

## **Strategic planning and investment**

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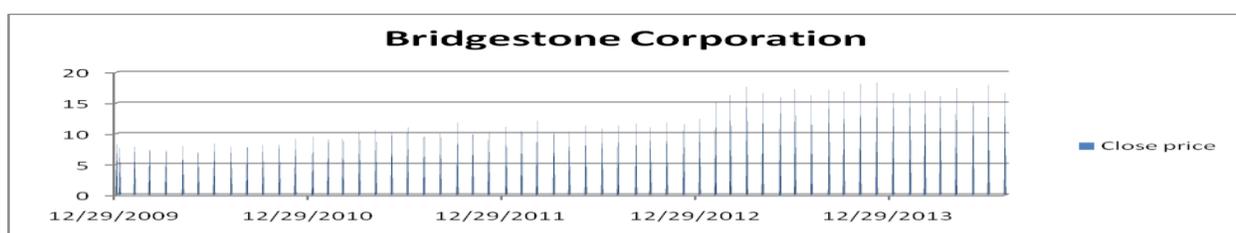


## 1. Financial consultant's report

Bridgestone Corporation has been delivering a consistent performance over the recent past by pioneering innovative technologies in the tire and rubber manufacturing industry. This consistent performance can be witnessed in the confidence of investors who have been continuously investing by buying the company's shares. As of result of this increase in demand for the company's shares, the price of the shares has consistently amplified over the recent past. Not only has the company been successful

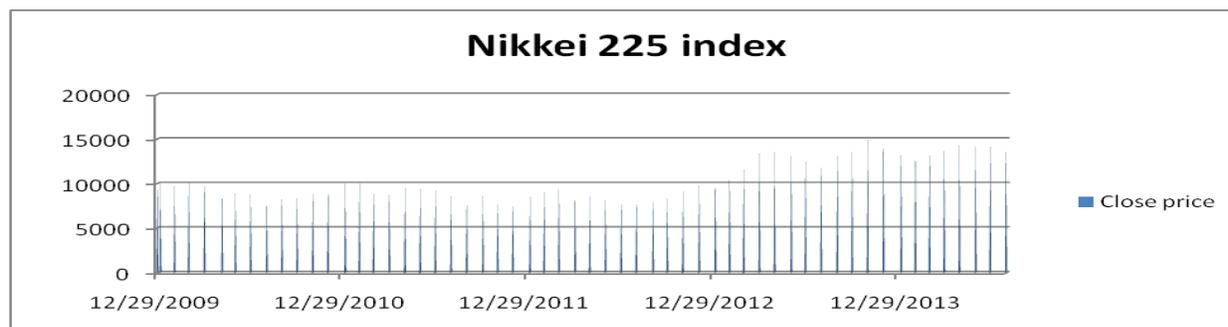
in pooling up substantial equity capital over the last few years but also has been able to allocate capital efficiently in all its operations thereby generation subsequent profit for the company. The increase in net profit every year has allowed Bridgestone Corporation to maintain a healthy payout ratio over the last five years and at the same time retain adequate proportion of earnings in order to invest them in positive net present value generating projects.

### Bridgestone Corporation historical share price



(Source: Yahoo finance, 2014a)

### Nikkei 225 index historical price



(Source: Yahoo finance, 2014b)

The charts given below that the company's share price has been following an increasing pattern over the last five years. The Beta value of 0.76 Bridgestone Corporation's stock suggests that the stock price of the company has followed a same pattern as that of the benchmark index. In order to evaluate the performance of Bridgestone Corporation, Jensen Alpha measure was calculated. The calculation produced a Jensen Alpha value of 0.0061 or 0.61% confirming that the company is generating positive returns for its shareholders on a frequent basis over the recent past. A positive Jensen Alpha value suggests that Bridgestone Corporation has been successful in outperforming the benchmark index considering the fact it operates in a highly regulated and intensely competitive industry.

A robust analysis of the company's key financial ratios suggests that the company has been consistently delivering superior performance thereby outperforming its competitors by a huge margin. Bridgestone Corporation's ROA has been following an increasing pattern unlike its competitors such as Yokohama and Toyo tires whose ROA has rather fluctuated over the last few years. This fact implies that Bridgestone Corporation's management implemented efficient strategies which were aimed towards proper utilization of the company's assets. By implementing such strategies the company was successful in converting a considerable proportion of its assets into net earnings. A similar pattern has been detected in case of return on equity as well. The drastic increase in the return on equity explains that Bridgestone Corporation has been largely successful in restoring its

shareholders' confidence by maximizing their value by generating significant income for per dollar of investment done by the shareholders.

This consistent increase in the company's profits can be attributed to the fact that Bridgestone Corporation's exposure to debt was considerably less than that of Yokohama and Toyo tires. This enabled the company to reduce its interest expenses and at the same time shield itself from market volatility and interest rate fluctuation. The reduction in interest expenses enabled Bridgestone Corporation to amplify its net profit with every passing. However, the story was quite different in case of Yokohama and Toyo tires that were substantially leveraged which in turn exposes the companies to a considerable degree of interest rate risk. As far as operating margin is concerned, Bridgestone Corporation, Yokohama and Toyo tires have performed equally well. This suggests that all the three companies have been considerably successful in achieving operational efficiency over the last three years. Although Bridgestone Corporation's operating margin is substantially higher than that of the other two companies but that can

be because of the fact the company's products are priced slightly higher than its competitors.

Bridgestone Corporation surpasses its competitors in all aspects of financial performance and the value of net profit margin provides conclusive evidences in order to support this statement. The company has consistently managed to convert its revenues to substantial levels of net profit. Such a consistent performance can be precisely because of the fact that the company's exposure level to debt was considerably nominal when compared to its competitors. Then Kinney's line of business analysis suggests that the company will prove to be immensely successful in the forthcoming year. Bridgestone Corporation is expected to maintain a stable growth rate in all its business segments thereby maintaining healthy profitability ratios in each of those segments. The tire manufacturing segment is the strength of the company and Bridgestone Corporation has to strengthen its grip over this segment in order to make sure that it remains in the top position as the market leader of this industry.

### 1.1. SWOT analysis

<b>Strength</b>	<b>Weakness</b>
<ul style="list-style-type: none"> <li>• Extensive domestic presence with more than 50,000 employees.</li> <li>• Pioneer in technological innovation specific to the tire and rubber manufacturing industry.</li> <li>• Diversified business segment. Hence risk is shared.</li> <li>• Strong brand name through promotion in motor sports and car racing events.</li> </ul>	<ul style="list-style-type: none"> <li>• The company does not own significant market in the international market.</li> <li>• Products are priced considerably high compared to competitor's products which depletes the customer base.</li> </ul>
<b>Opportunities</b>	<b>Threat</b>
<ul style="list-style-type: none"> <li>• Opportunity for developing business in the emerging market with a growing population and thus a potentially large target customer base.</li> <li>• Opportunities to implement environment friendly initiatives in both domestic as well as international market</li> </ul>	<ul style="list-style-type: none"> <li>• Threat from established tire manufacturing companies in the international market such as Michelin and Goodyear.</li> <li>• The economies in the US and Japan is going through a stagnant phase which in turn is hampering the company's business in the respective geographic region.</li> <li>• Exchange rate fluctuation.</li> <li>• Price volatility.</li> <li>• Introduction of alternative transport system such as underground metro, local trains and monorails have brought down the level of car owners which in turn has affected the demand for new tires.</li> </ul>

The overall analysis of Bridgestone Corporation reveals that the company has been highly successful in generating business over the last decade or so. The company has consistently delivered according to its promises and has added value for the customers. Quality and innovation has always been the company's topmost priority and this has been clearly exhibited in the strategies that have been adopted by Bridgestone Corporation in due course of its operational life time. However, there are certain areas that need to be addressed by Bridgestone Corporation as failing to do so would significantly deteriorate the company's operational

efficiency. Given the fact that the company has been a pioneer in the field of technology specifically in the tire and rubber manufacturing industry, the company needs to use technology to the optimal level in order to design concept tires that meet the requirements and specifications of a highly advanced base of customers in the contemporary world. In addition to that Bridgestone Corporation should also implement proper resource allocation strategies and at the same time should start making slow transition towards the use of renewable resource instead of fossil resources.

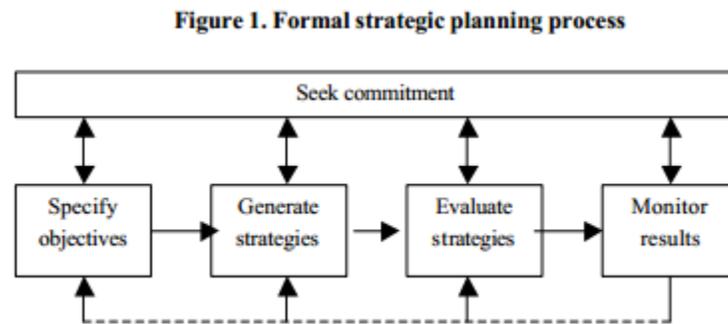
## **2. Business environment and strategy**

Open system models which include the contingency theory as well as resource dependence states that a company's survival is largely dependent on its capability to adapt to the constantly changing environment. This fact is more so true in this intensely competitive environment where companies make optimum effort to stay ahead in the race. Strategic planning is one of those tools that enable a company to manage environmental turbulence. While once the exclusive domain of manufacturing companies, strategic planning is a common practice is almost every sector in the contemporary business environment (Boyd, 1991).

Formal strategic planning can be regarded as an explicit and a fragmentary organizational process that is inclusive of several components such as establishment of goals, formulation and evaluation of strategies. An effective and efficient strategic planning system is largely responsible for linking long term strategic objectives with both operational and midterm strategic

objectives. Planners are assigned with the task of collecting data, forecasting, modelling and establishing optional future scenarios. Ostensibly, these tasks should enable organizations to attain competitive advantage against rival companies who did not engage much in planning.

A formal strategic planning model has been depicted in the following figure:



(Source: Armstrong, 1982)

This researcher in this report endeavours to conduct an outright analysis of Japanese Tire manufacturer Bridgestone Corporation with the underlying aim of evaluation the external market factors and industry conditions that might or have affected the company's strategic decisions. The analysis will also involve forecasting the company's future performance on the basis of its past performance which in turn will also enable the researcher to prepare a consultant's report highlighting all the relevant aspects of the company.

## 2.1. Company Profile

Bridgestone, arguably the world's leading tire company, was established in 1931 and is currently headquartered in Kyobashi, Tokyo, Japan. The esteemed corporation along with its subsidiaries is primarily engaged in researching, developing, manufacturing and selling tires and rubber products throughout the world. The company mainly operates through two business segments which are tire and diversified products. The tire segment of the corporation provides tires and tire tubes for all form of automobiles starting from light motor vehicle to heavy motor vehicle. This segment is also involved in offering retreading materials and services, automotive repair and maintenance services, raw materials for tires and other tire related products. On the other hand the company's diversified business segment is engaged in manufacturing and selling industrial

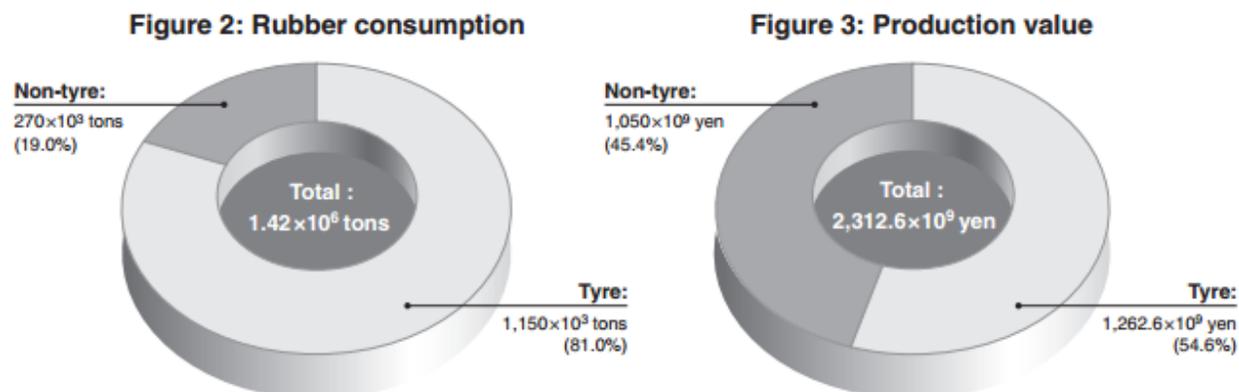
and chemical products such as vehicle peripherals, polyurethane foam, electronic precision parts construction materials and equipments and so on and so forth. Moreover, this segment is also known for offering sports goods such as golf balls, golf wears, tennis goods, bicycles and its peripherals (Yahoo finance, 2014).

Currently as the world's leading Tire Company, Bridgestone Corporation has been largely successful in making its presence felt in the international market. Due to the advent of globalization, the company has been able to reach out to a wide base of customers which in turn has amplified the company's market share by a significant margin. Moreover, an inclusively interconnected world has also allowed the company to establish subsidiaries around the world and extend its stretch comprehensively. Topping the quality chart in the tire industry, Bridgestone Corporation also provides value added services to its customer base. Hard work and uninterrupted focus on superior products has helped Bridgestone attain brand loyalty from its customers. Bridgestone has been largely successful in maintaining its position as an innovator. Continuing to set new standards for its rivalries, the name Bridgestone has become synonymous to quality.

## **2.2. The Japanese Tire industry: overview**

The actual production of automobile tires decreased by 5.4% in 2012 due to drastic fall in the demands on exporting tires while the demand for domestic tires increased. The production proportion of the Japanese tire industry in the rubber product industry in 2013 decreased in terms of both rubber consumption and production value from the previous year by 1.3 points to 81% and 0.8 points to 54.6% respectively (JATMA, 2013).

### **The production ratio of the tyre industry, within the rubber product industry in 2012**



(Source: JATMA, 2013)

### 2.3. Trends in Production by Tire Category

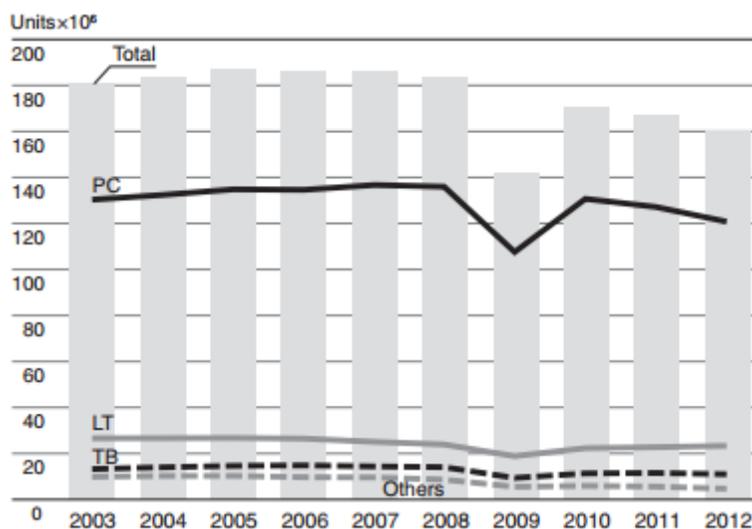
The production level of automobile tires has been decreasing consecutively in 2010 and 2011 and it decreased further by 4.4% in the year 2012 to reach a value of 159.2 million tyres. Although the production level of light truck tires increased marginally by 2.6% that of bus tires and passenger car tires decreased drastically by 4.8% and 5.6% respectively (JATMA, 2013).

**Table 1: Automobile tyre production in 2012**

	Production	
	Units(×10 <sup>3</sup> )	2012/2011(%)
Passenger car tyres	120,609	95.0
Light truck tyres	23,194	102.6
Truck and bus tyres	10,843	95.2
Special vehicle tyres	1,308	84.6
Motorcycle tyres	3,245	83.1
<b>Total</b>	<b>159,199</b>	<b>95.6</b>

(Source: JATMA, 2013)

**Figure 4: Trends in automobile tyre production**



(Source: JATMA, 2013)

#### 2.4. Changes in Production Volume of Tyres and Automobiles

Historical data in the table below suggests that the production of tires done by Tire manufacturing companies in Japan have stayed relatively consistent with the level of automobiles that have been manufactured since 1950. The increase in the production level of automobiles has equally been matched by an increase in production level of tires and vice versa up until 2012.

**Table 2: Changes in Production Volume of Tyres and Automobiles**

	1950	1960	1970	1980	1990	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Tyre Production (for Automobiles) (x1000 tons)(quantity of rubber)	14	83	369	784	1,031	1,153	1,240	1,285	1,331	1,352	1,358	1,348	986	1,196	1,212	1,147
Automobile Production (x1000 units)	32	482	5,289	11,043	13,487	10,141	10,286	10,512	10,800	11,484	11,596	11,576	7,934	9,629	8,399	9,943

(Source: JATMA, 2013)

The tire companies in Japan have done exceedingly well in order to compliment the increased production level of automobiles over the past few decades. Bridgestone Corporation is one such company that has been highly instrumental in the development of the tire industry in Japan by having the largest market share and catering to a large base of customers. In that way the company has not only been successful in establish a foundation for itself in the domestic market but also has received appreciation in the international market as well.

## 2.5. Automobiles and tires in Japan

The quantity of registered automobiles increased by 75.80 million as of December 2012 which is an increase of 0.8% from number in 2011. Nearly 68.67 million tires where supplied to those vehicles as replacement tires. This level decreased by 0.6% from the number that was reported in 2011.

**Table 3: Automobile registrations and sales of replacement tyres in 2012**

Automobile	Registrations( $\times 10^3$ )	2012/2011(%)
Passenger cars	59,421	101.3
Trucks and buses	16,379	99.1
Total	75,800	100.8
Replacement tyres	Sales( $\times 10^3$ )	2012/2011(%)
Passenger car tyres	50,119	99.3
Commercial vehicle tyres	18,547	99.4
Total	68,666	99.4

(Source: JATMA, 2013)

A considerable proportion of tires that were supplied as replacement were manufactured by Bridgestone Corporation. The company contributed significantly in the overall recovery of the tire industry in Japan from the Great East Japan Earthquake. As a result of combined from Bridgestone Corporation, Yokohama and several other tire companies, the value of domestic tire production increased by 18.4% from 2011 to 9.94 million. For the very same reasons, the sale of original equipment tires specifically for four wheelers increased drastically by 15.4% from 2011 to reach a value of 46.62 million tires.

**Table 4: Automobile production and sales of original equipment tyres in 2012**

Automobile	Productions( $\times 10^3$ )	2012/2011(%)
Passenger cars	8,554	119.5
Trucks and buses	1,389	112.0
Total	9,943	118.4
Original equipment tyres	Sales( $\times 10^3$ )	2012/2011(%)
Passenger car tyres	40,376	115.9
Commercial vehicle tyres	6,240	111.8
Total	46,616	115.4

(Source: JATMA, 2013)

## 2.6. Distribution Channel

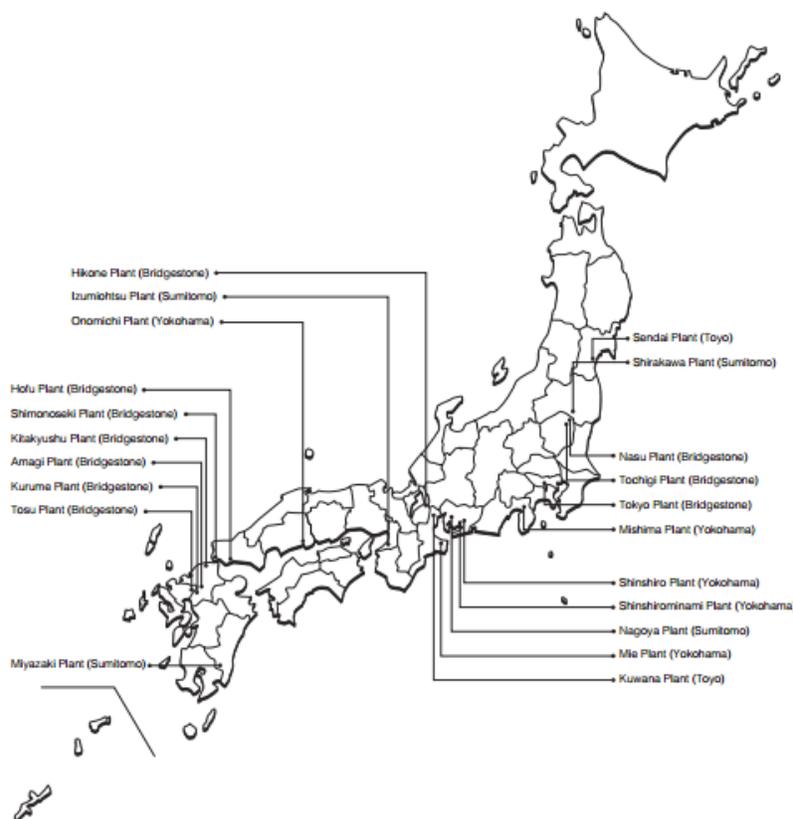
The distribution channel of tires manufactured by Bridgestone Corporation is primarily categorized into three channels: original equipment, replacement and exports. The distribution channel that caters to provide replacement services is specifically wide ranging with distribution as the main station. The company has divided the routes for the channels into two fundamental types: direct sales and indirect sales. Direct sales can be defined as that point of distribution under which the distributors mainly sell tires to large users such as bus, taxi, transport companies, municipal and government users. Indirect sales can be defined as that point of distribution under which tire dealers supply tires directly to the end user. Bridgestone Corporation has a very extensive network of distributors and suppliers and maintains a very collaboration between the two business entities in order to make sure that the customer needs and requirements are being met with at the earliest.

## 2.7. Distribution of automobile tire plants in Japan

It is evident from figure 5 that Bridgestone Corporation has an extensive physical presence all over Japan with 10 manufacturing plants distributed evenly. This is one of the fundamental reasons behind the company's consistently growing sales rate with every passing year. Bridgestone Corporation has implemented apt strategies in order to enhance the operational efficiency of its manufacturing facilities so as to achieve the maximum throughput. The

company's dominance in the Japanese Tire industry can be rationalized through the proportion of its market share (16%) (JATMA, 2013). The manufacturing plans are powered by upgraded technology that has enabled the corporation to make sure that the products that are manufactured of the highest quality and that they suit the needs of the customer accordingly.

**Figure 5: Distribution of Bridgestone tire plants in Japan**



(Source: JATMA, 2013)

Although Bridgestone Corporation has been highly successful over the past few years but its operational performance as well as its strategic decisions have been affected by various industry and market wide factors. The company has been subject to various rules and regulations which have proven to be a barrier in the pathway towards the company's success. Bridgestone Corporation has been highly exposed to operational risk over the recent past and this has significantly deteriorated the company's performance in the international market. These factors provide the researcher with an opportunity to conduct a thorough investigation of the factors that

have had a significant contribution towards creating turbulence in company's performance. In order to do the same, a PEST framework has been regarded as an appropriate analytical tool.

## **2.8. PEST Analysis**

### **Political factors**

Internationally disseminated operations of Bridgestone Corporations exposed the company to wide range of manmade as well as natural risks that could comprise force majeure including floods and earthquakes, terrorist actions, wars, epidemics, civil strife or political unrest. Certain political factors such as the regulations enacted upon by the Japanese government have the potential to affect the operational results as well as the financial performance of the company substantially. In addition to that factors such as substantial fluctuations in political matters in Japan and other countries of Bridgestone's operation could hamper the continuation of the company's business activities.

Bridgestone Corporation's operations are subject to various national as well as international regulations and laws that govern every aspect of business activities. These activities include investment, trade, foreign exchange transactions, environmental protection and anti competitive practices. Over the past few years certain regulations have been introduced that affect the Bridgestone's business operations. These regulations include labelling system and laws regarding tire performance in Japan as well as overseas and the REACH regulation in the Euro zone. As a consequence, the revised or new regulations could restrict the company's scope of conducting business operations, as well as raise its operating costs. All these factors could have a considerable impact on the company's financial position (Bridgestone, 2011).

### **Economic factors**

Bridgestone Corporation invests heavily behind research and development, purchasing, manufacturing, sales, logistics, marketing and other functional activities on an international basis. Therefore, the company's operating results and financial performance are subject to the variations in demand, exchange rates, interest rates, share prices and other economic variables.

In the financial year ending 31<sup>st</sup> December 2011, the consolidated sales split by market was 23% from Japan, 14% from Europe and 42% from America. This is precisely because of an extensive presence of car manufacturers in the country. Moreover an increase in the purchasing power of the US has led to a significant amplification in the number of automobiles that are being purchased in the country. As a result of this increased purchase, the demand for replacement tires as well as winter tires have also increased. Regardless of such a boost in sales, Bridgestone has to be wary of the fact that any form of economic downturns in these countries could lead the company to incur significant losses (Bridgestone, 2011).

### **Social factors**

The population in Japan has remained steady over the last few years. An increase of some sort is evident in the year 2011 as depicted in the table given below. As a result of which Bridgestone Corporation was able to generate considerable proportion of sales in the very same year. Thereafter the population followed a decreasing pattern which also resulted in a depleted customer base of the company.

**Table 5: Population in Japan**

<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
127,557,958	127,450,459	127,817,277	127,561,489	127,338,621

(Source: The World Bank Group, 2014)

At the same time it can be seen that the population in the US grew at a consistent rate. Provided the fact that Bridgestone has a huge market in the country, the country was able to make good business out of the increasing base of customers and recover from the deficits that were incurred in Japan and other countries.

**Table 6: Population in the US**

<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
-------------	-------------	-------------	-------------	-------------

306,771,529	309,326,295	311,582,564	313,873,685	316,128,839
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(Source: The World Bank Group, 2014)

## **Technological factors**

The multifaceted operations that are conducted in Bridgestone Corporations are increasingly dependent on the foundation that has been established by smooth, round the clock functioning IT and computer systems. If these systems start malfunctioning for any particular reason, it can cause severe operational disruption which in turn could adversely affect the financial performance of the company. Bridgestone Corporation has instituted inclusive measures with the underlying aim of safeguarding the information and computing infrastructure and the associated data as well as to improve network security on a consistent basis so as to be able to prevent any form of systemic failures.

## **2.9. KAY'S framework**

According to Kay (1995), sustained competitive advantage in an organization can be achieved through relational architecture, innovation, reputation and strategic assets. At the central of the Kay's framework lies the resource based theory that emphasizes on the internal resources and capabilities of the company that enables a company to provide superior performance. The internal sources and capabilities should be valuable in terms of enabling company to exploit its environmental opportunities. In addition to that these sources or capabilities should be costly to imitate; should be a rare development among its potential or current competitors and should also be without any form of close strategic substitutes.

Kay (1995) also explains that companies do tend to have a robust architecture where there is an anticipation of long term relationships both within the comma as well as among its members. According to the author there is a commitment to sharing accolades received due to cohesive achievement as well as a severe but unstructured degree of informality. As far as the resource based theory of a company is concerned, the foundation of sustainable competitive advantage stems from capabilities such as rareness, value and inimitability (Barney, 1991; 1997) or in more generalized term reputation, architecture, strategic assets and innovation (Kay, 1995). Successful

organizations in the private section use their capabilities in a practice way in order to add value (Matthews and Shulman, 2005). Such is the same for Bridgestone Corporation as well.

In 2009 Bridgestone Corporation was the sole supplier of all the formula 1 races (NUS, 2009). Not only did that enabled the company to market and promote its products and services internationally but also provided the company with the opportunity to increase its revenue by a considerable margin. The year was very profitable for the company where they reported net sales of 2.15 billion yen from its tires business segment (Bridgestone Corporation, 2014a).

**Figure 6: Bridgestone tire's run flat technology**



(Source: Bridgestone Corporation, 2014b)

As far as the **innovative and unique** nature of the company is concerned, they are largely evident in the technology that is infused in the products that are manufactured and subsequently distributed. The run flat technology tire manufactured by the company gives drivers the peace of mind because of the fact that they won't be stranded with a flat tire. With the run flat technology infused the tires, car owners can drive for up to 80 km (50 miles) at a speed of 80 km/h (50

mph) even after suffering an air loss thereby enabling the driver to stop at a convenient stopping area (Bridgestone Corporation, 2014b).

Another technological advancement brought about in Bridgestone's tires can be seen in the GREATEC tires manufactured by the company. The tires have an ultra low aspect ratio that can be used as a replacement for dual tire configurations in trucks or buses. This is one attribute of the products that would be considerably **costly to imitate** for any other company (Bridgestone Corporation, 2014c).

In addition to that a rare achievement in the tire industry was witnessed when Bridgestone introduced the Triple R concept in its aircraft tire segment. RRR stands for **Revolutionarily Reinforced Radial**. The concept is based on the cutting edge belt production and its unique structural design comes with four key benefits: increased resistance to external damage, a reduced probability to tire destruction, decreased tire weight for enhanced fuel efficiency and enhanced abrasion resistance (Bridgestone Corporation, 2014d).

## **2.10. Porter's five forces analysis**

**Bargaining power of buyers: low (in the domestic market): high (in the international market):** As far as the domestic industry is concerned, the bargaining power of buyers can be considered at a low level. This is precisely because there are only five tire companies based in Japan and out of which a significant proportion of market share is held by Bridgestone Corporation. Therefore customers (car companies, transport companies or individuals) do not have many options at their disposal if they are unsatisfied with the products manufactured by Bridgestone Corporation. This is precisely because, the technology used by Bridgestone Corporation is far superior to the ones used by companies such as Panaracer, Sumitomo Rubber Industries, Toyo tire and Rubber Company and Yokohama tire company.

However, in case of international market is taken into consideration, the bargaining power of buyers increase by a significant margin because the alternatives available to the buyers are considerably greater. The presence of esteemed tire manufacturing companies such as Michelin, Good Year, Dunlop Corporation, MRF and so on and so forth provides buyer with the flexibility to switch options as and when they deem appropriate.

**Bargaining power of suppliers: moderate:** As far as the domestic market is concerned, there is a significant concentration of tire suppliers distributed evenly all over the country. That is why the bargaining power of supplier stays at a moderate level. Bridgestone Corporation has a long list of supply chain partners at its disposal and thus has the flexibility to choose the one that provides it with the optimum level of cost and time efficiency besides maintaining quality. Although, given the number of suppliers that exist in the Japanese tire industry, the bargaining power of suppliers should stay low, but not all of them provide superior quality products and services. This factor restricts the available options for companies which in turn increases the bargaining power of suppliers from a lower level to a moderate level.

**Threats of new entrants: low:** The threats of new entrants in the Japanese tire industry are considerably low because of the fact that the cost of setting up a new tire manufacturing company is substantially high. This makes it potentially difficult for a new entrant to establish a foundation and compete with the likes of companies like Bridgestone Corporation, Yokohama and Toyo Tires. Moreover, it is going to be relatively difficult to acquire or develop the technologies that are used by the companies mentioned above in order to manufacture innovative products. Even if a company marginally succeeds in attaining such advancements, it will take a long time for the company to reach the breakeven point.

**Threat from substitute: low:** Tire products do not have many substitutes. This is precisely because majority of car companies, transport companies or individual buyers choose to buy from branded tire manufacturers. The only substitute one can think of are counterfeit products (tires) made with low quality rubbers which are manufactured by local tire companies. These tires are more often than not associated with safety issues which might put the life of car owners at risk. This factor compels customers to buy legitimate products. That is why the threats from substitute products are absolutely low (Leendertz, 2012).

**Existing rivalry: high:** The rivalry that prevails in the domestic market is incredibly high for Bridgestone Corporation. The company faces steep competition from the likes of tire manufacturers such as Yokohama Tire Company and Toyo Tire and Rubber Company. Both these companies are known to deliver quality products and services and also have an extensive international presence. As far as the international market is concerned Bridgestone faces steep

competition in the North American, Asian and European market. Companies such as Goodyear, MRF and Michelin have proven to be strong contenders to be the market leader in the international tire industry and therefore have raised the benchmark for products that are manufactured in this sector. This has influenced Bridgestone Corporation to develop and incorporated advanced technology so as to be able to manufacture products that are innovative and possess unique attributes. This has been the company's strategy since its operations began decades ago.

### 3. Analysis of company accounts

The first and foremost financial figure that needs to be analysed is the total assets of Bridgestone Corporation and compare the same with its competitor companies in order to set up a ground work that will provide the users of this information with a comprehensive idea about the size of the companies. Size of a company plays a crucial role in the way the entity performs (Abor, 2005; Appelbaum, et al., 2009). Therefore, analysis of this variable will enable the researcher to explain how well Bridgestone Corporation used its assets compared to its competitors in order to maximise value for the shareholders.

#### 3.1. Total assets and net assets

**Table 7: Bridgestone Corporation total assets**

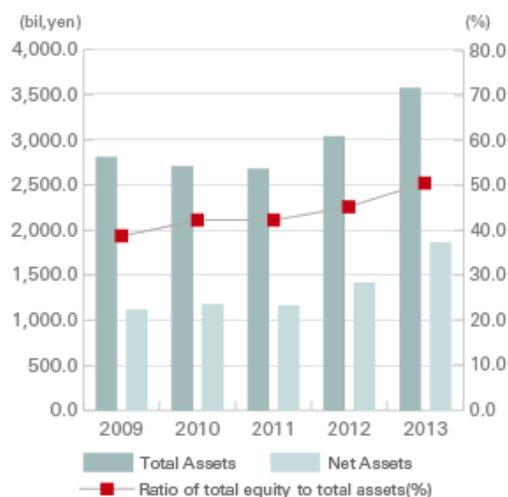
Assets(bil.yen)	2009	2010	2011	2012	2013
Total Assets	2,808.4	2,706.6	2,677.3	3,039.2	3,577.0

(Source: Bridgestone Corporation, 2014e)

It is evident from the table given above that Bridgestone Corporation's assets have decreased from 2,808 billion yen in 2009 to 2,706 billion yen in 2010 and thereafter to 2,677 billion yen in 2011. This explains that the company has been increasingly using its assets in its operations. The sharp decrease in 2010 and 2011 was primarily because of the investments that were made in order to provide superior quality products and services to the Formula one racing teams.

**Figure 7: Total Assets & Net Assets**

### Total Assets & Net Assets



(Source: Bridgestone Corporation, 2014e)

As far as Yokohama's size is concerned in terms of its assets, it is quite smaller when compared to the proportion of assets held by Bridgestone Corporation. However, the striking difference lies in the fact that unlike Bridgestone Corporation, the assets held by Yokohama continued to increase with every passing year. The company bought assets in order to utilize them and maximise value for the shareholders. Although, the proportion of assets held by Yokohama followed an increasing pattern, but Bridgestone Corporation still looks promising between the two that the company huge base of assets and its international presence is considerably extensive than Yokohama.

**Figure 8: Yokohama tire company total assets**



(Source: Yokohama, 2014)

Table 8 given below suggests that between the three companies Toyo tires and Rubber Company is the smallest firm in terms of the proportion of assets held by the company. Much like Yokohama Tire Company, Toyo Tires' assets have been consistently increased over the past five years. However, a growing proportion of asset does not alone tell about the credibility of a company. The factor that differentiates two companies is the efficiency with which these assets are used in order to maximise the company's benefits. The analysis of these variables proves to be a decisive factor for investors whereby they are able to evaluate the future prospect of an organization.

**Table 8: Toyo Tires and Rubber Company total assets**

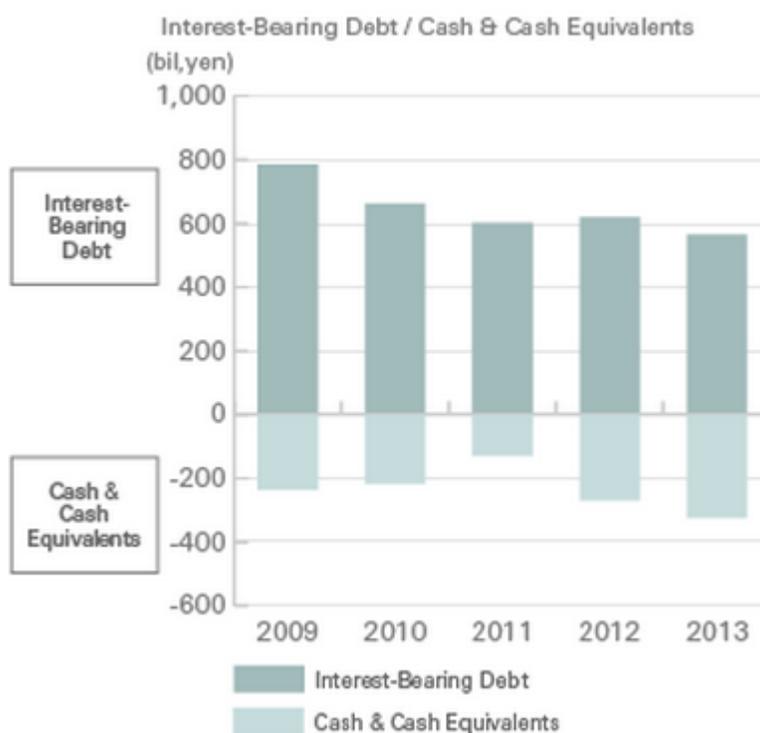
Fiscal year ended		2009 Mar 31	2010 Mar 31	2011 Mar 31	2012 Mar 31	2012 Dec 31	2013 Dec 31
Total assets	Millions of yen	304,769	293,207	305,290	336,982	354,285	433,327

(Source: Toyo tires, 2014)

### 3.2. Interest bearing debt

Following the analysis of assets, the next most important factor that needs to be analysed is the liability exposure. This analysis will pave a way for the researcher to conduct an in-depth analysis of the financial ratios. A company's liability exposure is a measure of the capital that has been borrowed from the market (Li and Wu, 2009; Tham, 2000; Umass, 2013). Generically, companies tend to have a certain level of debt precisely because they are cheaper than equity capital (Stern, 2013; Georgen and Reneboog, 2007). However, it is always advice able for a company to have a good mix of equity as well as debt capital in order to prevent itself from being exposed to either form of capital (Moles, Parrino and David, 2011; Diamond, 2002; Zack, 2013). The underlying reason behind maintaining such balance is because failing to do so will expose the company to certain market wide factors that may have adverse consequences (Romic, 2011).

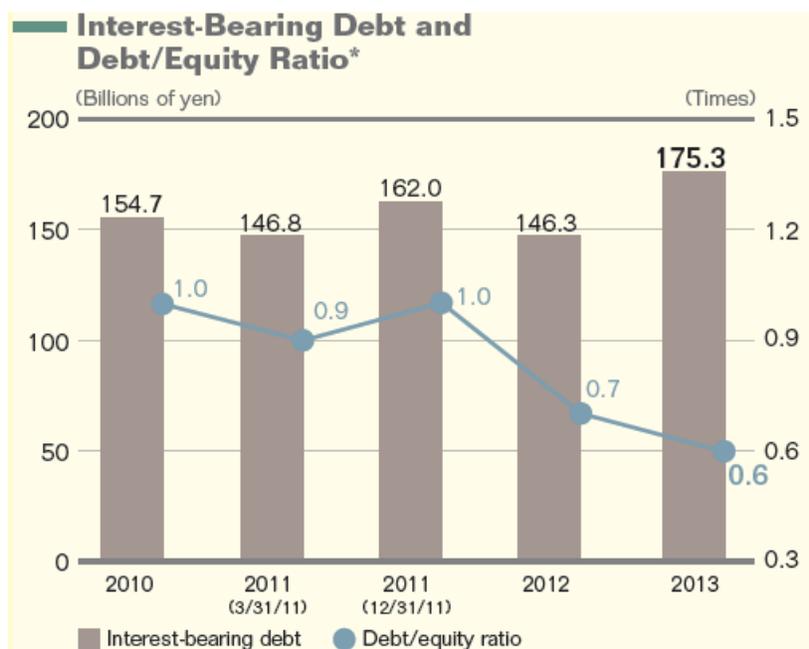
**Figure 9: Bridgestone Corporation interest bearing debt**



(Source: Bridgestone Corporation, 2014e)

As far as interest bearing liabilities are concerned, the proportion has decreased at a consistent rate since 2008 for Bridgestone Corporation. The company has performed exceedingly well in order to keep its exposure level to debt as low as possible over the last five years. The underlying rationale behind the company adopting such a strategy is to shield itself from any form of interest rate variation (Fridson and Alvarez, 2011; Wahlen and Wieland, 2011). This is precisely because a rising interest rate would mean that the company will have to pay more interest on the external funds that have been borrowed (Rodríguez-Pérez, et al., 2011; Konchitchki and Patatoukas, 2013; Han and Chen, 2014). Therefore, keeping a lower exposure to interest bearing liabilities, Bridgestone Cooptation has not only been successful in ensuring greater income by paying lesser interest, but also has been able to shield itself from interest rate risk therefore avoiding any probability of loan default.

**Figure 10: Yokohama tire company interest bearing debt**



(Source: Yokohama, 2014)

Yokohama Tire Company's exposure to debt has fluctuated considerably over the last five years with the highest value recorded in 2013 (175.3 billion yen) (Yokohama, 2014). The company has pooled external funds in order to have adequate financial resources and achieve its three year

target of achieving 1.8 trillion yen and operating income of 150 million yen (Yokohama, 2014). Owing to the fact that the company's credit rating has been recently downgraded, the company's cost of fund can increase drastically which in turn would severely affect Yokohama's overall performance and financial position (Francis, Pinnuck and Watanabe, 2013; Tan and Robinson, 2014). Moreover, a greater exposure to interest bearing debts could also expose the company to a higher degree of interest rate risk (Brooks and Mukherjee, 2013; Haile, 2014). This factor combined with the downgraded credit rating of the company could drill a hole in Yokohama's stable foundation.

**Table 9: Toyo Tires and Rubber Company interest bearing liabilities**

Fiscal year ended		2009 Mar 31	2010 Mar 31	2011 Mar 31	2012 Mar 31	2012 Dec 31	2013 Dec 31
Interest-bearing liabilities	Millions of yen	138,113	109,820	118,130	127,863	132,855	129,849

(Source: Toyo tires, 2014)

Quit similar to Yokohama's exposure to interest bearing liabilities, the proportion of Toyo Tires interest bearing liabilities have also fluctuated over the past five years. However, the company has performed relatively better than Yokohama in order to reduce its proportion of debt from 138 billion yen in 2009 to 129 billion yen in 2013 (Toyo tires, 2014). By doing so, the company has reduced its exposure to interest rate fluctuations in an environment where inflations lead to a severe influx of interest rates (Revsine, et al., 2005; Will, Subramanyam and Robert, 2001; Maguire, 2007).

After comparing the balance sheet items of all the three corporations it can be said that Bridgestone Corporation has been the most consistent and reliable performer. This is primarily because not only is the company greater in terms of size and value from the other two companies but is also efficiently used its assets for making positive net present value generating investments over the past five years and at the same time has been largely successful in keeping its exposure to external debt at a relatively lower level when compared to the other two companies (Penman and Zhang, 2002; Brown and Bukovinsky, 2001). In order to provide foundation to the above mentioned statements, the researcher will now be considering the analysis of key financial ratios.

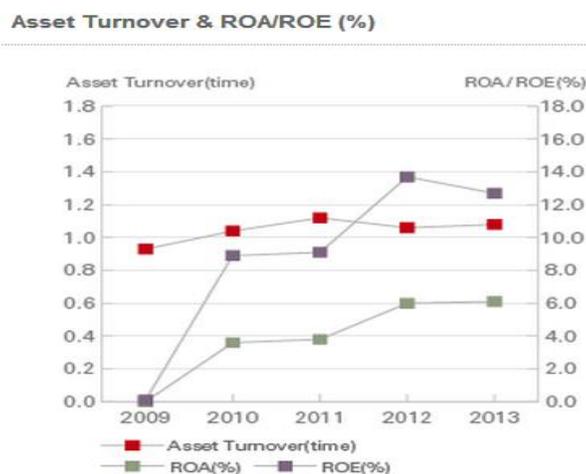
By doing so, the researcher will be able to evaluate the quality of performance delivered by these tire manufacturing corporations.

The most appropriate way to determine whether or not a company is using its assets efficiently is to analyse its asset turnover ratio and return on assets. Asset turnover ratio can be defined as the measure of an organization's capability to use its assets in order to generate sales (Palepu and Healy, 2007). In other words it represents the amount of revenue generated for every dollar of asset invested (Van Horne James, 2002).

### 3.3. Asset turnover

As far as Bridgestone's asset turnover ratio is concerned, figure 11 depicted below shows that the value has increased from 0.93 in 2009 to 1.04 in 2010 and subsequently to 1.12 in 2011. Although the ratio decreased by six decimal points to 1.06 in 2012, but thereafter it increased to 1.08 in 2013 (Bridgestone Corporation, 2014e). These values indicate that the company has made good use of its assets in order to generate sales. The considerable value amplification in 2010 is primarily because of the revenue that the company generated by providing services to all formula one racing teams in the very same year.

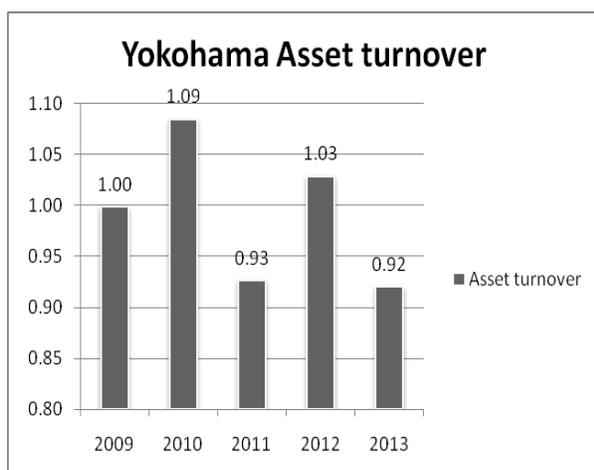
**Figure 11: Bridgestone Corporation asset turnover**



(Source: Bridgestone Corporation, 2014e)

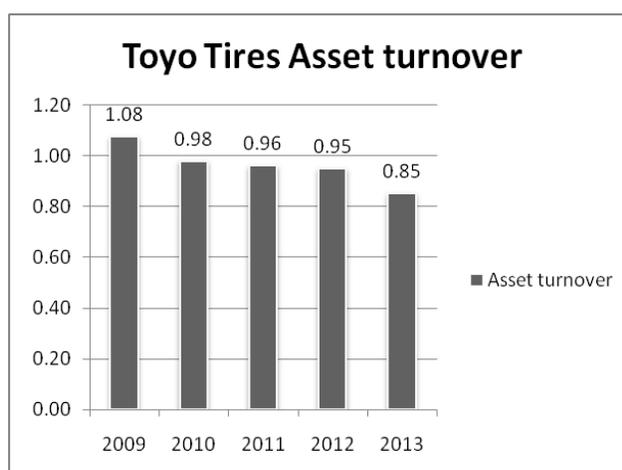
Yokohama's asset turnover ratio has fluctuated to a great extent over the last five years or so. In 2009 and 2010, the company was largely successful in investing its assets efficiently by generating asset turnover ratio of 1.00 and 1.09 respectively. However, thereafter the ratio fell down drastically to 0.93 in 2011. Although the ratio increased moderately to 1.03 in 2012 but fell down to 0.92 in 2013. The fluctuations in the asset turnover ratio indicates that the company could not implement sound strategies which is why the asset turnover ratio was not consistent unlike the performance demonstrated by Bridgestone Corporation. A falling turnover ratio implies that the company has Yokohama's managers have to think about alternative options in order to boost its asset turnover ratios (refer to appendix 1).

**Figure 12: Yokohama Asset turnover**



(Source: Author's creation)

**Figure 13: Toyo Tires Asset turnover**



(Source: Author's creation)

The performance of Toyo Tires is not satisfactory as depicted by the decreasing asset turnover ratios over the last five years. The asset turnover ratio for the company decreased consistently without any signs of improvement during the same time period. This fact implies that Toyo Tires' managers and analysts have failed to devise effective and efficient strategies that would enable them to improve their asset turnover ratio. They did not have the ability to use their assets properly (refer to appendix 2).

In such a respect it can be said that Bridgestone Corporation has maintained a steady asset turnover ratio by using its asset appropriately and therefore is a prospective investment opportunity for potential investors.

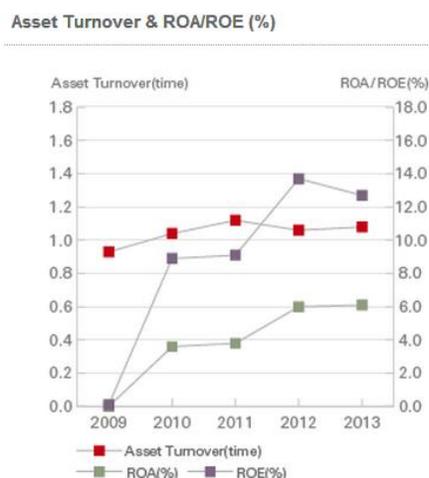
### 3.4. ROA and ROE

**Table 10: Bridgestone Corporation profitability ratios**

Assets	2009	2010	2011	2012	2013
ROA(%)	0.0	3.6	3.8	6.0	6.1
ROE(%)	0.1	8.9	9.1	13.7	12.7

(Source: Bridgestone Corporation, 2014e)

**Figure 14: Graphical representation of Bridgestone Corporation's profitability ratios**



(Source: Bridgestone Corporation, 2014e)

Bridgestone Corporation's has been delivering a stable performance over the last five years. This fact can be justified by the increasing value of return on asset of 3.6% in 2010 to 3.8% in 2011. Therafter the value amplified drastically to 6% in 2012 and subsequently to 6.1% in 2013 (Bridgestone Corporation, 2014e). The consistently increasing return on asset demonstrates the company's managerial efficiency which implies that the managers were largely successful in converting assets into net earnings (Rose and Hudgins, 2008; Weygandt, Kimmel and Kieso,

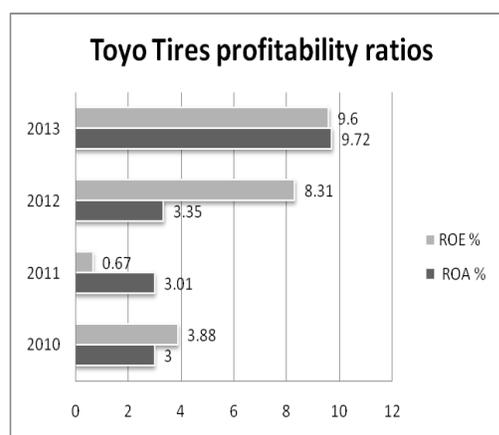
2009; Mirza, Holt and Orrell, 2006). As far as the return on equity is concerned that has also followed an increasing pattern. The drastic amplification in the return on equity explains that the stockholders of Bridgestone Corporation have received huge benefits by investing their capital into the company. This suggests that the company has proven to be largely successful in terms of maximizing value for the shareholders (Hung, 2000; Orens and Lybaert, 2007).

**Figure 15: Yokohama profitability ratios**



(Source: Yokohama, 2014)

**Figure 16: Toyo tires profitability ratios**



(Source: Toyo tires, 2014)

Yokohama has performed considerably well in order to maintain the stability of its ROA with minor fluctuations in between. The company proved to be largely profitable in the year with both its ROA and ROE reaching record high levels of 6.2% and 17.8% respectively (Yokohama, 2014). Thereafter in 2013 the value of ROA as well as ROE decreased to 5.8% and 14.7% respectively (Yokohama, 2014). The pattern in which the values of ROA and ROE fluctuated between 2010 and 2013 is quite similar to that of Bridgestone Corporation. This implies that the managers of Yokohama were also very successful in implementing efficient strategies and generate substantial income for every yen of asset as well as equity that were invested.

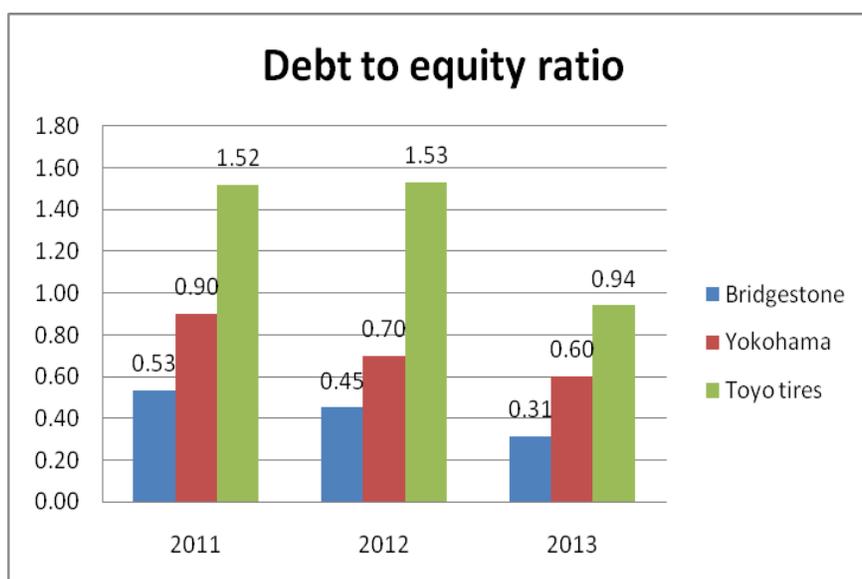
As far as Toyo tires is concerned, the company also managed to perform fairly well by maximizing value for the shareholders with every passing year. Toyo tires recorded ROE values of 3% and 3.01% in 2010 and 2011 respectively and thereafter the values increased to 3.35% and 9.72% respectively in 2012 and 2013 respectively (Toyo tires, 2014). This explains that the company has been using every yen of equity capital effectively in order to fund its operations

which in turn has enabled the managers to generate sufficient income in all those years (refer to appendix 3). The return on asset for Toyo tires has also been considerably good and has increases since its drop in 2011 where the company recorded an ROA of 0.67% (Toyo tires, 2014). Therafter, the company made efficient use of its assets and also generated income accordingly thereby reporting a record ROA value of 9.6% in 2013 (Toyo tires, 2014).

### 3.5. Leverage measures

Debt to equity ratio is a key performance indicator that reflects the extent to which a company is leveraged (Doyle, Ge and McVay, 2007; Graham, Harvey and Rajgopal, 2005). In other words it depicts the degree to which a company relies on debt as a source of financing. Figure 17 given below shows the debt exposures of all the three companies over the past three years.

**Figure 17: Company wise debt to equity ratio**



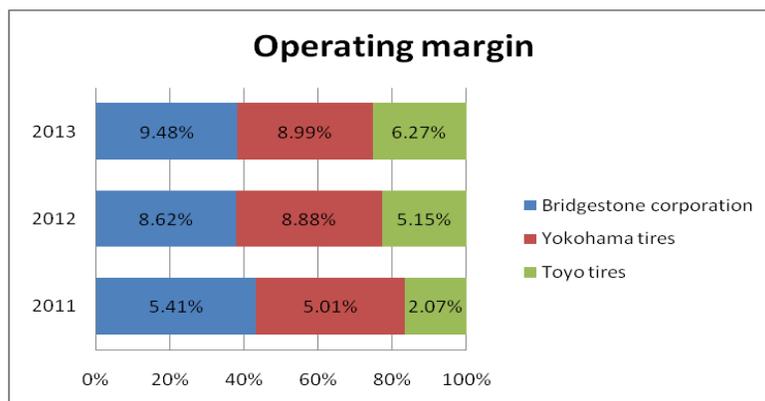
(Source: The financial times, 2014a; 2014b; Yokohama, 2014; Toyo tires, 2014)

An overall view of the graph explains that Bridgestone Corporation's reliance on debt with respect to its equity is much lower when compared to that of Yokohama and Toyo tires. Bridgestone Corporation has performed exceedingly well by maintaining a good mix of both equity as well as debt capital thereby shielding itself from interest rate fluctuations (refer to

appendix 9). By doing so, the organization has nullified any probability of defaulting on loan. In addition to that, the company's leverage multiple has decreased from 0.53 in 2011 to 0.45 and 0.31 in 2012 and 2013 respectively. Having a lower exposure to debt puts the company in a safer zone but at the same time also increases the company's weighted average cost of capital precisely because raising equity is comparatively expensive. Although greater in value, but a similar performance has also been exhibited by Yokohama tires. The company implemented an effective strategy in order to make sure that its level of external borrowings stayed relatively lower than its equity capital. Toyo tires debt exposure over the last three has been considerably higher compared to the other two companies. With every passing year Toyo tires' debt to equity ratio decreased marginally. However the rate at which the debt exposure decreased is quite lower when compared to that of Bridgestone Corporation and Toyo Tires. Therefore, Toyo Tires is exposed to a certain degree of interest rate risk. Nonetheless the effect of this exposure on the financial performance can be easily nullified if the company makes good use of debt and generates sufficient net income which in turn will enable the managers to pay off the debt easily given the fact that debt is a cheaper source of capital (Saunders and Cornett, 2008).

### **3.6. Operating margin**

A company's operating margin demonstrates the income that a company generates for each dollar of sales before interests and taxes are paid (Hirshleifer and Teoh, 2003). As far as the operating margin of the companies are concerned, it can be said that all the three companies performed very well over the last three years. Their operating margin increased consistently each year denoting that the companies attained higher operational efficiency (Berk and DeMarzo, 2007). As far as comparative analysis is concerned Bridgestone Corporation's operating margin is greater than the other two companies. However that can be because of the fact that the price at which Bridgestone's products are sold are relatively higher than that of Yokohama and Toyo tires. The difference in operating margin between the three companies can also be because of the fact that they employ diverse strategies and that the size of these companies differ by a considerable degree. Taking these facts into consideration, it can be said that all the three companies have demonstrated a consistent performance (refer to appendix 4, 5 and 6).

**Figure 18: Company wise operating margin**

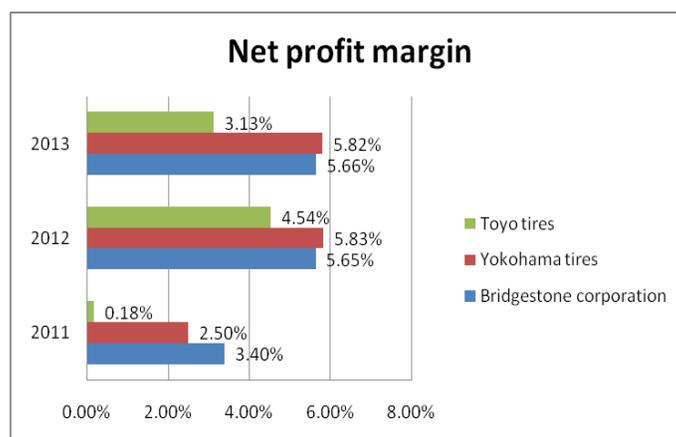
(Source: The financial times, 2014c; 2014d; 2014e)

### 3.7. Net profit margin

Another profitability ratio that is a key determinant of an organization's success is net profit margin. Net profit margin indicates the fraction of each dollar in revenues that is attributable to the equity holders of a company after all obligations are met (Ross, Westerfield and Jordan, 2008; Lisowsky, 2010). As far as the net profit margin is concerned, both Bridgestone Corporation and Yokohama tires have managed to exhibit a very strong performance. Both the companies have been highly successful in converting revenues to adequate levels of net income. As far as Bridgestone's net profit margin is concerned, a higher value can be attributed to the fact that the company's exposure level to debt was considerably lower. Consequently, Bridgestone had to pay less interest which in turn allowed the company to realize significant profits. In the very same context, it has to be said that Yokohama tires' performance is slightly better than Bridgestone Corporation precisely because of the fact that the former's leverage ratio was considerably greater than the latter. Therefore Yokohama managed to implement efficient strategies in order to make sure that it meets its obligations conveniently at the same time generate equivalent net income to that of Bridgestone Corporation. Compared to these two companies Toyo tires' performance has been relatively unstable. This is particularly because of the fact that the company's was highly levered up which in turn increased its interest expenses thereby depleting its margin of profit. In such a scenario, it can be said that Bridgestone Corporation is a standout perform considering the fact that the company has managed to record

good figures in all the financial ratios that have been explained in this section (refer to appendix 10).

**Figure 19: Company wise net profit margin**



(Source: The financial times, 2014c; 2014d; 2014e)

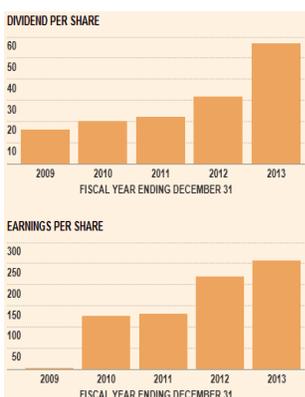
### 3.8. DPS and EPS

Bridgestone Corporation also proves to be a standout performer when the dividends per share (DPS) as well as earnings per share (EPS) is taken into consideration. Both the values for the company have increased consistently over the past five years. The increasing dividend per share indicates that the managers believed that they will be able to sustain the rate at which the company is growing. Moreover, it also indicates that the company is realizing significant profits from their operations and therefore are distributing the same to the shareholders in order to maintain their level of confidence over the company. The earnings per share of Bridgestone Corporation indicates that the company has proven to be highly profitable and therefore have been largely successful in allocating higher level of profits to each share of common stock outstanding in the market. As far as the dividends per share is concerned, Toyo tires also exhibited a stable performance which is evident from the increasing DPS over the last five years. The company kept on increasing its dividend payout despite the fact that it was not being able to realize adequate profit. The underlying reason behind such a strategy can be to restore shareholder's confidence despite exhibition of poor operational performance. On the other hand Yokohama's DPS and EPS values have fluctuated relatively when compared to Bridgestone

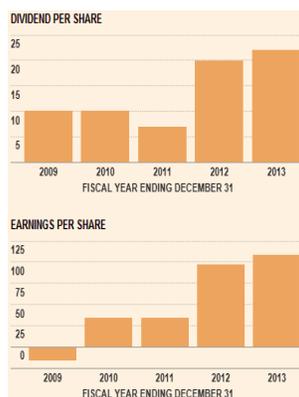
Corporation and Toyo tires. The company chose to maintain a steady level of dividend payout and retain majority of its earnings precisely because the managers thought it would be better to use them in order to fund any positive net present value generating projects (refer to appendix 7 and 8).

**Figure 20: Company wise DPS and EPS**

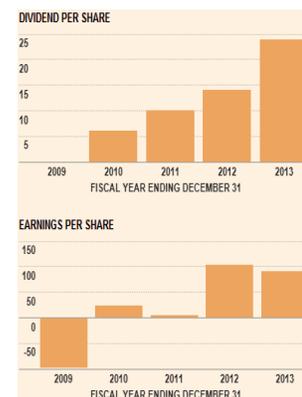
### Bridgestone Corporation



### Yokohama tires



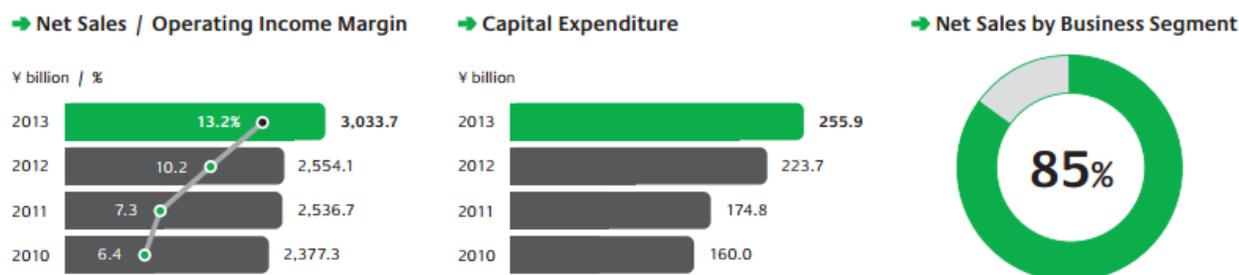
### Toyo Tires



(Source: The financial times, 2014b; 2014f; 2014g)

### 3.9. Bridgestone Corporation's business segment

**Figure 21: Business segment reports (Tires)**

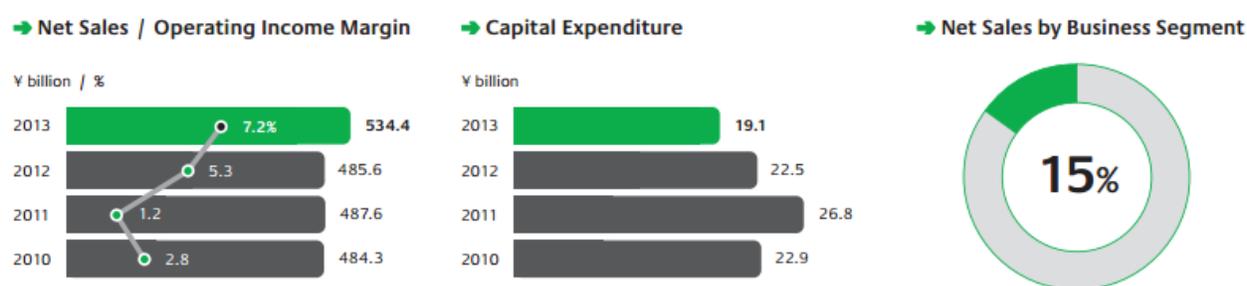


(Source: Bridgestone Corporation, 2013)

The figure given above depicts that Bridgestone's Corporation's sales has been increasing with every passing year since 2009. The operating income has also followed a similar pattern like that

of the net sales over the past five years. This explains that the company was largely successful in making appropriate use of the investments that have been made in the company's operations. Given the fact that the company has recorded increasing expenditures over the last five years, the company has been successful in implementing strategies thereby generating much higher operating profits with respect to its expenditure. The sales generated by Bridgestone Corporation in its tire manufacturing business segment accounts for 85% of the overall sales generated by the company.

**Figure 22: Business segment reports (diversified)**



(Source: Bridgestone Corporation, 2013)

As far as the company's diversified business segment is concerned, the net sales has remained relatively stable over the last five years with a sudden increase in 2013 where the company generated a net sales of 534.6 billion Yen (an increase of 49 billion yen from the previous year (Bridgestone Corporation, 2013)). The operating profit margin although decreased from 2.8 in 2010 to 1.2 in 2011, it increased in the subsequent years and the company recorded an operating profit margin of 7.2% in 2013 (Bridgestone Corporation, 2013). The increase in the operating profit margin can be largely attributed to the decrease in expenditures in this business segment. The net sale generated by Bridgestone Corporation's diversified business segment accounts for 15% of the overall sales generated by the company.

#### 4. Investment performance

##### 4.1. Importance of Kinney's line of business model

Kinney's line of business model explains the importance of line of business reporting and at the same time provides a prompt explanation of the ways in which future performance of individual

business segments of a company can be predicted. The underlying rationale behind the requirement for companies to disclose segmental information in their financial statements is to make sure that information produced by the companies are reliable, verifiable, comparable and understandable (Kinney, 1971). Line of business reports enables the users of information to have a holistic view of a company's financial situation and make an informed assessment of the company's performance over the years. Segmental information also enables the users of the information to inspect the company in a fragmented manner in order to understand if there is any form of correlation between the performances of two business segments. Moreover, segmental reporting also enables company managers to conduct internal assessment whereby they are able to identify the strengths and weaknesses prevailing within any of the functional segments (Kinney, 1971). In addition to that, investors are able to conduct a thorough competitive analysis of the company's performance with its competitors. This enables them to make an informed judgment regarding whether or not to invest in the former company. Both internal and external analysts also benefit a lot from segmental reporting as such an extensive set of data enables them to predict the future performance of company in terms of earnings for every business segment. Having conducted such a thorough analysis, organizational managers are able to implement appropriate strategies aimed towards maximizing the value of shareholders.

The facts that have been mentioned above justify the importance of segmental reporting whereby both internal and external assessment of company can be performed. The impetus of this study comes from these facts and that is why the researcher has chosen to analyze a company in order to compare the outcomes with the theories that have been mentioned above. By doing so, the researcher will be able to analyze the current performance of the company and at the same time will also be able to predict performance.

#### 4.2. Bridgestone's performance forecasts on the basis of Kinney's LOB model

**Figure 23: Segment forecasts (Bridgestone Corporation)**

Bridgestone Corporation	Segment Sales in 2013	(1 + DI)	Sales forecast for 2014	Segment profit margin for 2013	Profit forecast for 2014
Tires	3,036.90	1.09	3315.58	0.13	436.05
Diversified	546.2	1.05	572.51	0.07	40.35
			<b>Forecast sales for entire firm (2014)</b>		<b>Forecast overall profit (2014)</b>
			3888.09		476.41

(Source: Author's creation)

Application of Kinney's line of business model enabled the researcher to analyse individual business segments of Bridgestone Corporation. The purpose of applying this model was to forecast the level of sales and profits that can be expected in the upcoming year. In order to do that, the researcher considered the sales growth rate of the Japanese tire industry. By applying the sales growth rate, the researcher successfully generated the sales forecast as well as calculated the predicted profits for the company. The sales growth rate for the tire industry has been considered to be 9% and that of the diversified business segment has been considered to be 5%. According to the model, Bridgestone Corporation's forecast sales for the tire business segment is 3315.58 billion yen and that of the diversified business segment is 572.51 billion yen. The values add up thereby forecasting overall firm sales of 3889.09 billion yen for the upcoming year. As far as the profit forecast is concerned, the tire business segment is expected to generate a profit of 436.05 billion yen which is an increase of 9.18% from the current year (refer to appendix 11). On the other hand the diversified business segment is anticipated to attain a profit of 40.35 billion yen which shows a predicted growth of 4.82% from the current year. Therefore the overall expected profit for the year 2014 is 476.41 billion yen which is an increase of 13.99% from the profit achieved in the year 2013 (refer to appendix 11).

The above analysis reveals that Bridgestone Corporation will continue to be profitable for its investors by achieving an expected profit growth rate of 13.99% which will be an astounding increase from the growth rate that was realized the previous year. A growth rate of such margin will enable the company to retain a substantial proportion of earnings for future investments and at the same time maintain its steadily increasing dividend payout ratio. By doing so, not only will the company be able to maintain the confidence level of the investors but will also be able to bring about an all round development within the organization. Bridgestone Corporation with an expected growth rate of 13.99% can plan ahead to focus on the enhancing its technology in order to encourage innovation within the company. This will enable the managers to render their products inimitable and thereafter attain substantial degree of competitive advantage in a highly concentrated industry.

### **4.3. Stock price performance**

Evaluating stock price performance is one of the fundamental activities conducted by investors in order to come to a decision regarding whether or not to invest in a particular company. By analyzing the stock price of a company, investors are able to extract vital information regarding the company's performance over a specific time period. Evaluation of stock price performance allows investors to learn about the growth rate achieved by a company in terms of the return generated annually (The Wall Street Journal, 2014). The same return is thereafter compared with that of the return generated by the market in order to compare whether the company outperformed or underperformed the benchmark. Whenever an investor buys a company's share they become a fragment of the company in which case profitability becomes the biggest consideration. In such a context evaluation of stock price performance becomes relevant. Not only does it enable investors to assess the pattern in which the stock price are appreciating or depreciating but it also allows them to correlate the performance of the stock with respect to that of the index. By doing so, investors place themselves in a position whereby they can make a precise forecast of the pattern that the stock price will follow in a month or year from the current period. This activity allows investors to gain significant competitive advantage as they are able to choose which stock to include in or reject from their portfolio. Moreover stock price performance evaluation also involves the consideration the risks and the covariance that is associated with the market which serves as an efficient tool enabling investors to forecast the return that they will be able to realize in case they own a risky asset. In addition to that the evaluation metric also helps investors to learn about the best case and worst case scenario which in turn allows the investors to plan ahead and act accordingly.

A number of models have been introduced by academic scholars, which have proven to be highly beneficial over the past decades or so allowing analysts as well as investors to assess the performance of stock prices. In this particular research, the researcher endeavours to highlight two such models which have been used very extensively in the field of accounting and finance. One of the models is Jensen's alpha and the other is Treynor's ratio.

#### 4.4. Jensen's Alpha

Jensen Alphas was developed as a risk adjusted performance measure that depicts the average return generated by a portfolio. The value of Jensen's alpha enables investors to evaluate whether the value of a portfolio represented by this model is any different from the capital asset pricing model. The model takes into account the beta value of the portfolio as well as the average market return. The Jensen's alpha equation can be written as:

$$\text{Alpha} = r_s - [r_f + \beta (r_b - r_f)]$$

In this equation:

$r_s$  is the average return of the portfolio;

$r_b$  is the average market return/expected return;

$\beta$  is the correlated price volatility;

$r_f$  is the risk free rate;

The fundamental idea of this model is that while evaluating the performance of a stock an investors should not only look at the overall return generated by the stock but also at the risk factor that is associated with the portfolio. Having done that, the investor is able to determine whether or not a stock is yielding appropriate return for its level of risk. If the output value of Jensen alpha is positive that means the portfolio is earnings surplus returns. In other words, the stock with a positive Jensen alpha value has outperformed the market.

The Jensen ratio quantifies the extent to which the rate of return of a portfolio is attributable to the manager's capability to produce above average returns adjusted for market risk. A higher value of alpha suggests a better risk adjusted return. A portfolio that has been consistently generating excess positive return will yield a positive alpha value and on the other hand a portfolio with a negative excess return will always have a negative value of alpha. This fact holds true for Bridgestone Corporation. The researcher's analysis revealed that Bridgestone Corporation has been generating consistent negative excess returns over the last five years and that is why has yielded a negative value of alpha. In order to be able calculate the Jensen alpha value of Bridgestone Corporation, the researcher extracted the monthly share price of the company over the last five years from Yahoo finance (Yahoo finance, 2014a). The monthly return of the share price was calculated using the following formula:

$$\text{Return} = (R_t - R_{t-1}) / R_{t-1}$$

Where  $R_t$  is the share price of Bridgestone Corporation in the current month

$R_{t-1}$  is the share price of Bridgestone Corporation the previous month

Thereafter the mean value of the monthly return was calculated. A similar procedure was followed for calculating the return of the index. As far as the index is concerned, Nikkei 225 index for 225 companies was considered precisely because it includes Bridgestone Corporation (Yahoo finance, 2014b). The monthly index returns were calculated using the formula mentioned above and the corresponding mean was also computed. The other factors which were also taken into consideration, while computing the value of Jensen's alpha, are the risk free rate and beta.

The risk free rate can be defined as the rate of return required by investors for the purpose of investing in financial instruments that have no risk. In other words it can also be said that this rate recompense investors for the time value of money. It also recompenses investors for the risk that they take while investing in an instrument; the risk of losing the value of initial investment made by them. This is precisely because inflation may lead to abrupt consequences which in turn may decrease the buying power of money. Therefore the risk free rate compensates investors for the time their money is tied up in an investment.

Normally treasury rates are considered as good measure of risk free rate. The same was done in this model as well where the researcher considered the risk free rate of 5 year Treasury note (US Department of the Treasury, 2014). An advice able practice is to match the duration of the treasury holding to the length of time of the average return. Alternatively, longest term treasury yield could also be used as some argue that equities are indefinite investment vehicles.

Beta on the other hand is referred to as the correlated price volatility of an investment compared to the price volatility of the benchmark. In this particular model, the Nikkei 225 index has been considered as the benchmark. The concept of beta can be best explained through an example. Considering a stock that has a beta value of 2 is twice as volatile as that of its benchmark index. In other words if the return generated by the benchmark appreciates by 10% then the stock will correspondingly appreciate by 20% and vice versa. On the other hand, a beta value of 1 indicates that a stock will follow the same pattern as that of its benchmark index. Fascinatingly, betas have

no lower or upper limit. A highly volatile stock will always have a very high beta value. The value of beta was computed using the following formula:

$$\beta = \text{covariance} (r_s, r_b) / \text{variance} (r_b) \text{ (Invest excel, 2014)}$$

In this particular research, the beta value of Bridgestone Corporation came out to be 0.76, which is quite close to 1. This implies that the company's stock price behaviour is very closely aligned to that of the benchmark index.

After calculating all the fragmented values, they were incorporated in the CAPM equation which gave an alpha value of 0.0061 or 0.61% (refer to appendix 12). This means that the company has been generating positive return on a frequent basis over the past few years. In other words it can be said that the returns generated by Bridgestone Corporation has marginally outperformed the benchmark index. This analysis provides evidence for the fact that the company has been maintaining a stable dividend payout ratio over the last five years. By achieving a positive alpha, not only has the company been successful in increasing its dividend payout ratio but also has been able to retain a sufficient earnings in order to invest in positive net present value generating projects. The Jensen alpha analysis provides conclusive evidence regarding Bridgestone Corporation's consistent performance over the recent past. Investors can consider investing in the company provided that the company has been successful over the recent past and that according to the forecast of analysts the company is expected to be profitable in the upcoming years. However, analyzing the company on the basis of just one model would not be feasible. That is why the researcher also implemented the Treynor ratio.

#### **4.5. Treynor ratio**

Treynor ratio is very similar to Sharpe ratio which is a measure of return adjusted for risk. Treynor ratio enables an analyst to measure how well an investment vehicle compensates the investor for the risk that the investor bears while investing in the vehicle. The ratio computes that excess return above the risk free rate per unit of risk. The fundamental difference between Sharpe ratio and Treynor ratio is that the former uses standard deviation as the measure of risk whereas the latter uses beta as the measure of risk (AAII, 2013).

The association between return and risk is a crucial factor in the investment process. Stocks that are highly volatile or risky should compensate the investors with excess returns in the long run. Treynor ratio can be calculated using the following formula.

$$\text{Treynor ratio} = (R_i - R_f) \div \text{beta}$$

In this equation,

$R_i$  - average rate of return for an investment;

$R_f$  - risk-free rate;

Beta - correlated price volatility;

In order to calculate this particular ratio, the annual stock return of Bridgestone Corporation was calculated using the formula for calculating returns stated previously. As mentioned above, the Treasury note yield was considered as the risk free rate and the data was extracted from the US Department of The Treasury. Beta is correlated price volatility which was also calculated using the formula mentioned above.

Having incorporated the values in the Treynor ratio equation it was found that Bridgestone Corporation's stock was not successful in providing any return per unit of risk borne by the investor. The value of Treynor ratio came out to be -0.0052 or 0.53% (refer to appendix 12). This outcome is quite contrasting to the outcome of the Jensen Alpha. However, it has to be kept in mind that while calculating Jensen Alpha, stock price till January 2014 was considered and in case of Treynor's ratio stock price till August 2014 was considered. A certain degree of inconsistency in the data can be the reason behind this discrepancy. Therefore, solely based upon this ratio, no strong conclusion can be drawn. It has to be understood that much like Sharpe ratio, Treynor ratio is also a relative measure of risk and therefore the number alone does not mean anything. This value has to be compared with that of other companies as well as industry benchmark if available. Moreover, a certain degree of weakness is also associated with the beta. This is precisely because given the fact that beta is a quantifier of correlated volatility to the market, an investment vehicle may have a very low beta (even as low as zero) but at the same time may be highly volatile in terms of its price. In such a context, the attributes of investment

vehicle does not necessarily correlate with the benchmark index. That is why Treynor ratio is used in conjunction with other analytical models in order to conduct a thorough comparative analysis.

#### **4.6. T-square performance measure**

The Treynor square performance measure is heavily dependent on the Treynor measure and is mainly used in order to convert the Treynor measure into a percentage return basis. In that way, it becomes easy for a financial analyst to interpret and compare the stock price performance of a company with that of the benchmark index return. This performance determinant equates the correlated price volatility of the managed portfolio with the market's correlated price volatility, that has a value of '1', by creating a hypothetical portfolio that is made up of T-bills as well as the managed portfolio. If the correlated price volatility (beta value) is less than one then the company's leverage measure is used and then the portfolio's return is then compared with the market return.

The T-squared performance metric 'standardises' a portfolio's return as if the portfolio carried the same risk as the market and thereafter compares this adjusted figure to the actual market return. The formula for quantifying the adjusted return is:

$$\text{Adjusted } r_i = r_f + ((r_i - r_f) / \beta_i) \times \beta_m$$

**In the above equation,**

$r_f$  is the risk free rate

$r_i$  is the average return of the portfolio

$\beta_i$  is the correlated price volatility of the portfolio

$\beta_m$  is the correlated price volatility of the market

The formula for calculating the T-squared measure is:

$$\text{T-squared} = \text{Adjusted return} - \text{market return}$$

Putting the values according to the formulae given above the researcher obtained an adjusted  $r_i$  value of **1.82%** and subsequently a T-squared value of **0.76%** (refer to appendix 12).

The positive value of 0.76% indicates that Bridgestone Corporation's has proven to be a profitable company for its shareholders. The company's average stock return has outperformed the market return. This outcome provides conclusive evidence regarding the increasing value of earnings per share that the company has been reporting year on year since 2009. Bridgestone Corporation has been delivering a consistent performance over the last five years and the researcher has been able to infer that from the values obtained for Jensen alpha and the Treynor squared measure. By adopting prudent strategies that were aimed towards product superiority and innovation, Bridgestone Corporation has been able to generate significant positive returns over the last five years thereby maximizing value for the shareholders.

## **5. Recommendations**

A thorough analysis of all the dimensions of Bridgestone Corporations enabled the researcher to gain a holistic view of the extent to which the company is diversified in terms of its business structure as well as the factors that contributed towards the company's success over the last decade or so. Although the company is mostly associated with a strong performance exhibition, but a comparative analysis allowed the researcher to pinpoint certain issues that could make this success sustainable. The recommendations that will be provided in this section are completely based on the analysis carried out in this research is in complete alignment with the researcher's perception of the company and therefore it might differ from the viewpoints provided by other authors or analysts who have previously researched in the very same domain.

According to financial forecasts which have been made in the previous sections, Bridgestone Corporation needs to improve its return on assets and set a target of achieving 6% in the upcoming years. The company also needs to increase its revenue in order to be able fund its operations appropriately and realize an adequate level of operating income. As far as setting target for generating sales is concerned, a 6% increase in the upcoming years would be standard for Bridgestone Corporation. The company should implement appropriate strategies that will allow the management to achieve a 10% operating income ratio as early as possible. The capital

expenditure needs to be set at a yearly average of 250 million yen and close to 50% of the overall capital expenditure needs to be invested for tire strategic projects.

Although the company has proven to be immensely profitable the same has not been reflected in the company's share price. That is why Bridgestone Corporation's share price returns have marginally outperformed the benchmark index returns. Bridgestone Corporation needs to minimize its exposure to interest bearing liabilities as it is reducing the company's profit margin over the last few years. In addition to that the company needs to maintain a stable dividend payout ratio thereby retaining adequate earnings in order to make sure that the managers have enough funds left at their disposal that could be invested in the company's research and development. By doing so, the company could develop innovative products and be a market leader which in turn would provide the company would be sustainable source of income.

Bridgestone Corporation should also maintain an optimum equilibrium between short term management quantifiers and the mid to long term management quantifiers collaborated with a strong emphasis on lean in the short term and strategic in the mid to long term. The topmost priority should be given to optimization on a global as well as group basis. Given the fact that the corporation's primary goal is to be the undisputed market leader in tire and rubber industry in both name as well as reality, therefore the management team should perceive the mid to long term management strategies as fundamental and the key factors towards success. Bridgestone Corporation should therefore incorporate this articulated vision and formulate strategies that are aimed towards accelerating management reforms.

The operating environment that Bridgestone Corporation operates in is growing increasingly uncertain and unstable. The corporation's management needs to identify the current operational environment as a critical time to induce further management reforms. Following the preliminary reforms that have been made within the company's operational infrastructure and governance framework in the year 2006, several weaknesses have been identified within the company's internal control which have proven to be a barrier in the company's pathway towards success. Therefore, it becomes imperative for Bridgestone Corporation's management to revise its reforms and implement a second phase transformational reforms. In order to efficiently as well as collectively address the challenges that the company faces in terms of its current operational

environment, the management needs to implement strategies that are based on principles of flexibility which is aimed towards responding to market volatility and economic fluctuations with the underlying objective delivering value to the customers. By applying this strategy, Bridgestone Corporation will be able to become an absolute and clear leader within the tire and rubber industry. However, there is one specific area that the company needs to focus and that is to leverage its benefits that are yet to be realised through horizontal and vertical expansion. Thus, one of the primary objectives for the corporation's management is to add further layers of improvement within the initiatives those were implemented last year and thereafter adopt appropriate measures in order to accelerate the company's progress in the areas that needs to be addressed. In order to be able to attain such level of progress the company needs to be highly committed towards technology and formulate proper strategies in order to develop their technology mainframe thereby strengthening the business model innovation.

Bridgestone Corporation has long been known as the pioneer in the field of technological innovation. However, over the last few years the company has failed to allocate its resources appropriately which in turn has deteriorated the operational efficiency that the company has been achieving over the last decade or so. As far as attaining the previous rate of operational efficiency is concerned, the company has to achieve the same on a number of levels on a collective basis. First of all Bridgestone Corporation management has to devise an appropriate strategy aimed towards proper raw material supply, distribution and allocation. The company needs to diversify its natural rubber production in order to make sure that the risk is diversified and that the raw materials comes from varied sources. By diversifying the natural rubber production, not only will the company will be able to share the risk but will also be able to ensure the production of superior quality products. This is of high importance as these natural rubbers will thereafter be used for manufacturing aeroplane, car and bus tires. Therefore ensuring their pivotal considering that the safety of the vehicles are largely associated with the quality of tires that are fitted in them.

In order to achieve its conjoint objectives of quality and innovation, Bridgestone Corporation needs to resort to the use of 100% sustainable materials as a scheme to make the optimal use of its product development and technological capabilities. At the same time, the company needs to make a gradual transition towards the usage of renewable sources instead of fossil resources in

order to ensure an uninterrupted supply of raw materials as well as to manufacture enhanced quality products. Given the fact that Bridgestone Corporation is the face of tire technology in the contemporary business environment, the company needs to demonstrate the same in front of its customer base. The management team needs to further enhancement as well as expansion of its strategic products that exhibit technological superiority. Technological innovation is one of the strengths of Bridgestone Corporation and that is why the company needs to encourage innovation within the internal environment and thereafter achieve sustainable competitive advantage in this intensely competitive industry.

Bridgestone Corporation needs to implement a robust differentiation strategy that will not only establish itself as an undisputed market leader but will also allow the company to beat competition in the market as well as ensure that the level of competition that it faces from start ups as well as blue chips is brought down to a nominal level. One way of doing that is to develop a product that is technologically sound, environmentally safe; inimitable as well adds value for the customers. One such product would be to develop a concept tire that functions without air. In the modern world, vehicle owners do face problems of flat tires frequently. This not only takes a considerable amount of their time but can also sometimes prove to be inconvenient in case if flat tires occur in the middle of a road or on the way to a journey. That is why tire manufacturers all around the world came with the tubeless tires that can run for about 50kms even after the tire is flat. However, in such cases as well, a vehicle owner needs to worry about finding an appropriate garage within the proximity of the 50kms service provided by the tubeless tire. Therefore, in such a context a tire that functions without any form of air would always prove to be beneficial for the vehicle owners considering that they don't have to worry about flat tire at all. The air free tires would be light weighted and will add significantly to the vehicle's mileage. Having heard the specifications of this concept tire, many would want this tire to be introduced as early as possible. However, according to Bridgestone Corporation's analysis, it would take nearly 20 more years in order to come up with a prototype. Therefore, in order to attain significant competitive advantage, Bridgestone Corporation needs to formulate and implement appropriate strategies which will aimed towards advancing progress in the company's research and development department. This could be one way for the company to pull ahead the launch of the world's fast air free tires. Not only will this product establish the company as a pioneer in this

segment, but is sure to provide the company with an unimaginable level of sustainable competitive advantage.

As far as services are concerned, Bridgestone Corporation could develop a tire technology that will provide real time information about road surface condition to the drivers thereby enabling them to manoeuvre their way of driving according to the road surface. Appropriate tire printing technology can also be developed in order to manufacture tires that are suitable for diverse road and weather conditions. In order to bring about all these development, Bridgestone Corporation needs to improve its financial performance. By doing so, the company will be able to fund the developments that it needs to bring in so as to make sure it holds its position as the undisputed leader.

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## Appendix

### Appendix 1: Yokohama asset turnover

<b>Yokohama</b>	2009	2010	2011	2012	2013
Net sales	466.4	519.7	465.1	559.7	601.6
Total assets	467	478.9	501.8	543.8	653.6
Asset turnover	1.00	1.09	0.93	1.03	0.92

### Appendix 2: Toyo tires asset turnover

<b>Toyo tires</b>	2009	2010	2011	2012	2013
Net sales	328,371	287,726	294,092	320,569	370,218
Total assets	304,769	293,207	305,290	336,982	433,327
Asset turnover	1.08	0.98	0.96	0.95	0.85

### Appendix 3: Toyo tires profitability ratios

<b>Toyo tires</b>	2010	2011	2012	2013
ROA %	3	3.01	3.35	9.72
ROE %	3.88	0.67	8.31	9.6

### Appendix 4: Bridgestone corporation operating margin

<b>Bridgestone corporation</b>	2011	2012	2013
Operating income	163,494	261,939	338,407
Total sales	3,024,355	3,039,738	3,568,091
Operating margin	5.41%	8.62%	9.48%

### Appendix 5: Yokohama operating margin

<b>Yokohama tires</b>	2011	2012	2013
Operating income	23,306	49,697	54,081
Total sales	465,133	559,700	601,629
Operating margin	5.01%	8.88%	8.99%

### Appendix 6: Toyo tires operating margin

<b>Toyo tires</b>	2011	2012	2013
Operating income	6,098	14,996	23,207
Total sales	294,092	291,110	370,218
Operating margin	2.07%	5.15%	6.27%

**Appendix 7: Dividends per share**

<b>Dividends per share</b>	2009	2010	2011	2012	2013
Bridgestone corporation	18	20	22	32	57
Yokohama tires	10	10	7	20	22
Toyo tires	0	6	10	14	24

**Appendix 8: Earnings per share**

<b>Earnings per share (yen)</b>	2009	2010	2011	2012	2013
Bridgestone corporation	20	128	132	219	258
Yokohama tires	-15	35	35	98	108
Toyo tires	-48.96	15	4.1	104	91

**Appendix 9: Debt-equity ratio**

<b>Debt - equity ratio</b>	2011	2012	2013
Bridgestone	0.53	0.45	0.31
Yokohama	0.90	0.70	0.60
Toyo tires	1.52	1.53	0.94

**Appendix 10: Net profit margin**

<b>Net profit margin</b>	2011	2012	2013
Bridgestone corporation	3.40%	5.65%	5.66%
Yokohama tires	2.50%	5.83%	5.82%
Toyo tires	0.18%	4.54%	3.13%

**Appendix 11: Kinney's line of business model**

<b>Kinney's line of business model</b>	Segment Sales in 2013	(1 + DI)	Sales forecast for 2014	Segment profit margin for 2013	Profit forecast for 2014
Tires	3,036.90	1.09	3315.58	0.13	436.05
Diversified	546.2	1.05	572.51	0.07	40.35
		<b>Forecast sales for entire firm (2014)</b>	3888.09	<b>Forecast overall profit (2014)</b>	476.41

**Appendix 12: Share price performance (Bridgestone Corporation)**

<b>Jensen Alpha</b>	0.61%
<b>Treynor ratio</b>	-0.53%
<b>T-squared</b>	0.76%