



THE OHIO STATE UNIVERSITY

FISHER COLLEGE OF BUSINESS

MAX M. FISHER COLLEGE OF BUSINESS

Sector Presentation: Information Technology

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OVERVIEW



Sector Overview: Size of Sector

1. Market Cap: \$7.03 trillion
2. Percentage of S&P500: 21.96% of S&P 500

Sector Overview: Performance

1. Technology Sector YTD and QTD: **10.30%**
2. S&P 500 Index YTD and QTD: **6.23%**





Sector Overview: Industries

1. Communications equipment
2. Data processing and outside services
3. Electronic equipment, instruments and components
4. IT services
5. Internet software and services
6. Semiconductors and semiconductor equipment
7. Software
8. Technology hardware and equipment



Sector Overview: Largest Companies

- Apple
- Mastercard
- Alphabet
- Microsoft
- Facebook
- Cisco
- Intel
- IBM
- Oracle





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BUSINESS ANALYSIS



Business Analysis: Life Cycle

- Information Technology sector performs best during the mid-phase of the business cycle. This is when corporate earnings are highest (allowing for capital intensive investment in IT) and interest rates are lowest (making it easier for customers to finance IT investments)
- The IT sector struggles in later parts of the business cycle as business and individuals slow their investments into new technology
- Currently the economy has been in a long bull run, leading to strong growth in technology
- The Fed recently raised interest rates and indicated that they will be continuing to raise rates in the short term, this could be harmful for the sector due to its capital intensive nature
- The increasing reliance on technology and desire of enterprises to remain competitive is slowly reducing cyclicality in the industry



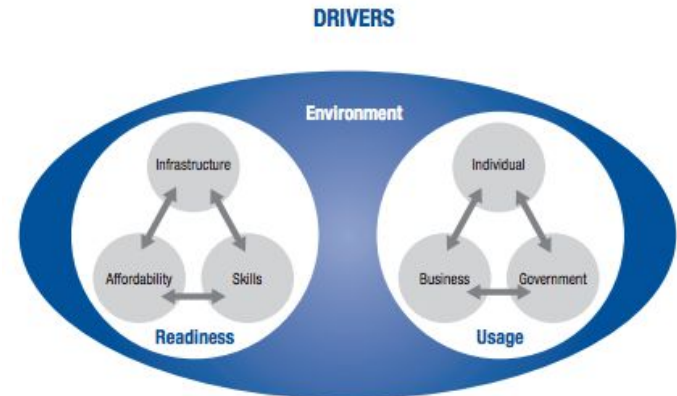
Business Analysis: Business Cycle

- Maturing/matured products in hardware markets
- Emerging software and services markets
- Product lifecycles are shrinking as competition and innovation continue to increase
- New products and service offerings being released at an increasing rate
- Continued growth in proliferation of technology throughout the business and private sector



Business Analysis: Demand

- Users include the vast majority of individual consumers globally
- Also almost all worldwide enterprises: IT is essential for a business to be effective and competitive
- Saturated markets in developed countries
- Room for expansion in developing markets
- Demand is driven by:
 1. Consumer Preferences
 2. Desire and ability of enterprises to remain competitive
 3. New developments and innovations





Business Analysis: External Factors, User/Geography

External Factors:

- Lawsuits and allegations - Many IT companies have come under pressure from different governmental organizations
- Faulty products - Because of the proliferation of many of the services and products that the IT sector offers throughout society, issues with product launches and new products can have detrimental effects

User/Geography:

- IT has become a key component for almost all businesses, industries, and sectors both domestically and internationally
- Individual users and households have also adopted products for day to day use
- Many consumers depend on IT products to get through their daily work/personal lives



Bloomberg Dollar Spot Index



Strong U.S.D. hurting international sales



Input/Output Analysis

- Raw Materials: Copper, gold, silicon, graphite, cobalt, lead, chromium, magnesium, tin
- The IT sector depends heavily on the production of semiconductors
- Most firms within the industry undertake high investments in R&D
- There are a broad range of products delivered by firms within the sector showing high diversity
- 3 largest outputs:
 1. Semiconductors & semiconductor equipment
 2. Software & services
 3. Technology hardware & equipment



Business Analysis: Porter's Five Forces

- **Barriers to Entry: HIGH**
 - Economies of Scale
 - Incumbents have extensive brand recognition and customer loyalty
 - Incumbents will retaliate
 - Network effect
- **Supplier Power: MODERATE**
 - Well established relationships with suppliers
 - Reliability is important; moving to a new (unproven) supplier is a risk
 - Fairly standard inputs (speed, memory, etc.)



Business Analysis: Porter's Five Forces cont.

- Buyer Power: MODERATE
 - High switching costs (especially for large corporations that have invested in educating employees on how to use products)
 - Enterprises are willing to pay more for better reliability and security
 - Information Technology is a necessity and enterprises are willing to invest in it
 - Buyers making significant investments hold some power over technology companies
- Threat of Substitutes: LOW
 - There are no true substitutes to Information Technology, other than living without it
 - Enterprises are unable to compete without sufficient IT, so have no substitutes
- Competitive Rivalry: HIGH
 - Players invest huge amounts in R&D to create products to beat competition

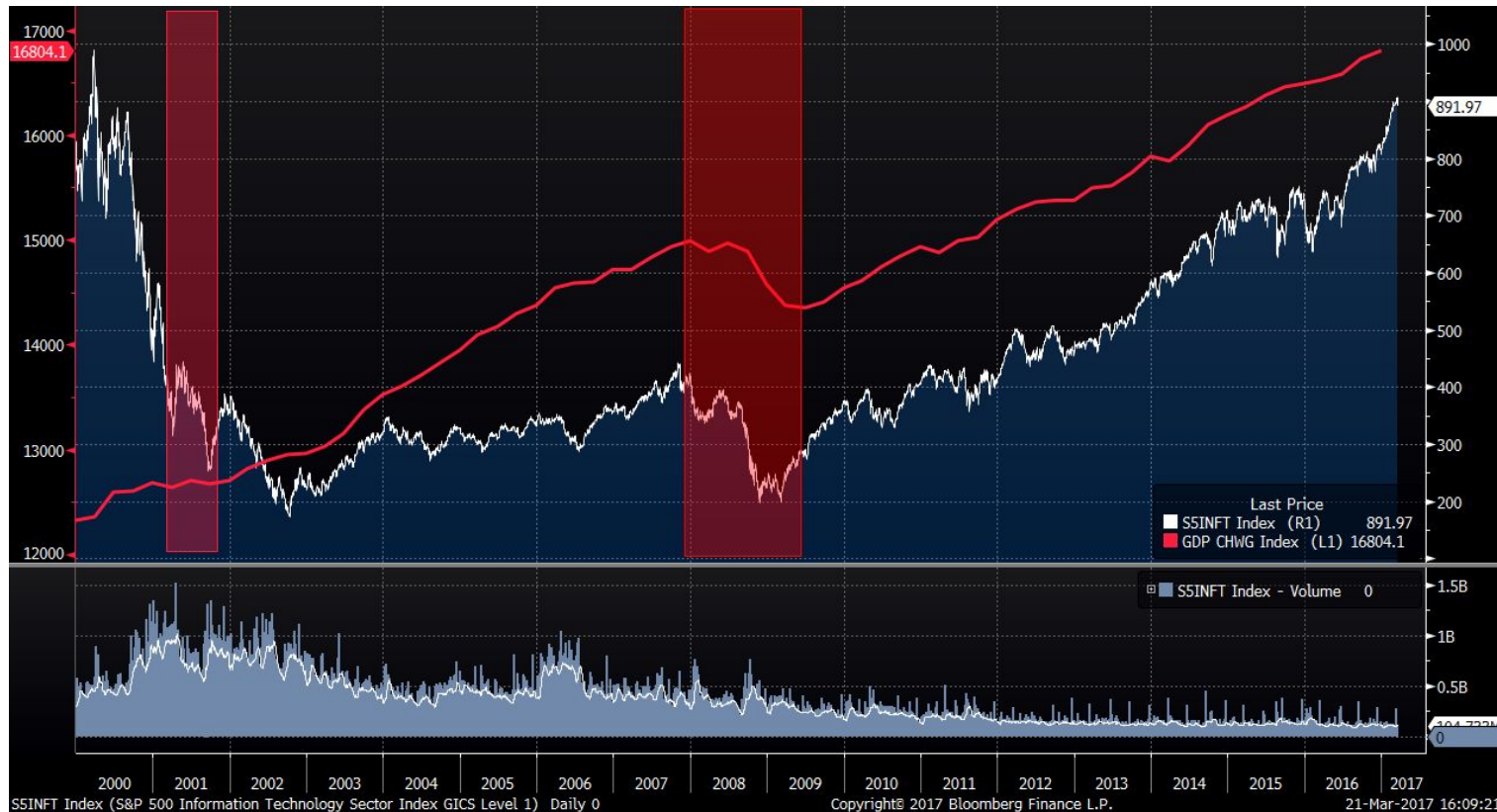


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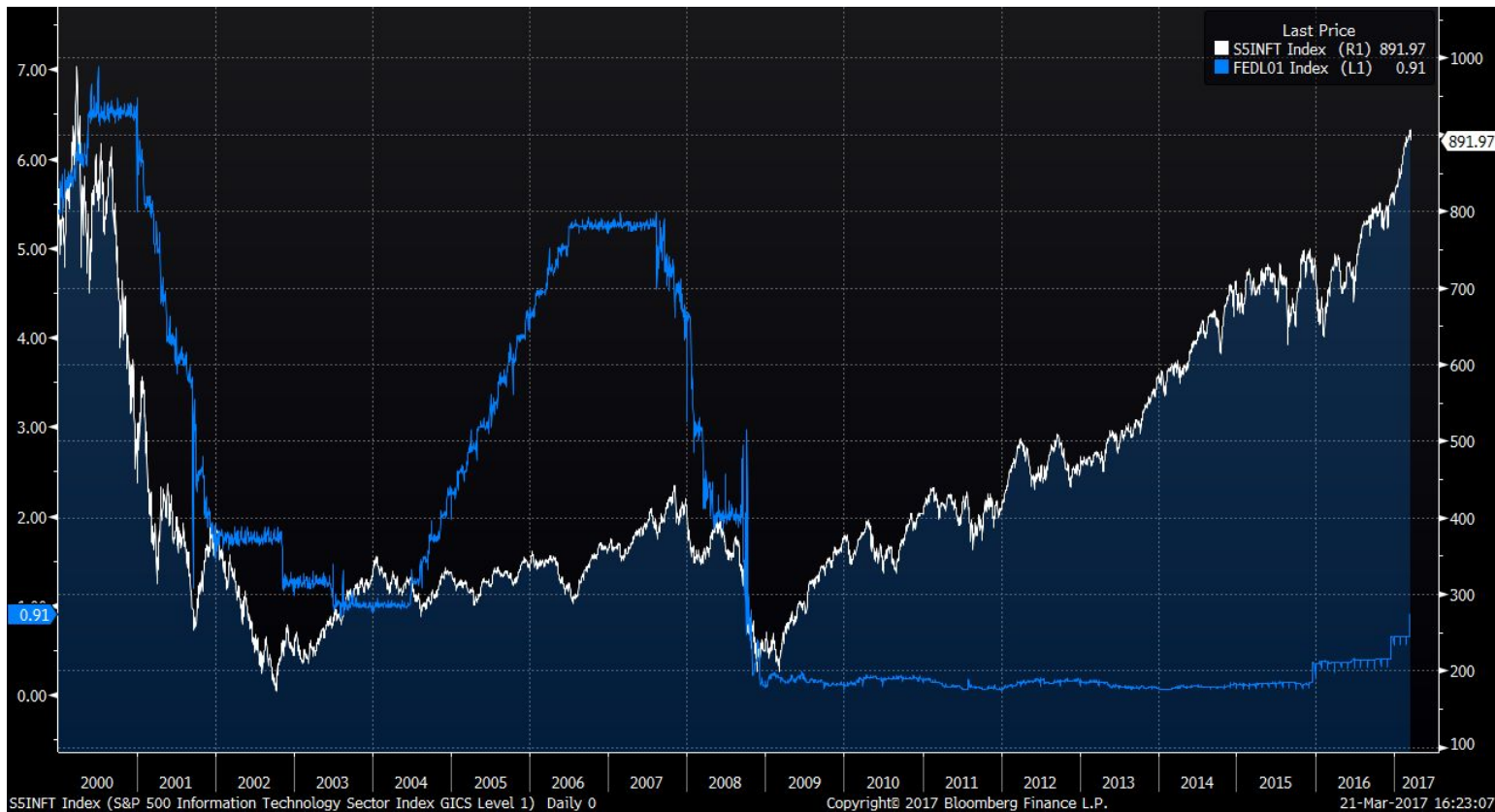
ECONOMIC ANALYSIS













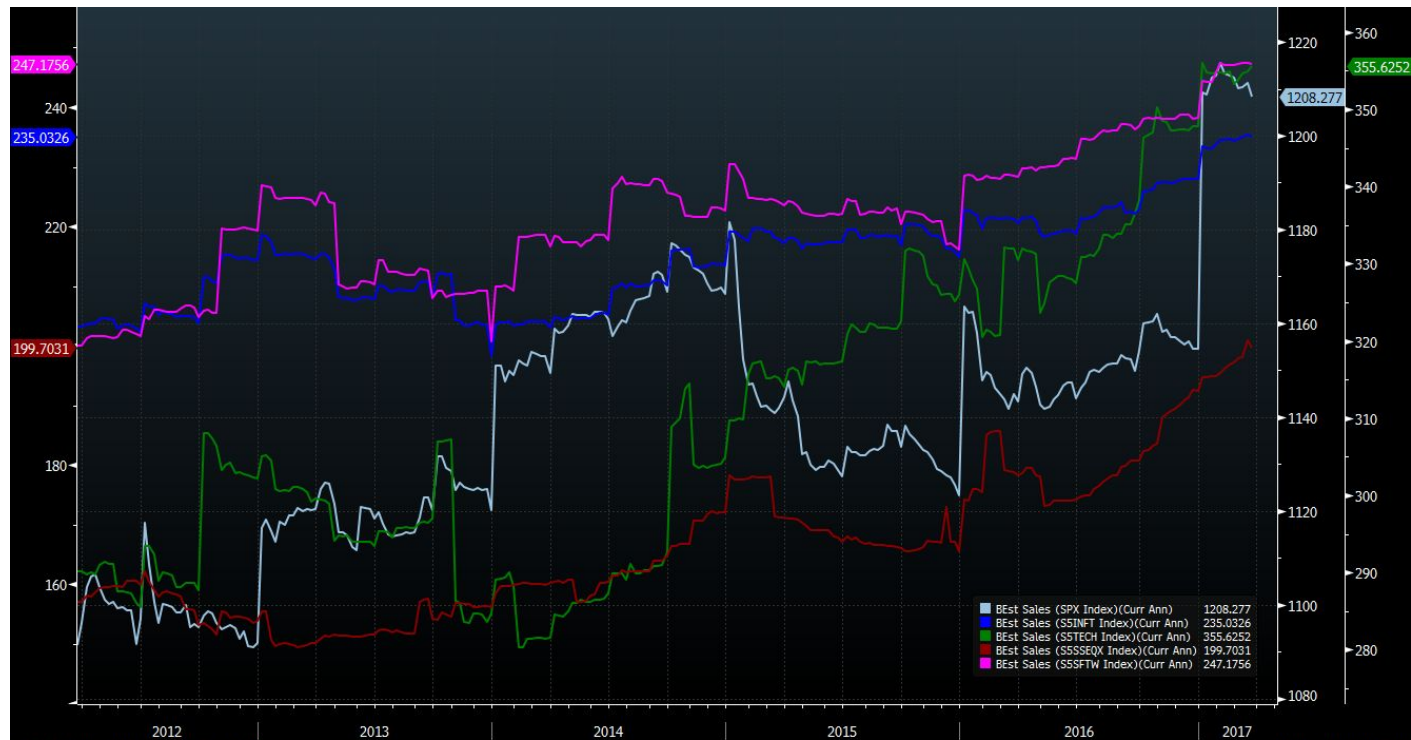
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FINANCIAL ANALYSIS



S&P vs Sector & Sub-Sector - Revenue Growth



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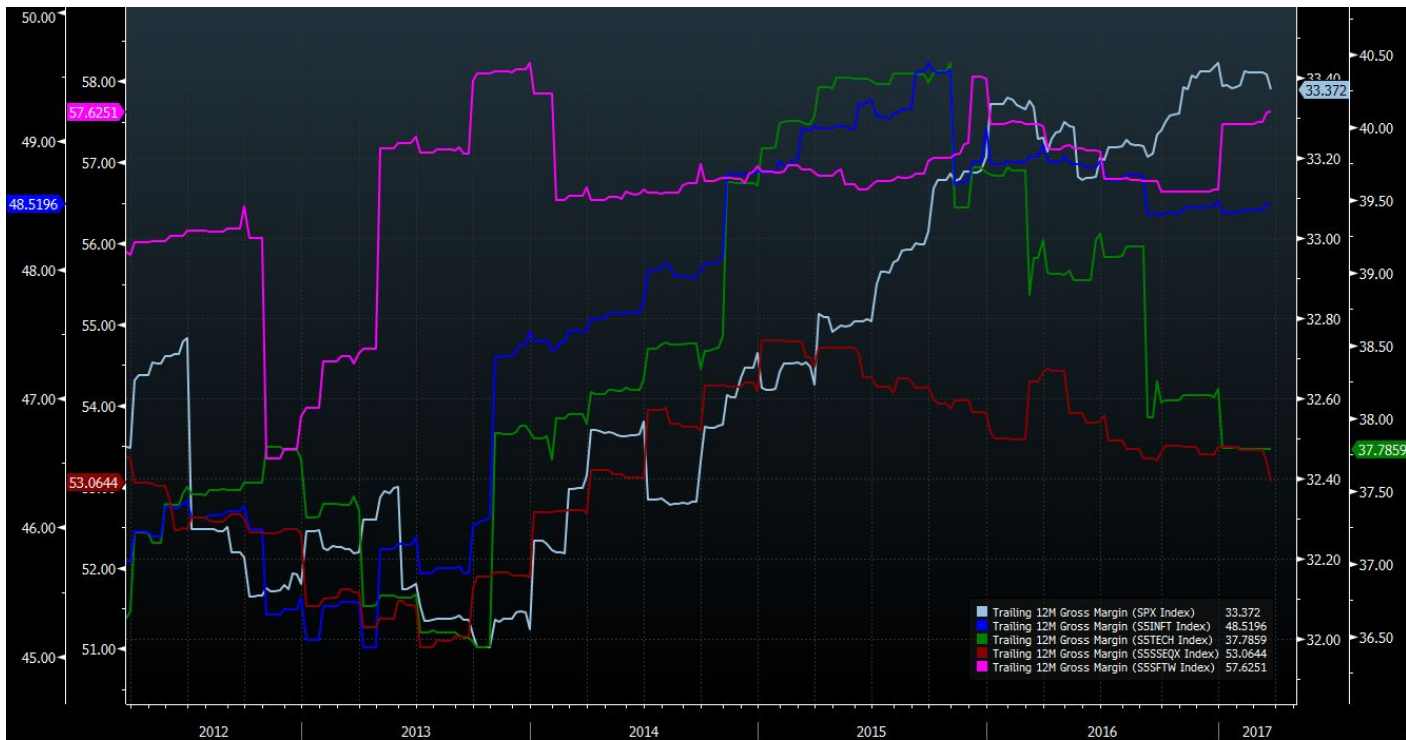
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Key

- S&P 500 Index
- SPX IT Sector
- SPX IT Subsectors:
 - Hardware
 - Semiconductor
 - Software



S&P vs Sector & Sub-Sector - Gross Margin



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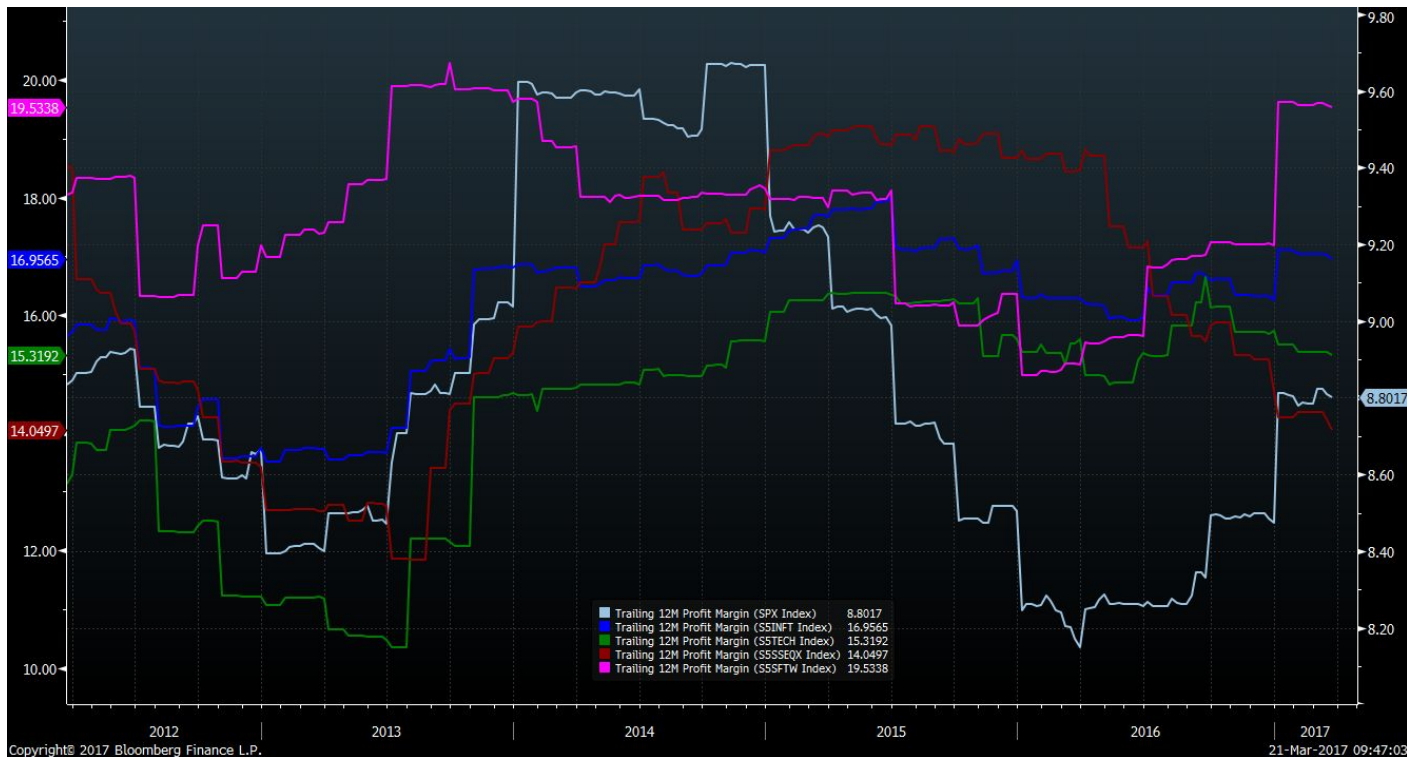
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Key

- S&P 500 Index
- SPX IT Sector
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 - Software



S&P vs Sector & Sub-Sector - Profit Margin

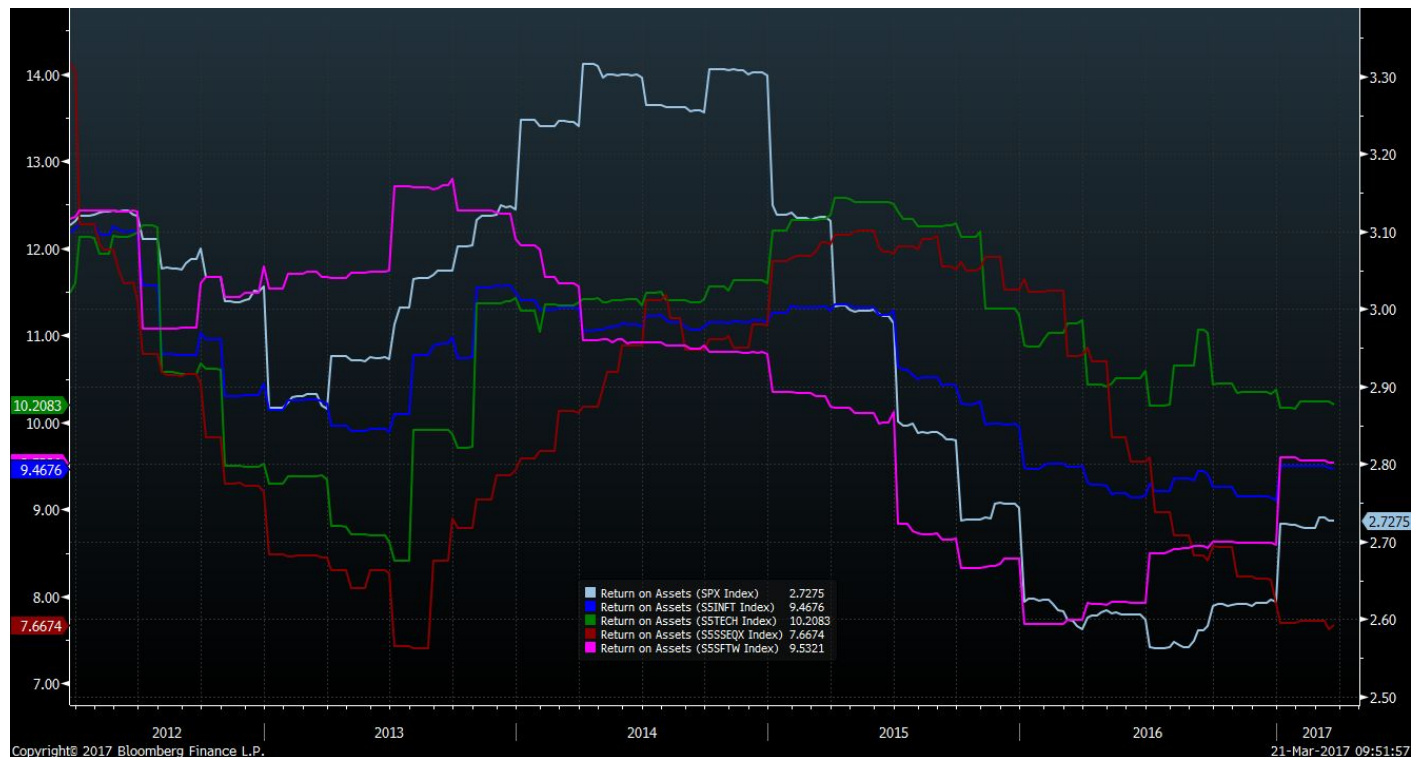


Key

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S&P vs Sector & Sub-Sector - ROA

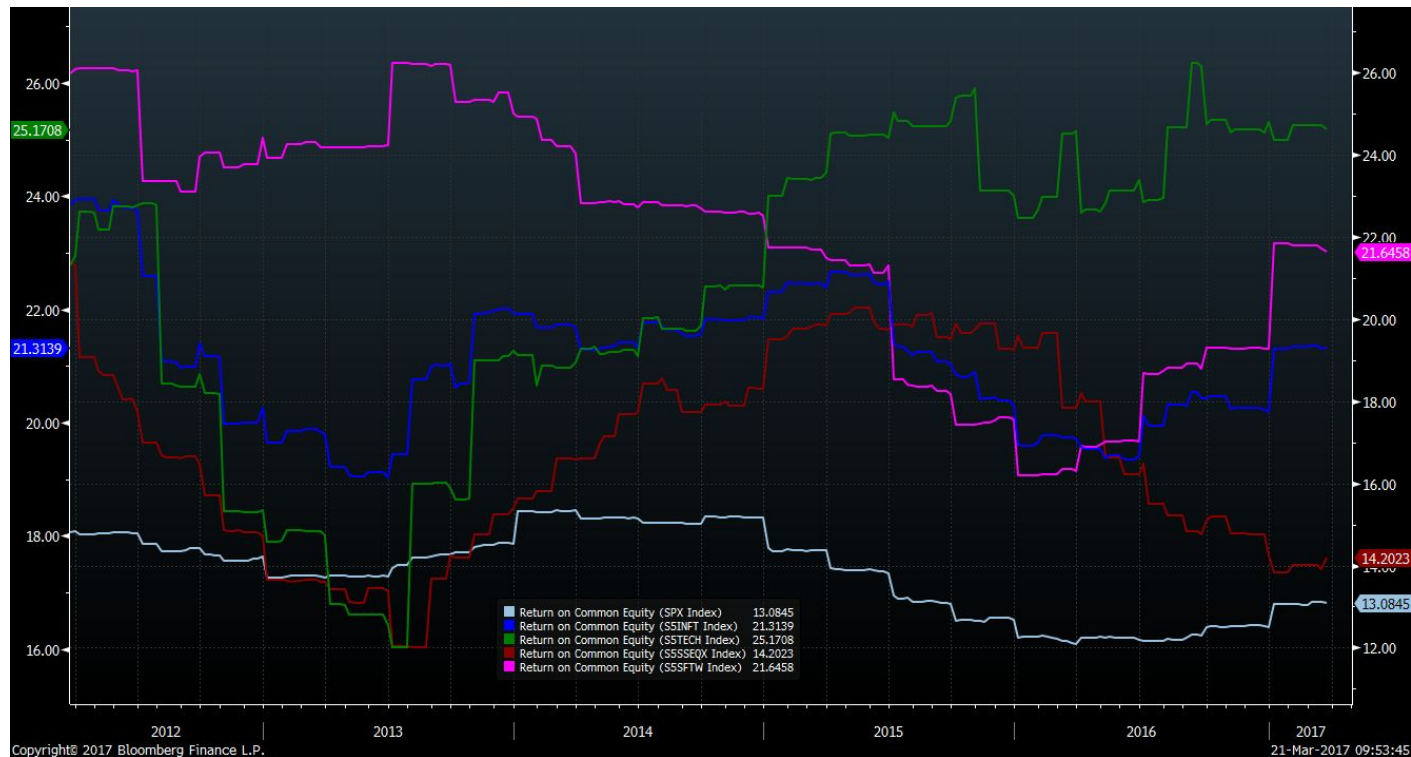


Key

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 - Software



S&P vs Sector & Sub-Sector - ROE

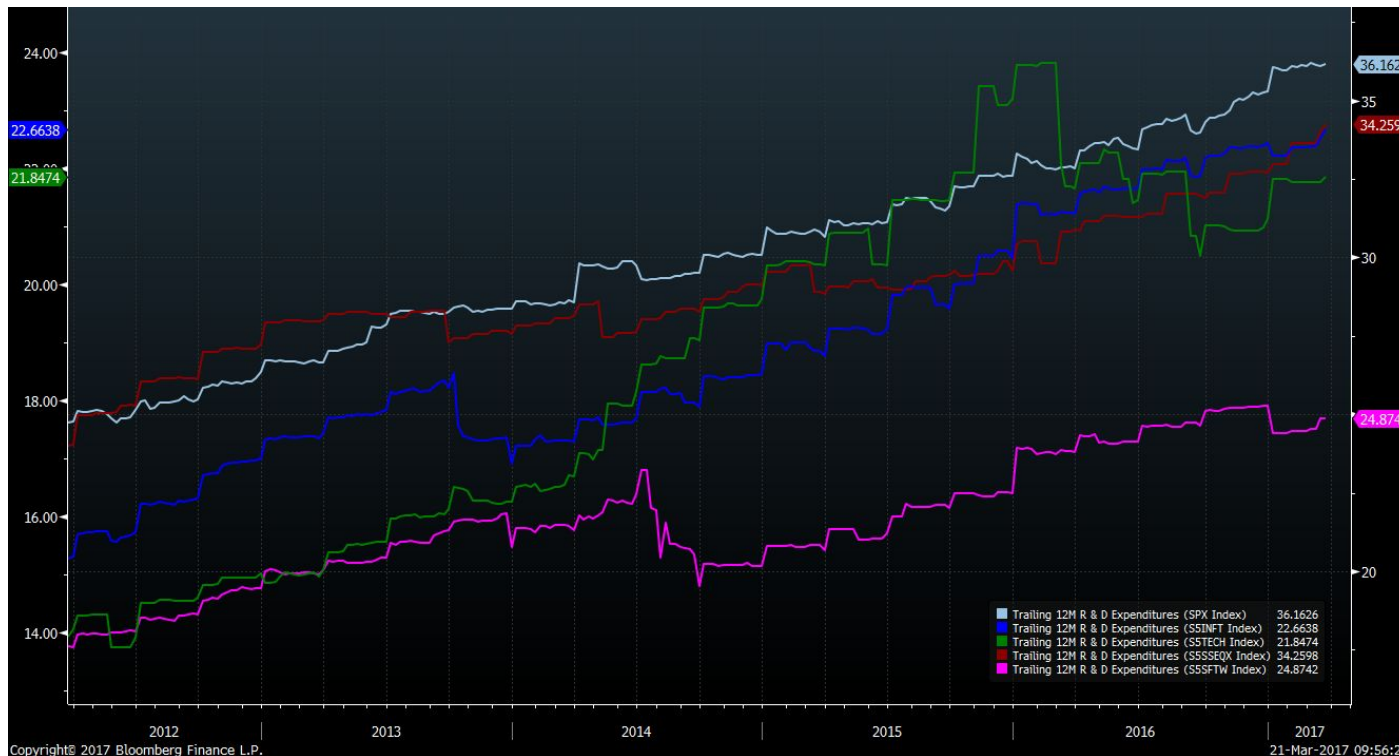


Key

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 - Software



S&P vs Sector & Sub-Sector - Research & Development Spend



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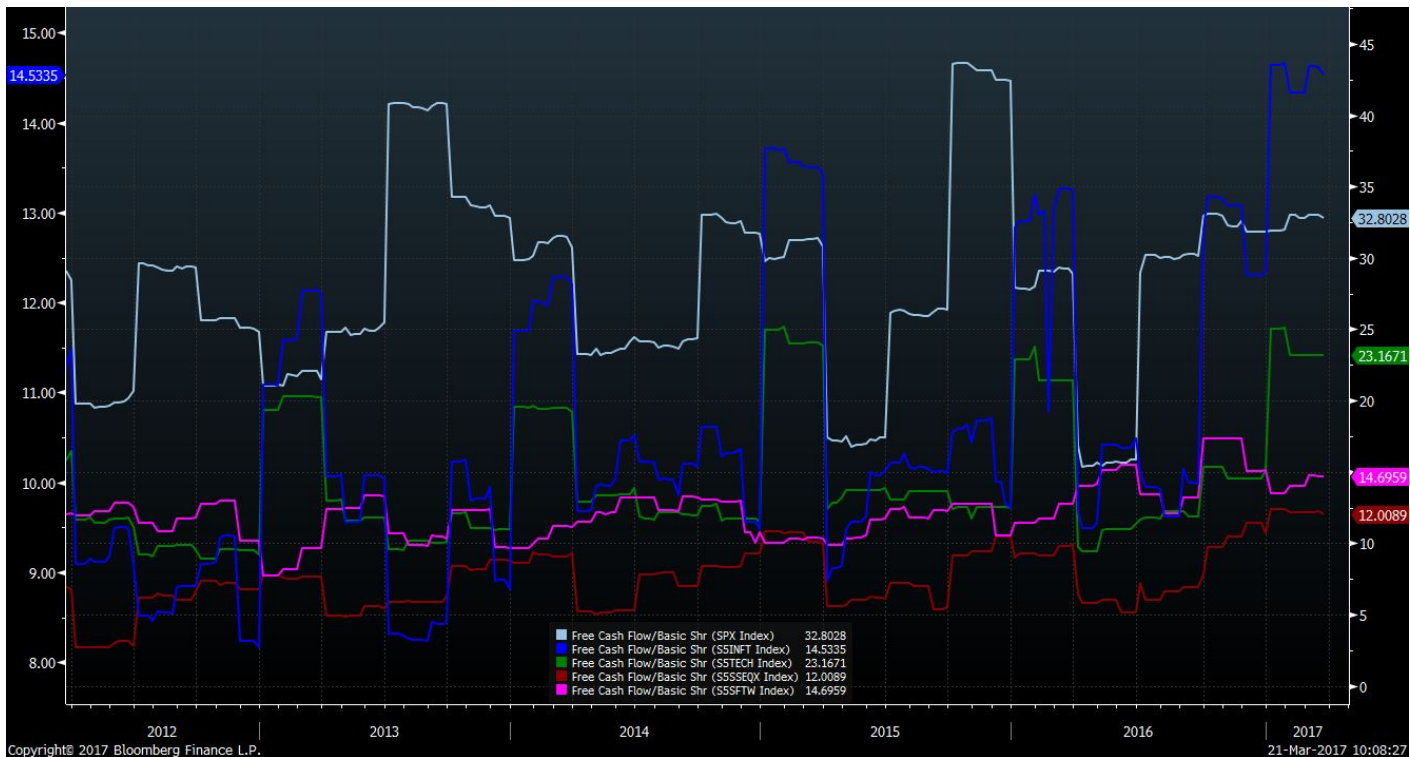
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Key

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 - Software



S&P vs Sector & Sub-Sector - Cash Flow

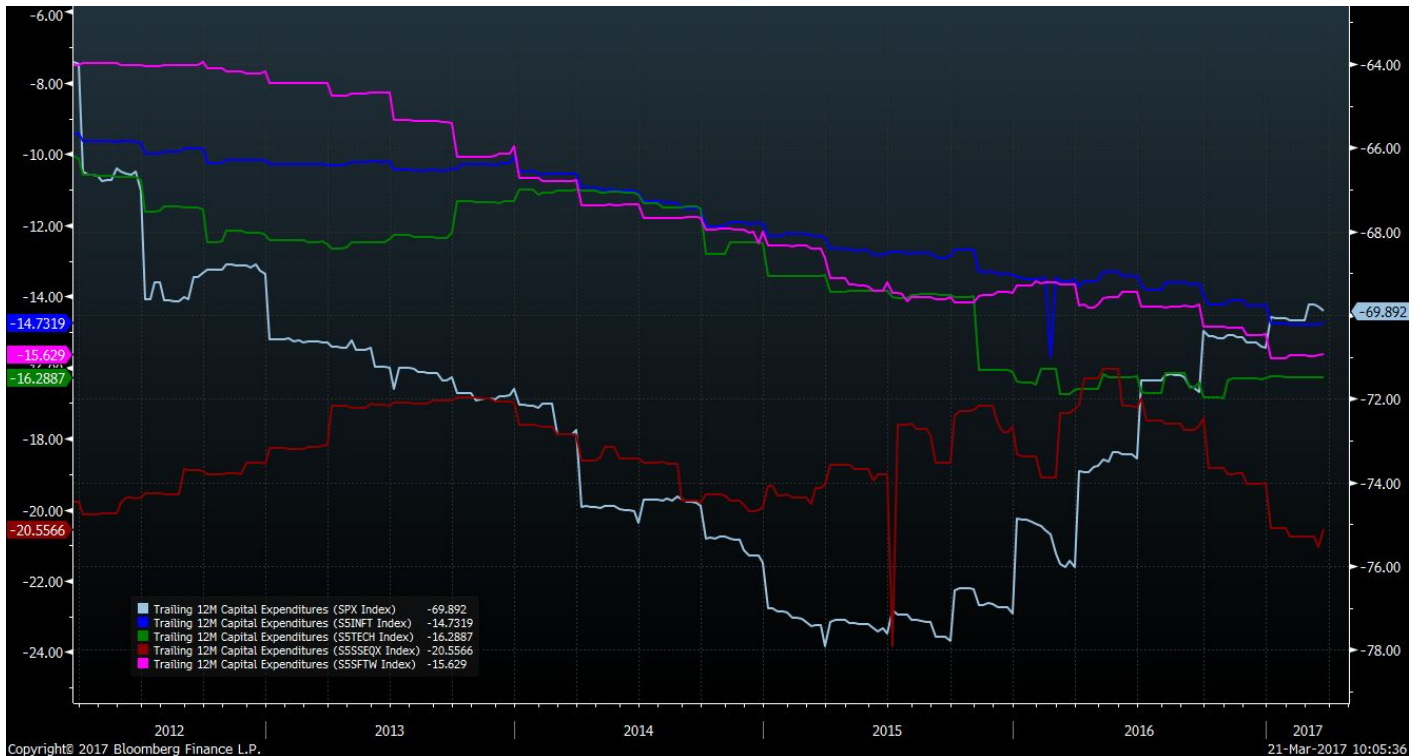


Key

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 - Software



S&P vs Sector & Sub-Sector - Capital Expenditures



Key

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 - Software



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VALUATION ANALYSIS



Price to Book



Key

S&P 500 Index

SPX IT Sector

SPX IT Subsectors:

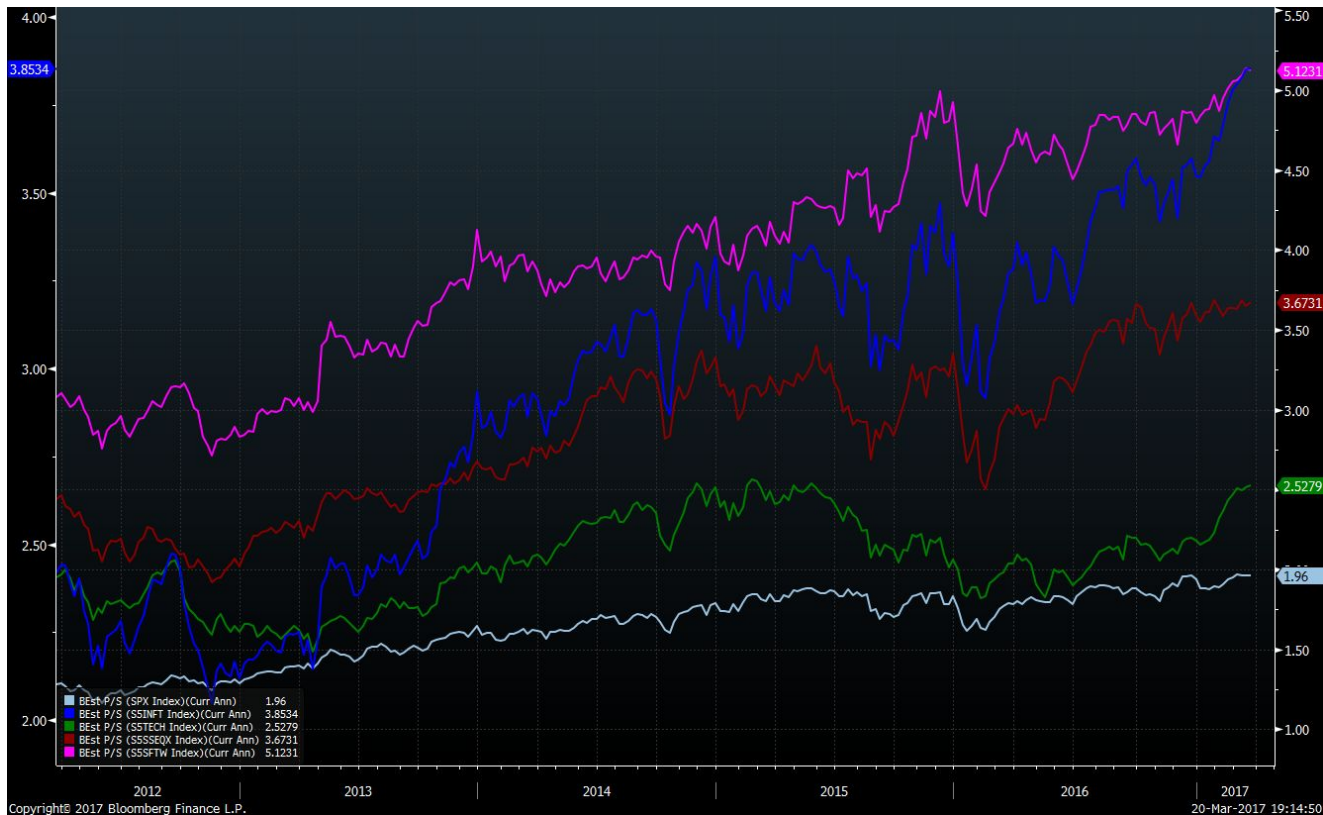
Hardware

Semiconductor

Software



Price to Sales

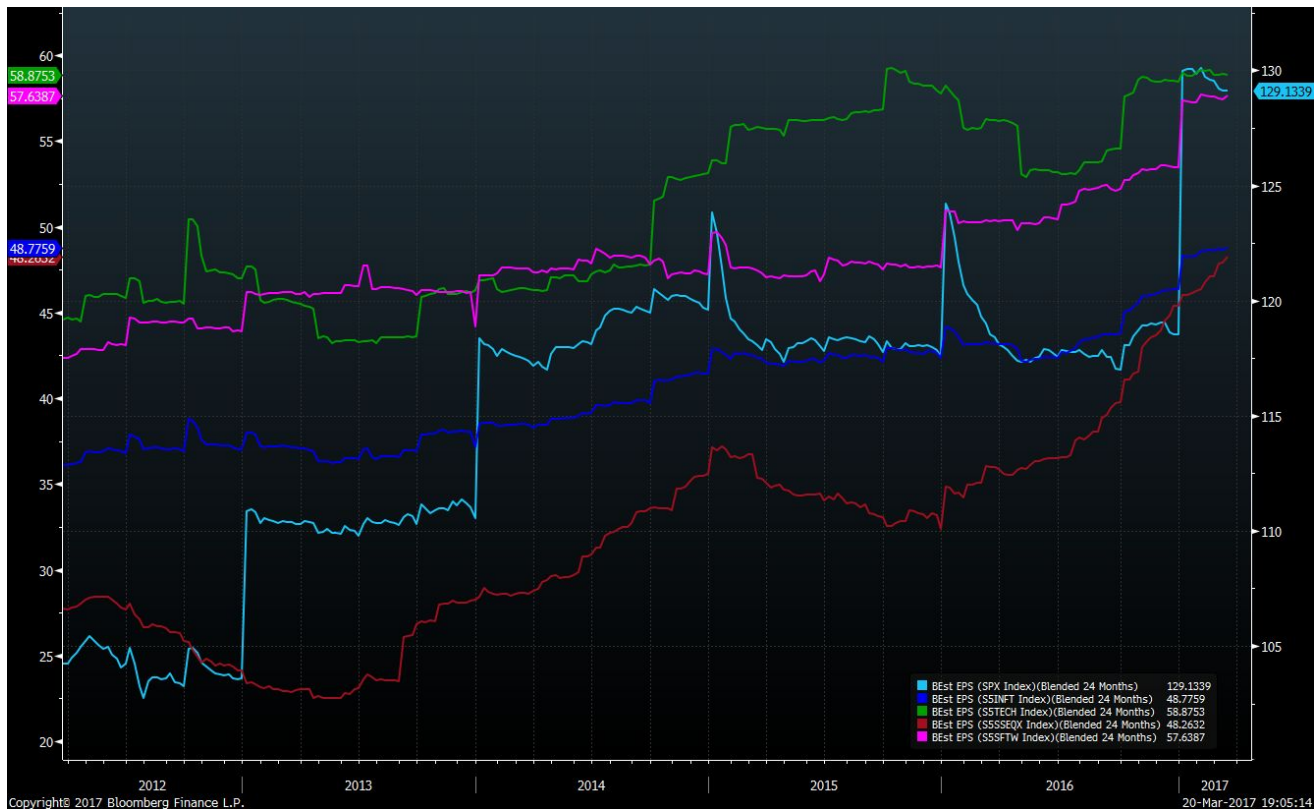


Key

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 - Semiconductor
 - Software



Forward Earnings Per Share



Key

- S&P 500 Index
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- SPX IT Subsectors:
 - Hardware
 - Semiconductor
 - Software



Price to Earnings



Key

S&P 500 Index

SPX IT Sector

SPX IT Subsectors:

Hardware

Semiconductor

Software



Price to EBITDA



Key

S&P 500 Index

SPX IT Sector

SPX IT Subsectors:

Hardware

Semiconductor

Software



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RECOMMENDATION



→ SELL Information Technology Sector Aggregate

- ◆ The market is reaching maturity, and given the IT sector's cyclical tendencies, it is likely that IT will lose its momentum. As the market continues to mature, IT will fall behind.
- ◆ Business cycle expansion has been lengthened by the 2016 election and prospects for more business-friendly policies. However, we believe that this expansion does not reflect underlying fundamentals, leading to overvaluation.

→ HOLD Hardware Subsector

- ◆ Hardware looks attractive relative to sector → Apple



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QUESTIONS



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