Agenda

- Sector Overview
- Business Analysis
- Economic Analysis
- Financial Analysis
- Valuation Analysis
- Recommendation
Sector Weights

- As of 10/28, Telecom S&P weight = 2.72%
  - SIM weight = 2.10%
- Our weight of 2.10% is only one company
  - T-Mobile USA
- Telecom is the smallest sector of the S&P 500
  - For comparison, Apple’s weight was 3.05% and Exxon Mobil’s was 2.47%
As of 10/28, the S&P 500 weights of the 8 companies in the telecom sector were:

<table>
<thead>
<tr>
<th>Company Name</th>
<th>S&amp;P 500 Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T</td>
<td>1.19%</td>
</tr>
<tr>
<td>Verizon</td>
<td>0.92%</td>
</tr>
<tr>
<td>American Tower</td>
<td>0.20%</td>
</tr>
<tr>
<td>Crown Castle International</td>
<td>0.16%</td>
</tr>
<tr>
<td>CenturyLink</td>
<td>0.13%</td>
</tr>
<tr>
<td>L-3 Communications</td>
<td>0.06%</td>
</tr>
<tr>
<td>Windstream Holdings</td>
<td>0.03%</td>
</tr>
<tr>
<td>Frontier Communications</td>
<td>0.03%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2.72%</strong></td>
</tr>
</tbody>
</table>
Largest Companies in the Sector

- AT&T and Verizon count for 2.11% of the sector’s 2.72%, **78% of the total sector weight**

- We do not own either T or VZ, so we are essentially short those two names
Telecom Industries

- The Telecom sector has two industries and two sub-industries
- 2 Primary Industries
  - Wireless Telecommunication Services
    - Sprint, SBA Communications, Crown Castle
  - Diversified Telecommunication Services
- Diversified Telecom Services is made of up two sub-industries
  - Integrated Telecommunications Services
    - Verizon, AT&T
  - Alternative Carriers
    - TW Telecom, Lumos Networks
Sector Performance - YTD

- Underperformed S&P 500 by -15.1%
Underperformed S&P 500 by -9.4%
Agenda

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Sector Life Cycle

- Wireline
- Wireless
Growth of Smart Phones/Data Plans

Source: Ibisworld
Geography

Customers

- Two Different Types of Customers
  - Postpaid and Prepaid
    - Postpaid = the 2-year contract (i.e. pay after using)
    - Prepaid = month-to-month contract (i.e. pay before using as you go)

Source: www.plastyc.com
New Hardware

- Part of the “lumpiness” of smartphone sales are due to new hardware releases

ARPU

- ARPU = Average Revenue per User
- Key metric for telecom companies
  - Including wireless, wireline, and tower companies

Spectrum
Product Segmentation

- Prepaid vs. Postpaid
  - Postpaid: lower growth but higher ARPU and steady cash flows (very sticky; the prized customers)
  - Prepaid: higher growth but lower ARPU and more unpredictable cash flows (not very sticky)
  - Major players have recently been acquiring prepaid carriers to obtain growth in the US
  - T-Mobile is seeking to change this dynamic
Concentration

- The wireless/wireline industries are extremely concentrated in the US.
  - Verizon/AT&T have a combined 67% market share in wireless, holding a near duopoly
  - New entrants into wireline are sparse, leaving AT&T a market-leading position there.
  - In the wireless tower market, there are really only three major firms left.
    - Crown Castle, American Tower, SBA Communications
Mergers & Acquisitions

- The concentration is accelerating via M&A.
- In the last year:
  - AT&T acquired LEAP wireless
  - T-Mobile acquired MetroPCS
  - Softbank acquired Sprint
  - Verizon acquired Vodafone’s stake in Verizon
  - Crown Castle obtained LT leases for 9,100 of AT&T’s European towers
  - American Tower acquired Global Tower Partners
Porter’s Five Forces

- **Barriers to Entry**: extremely high
  - Very capital-intensive
  - Regulation
  - Finite amount of spectrum

- **Substitution**: high
  - Internet for wireless
  - Cable TV providers for wireline
Porter’s Five Forces

- **Supplier Power** = moderate to low
  - Key exception is some hardware firms like Apple

- **Buyer Power** = moderate but growing
  - T-Mobile’s new plans are shifting this
  - 2-year contract losing its “inevitability”
  - Business customers still sticky

- **Intensity of Rivalry** = extremely high
  - In US market, room outside of market share gains is diminishing
  - Price will possibly become more important
  - High exit barriers
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Real GDP to Sector Returns

REAL GROSS DOMESTIC PRODUCT and TELECOMMUNICATION

% Chg. Q/Q, SAAR

Lag: 0 Months $r = 0.29$

Oct 25, 2013

SPC 168

158.21

2.5

153

139

125

111

97
Real GDP to Integrated Telecom Services
Real GDP to Wireless Telecom Services
Consumer Spending and Sector Returns

CONSUMER SPENDING and TELECOMMUNICATION

% Chg, Yr Ago

Lag: 0 Months  r = 0.25

Oct 25, 2013

SPCSS
181

160
139
118
97

03 04 05 06 07 08 09 10 11 12 13

-10 -5 0 5 10 15 20 25 30 35 40

158.21 3.2
Consumer Spending - WTS

CONSUMER SPENDING and WIRELESS TELECOM SVC

% Chg, Yr Ago

Lag: 0 Months  \( r = 0.42 \)

Oct 25, 2013

TLCEL

236

212

187

163

139

115

90

66
Consumer Confidence

CONFIDENCE: CURRENT CONDITIONS and TELECOMMUNICATION

Lag: 0 Months  \( r = 0.82 \)

Oct 25, 2013

SPCSS 168

158.21

73.2

97

08 09 10 11 12 13
Disposable Income

DISPOSABLE INCOME and TELECOMMUNICATION

% Chg, Yr Ago
15%

Lag: 0 Months r = 0.42

Oct 25, 2013

SPCSS
168

158.21
153
139
125
111
97
Consumer Spending - Services

CONSUMER SPDG: SERVICES and TELECOMMUNICATION

% Chg. Yr. Ago  
Lag: 0 Months  r = .62

Oct 25, 2013  
SPCSS 168

158.21  
156  
144  
132  
120  
108  
97  

08 09 10 11 12 13

0 1 2 3 4

5%
Consumer Spending - Electronics
Consumer Spending - Cell Phones
Agenda

- Sector Overview
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- **Financial Analysis**
- Valuation Analysis
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Telecommunications Sector

Revenues - 4 Quarter Moving Average
5 Year Growth Rate: 3%
(Per Share Data)

Earnings - 4 Quarter Moving Average
5 Yr Hist Growth Rate: −8%
Long Term Future Growth Rate: 9%

Key Operating Statistics

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA Margin</td>
<td>35.7%</td>
<td>31.9%</td>
<td>28.4%</td>
<td>29.7%</td>
<td>28.0%</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>9.4%</td>
<td>7.4%</td>
<td>6.8%</td>
<td>6.5%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Return on Equity</td>
<td>13.4%</td>
<td>12.7%</td>
<td>11.3%</td>
<td>11.0%</td>
<td>10.1%</td>
</tr>
</tbody>
</table>

Return on Equity

ROE (%) | 15 | 15 | 14 | 15 | 13 | 13 | 11 | 11 | 10 | 14
ROIC (%) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA
Telecommunications Sector
Telecommunications Sector
Wireless Telecom Services

- Includes firms like T-Mobile and Crown Castle
Wireless Telecom Services
Integrated Telecom Services

- Includes firms like AT&T and Verizon

**Revenues - 4 Quarter Moving Average**
- 5 Year Growth Rate: 2%

**Earnings - 4 Quarter Moving Average**
- 5 Yr Hist Growth Rate: -4%
- Long Term Future Growth Rate: 8%

### Key Operating Statistics

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA Margin</td>
<td>36.3%</td>
<td>32.2%</td>
<td>29.3%</td>
<td>31.0%</td>
<td>30.2%</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>10.6%</td>
<td>8.7%</td>
<td>8.7%</td>
<td>7.9%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Return on Equity</td>
<td>16.0%</td>
<td>14.5%</td>
<td>14.2%</td>
<td>12.7%</td>
<td>12.6%</td>
</tr>
</tbody>
</table>

### Return on Equity

- **EBITDA Margin**
- **Net Profit Margin**

<table>
<thead>
<tr>
<th>Year</th>
<th>ROE (%)</th>
<th>ROIC (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>15</td>
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<tr>
<td>2005</td>
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<td>2006</td>
<td>18</td>
<td>NA</td>
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<tr>
<td>2007</td>
<td>19</td>
<td>NA</td>
</tr>
<tr>
<td>2008</td>
<td>16</td>
<td>NA</td>
</tr>
<tr>
<td>2009</td>
<td>14</td>
<td>NA</td>
</tr>
<tr>
<td>2010</td>
<td>13</td>
<td>NA</td>
</tr>
<tr>
<td>2011</td>
<td>13</td>
<td>NA</td>
</tr>
<tr>
<td>2012</td>
<td>14</td>
<td>NA</td>
</tr>
</tbody>
</table>
Integrated Telecom Services
Verizon

Revenues - 4 Quarter Moving Average
5 Year Growth Rate: 3%

Key Operating Statistics

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA Margin</td>
<td>26.9 %</td>
<td>22.7 %</td>
<td>22.5 %</td>
<td>19.9 %</td>
<td>16.6 %</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>6.6 %</td>
<td>3.4 %</td>
<td>2.4 %</td>
<td>2.2 %</td>
<td>0.8 %</td>
</tr>
<tr>
<td>Return on Equity</td>
<td>13.9 %</td>
<td>41.0 %</td>
<td>6.4 %</td>
<td>6.5 %</td>
<td>2.5 %</td>
</tr>
</tbody>
</table>

Earnings - 4 Quarter Moving Average
5 Yr Hist Growth Rate: -1%
Long Term Future Growth Rate: 7%

Return on Equity

<table>
<thead>
<tr>
<th>ROE (%)</th>
<th>20</th>
<th>19</th>
<th>12</th>
<th>11</th>
<th>14</th>
<th>41</th>
<th>6</th>
<th>7</th>
<th>3</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROIC (%)</td>
<td>12</td>
<td>14</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>12</td>
<td>8</td>
<td>14</td>
<td>64</td>
<td>51</td>
</tr>
</tbody>
</table>
AT&T

Revenues - 4 Quarter Moving Average
5 Year Growth Rate: 1%

Key Operating Statistics

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA Margin</td>
<td>34.8%</td>
<td>34.0%</td>
<td>32.7%</td>
<td>22.4%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Net Profit Margin</td>
<td>10.4%</td>
<td>10.2%</td>
<td>15.6%</td>
<td>3.1%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Return on Equity</td>
<td>12.2%</td>
<td>13.3%</td>
<td>18.2%</td>
<td>3.6%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

Earnings - 4 Quarter Moving Average
5 Yr Hist Growth Rate: -2%
Long Term Future Growth Rate: 6%

Return on Equity

<table>
<thead>
<tr>
<th>ROE (%)</th>
<th>13 10 9 10 12 13 18 4 7 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROIC (%)</td>
<td>8 7 5 6 7 7 12 4 6 6</td>
</tr>
</tbody>
</table>
Alternative Carriers

- Includes companies like TW Telecom and L-3 Communications

Revenues - 4 Quarter Moving Average
5 Year Growth Rate: 13%

Earnings - 4 Quarter Moving Average
5 Yr Hist Growth Rate: -8%
Long Term Future Growth Rate: 11%
Alternative Carriers
Historically, telecommunications sector has had one of the highest dividend yields...
## Telecom Dividend Yield

- **Dividend Yield by Sector as of 7/31/2013**

### Table

<table>
<thead>
<tr>
<th>Sector</th>
<th>2013 Sector Dividend Yield (as of 7/31/13)</th>
<th>2012 Sector Dividend Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom Services</td>
<td>4.67%</td>
<td>4.85%</td>
</tr>
<tr>
<td>Utilities</td>
<td>3.88%</td>
<td>4.38%</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>2.71%</td>
<td>3.01%</td>
</tr>
<tr>
<td>Materials</td>
<td>2.31%</td>
<td>2.46%</td>
</tr>
<tr>
<td>Energy</td>
<td>2.27%</td>
<td>2.29%</td>
</tr>
<tr>
<td>Industrials</td>
<td>2.17%</td>
<td>2.49%</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>2.10%</td>
<td>2.27%</td>
</tr>
<tr>
<td>Technology</td>
<td>1.84%</td>
<td>1.75%</td>
</tr>
<tr>
<td>Health Care</td>
<td>1.84%</td>
<td>2.13%</td>
</tr>
<tr>
<td>Financials</td>
<td>1.72%</td>
<td>1.84%</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>1.44%</td>
<td>1.60%</td>
</tr>
</tbody>
</table>

*Source: S&P*
Agenda

- Sector Overview
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## Sector Valuation

<table>
<thead>
<tr>
<th>Absolute Basis</th>
<th>High</th>
<th>Low</th>
<th>Median</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/Trailing E</td>
<td>23.8</td>
<td>9.7</td>
<td>16.8</td>
<td>22.4</td>
</tr>
<tr>
<td>P/Forward E</td>
<td>22.0</td>
<td>10.5</td>
<td>15.8</td>
<td>15.3</td>
</tr>
<tr>
<td>P/B</td>
<td>2.7</td>
<td>1.3</td>
<td>2.1</td>
<td>2.4</td>
</tr>
<tr>
<td>P/S</td>
<td>2.0</td>
<td>0.9</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>P/CF</td>
<td>7.0</td>
<td>3.6</td>
<td>5.5</td>
<td>5.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative to SPX</th>
<th>High</th>
<th>Low</th>
<th>Median</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/Trailing E</td>
<td>1.6</td>
<td>0.68</td>
<td>1.0</td>
<td>1.4</td>
</tr>
<tr>
<td>P/Forward E</td>
<td>1.7</td>
<td>0.79</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>P/B</td>
<td>1.1</td>
<td>0.6</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>P/S</td>
<td>1.4</td>
<td>0.8</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>P/CF</td>
<td>0.7</td>
<td>0.4</td>
<td>0.6</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Sector Valuation: Thoughts

- Overall, the sector is trading very close to historical median ratios, with a slight hint towards overvaluation.
- That said, margins are being pressured and pricing is likely to be affected over recent corporate strategies, so historical medians might not be accurate.
### Integrated Telecom Services Valuation

<table>
<thead>
<tr>
<th>Absolute Basis</th>
<th>High</th>
<th>Low</th>
<th>Median</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/Trailing E</td>
<td>18.1</td>
<td>9.1</td>
<td>15.0</td>
<td>17.0</td>
</tr>
<tr>
<td>P/Forward E</td>
<td>18.5</td>
<td>9.9</td>
<td>14.3</td>
<td>14.5</td>
</tr>
<tr>
<td>P/B</td>
<td>3.4</td>
<td>1.4</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>P/S</td>
<td>2.0</td>
<td>1.0</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>P/CF</td>
<td>7.2</td>
<td>3.8</td>
<td>5.4</td>
<td>5.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative to SPX</th>
<th>High</th>
<th>Low</th>
<th>Median</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/Trailing E</td>
<td>1.3</td>
<td>0.62</td>
<td>0.94</td>
<td>1.0</td>
</tr>
<tr>
<td>P/Forward E</td>
<td>1.2</td>
<td>0.72</td>
<td>0.96</td>
<td>0.94</td>
</tr>
<tr>
<td>P/B</td>
<td>1.1</td>
<td>0.5</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>P/S</td>
<td>1.4</td>
<td>0.8</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>P/CF</td>
<td>0.7</td>
<td>0.4</td>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>
ITS Valuation: Thoughts

- The Integrated Telecom Services industry- the majority of the telecommunications sector weight- is also trading close to slightly above historical medians

- Again, margins/pricing are concerning, but there are steady cash flows and high dividends/share repurchases supporting reasonable prices
## Wireless Services Valuation

<table>
<thead>
<tr>
<th>Absolute Basis</th>
<th>High</th>
<th>Low</th>
<th>Median</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
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<td>12.0</td>
<td>22.3</td>
<td>NM</td>
</tr>
<tr>
<td>P/Forward E</td>
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<td>14.6</td>
<td>22.2</td>
<td>100.3</td>
</tr>
<tr>
<td>P/B</td>
<td>7.4</td>
<td>0.3</td>
<td>1.6</td>
<td>7.4</td>
</tr>
<tr>
<td>P/S</td>
<td>2.9</td>
<td>0.4</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>P/CF</td>
<td>23.4</td>
<td>1.6</td>
<td>6.4</td>
<td>23.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative to SPX</th>
<th>High</th>
<th>Low</th>
<th>Median</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/Trailing E</td>
<td>9.4</td>
<td>0.78</td>
<td>1.4</td>
<td>NM</td>
</tr>
<tr>
<td>P/Forward E</td>
<td>14.6</td>
<td>0.95</td>
<td>1.4</td>
<td>6.5</td>
</tr>
<tr>
<td>P/B</td>
<td>2.9</td>
<td>0.2</td>
<td>0.6</td>
<td>2.9</td>
</tr>
<tr>
<td>P/S</td>
<td>1.9</td>
<td>0.5</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>P/CF</td>
<td>2.3</td>
<td>0.2</td>
<td>0.7</td>
<td>2.2</td>
</tr>
</tbody>
</table>
Wireless Services appears overvalued, as there is extreme optimism about the growth of various services in regards to growing data plans, etc.

- The most evident ratios of this are the P/B and P/CF, which are a little less easily manipulated by accounting rules than earnings.

- With a few companies that have a significant amount of debt in this industry, there are some interesting short candidates.
The Bollinger Bands seem to indicate that the recent rally is overbought and due for a correction.
Agenda

- Sector Overview
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- Recommendation
My Recommendation

- I recommend that the SIM portfolio **remain underweight** telecoms relative to the S&P 500.
  - Valuations are not compelling
  - US market is nearing saturation with greater than 100% wireless penetration
  - Margins/pricing pressure

- Risks:
  - Growth in data usage would offset the diminishing number of new users
  - Investors seeking high-yielding stocks could continue to push up prices
  - US telecom stocks could pursue aggressive expansion overseas
If I were managing a portfolio of telecom stocks (and not just one stock), I would:

- **Overweight Integrated Telecom Services**
  - Strong dividends, stable cash flows, defensive nature

- **Underweight Wireless Services**
  - Overvalued, unpredictable, unsure who will “win”
What Questions Do You Have?