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EQUITY INCENTIVE SYSTEM IN ALIBABA, TENCENT AND BAIDU

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Abstract

More and more Chinese companies are applying equity incentive plans nowadays. However, the effectiveness of these equity incentive systems is unclear as some research shows a positive relationship between the equity incentive system and firm performance whereas others show a negative relationship and still others found that there is no relationship at all.

In this dissertation, we analyzed the equity incentive system in three Chinese high tech companies: Baidu, Alibaba and Tencent, the so called BAT. The research used secondary data from the latest 5 to 10 year Annual Financial Statements of these three companies and applied Spearman's correlation coefficient to calculate the relationship between their equity incentive system and performance. Results showed a higher and positive relationship in the case of Baidu and Tencent rather than in Alibaba. Finally possible factors that may influence the effectiveness of the equity incentive system were discussed.

This study and the results obtained may provide some guidance and suggestions not only for the subject companies but also to others and assist them in selecting a suitable type of equity incentive plan.

Key word: equity incentive, BAT, firm performance, Spearman's correlation coefficient.

JEL Classification: J33, M52

Resumo

Cada vez mais empresas chinesas aplicam hoje em dia programas de incentivos baseados em ações. No entanto, a eficácia destes sistemas continua pouco clara. Algumas investigações evidenciam uma correlação positiva entre o sistema de incentivos baseado em ações e o desempenho da empresa, enquanto que outras mostram uma correlação negativa e, outras ainda não evidenciam nenhuma correlação.

Nesta investigação, foi analisado o sistema de incentivos baseado em ações de três empresas chinesas de alta tecnologia, as designadas BAT: Baidu, Alibaba e Tencent. A investigação baseou-se em dados secundários extraídos dos Relatórios Financeiros Anuais destas três empresas e aplicou o coeficiente de correlação de Spearman para calcular o tipo de correlação existente entre os seus planos de incentivos e o desempenho. Os resultados revelaram que a correlação é melhor nas empresas Baidu e Tencent e não tão positiva na Alibaba. Por fim foram discutidos os fatores que podem influenciar a eficácia do sistema.

Os resultados poderão fornecer alguma orientação e sugestões não só para as empresas estudadas mas para outras que pretendam adoptar planos de incentivos por ações.

Palavras-chave: incentivos por ações, BAT, desempenho da empresa, coeficiente de correlação de Spearman

Cl**assificação JEL**: J33, M52

Contents

1. Introduction

This dissertation is to analyze the equity incentive compensation system of Alibaba group, and then compare it with two other companies in a similar industry named Baidu and Tencent. The aim is to understand its structure and effects as a possible contribution to help other similar companies and to add to the debate among HR enterprises regarding a more in-depth study and discussion on the industry equity incentive compensation system.

1.1 Background of the Research

1.1.1 Implementation of Equity Incentive Policy in China and other countries

The equity incentive compensation system was born at the end of the 20th century. In the past decades, it suffered from not being taken seriously to being given extensive attention. A privately held company often wants to offer key employees the right to participate in the financial success of the business through an equity incentive compensation plan (Barnes, 2016). The earliest practice of equity incentive compensation was in a High-Tec company in Silicon Valley, California in the 1960s（http://m.pj.com/article/20319.html, 2017/4/13）. However, in the end of 1970s, because of the rapid development of the senior talent mobility, the policy of management shareholding has becoming more and more important for all the companies, and it gained general approval in 1990s. According to the statistics, in the top 500 American companies recorded in “Fortune” Magazine in 1998, more than 90% of companies have implemented equity incentive compensation policy such as stock options.

Since 2006, China published several laws and policies about the equity incentive system and the legal environment in listed companies and, as a result, these have gradually developed. According to the statistics from the National Bureau of Statistics

of the People's Republic of China, from January 1, 2006 to July 31, 2012, a total of 459 listed companies have announced equity incentive programs, and in July 31, 2016 the proportion of listed companies reached 18.94%. Among the 1400 listed companies in Shanghai and Shenzhen, employees in about 500 have the shares of the company. In 2005 China Securities Regulatory Commission also published the first version of "The Measures for the Administration of Equity Incentives for Listed Companies (for Trial Implementation)" to make it more effective. The new version of "The Measures for the Administration of Equity Incentives of Listed Companies" have been examined and approved at the 6th Chairman's Meeting of the China Securities Regulatory Commission on May 4, 2016. It is hereby promulgated on August 13, 2016. However we must face up to the fact that the role of equity incentive to promote the performance of the company did not achieve the desired level.

Although China has been applying the equity incentive system for about 10 years, the application is not very mature in China now. Considering the differences of the markets in China and in some Western countries, we cannot just make the system the same as others. Companies should measure the type, the motivation object and the effect of equity incentive compensation in their own situations. Alibaba, Tencent and Baidu are three of the largest and most important companies in China and their practices of the equity incentive system have very important model significance for other companies. So this research shows the advantages and disadvantages of some types of equity incentive systems in these three companies, and also the applicability of each type of equity incentive method.

1.1.2 Introduction of Alibaba, Tencent and Baidu

Alibaba Group is one of the leaders of global E-commerce and also one of the earliest E-commerce companies in China. The Alibaba group was founded in 1999 by 18 people led by Jack Ma, a former English teacher from Hangzhou, China. It has then become a large company, and it has many subsidiaries companies, such as Taobao,

Tmall, Alisoft, Alipay, Alimama, Yahoo China and Alibaba. In 1999, the number of Internet user in China was 2.1 million; it increased to 59.1million in 2003, to 384 million in 2009 and to 640 million in 2016 (China Internet Network Information Center, 1999, 2003, 2010, 2017). The increase in the number of Internet users in China provides a good platform for the development of e-commerce. The founders started this company to champion small businesses, in the belief that the Internet would level the playing field by enabling small enterprises to leverage innovation and technology to grow and compete more effectively in the domestic and global economies. The headquarters of Alibaba Group is in Hangzhou, China, and it also has branch offices in more then 30 cities in China, Sweden and America. Now, more then 30,000 people work for Alibaba Group.

Alibaba Group's mission is to make it easy to do business anywhere. They provide the fundamental technology infrastructure and marketing reach to help merchants, brands and other businesses that provide products, services and digital content to leverage the power of the Internet to engage with their users and customers. Their businesses are comprised of core commerce, cloud computing, digital media and entertainment, innovation initiatives and others. Through investee affiliates, they also participate in the logistics and local services sectors.

However, in the High-Tec industry, Baidu and Tencent are two of the largest competitors of Alibaba group. Also, these three companies, China 's Internet Company Big Three are called BAT in China, B stands for Baidu, A for Alibaba and T for Tencent. BAT has become China's largest three Internet companies. Chinese Internet industry has been developing for 20 years already, and now these three companies have their own system and strategic plan. They control China's information-based data, transaction-based data, relational data, and then merge their other innovative businesses with their own advantages. Over the past five years, the three giants have invested in a total of 30 listed companies and in hundreds of unlisted companies. Eighty percent of the top 30 unlisted companies in Chinese Internet

industry are behind the BAT figure (https://www.huxiu.com/article/174425.html, 2017/4/13).

Baidu and Tencent also have their core business. Baidu mainly focuses on search engine, and Tencent mainly focuses on game industry. Nowadays, there are already more than 50,000 employees working for Baidu, and for Tencent, the number is more than 30,000 (https://www.huxiu.com/article/174425.html, 2017/4/13).

1.1.3 Implementation of Equity Incentive Policy in BAT

Since Alibaba started its IPO in America in September 19, 2014, it has already started its equity incentive plan, and at that time, its stock price was $68. For Baidu, it also started its equity incentive plan since its IPO in America in August 7, 2005. However, for Tencent, the situation is not the same. Tencent listed in HKEx in June 2004, but it just started the equity plan in 2011 (https://zhuanlan.zhihu.com/p/25248376, 2017/4/15). The results of the policies are different in these three companies, so in this research we will try to find out the differences of the equity incentive systems and also the results they led to.

1.2 Significance of the research

The main purpose of an equity incentive system is for companies to motivate their employees, and employee motivation both to stay and to perform is important for an entrepreneurial firm to manage costs, stabilize the organization, and provide organizational legitimacy (Cooper and Folta, 2000; Greiner, 1998; Reynolds, 1987). However, the equity incentive system is only being used in China for about 10 years, and its policies and practices of are not so perfect.

Alibaba, Baidu and Tencent, as the largest High-Tec enterprises in China, have already been applying this strategy for few years. If their strategies have benefited the growth of the firm performance has very important significance for other companies.

Through analyzing the differences of the equity incentive systems of these three companies, we can also find some characteristics of each type of equity incentive method, and then other similar companies can learn from that and design an equity incentive plan that will suit them.

1.3 Research questions

In this research, we will mainly focus on three questions. First, to what extent the equity incentive compensation system influences the performance of Alibaba group? Second, what are the differences between the equity incentive compensation systems in Alibaba and other two companies in the same industry? Third, what are the advantages and disadvantages of the equity incentive compensation systems in these three companies?

1.4 Structure of the thesis

In this research Alibaba, Baidu and Tencent are chosen as the main study subjects. The dissertation can be divided into four parts.

The first part is the introduction, and in this part the background and the significance of the research are introduced as well as a brief introduction of Alibaba, Baidu and Tencent.

The second part is about the theoretical review, and in this part the concept of equity incentive system will be introduced as well as what early research thinks about the relationship between the equity incentive system and the growth of the company, and the evaluation method of the influence of the equity system.

In the third part, the research method will be introduced and the reason to use it will be explained as well as data collection.

In the forth part, an analysis about the relationship between the company growth and

the equity incentive system in BAT will be made and the differences between the equity incentive systems in these three companies will be compared.

In the final part, a conclusion about the research findings will be made, and the limitation and prospects for future research will be presented.

2. Theoretical review

With the literature review we aim at knowing what an equity incentive compensation system is, and the relationship between the equity incentive system and the firm performance. This chapter will focus on the definition of the equity incentive compensation system.

2.1 Equity Incentive Compensation system

Equity incentives are a form of providing long-term incentives for employees. The enterprise will give employees part of the shareholders' equity, so that it forms a community of interests with the enterprise, so as to achieve its long-term goal. Equity based compensation is a form of employee compensation regarding the employee's effort, with payment in company shares or employee stock options (ESOs) (Ittner et al., 2003). Equity-based compensation (EBC) plans were traditionally used by companies to reward their top management and key employees and to align the interests of these employees with those of shareholders (Frye, 2004). Equity-based compensation such as restricted stock grants and options are increasingly common, not only for CEOs and other top executives, but also for business unit managers and other non-C-suite employees (Oxley, 2015). It is a long-term incentive mechanism that for enterprises to encourage and retain their core talents. The initial thrust of the literature that analyzes the effect of managerial ownership on the company performance was that: greater managerial ownership benefits shareholders because it increases managers' incentives to increase firm value (Jensen and Meckling, 1976; Morck et al, 1988; Stulz, 1988).

Equity-based compensation plans include employee stock option plans, employee stock purchase plans and restricted stock plans (Frye, 2004).

Employee stock options are tax deductible and hence are able to generate substantial

non-debt tax shields (Chang et al, 2013). Non-executive employee stock options can enhance cooperation among employees and induce mutual monitoring among co-workers (Hochberg and Lindsey, 2010).

Employee Stock Purchase Plan (ESPP) is a company-run program in which participating employees can purchase company shares at a discounted price. Employees contribute to the plan through payroll deductions, which build up between the offering date and the purchase date. At the purchase date, the company uses the accumulated funds to purchase shares in the company on behalf of the participating employees. The amount of the discount depends on the special plan but is typically set at 15% of the market price (Babenko and Sen, 2010). ESSP and the employee stock option plans are different, in employee stock purchase plans (ESPPs), is less of a concern because employees could elect to sell those shares at any time (Bova, 2013). Also, normally the ESSP are open to every employee in the company, but the employee stock option plans are mostly given to senior level employees (Babenko and Sen, 2010).

2.2 Motivation theories

The topic of employee motivation plays a central role in the field of management—both practically and theoretically (Steers et al, 2004). The theory of motivation is the guiding theory of how to design incentive programs. Here we will explore the nature of the equity incentive system through two important motivation theories, Maslow's need theory and Frederick Herzberg's two-factor theory.

1) Need theory

Psychologist Abraham Maslow first developed his famous theory of individual development and motivation in the 1940's. Five levels typically represent Maslow's motivation theory:

Physiological needs – such as hunger, thirst and sleep.

Safety needs – such as security, protection from danger and freedom from pain.

Social needs – sometimes also referred to as love needs such as friendship, giving and receiving love, engaging in social activities and group membership.

Esteem needs – these include both self-respect and the esteem of others. For example, the desire for self-confidence and achievement, and recognition and appreciation.

Self-actualization – This is about the desire to develop and realize your one's potential and to become everything one can be.

In each level, there is always a demand for the higher position. Specifically Maslow theorised that people have five types of needs and that these are activated in a hierarchical manner. This means that these needs are aroused in a specific order from lowest to highest, such that the lowest-order need must be fulfilled before the next order need is triggered and the process continues (Kaur, 2013). For most people, the work and return in a given social organization is the main way to meet their inner needs. These inner needs are met again and again, and the satisfaction of the main needs that people do not meet will determine their motivation and behavior.

However, the equity incentive policy can provide employees with a large amount of financial reward, and also can provide them with a sense of successful, which can be a non-financial reward. Through the equity incentive policy, employees can have some benefits from the increase of the firm value, and the increase of the firm value can be influenced by the daily jobs of employees. This can make employees feel that they are making contributions to the company.

2) Two-factor theory

In 1959, Frederick Herzberg, a behavioral scientist proposed the two-factor theory or the motivation-hygiene theory. According to Herzberg, there are some job factors that result in satisfaction while there are other job factors that prevent dissatisfaction. Based on individual responses to questions as to what provides them with the most memorable instances of happiness or unhappiness at work, people tend to indicate two different sets of factors, one contributing to happiness, the other to unhappiness (Mailer, 1981).

In his theory, Herzberg (1959) thinks that the employees will be influenced by two main factors, that is, hygiene factors and motivators. The hygiene factors are related with the basic needs of life, like safe, fair treatment while the motivators mean those factors that can improve employees' satisfaction and passion.

Obviously, employees cannot live and feel safe if they do not have a basic salary, so we can consider the basic salary as a hygiene factor. About the incentives, employees have already regarded the normal financial reward as a natural thing, without that employees will not be happy, so the normal financial reward can also be part of the hygiene factors, and a higher reward can bring a higher passion for employees in their daily work, so it also has some features of the motivation factors. However, the normal financial reward is a short-term motivation, while the company should have a long-term motivation plan to make employees have more passion. In this regard the equity incentive system is the best way for the long-term motivation since employees will become owners of their company. So the two-factor theory seems to support the need for companies to have an equity incentive system.

2.3 Employee equity and firm performance

About the relationship between employee equity and firm performance, many researchers have already studied this problem. Some of them think that employee equity ownership will influence firm performance or company growth, but others do not agree with this opinion.

2.3.1 Employee equity ownership will influence the firm performance of the company

Berle and Means (1932) found that when the company's equity concentration is low, top managers will focus on pursuing their personal interests if they just have a small amount of stake or even when they do not have. So they will not firstly consider the benefit of the shareholders. However, if the amount of managers' stake is high, the interests of the top managers and the shareholders will become more and more similar, and top managers will also work for the benefit of the whole company. Firms with unexpectedly high levels of option incentives exhibit significantly higher levels of firm performance. The results hold for both executives and employees (Hillegeist, 2003).

Morck, Shlesfer and Vinshny (1988) made a research about 371 firms, "we examine the reduced-form relationship between management ownership of the firm's equity and the market valuation of its tangible assets in a cross-section of 371 1980 Fortune 500 firms. Tobin's Q (The Tobin's Q ratio is a ratio devised by James Tobin of Yale University, Nobel laureate in economics, who hypothesized that the combined market value of all the companies on the stock market should be about equal to their replacement costs. The Q ratio is calculated as the market value of a company divided by the replacement value of the firm's assets) rises as board ownership increases from 0% to 5%, falls as ownership rises further to 25%, and then continues to rise, although much more slowly, as board ownership rises beyond 25%." From this result, we can see that Tobin's Q can be regarded as the enterprise value, so if the employee shareholding ratio is in 0-5%, this amount will have a positive influence on the performance of employees, and then it will bring an increase on the enterprise value. However, if the employee shareholding ratio is between 5%-25%, the influence will be negative. And if the ratio is higher then 25%, it will also have a positive influence, but the influence will be lower then before.

Meconnell (1990) also got a similar result from his research. In his research, he explored the relation between corporate value and the structure of equity ownership. He found a strong curvilinear relation between Tobin's Q and the fraction of shares owned by corporate insiders. At low levels of insider ownership, the relation is strongly positive. Depending on the period considered, the relation between Q and insider ownership ranges from one-to-one to as high as three-to-one. At high levels of insider ownership, the relation between Q and insider ownership is negative, but the downward pull is relatively muted. Additionally, he found a strong positive relation between Q and the fraction of shares held by institutional investors. Finally, when block ownership is entered separately as an independent variable, he found no significant relation between Q and several alternative specifications of block-holder ownership.

In China, some researchers also pursued this issue. Huang and Dai (2005) made a research about the equity incentive compensation systems in 53 High-Tech companies, and got the conclusion that the employee shareholding ratio can significantly affect company performance, and that a higher employee shareholding ratio can lead to a higher company performance. Shen and Niu (2003) have a more specific research. They found that the employee shareholding does not have a significant relationship with the net income and earning per share of the company, but the employee shareholding ratio can have a significant positive relationship with the earning per share of the company. They got the conclusion that increasing employee shareholding ratio can effectively reduce moral hazard. Zhe, Yang and Xu (2013) also got the result that equity incentive benefits contribute to the growth of the firm value through a research about 75 listed companies in Shanghai and Shenzhen stock exchange (Anhui province).

2.3.2 Employee equity ownership will not influence the firm performance of the company

Jensen and Murphy (1990) made a regression analysis about 1,049 companies, and they got the result that if the enterprise value increases by $1,000, temployees can just get $3.25 from the equity incentive compensation, so the equity incentive compensation system cannot provide an enough incentive for employees. Demsetz and Villalonga (2001) also hold the opinion that ownership structure cannot influence the firms' performance and reduce the agency costs. We find that managerial ownership does not create or destroy value. In contrast to previous UK or US findings, we show that the relationship between firm value and managerial ownership is weak or nonexistent (Faccio and Lasfer, 1999).

In China, some researchers share this opinion too. Huawei Zhao (2016) made a research based on the statistics about Chinese listed companied in 2006-2014, and he found that the equity incentive compensation system in these companies does not have a significant influence on firms' performance, but he thinks that one of the reasons is that China's capital market is not that perfect, and that such a macro environment will also affect the implementation of equity incentive system to a certain extent. Chen and Yang (2016) also made a research about 32 listed companies that had implemented equity incentives in the year of 2008-2009 to test the relationship between the equity incentive and corporate performance, and they got the conclusion that China's capital market is not mature enough and a variety of systems is not standardized, so market value does not reflect the true operating results of companies. In this case incentives are likely to result in the manager' pursuit of stock prices, and the formation of manager's short-term behavior. How to evaluate if the equity incentive compensation system works

2.3.3 The effectiveness of the system

The effectiveness of the incentive compensation system depends on whether employees can do the actions according to the interests of shareholders, reduce the cost of the enterprise effectively, increase the performance of the enterprise，and ultimately enhance the value of the company.

However, the final goal of the incentive compensation system is to align the goals of the employees and shareholders and get a maximum stock value of the enterprise. So the shareholder value is an important point to evaluate the effectiveness of the incentive compensation system. In addition the shareholder value has a positive correlation with the enterprise value, so we can regard the enterprise value as a measure of effectiveness. Xiao (2003) also thought that the standard of the effectiveness should be the size of shareholder utility, and because the shareholder utility has a positive linear relationship with firm value, we can consider firm value as the standard to value the effectiveness of the equity incentive compensation system.

From the perspective of the company operator, the enterprise value can be shown on the company's total assets deducted from current liabilities while from the perspective of the shareholders of the company, the enterprise value can be shown on the equity value or the assets of the company.

2.3.4 The factors that will influence the system

Not only the strength of equity incentives, but also the nature of enterprises and capital structure can influence the effectiveness of the equity incentive system. Without considering other factors, the implementation of equity incentives in state-owned enterprises is better than in non-state enterprises. This may be because the low asset-liability ratio of the implementation of the enterprise equity incentive may help reduce agency costs (Wang et al, 2013).

Fama (1964) made a development of the efficient-market hypothesis. He thought that if the market can reflect the information about the stock price exactly, the market is effective. Although Fama's research is not for the equity incentive system, it can tell us that the more effective the market is, the more exact the stock price can reflect the firm value, and the equity incentive system will also be more effective. Tian and Jihnson (2000) also thought that different types of equity incentive methods will have different effectiveness, so it is very important to choose a right type of method for a specific company.

3. Methodology

The aim of this chapter is to introduce the reason why the quantitative analysis method was chosen for this study. Additionally, the process of data collection will be explained, and how analyzed. In order to gain a more detailed understanding of the incentive compensation system of Alibaba, this research compares the incentive compensation systems of Alibaba with some other enterprise in the similar area.

3.1 Research method

Quantitative methods use complex statistical and mathematical data to measure social phenomenon or understand behavior. These methods are deductive and generalizing, from general to detail. They can be used in interpreting causal and statistical relationships through hypotheses (Babbie, 2010). These methods are usually employed in research with some samples and when it is easy to find generalizable data. However, the quantitative methods are not suitable in such cases that are not simply measurable by numbers (Silverman 2005).

Quantitative analysis is a method to analyze the quantitative changes in social phenomena. In enterprise management, quantitative analysis is based on corporate financial statements as the main source of data, according to a mathematical approach to processing and finishing, and finally gets the enterprise credit results. Quantitative analysis is the use of mathematical models of investment analysts to quantify the company's data analysis, through the analysis of the company to give evaluation and make investment judgments. The main objects of the quantitative analysis are the financial statements, such as the balance sheet, income statement, retained earnings and so on. Its function is to reveal and describe the interaction and development trend of social phenomena.

3.2 Research design

In this research, the main purpose is to compare the equity incentive compensation system of Alibaba with some other enterprise in the similar area. In this case, we will choose Baidu and Tencent as the other two companies. And also, we will have 4 steps to make this study.

Firstly, we will make a brief introduction of the stock incentive compensation system in these three companies. Secondly, the effectiveness of the incentive compensation system can be judged mainly from the stock value, the return on equity and earn per share (EPS), so in this step, we will measure the effectiveness of the system with these concepts. Then thirdly, depending on the results on step 2, we will make an analysis about the advantages and disadvantages of the incentive compensations in the three companies. Finally, we will make a conclusion with the findings in the research.

3.3 Data collection

In this research, we will mainly use the statistics of the earning per share, total assets, revenue and some data about the equity incentive compensation of few years about Alibaba, Baidu and Tencent. Because Alibaba and Baidu ware listed in New York, so the statistics about these two companies will be mainly drawn from US Securities and Exchange Commission. However, Tencent is listed in Hong Kong, so the statistics about Tencent will mainly from the Hong Kong Exchanges and Clearing Limited (HKEx).

3.4 Data Analysis

In the data analysis, we will choose Spearman's correlation coefficient for ranking data as my main method. Spearman's rank correlation coefficient is a nonparametric (distribution-free) rank statistic proposed by Charles Spearman as a measure of the strength of an association between two variables (Hauke and Kossowski, 2011). The

Spearman rank correlation coefficient can be a useful tool for exploratory data analysis. Potential applications are numerous (Gauthier, 2001). Spearman's correlation coefficient is mainly used to solve the problem of named data and sequential data. It is usually applicable in two columns of variables, and with the nature of the level of variables with a linear relationship between the data.

In this research, the reason why we choose this research method is that we will have to measure if the stock incentive compensation system works with many company's market value indicators.

4. Analysis

4.1 The Equity Incentive Compensation system in BAT

4.1.1 Alibaba group

Many entrepreneurs think about how to establish their own long-term incentive system, however, Alibaba Group has developed its own equity incentive system at a early time. After Ma and other high-level managers' development and research, Alibaba Group published a "Restricted shares unit plan" in 2014, employees get restricted shares each year, which aimed at being conducive to maintaining the stability of the team, and the enthusiasm of the staff. Whether in the listed Alibaba network or in the unlisted Alibaba Group, restricted shares unit plan is thought to be an important means of retaining their talent.

The restricted shares unit is essentially a stock or option. After the employee receives the restricted shareholding unit, he will get the benefit from that after one year. Each of the restricted shares issued by the unit is divided into four years in place, granted 25% per year. The number of restricted shares held by employees increase as a result of the annual bonus issue of new restricted shares. Because of this way of rolling increases, Alibaba Group employees will always have a part of the options that have not yet exercised, and thus help the company to retain employees.

According to the file that Alibaba submitted to the U.S. Securities and Exchange Commission (SEC), since its inception in 1999, Ali has provided the current and former staff with a total of 26.7% stake as stock incentive compensation. According to Alibaba's stock value at that time, which is 68 dollars per share, and Alibaba's market value of 167.3 billion US dollars, Alibaba's IPO in September, 2014 could bring about $ 45.7 billion in wealth for their employees.

Alibaba still has its own stock incentive compensation system after its IPO in 2014.

The detailed Share-based compensation expense is shown in table 1.

Table 1 Share-based compensation expenses in Alibaba (in thousand, USD)

	Share-based compensation expense	Revenue	% Of Revenue
2013	659	18,754	3.5%
2014	4,313	26,179	16.4%
2015	4,370	34,543	12.6%
2016	3,744	53,248	7.0%

Source: https://www.sec.gov/, 2017/5/2

From the table we can see that in 2013, before its IPO, Alibaba's share-based compensation expense is just 659 million RMB, which takes 3.5% of revenue, but after its IPO, from 2014, its share-based compensation expense increases to a large amount, 4,313 in 2014, 4,370 in 2015 and 3,744 in 2016. However, because of the increase in revenue, the percentages of revenue are not the same in these three years; they decreased from 16.4% to 12.6% in 2015, and decreased again to 7.0% in 2016.

So Alibaba has a high proportion of employee holdings, reflecting the essence of sharing in the Internet business. So, when join this kind of companies, timing is very important, and for example the staff from last year may have much more options than employees at the same level from this year.

4.1.2 Tencent

Tencent chooses the type of stock option incentive as its main stock incentive compensation method. The company has adopted four shareholding schemes, namely, the shareholding scheme before IPO, the shareholding scheme after IPO I, the shareholding scheme after IPO II and the shareholding scheme after IPO III. The shareholding scheme before IPO and the shareholding scheme after IPO I expired on

31 December 2011 and 23 March 2014 respectively.

When listed in HKEx in June 2004, Tencent's issue price was only 3.7 Hong Kong dollars. In accordance with this price, Tencent's executives gave birth to five billionaires, seven millionaires. Tencent's CEO Ma Huateng holds 14.43% stake and has a net worth of 898 million Hong Kong dollars (https://zhuanlan.zhihu.com/p/25248376, 2017/4/15).

In December 2007, Tencent announced the intention to retain and attract talent through an equity incentive plan. Within 10 years of validity, the total number of shares granted by the Group did not exceed 2% of the issued share capital, and the maximum number of shares granted to the awarding individuals is no more than 1% of the issued share capital.

By 2013, the above-mentioned equity incentive plan has been expanded to a maximum of 3% from 2% of the issued share capital. It is reported that, including the project manager, director, including more than a thousand grassroots cadres were included in the new reward range.

During this period, Tencent also had several equity incentives, including the 2008 Board of Directors resolution awarding 101.605 million new shares to 184 employees and the 818.118 million shares awarded in 2009 to 1250 employees,. Tencent employees were then about 5000 people, so equity incentive employees accounted for nearly a quarter. Until 31 December 2006, the directors of the Company still had a total of 11,250,000 outstanding options (http://www.hkexnews.hk/index_c.htm, 2017/5/2).

Table 2 Share-based compensation expenses in Tencent (in thousand, HKD)

Date of grant	Mar.24, 2010	Mar.25, 2014	Mar.21, 2016	In total
Jan.1, 2016	5,000,000	5,000,000	----------	10,000,000

Granted in the year	----------	----------	3,750,000	3,750,000
Exercised in the year	2,500,000	----------	----------	2,500,000
Dec.31, 2016	2,500,000	5,000,000	3,750,000	11,250,000
Exercise price	31.70	114.52	158.10	
Exercise date	2015-2020	2015-2021	2017-2023	

Source: http://www.hkexnews.hk/index_c.htm, 2017/5/2

Compared to the option, Tencent is more willing to pay cash to employees. In this type of Internet Company, the entrepreneurial atmosphere will be lighter and staff is more similar to professional managers in their company's daily work.

4.1.3 Baidu

The stock incentive compensation strategy in Baidu is just similar to that in Tencent. Baidu also chooses stock option incentive as its main method. However, there are still many differences if compared with Tencent in the amount of the incentive.

Table 3 Share-based compensation expenses in Baidu (in thousand, USD)

	Share-based compensation expenses	Total revenues	% Of Revenue
2004	16,510	117,451	14.1%
2005	33,571	319,215	10.1%
2006	48,280	837,838	5.8%
2007	39,848	1,744,425	2.3%
2008	83,977	3,198,252	2.6%
2009	86,318	4,447,776	1.9%
2010	93,736	7,915,074	1.2%
2011	152,028	14,500,786	1.0%
2012	212,309	22,306,026	1.0%

2013	514,727	31,943,924	1.6%
2014	962,740	49,052,318	2.0%
2015	1,759,988	70,549,364	2.5%
2016	1,387,118	66,381,729	2.1%

Source: https://www.sec.gov/, 2017/5/2

Baidu was listed in Nasdaq, in the USA in August 2005, and from the Table we can see that before that time, in 2004, the share-based compensation expenses of the company is 16,510 thousands RMB, representing 14.1% of revenue. Then after that, the share-based compensation expenses are always rising, but the percentages of revenue are decreasing until 2012, which is only 1.0%. From 2012 to 2015, the percentages are rising again, from 1.0% in 2012 to 2.5% in 2016.

The largest decrease is in 2006, from 10.1% to 5.8%. In the same year, in July 10, 2006, Baidu made many layoffs in the enterprise, which shocked the Chinese Internet community. Baidu dissolved the Enterprise Soft Division (ES) and lay-offed 30 employees within 4 hours in the same day. The layoff ratio was about 1.3%. However, it is noteworthy that the Enterprise Soft Division was abolished in an early time, and most of the employees have a high annual salary. More importantly, a large part of people have options which are more than 4000 shares, and these employees only cashed a small part of the options at that time.

4.2 Relationship between equity incentive system and firm performance

4.2.1 Alibaba

Alibaba has already applied the equity incentive system since it was listed in America, and here is the data about the total share-based compensation expense, diluted earnings per share, total assets and the revenue increase:

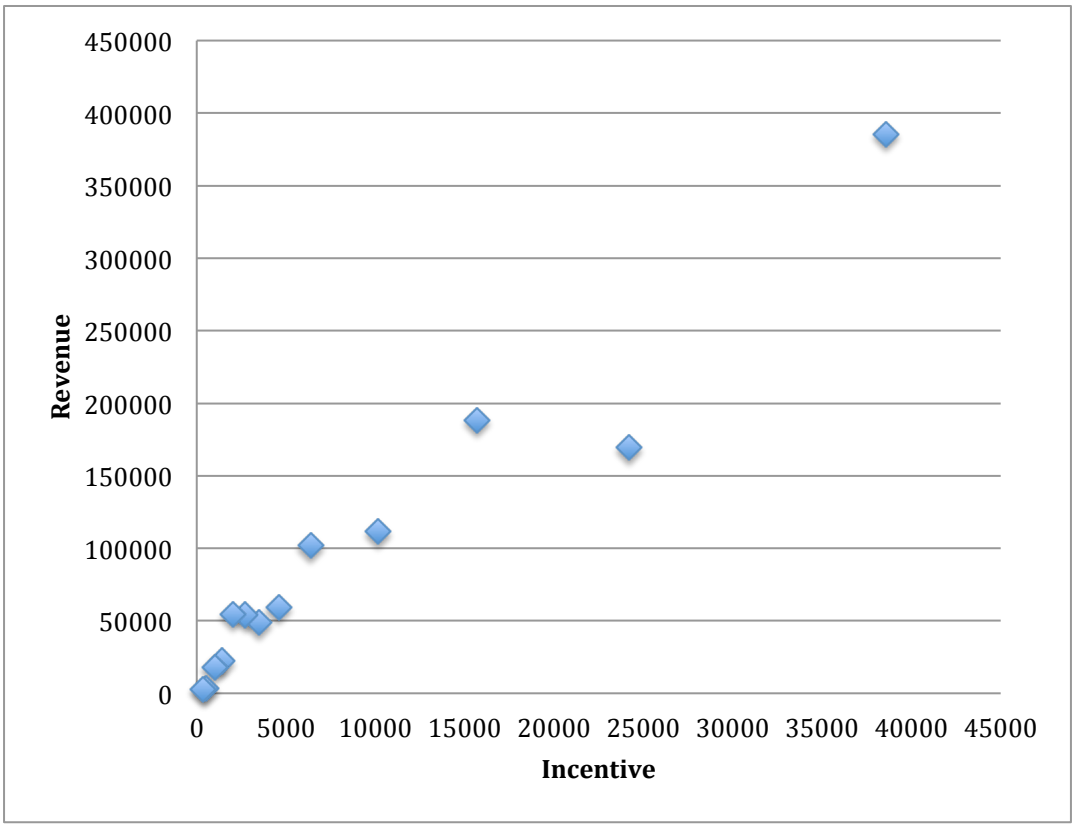
Table 4 Equity incentives and firm performance in Alibaba

	EPS (USD)	Incentive (In thousand, USD)	Total assets (In thousand, USD)	Revenue (In thousand, USD)
2017.03	4.12	385790	506812	38579
2016.12	6.94	169288	490866	24184
2016.09	2.97	188447	456402	15704
2016.06	2.94	111447	409970	10132
2016.03	2.11	101953	364245	6372
2015.12	4.9	59595	364671	4584
2015.09	8.87	48620	327758	3473
2015.06	11.92	54264	282060	2713
2015.03	1.12	54669	255434	2025
2014.12	2.29	22342	269993	1396
2014.09	1.24	17954	232342	997
2014.06	5.2	3491	161193	499
2014.03	2.37	2955	111549	369

Source: https://www.sec.gov/, 2017/5/2

From this Table we can see that the EPS has a highest point in 2015.06, which is 11.92, and in this period the percentage of revenue about total share-based compensation expense was also the highest, which is 20%. However, the highest revenue point was in 2017.03, and the percentage of revenue about total share-based compensation expense in this period was just 10%.

Figure 1 Scatter plot of Alibaba



After we made the scatter plot analysis between the EPS and revenue in Excel, we got figure 1, and we can see the relationship between the equity incentive and revenue in each year. Generally, there is a weak relationship between these two factors, so we try to make the Spearman's correlation coefficient analysis between these statistics, to see if we can find some relationships.

Table 5 Linear relationship ratio in Alibaba

Correlations (N=13)

			EPS	Incentive	Total assets	Revenue
Spearman's rho	EPS	Correlation Coefficient	1.000			
		Sig. (2-tailed)	.			
	Incentive	Correlation Coefficient	-.386	1.000		
		Sig. (2-tailed)	.193	.		

	Total assets	Correlation Coefficient	.319	-.251	1.000	
		Sig. (2-tailed)	.289	.409	.	
	Revenue	Correlation Coefficient	-.033	-.212	.720**	1.000
		Sig. (2-tailed)	.915	.487	.006	.

**. Correlation is significant at the 0.01 level (2-tailed).

From the analysis in SPSS, we got the data in table 5. In the significant part of the statistics in % of revenue and other three groups, the Sig. (2-tailed) is 0.714 between EPS and % of revenue, and 0.537 between total assets and % of revenue, and 0.834 between revenue increase and % of revenue, and 0.193, 0.409 and 0.487 are all larger than 0.05, so there is no linear relationship between % of revenue and other three variables.

After calculating the Spearman's correlation coefficient of the percentage of revenue about total share-based compensation expense and other data in SPSS, we also find that the ratio between the EPS and the percentage of revenue about total share-based compensation expense is -0.382, and for the total assets and the percentage of revenue about total share-based compensation expense is -0.252. For the revenue increase and the percentage of revenue about total share-based compensation expense is -0.282. And the average of these is -0.282.

From these statistics, we can find that the linear relationship between the percentage of revenue about total share-based compensation expense and diluted earnings per share, total assets and the revenue increase is not related. What is more, the diluted earnings per share, total assets and the revenue increase can reflect the firm performance, so the linear relationship ratio between firm performance and equity incentive policy is very small, that is, from these statistics we can get the conclusion that the equity incentive system in Alibaba is not related with firm performance.

However, because Alibaba group was listed in the US just in 2014, we can only find the exact statistics about its equity incentive plan since its IPO, so this can be a limitation for this research. In addition other company strategies can also influence the result of the firm performance.

4.2.2 Tencent

Tencent applied its equity incentive plan since 2008, and here are the statistics about its EPS, shares held by the plan, total assets and revenue in 2007-2016.

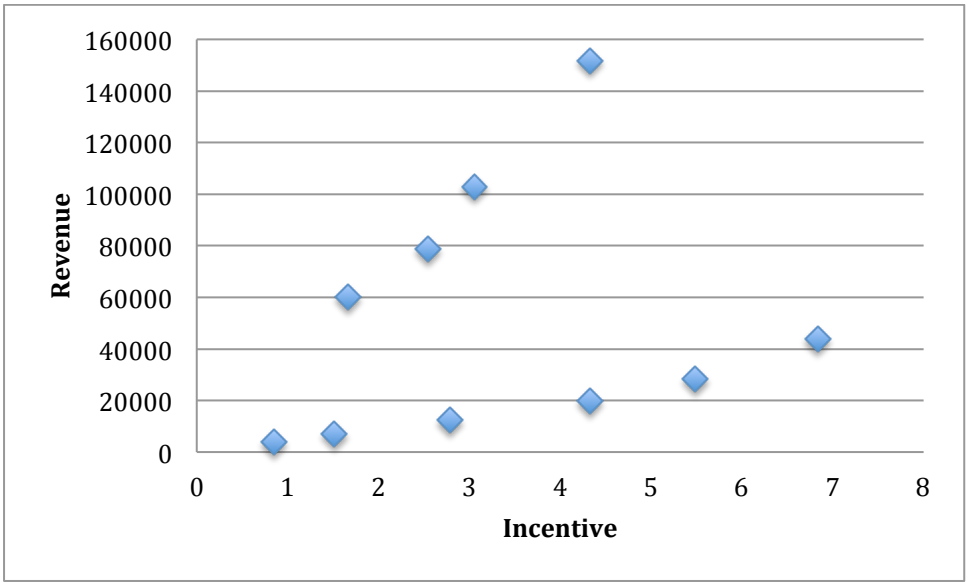
Table 6 Equity incentives and firm performance in Tencent (in thousand, HKD)

	EPS (HKD)	Shares held by the plan	Total assets	Revenue
2016.12.31	4.329	3136	395899	151938
2015.12.31	3.055	1817	306818	102863
2014.12.31	2.545	1309	95845	78932
2013.12.31	1.66	871	53549	60347
2012.12.31	6.833	667	75256	43893
2011.12.31	5.49	607	56804	28496
2010.12.31	4.328	258	35830	19646
2009.12.31	2.791	124	17506	12440
2008.12.31	1.514	22	3360	7155
2007.12.31	0.853	0	2090	3821

Source: http://www.hkexnews.hk/index_c.htm, 2017/5/2

From the table we can see that in Tencent, the shares held by the plan, total assets and the revenue were always rising with a similar speed. However, there is an important point for the EPS in 2013: it suddenly decreased from 6.833 to 1.66.

Figure 2 Scatter plot of Tencent



After making the scatter plot analysis between the EPS and revenue in Excel, figure 2 was obtained and we can see the relationship between the equity incentive and revenue in each year. Generally, the relationship between these two factors is very similar to a linear relationship, so the Spearman's correlation coefficient analysis between these statistics will be used to see if some relationships can be found.

Table 7 Linear relationship ratio in Tencent

Correlations (N=10)

			EPS	Shares	Total assets	Revenue
Spearman's rho	EPS	Correlation Coefficient	1.000			
		Sig. (2-tailed)	.			
	Shares	Correlation Coefficient	.455	1.000		
		Sig. (2-tailed)	.187	.		
	Total assets	Correlation Coefficient	.612	.964**	1.000	
		Sig. (2-tailed)	.060	.000	.	

Revenue	Correlation Coefficient	.455	1.000**	.964**	1.000
	Sig. (2-tailed)	.187	.	.000	.

**. Correlation is significant at the 0.01 level (2-tailed).

From the analysis in SPSS, we got the statistics in table 7. In the significant part of the statistics in Shares held by the plan and other three groups, the Sig. (2-tailed) is 0.522 between EPS and Shares held by the plan, and 0.000 between Total assets and Shares held by the plan, and 0.000 between Revenue and Shares held by the plan， and 0.000 and 0.000 are all less than 0.01, so there is a strong linear relationship between Shares held by the plan and these two variables.

After calculating the Spearman's correlation coefficient of the shares held by the plan and other data in SPSS, we found that the ratio between the shares held by the plan and the EPS is 0.455, and the ratio between the shares held by the plan and the total assets is 0.964, while the ratio between the shares held by the plan and the revenue is 1.000. These ratios tell us that there is a strong linear relationship between the shares held by the plan and total assets, as well as with revenues, but the ratio between shares held by the plan and the EPS is not that large.

However, according to the sharp decrease of EPS in 2013, we tried to calculate the linear relationship ratio separately, that is, calculate the ratio from 2007 to 2012, and the ratio from 2012 to 2016. Finally, we get the ratio from 2007 to 2012, which is 0.97, and the ratio from 2012 to 2016 is 0.99, so we can also find that there is a strong relationship between the EPS and the shares held by the plan considering that the average of the ratio is 0.98. Since EPS, total assets and revenue can reflect firm performance, the linear relationship ratio between firm performance and the equity incentive policy in Tencent is also quite large, that is, the equity incentive plan has a great influence on firm performance, and their relationship is positive.

Concerning the sharp decrease of EPS in 2013, the main reason for that is that Tencent applied a stock split plan in May 15, 2013. Tencent split 1 stock in 5 stocks at

that time, so the stock price as well as the EPS also decreased to one-fifth in that year, which caused the weak linear relationship between the EPS and the shares held by the plan.

4.2.3 Baidu

Baidu also applied its equity incentive plan since it's IPO in 2005, just the same as Alibaba. However, the result in Baidu is not the same as that in Alibaba. Here are the statistics about its EPS, share-based compensation expenses, total assets and revenue from 2005-2016.

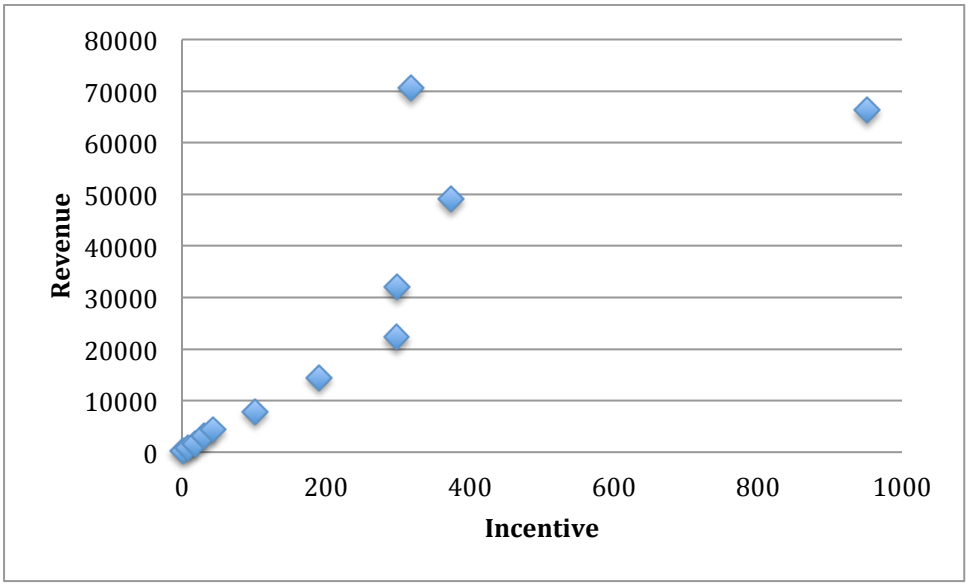
Table 8 Equity incentives and firm performance in Baidu (in thousand, USD)

	EPS (USD)	Share-based compensation expenses	Total assets	Revenue
2005	1	33,571	1136	319
2006	8	48,280	1668	838
2007	18	39,848	2656	1744
2008	30	83,977	3938	3198
2009	43	86,318	6157	4447
2010	101	93,736	11048	7915
2011	190	152,028	23341	14501
2012	298	212,309	45669	22306
2013	299	514,727	70986	31944
2014	373	962,740	99661	49052
2015	951	1,759,988	147853	66382
2016	318	1,387,118	181997	70549

Source: https://www.sec.gov/, 2017/5/2

From the statistics we can see that the dates of EPS, the total assets and the revenue ware keep rising from 2005 to 2016, but for the share-based compensation expenses, it has a decrease in 2007, from 48,280 to 39,848, and a decrease in 2016, from 1,759,988 to 1,387,188. However, except these two years, the share-based compensation expenses ware also increasing these few years, and the largest increase was in 2013, from 212,309 to 514,727, increased by 142%.

Figure 3 Scatter plot of Baidu



After we made the scatter plot analysis between the EPS and revenue in Excel, we got figure 3, and we can see the relationship between the equity incentive and revenue in each year. Generally, the relationship between these two factors is very similar to a linear relationship, so we try to make the Spearman's correlation coefficient analysis between these statistics, to see if we can find some relationships.

Table 9 Linear relationship ratio in Baidu

Correlations (N=12)

			EPS	Shares	Total assets	Revenue
Spearman's rho	EPS	Correlation Coefficient	1.000			

		Sig. (2-tailed)	.			
	Shares	Correlation Coefficient	.986**	1.000		
		Sig. (2-tailed)	.000	.		
	Total assets	Correlation Coefficient	.979**	.986**	1.000	
		Sig. (2-tailed)	.000	.000	.	
	Revenue	Correlation Coefficient	.979**	.986**	1.000**	1.000
		Sig. (2-tailed)	.000	.000	.	.

**. Correlation is significant at the 0.01 level (2-tailed).

From the analysis in SPSS, we got the statistics in table 9. In the significant part of the statistics in Share-based compensation expenses and other three groups, the Sig. (2-tailed) is 0.000 between EPS and Share-based compensation expenses, and 0.000 between Total assets and Share-based compensation expenses, and 0.000 between Revenue and Share-based compensation expenses, and 0.000, 0.000 and 0.000 are all less than 0.01, so there is a strong linear relationship between Share-based compensation expenses and the other three variables.

After calculating the Spearman's correlation coefficient of the share-based compensation expenses and other statistics in SPSS, we found that the linear relationship ratio between the share-based compensation expenses and the EPS is 0.986, and the linear relationship ratio between the share-based compensation expenses and the total assets is 0.986, and the linear relationship ratio between the share-based compensation expenses and the revenue is 0.986. And the average of the ratio is 0.986.

These ratios tell us that there is a strong linear relationship between the share-based compensation expenses and EPS, the total assets and the revenue. As the EPS, the total assets and the revenue can reflect the firm performance well, in Baidu, the relationship between the share-based compensation expenses and the firm performance is strong. In other word, the equity incentive compensation plan in Baidu can be related with the firm performance.

4.3 Differences between BAT

After doing the linear relationship analysis between the equity incentive compensation policy and the firm performance of Alibaba, Baidu and Tencent, we found that the relationship in Alibaba is much weaker than that in Baidu and Tencent, and we may even question whether the equity incentive policy in Alibaba is related to the firm performance at all. There are some reasons that may influence these results as we exlain below.

Figure 4 Stock price of Alibaba

Source: http://www.marketwatch.com/investing/stock/baba, 2017/5/20

Firstly, the stock price fluctuation can influence the result of the equity incentive policy. From the figure we can see the stock price fluctuation since its IPO in 2014, and that the stock price increased from $93.98 to $123.49. In addition the stock price in these few years has not been that stable.

Figure 5 Stock price of Tencent

Source: https://www.bloomberg.com/quote/700:HK, 2017/5/20

However, Tencent's stock price fluctuation is totally different from Alibaba's. In Tencent the stock price was always increasing since its IPO in 2013, and has increased from 42.8 HK dollar to 278.0 HK dollar.

Figure 6 Stock price of Baidu

Source: http://www.marketwatch.com/investing/stock/baba, 2017/5/20

In Baidu, the stock price fluctuation is also much more stable than that in Alibaba. The stock price of Baidu also increased from $9.5 to $192.34 since it applied its equity incentive plan.

If the equity incentive policy works well, it can motivate employees in the company and they will do their best to make the firm profitable. It will also increase the firm performance, and influence positively the stock price of the company.

However, the stock price can also influence the effect of the equity incentive system. If the stock price of the company can have a large increase every year stably, employees will also get more benefits from the incentive equities, but from the figures above we can see that Alibaba's stock price fluctuation is not so good, which may have negatively influenced its equity incentive system..

Secondly, the size of Alibaba group is much larger then the other two companies, Baidu and Tencent. For Alibaba, there are more factors that can influence firm performance then Baidu and Tencent.

Thirdly, in Alibaba, all of the employees have stocks of the company as it applies an All Employee Stock Ownership Plan. However, in Tencent, just 17% of the employees in the company hold the stock and in Baidu, the employee equity benefits are mainly concentrated in the hands of those from the early days of business. During its IPO, Baidu employees held a total of 9.2% of the company shares, but this benefit just covered a small amount of employees. After that, the equity incentive plan was mainly focused on the top managers of the company. Baidu market value over the past nine years turned 50 times, but unfortunately most of the staff didn't benefit from the growth of the company.

Fourthly, Alibaba was just listed in the USA since 2014, and only three years have until now; the equity incentive policy is not so mature in this company. However, Baidu has already been listed in the USA since 2005, that is already 12 years now, and it has been applying the equity incentive policy for about 10 years, so it knows more about how to make an equity incentive policy that best fits the company. In Tencent the situation is similar to Baidu's.

5. Discussion and Conclusion

5.1 Discussion

To answer the research questions we have found that in Alibaba the relationship between the equity incentive system and firm performance is not significant while it is significant in the case of Tencent and Baidu. Second, the main differences among the BAT companies concerning their equity incentive systems are influenced by the starting time, the incentive range and the amount of shares in the incentive plans. Third, the factors that may affect the results in Tencent and Baidu concern the stock price fluctuation, the size of the company and the length of time they have been listed.

Baidu and Tencent chose stock option plans as their main type of equity incentive policy. The deferral feature of employee stock options can effectively direct employees' attention to the firm's long-term success and encourage employees' long-term human capital investment in innovation (Rajan and Zingales 2000). Alibaba has just been listed in the USA since 2014, and it applied the restricted stock plan in that same year. However, when the agent's actions affect both the mean and the variance of the outcome, they show that restricted stock contracts are no longer necessarily optimal (Richard A. Lambert, 2004). It may not be the best choice for a newly listed company to apply a restricted stock plan. For example Microsoft applied a restricted stock plan since September 2003 but, before that, it had already applied a stock option plan for 17 years.

According to Xiao (2003) the standard of the effectiveness should be the size of shareholder utility, and because the shareholder utility has a positive liner relationship with firm value, we can consider firm value as the standard to value the effectiveness of the equity incentive compensation system. This is also the reason why I try to find the Spearman correlation coefficient of the equity incentive system and the factors that can reflect the firm performance.

Wang, Cui and Zhao (2013) consider that there are some factors that can influence the effectiveness of equity incentive system, such as the nature of the enterprise, the capital structure, and state-owned or non-state, asset-liability ratio and stock price fluctuation. However, as all of the three companies are non-state owned, we mainly compared their stock price fluctuation, size, incentive range and length of listed time.

In this research, we made an analysis of Spearman's correlation coefficient between the equity incentive system and the firm performance in BAT, and we got the result that in Alibaba, the linear relationship ratio between the equity incentive expense and the firm performance factors is 0.18, and in Tencent the number is 0.98, in Baidu it's 0.94. However, from the significance part, we can also see that there is a linear relationship between the equity incentive expense and the firm performance factors in Baidu and Tencent, but in Alibaba, there is no linear relationship between the equity incentive system and the firm performance, so the equity incentive systems in Baidu and Tencent seem to be much more effective than that in Alibaba.

In Tencent and Baidu, the linear relationship ratios are very large. According to Morck, Shlesfer and Vinshny's (1988) research, the equity incentive policy will has a positive relationship with the firm performance if employees have 0-5% shares of the company, and the relationship will be negative if employees have 5%-25% shares of the company. In Tencent and Baidu, the number is between 0-5%, but in Alibaba, the number achieved 7.1% in 2015. This may also explain why there is no relationship in Alibaba.

The incentive-performance effect is larger in smaller firms and in firms with higher opportunities and higher growth options per employee (Hochberg and Lindsey, 2007). The size of Alibaba is larger then Tencent and Baidu, so this may influence a weaker relationship. Also, firms that do not broadly grant options to non-executive employees exhibit higher operating performance than those that grant options broadly (Hochberg and Lindsey, 2007). In Alibaba, the equity incentive is for all the employees in the company, and in Baidu and Tencent, the equity incentive is mainly for the top

managers, so it is also one of the differences.

Companies need to design their equity incentive systems based on their development strategy and external development environment to play the greatest effect and then choose the right time to launch equity incentive programs. It is a complicated system to select the incentive method, to determine the incentive object and the amount of incentive, to scientifically formulate the performance evaluation index, and to strictly standardize the implementation process.

Equity incentive is a long-term incentive mechanism the company's strategic planning to achieve its goals. Therefore, the design of incentive programs must match the company's strategy (Sun and Guan, 2012). As the macro environment, industry and the stage of enterprise development are different, each enterprise development strategy is not the same. Equity incentive needs to serve this strategy, and to be designed and implemented based on it. Equity incentive is never a simple program. A successful equity incentive system should be based on specific circumstances, and should match the company's strategy and the overall salary system.

So for the newly listed High-Tech companies, it will be a better choice to apply the stock option plan in the beginning. Non-executive employee stock options, as a group incentive scheme with value determined by employees' joint effort, can enhance cooperation among employees and induce mutual monitoring among co-workers (Hochberg and Lindsey 2010). Also, the range of incentives cannot be too broad, and it will be better if the employees hold 0-5% shares of the company.

5.2 Conclusion

In this research, we introduced the current situation of the equity incentive system in China and other countries, and then we also introduced the concept of the system. The most important one is the effectiveness of the equity incentive system. Researchers have different opinions about the effectiveness of the equity incentive policy, some of

them believe that the equity incentive policy will not influence firm performance, but others think that the equity incentive policy and its effect will also depend on the situation of each company.

From my analysis, we can get a conclusion that there is no relationship between the equity incentive system and firm performance in Alibaba. However, the relationship between the equity incentive system and firm performance is very strong in Tencent and Baidu. Also, I discuss about some factors that may influence the effectiveness of the equity incentive system. They are the stock price fluctuation, the size of the company, the percentage of the employees who held the stock of the company and the listed time of the company.

The employees will get more benefits from the equity incentive policy if the stock price of the company increases more years on year. About the percentage of employees who hold the stock of the company, a very large percentage will make the effectiveness of the equity incentive system much weaker. Also, the effectiveness of the equity incentive will be weaker if the size of the company is too large.

However, these factors can also be the advantages and disadvantages for these three companies, and the reasons why the effectiveness of the equity incentive system in Alibaba is much weaker than that in Baidu and Tencent.

5.3 Limitations and Direction of Future Research

5.3.1 Limitations

In this research, we just have the statistics about Alibaba from 2014, when its IPO took place, while in Baidu and Tencent, the data covers 10 years. The reason is that these three companies are all new, and we cannot find that much statistics for them. Also because we do not have a large sample, we can just apply the Spearman's correlation coefficient analysis. In this research we choose EPS, revenue and total

assets to explain firm performance, but actually firm performance can be explained by many other factors. There is also the problem whether firm performance can explain the effectiveness of the equity incentive is worth to be researched.

In addition, the effectiveness of the equity incentive system can be influenced by many factors, but in this research we just discussed parts of them, and there are also some factors that were not mentioned. In further research, more can be found to explain the result of the system.

5.3.2 Research about the effectiveness of the equity incentive system

With the further implementation of equity incentive policies, we can find more statistics of the companies to further research about the equity incentive system. It will be more scientific and more convincing to make the research with statistics from a 20-year or even longer period.

Concerning the evaluation indicators of firm performance, this dissertation only selected quantitative indicators, but research using qualitative indicators is in the direction of my future efforts.

5.3.3 Research about constructing Reasonable Equity Incentive Mode

How to determine a reasonable incentive system to build a reasonable Equity incentive model taking in consideration the characteristics of the company, combined with the advanced experience in China and abroad, based on a comprehensive analysis of the company's existing equity incentive mechanism, based on the company's asset size, operating conditions and capital size and other specific factors is also worthy of study and will be in the direction of my future efforts.

Bibliographic References

1. Annual financial statements, https://www.sec.gov/

2. Annual financial statements，http://www.hkexnews.hk/index_c.htm

3. Arbaugh J B, Cox L W, Camp S M. Employee equity, incentive compensation, and growth in entrepreneurial firms [J]. New England Journal of Entrepreneurship, 2004, 7(1): 15.

4. Armstrong C. The incentives of equity-based compensation and wealth [J]. 2007.

5. Babenko I, Sen R. Do non-executive employees have information? Evidence from employee stock purchase plans [J]. Arizona State University, 2011.

6. Bova F, Kolev K, Thomas J, et al. Non-executive employee ownership and corporate risk-taking[R]. Working Paper, University of Toronto, 2012.

7. Carroll J B. The nature of the data, or how to choose a correlation coefficient [J]. Psychometrika, 1961, 26(4): 347-372.

8. Chang X, Fu K, Low A, et al. Non-executive employee stock options and corporate innovation [J]. Journal of financial economics, 2015, 115(1): 168-188.

9. Conyon M J. Executive compensation and incentives [J]. The Academy of Management Perspectives, 2006, 20(1): 25-44.

10. Damodaran A. Employee stock options (ESOPs) and restricted stock: valuation effects and consequences [J]. 2005.

11. Demsetz H, Villalonga B. Ownership structure and corporate performance [J]. Journal of corporate finance, 2001, 7(3): 209-233.

12. Elsilä A, Kallunki J P, Nilsson H, et al. CEO personal wealth, equity incentives and firm performance [J]. Corporate Governance: An International Review, 2013, 21(1): 26-41.

13. Faccio M, Lasfer M. Managerial ownership, board structure and firm value: The UK evidence [J]. 1999.

14. Frye M B. Equity-based compensation for employees: firm performance and determinants [J]. Journal of Financial Research, 2004, 27(1): 31-54.

15. Gautheir T D. Detecting trends using Spearman's rank correlation coefficient [J]. Environmental forensics, 2001, 2(4): 359-362.

16. Gu Bin, Zhou Liye. Study on the Effect of Equity Incentive in Listed Companies in China [J]. Journal of Accounting Research, 2007 (2): 79-84.

17. Gui-chang Zhe, Xia Yang and Jian-hua Xu, An Empirical Research on Relationship between Equity Incentive and Firm Value of Listed Company, International Journal of Advances in Management Science (IJ-AMS) Volume 2 Issue 4, November 2013

18. Hillegeist S A, Penalva F. Stock option incentives and firm performance [J]. 2003.

19. Himmelberg C P, Hubbard R G, Palia D. Understanding the determinants of managerial ownership and the link between ownership and performance [J]. Journal of financial economics, 1999, 53(3): 353-384.

20. Hochberg Y V, Lindsey L A. Non-Executive Stock Options and Firm Performance [J]. 2006.

21. Huawei Zhao, Equity Incentives, Corporate Governance and Corporate Performance: Evidence from China 's Listed Companies, Macroeconomic research, 2016(12)

22. Huixin Huang, Bingbin Dai, A Study on the Correlation between Managers' Ownership and Long - term Performance of High - tech Companies, Economic science, 2005(3)

23. James R. Browne Barnes, Equity Incentive Compensation Plan Considerations for a Limited Liability Company, 2016.

24. Jan Hauke, Tomasz Kossowski. Comparison Of Values Of Peason's And Spearman's Correlation Coefficients. [J]. 2011.

25. Jensen M C, Murphy K J. Performance pay and top-management incentives [J]. Journal of political economy, 1990, 98(2): 225-264.

26. Junjun Zheng, Xu Tan and Wentao Fan, Research on Equity Incentive Model Based on Principal - Agent Theory, JOURNAL OF MANAGEMENT SCIENCES IN CHINA, 2005, 8(1)

27. Kai wu, Weijiao Zeng and Yan Huang, Methods and Application of Measuring Equity Incentive Efficiency, Business Research, 2004(13)

28. Kaur A. Maslow's need hierarchy theory: Applications and criticisms [J]. Global Journal of Management and Business Studies, 2013, 3(10): 1061-1064.

29. Kemin Wang, Jinyong Chen, Ownership structure, investor protection and managerial behavior control, Quantitative Economic, Technical and Economic Research, 2001, 11(019)

30. Lambert R A, Larcker D F. Stock options, restricted stock, and incentives [J]. 2004.

31. McConnell J J, Servaes H. Additional evidence on equity ownership and corporate value [J]. Journal of Financial economics, 1990, 27(2): 595-612.

32. Morck R, Shleifer A, Vishny R W. Management ownership and market valuation: An empirical analysis [J]. Journal of financial economics, 1988, 20: 293-315.

33. Oxley J, Pandher G. Equity-based incentives and collaboration in the modern multibusiness firm [J]. Strategic Management Journal, 2015.

34. Rajan R, Servaes H, Zingales L. The cost of diversity: The diversification discount and inefficient investment [J]. The journal of Finance, 2000, 55(1): 35-80.

35. Shufang Xiao, Tian Jin and Yang Liu, Equity Incentives, Equity Concentration and Corporate Performance, Journal of Beijing Institute of Technology, 2012,14(3)

36. Silber W L. Discounts on restricted stock: The impact of illiquidity on stock prices [J]. Financial Analysts Journal, 1991: 60-64.

37. Sun Qingyan, Guan Xiqiao. Analysis on the Present Situation and Prospect of Equity Incentive Development of Chinese Listed Companies [J]. Innovation and Development: Proceedings of China Securities Industry 2012, 2012.

38. Steers R M, Mowday R T, Shapiro D L. Introduction to special topic forum: The future of work motivation theory [J]. The Academy of Management Review, 2004, 29(3): 379-387.

39. Stock price of Alibaba, http://www.marketwatch.com/investing/stock/baba

40. Stock price of Tencent, https://www.bloomberg.com/quote/700:HK

41. Stock price of Baidu, http://www.marketwatch.com/investing/stock/baba

42. Xin C, Zhihua Y. An Empirical Research on the Relationship Between Stock Ownership Incentive and Performance of Listed Companies [J].

43. Zar J H. Significance testing of the Spearman rank correlation coefficient [J]. Journal of the American Statistical Association, 1972, 67(339): 578-580.

44. Zhou Jianbo, Sun Jusheng. Study on the Governance Effect of Manager's Equity Incentive - Empirical Evidence from Chinese Listed Companies [J]. Economic Research, 2003 (5): 74-82.

45. Zunhuan Shen, Zhenxi Niu, An Empirical Analysis of the Correlation between Ownership Structure and Corporate Performance - Also on the Diversity of Empirical Research Results, Journal of Northwestern Polytechnical University (Social Science Edition), 2003, 23(2)