SEGMENT

As of December 31, 2019 • Enterprise Value/EBITDA

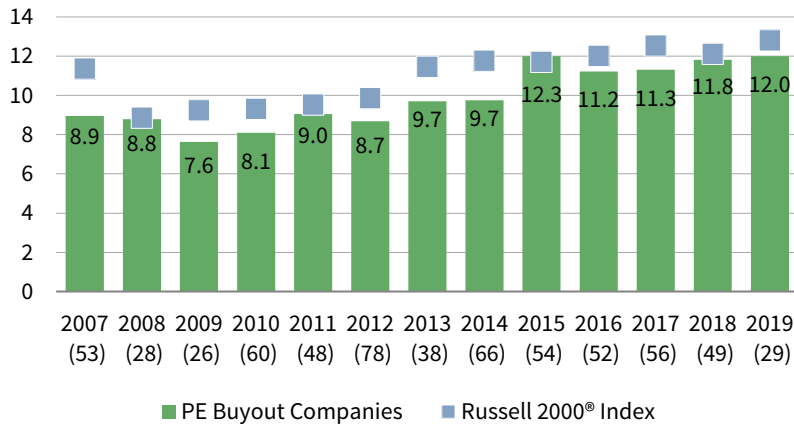
### Total Universe



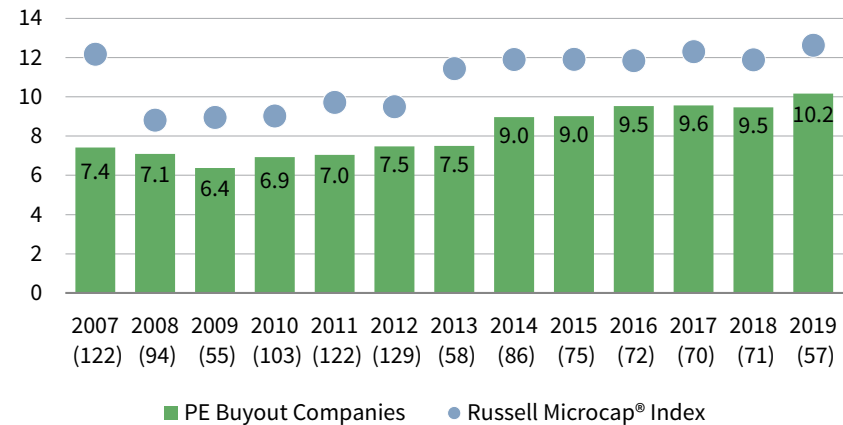
### Enterprise Value > \$1B



### Enterprise Value \$250M – \$1B



### Enterprise Value < \$250M



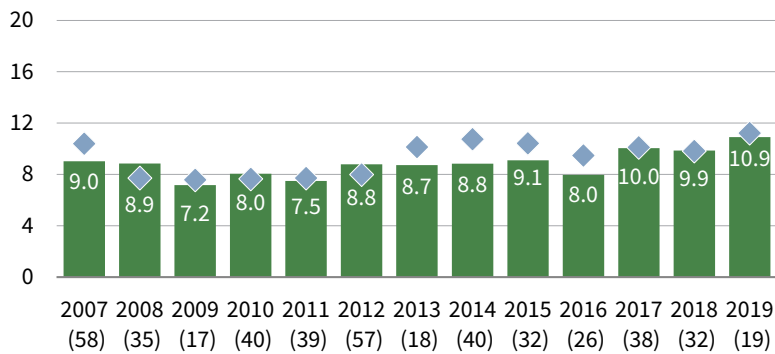
# IT valuations remain substantially higher than those in any other sector; revenue multiples show a similar pattern

Private healthcare companies transacted at meaningfully lower multiples than public counterparts, due in part to the PE focus on services rather than on biotech or healthcare technology

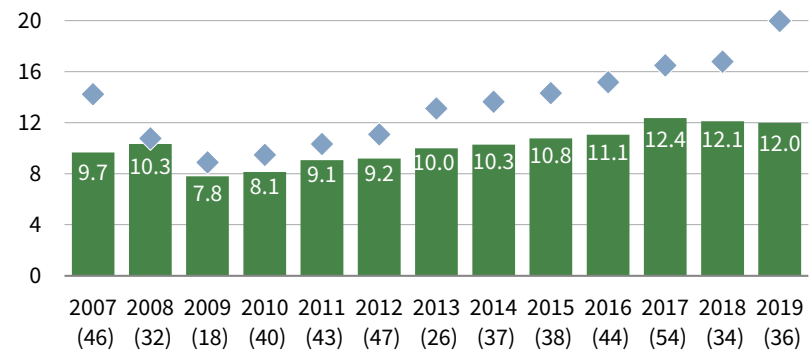
## AVERAGE EBITDA PURCHASE PRICE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES BY SECTOR

As of December 31, 2019 • Enterprise Value/EBITDA

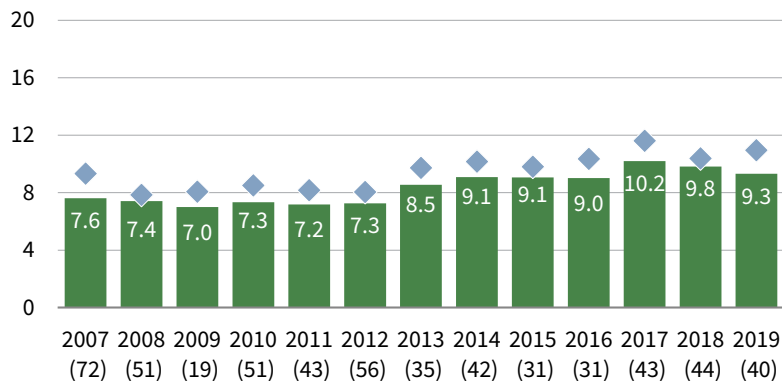
### Consumer Discretionary



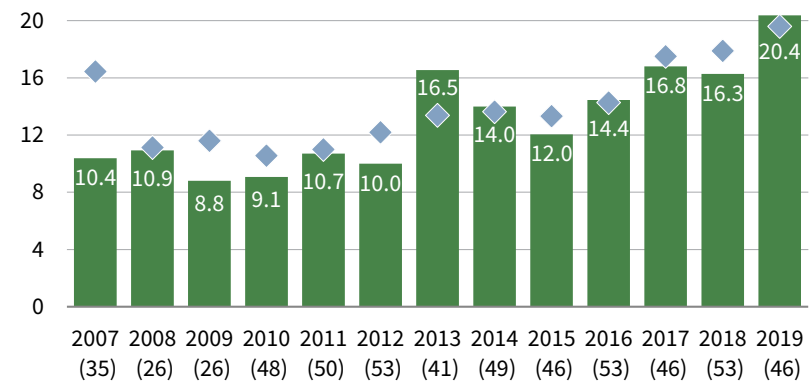
### Healthcare



### Industrials



### Information Technology



■ Private Equity-Owned Companies

◆ Russell 2500™ Index

---

## PURCHASE THE COMPANY AND OPTIMIZE CAPITAL STRUCTURE

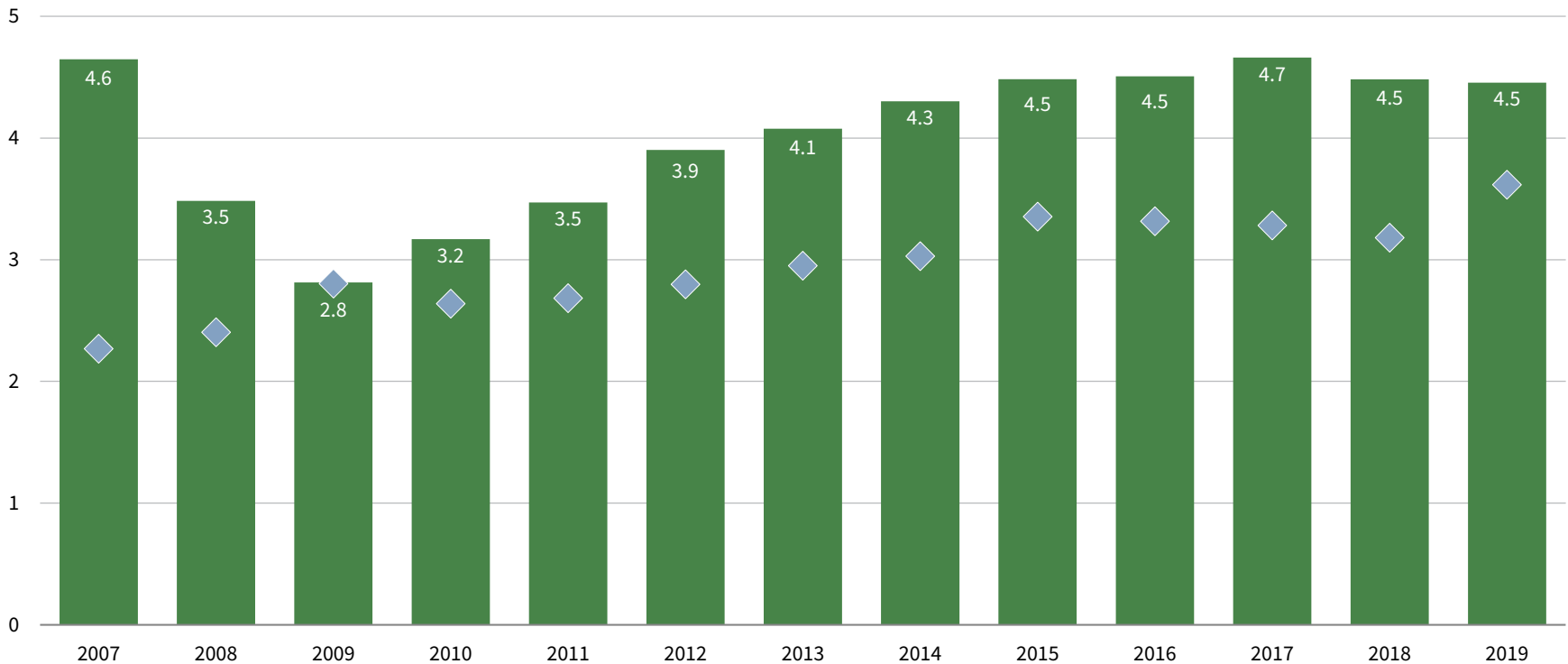
- EBITDA Purchase Price Multiple
- **Leverage Multiple**

## Private equity leverage levels have remained stable since 2014

Public and private equity leverage multiples inched closer to one another in 2019, shrinking to the smallest difference since 2010

### AVERAGE EBITDA LEVERAGE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Net Debt/EBITDA



#### Number of Companies

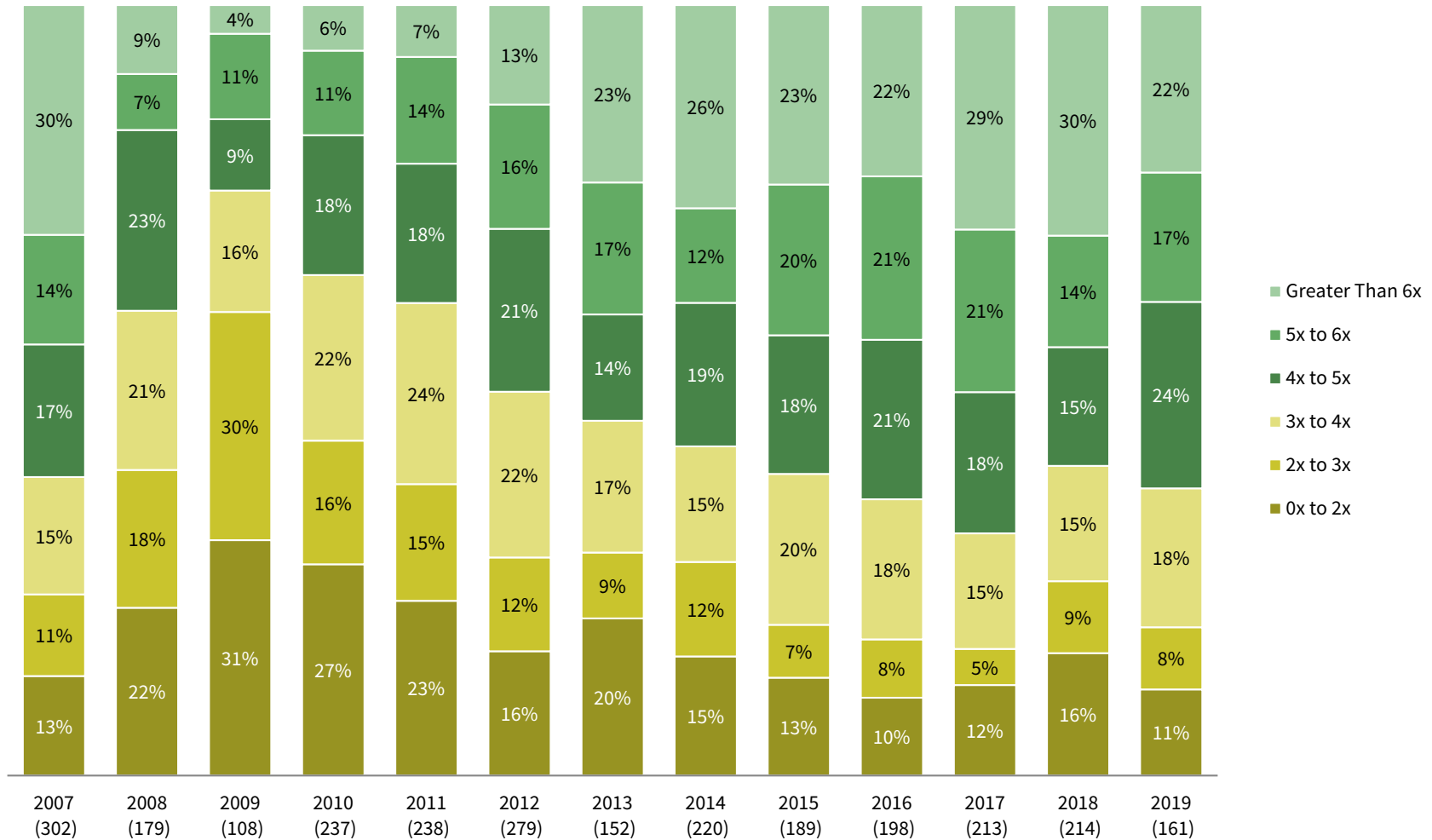
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Private Equity-Owned Companies	302	179	108	237	238	279	152	220	189	198	213	214	161
Russell 2500™ Index	956	998	1,022	1,012	1,023	1,119	1,138	1,189	1,225	1,217	1,237	1,236	1,282

## Since 2012, at least half of PE deals have been levered at 4x EBITDA or greater

Compared with the prior two years, 2019 saw a significant decrease in companies levered at more than 6x EBITDA and an equivalent increase in deals with leverage between 4x and 5x

### AVERAGE LEVERAGE MULTIPLE BREAKDOWN OF PRIVATE EQUITY-OWNED COMPANIES

As of December 31, 2019 • Net Debt/EBITDA



Source: Cambridge Associates LLC Private Investments Database (as reported by investment managers).

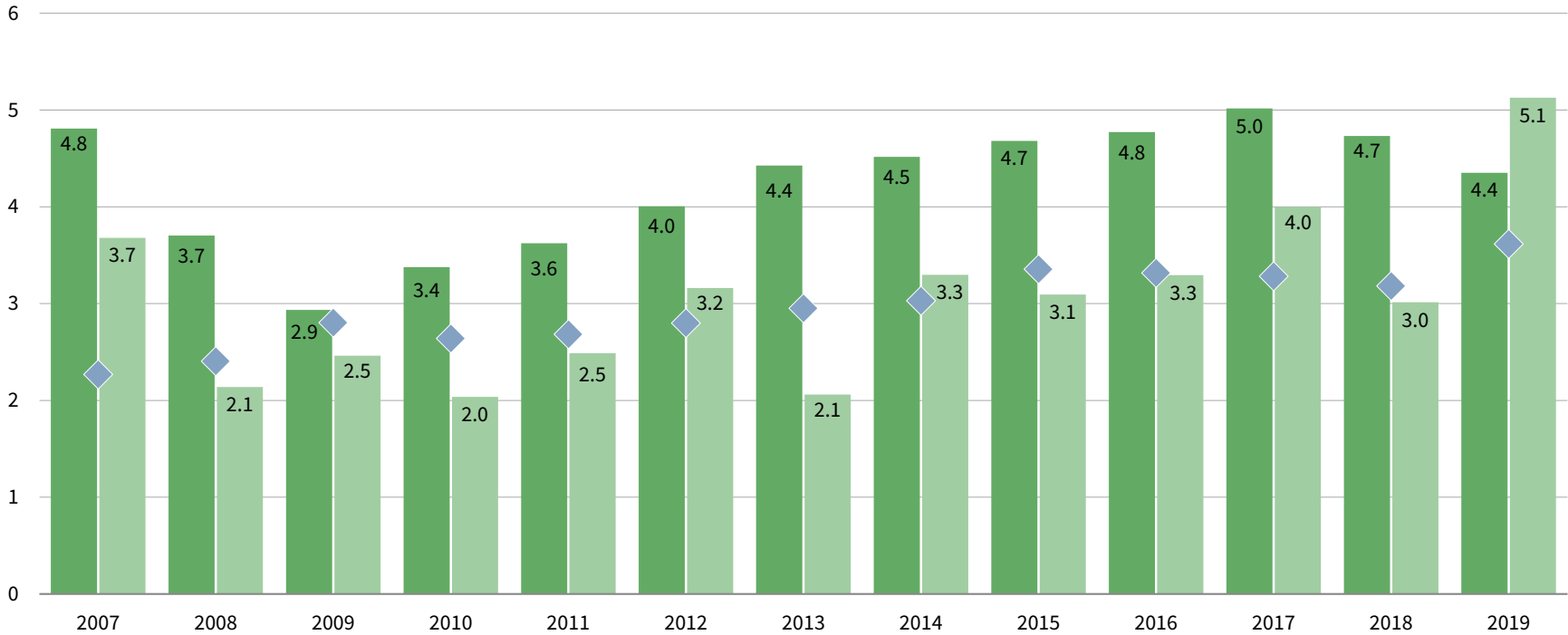
Notes: Outliers were identified and excluded. Numbers in parentheses represent total private companies in a year. Each range includes the lower bound value. For example, the 4x to 5x range includes companies with reported leverage multiples of exactly 4x. Due to rounding, totals may not sum to 100%.

# Growth equity leverage hit new heights in 2019, surpassing leverage in buyout transactions for the first time

After hitting a high in 2017, buyout leverage has declined more than half a turn of EBITDA

## AVERAGE EBITDA LEVERAGE MULTIPLES AT ACQUISITION OF BUYOUT AND GROWTH EQUITY COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Net Debt/EBITDA



### Number of Companies

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Buyout Companies	251	144	80	196	204	244	122	181	156	162	168	166	111
Growth Equity Companies	41	28	23	38	29	29	25	33	23	27	32	34	29
Russell 2500™ Index	956	998	1,022	1,012	1,023	1,119	1,138	1,189	1,225	1,217	1,237	1,236	1,282

Sources: Cambridge Associates LLC Private Investments Database (as reported by investment managers), FactSet Research Systems, and Frank Russell Company.

Note: Outliers were identified and excluded, and the same methodology was applied to the private equity and public company universes.

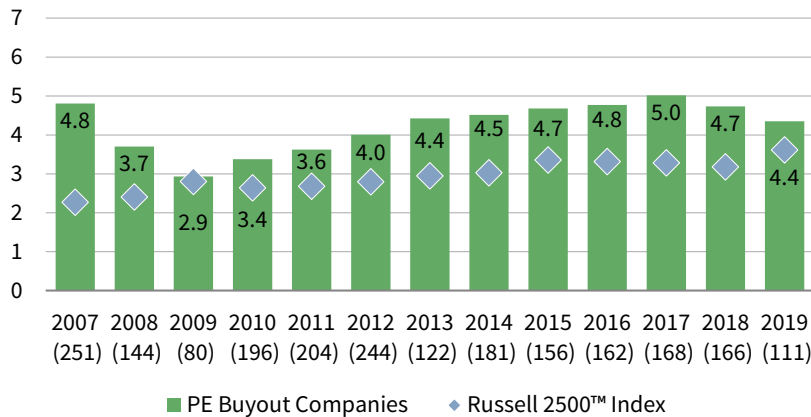
## For buyout companies, leverage increases with size

In 2019, for the first time since 2009, private small company leverage meaningfully lower than that of public peers

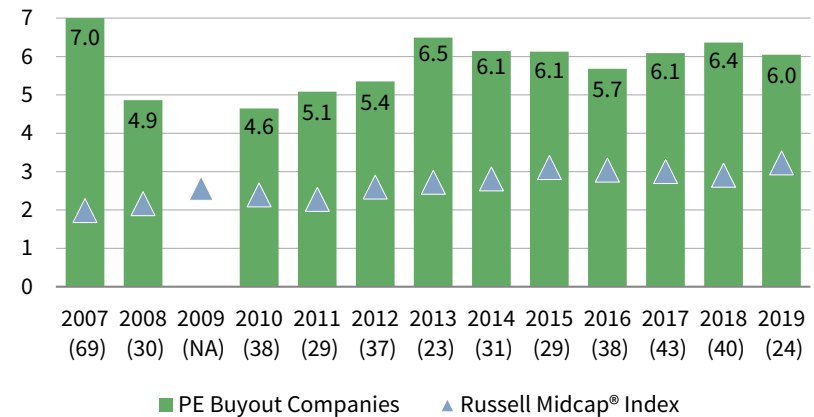
### AVERAGE EBITDA LEVERAGE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY BUYOUT COMPANIES VS PUBLIC COMPANIES BY ENTERPRISE VALUE SEGMENT

As of December 31, 2019 • Net Debt/EBITDA

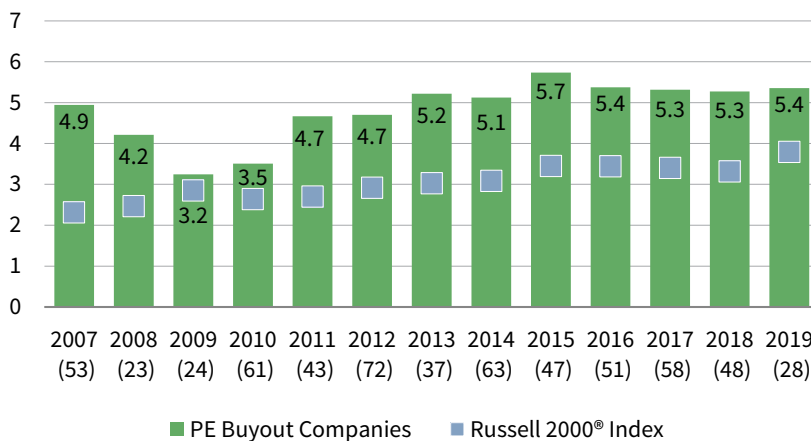
#### Total Universe



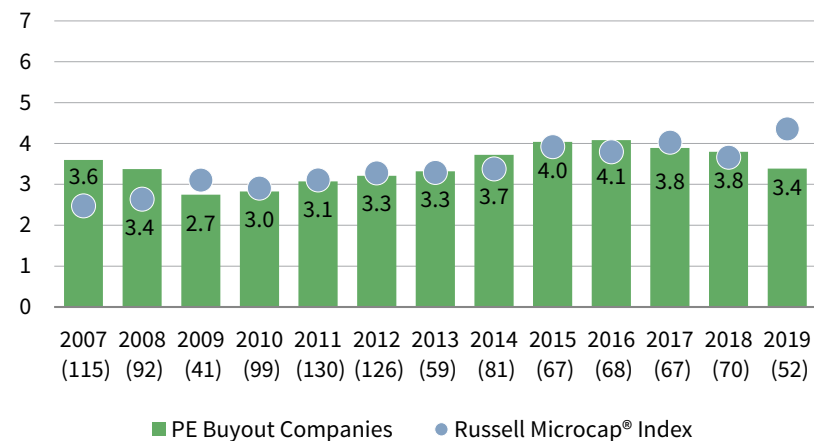
#### Enterprise Value > \$1B



#### Enterprise Value \$250M – \$1B



#### Enterprise Value < \$250M



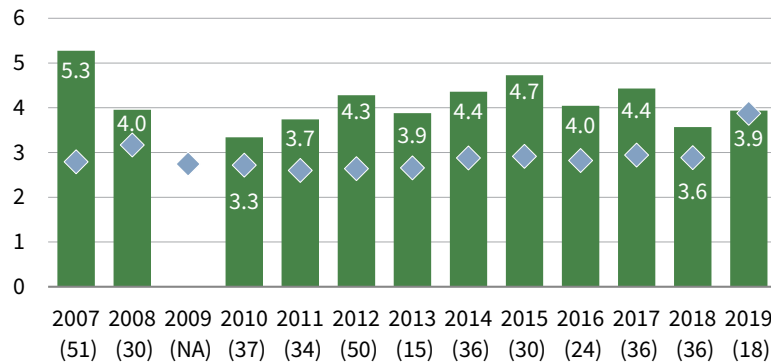
## In 2019, public market company leverage increased in all sectors, narrowing the gap with private companies

IT leverage hit another new height for that sector in 2019, but the 2017 healthcare leverage multiple remained the highest observed for any sector across time period

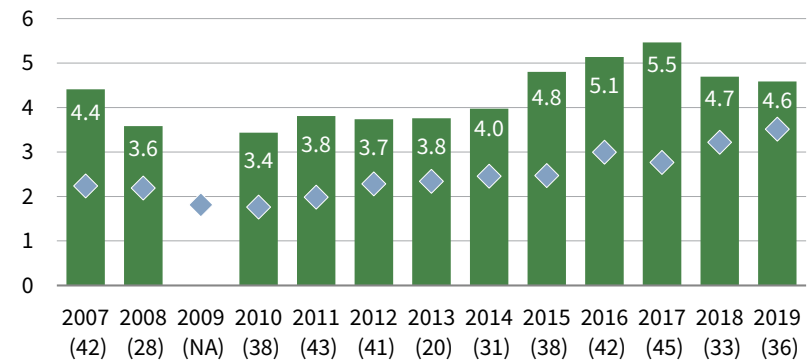
### AVERAGE EBITDA LEVERAGE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES BY SECTOR

As of December 31, 2019 • Net Debt/EBITDA

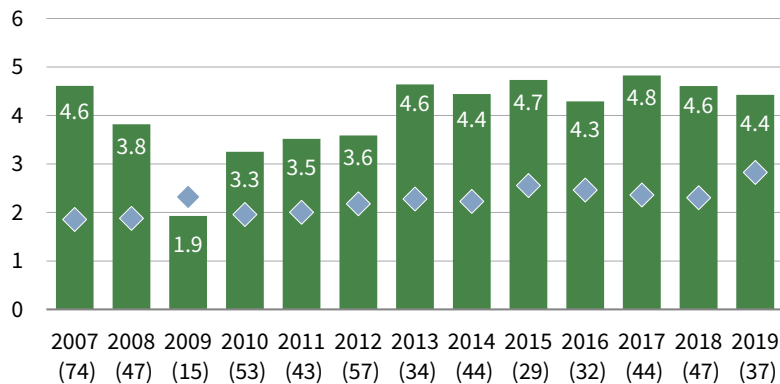
#### Consumer Discretionary



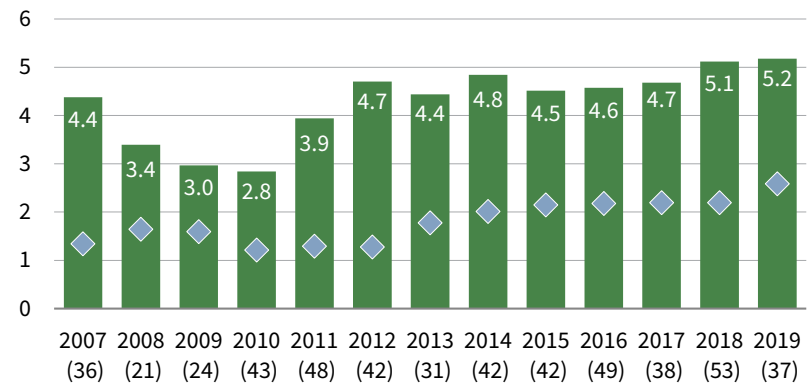
#### Healthcare



#### Industrials



#### Information Technology



■ Private Equity-Owned Companies

◆ Russell 2500™ Index



---

## IMPROVE THE PERFORMANCE OF THE COMPANY AND TRANSFORM THE BUSINESS

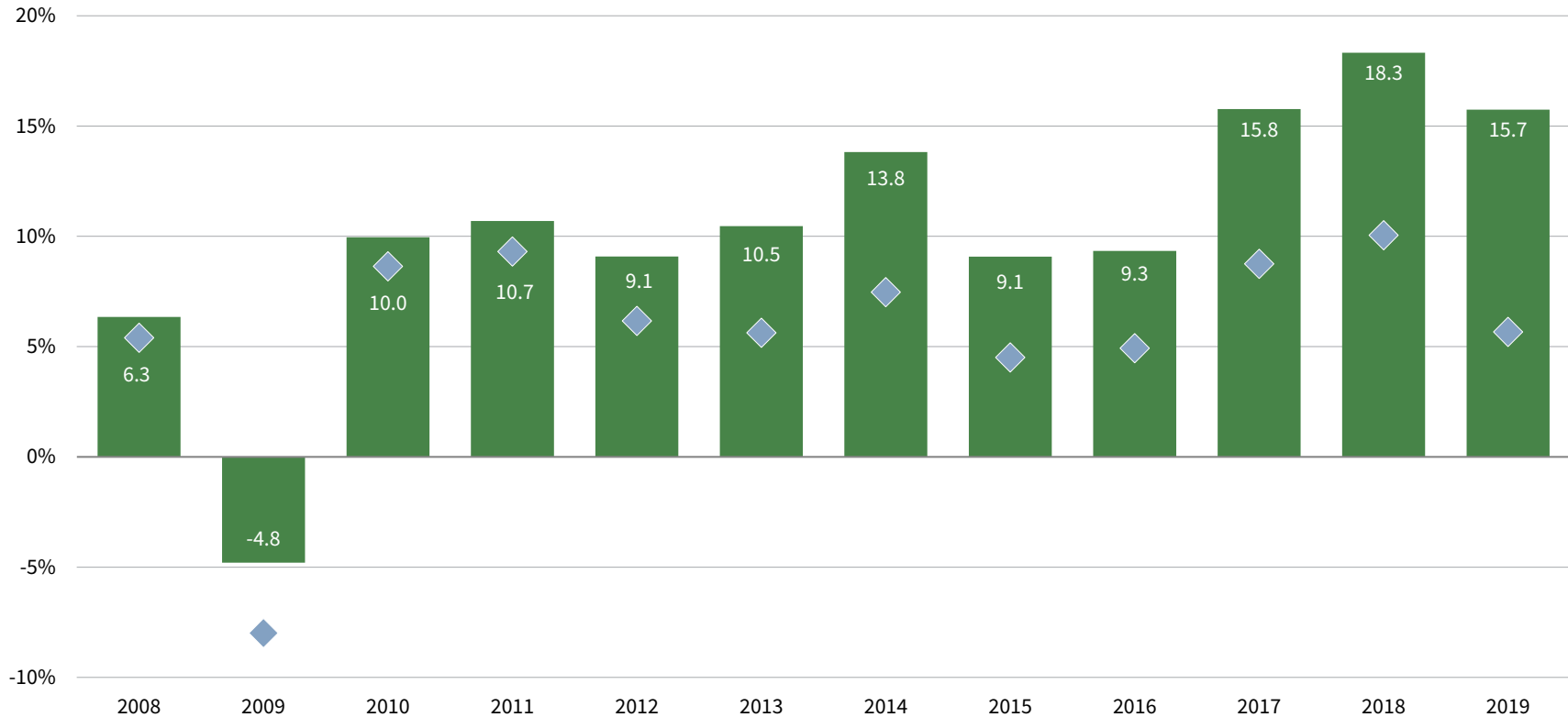
- **Revenue Growth**
- EBITDA Growth
- EBITDA Margin
- Exit Metrics

## Private equity supercharged revenue growth in the last three years, expanding its lead over public companies

From 2008 to 2016, PE averaged 8.8% annual revenue growth versus 4.9% for publics; from 2017 to 2019, the same comparison is 16.5% versus 8.2%, respectively

### AVERAGE ANNUAL REVENUE GROWTH OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Annual Growth Rate (%)



#### Number of Companies

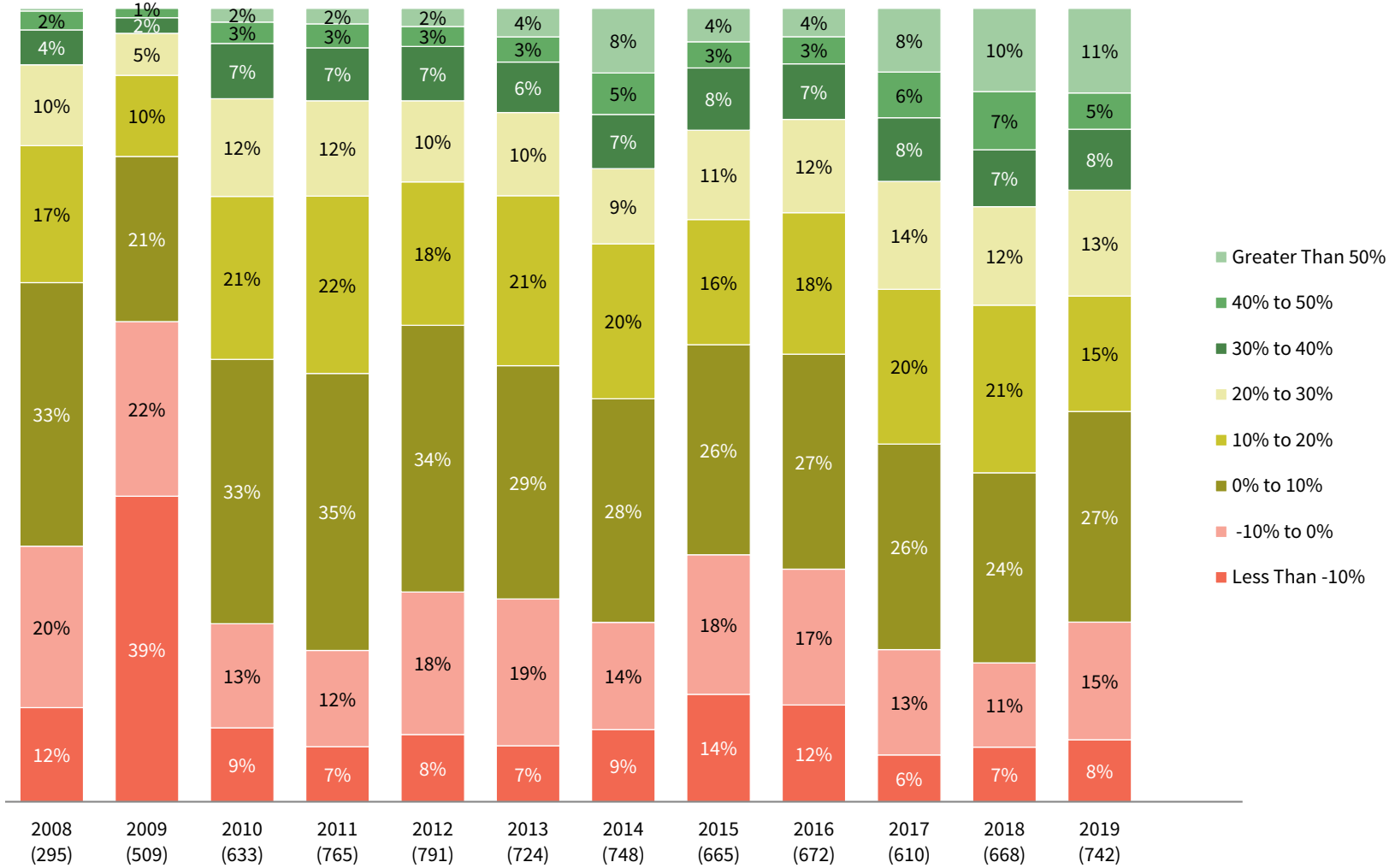
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Private Equity-Owned Companies	295	509	633	765	791	724	748	665	672	610	668	742
Russell 2500™ Index	2,026	2,020	2,050	2,070	2,059	2,032	2,042	2,039	2,009	1,984	1,997	1,995

# Since 2017, more than half of PE companies grew revenue by 10% or more

In all years, at least 18% of PE companies saw revenue decline

## AVERAGE ANNUAL REVENUE GROWTH BREAKDOWN OF PRIVATE EQUITY-OWNED COMPANIES

As of December 31, 2019 • Annual Growth Rate (%)

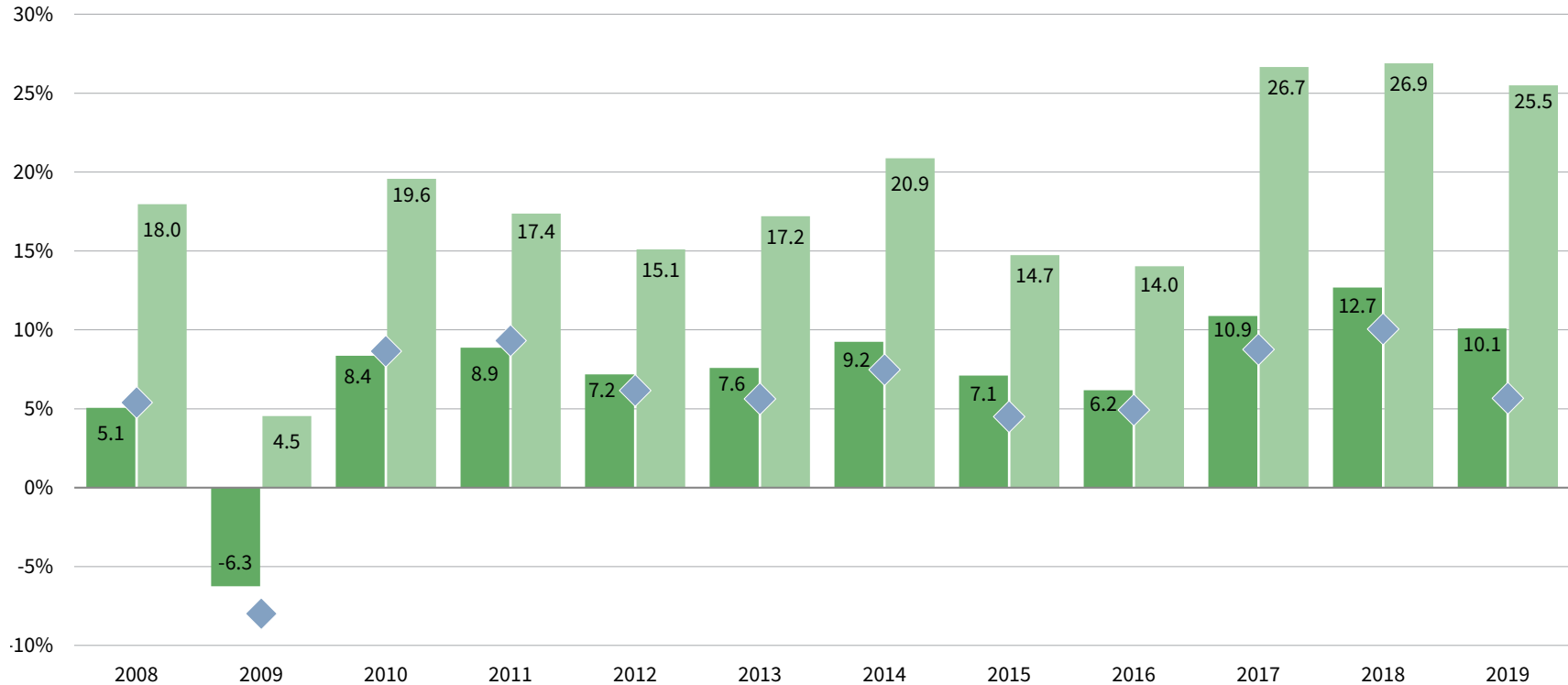


## In all but three years, buyout company revenue growth exceeded that of public companies

Growth equity outperformed buyouts and publics in all years, growing revenue by more than 25% in the last three consecutive years

### AVERAGE ANNUAL REVENUE GROWTH OF BUYOUT AND GROWTH EQUITY COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Annual Growth Rate (%)



#### Number of Companies

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Buyout Companies	254	414	485	571	549	461	465	366	405	358	392	415
Growth Equity Companies	47	89	137	171	201	234	240	250	240	219	256	296
Russell 2500™ Index	2,026	2,020	2,050	2,070	2,059	2,032	2,042	2,039	2,009	1,984	1,997	1,995

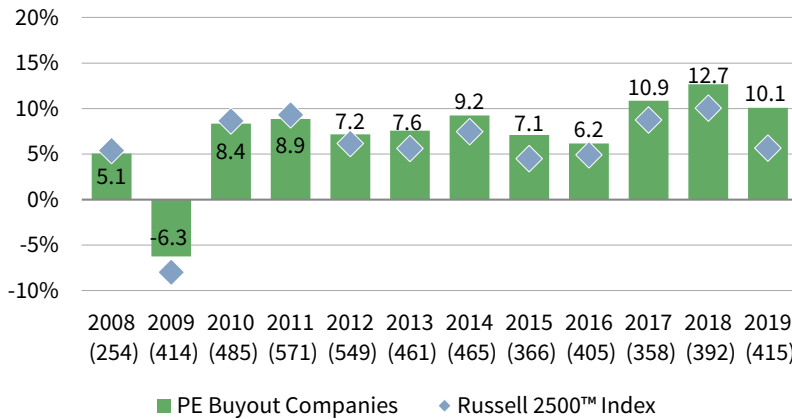
**During this time period, small buyouts averaged 9.4% annual revenue growth, by far the best among public and private equity groups**

Large buyouts remain the only size segment to regularly underperform publics

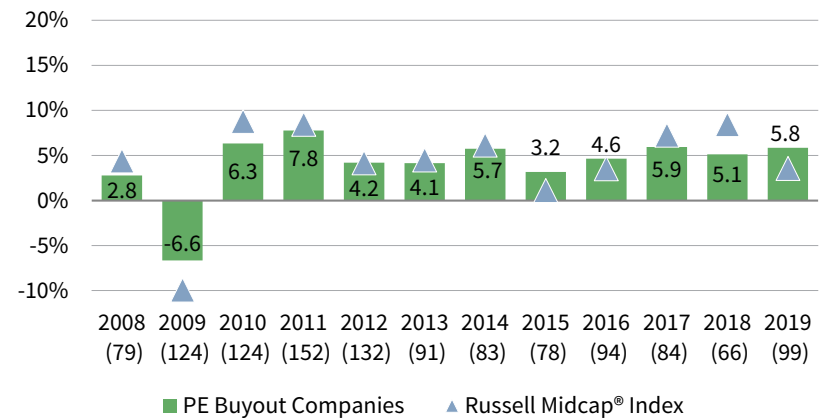
**AVERAGE ANNUAL REVENUE GROWTH OF PRIVATE EQUITY BUYOUT COMPANIES VS PUBLIC COMPANIES BY ENTERPRISE VALUE SEGMENT**

As of December 31, 2019 • Annual Growth Rate (%)

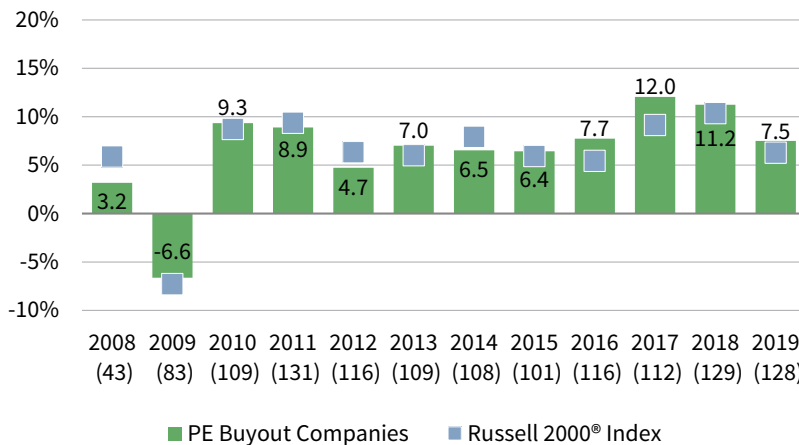
**Total Universe**



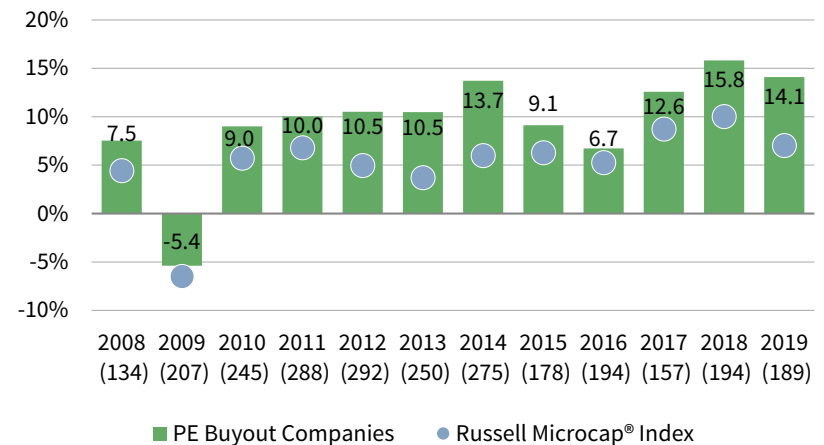
**EV > \$1B**



**EV \$250M – \$1B**



**EV < \$250M**



Sources: Cambridge Associates LLC Private Investments Database (as reported by investment managers), FactSet Research Systems, and Frank Russell Company.

Notes: Outliers were identified and excluded, and the same methodology was applied to the private equity and public company universes. Numbers in parentheses represent number of private equity-owned companies in each year.

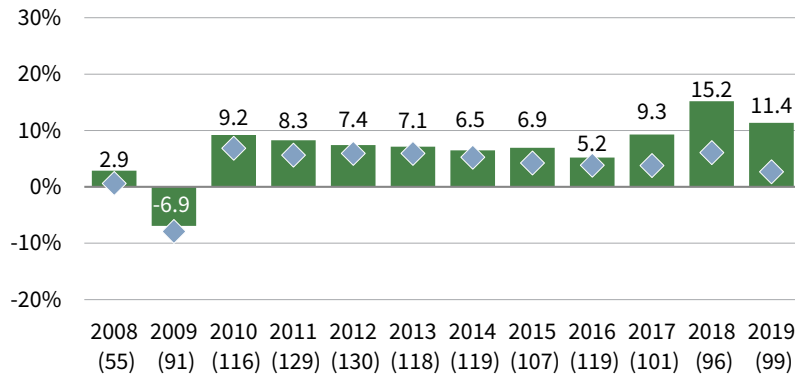
# Across all sectors, PE businesses have grown revenue faster than public peers since 2008

Private IT and healthcare companies averaged double-digit revenue growth

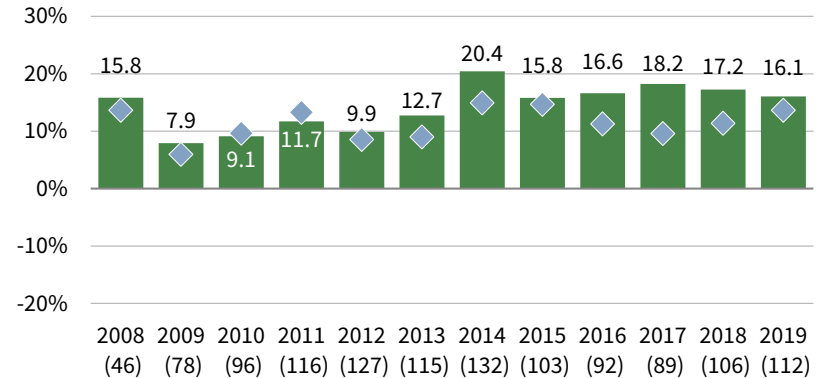
## AVERAGE ANNUAL REVENUE GROWTH OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES BY SECTOR

As of December 31, 2019 • Annual Growth Rate (%)

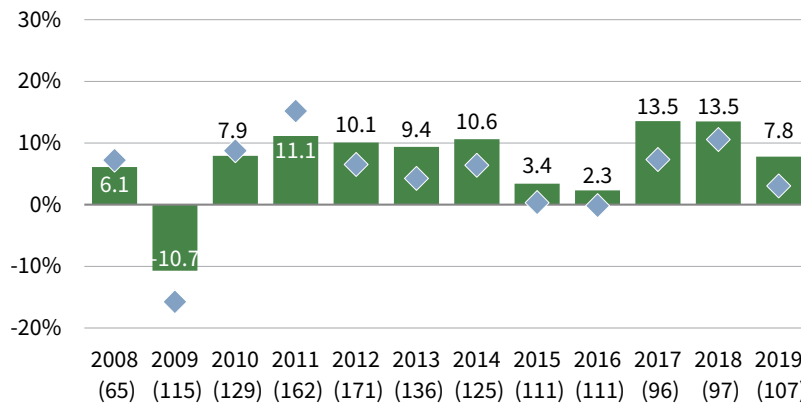
### Consumer Discretionary



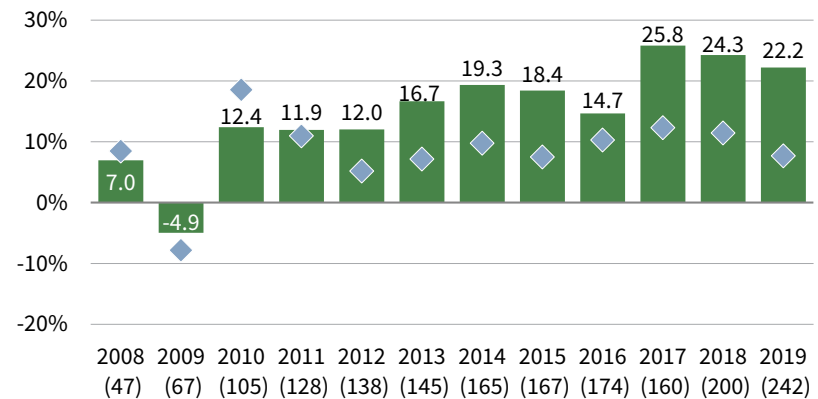
### Healthcare



### Industrials



### Information Technology



■ Private Equity-Owned Companies    ◆ Russell 2500™ Index

---

## IMPROVE THE PERFORMANCE OF THE COMPANY AND TRANSFORM THE BUSINESS

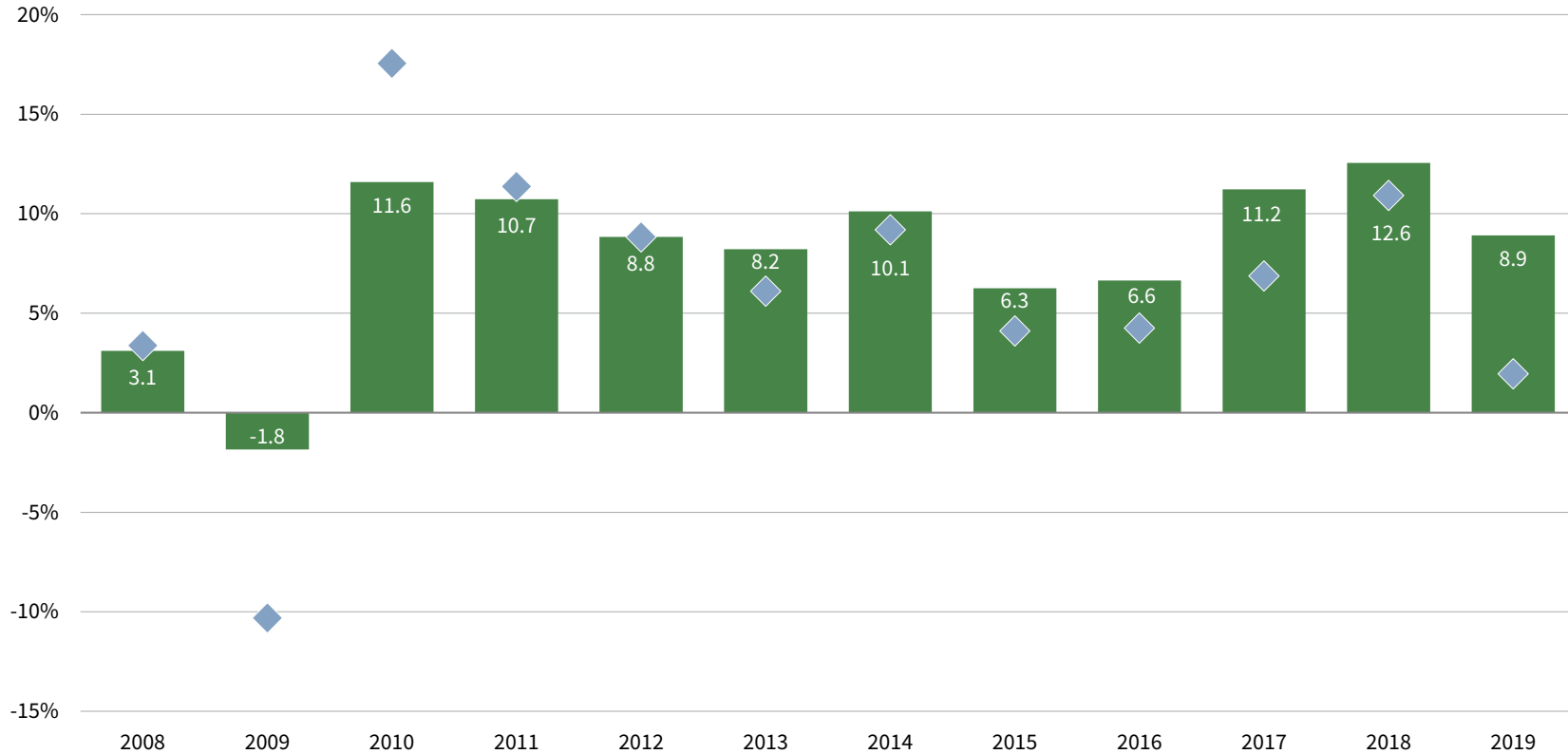
- Revenue Growth
- **EBITDA Growth**
- EBITDA Margin
- Exit Metrics

Since 2008, PE companies grew EBITDA at an average rate of about 2% faster per annum than public market companies

The gap widened substantially in 2019 to almost 7%

**AVERAGE ANNUAL EBITDA GROWTH OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES**

As of December 31, 2019 • Annual Growth Rate (%)



**Number of Companies**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Private Equity-Owned Companies	276	448	542	677	688	602	611	513	500	448	465	511
Russell 2500™ Index	1,314	1,293	1,386	1,487	1,479	1,468	1,452	1,437	1,406	1,402	1,396	1,391

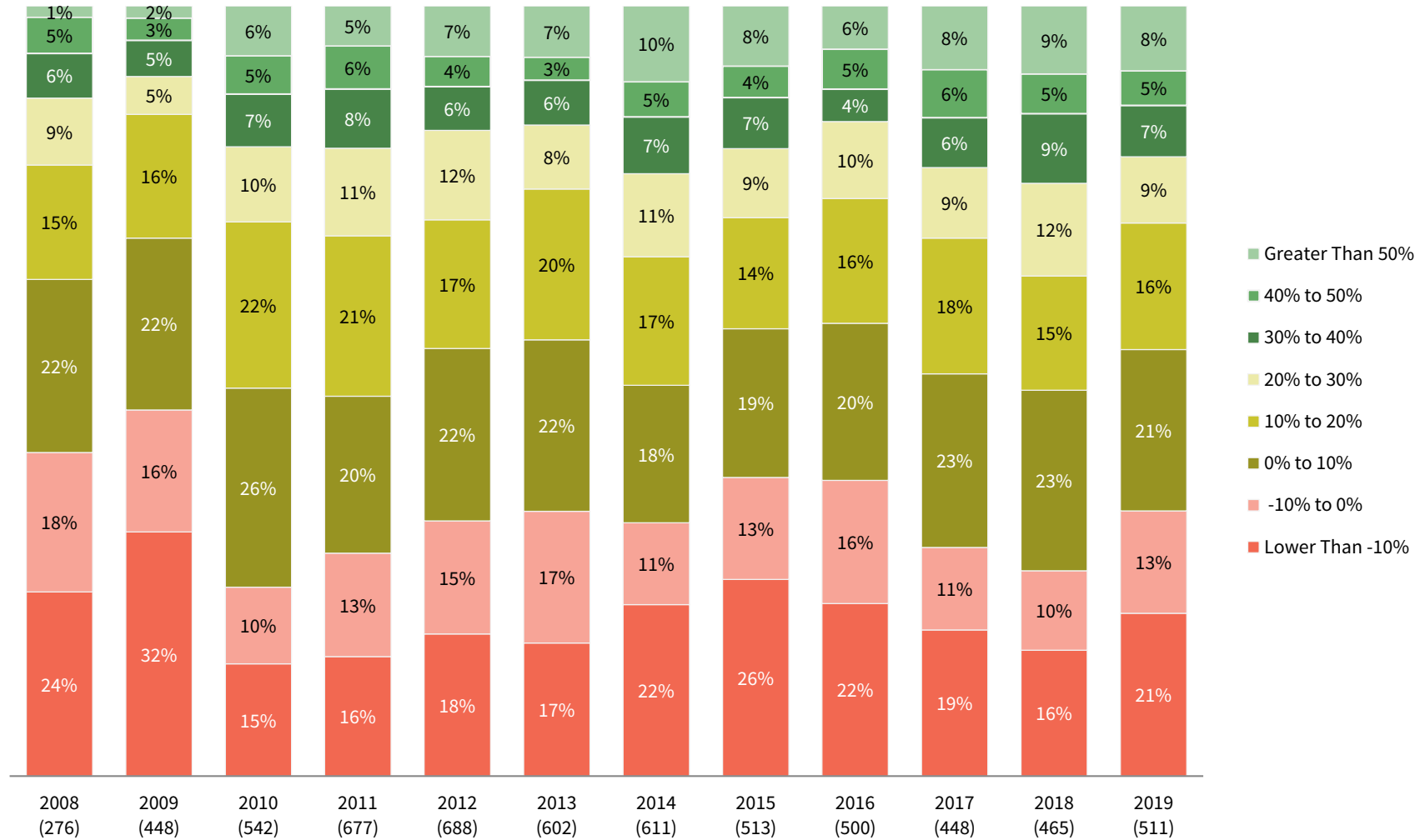


## Despite persistent average annual growth, EBITDA declined for at least 25% of PE-owned companies each year

The drop in EBITDA growth in 2019 was driven by both a decrease in strong growers and an increase in companies with declining EBITDA

### AVERAGE ANNUAL EBITDA GROWTH BREAKDOWN OF PRIVATE EQUITY-OWNED COMPANIES

As of December 31, 2019 • Annual Growth Rate (%)

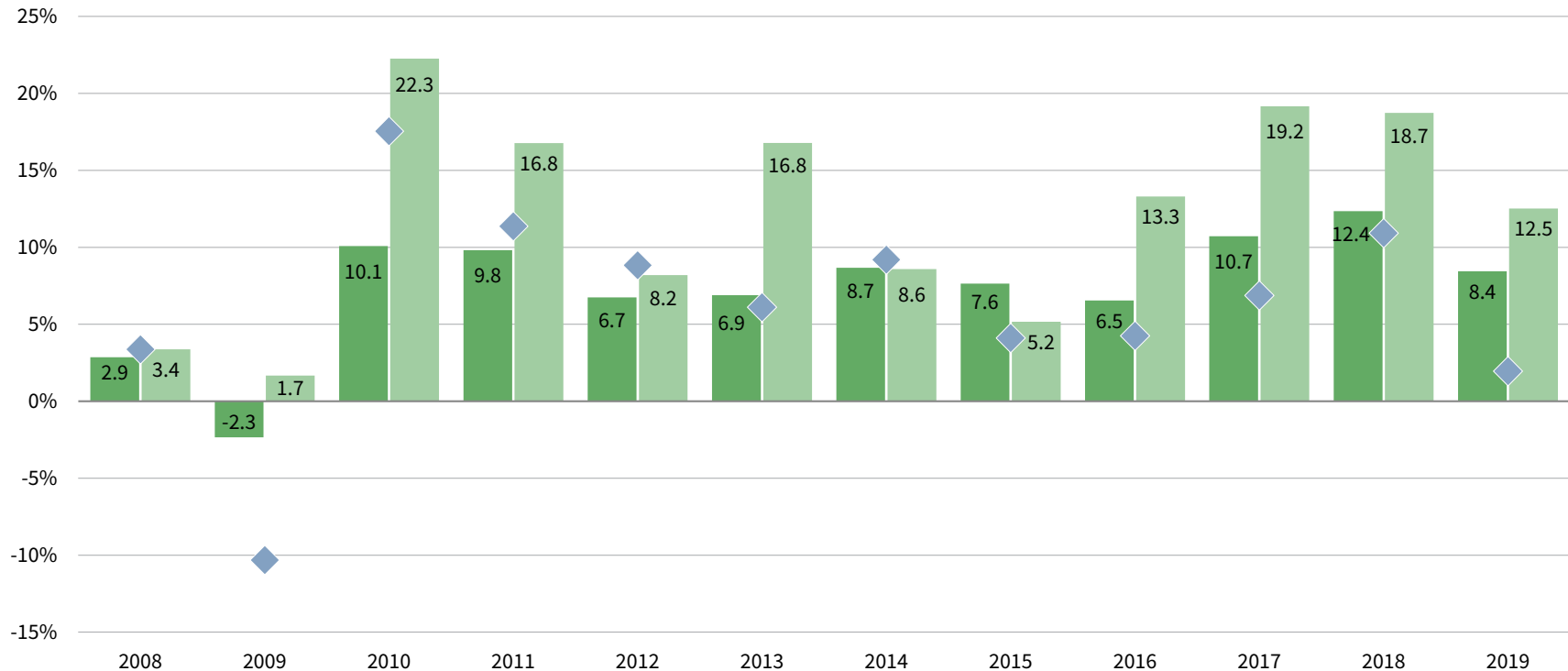


## In each of the last five years, buyout and growth equity companies outperformed public ones

From 2018 to 2019, EBITDA growth fell for all company types

### AVERAGE ANNUAL EBITDA GROWTH OF BUYOUT AND GROWTH EQUITY COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Annual Growth Rate (%)



#### Number of Companies

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Buyout Companies	242	383	427	537	519	434	450	349	361	330	353	378
Growth Equity Companies	32	61	104	132	145	147	145	134	116	97	109	122
Russell 2500™ Index	1,314	1,293	1,386	1,487	1,479	1,468	1,452	1,437	1,406	1,402	1,396	1,391

Sources: Cambridge Associates LLC Private Investments Database (as reported by investment managers), FactSet Research Systems, and Frank Russell Company.

Note: Outliers were identified and excluded, and the same methodology was applied to the private equity and public company universes.

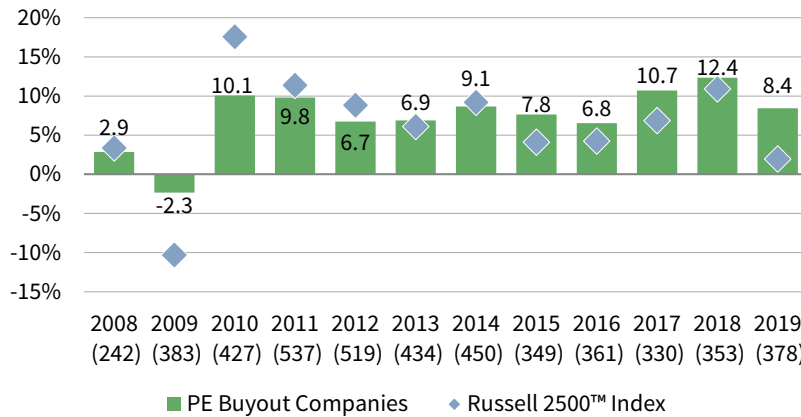
## Since 2008, across the size spectrum, on average, buyout company EBITDA growth exceeded that of their public peers

Following three years of increasing EBITDA growth, all size segments saw stable or slower growth in 2019; declines were most severe in all mid-sized companies and small public

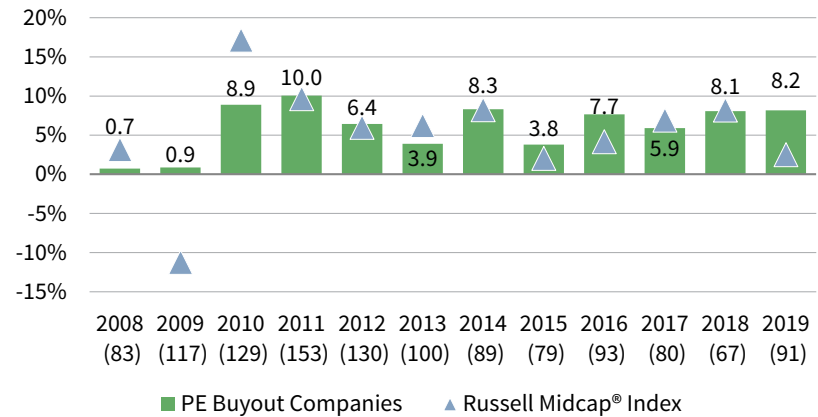
### AVERAGE ANNUAL EBITDA GROWTH OF PRIVATE EQUITY BUYOUT COMPANIES VS PUBLIC COMPANIES BY ENTERPRISE VALUE SEGMENT

As of December 31, 2019 • Annual Growth Rate (%)

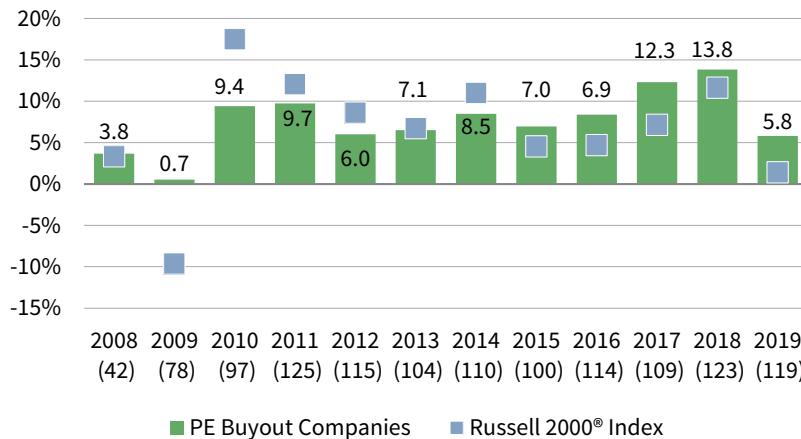
#### Total Universe



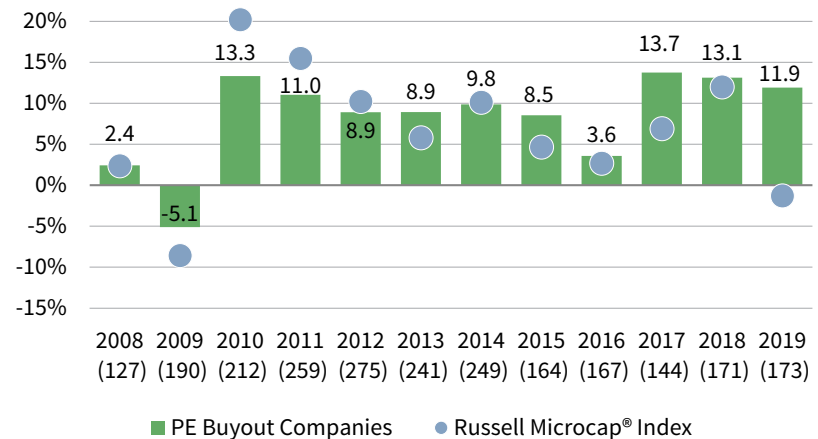
#### Enterprise Value > \$1B



#### Enterprise Value \$250M – \$1B



#### Enterprise Value < \$250M



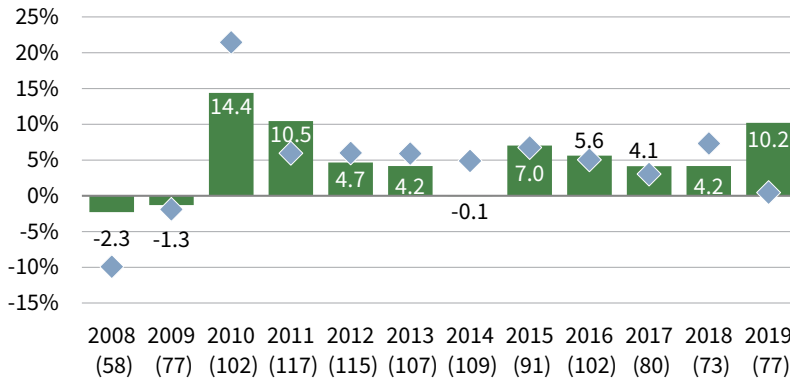
# Healthcare EBITDA growth has been the most resilient and strong, while IT has been consistently positive for PE

In PE and public realms, consumer businesses averaged roughly 5% annual EBITDA growth, less than half the annual growth for healthcare and IT

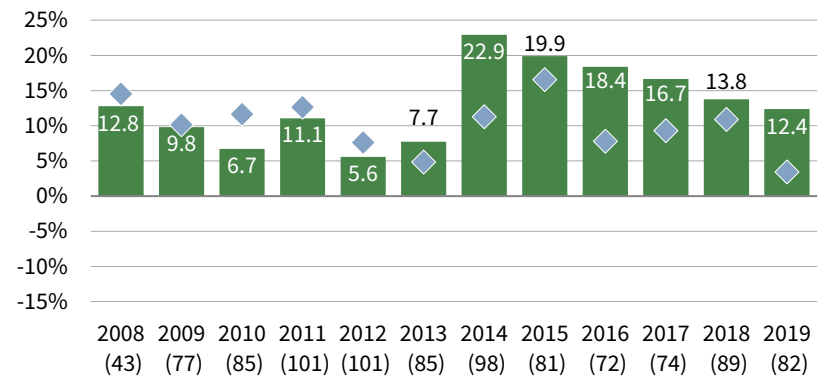
## AVERAGE ANNUAL EBITDA GROWTH OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES BY SECTOR

As of December 31, 2019 • Annual Growth Rate (%)

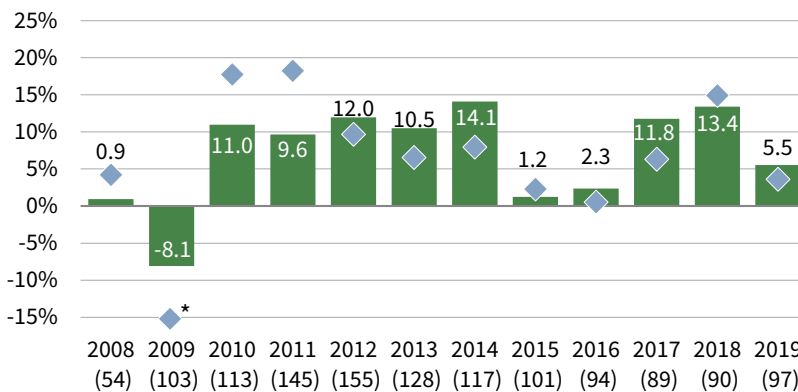
### Consumer Discretionary



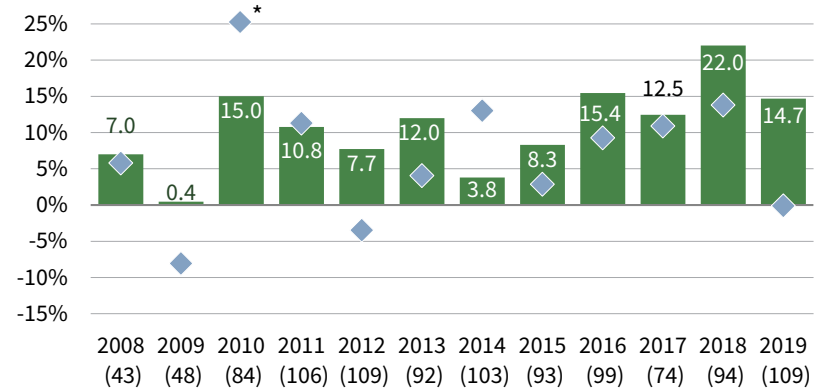
### Healthcare



### Industrials



### Information Technology



■ Private Equity-Owned Companies

◆ Russell 2500™ Index

\* Axis has been capped for scaling purposes. Industrials in the Russell 2500™ saw EBITDA growth of -22.7% in 2009; IT companies in the Russell 2500™ saw EBITDA growth of 34.6% in 2010.

Sources: Cambridge Associates LLC Private Investments Database (as reported by investment managers), FactSet Research Systems, and Frank Russell Company.

Note: Outliers were identified and excluded, and the same methodology was applied to the private equity and public company universes. Numbers in parentheses represent number of private equity-owned companies in each year.

---

## IMPROVE THE PERFORMANCE OF THE COMPANY AND TRANSFORM THE BUSINESS

- Revenue Growth
- EBITDA Growth
- **EBITDA Margin**
- Exit Metrics

**PE company EBITDA margins have increased for six straight years (2014–19); public margins declined since 2017**

PE outperformance in 2019 was highest since 2013

**AVERAGE ANNUAL EBITDA MARGIN OF PRIVATE EQUITY–OWNED COMPANIES VS PUBLIC COMPANIES**

As of December 31, 2019 • EBITDA/Revenue (%)



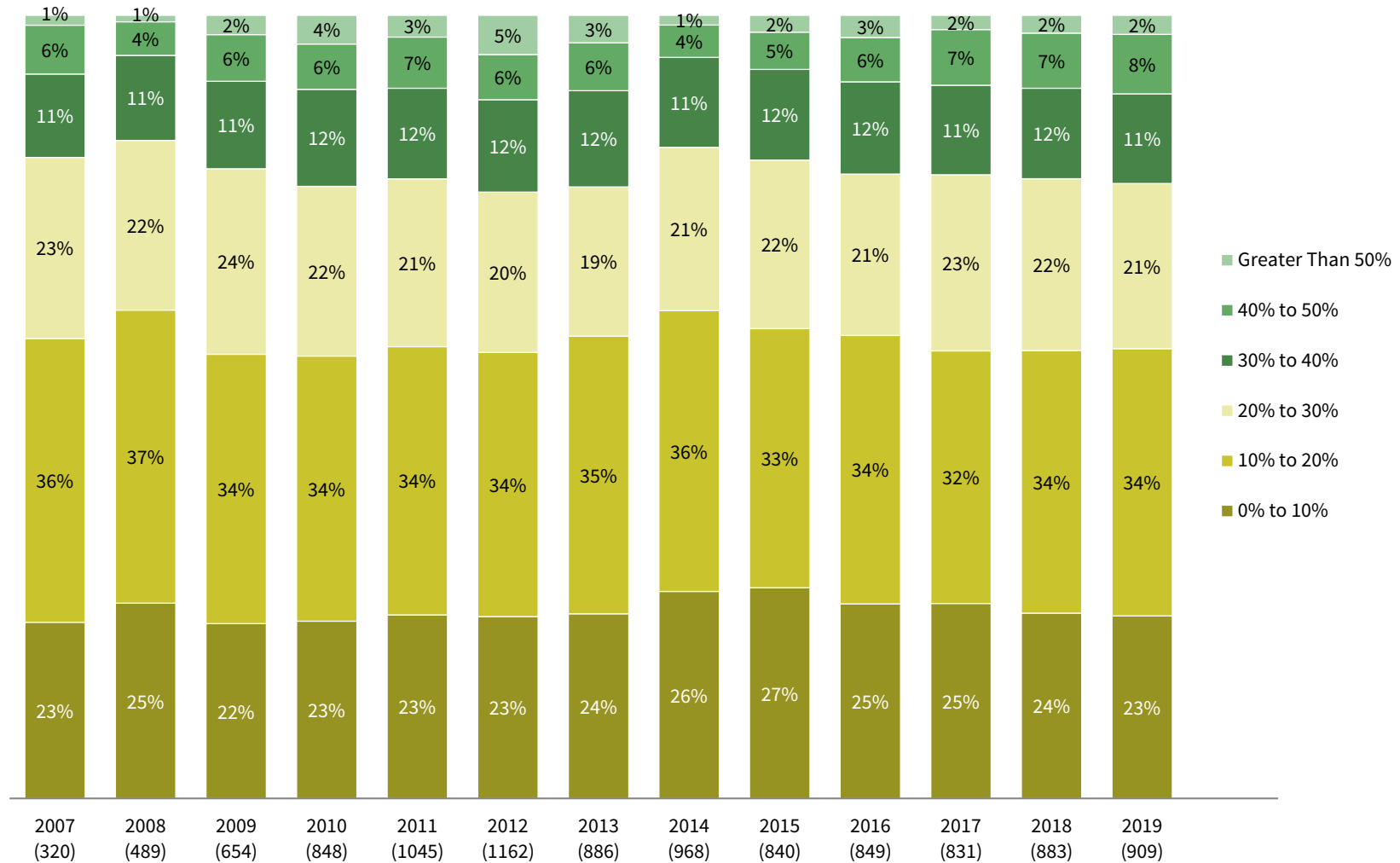
**Number of Companies**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Private Equity–Owned Companies	20	19	20	20	20	21	20	19	19	20	20	20	20
Russell 2500™ Index	1,565	1,563	1,724	1,750	1,733	1,714	1,688	1,715	1,702	1,635	1,614	1,599	1,542

## Distribution of PE EBITDA margins highlights consistency

### AVERAGE ANNUAL EBITDA MARGIN BREAKDOWN OF PRIVATE EQUITY-OWNED COMPANIES

As of December 31, 2019 • EBITDA/Revenue (%)

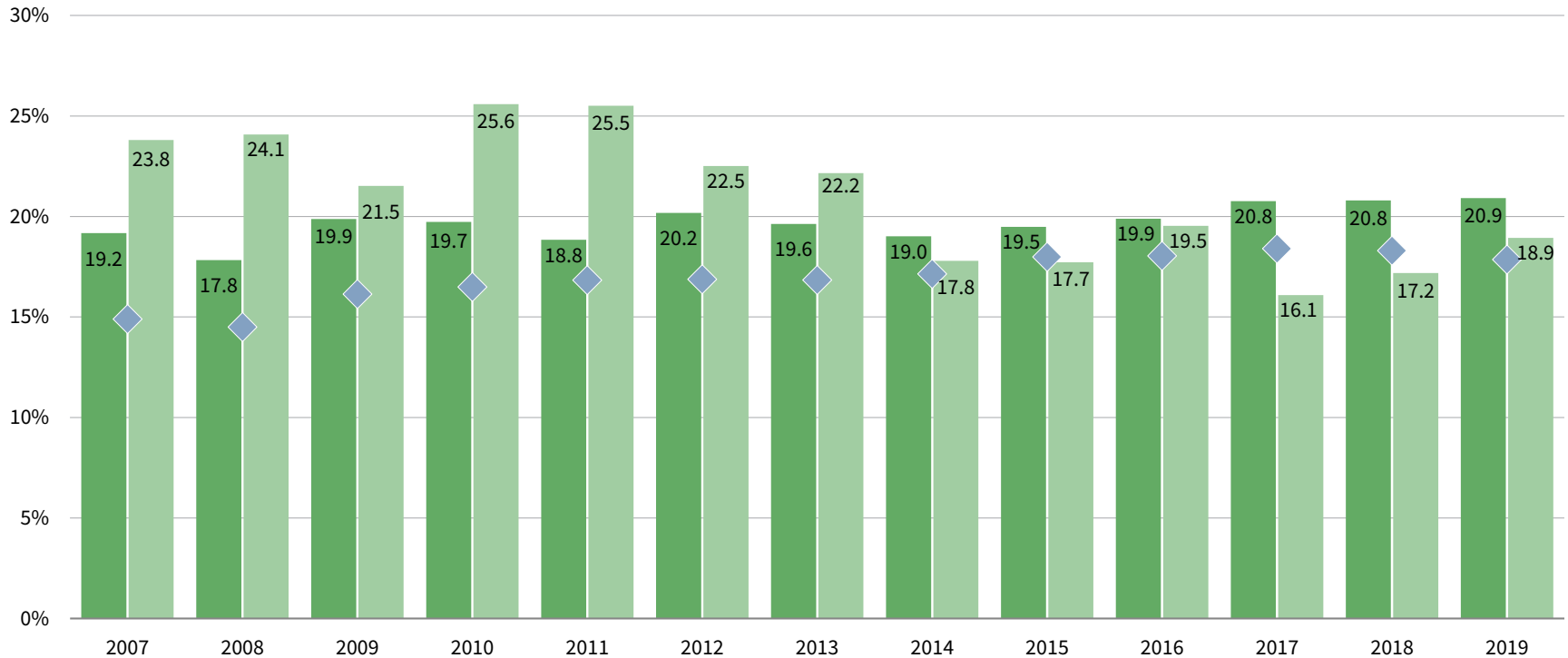


# Buyout margins hit new heights in 2019, have outpaced growth equity and publics since 2014

Growth equity margins have stayed below 20% for last six years

## AVERAGE ANNUAL EBITDA MARGIN OF BUYOUT AND GROWTH EQUITY COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • EBITDA/Revenue (%)



### Number of Companies

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Buyout Companies	273	411	516	657	792	850	644	726	587	612	610	646	662
Growth Equity Companies	46	73	122	185	198	246	216	212	195	211	179	202	209
Russell 2500™ Index	1,565	1,563	1,724	1,750	1,733	1,714	1,688	1,715	1,702	1,635	1,614	1,599	1,542

Sources: Cambridge Associates LLC Private Investments Database (as reported by investment managers), FactSet Research Systems, and Frank Russell Company.  
 Note: Outliers were identified and excluded, and the same methodology was applied to the private equity and public company universes.



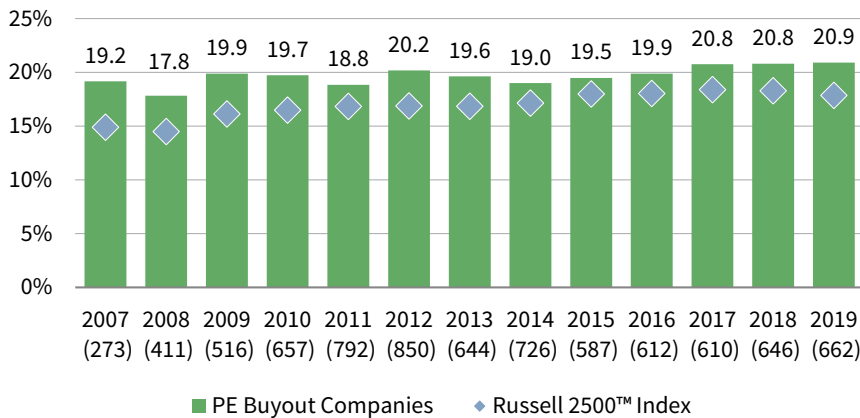
# Margins increase with company size as smallest private and public companies underperform their larger brethren

Small- and mid-sized PE companies consistently operate at higher margins than their public peers

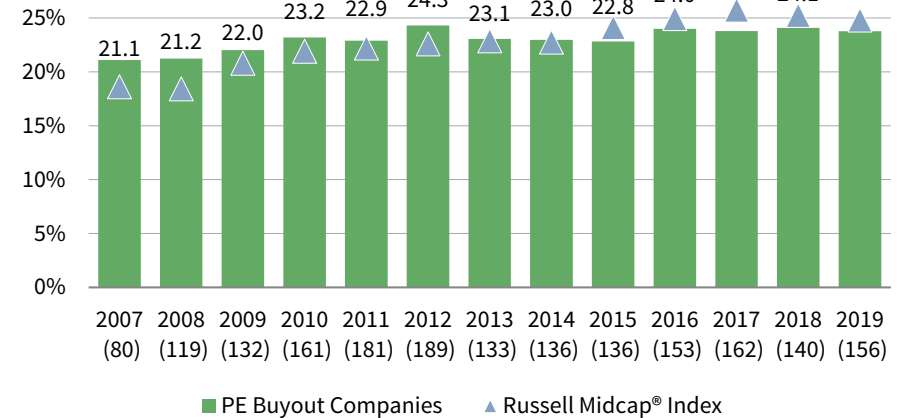
## AVERAGE ANNUAL EBITDA MARGIN OF PRIVATE EQUITY BUYOUT COMPANIES VS PUBLIC COMPANIES BY ENTERPRISE VALUE SEGMENT

As of December 31, 2019 • EBITDA/Revenue (%)

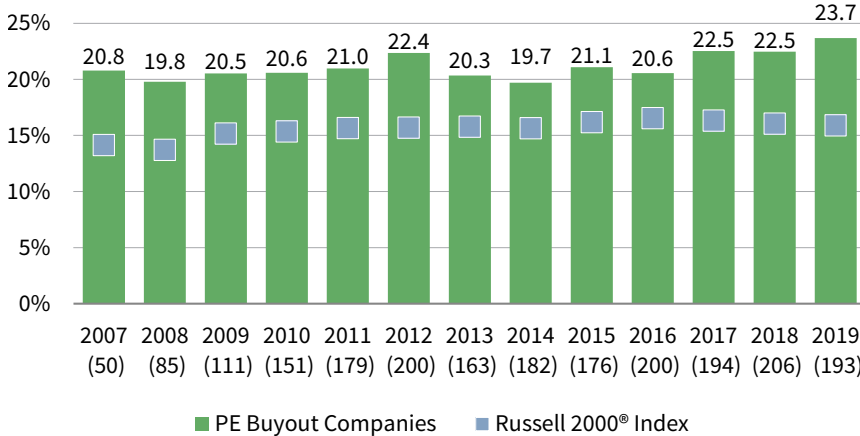
### Total Universe



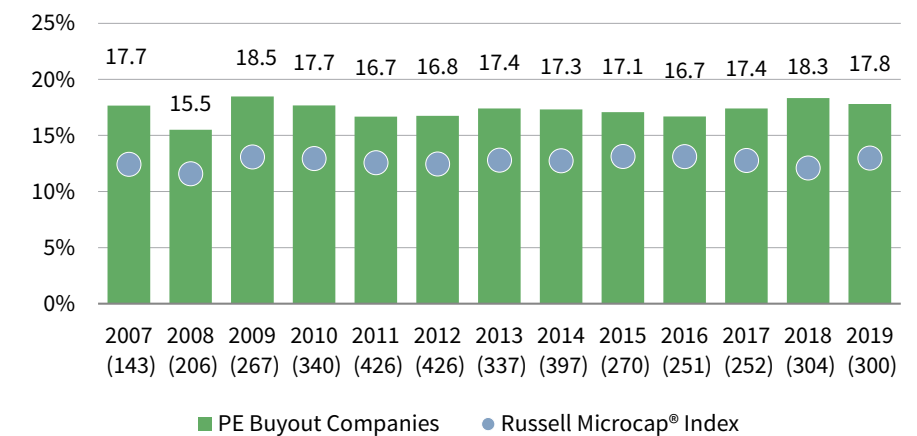
### Enterprise Value > \$1B



### Enterprise Value \$250M – \$1B



### Enterprise Value < \$250M



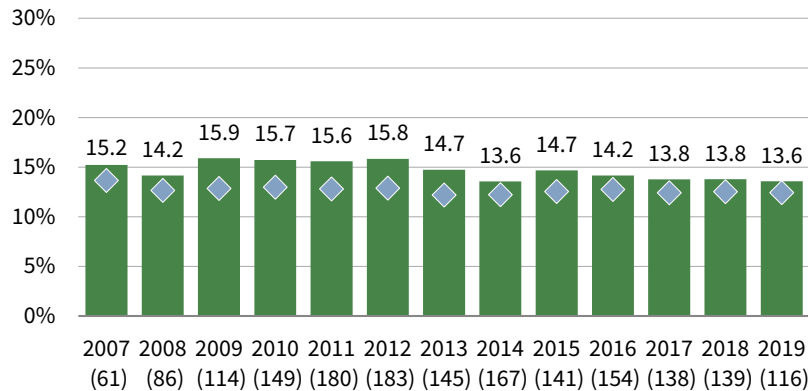
# Across all sectors, PE companies averaged better margins than publics over full time period

PE-backed IT companies operate at the highest margins of all; slimmest difference between PE and publics has been in healthcare sector

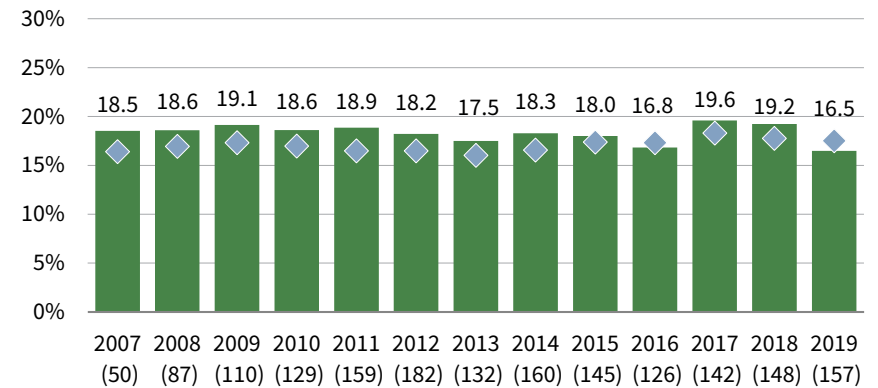
## AVERAGE ANNUAL EBITDA MARGIN OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES BY SECTOR

As of December 31, 2019 • EBITDA/Revenue (%)

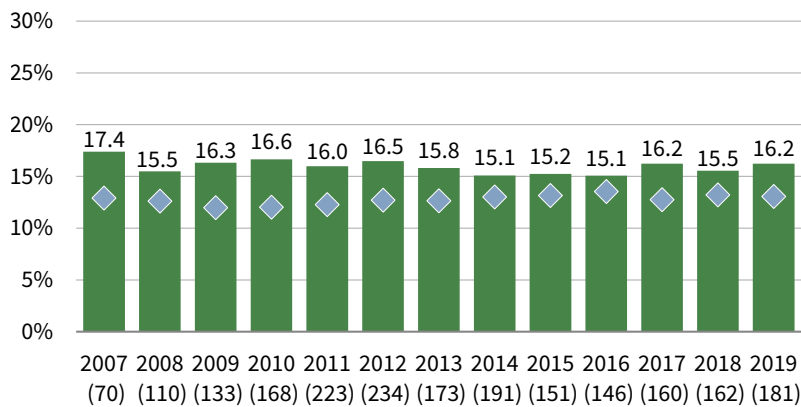
### Consumer Discretionary



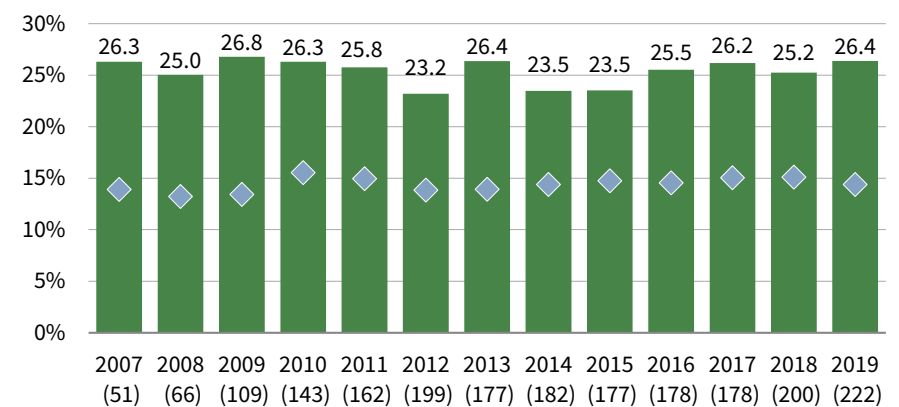
### Healthcare



### Industrials



### Information Technology



■ Private Equity-Owned Companies

◆ Russell 2500™ Index

---

## IMPROVE THE PERFORMANCE OF THE COMPANY AND TRANSFORM THE BUSINESS

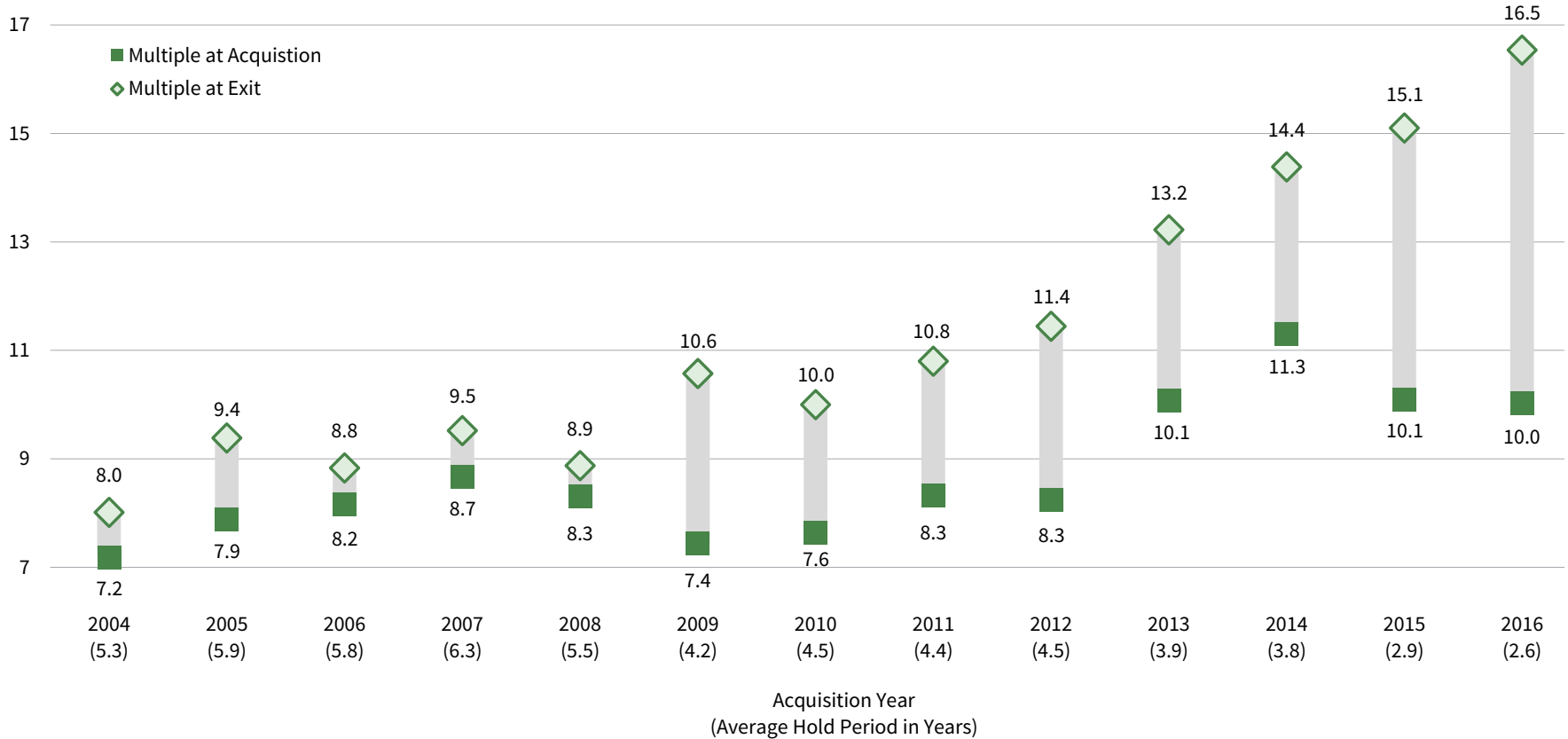
- Revenue Growth
- EBITDA Growth
- EBITDA Margin
- **Exit Analyses**

# Purchase price multiple expansion analysis tells a tale of two environments

Median expansion for companies acquired before the GFC was one turn, while it was almost three turns for those acquired during or after

## MEDIAN EBITDA MULTIPLE EXPANSION OF EXITED PRIVATE EQUITY-OWNED COMPANIES BY ACQUISITION YEAR

As of December 31, 2019 • Enterprise Value/EBITDA



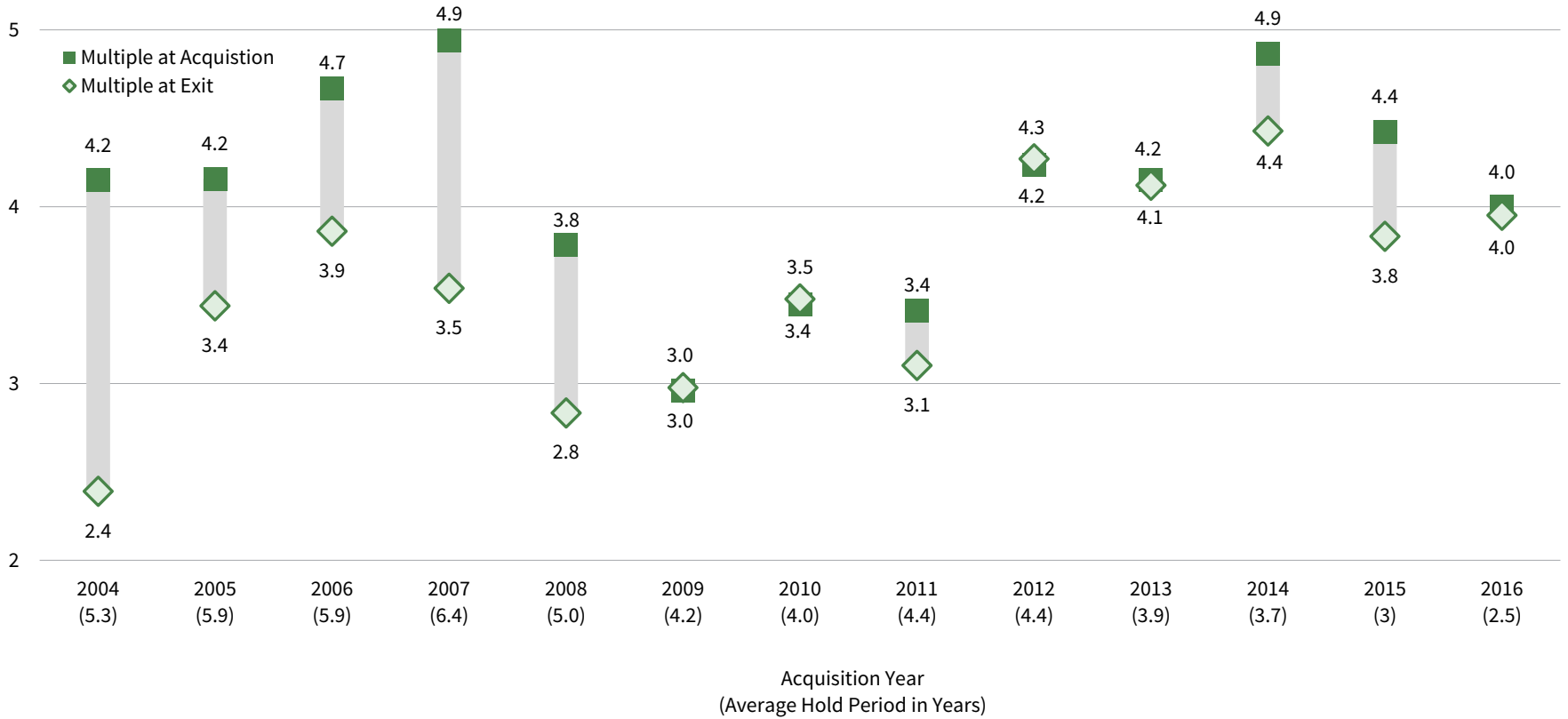
	Number of Companies												
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private Equity-Owned Companies	88	114	166	200	130	80	155	114	136	71	65	49	24

## The leverage multiple analysis tells a similar tale

Pre-GFC acquisitions delevered during PE ownership, while PE companies acquired since 2009 show minimal delevering at exit

### MEDIAN EBITDA LEVERAGE MULTIPLE COMPRESSION OF PRIVATE EQUITY-OWNED COMPANIES BY ACQUISITION YEAR

As of December 31, 2019 • Net Debt/EBITDA



#### Number of Companies

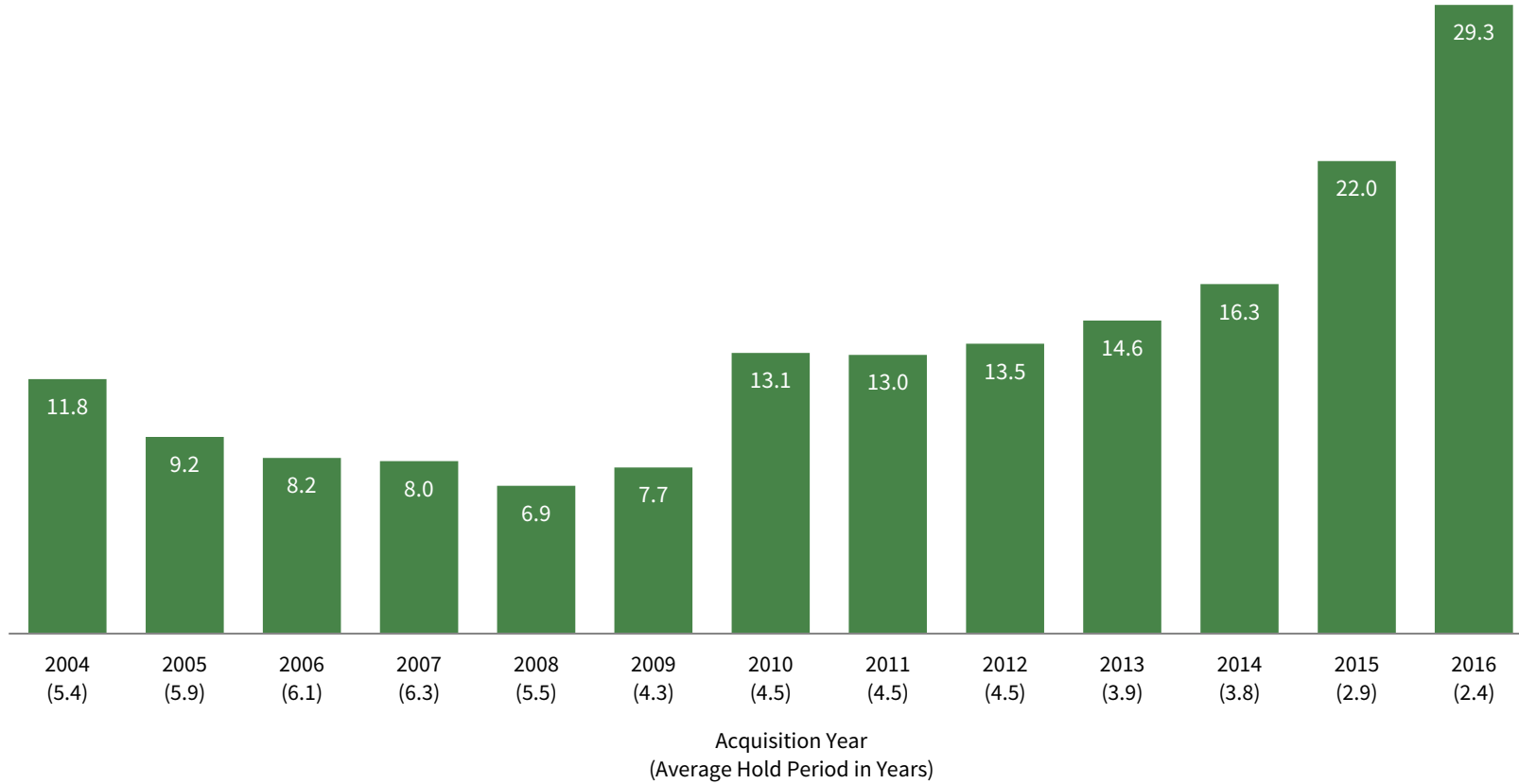
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private Equity-Owned Companies	84	104	147	183	108	59	132	102	116	56	55	39	19

## Revenue growth has been strong in post-GFC era

Companies acquired since 2010 grew revenue by almost 15% during PE ownership; those acquired from 2004 to 2009 saw much lower growth (8.4%)

### MEDIAN REVENUE CAGR OF EXITED PRIVATE EQUITY-OWNED COMPANIES BY ACQUISITION YEAR

As of December 31, 2019 • Compound Annual Growth Rate (%)



#### Number of Companies

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private Equity-Owned Companies	113	137	207	247	154	108	189	145	155	87	95	75	36

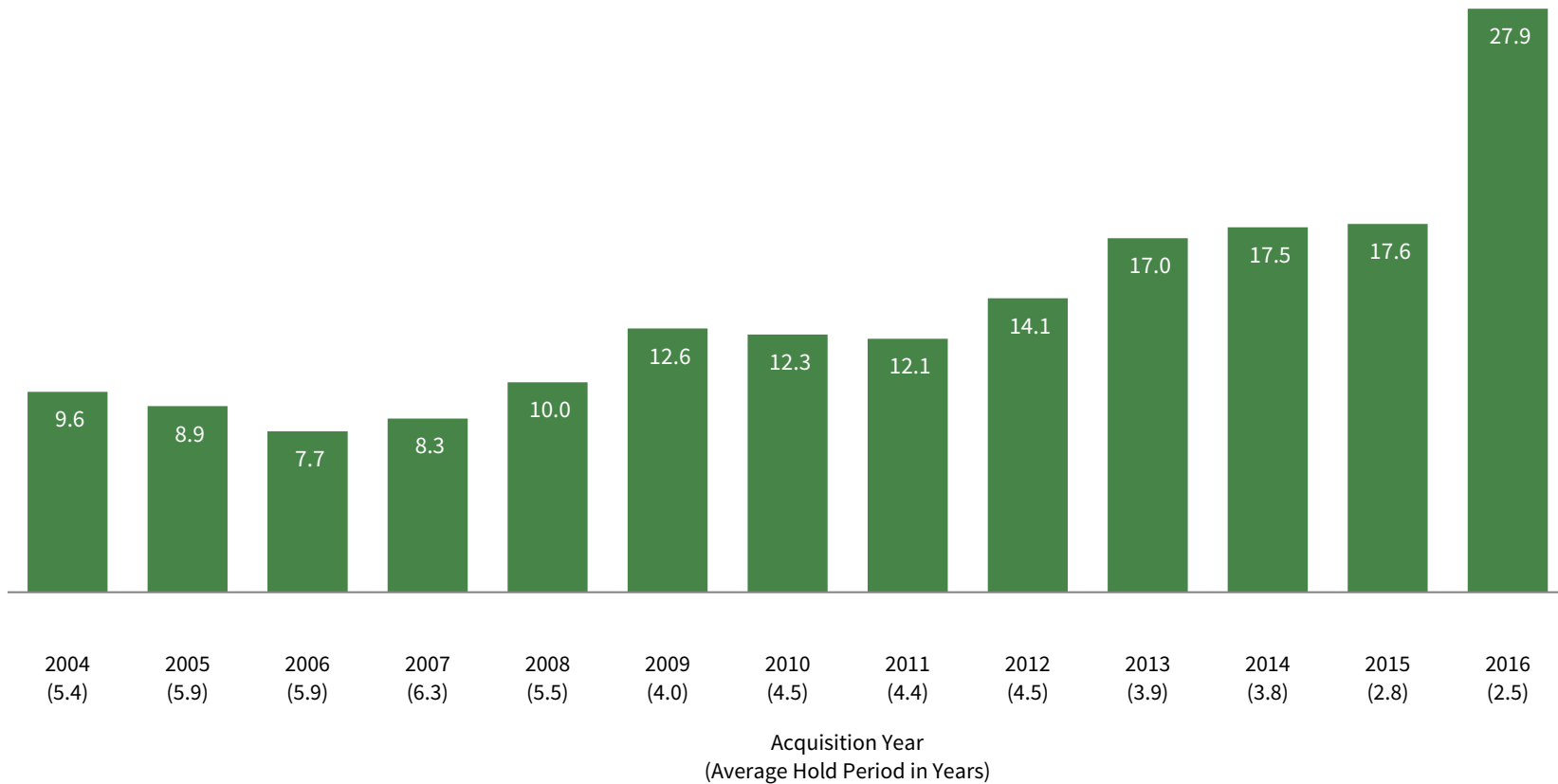
Source: Cambridge Associates LLC Private Investments Database (as reported by investment managers).

## EBITDA CAGRs in double digits for companies acquired since 2008

For the 216 companies acquired between 2013 and 2016 and subsequently exited, the median EBITDA CAGR was 17.9%; healthcare and IT companies represented the majority of the above median performers

### MEDIAN EBITDA CAGR OF EXITED PRIVATE EQUITY-OWNED COMPANIES BY ACQUISITION YEAR

As of December 31, 2019 • Compound Annual Growth Rate (%)



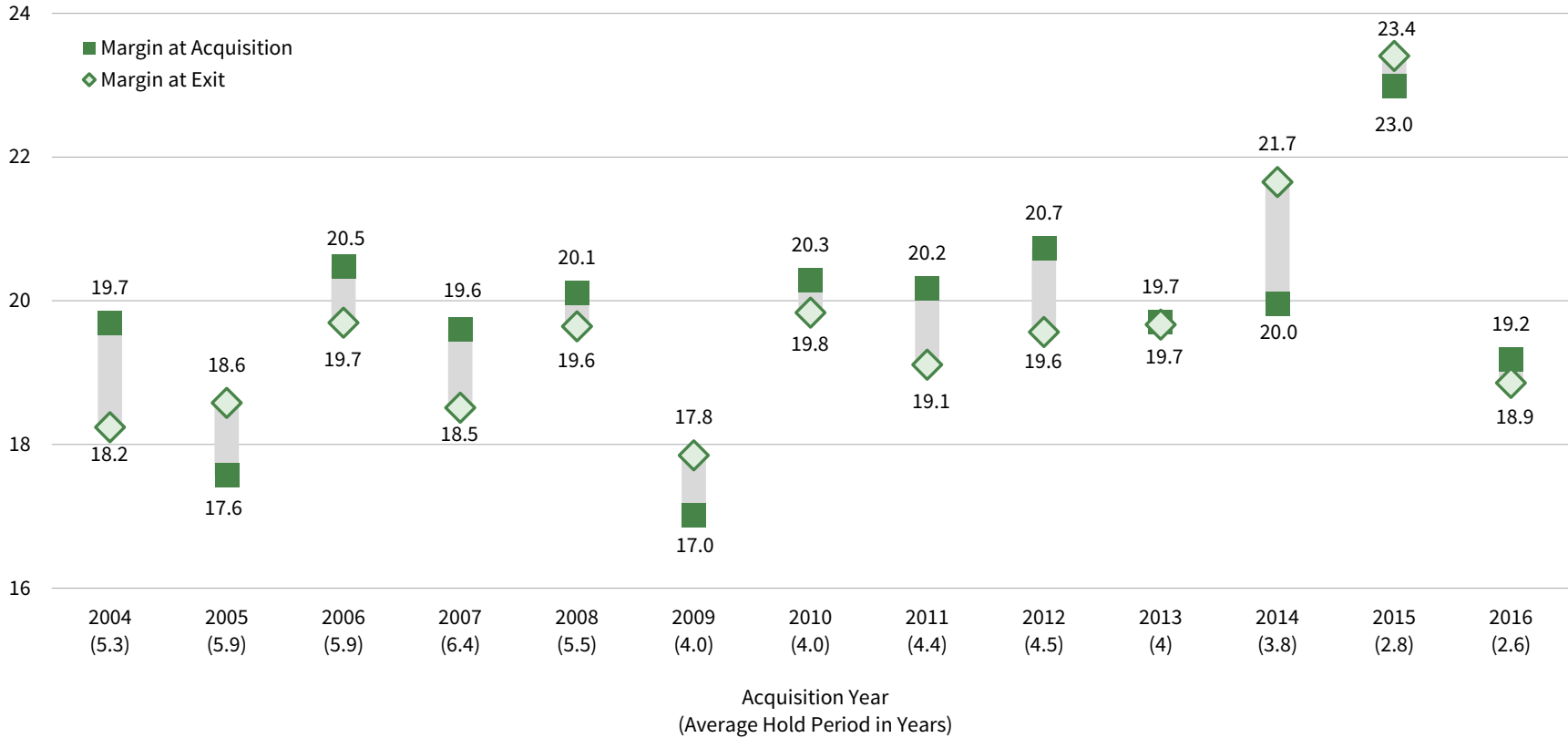
	Number of Companies												
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private Equity-Owned Companies	97	125	177	219	140	85	159	119	136	71	68	54	23

# For exited companies, EBITDA margins stayed the same or decreased two-thirds of the time periods analyzed

Data imply that PE owners have focused on growth

## MEDIAN EBITDA MARGIN EXPANSION OF EXITED PRIVATE EQUITY-OWNED COMPANIES BY ACQUISITION YEAR

As of December 31, 2019 • EBITDA/Revenue (%)



### Number of Companies

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private Equity-Owned Companies	94	121	170	207	138	83	158	120	133	73	68	54	24

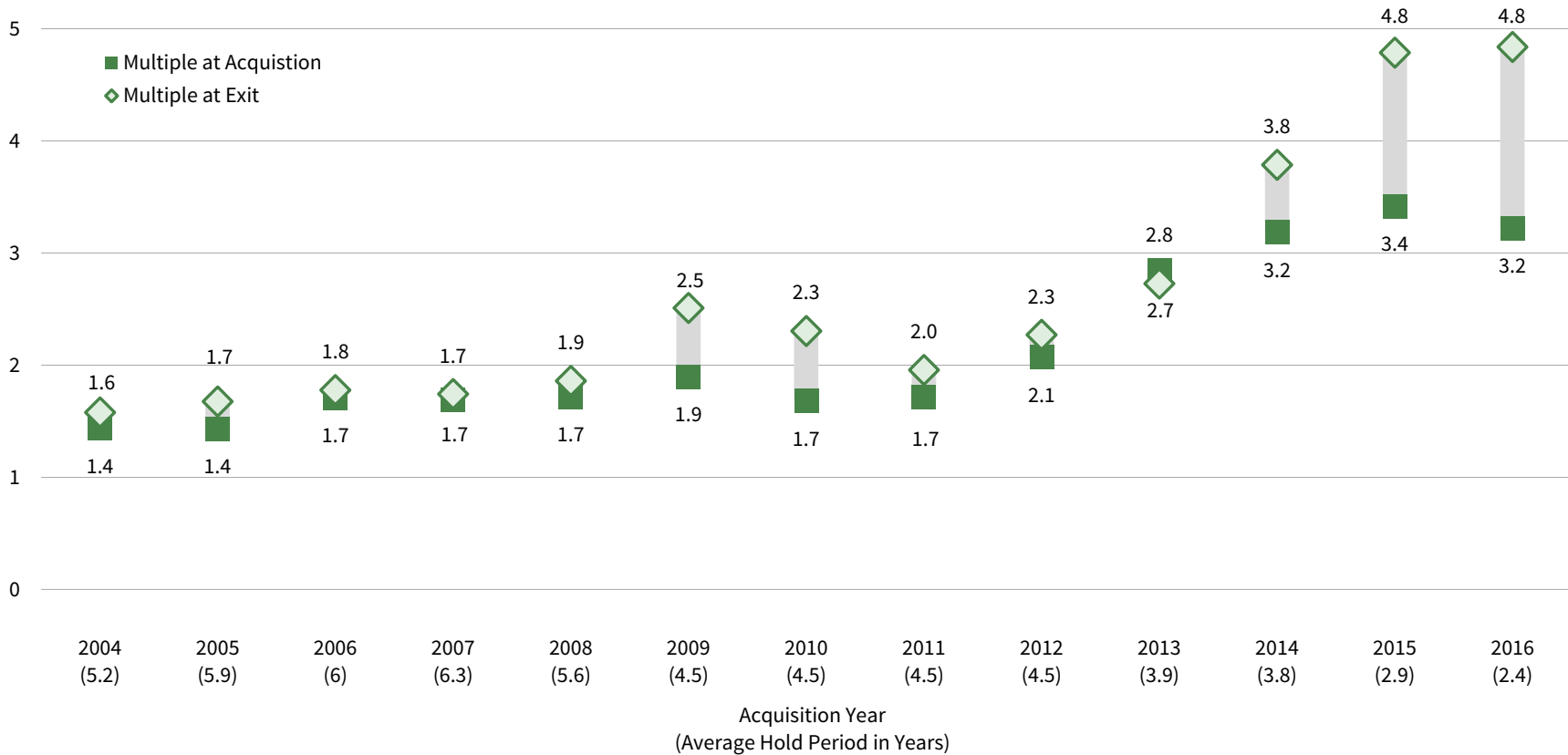


## PE managers have seen significant revenue multiple expansion in recent years...

...although this expansion is less dramatic than that seen in EBITDA multiples

### MEDIAN REVENUE MULTIPLE EXPANSION OF EXITED PRIVATE EQUITY-OWNED COMPANIES BY ACQUISITION YEAR

As of December 31, 2019 • Enterprise Value/LTM Revenue



	Number of Companies												
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private Equity-Owned Companies	100	124	192	224	143	99	183	138	153	85	90	69	37



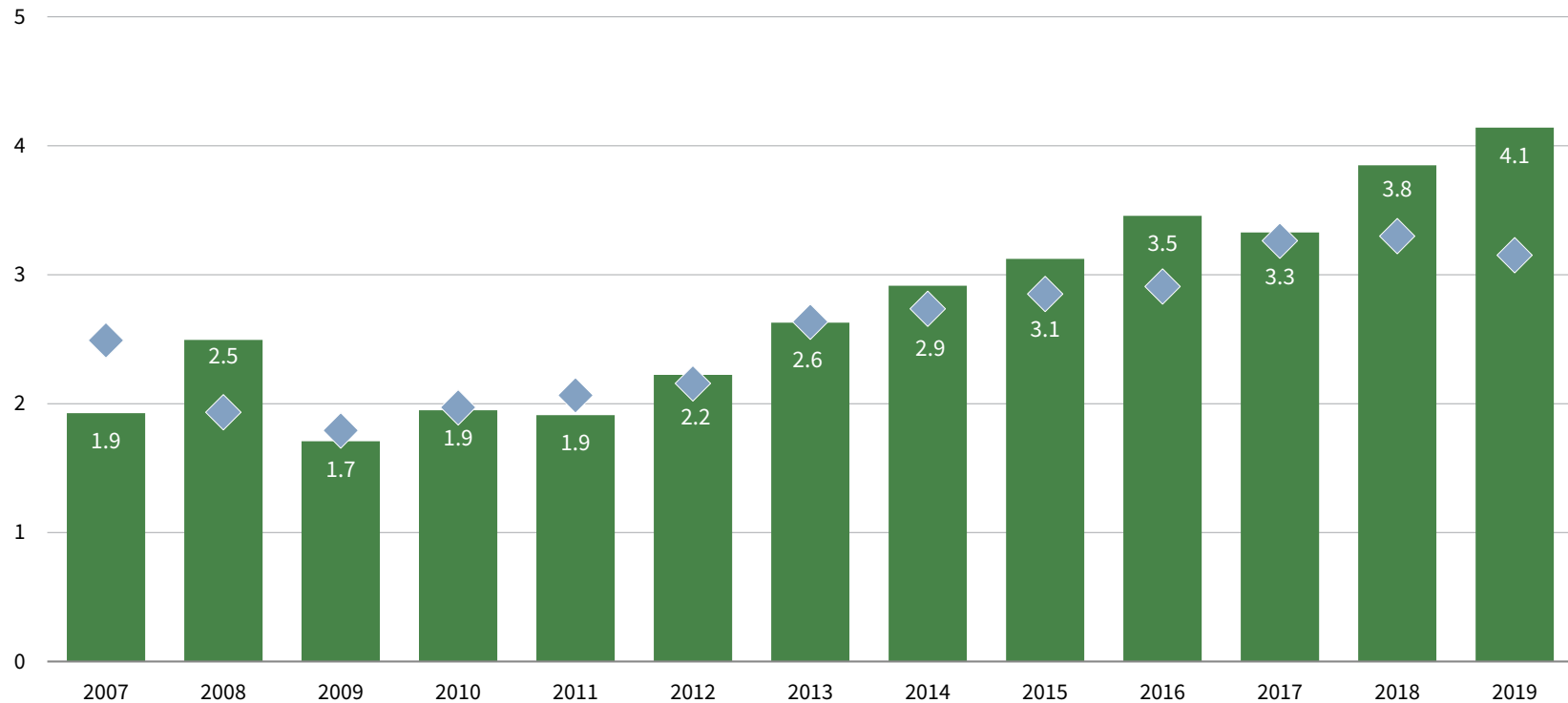
## APPENDIX: REVENUE PURCHASE PRICE MULTIPLE

## Revenue PPMs have expanded dramatically since 2011, with public and PE companies generally moving in sync

In only five of the years analyzed was the difference between PE and public greater than half of a turn of revenue

### AVERAGE REVENUE PURCHASE PRICE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES

As of December 31, 2019 • Enterprise Value/LTM Revenue



#### Number of Companies

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Private Equity-Owned Companies	348	226	141	293	278	340	206	286	255	253	291	261	224
Russell 2500™ Index	2,257	2,291	2,228	2,235	2,178	2,200	2,224	2,267	2,270	2,229	2,249	2,279	2,193

Sources: Cambridge Associates LLC Private Investments Database (as reported by investment managers), FactSet Research Systems, and Frank Russell Company.

Note: Outliers were identified and excluded, and the same methodology was applied to the private equity and public company universes.

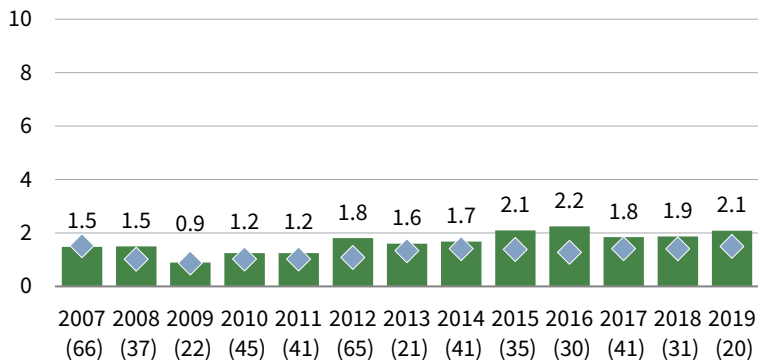
## Analysis based on sectors indicates some significant variations

Divergence is largest in healthcare and IT, due at least in part to the differences in industry composition within the sectors

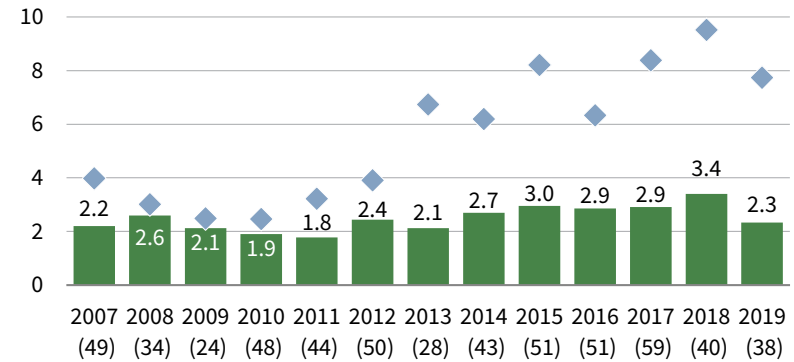
### AVERAGE REVENUE PURCHASE PRICE MULTIPLES AT ACQUISITION OF PRIVATE EQUITY-OWNED COMPANIES VS PUBLIC COMPANIES BY SECTOR

As of December 31, 2019 • Enterprise Value/LTM Revenue

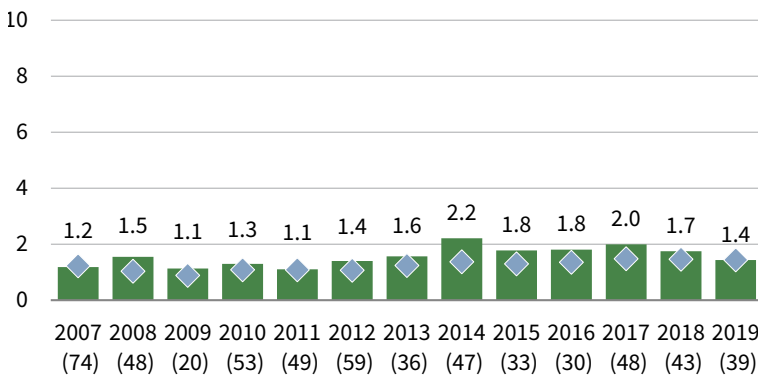
#### Consumer Discretionary



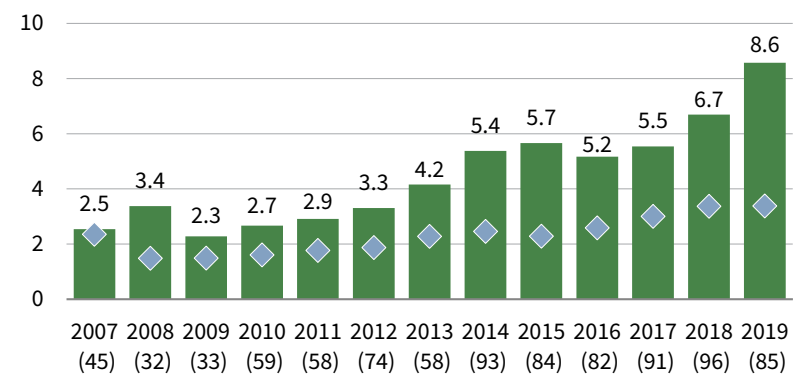
#### Healthcare



#### Industrials



#### Information Technology



■ Private Equity-Owned Companies

◆ Russell 2500™ Index

Sources: Cambridge Associates LLC Private Investments Database (as reported by investment managers), FactSet Research Systems, and Frank Russell Company.

Notes: Outliers were identified and excluded, and the same methodology was applied to the private equity and public company universes. Numbers in parentheses represent number of private equity-owned companies in each year.

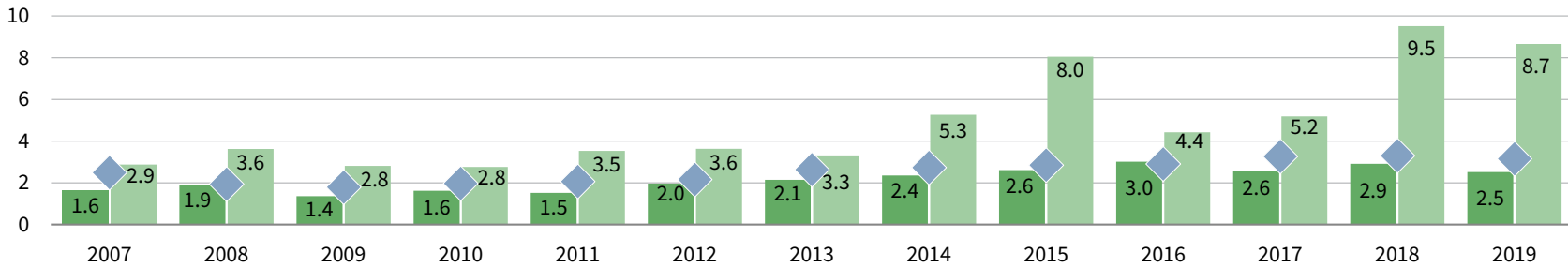
# For traditional “growth” investments (growth equity and IT), PE revenue multiples much higher than publics in recent years

Revenue PPMs for buyouts and buyout IT companies specifically have been in line with publics

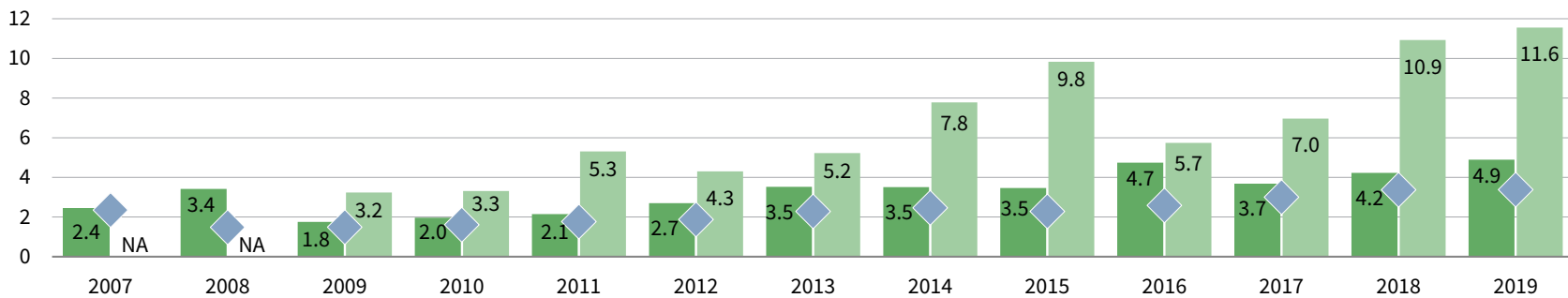
## AVERAGE REVENUE PURCHASE PRICE MULTIPLES AT ACQUISITION BY DEAL TYPE AND SECTOR VS PUBLIC COMPANIES

As of December 31, 2019 • Enterprise Value/LTM Revenue

### Deal Type: Total Universe



### Deal Type: IT Companies



### Number of Companies

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Buyout Companies	249	154	98	216	209	258	137	195	177	171	188	179	114
Growth Equity Companies	76	53	37	64	63	77	57	93	85	76	93	83	91
Russell 2500™ Index	2,257	2,291	2,228	2,235	2,178	2,200	2,224	2,267	2,270	2,229	2,249	2,279	2,193
IT Buyout Companies	28	19	15	31	38	42	31	43	43	43	35	55	32
IT Growth Equity Companies	NA	NA	17	26	23	30	29	46	42	38	53	38	53
Russell 2500™ Index IT Companies	400	413	392	387	382	389	386	400	368	355	340	342	316



**CAMBRIDGE  
ASSOCIATES**

Contributors to this report include Andrea Auerbach, Drew Carneal, Keirsten Lawton, Caryn Slotsky, and Wyatt Yasinski.

Copyright © 2020 by Cambridge Associates LLC. All rights reserved.

This report may not be displayed, reproduced, distributed, transmitted, or used to create derivative works in any form, in whole or in portion, by any means, without written permission from Cambridge Associates LLC ("CA"). Copying of this publication is a violation of US and global copyright laws (e.g., 17 U.S.C.101 et seq.). Violators of this copyright may be subject to liability for substantial monetary damages.

This report is provided for informational purposes only. The information does not represent investment advice or recommendations, nor does it constitute an offer to sell or a solicitation of an offer to buy any securities. Any references to specific investments are for illustrative purposes only. The information herein does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Information in this report or on which the information is based may be based on publicly available data. CA considers such data reliable but does not represent it as accurate, complete, or independently verified, and it should not be relied on as such. Nothing contained in this report should be construed as the provision of tax, accounting, or legal advice. Past performance is not indicative of future performance. Broad-based securities indexes are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index. Any information or opinions provided in this report are as of the date of the report, and CA is under no obligation to update the information or communicate that any updates have been made. Information contained herein may have been provided by third parties, including investment firms providing information on returns and assets under management, and may not have been independently verified.

The terms "CA" or "Cambridge Associates" may refer to any one or more CA entity including: Cambridge Associates, LLC (a registered investment adviser with the US Securities and Exchange Commission, a Commodity Trading Adviser registered with the US Commodity Futures Trading Commission and National Futures Association, and a Massachusetts limited liability company with offices in Arlington, VA; Boston, MA; Dallas, TX; Menlo Park, CA, New York, NY; and San Francisco, CA), Cambridge Associates Limited (a registered limited company in England and Wales, No. 06135829, that is authorised and regulated by the UK Financial Conduct Authority in the conduct of Investment Business, reference number: 474331); Cambridge Associates Limited, LLC (a registered investment adviser with the US Securities and Exchange Commission, an Exempt Market Dealer and Portfolio Manager in the Canadian provinces of Alberta, British Columbia, Manitoba, Newfoundland and Labrador, Nova Scotia, Ontario, Québec, and Saskatchewan, and a Massachusetts limited liability company with a branch office in Sydney, Australia, ARBN 109 366 654), Cambridge Associates Investment Consultancy (Beijing) Ltd (a wholly owned subsidiary of Cambridge Associates, LLC which is registered with the Beijing Administration for Industry and Commerce, registration No. 110000450174972), and Cambridge Associates Asia Pte Ltd (a Singapore corporation, registration No. 200101063G, which holds a Capital Market Services License to conduct Fund Management for Accredited and/or Institutional Investors only by the Monetary Authority of Singapore).