Daiwa SB Investments

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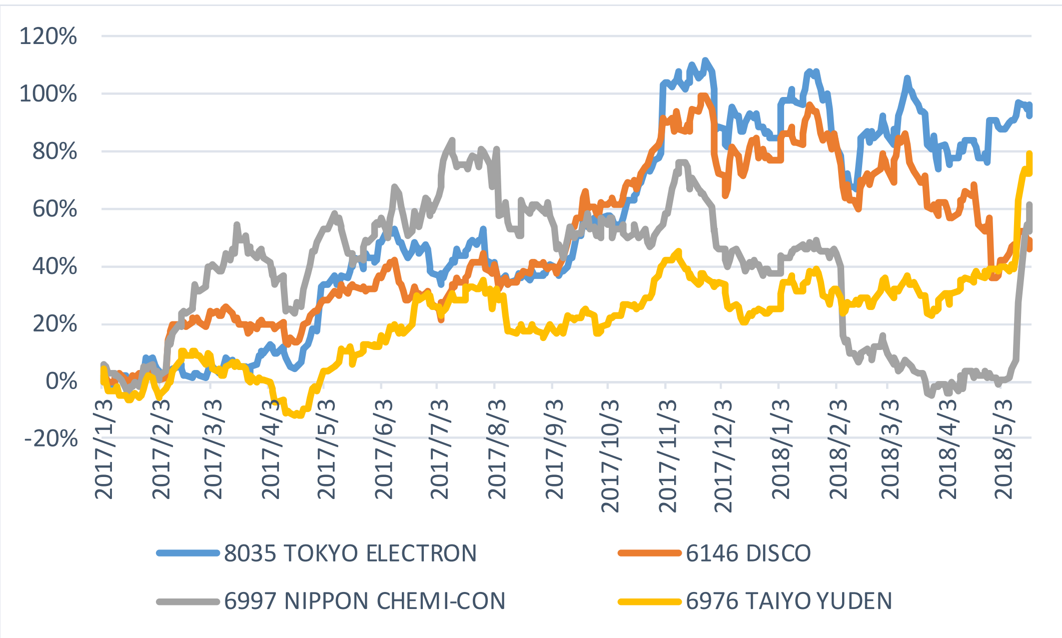
A Shift in the Technology Sector:
From Semiconductors to Passive Components

The Information Revolution has changed our lives in many ways over the last several years. Since around 2010, smartphones combined multiple mobile applications (camera, music player, etc.) into one operating system, but its market has begun to mature, posting a negative growth in sales worldwide. The key players in the Information Revolution have now shifted to those tech companies like **Amazon** and **Google** that accumulate large amounts of data obtained through their users and until just recently, investors poured a significant portion of their money into the equities of these high-tech companies and semiconductor equipment manufacturers and suppliers which provide for data storage and processing.

The Information Revolution still remains one of the key investment themes in the Japanese equity market with expectations for rising demand in semiconductor equipment by high-tech companies. However, a significant shift has started to occur in the movement of these companies' share prices since this March after the results announcement for FY2017. The chart below shows the percentage increase in share price of Japanese tech companies since January 2017.

The Share Price Movements of the Major Technology Stocks in Japan



Source: Daiwa SB Investments Ltd. (Tokyo), compiled May 2018

Tokyo Electron (8035) and **Disco** (6416) are the top semiconductor stocks in Japan. Until recently, PCs were a key driver of growth in the demand for dynamic random-access memory (DRAM) in the global devices market. However, the Information Revolution has sent sales of DRAM into decline while at the same time accelerating demand for NAND flash memory, used as a storage device for mobile applications and data centres. Also, due to the recent trend for the electric vehicles, the automotive applications that were only used in limited parts of driving systems, such as engine control units, are also being equipped in terminal parts of vehicles like bumpers and tyres with ongoing detection processes running within the safety systems. The trend of electrification had progressed to the extent that automated vehicle technologies are now being implemented in light vehicles in Japan, which has boosted expectations that the demand for semiconductors would increase dramatically. These trends are most obviously captured in the share price of companies like Tokyo Electron and Disco as indicated in the chart on the prior page. These two companies were the main drivers of the technology stocks rally over the past several years, although the trend did weaken around November last year. In particular, the share price of Disco fell sharply following the downward revisions of its earnings forecast. The share price of Tokyo Electron has also hardly moved despite the upward revision of its earnings forecast. In contrast, the share prices of **Taiyo Yuden** (ceramic capacitors) and **Nippon Chemi-Con Corporation** (manufacturer of Aluminium Electrolytic Capacitors) have risen sharply, even though these stocks had not been very popular in the market for a number of years. Both companies had not been considered as the key players in the technology sector since their businesses are primarily focused on manufacturing and the selling of capacitors, which is a market where the substantial advancement has already been achieved. That, in turn, produced a strong image that their earnings were largely controlled by the demand for PCs and mobile phones, while also highly being exposed to exchange rate risks. One of the reasons for that could be due to the fact their businesses are defined into one category as “capacitors”. Electrical components such as capacitors, resistors, coils, are called “passive components”. On the other hand, transistors and integrated circuits that comprise a portion of semiconductors, are called “active components” which perhaps sounds more positive and technically complicated when compared to passive components.

However, is it accurate to describe passive components as simpler and technically inferior than those classified as active components? Whenever those electronic components are activated, an electric current will flow through in a circuit, however, these cannot be generated only by semiconductor devices. Passive components play a critical role in controlling electricity in a semiconductor. In other words, in order to build an electrical circuit, passive components are also necessary to the same extent as semiconductors.

As the technologies for PCs and mobile applications have matured, it is expected that the automobile and ‘Internet of Things’ (IoT) markets will accelerate demand for passive components. But unlike PCs and mobile phones that are normally used in stable conditions (temperature, user environment, etc.), the components used in automotive applications must be suited for harsher environments. For example, if IoT sensors were to be built into footwear, each pair of shoes will need to have plugs for charging batteries. Those plugs might utilise pressure to generate electricity and store energy on low-cost capacitors. In fact, I believe that passive components may play a more significant role in the future when compared to the past several years where PCs and mobile phones had led the Information Revolution.

During this results season, I noticed that the CEOs of passive component manufacturers are more confident than ever that the demand for their products will grow in the coming years. Moreover, the customers’ needs have become increasingly diversified, even just for capacitors, requiring more capacity and ability to process and store massive amounts of information. While I have suffered from investing on these stocks, that had been the major laggards in the market for many years, I have now started to see a future in which passive components may play a key role in the Information Revolution.

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Yoshiki Nagata joined Daiwa SB Investments in 2006 as a Portfolio Manager specialising in mid-small- cap companies. He has more than eight years' investment experience at DSBI. Before joining DSBI in 2006, Mr Nagata was at Nippon Life as a Japan equity portfolio manager and was seconded to Putnam Investments in Boston for two years where he served as a Japanese equity analyst, specialising in the financial and real estate sectors. In his spare time Yoshiki likes to run and fit in as many rounds of golf as possible.

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