

# Telecom Sector

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# Agenda

1. Executive Summary
2. Sector Overview
3. Business Analysis
4. Economic Analysis
5. Financial Analysis
6. Value Analysis
7. Recommendation

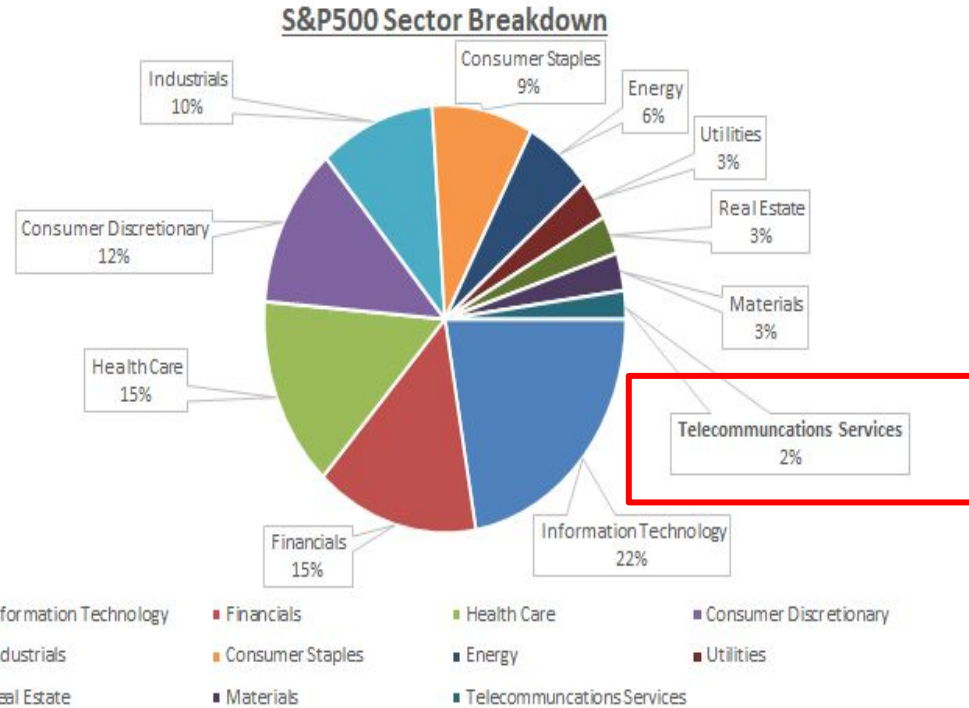


## Executive Summary

- Telecom sector has underperformed in comparison to S&P 500: **-16.2%** vs 16.03% YTD.
- Demand for future technology (5G, IPTV) is skyrocketing
- Telecom companies are heavily investing to meet future demand .
- Most telecom companies are trading at low P/E multiple compared to S&P Benchmark.
- Recommendation - **BUY** - Increase Telecom Weight in SIM.



# Sector Size & Industry Overview



- Total Global Telecom Sector Market Cap: **\$1.55 T**
- S5TELS Market Cap: **\$448.7 B**
- Fisher SIM Telecom Holding: **VZ - \$171,336** (Market Value) = **1.73%** of portfolio vs. **2.26%** in S&P 500, underweight by **-0.52%**



# Telecommunications Industries

## S&P Telecom Sector

S5TELS Members In Millions (\$)	Market Cap	% of Telecom Sector (MSCI World)	% of S&P 500	% of S5TELS
AT&T (T)	231,964.00	14.99%	1.07%	51.70%
Verizon (VZ)	182,184.60	11.78%	0.84%	40.60%
Level 3 (LVL3)	21,430.30	1.39%	0.10%	4.78%
Century Link (CTL)	13,105.60	0.85%	0.06%	2.92%

## Other Major Companies

Major U.S. Carriers In Millions (\$)	Market Cap	% of Telecom Sector (MSCI World)
T-Mobile (TMUS)	50,365.30	3.26%
Sprint (S)	32,794.40	2.12%
U.S. Cellular (TDS)	3,061.00	0.20%



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# Performance

S5TELS YTD: **-16.2%** S&P 500 YTD: **16.03%**

### Year-To-Date

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S5TELS QTD: **-8.5%** S&P 500 QTD: **2.7%**

### Quarter-To-Date



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# Business Analysis

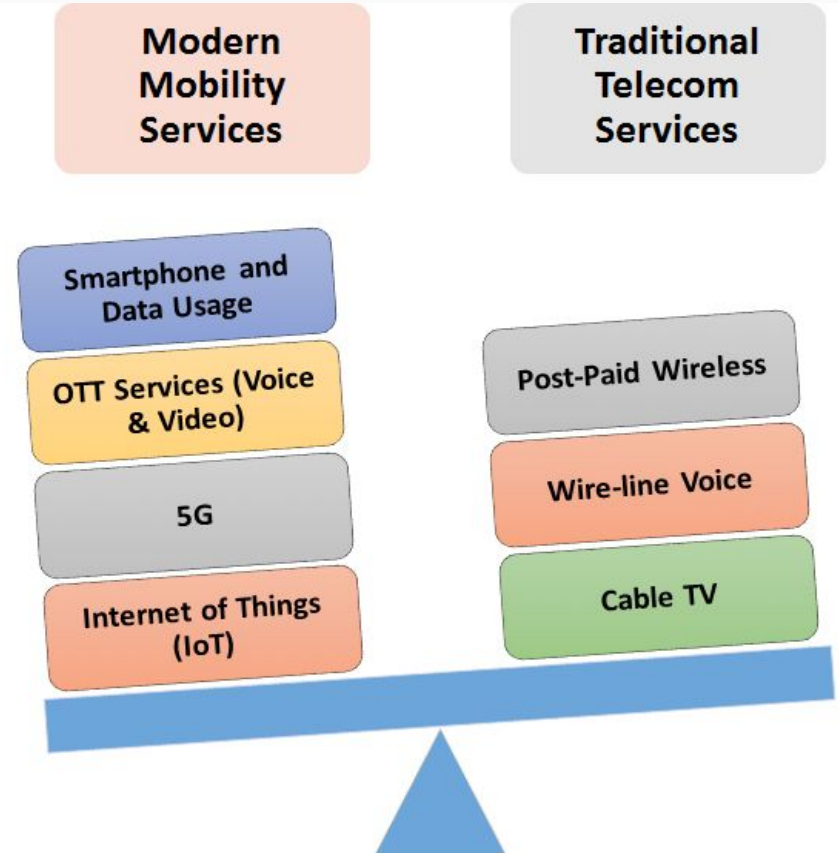
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# Telecom Market Trends

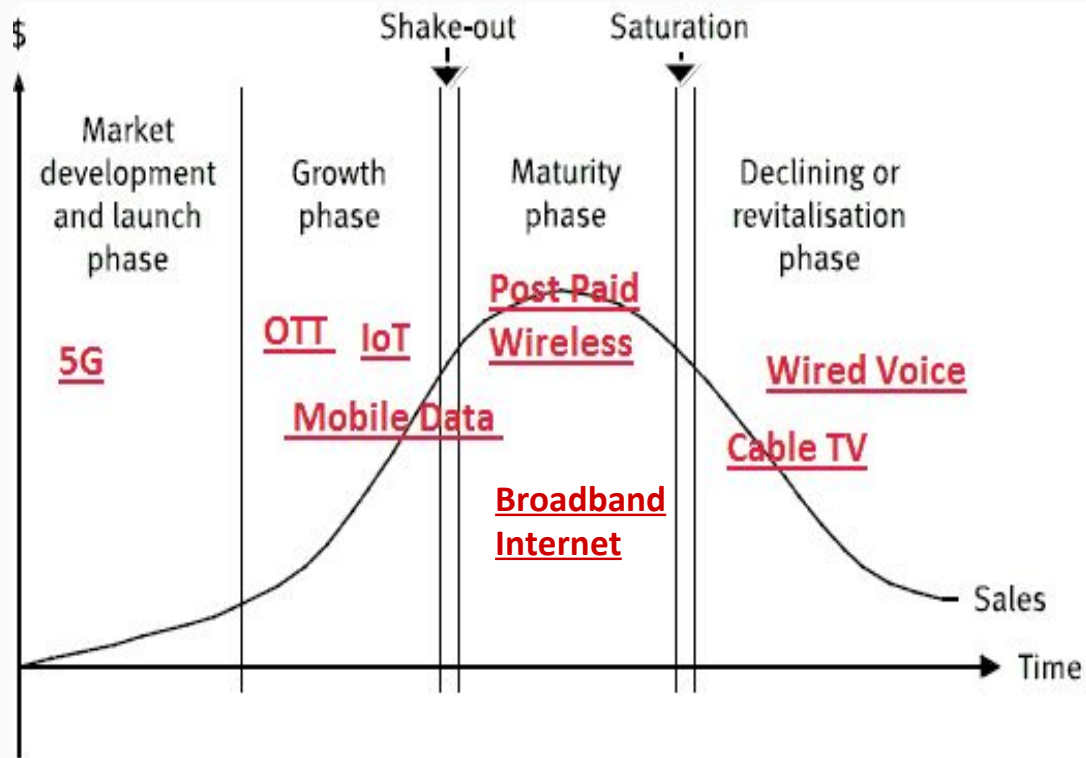
## Demand for Modern Mobile Services growing compared to Traditional Telecom:

- Smartphone sales up 10% (YoY); Use of Mobile Data up 35X (2016 vs. 2010)
- Smartwatch penetration doubled from 2014 to 2015 and tripled in 2016
- Cable TV declining 2.4% (YoY); wired voice declining rapidly





# Product Life Cycle Phase



- OTT: Netflix subscribers surpassed Cable TV; Skype >30% of Int'l calls & Whatsapp and others >80% of SMSs
- Wireless: Strong competition
- Cable TV declining due to "Cord Cutting"
- US Household Landline: from 92.7% (2004) to 45.9% (2016)
- 5G Launch ~ 2018-19

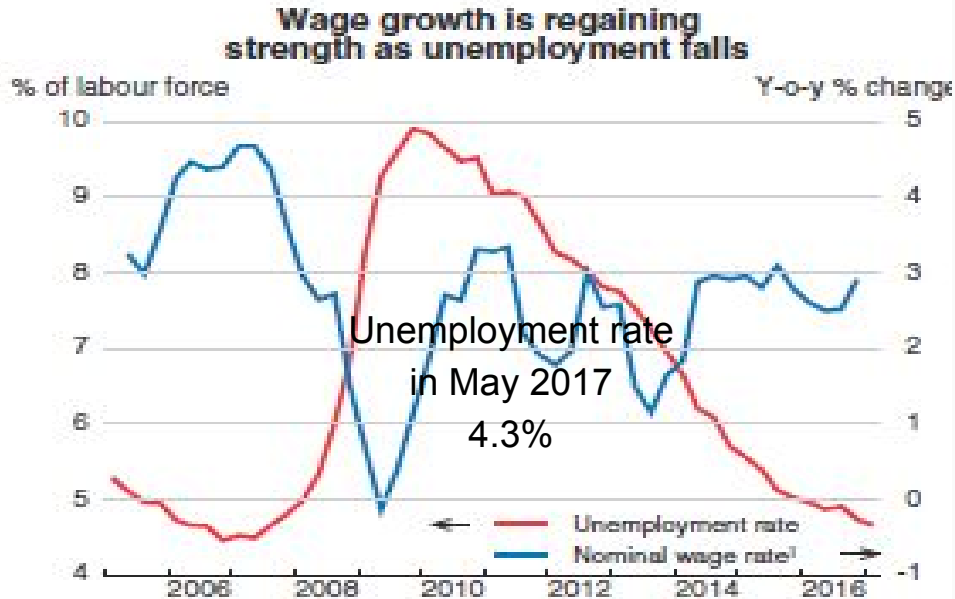
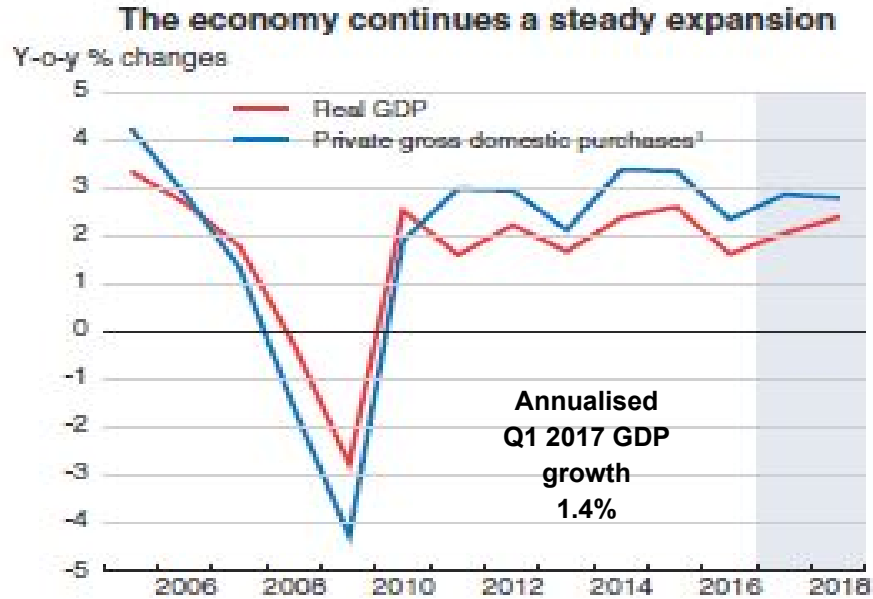


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# Economic Forecast

The US economy is expected to continue growing steadily over the next few years, outpacing many other western countries.



# Telecom Outlook 2017 - 2022



**U.S. telecommunications industry is likely to witness reasonable growth through 2017**



**Growth in smartphone and mobile data will drive growth in wireless and broadband carriers, and network equipment/ infrastructure companies**



**Noted explosion in smartphone data usage: 35 times in 2016 vs. 2010; in 2022, avg. mobile data usage per smartphone is expected to be 25GB vs. 5GB in 2016.**



**Telecommunications industry is mostly immune to international geo-political disturbances; people have to be connected in all economic conditions**



**U.S. telecom operators mostly generate their revenues in US; hence less susceptible to foreign exchange risk & fluctuations.**



**Telecom companies offer one of the highest dividend yields in the U.S. economy.**



**U.S. telecom industry is slated to witness further mergers and acquisitions (M&A) along with product diversifications.**



**Cut-throat pricing competition among major players may put pressure on profit margins**



# Telecom Revolution - Future Demand



## 5G Wireless

- Data speed in Giga-bytes; up to 10 Gbps
- 10 to 100x number of connected devices
- Full Commercial implementation by 2020



## Over the Top (OTT)

- Netflix, Hulu, AMAZON Prime, TV subscriptions surpass Cable.
- Control over content and delivery drives custom advertisements
- VoIP voice calls are growing rapidly



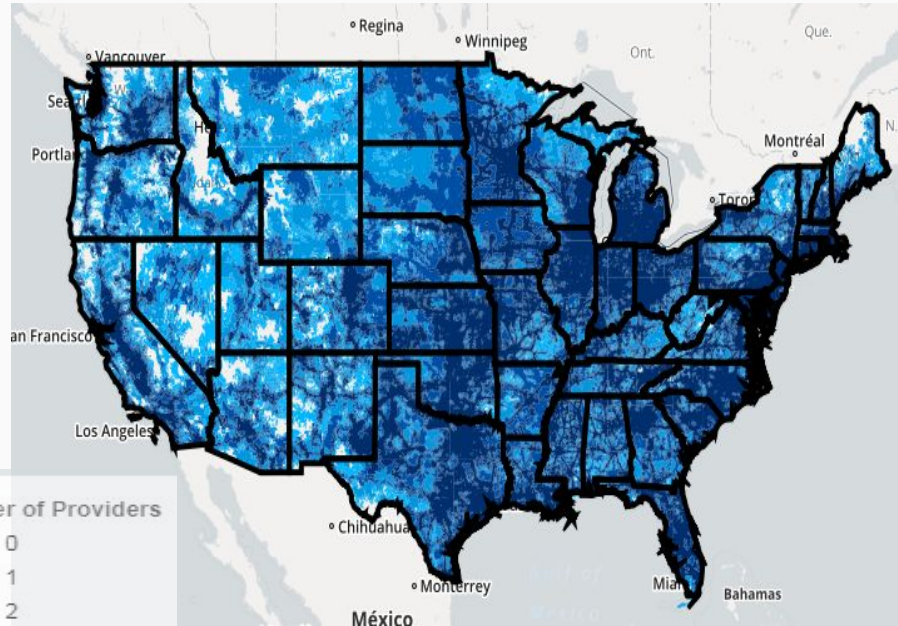
## Internet of Things (IoT)

- Potentially any kind of device connected to internet
- In 2016, >400 Million Devices connected with cellular network
- By 2022, >1.5 billion devices with cellular connections



# Telecom Services / US Geography

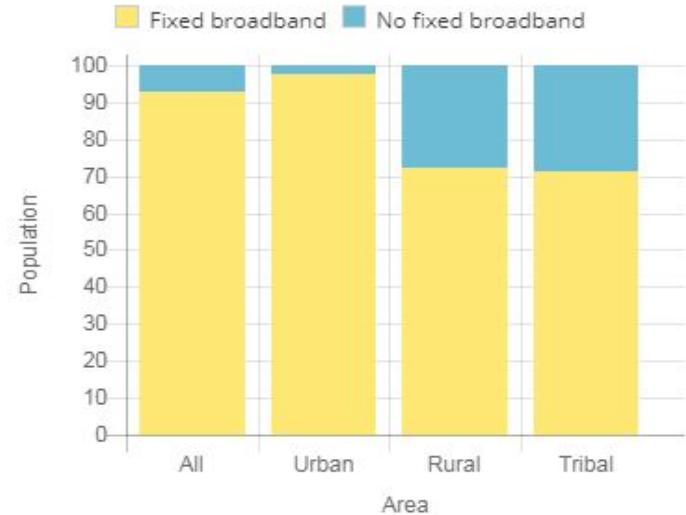
## Mobile Wireless Services 3G or Better



**~98% of U.S. population is covered by 3 or more providers of mobile wireless service**

## Fixed Broadband (25 Mbps/3 Mbps) June, 2016

### Nationwide



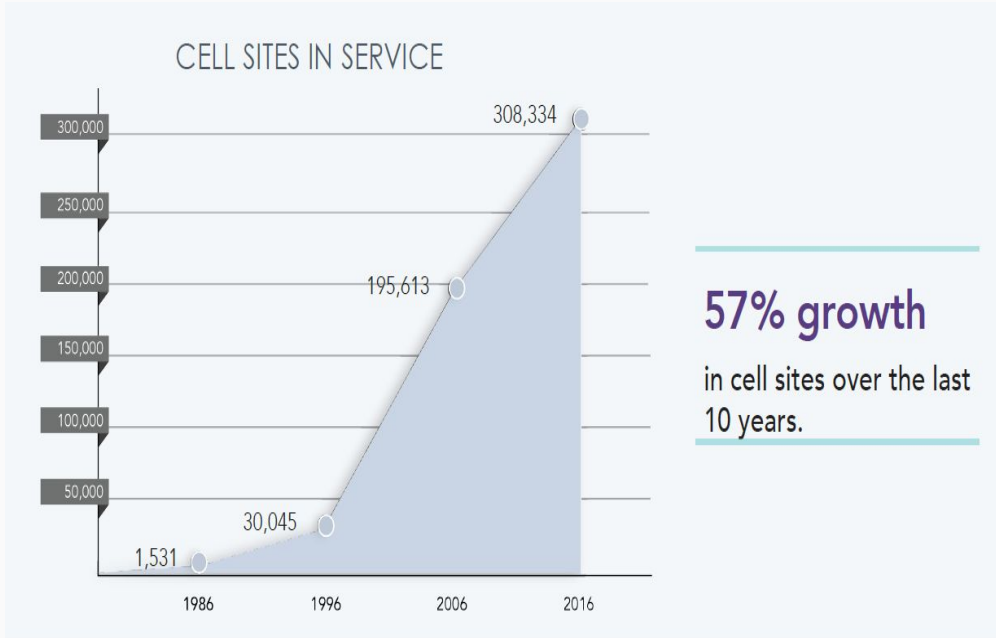
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# Telecom Investments

## MORE CELL SITES EXPAND COVERAGE & SPEEDS: 308,334 cell sites were in operation in 2016



## Capex: Top 5 Telecoms in 2016 and 2017

Service provider	2016 capex	2017 capex	Spending targets	Acquisitions
1. AT&T	\$22.9B	\$22B	enterprise, broadband, wireless	Time Warner
2. Verizon	\$17.1B	\$16.8 B - \$17.5B	fiber, wireless	XO Communications
3. CenturyLink	\$3B	\$2.6B	fiber, broadband	Level 3
4. Frontier	\$1.25B - \$1.4B	\$1B - \$1.25B	broadband, business services	Verizon's properties
5. Windstream	\$800M - \$850M	\$790M - \$840M	broadband, business service expansion	EarthLink



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# Telecom Investments to Win 5G Race



5G wireless revolution is a projected \$275 billion in industry investment.



At present, Verizon and AT&T are the closest to bringing 5G LTE to market.



Most of their competitors, like Sprint, T Mobile are behind and may launch in 2019



Verizon signed a deal of \$3.1 billion to buy Straight Path Communications Inc. (SPC), to support 5G implementation.



AT&T and Verizon are testing 5G services and plan to roll out as early as 2018



# Telecom Industry Analysis (Porter's Five Forces)



## Unattractive Industry:

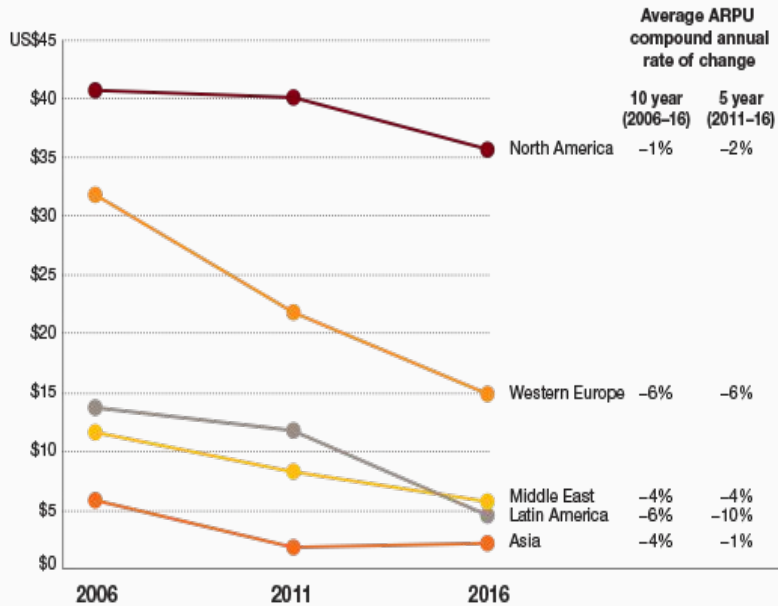
- Strong competition/ rivalry cutting into profit margins
- High Customer (Buyers) power; high churn rates
- High CAPEX requirements to stay updated with Technological changes
- FCC regulatory requirements





# Top Telecom Company Performance (Q1 2017) - Wireless

Average revenue per user in the telecom industry is falling in virtually every region



Source: Strategy& research and analysis



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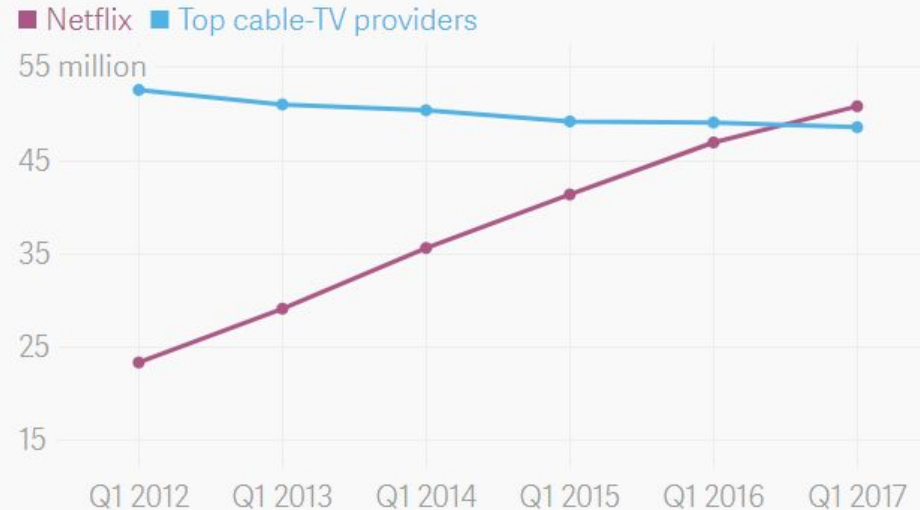
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Carrier	Subscribers (millions)	Net Adds (millions)	Postpaid Smartphone Net Adds (mil)	Blended Churn (Avg Monthly)	Service Revenue (US\$ millions)	Data % of Service Revenue	Blended Retail ARPU
1 Verizon	146.013	0.276	0.049	1.35%	\$15,778	59.4%	\$43.82
2 AT&T	134.218	2.081	-0.061	1.43%	\$14,538	57.8%	\$50.26
3 T-Mobile	72.597	1.142	0.887	2.35%	\$7,329	60.0%	\$42.66
4 Sprint	58.741	0.185	0.039	2.64%	\$5,560	n/a	\$42.57
5 U.S. Cellular	4.996	-0.035	-0.009	1.76%	\$746	n/a	\$43.68

# Top Telecom Company Performance (Q4 2016) - Pay-TV

	Platform	Video subs (mil.)	Net adds	Q4 ARPU
<b>AT&amp;T</b>	IPTV + Satellite	25.265	173K	\$128.06
<b>Comcast</b>	Cable	22.508	80K	\$83.63
<b>Charter</b>	Cable	16.836	-51K	\$81.01
<b>Dish Network</b>	Satellite	13.671	28K	\$88.66*
<b>Verizon</b>	IPTV	4.694	21K	n/a
<b>Altice USA</b>	Cable	3.469	-24K	n/a

**In March 2017, Cable TV had a combined 48.6 million subscribers in the US, vs. 50.9 million at Netflix**



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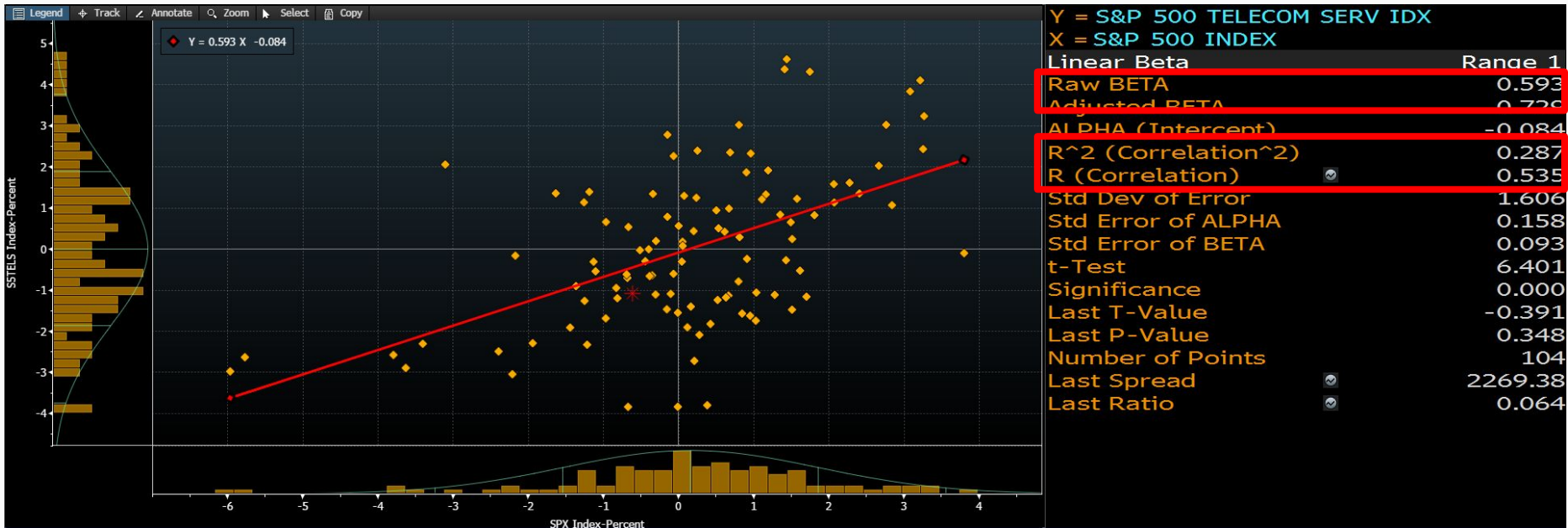
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# Economic Analysis

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# S&P Telecom vs S&P 500



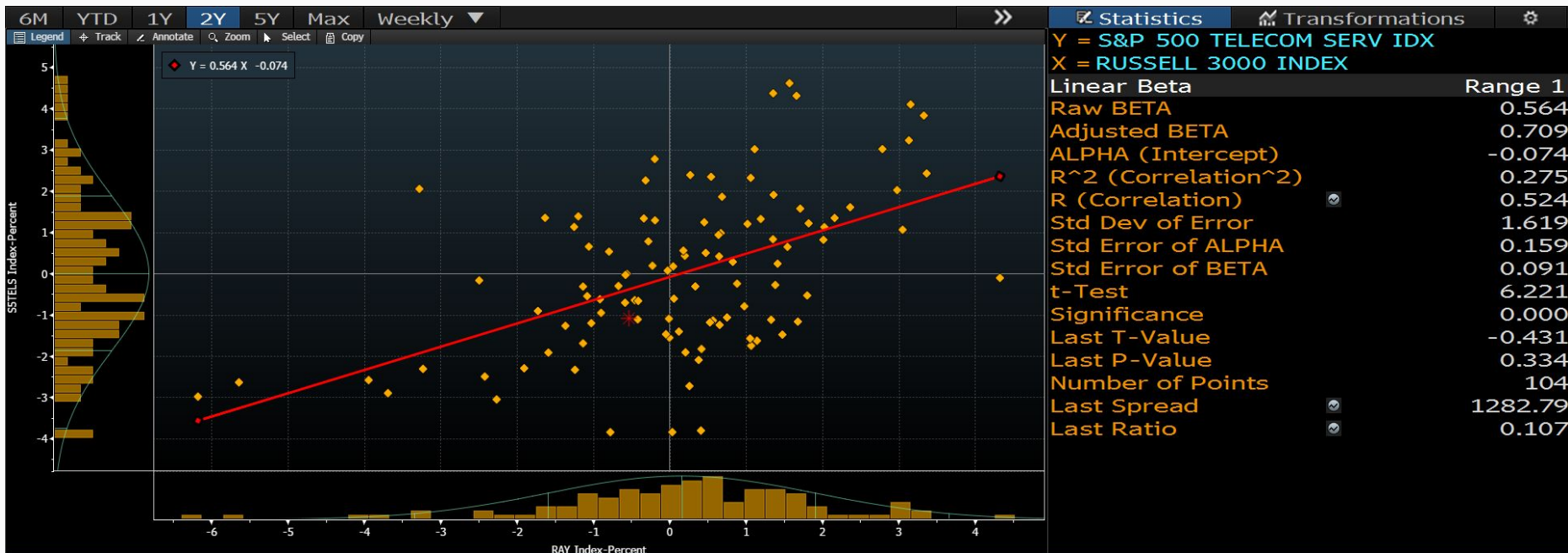
Low Beta implies that sector is steady & low R<sup>2</sup> implies that variations are not strongly dependent on S&P 500 performance



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# S&P Telecom vs Russell 3000



Similar inference: Low Beta implies that sector is steady & low R<sup>2</sup> implies that variations are not strongly dependent on RUSSELL 3000 performance



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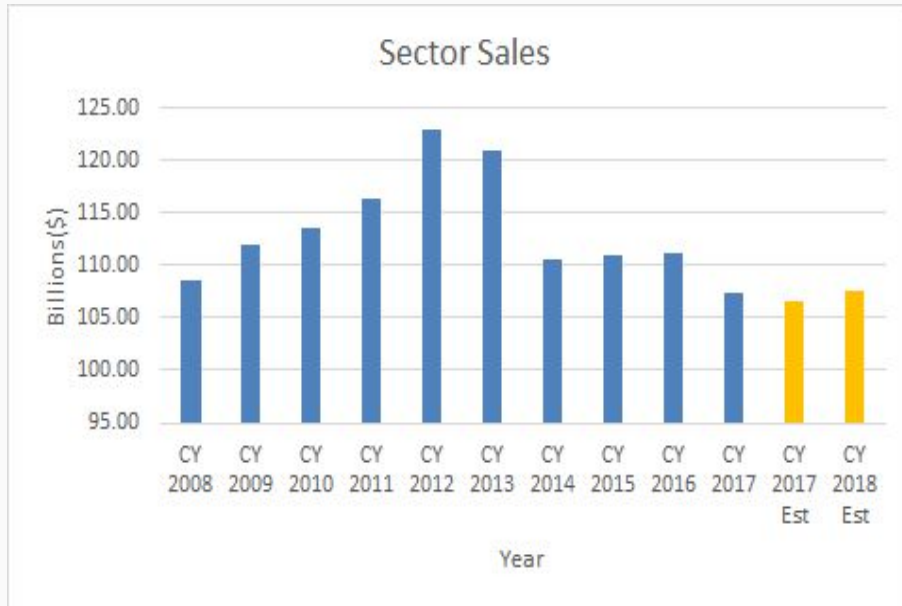
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# Financial Analysis

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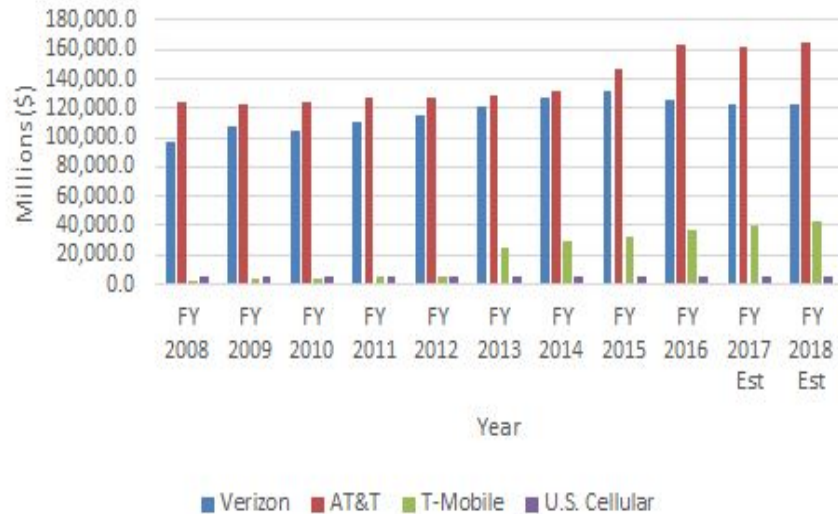


# Telecom Sector Sales & Growth

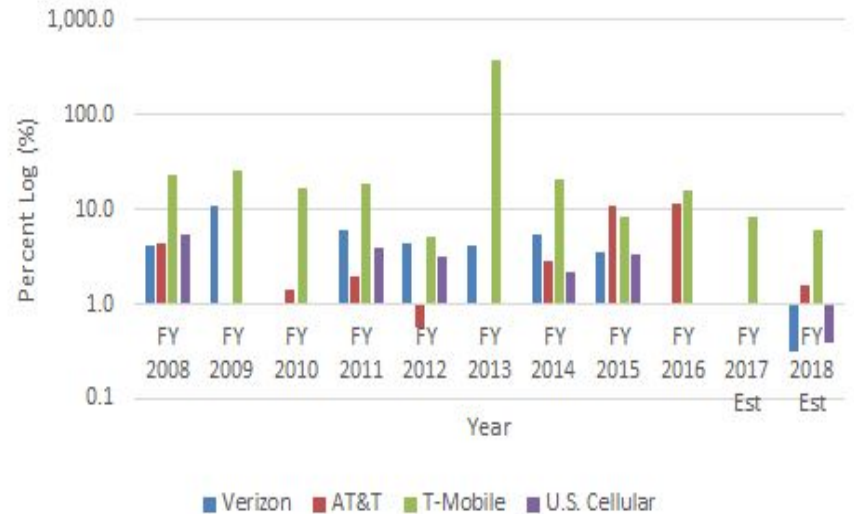


# Major Company Sales

## Sales of Major Companies



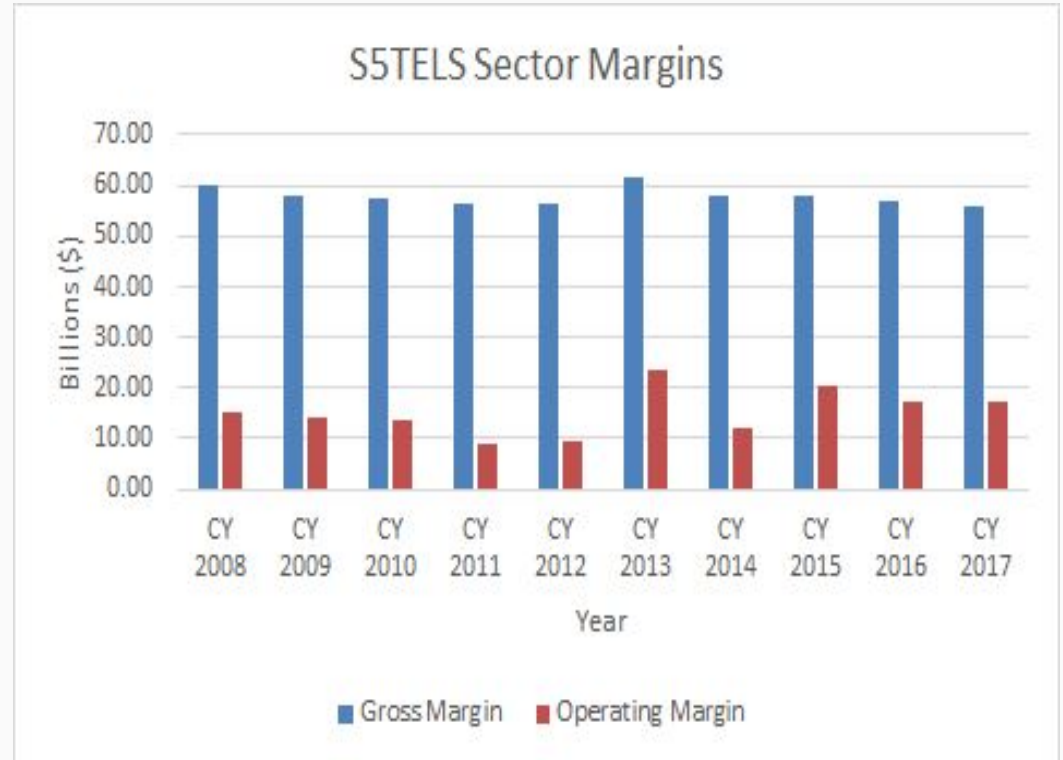
## Sales Growth YoY





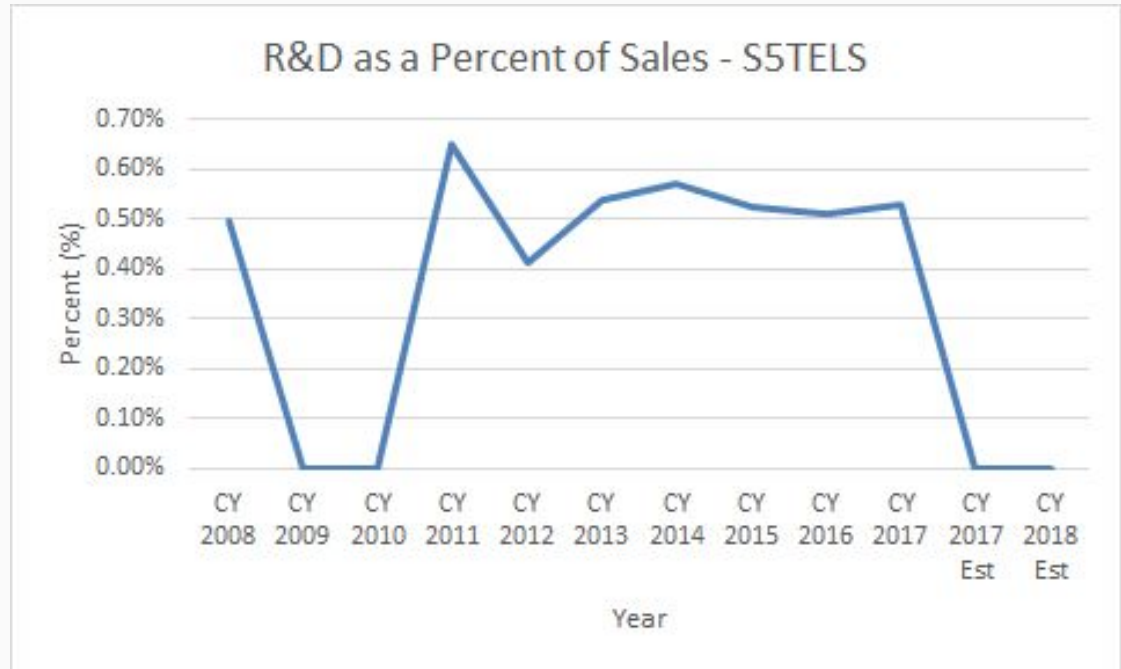
# Margins

- Margins are staying relatively consistent over time.
- Net producer of FCF.
- Telecom has Consistently good dividend yields.



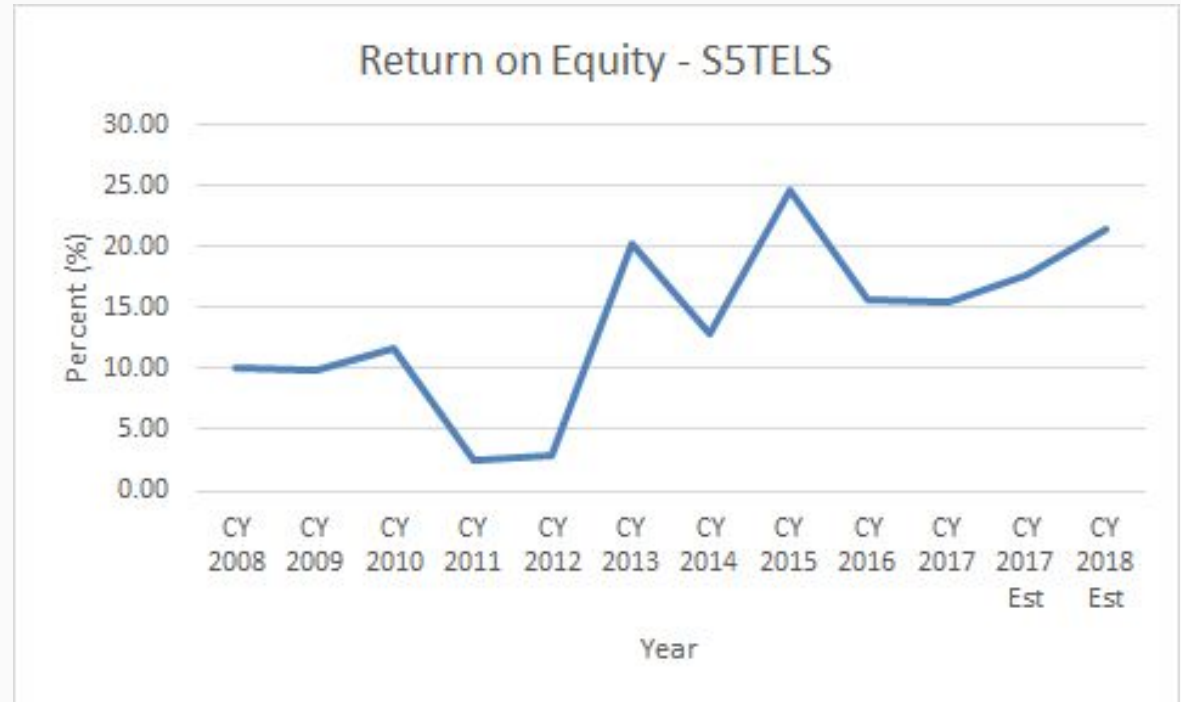
# R&D as a Percent of Sales

- Industry has a relatively low cost of R&D



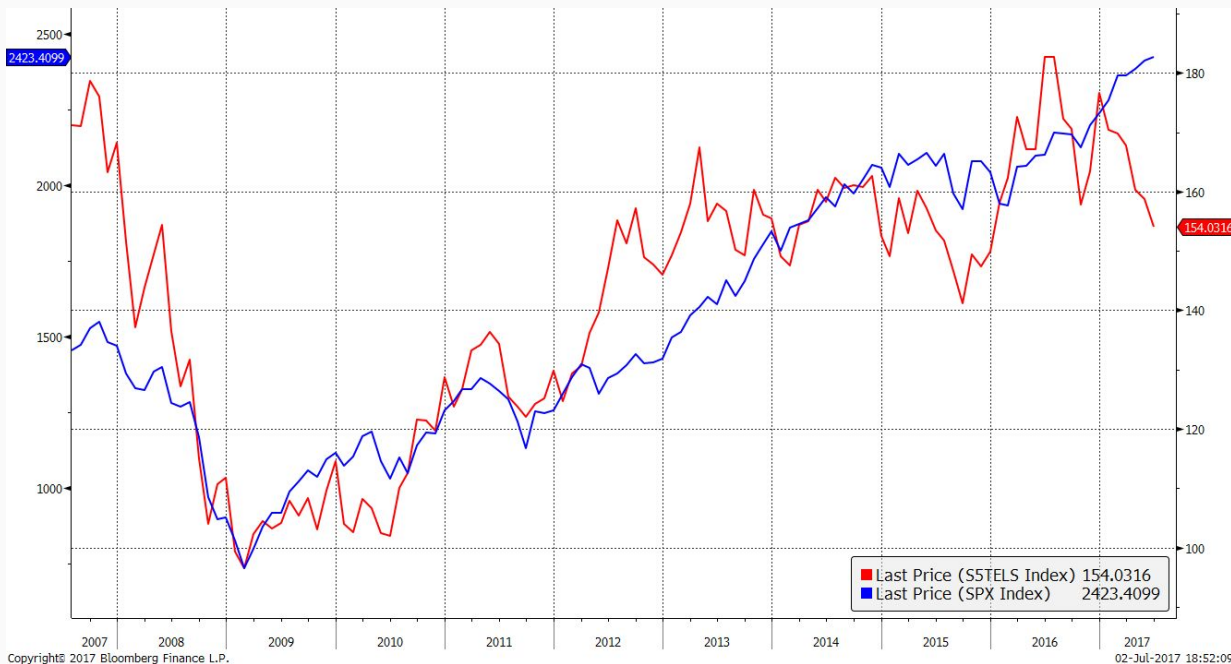
# Return on Equity (ROE)

- ROE is projected to grow in FY2017 and FY2018



# 10 Year Performance

- Price performance of S&P 500 vs Telecom Sector (S5TELS)



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# Valuation Analysis

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# Ratio Valuation - Overview

- On average all ratios cheaper than S&P, but varies across industries and companies.
- Overall a much cheaper P/EBITDA than S&P, which is consistent over industries and companies.

Absolute Basis	Benchmark	Sector	Industry		Company		
	S&P 500	S5TELS - Telecom	Integrated Telecom	Wireless	AT&T	Verizon	T-Mobile
P/E	21.46	14.83	14.46	29.89	17.49	12.21	54.14
P/B	3.12	2.62	2.66	3.51	1.88	8.08	2.75
P/S	2.00	1.44	1.42	0.65	1.43	1.49	1.25
P/CF	13.27	6.97	6.91	7.65	5.92	8.02	8.13
P/EBITDA	11.12	4.45	4.37	4.69	4.64	4.24	4.96

Relative Basis	Benchmark	Sector	Industry		Company		
	S&P 500	S5TELS - Telecom	Integrated Telecom	Wireless	AT&T	Verizon	T-Mobile
P/E	1.00	0.69	0.67	1.39	0.82	0.57	2.52
P/B	1.00	0.84	0.85	1.12	0.60	2.59	0.88
P/S	1.00	0.72	0.71	0.32	0.71	0.74	0.62
P/CF	1.00	0.53	0.52	0.58	0.45	0.60	0.61
P/EBITDA	1.00	0.40	0.39	0.42	0.42	0.38	0.45



## Ratio Valuation - Telecom Sector

S5TELS	High	Low	Median	Current
P/E	23.9186	10.1383	15.4314	14.8313
P/B	3.6146	1.4130	2.1212	2.6209
P/S	1.7912	0.8615	1.2512	1.4443
P/CF	7.5933	3.2498	4.6019	6.9741
P/EBITDA	5.6055	2.7834	4.2152	4.4476

Relative to S&P500	High	Low	Median	Current
P/E	0.98678	0.84221	0.88821	0.69113
P/B	1.15823	0.86122	0.88126	0.83982
P/S	0.89645	1.10847	0.93373	0.72284
P/CF	0.37473	0.65277	0.49927	0.52542
P/EBITDA	0.49681	0.63164	0.55516	0.39982

- Ratios fluctuated over time, currently close to median values
- On a relative basis we are seeing the lowest values in relation to S&P 500



# Ratio Valuation - Integrated Telecom

Absolute Basis	Integrated Telecom			
	High	Low	Median	Current
P/E	20.2318	9.8077	14.8051	14.4596
P/B	3.6463	1.5373	2.3095	2.6595
P/S	1.8325	0.9335	1.3103	1.4188
P/CF	7.5595	3.2865	4.6278	6.9112
P/EBITDA	5.5574	2.8498	4.1833	4.3696

Relative Basis	Integrated Telecom			
	High	Low	Median	Current
P/E	0.83468	0.814749	0.852166	0.673806
P/B	1.168386	0.936978	0.959493	0.852185
P/S	0.917121	1.201107	0.977836	0.710075
P/CF	0.373058	0.660139	0.502078	0.52068
P/EBITDA	0.492551	0.646712	0.550963	0.392808

- Integrated Telecom financial ratios currently resides around the median historically
- On a relative basis integrated telecom is currently lowest in relation to S&P 500





## Ratio Valuation - Wireless

Absolute Basis	Wireless			
	High	Low	Median	Current
P/E	35.0572	11.3385	23.751	29.8853
P/B	3.5154	0.4372	1.0236	3.5098
P/S	1.6671	0.2261	0.5157	0.6479
P/CF	7.6664	1.2824	3.2755	7.6543
P/EBITDA	5.984	1.2267	2.7285	4.6907

Relative Basis	Wireless			
	High	Low	Median	Current
P/E	1.446314	0.941916	1.367082	1.392631
P/B	1.126442	0.266472	0.42526	1.124648
P/S	0.834343	0.290916	0.384851	0.324258
P/CF	0.378334	0.257588	0.355364	0.576665
P/EBITDA	0.53036	0.278378	0.359358	0.421674

- Wireless industry currently trading at relatively high financial ratios compared to historicals
- On a relative basis Wireless trades at around its median historically to the S&P 500



# Recommendation

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## Recommendation - Buy

- **Adjust SIM weight equal to S&P 500 Index**
  - **Increase SIM weight by +0.52% to 2.26%**
- Match S&P 500, cover rest with AT&T
- We are not taking a short term view in our recommendation
- Telecom industry is currently in investment phase
- Has potential for growth in future with multiple lines of revenue
- Verizon and AT&T positioning themselves to maintain leadership in future technology



Any Questions?



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