Information Technology & Telecommunication Services Sector Overview

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The Information Technology sector is ubiquitous and constantly evolving through innovation. Being one of the most changing sectors, investors are constantly searching to invest in the next new company. It is not uncommon for start-ups to land on the S&P 500 in a short amount of time. Facebook (FB) is already one of the top holdings in the sectors ETF (XLK). The sector is broken into eight industries that are unique in their own way, yet all entail powerhouse companies.

1.1 Software & Services
The Internet & Software Services industry includes companies that develop software or provide Internet services. These services include databases, web addresses, and web design, (GICS). One company is Google (GOOG), which strives to organize the world’s information and make it accessible, (Google.com). Google has a variety of software on many different platforms and now they are getting into producing consumer electronics like Google Glass as well.

The IT Services industry includes two sub industries (GICS). IT Consulting & Services that has information management services. One company in this sub industry is IBM (IBM). The company provides a wide array of IT services ranging from consulting to outsourcing, (IBM.com). Data Processing & Outsourced Services that houses back office operations. Visa (V) is an example as they provide credit to governments and merchants around the world, (Visa.com).

The Software industry entails three sub industries. Application Software includes companies that develop software for businesses or consumers. Adobe (ADBE) provides digital marketing and media solutions to both business and consumers, (Adobe.com). Systems Software develops database management software and includes some of the largest companies in the sector. Microsoft (MSFT) provides their suite software that is used most commonly on both PC and Apple computers. Through hiring a new CEO, the company is trying to see if they can still catch the ship that sailed on mobile technologies. Lastly, Home Entertainment Software includes companies that focus on home entertainment. Electronic Arts (EA) is a video game designing company that creates games on various platforms.

1.2 Technology Hardware & Equipment
Communications Equipment Industry manufactures equipment and products to businesses and other entities. One example is Cisco Systems (CSC), which sells entire communication products. They are relevant on our campus in our meeting rooms.

Computers & Peripherals is a large industry as it entails companies that manufacture hardware, ATMs, PCs, monitors, printers, and other peripherals (GICS). There are two sub industries within this industry. Computer Hardware includes companies such as Apple (APPL) that manufacture computers. Apple struggled for years but has since been successful with the innovation from their old founder Steve Jobs. Through creating the IPhone and other mobile electronics, Apple has made a huge impact on this entire sector. The other sub industry is Computer Storage & Peripherals. SanDisk (SNDK) manufactures removable storage devices for businesses and consumers.

Electronic Equipment is a very broad industry that includes a range of products from lasers, hardware, connection devices, and various products. One company that is in this industry is FLIR (FLIR), which sells infrared technologies to the government.

Office Electronics is a very narrow industry, solely including electronic equipment such as copiers and Faxes. Xerox (XRX) deals with document management products such as copiers fax machines, and scanners.

1.3 Semiconductor Equipment
The last industry in the sector is Semiconductor Equipment. Semiconductors are in all electronics. One company that is famous for making these chips is Intel (INTC). Intel creates processors for desktops, laptops, smart phones, servers, and micro servers, (Intel.com).

1.4 Telecommunication Services
The Telecommunication Services sector contains companies that provide communication services through fixed line, cellular, wireless, and fiber optic cable networks, (Fidelity.com). Infrastructure is a huge part that supports
the technology sector because of the increase in mobile data and devices. It is represented in the ETF IST, which holds companies such as Vodafone Group and SOFTBANK Corp.

Two industries in this sector are Integrated and Wireless Telecommunication Services. Integrated services include companies that are primarily fixed-line. This includes Verizon Wireless (VZ). Verizon offers wireless services but also provides other services such as fixed-line and Internet. The Wireless industry includes Crown Castle International (CCI) that provides the main infrastructure to wireless communication. They build cell phone towers and make their profits off other companies using their infrastructure.

1.5 Sector Sensitivity
According Figure 1.1, the technology sector is very sensitive to the U.S business cycle and the global economy. To be more specific, the R-square between technology sector and S&P 500 is about 0.8. The R-squared between technology sector and Dow jones Global index is very small; this is due to the number of data collected is relatively small.

There are total eight Information Technology industries and two Telecommunication Services industries within the technology sector. Overall the sector is sensitive to business cycle, but some are more sensitive than others. For example, Computer & Peripherals Industry, Communications Equipment Industry, and the Integrated Telecommunication Services industry are less sensitive to business cycle than other industries. The Software Industry, Semiconductor Equipment industry and Internet Software & Services industry are the most sensitive industries, Figure 1.2-2.0.

Today, the products from technology sector are normal goods and you can find it almost everywhere. Because of this, the sector’s earning is volatile. People have more income when economy is doing well, so they tend to spend more money on upgrading their portable devices or their equipment. Therefore, the earning of sector will increase.

According to Figure 2.1, the Technology Sector performs better than the S&P 500 in long run. This is because technology sector is benefit from the booming of social networking and cloud computing. The return gap is increasing since 2009. The gap was massive during the period from January 2012 to October 2012 and it began to decrease after that. The decrease after October 2012 was because some big companies in the sectors crashed, including Apple. During 2013, the S&P500 had a significant increase due to the U.S economy recovery; Sectors like Consumer Discretionary, Industrials, and Health Care had a 40% increase on average (quarter end data). Technology sector’s performance is better than S&P500 in short run; it is mainly because the increasing demands on software, Internet services and personal portable devices. For example, companies like Apple, Microsoft, Visa, and Google each had a 20% increase in 6 months. The sector also benefits from the asset appreciation; for example, Yahoo owned a large amount of Alibaba stakes and the stakes worth billions now.

1.6 Capital Expenditures
The technology sector is generally known to run high capital expenditures, research and development spending, and legal expenses. Most of the technology sector companies in the S&P 500, including Apple, Google, Microsoft, IBM, and Oracle, are infamous for their massive campuses and database centers that run significant expenses in capital expenditures. Those five companies averaged over $6.13 billion in capital expenditures in 2013 (Apple 2013, Google 2012, Microsoft 2013, IBM 2013, Oracle 2013). Additionally, the push for globalization has been driven by the capabilities of tech companies and in turn expands the brick and mortar side of their businesses. Telecommunications companies run very high capital expenditures as well because of coverage expansion and data base management. AT&T and Verizon spent $20.4 billion and $16.2 billion respectively on capital expenditures in 2013 (Apple 2013, Google 2012, Microsoft 2013, IBM 2013, Oracle 2013).
1.7 Research & Development
The essence of technology has been research and development, being the sector closest linked to innovation. Satya Nadella, Microsoft’s newly appointed CEO, realizes that his company has lagged behind competitors, and this loss of leadership has cost them dearly. Nadella has pledged to “ruthlessly remove all obstacles that allow [Microsoft] to be innovative” and once again establish industry leadership (The Economic Times). The five major corporations listed above allocated an average of $14.6 billion towards research and development during 2013. These examples in particular are providers of both software and hardware products which require extensive research and development (10k’s). These expenses are not typically high for telecommunication corporations because they are able to pawn off most of the research and development expenses to the third party manufacturers and just focus on gaining market share. Additionally, the semiconductor industry runs very high research and development costs because of Moore’s law, which states that semiconductors will be able to hold twice the amount of transistors every other year. As the productivity has increased, so have the costs in order to try and keep up with this expectation (McKinsey).

1.8 Legal Expenses
Legal expenses are one of the most difficult to quantify for any sector due to the nature of intangible assets. Other than patents and licensing for both software and software products that run enormous expenses, taxation on intangible assets is quite difficult for both the government and auditors. The New York Times reported that in 2011, patent related litigation expenses eclipsed $30 billion, more than four times the amount recorded in 2005 (Walters, 2014). The semiconductor industry is highly influenced by government contracting and the military putting restrictions on these products.

1.9 Beta
Technology has gradually grown from a luxury option for both businesses and individuals to a vital necessity, and this trend will continue. This has resulted in fairly consistent movement with the market over a ten-year average beta of 0.97 of the iShares US Tech ETF. This average of the ETF has dropped in the five year and three year averages to 0.89 and 0.84 respectively, but this is mainly due to the market adverse nature of the wireless telecommunications and Information Technology and Services industries (Yahoo Finance). Most other industries are either hovering around a beta of 1.0 or higher (NYU, 2014). The ten year alpha sector average is quite low at 0.30 but has a three year alpha is much more impressive at 3.59. The five year average of 6.41 is most likely due to the fact that the 2008 recession is now off the five year average books, increasing returns across the board (Yahoo Finance).

2.0 Macro Drivers
The key macro drivers are most centrally focused on consumer sentiment towards the sector and their products. Although technology is a necessity for modern society, advancements continue to take a back seat to other necessary items. When underwhelmed, or shone in a poor light, companies throughout the various industries tend to suffer. Connected to consumer sentiment, are legal problems. The government spying on citizens connected to telecommunications companies, AT&T and Verizon, and major datacenters, Google, and Yahoo, took heat for their connections and slowed the sector. One key macro driver that does not affect the technology sector very much at all is interest rate fluctuations. Although not universal, most companies in the technology sector are amongst the least indebted out of all the sectors.

2.1 Macro Economic Environment
As previously mentioned, there are many macro drivers that influence the technology sector. One of the largest expectations is that interest rates will increase across the globe. Earlier in year the United State’s government announced that they would be tapering off easy monetary policies (this decision has been varying in recent news). In addition, top U.S. bank regulators plan to limit the extent to which banks may fund their activities through debt (Cunningham, 2014). With a decrease in the buyback of treasury bonds and an increase in regulations, the banks are cornered to increase the interest rates for loans that allow businesses to finance large projects. Although the technology sector is known for having a large capital expenditure, our team agrees that a
rise in interest rates will have a small effect on the technology sector. This is because the technology sector is one of the most liquid and can fund a lot of their projects from consumer spending and retained earnings. Out of the 23 debt-free companies in the S&P500, around half are in the technology sector; technology has the lowest debt-to-total assets ratio standing at 16% whereas others like utilities and consumer staples have an average of 36% and 34% respectively (Seema, 2014).

Interest rates are also projected to rise in emerging markets in other countries. The International Monetary Fund is urging emerging markets to improve their economies to prepare for emerging market turbulence and a decline of pressures on bonds and stock holdings which will lower currencies and increase interest rates (Spener, 2014). With tech companies in foreign countries struggling, we can see a lot of acquisitions as tech giants continue to consume smaller companies in order to expand their influence globally. Last year the technology sector has seen a 20% increase in acquisitions (Wagreich, 2013).

In today’s culture, everything is becoming digital. The need for technology can be found across all sectors. Personalization and online marketing is becoming more prevalent and is constantly maintained and monitored to create the best marketing strategies. However, an estimated 62% of online traffic is bot traffic and not real people (Selyukh, 2014). This skews a lot of data and poses problems to current marketing and data collection techniques for tech companies. The technology swarm also poses security problems to users who buy on the server. In recent news Target and Neiman Marcus reported having hundreds of thousands of their customers financial information stolen by hackers (Reuters). This causes a lot of fear in ecommerce growth and consumer buying. Despite a small decrease in online purchases, we believe that this news will have a dual benefit to technology companies. With a demand for more stringent data protection we can see an increase in revenue in software companies. The fear of data hacking has also pushed US mentality to switch to chip activated credit cards like those used in the European Nations. These chips are produced in the semiconductor industry, which has a direct effect on the earnings of all the industries in the technology sector.

2.2 Competitive Landscape
The technology sector’s influence spans across almost every other sector, but the same cannot be said in reverse order. As such, most competition that occurs is across the industries within the technology sector. There are a few exceptions where specific industries compete directly with separate sectors. For instance, communications equipment revenues are dependent on the phone carrier companies who operate outside of the sector. Companies such as Apple and Windows depend on the retailing strategies of phone carriers such as Verizon and T-Mobile to make sales. A decrease in revenue of one company will directly correlate to the revenues of the other.

The semiconductor industry is seen as the driving force of the economic growth because it is an enabler for the whole electronics value chain. Semiconductors can be found in almost anything that involves technology and its cyclicality is highly dependent on that of the entire economy. This industry faces more than normal regulation from the government because the semiconductors have a dual use in military applications.

The office electronics industry competes with large retail chains. Office electronics include the sale of printing tools, fax machine, shredders, etc. Their largest customer categories in recent years are major financial institutions. Small and mid sized government agencies also require sales from companies in this industry. However, major retailers such as Wal-Mart and BestBuy distribute these products and are considered outside the industry.

2.3 Trends
As everything is trending towards digitalization, marketing and user friendly purchasing is become more and prevalent across all interfaces. We will begin to see a demand for ‘click to book’ service as booking and scheduling tools continue to consolidate into larger marketing platforms (Roberts, 2014).
Another emerging trend is the movement towards vertical search engines like ZocDoc and Home Joy. Although Google continues to be a dominant horizontal player for local search engines, a demand for industry specific searches is on the rise (Rosenberg, 2014).

2.4 Valuation Methods
See Figures 2.1-2.2
P/E ratio is the most popular among investors; it measures how much investors are willing to pay for a company’s earnings. P/S is not as useful as the P/E or P/B ratios. It is useful for not yet profitable companies. Low price price/sales per share is good news for investors. This is a really good ratio to look at in the Information Technology Sector because companies make huge amounts of sales, but have yet to be profitable. If the P/B ratio is lower, this could mean the stock is undervalued, or there may be a huge problem with the company. If a company is trading for less than its book value (less than one) then the asset is overstated or earnings are poor in respect to ROA. If the stock is over 1, it may mean it is overvalued. In the telecommunications sector, companies are highly leveraged and have P/B that overstates their assets. P/Tangible book just means that intangible and goodwill are excluded. Oracle’s is extremely high because of acquisitions increasing intangibles and goodwill in the past 10 years. This could be a huge risk for Oracle in the future. A high P/CF ratio means that the company is trading at a high price and not generating enough cash flows. Lower ratio is typically better. For how large Microsoft is, this P/CF ratio is very good. P/FCF simply means that the capital expenditures are excluded. Microsoft has an increase in capital expenditures. The most important ratio to look at is the outlook on sales growth. Oracle and Century Link are both dominating their competitors shown in the figures. This is very promising for investors to look at to see what the price could be in the future. Their sales are going to increase making them good investments now because they are new technology stocks, rather than old ones such as MSFT.
Figures 1.1-2.0 Courtesy of Fidelity

Figure 1.1

Figure 1.2

Figure 1.3

Figure 1.4
Figure 1.9

Figure 2.0

Figure 2.1

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Data provided by Reuters 2/13/2014

Figure 2.2

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Works Cited


