Fundamental Analysis Department
Technology Industry Report

NUS INVESTMENT SOCIETY

Done by:

Clayton Chu
Teai Juin Wen
Tong Yi Jue
Xu Meng

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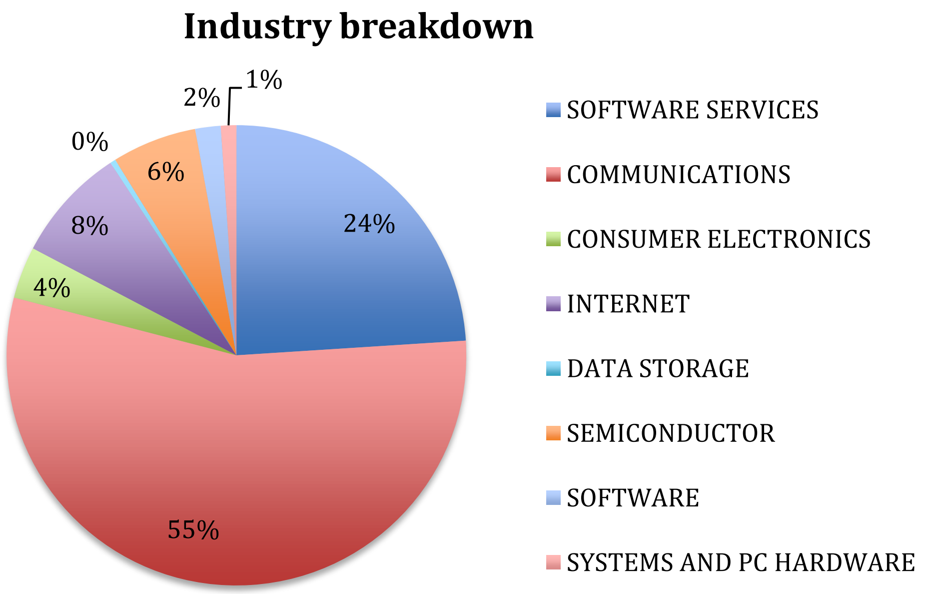
Introduction

The technology sector is the largest single segment of the market and it has been a huge investment opportunity for both corporate and retail investors. Tech companies have large expenditures on research and development (R&D) for innovation of new products and this is an indicator investors use to evaluate these companies.

The growing relevance of this sector is also accelerated by the increased dependence on electronics and automated processing. Moreover, companies are switching to tech services to help merchandise their products, improving their profitability and allowing them to reach further markets.

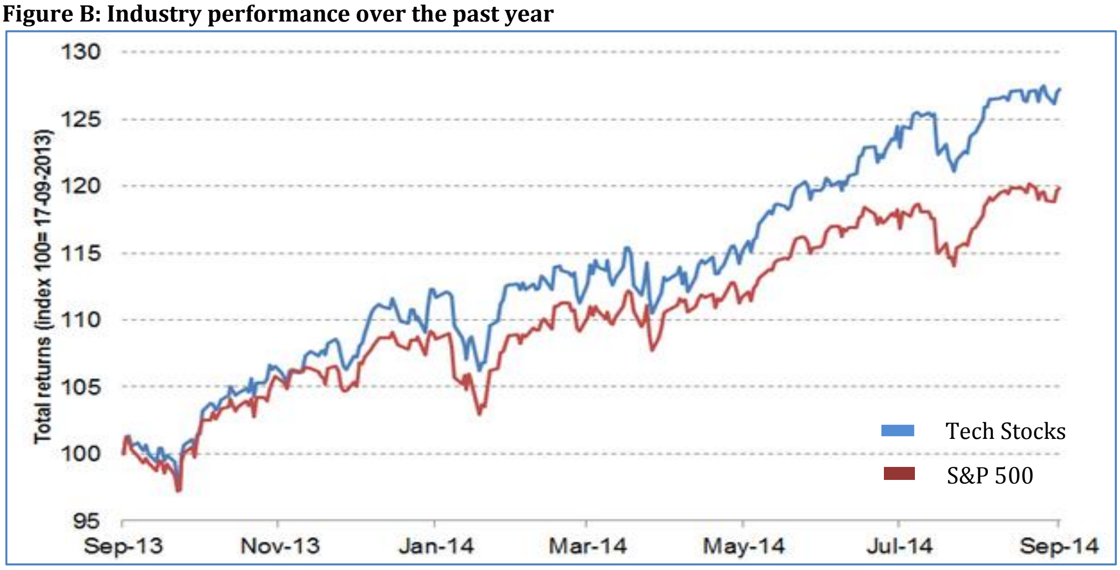
This huge industry can be broken down into these main subsectors as shown in Figure A below.

Figure A: Industry Breakdown



Total market cap: 140005.2B
Source: Yahoo Finance

Figure B: Industry performance over the past year



Source: Fidelity

As shown above in Figure B, the blue line which represents prices of tech stocks have been outperforming other sector stocks in the S&P500 and we can see that there is divergence in the price performance between the two, hence, pointing to the possibility of it continuing this outperforming momentum.

However, price movements of tech stocks are generally volatile as they are very susceptible to analyst reports. In most cases, if analyst estimates are not met, these stocks are likely to tumble quickly in a short period of time and vice versa. As such, investors who wish to invest in tech stocks should be aware and prepared to face volatile price movements.

Key Performance Indicators

Free Cash Flow

The amount of free cash flow (FCF) a company has is a good indicator of its performance. It is an advantage for tech companies to have substantial amounts of free cash as this would mean not only will the company be able to spend more on R&D, but also reduces their risk of leverage when borrowing to expand. Moreover, in times of crisis, when the availability of credit is scarce, companies with strong FCF will be able to tide through by relying on their own cash flow and reducing capital expenditure.

However, a tech company does not need to have high positive FCF. Heavy investments can lead to high capital expenditure, resulting in low FCF. In this case, low FCF might not reflect badly on the company if these investments that are made have the potential of higher returns.

Gross Margin

The gross margin of a company is an important performance indicator across all industries. However, investors should note that in the tech sector, specifically software or services sectors, companies generally operate on high gross margin, as they do not have to bear high fixed costs of operation or hold inventory.

High gross margin will naturally mean that these companies will command richer valuations compared to its peers. Given the volatile nature of tech stocks and how often a new hype can result in investors driving up prices, gross margin gives a fast and good sense of whether a company is possibly overvalued.

R&D as Percentage of Sales

The amount in R&D a company spends on signifies its willingness and ability to fuel growth within itself. Therefore, R&D as a percentage of sales is an extremely important indicator in the tech industry. In some cases, investors may find troubled companies cutting costs by reducing capital spent on R&D. The percentage of R&D to sales shows us how much a company is able to spend from its total amount of sales. Another reason why this metric is important is because the general idea of investing in a tech company is that investors are looking for growth, hence, this metric provides a good proxy in revealing whether the company can sustain its growth in the future.

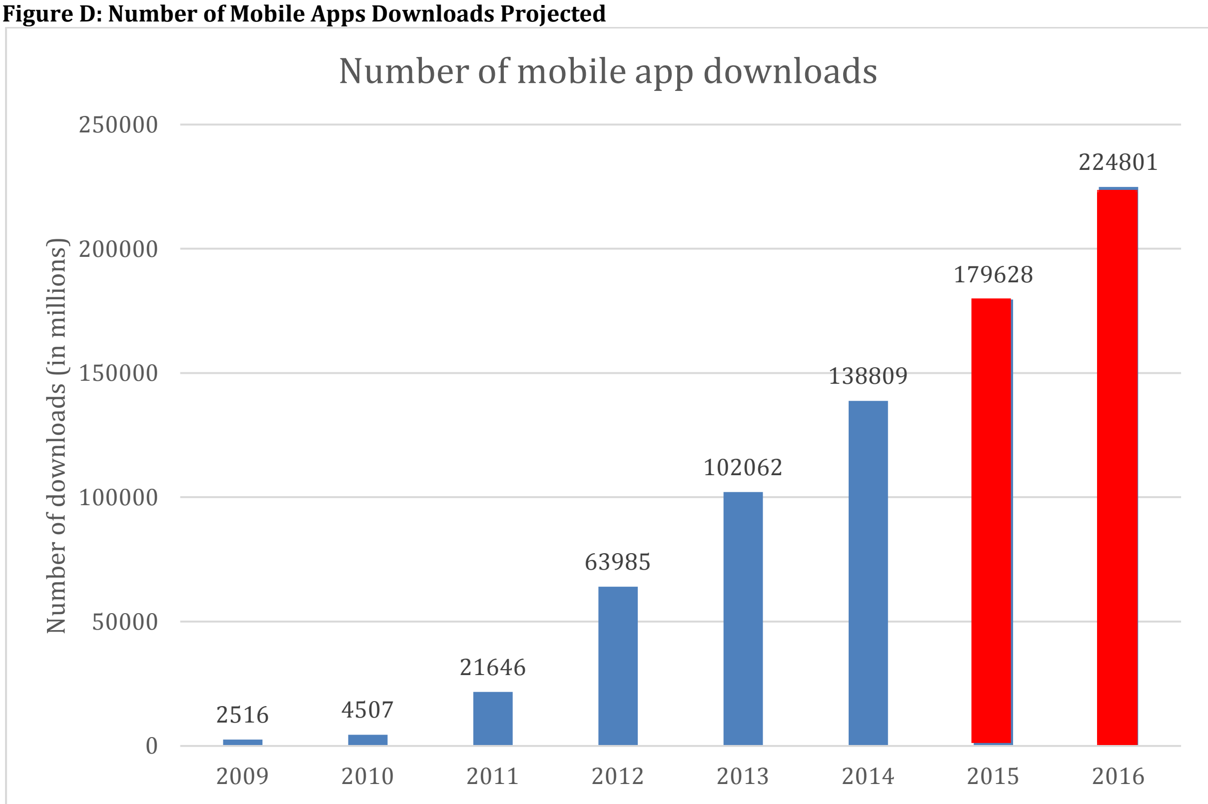
However, high level of spending in research R&D as a percentage of sales may not necessarily yield good results. If the company has a high level of R&D but is unable to effectively reduce costs or generate new products in return, the huge spending in R&D will only weaken the company's financial position. Therefore, this metric must be used in context with the company's R&D track record. One such example is Blackberry. Even though Blackberry was sitting on a huge hoard of cash and investing large amounts of cash in R&D, its products have time after time failed to generate enough sales and even breakeven with costs. Since then, Blackberry has seen its share price tumble significantly from its peak.

Key Drivers for Tech Sector Companies

Data Analytics

The increase in usage of cloud computing and mobile applications has created a large amount of consumer and enterprise information. Figure D shows the expansion of mobile applications in the world market and the projected growth in 2015 and 2016 according to a research from Statista.

Figure D: Number of Mobile Apps Downloads Projected



Source: Statista

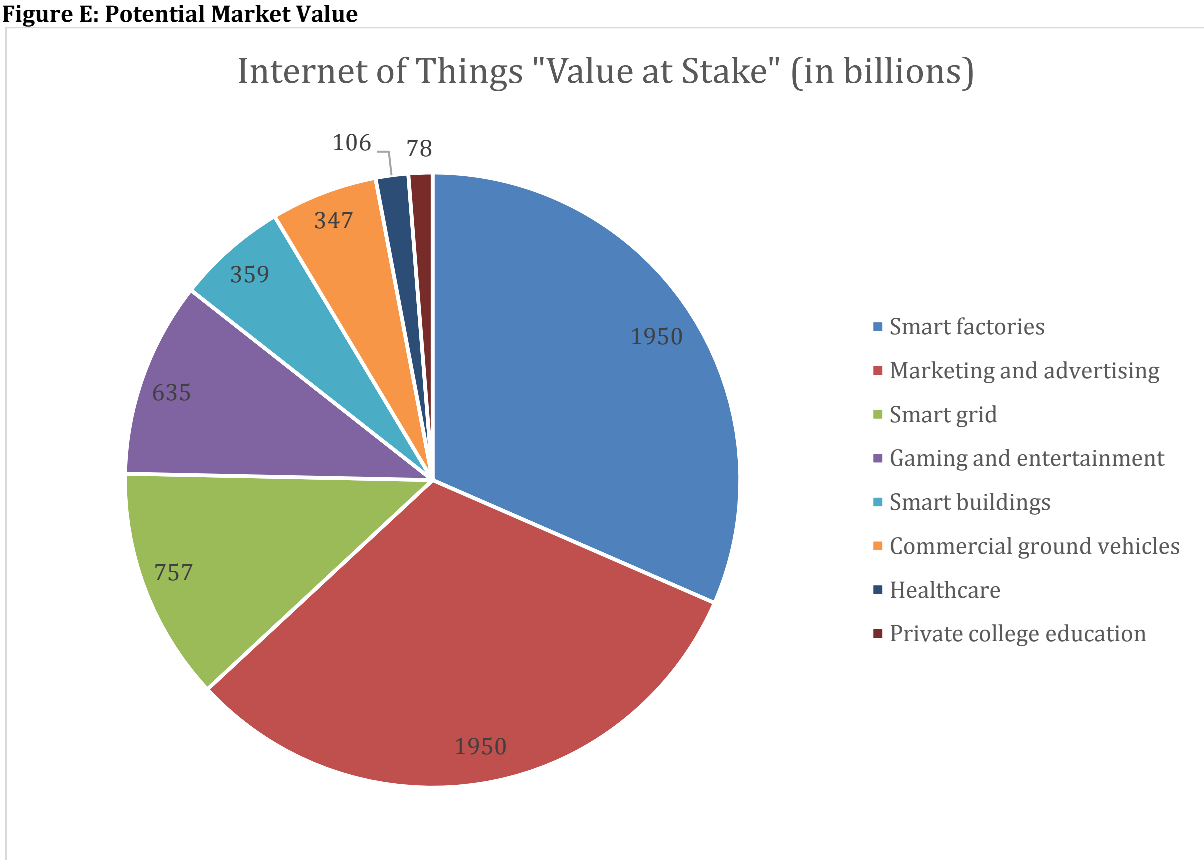
With this wide amount of information being generated through mobile applications, it is very useful for companies to analyze consumer behaviors as well as identify trends for business purposes. As such, we have identified data analytics as one of the main drivers in the software technology sector. The strategic importance of making sense of big data will remain important to many businesses operations, and has been widely used by major retail chains like Walmart. Companies like IBM are already redefining data analytics by developing data governance, stewardship and lifecycle management. We are looking forward to more technology start-ups like Splunk to contribute to this sphere.

Internet of Things (IoT)

Internet of things is a proposed development of the Internet in which everyday objects have network connectivity, allowing them to send and receive data. It specifically means the interconnection of uniquely identifiable embedded computing devices within the existing Internet infrastructure.

Digitalization and automation has been at the research forefront of many technology industry leaders like Apple and Samsung. Figure E illustrates the potential market value, which was highlighted by Cisco as only a conservative estimate for the market.

Figure E: Potential Market Value



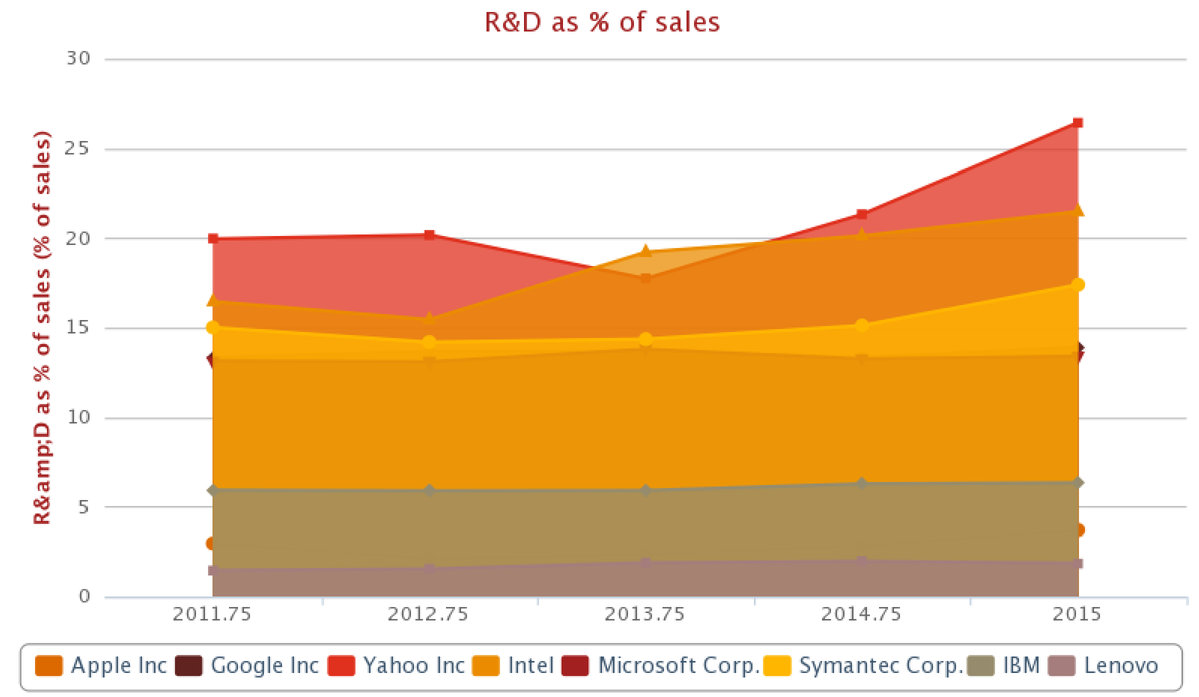
Source: Cisco

Beyond machine-to-machine communications, the IoT requires extensive investment in existing internet infrastructure, and the demand for IoT is starting to spur R&D in the field. This development will be further explained under Business Restructuring as a key driver. In the next three years, cloud connectivity and embedded computing subsectors will most likely be experiencing high amount of investment and capital injection to accommodate this dynamic shift in automation processes. As such, we may be looking at further innovations such as wearable devices as well as a full suite of home system controlled wireless in the near future. However, such connectivity requires IPv6, a communications protocol which has not yet been widely adopted by the masses. Hence, the success of IoT as a key driver of the technology sector hinges greatly on the development of the Internet Engineering, mainly to facilitate IPv6 to resolve the current IPv4 address exhaustion.

Business Restructuring

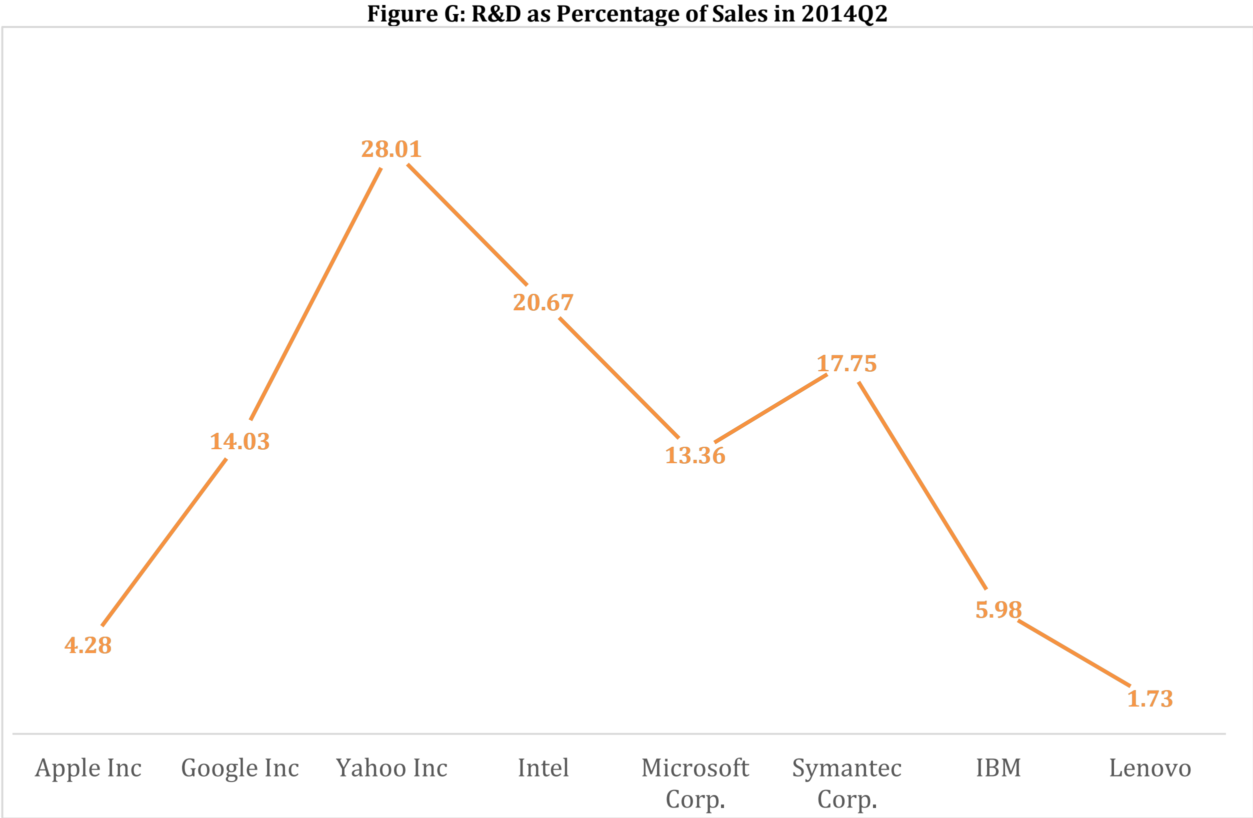
To accommodate the IoT as described earlier, we are seeing extensive capital accumulation and R&D efforts on the part of the technology sector, in addition to strategic partnerships between competitive enterprises. Figure F highlights the R&D as percentage of sales for some of the leading technology companies, spanning different subsectors from consumer electronics to software and systems.

Figure F: Technology Firms' R&D as Percentage of Sales



Source: PwC

Figure G: R&D as Percentage of Sales in 2014Q2



Source: PwC

Particularly in 2014 (Figure G), we are able to see that intensive R&D are not limited to Internet companies like Yahoo, but rather, across the various subsectors like security and semiconductors. Such high level of R&D indicates that technology companies are allocating larger amount of resources to remain relevant in this competitive industry. Moreover, it shows that companies are confident of the growing importance of technology-led demand in future to increase revenues from sales. More notably, Samsung Electronics has recently decided to move 500 software engineers out of the mobile phone development unit into other consumer electronics and corporate software R&D. The company statement released that the focus will be to enhance Samsung's competitive edge in the Internet of Things industry. Hence, we are looking at a very dynamic shift in the technology sector in the coming years and particularly in 2015, the amount of capital investment and injection will determine the resilience of the industry as a whole.

We do believe that the technology sector is highly competitive and saturated currently, and we are seeing revenue growth slowing in many mature markets. The three key drivers mentioned above will remain as catalysts for the growth in this industry but these have to be accompanied by intensive R&D and technological innovation.

Geographical Regions

U.S. Market

The U.S. remains the most active market for technological companies, with big players currently engaged in strategic deals and corporate actions. The Morgan Stanley High-Technology 35 Index spiked to a 52-week high of 1,023 since mid-October 2014, reflecting the various developments in the mature market. The recent trend in tech start-ups also led to many acquisitions and synergies to capture market share in new potential markets. We will likely see more competitive movements in the U.S market, as smaller tech firms and software companies like Uber receiving a valuation of $40B in the latest funding round. As the revenues of bigger players are declining, there is probably a divergence of growth prospects between high-cap firms and smaller cap firms in 2015.

European Market

The Europe region remains exciting with the rise of many tech hubs supported by favorable operating conditions and the booming inventive culture propagated by state agencies to encourage entrepreneurship. With low property prices and low rents, the average annual operating costs including taxes are almost half of its New York counterpart. Companies like SoundCloud and Shutterstock are shifting bases to this technology capital in search of talents outside of the Silicon Valley. Therefore, we believe that the technology climates in some European countries are opening up many opportunities leading to emerging markets like India and Brazil.

Asian Markets

China, on the other hand, is currently experiencing high speculative pressure on tech stocks, as a result of the momentum created by Alibaba as well as Xiaomi. In part of e-commerce, China is matching up with Asia's leader, Japan. The recent $1B acquisition of Ebates by Rakuten is part of the Japanese firm's efforts to push into the international market after Alibaba. One concern here regarding the Asian market will most likely be the infrastructural constraints present in many Asian economies. The lack of stable and high-speed internet connectivity nationwide will limit the efforts of technological innovations in many of these countries. Thus, even though China and Japan holds many opportunities in their technology sector, infant companies in these markets need to gain international competitiveness and reduce the speculative nature of their activities.

Case Study – Alibaba Group Holding Limited (BABA)

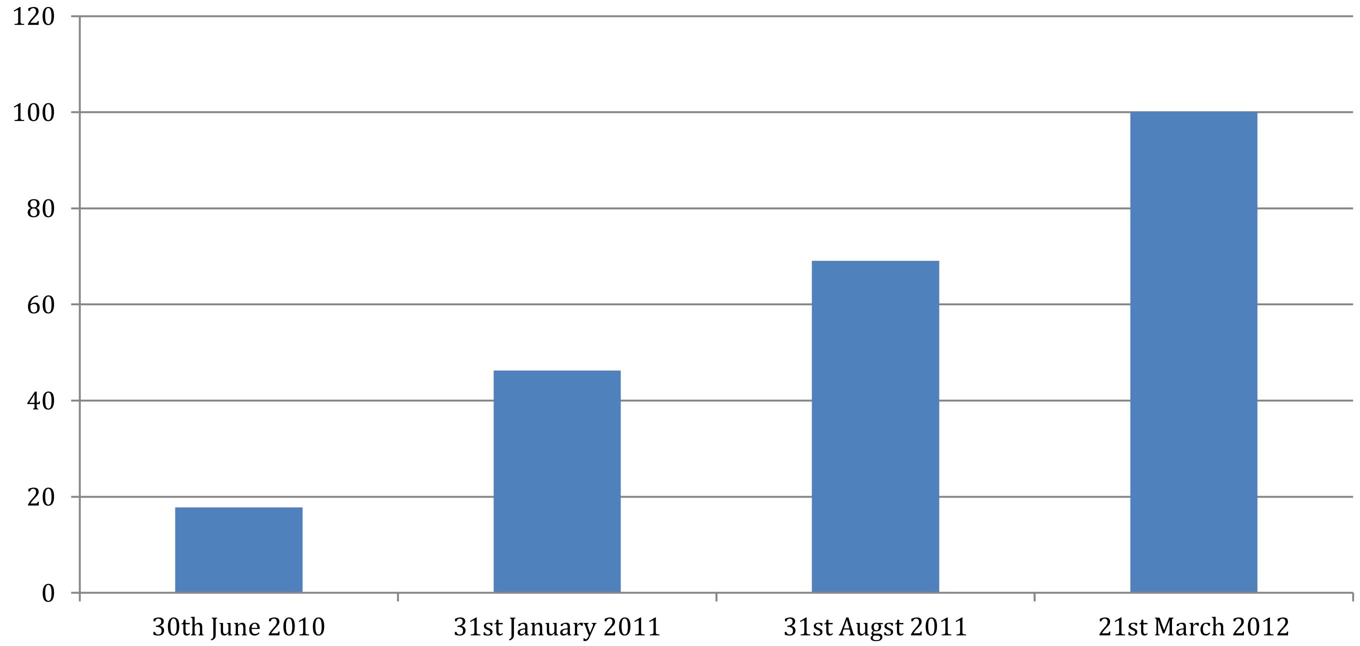
Alibaba is one of the largest Chinese e-commerce companies that provide customer to customer (C2C), business to customer (B2C) and business to business (B2B) sales services via web portals. It also provides electronic payment services, a shopping search engine and data-centric cloud computing services. The following case study will use Alibaba as an example to discuss about the trends in the technology sector.

Data Analytics

Our day to day usage of the Internet reveals our personal online spending habits and interests. This information is extremely useful for businesses especially when large quantity of such data is collected and analyzed. Data analytics allow businesses to spot the next potential trend in consumer spending and behaviour and ultimately, get an advantage over its competitors.

In this aspect, Alibaba has been well positioned to collect consumer spending data through its online shopping website, Taobao. It is one of the most successful subsidiaries under Alibaba and ordinary customers and even some investors tend to be more familiar with Taobao instead of Alibaba as a whole. Taobao itself has already had 500 million registered users with 60 million visitors daily. As shown in figure H, even mobile Taobao users have already exceeded 100 million by March 2013. However, Alibaba actually consists of a number of other popular subsidiaries such as Tmall, eTao, Alipay, AliExpress, China Yahoo, Aliwangwang, Youku, Tudou and Xia Mi. This allows Alibaba to have a large customer base in which Alibaba leverages on to analyze consumer behaviors to identify trends, spot opportunities and forecast for business purpose. Alibaba Cloud Computing (www.aliyun.com) was established in September 2009 to provide a cloud computing service platform helps facilitate Alibaba's e-commerce data mining, e-commerce data processing, and data customization. It should be noted that in July 2014, Aliyun formed partnership deal with Inspur, the largest high-end cloud computing company in China. This will allow Alibaba to continue its growth in cloud computing sector; cannibalizing other small businesses.

Figure H: Mobile Taobao Users over 3 years



Source: MWorld 2012

Internet of Things

Alibaba also jumped onto the Internet of Things bandwagon. Alibaba is not only using its Aliyun to develop its loT business, but also forming partnership with other companies such as Royal Philips for IoT devices. Alibaba offers many IoT services including marketing and distribution channels, technology supports and trainings. Alibaba consistently integrates its product with Internet and Internet is definitely one of the most important propellers for its business. As for IoT, Alibaba is only one of many big players even in China Market. JD.com (NASDAQ: JD), one of the largest online retailers and marketplaces in China has become one of the first online retail platforms makers from China. JD also engages actively in IoT devices.

Business Restructuring

Alibaba is widely known as a largely successful e-commerce company, but it actually consists of a large number of subsidiaries that engages in different businesses we usually do not associate with a typical e-commerce company. Business restructuring has not only improved technology, but has also helped in diversifying the company. Quarterly R&D almost doubled from 166 to 313 million from 30-Jun-2013 to 30-Jun-2014 and it shows that Alibaba like any other R&D companies place huge focus on R&D to gain competitive edge.

One such example of Alibaba's successful diversification is the popular online payment services in China called Alipay. In addition to Alipay, Alibaba has integrated Internet with finance by entering into Internet finance sector and created not only convenience, but also real monetary returns to its customers through financial products like Yu Ebao. At the same time, Alibaba diversifies its business and obtained competitive edge as well as customer popularity because Alibaba's services comes together as a bundle for the customers so that the customers enjoy different services seamlessly and form customer loyalty towards Alibaba.

Stock Profiles

Given the competitive and saturated technology sector, we recommend companies which have relatively high growth potential, high profitability and large market capitalization which would indicate that they have a better chance to utilize their strengths and produce good returns for the shareholders.

Alibaba Group Holding Limited (NYSE: BABA)

Current Price: USD$105.11

We recommend Alibaba Group Holding Limited (BABA), which is currently traded at NYSE at USD$105.11 as of 12th December, 2014. As Alibaba is only listed recently, there is limited historical data for its income statement, balance sheet and cash flow. Therefore, our analysis focuses more on its current growth, financial figures and other qualitative analyses.

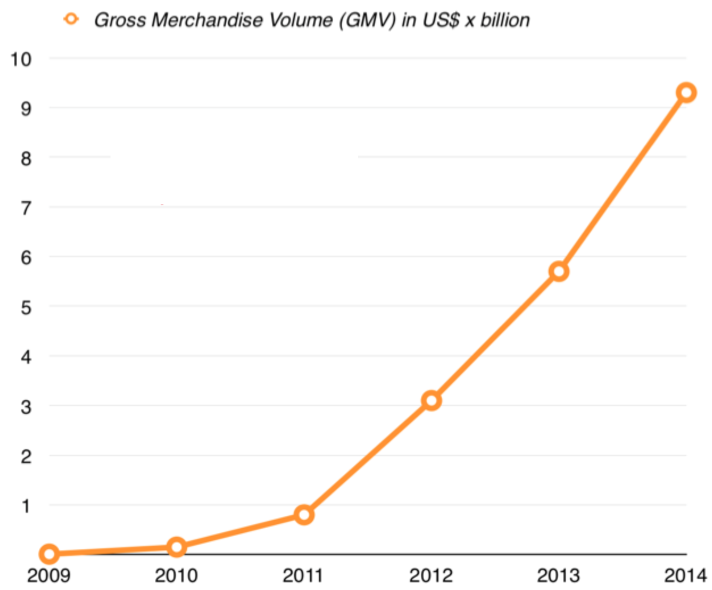
Investors' Optimism and Superior Margins

Alibaba's IPO, the world biggest IPO ever, created a huge hype over its valuation and business model. From analysts' opinions, it is quite clear that the market is rather optimistic about Alibaba's future outlook. Alibaba's quarterly revenue growth (yoy) is remarkable at 53.7% and its estimated revenue growth rate for the next five years is as high as 31.45%, which is almost double of the industry average at 20.37% (which is already a high growth rate in itself). In addition, both Alibaba's profit margin and operating margin are high at 46.33% and 42.15% respectively. We believe that these indicate that Alibaba has the ability to maintain its lead with such superior margins and has great growth potential to continually generate huge profits.

Strong Financial Position

Alibaba's market capitalization is USD261 billion almost twice the size of Amazon's, the U.S. equivalent of Alibaba. It has a total cash of USD18.07 billion with a current ratio of 3.01. To put these numbers to comparison, Amazon only holds a cash hoard of USD6 billion with USD3 billion of debt and a current ratio of 0.89. This indicates that Alibaba has a strong financial position to not only invest in R&D but also, diversify into other areas with great potential in the future. This is especially critical in fast evolving nature of tech industry. Having strong financial positions will inherently give Alibaba an edge to ensure that it can keep up with new trends and invention. However, wise allocation and use of this cash is just as important. Alibaba must still remain prudent and efficient in investing their cash hoard to ensure that R&D results in innovative products that can continue to revolutionize the tech industry ad stay relevant.

Figure I: Consumer Spending on Alibaba's Taobao and Tmall during 24hr Single's Day Sales



Source: TECHINASIA

Maintaining Growth in the near Future

Last but not least, Alibaba's single day sale exceeded predictions at US$ 9.3 billion up by 61.7% from last year full-day sales on the recent 'double 11' festival in which almost all online shops in China offered steep discounts to customers to promote sales. This figure, which was much higher than its competitors, sheds some light as to how much advantage Alibaba has over its competitors and how much growth it can still achieve in the near future. Given its sizeable revenue, Alibaba was still able to achieve a 53.7% growth in its recent quarters. It not only has the ability to dominate most of its domestic e-commerce market, it has also been competing in other geographical locations. From this instance alone, we can understand how fast Alibaba is gaining popularity. Alibaba is still considered a young tech company and still has much more room to grow. Through its largely diversified business other than e-commerce, Alibaba is well positioned in the tech industry to maintain is superior growth and competitive edge.

Hidden and Underappreciated Business

The beauty of Alibaba's business is that in itself, it is the embodiment of companies like UPS, Amazon and MasterCard. The network of businesses Alibaba holds and the potential synergy that it can create is something that the market may have possibly overlooked or failed to price in. In the case study above, we briefly explored Alibaba's cloud computing unit, Aliyun, as well as, Taobao. However, we did look into how Aliyun complements Alibaba's business. Aliyun plays a key role in supporting transactions on Taobao and Tmall. It helps synchronize and ensure that transactions are authenticated. Furthermore, leverage on their subsidiaries, payments are made through Alipay, which is again, supported by Aliyun. Lastly, goods that are purchased online is then distributed through a logistics joint venture that has already surpassed UPS in the number of packages delivered in 12 months to June, according to Forbes. Intangible value that Alibaba has unintentionally created will definitely add more value to the business and as time goes by, investors will start to realise the full potential of this well weaved network of businesses. Therefore, we have a buy recommendation on Alibaba.

Yahoo! Inc. (NASDAQ: YHOO)

Current Price: USD$50.24

Yahoo! Inc is an American multinational Internet corporation headquartered in Sunnyvale, California. It is globally known for its web portal, search engine Yahoo Search, and related services, including Yahoo Directory, Yahoo Mail, Yahoo News, Yahoo Finance, Yahoo Groups, Yahoo Answers, advertising, online mapping, video sharing, fantasy sports and its social media website.

New Partnerships and Strong Free Cash Flow

Yahoo has a good record of free cash flow statements, as well as appreciating gross profit margins, which we believe is necessary for investment and R&D and new partnerships that will fuel growth in the future.

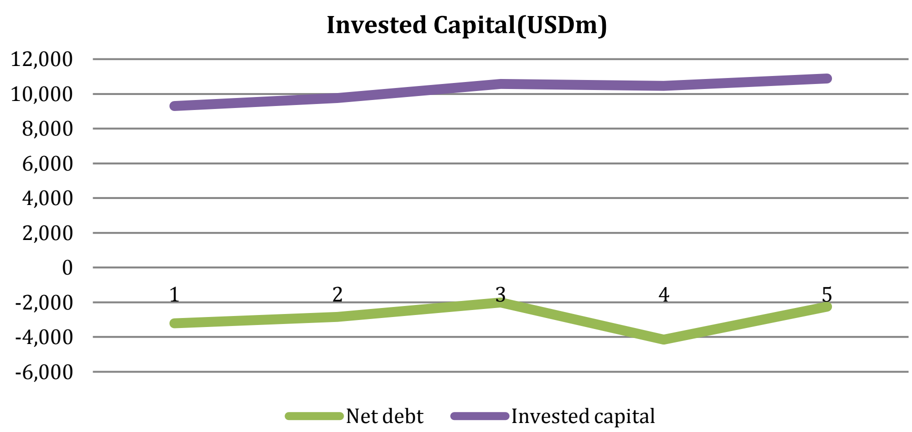
Fiscal Year (Year end: 31-Dec)	2010	2011	2012	2013
Free cash flow	1,750	1,526	3,080	1,172
Gross profit margin	68.7	82.2	79.9	83.6

Source: Yahoo Finance

One such example of new partnerships is the recent partnership announced between Yahoo and Mozilla Firefox will be beneficial towards the company's growth as Firefox had reported a user base of more than half a billion as of December 2014. Yahoo as the default search engine for Firefox will potentially increase Yahoo's user base by more than 60% from the original 800million users the internet service provider already has. Yahoo's increase in user base would increase their profits from pay-per-click advertisements. As such, Yahoo as the default search engine for Firefox could potentially rake up higher sales for the internet service provider.

In 2005, Yahoo also formed a partnership with Alibaba which has proven to be an extremely lucrative partnership which has helped Yahoo strengthened its financial position through the gains from Alibaba's shares. Given its foresight in using partnership to push growth, we believe that Yahoo's relatively strong financial position and good management will eventually allow Yahoo to finally pull ahead and win back investors' confidence.

The company has also been spending large amounts of capital on investments. One example is the acquisition of Brightroll, which is the industry's leading video advertising platform, which we think is beneficial to Yahoo as the world is moving away from still images to the likes of video advertisements. At the same time, Yahoo has been reducing its net debt which can potentially attract investors who are looking for companies that are not too highly levered and can produce steady growth.



Source: Yahoo Finance

Yahoo also ended 2013 with $5 billion in cash and generated $786 million in FCF, returning about $3.3 billion to their shareholders through share repurchases, which implies a lower level of risk for investors is in a good financial state, shown by their ability to repurchase shares that can be kept as treasury stocks available for re-issuance.

Undervalued Business and Alibaba's Stake

At current valuation, we think that Yahoo's core business along with Alibaba's stake is significantly undervalued. Despite concerns of its slowing revenue growth, Yahoo's numerous acquisitions and mergers over the years will prove that its businesses are not worth the current valuation. At current valuations, Yahoo has a price to earnings (P/E) ratio of 6.66 and price to book ratio of 1.3 times. No doubt that revenue and profits may be slowing; the market tends to be more short-sighted in pricing in value of businesses. Given its strong financial position, with USD 11 billion cash and only 1 billion of debt, Yahoo has been expanding on new businesses and joint ventures as mentioned above in their recent 2 partnerships. These are examples of Yahoo taking on an active approach to jump onto the next big trend. It is impossible to predict with great accuracy what will be the next big consumer trend. However, given Yahoo's wide range of business acquisition, we believe that Yahoo will have companies that can possibly shine in the future, just like how their stake in Alibaba has paid off well.

Moreover, alongside with the analysis of Alibaba's possible undervaluation as mention above, we believe that there is more value in Alibaba and this will in turn translate to a contribute strongly to Yahoo. All these factors seem to point towards that Yahoo has been significantly overlooked in the market. Granted that it may not have the hype or optimism like before, its strong financial position and array of businesses will allow Yahoo to stay relevant at least in the near future.

In conclusion, we have a buy recommendation for Yahoo, given its strong financial position and the possible undervaluation of its businesses.