

# **The relationship between senior executives' age and agency costs**

## **A study based on inter-generational perspective**

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### **Abstract**

By using individual age characteristics as the breakthrough point and executive echelon theory, agency theory and inter-generational difference theory, this paper analyzes the influence of the chairman's age and the age gap of the chairman and the CEO on the agency cost. We selected the CEO and chairman of A-share listed companies in Shanghai and Shenzhen stock markets from 2010 to 2016 as the research objects. And the empirical results show that the age of the chairman was negatively correlated with the agency cost. Meanwhile, there is a nonlinear negative correlation between the generation gap and agency cost, and the enterprise ownership does not affect the conclusion. The research in this paper provides empirical evidence for the interpretation of agency problem from the perspective of managers' characteristics.

**JEL classification numbers:** G34, G41, M120

**Keywords:** Executives; Generation gap; Agency costs; Corporate governance

## **1 Introduction**

Subject intersection and integration has always been a hot topic in academic research, and it is no exception in the field of corporate governance. The hypothesis of homogeneity and complete rationality in classical textbooks of economics and

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management has been faced with various challenges in practice. In recent years, the study of behavioral economics holds that the decision-making process is not completely rational under different conditions, and that different people behave differently when they are faced with incentives and constraints, which are influenced by many psychological factors. Therefore, scholars begin to pay attention to the individual characteristics of stakeholders in corporate governance, and try to use the theories of sociology, anthropology and psychology to explain and interpret the related issues of corporate governance. For example, cultural factors have been introduced into the financial field. A large number of literature suggest that culture affects the cognition, interaction and strategic choice of economic subjects [1] [2]. In the cross-study of culture and corporate finance, culture is one of the important factors in understanding corporate governance and corporate finance, which has been recognized by many scholars and supported by a large number of documents.

Luigi Zingales, a professor of the University of Chicago, observes that there is little research on finance from a cultural perspective and believes that a "cultural revolution" has quietly entered the field of finance [3]. However, the cross-sectional research has to face the dilemma that cultural factors are difficult to measure. At present, most of the existing studies have carried out cultural cross-country comparative studies from the macro level and explore the impact of different countries' cultural environment on corporate finance [4]. The cross-country comparative study opens the prelude of the study of culture and finance, but institution and ideology, the cultural identification is rather fuzzy and the measure of culture is rough because the factors and influences are difficult to eliminate. Culture is reflected in values, norms and reality [9]. Significant differences in values, preferences, attitudes and behaviors are often caused by differences in group characteristics among generations, such as birth age and background [10~14].

According to the inter-generational difference theory of German sociologist Mannheim 'Karl [15] [16], different age groups are influenced by important historical events and the influence of different age groups is diverse, which is the basis of inter-generational differences. Existing studies have shown that major political events, important economic transitions, huge social changes, effective technological innovations and common cultural elements all have an impact on the formation of intergenerational differences, such as music, Movie stars, costumes, etc. [17] Therefore, the use of age or inter-generation to represent the influence of culture on micro-individuals can solve the conundrum, and make it feasible for us

to identify the influence of cultural factors on individual decision-making in the same national context. For example, senior managers in listed companies who make major business decisions.

The intergenerational influence of organizational members is mainly reflected in the values of organizational members. Individuals with similar values tend to increase their social identity and enhance communication and coordination, while individuals with different values tend to have contradictions and even conflicts in communication and understanding. Wang Zhengxu [19] studied the values of different generations of people in mainland China, and found that the post-modern values (such as personal values, self-enjoyment, self-expression, which is called "happiness" values) of the generation who grew up after the Reform and Opening up policy and in better economic conditions are stronger than those of earlier generations.

In order to study the cultural differences between senior and young managers in China, Jiang Lu et al. [20] measured the cultural status quo, yearning values, and expected values. There are significant differences in the cultural dimension and cultural orientation caused by the age gap in Chinese enterprises, while the values of the younger generation of Chinese enterprise managers to some extent indicate the future trend of Chinese corporate culture. So, will the similarity of peer values and social identity affect the communication and coordination between the chairman and the general manager, who are the core of corporate management and corporate governance, and then affect the agency cost of the company?

In particular, will the chairman and general manager of the same generation reduce the degree of information asymmetry and inconsistency in the principal-agent relationship due to similar value? Does it have some influence on the agency cost between the shareholders and the operator? Based on this, this paper takes the individual characteristics as the breakthrough point, and studies the mechanism of executive age characteristics acting on the agency cost in corporate governance. Using the intergenerational division of Chinese scenarios by social scholars, we tested empirically the influence of the intergenerational difference between the chairman and the general manager on agency cost in a gesture to find out the effect of the intergenerational differences on corporate governance.

Compared with previous studies, this paper has made some contributions in the following aspects. First of all, the cross-research in this paper enriches and complements the current research on culture and corporate finance. This paper uses the concept of inter-generation in sociology to measure the cultural

characteristics of individuals, examines the role of inter-generation in corporate principal-agent relationship, and studies the relationship between culture and corporate finance in a single country environment from the micro level.

Secondly, based on the Chinese context, this paper carries on the cultural identification and the research. The specific country situation has eliminated the system factor in the transnational comparative study and the empirical evidence of the countries with economies in transition is provided, which is a useful supplement to the existing literature;

Finally, this paper studies the problem of corporate governance, which is based on the theory of intergenerational difference and social identity in sociology. It tried to establish the analysis path of "intergenerational-value-principal-agent behavior" and "intergenerational difference-group identity-group preference-principal-agent behavior", and analyzed the influence mechanism of age on agency cost, which broadens the perspective of corporate governance research, and provides the thinking of corporate finance research.

The rest of the article is organized as follows. Section 2 contains the literature review, and puts forward the research hypotheses; Section 3 is the research design, which introduces the sample selection, the research variables, and builds the empirical model; Section 4 provides the descriptive statistics and empirical results analysis, and the robustness test. Section 5 concludes.

## **2 Literature review**

### **2.1 Intergenerational and social identity theory**

"Generation" has the dual attributes of biology and social culture.[15] In Mannheim's view, the "generation" phenomenon has a social and cultural character, because under basically the same social and cultural conditions and environments, people of the same age group will have basically the same needs, values, and ways of thinking. Emotional experience and behavior habits.

Social identity theory holds that cultural similarity can form and maintain social identity among individuals. According to whether the culture is the same or not, it is divided into internal and external groups. The individuals with cultural similarity belong to the "insiders", whereas the "outsiders". At the same time, there exists the phenomenon of inner group preference and external group discrimination. The former refers to the individual's tendency to allocate favorable resources to "insiders" and give positive evaluation, while the latter means that the "outsider" is

assigned less resources and receives negative evaluation (Tajfel et al,1982) [33].In social interaction, social classification is embodied by age or intergenerational representation. In the process of classifying others, an individual classifies himself into a group when compared with other groups, in order to gain and maintain self-esteem, The group tends to give positive evaluation to its members (Zhang Yingrui, Zuobin, 2006) [34]. Therefore, individuals of similar ages or generations will form inner groups and have a high degree of mutual identity.

DiMaggio (1997) [1] pointed out that interpersonal interaction and communication are influenced by culture, and there is a preference for "similar attraction" in interpersonal interaction. Cultural similarity will affect interpersonal communication and cooperation. De Long and Fahey (2000) [9] summarized the previous researches on culture and put forward the viewpoint that culture is reflected in values, norms and reality.

As far as the workplace situation is concerned, according to the work values proposed by Super [29], job-related goals pursued by individuals is the combination of individuals internal needs and the job attributes in their working activities.

The behavior of individuals at work, as well as the behavior of work groups and organizations, is influenced by the individual's own work values (Horna, Li Chaoping, 2009) [30], especially in different development patterns of work centralization , altruism, internal and external work values (Chen Jian, 2010) [31]. In other words, such differences often affect the balance between work and leisure among members of the organization and the amount of altruistic behavior that helps others and contributes to society.

Xu et al. (2016) [32] analyzed the influence of the poor experience of the general manager on corporate charitable donation behavior. The results show that general managers who were born in poor areas or experienced in poverty tend to make more altruistic considerations about corporate decisions and corporate behavior, such as more corporate philanthropic donations.The study of intergenerational values in Chinese context generally holds that the new generation of individual value, self-enjoyment and self-expression are stronger than the earlier ones (Wang Zhengxu, 2008; Chen Jian, 2011; Jiang Lu, 2009) [19] [20] [31].

## **2.2 Agency cost theory**

Jensen and Meckling [22] define agency costs in corporate governance as the sum of the principal's supervisory expenses, the agent's guaranteed expenses and

the welfare losses suffered by the principal due to the deviation between the agent's decision and the decision to maximize the principal's welfare. Agency cost seems to be the inevitable outcome of modern stock company [44]. In the book of *The modern corporation private property*, Adolf A Berle, and Gardiner C Means [45] took the lead in discussing the problems of ownership and control under modern joint-stock systems. The goal of maximization of shareholder value deviates from the goal of maximization of personal interests of managers and with the emergence of moral hazard and adverse selection, agency problems arise.

In addition, due to shareholders' shareholding ratio, the rights of large and small shareholders are very different in company management, and the interests of large shareholders or controlling shareholders are different from those of other small and medium shareholders, and there is also the problem of agency. Corresponding to the above two kinds of agency relationship, the agency cost can be divided into the agency cost between the shareholder and the operator, and between the large shareholder and the small shareholder.

### **2.3 Executive characteristics**

According to Hambrick and Mason[21], the cognitive basis of executives depends on their assumptions, knowledge and alternatives for future events, while their values depend on the principles of planning results or choosing alternatives according to their preferences. To a large extent, cognitive basis and values are affected by the characteristics of management, and these cognitive bases and values are often perceptual, can not be observed and measured. For maneuverability of study, age, tenure, educational experience, social relations, and career experience are used to quantify executive characteristics. And then executive traits were further expanded to include gender, pay, government background, and so on [22-25]. Based on the perspective of organizational behavior, some scholars analyzed the influence of the demographic characteristics of subject and object and the social network on agency cost from the micro level. The main demographic variables involved in the study were age of team members, duration of service in the organization, education level, race, gender and so on. Similar backgrounds among executives, such as similar experiences, hometown, educational background and even political tendencies, have also been found that there is some impact on the relationship between the two parties and agency costs in corporate governance.[26~28]

### **3 Research hypotheses**

Currently the principal-agent relationship between shareholders and management in corporate governance has become increasingly hot issue in both theory and practice. The chairman and general manager are the core members of shareholders and management respectively and it is very important for the communication and coordination of corporate governance between them. Cultural similarity can promote communication and coordination to a significant extent and promote the formation of group identity, which is of positive significance to corporate governance. So, in the principal-agent relationship, does the similarity between the key characters of the two parties may enhance the mutual communication and trust, and then affect the principal-agent behavior?

Specifically, by summarizing the relevant literature on sociology and corporate finance, the intergenerational characteristics of the chairman and the intergenerational consistency of the chairman and the general manager will influence the corporate governance relationship through the following mechanisms.

First, a young chairman may seek more personal value and self-enjoyment, less altruistic consideration and behavior, which encourages the chairman to seek personal gain.

As the German saying goes, young people believe in many false things, old people suspect many of them. There are significant differences in individual cognition, values and behaviors between individuals of different ages. In terms of work values, the "reform and opening up generation" attaches more importance to leisure than the "cultural revolution generation" and the "socialist construction generation". They work as the main way to pursue material interests and personal achievements. This shift in values causes the decline of work centralization which views work as a basis for survival and the promotion of work-life balance (Yi Zhongtian, 2015) [35](Chen Jian, 2011) [31]. In the aspect of altruistic values, the gradual development of the westerners in the 1980s made the domestic individualism values stand out gradually, and the individuals considered more their own interests, and less interests of the collective and others. Belief values, which contain altruistic content, gradually begin to decline (Chen Jian, 2011) [31].

Second, the older chairman may give more attention to the meaning of the job and

their own interest in the work, and their altruistic behavior is more , which may encourage them to work hard to maximize the interests of shareholders.

With the increase of age, people's aggressiveness weakens, and they have more care and tolerance for others (Zhao Xiangyang, 2015) [36]. Chinese social values in the transition period change from spiritual values to spiritual values and material values (Liao Xiaoping, 2007) [37]. In the era of Planned Economy, people placed spiritual life above material life, and advocated spirit, derogated material.

Therefore, for the middle-aged generation , the importance of work lies in its intrinsic value, not its instrumental function (Liao Xiaoping, 2007) [37].

China is a country with a strong "group consciousness" of traditional culture, coupled with the emphasis on "national interest" and "collective interest" in the planned economy era before the reform and opening up. The "socialist construction generation" Chinese are highly respected for the altruistic values of "dedication" and "service".

Based on the above analysis, this paper proposes the following hypothesis:

**Hypothesis 1:** the younger the chairman, the higher the agency cost, that is, the age of the chairman has a negative correlation with the agency cost.

Third, the chairman and general manager of the same generation may be more likely to be in agreement, and there may be less conflict and conflict. The chairman and the general manager who are in the same generation may be more likely to form a consensus because of the formation of social identity, group preference and similar values, and the contradiction and conflict can be alleviated.

Peer group is a relatively stable and lasting interpersonal relationship based on friendship. Members share many common traits, such as similar attitudes, values, life experience, or the same gender, age, race, and socioeconomic status, all of which make them feel comfortable in their relationships with each other and boost mutual understanding, mutual support, and mutual dependence (long Junwei, 2004) [38]. In particular, the emotional trust formed by the identification of the age group is easy to establish loyalty to the peers. This kind of trust and close relationship will greatly reduce the agency cost between the principal and the agent (Liu Xiaoxia et al., 2013) [39].

Finally, the age difference between chairman and general manager is quite large, which may span one or two generations. Due to the antagonism of the younger generation to the prior experience, the degree of information asymmetry increases,

and then the agency cost is affected. Because there are significant differences in lifestyle, values, knowledge or ability, goal pursuit, status and experience, elders tend to convey cultural metaphors to younger generations. But cultures that had previously been transferred in the form of experience may be contradicted by the younger generation.

Based on the above analysis, this paper proposes the following hypotheses:

**Hypothesis 2:** the age difference between chairman and general manager is negatively correlated with agency cost.

## **4 Empirical study**

### **4.1 Data Sample**

In order to explore the influence of intergenerational executives on agency cost, this paper selects A-share listed companies in Shanghai and Shenzhen stock markets from 2010 to 2016 as samples. The selection is as follows: (1) the combination of chairman and general manager eliminates the possibility for the general manager to deviate from the shareholders' target, and there is no power balance and agency cost. Therefore, this paper removes the sample of the company in which the chairman and the general manager were the same person in the sample interval. (2) considering the particularity of the financial data of the listed companies of ST and \* ST and their huge quitting risk, in order to eliminate the abnormal samples and increase the stability of the research samples, the samples of ST and \* ST listed companies are excluded; (3) considering the difference between financial listed companies and ordinary listed companies and the particularity of the former's capital structure, the financial institutions listed companies are excluded in this paper. (4) considering that the corporate governance model involving foreign investors may be different from that of domestic companies, this paper excludes companies that issue B-shares or H-shares at the same time; (5) this paper explores the phenomenon in the situation of mainland China, so this paper excludes Hong Kong, Taiwan and foreign executives; (6) the companies that do not disclose the specific sales expenses were deleted owing to the measurability. The data date is the balance sheet date of 2010-2016.

In order to carry out this study, the absolute age of the chairman and the age gap between the chairman and the general manager in the same fiscal year should be determined. In this paper, the information of chairman and general manager is obtained by financial database, and the missing item is obtained by manual search.

Specifically, there are three main ways: first, CSMAR Database and WIND database executives of listed companies provide information about the date of birth of the chairman and general manager. This paper manually extracted and collated the information; Second, if the birth information is missing in the executive resume, we search for the specific year of birth. Totally, we obtains 537 samples of 761 listed companies. This study is based on this data, and the other variables data are all from WIND database.

## 4.2 Model design and variable description

To verify this hypothesis 1, this paper builds the following model:

$$AgC_{i-t} = \gamma_0 + \gamma_1 BCage + \gamma_2 Controls + \gamma_3 Dummy + \varepsilon \quad (1)$$

In the above model, the dependent variable AgC is the agent cost between the shareholders and the management, the independent variable Age is the age, the Controls is the control variable, and the Dummy is the virtual variable of industry and year. In this paper, the data are processed as follows: (1) the agent cost variable and the continuous variable in the control variable are reduced by more than 99% of the quantiles; (2) the standard deviation of each coefficient in this model is clustered into the individual level of the company .

To verify hypothesis 2 in this article, this article builds the following model:

$$AgC_{i-t} = \gamma_0 + \gamma_1 age\_gap + \gamma_2 age\_gap^2 + \gamma_2 Controls + \gamma_3 Dummy + \varepsilon \quad (2)$$

In the above model, the independent variable age\_gap is the intergenerational difference, and the age\_gap2 is the square term of the intergenerational difference.

In this paper, the data are processed as follows: (1) in order to eliminate the influence of outliers, the agent cost variable and the continuous variable in the control variable are treated with Winsorize shrinking tail; (2) in order to effectively control the cross-sectional heteroscedasticity and time series autocorrelation problems that may exist in the panel data used in this paper, a Petersen robust regression estimation method with dual clustering adjustment at the annual and corporate levels is presented.

### 4.2.1 Dependent variable

Agency cost is a problem that has long troubled the academic and the industry. In the current corporate governance literature, the operating expenses rate reflects the waste caused by excessive on-the-job consumption by managers, and because it is controlled by agents, it is possible to evaluate directly the consumption and other agency costs incurred by management in excess of budget (Luo Jinhui, 2012)

[40]This is why it is often used to measure agency costs between shareholders and managers(Ang et al.,2000;Luo Wei, Zhu Chunyan, 2010; Li Shouxi, 2007) [41-43]. Therefore, this paper also uses the operating expenses rate and the total assets turnover rate to measure the agency cost. The higher the operating expenses rate, the lower the total assets turnover rate, and the greater the agency cost of the company.

#### 4.2.2. The independent variable

In this paper, the age of chairman is used as the independent variable of hypothesis 1, and the age difference between chairman and general manager is used as the independent variable of hypothesis 2.

Table 1: Variable symbol, definition and description

|                          | Variable name                           | variable symbol | variable-definition   |
|--------------------------|---|-----------------|---|
| dependent variable       | agency cost                             | AgC             | Operating expense rate, Ratio of the sum of overhead and sales expenses to operating income |
| The independent variable | Chairman's age                          | age             | Absolute age of chairman  |
|                          | generation gap                          | age_gap         | Absolute value of age difference between chairman and general manager                       |
| Controlled variable      | Majority shareholder shareholding ratio | Top1            | Proportion of first largest shareholder   |
|                          | company size                            | Asset           | Natural logarithm of the total assets of the company  |
|                          | Management shareholding ratio           | Msha            | Proportion of management holdings in total shares   |
|                          | Growth opportunities                    | Grow            | Annual growth rate of operating income  |
|                          | asset-liability ratio                   | Roa             | Ratio of Total liabilities and total assets   |
|                          | Board size                              | BSize           | Total number of seats on the board of   |

|  |                                     |           |  |
|--|-------------------------------------|-----------|--|
|  |                                     |           | directors of the company   |
|  | Proportion of independent directors | IndB      | Ratio of independent board seats to total board seats              |
|  | Fixed assets ratio                  | Tangible  | Ratio of Fixed assets and total assets                             |
|  | Industry dummy variable             | IndDummy  | Build 12 dummy variables to represent each industry                |
|  | Year dummyvariable                  | YearDummy | Building 7 year dummyl variables                                   |
|  | Property nature                     | SOE       | Dummy variable, state-owned enterprise = 1, Private Enterprise = 0 |

### 4.2.3 Control variables

Other control variables are described in Table 1.

## 5 Empirical results

### 5.1 descriptive statistics

Table 2 shows the descriptive results of the main variables. As can be seen from Table 1, the average operating expenses rate of the sample company is (Agc) 15.30, the maximum is 291.08.2 the average age of the chairman of the sample company is 55.42 years old, the youngest is 28 years old, and the maximum is 89 years old. It means that the age of chairman is different between different companies, but from the quantile, the age of chairman is mainly concentrated in 50-60 years old. 3 among the sample companies, the state-owned enterprises account for 60.88%; The proportion of shares held by the largest shareholders was 36.82, reaching a relative degree of control. 4 in the sample companies, the average size of the board of directors was 9.13 seats, of which independent the Winter Solstice accounted for 36.52%, and the upper quartile and median were both 1 / 3, It shows that there

are nine board of directors in Chinese listed companies, and the proportion of independent directors meets the requirement of "guiding opinion".

Table 2: Descriptive statistical results of main variables

| Variable | Sample capacity | Mean      | SD       | MIN       | P25      | P50      | P75      | MAX      |
|----------|-----------------|-----------|----------|-----------|----------|----------|----------|----------|
| BCage    | 5,327           | 55.42144  | 6.695609 | 28        | 52       | 54       | 60       | 89       |
| agegap   | 5,327           | 7.003379  | 6.415105 | 0         | 2        | 5        | 10       | 35       |
| AgC      | 5,327           | 15.29583  | 13.914   | 0.3571522 | 7.59821  | 12.1162  | 18.70164 | 291.0758 |
| Top1     | 5,327           | 36.82116  | 15.36228 | 3.39      | 24.28    | 35.36    | 48.01    | 87.46    |
| Roa      | 5,327           | 47.52044  | 21.81458 | 0.7521    | 31.3104  | 47.8837  | 63.7527  | 299.177  |
| Grow     | 5,327           | 15.90987  | 69.70462 | -96.7266  | -3.2217  | 9.6763   | 24.5483  | 3150.222 |
| BSize    | 5,327           | 9.131031  | 1.784932 | 3         | 3        | 9        | 9        | 18       |
| Asset    | 5,327           | 8.424269  | 1.242586 | 3.84783   | 7.551571 | 8.30067  | 9.177762 | 13.33085 |
| Tangible | 5,327           | 0.4404008 | .2159319 | .0034765  | .2743763 | .4285373 | .5984662 | .9852611 |
| Msha     | 5,327           | .0204399  | .066543  | 0         | 0        | .0000111 | .0019393 | .6831227 |
| IndB     | 5,327           | .3652219  | .0503687 | .2222222  | .3333333 | .3333333 | .375     | .6666667 |

Data sources: age data from the author manual collation, financial data from the WIND database.

Table 3: Descriptive statistical results of private enterprise samples

| Variable | Sample capacity | Mean     | SD       | MIN      | MAX      |
|----------|-----------------|----------|----------|----------|----------|
| BCage    | 2084            | 55.84117 | 8.092612 | 28       | 89       |
| agegap   | 2084            | 9.216891 | 8.084942 | 0        | 35       |
| AgC      | 2084            | 17.95657 | 17.16462 | .7260896 | 291.0758 |
| Top1     | 2084            | 32.61911 | 14.75311 | 3.39     | 86.49    |
| Roa      | 2084            | 47.52044 | 21.81458 | 0.7521   | 299.177  |
| Grow     | 2084            | 15.90987 | 69.70462 | -96.7266 | 3150.222 |
| BSize    | 2084            | 8.681382 | 1.480622 | 4        | 18       |
| Asset    | 2084            | 8.067043 | 1.071801 | 3.84783  | 12.03074 |
| Tangible | 2084            | .3963924 | .1857617 | .0064939 | .9105058 |
| Msha     | 2084            | .049393  | .0988667 | 0        | .6831227 |
| IndB     | 2084            | .3645038 | .0472308 | .25      | .6666667 |

Source: *ibid.*

Table 4: Descriptive statistical results of private enterprise samples

| Variable | Sample capacity | Mean     | SD       | MIN      | MAX      |
|----------|-----------------|----------|----------|----------|----------|
| BCage    | 3243            | 55.15171 | 5.602264 | 32       | 75       |
| agegap   | 3243            | 5.580944 | 4.520619 | 0        | 29       |
| AgC      | 3243            | 13.58601 | 11.01249 | .3571522 | 219.6064 |
| Top1     | 3243            | 39.52146 | 15.13985 | 7.14     | 87.46    |
| Roa      | 3243            | 47.52044 | 21.81458 | 0.7521   | 299.177  |

|          |      |          |          |          |          |
|----------|------|----------|----------|----------|----------|
| Grow     | 3243 | 12.93493 | 66.1216  | -96.7266 | 3150.222 |
| BSize    | 3243 | 9.419981 | 1.900517 | 3        | 18       |
| Asset    | 3243 | 8.653828 | 1.289849 | 3.875374 | 13.33085 |
| Tangible | 3243 | .4686812 | .2288725 | .0034765 | .9852611 |
| Msha     | 3243 | .0018342 | .0104373 | 0        | .1775823 |
| IndB     | 3243 | .3656833 | .0522878 | .2222222 | .6666667 |

Source: *ibid.*

## 5.2 Correlation analysis

Spearman correlation coefficient variable for the main variable is shown in the appendix. The Spearman correlation coefficient analysis of the main variables in this paper shows that: the age of chairman (BCage) and operating expenses rate (Agc) show a significant negative correlation, which preliminarily verified the hypothesis 1; (2) the age (agegap) of chairman and general manager and the square term of age difference have no significant negative correlation with operating expenses, and there are a certain discrepancy with hypothesis 2; (4) the largest shareholder holding ratio (Top1) and board size (Bsize) are negatively correlated with operating expenses rate (Agc), while independent director ratio (IndB) has negative correlation with operating expense rate (Agc). It shows that the internal and external governance mechanism can contain the agency cost more effectively.

## 5.3 Regression results

We conjecture that the regression model may have a serious multiple collinearity problem. So we do multiple collinearity test on these variables and find that the variance expansion factor  $VIF > 10$ , which means it has significant multiplex collinearity. Therefore the variable IndB, Asset, are decreased until VIF is less than 10 and the multiplex collinearity is eliminated. At the same time, the heteroscedasticity test was carried out and it was found that there was no heteroscedasticity problem. In this paper, the fixed effect and random effect are tested by F test. According to the Hausman test result, random effect should be used and the result shows that age gap, msha and tangible are not significant with random effect. So the final equation is obtained by successive regression and elimination of these three variables.

Table 5 shows the age of the chairman, the intergenerational differences between the chairman and the general manager and the agency cost. In model 1 and 2, the whole sample regression and the subsample regression are performed according to the property right property respectively. For hypothesis 1, the age of chairman is significantly negatively correlated with the operating expenses rate. Considering the nature of property rights, the result of subsample regression is consistent, that is, the negative correlation exists in both state-owned enterprises and private enterprises. For the test of hypothesis 2, in the total sample and subsample, the quadratic term of age\_gap and the Agc show significant quadratic function relation, and the relationship between them may be shown as inverted U-shape curve. However, as mentioned above, the operating cost rate has no significant relationship with age gap once, and because the independent variable age\_gap in this assumption is the absolute value of the age difference between the chairman and the general manager, Therefore, there is a nonlinear negative correlation between the intergenerational difference between the chairman and the general manager and the operating expenses rate.

Table 5: multiple regression analysis

|         | Model1                 |                      |                       | Model2                 |                        |                       |
|---------|------------------------|----------------------|-----------------------|------------------------|------------------------|-----------------------|
|         | Full sample            | SOE=0                | SOE-1                 | Full sample            | SOE=0                  | SOE-1                 |
|         | AgC                    | AgC                  | AgC                   | AgC                    | AgC                    | AgC                   |
| BCage   | -0.126***<br>(-4.71)   | -0.161***<br>(-3.56) | -0.130***<br>(-4.11)  |                        |                        |                       |
| agegap2 |                        |                      |                       | -0.00458***<br>(-4.16) | -0.00708***<br>(-4.48) | -0.00594**<br>(-2.70) |
| Top1    | -0.135***<br>(-11.23)  | -0.149***<br>(-5.83) | -0.0975***<br>(-8.11) | -0.141***<br>(-11.73)  | -0.151***<br>(-5.95)   | -0.103***<br>(-8.59)  |
| Roa     | -0.0989***<br>(-11.20) | -0.118***<br>(-6.81) | -0.0618***<br>(-6.72) | -0.0998***<br>(-11.28) | -0.118***<br>(-6.85)   | -0.0610***<br>(-6.63) |
| Grow    | -0.0115***             | -0.0161***           | -0.00788**            | -0.0114***             | -0.0162***             | -0.00802**            |

|              |            |            |            |            |            |            |
|--------------|------------|------------|------------|------------|------------|------------|
|              | (-4.49)    | (-3.33)    | (-2.97)    | (-4.47)    | (-3.37)    | (-3.02)    |
| BSize        | -0.299**   | 0.0243     | -0.403***  | -0.319**   | -0.00725   | -0.399***  |
|              | (-2.91)    | (0.10)     | (-4.23)    | (-3.10)    | (-0.03)    | (-4.18)    |
| Constant     | 52.33***   | 38.42***   | 59.53***   | 46.29***   | 31.03***   | 52.85***   |
|              | (21.69)    | (8.36)     | (22.97)    | (23.19)    | (7.45)     | (26.90)    |
| Year         | Controlled | Controlled | Controlled | Controlled | Controlled | Controlled |
| &industry    |            |            |            |            |            |            |
| Observations | 5327       | 2084       | 3243       | 5327       | 2084       | 3243       |

*t* statistics in parentheses\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

The standard error is adjusted by clustering at the company level.

#### 5.4 Robustness Test

The robustness test is as follows: (1) using asset turnover rate to represent the agency cost between shareholders and management. This paper also uses this variable to measure agency cost, and repeat the previous text. The conclusion has not changed. (2) the age of the chairman is based on the age of 2016. In the Robustness test, the independent variable is replaced by the age of the chairman in the current year. On the whole, the conclusion is robust.

## 6 Conclusions and Suggestions

Chinese society is a society with collectivism. Although Western culture and social changes have played down people's recognition of the group, the impact of the birth age is still reflected in all aspects of social life. The field of corporate governance is no exception. In order to study the influence of the age difference between the chairman and the general manager on the agency cost of the listed companies, this paper takes the 761 companies listed in A shares from 2010 to 2016 as a sample of 5327 observed data. The conclusions of the empirical study are as follows: (1) the older the chairman, the lower the agency cost. In the companies with different property rights, the relationship between the two has not changed, but in the private enterprises, the negative effect is more obvious. (2) the greater the intergenerational difference between the chairman and the general manager, the lower the agency cost of the company, contrary to the above. This

effect is more obvious in state-owned enterprises.

From the above conclusions, this paper draws the following enlightenment. Influenced by the culture of the birth age, the executive's age to a certain extent represents their experience, risk preference and values, and the executives' behavior affected by it plays a vital role in reducing the uncertainty and altruistic thinking in corporate decisions, which has a significant impact on management practice. Therefore, we can not ignore the individual differences between the main body of corporate governance, the idea of thinking, which is conducive to reduce the cost of communication and coordination among executives, reduce the loss of efficiency in the process of corporate governance, and improve the efficiency and effectiveness of corporate decision-making.

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**Appendix:** Spearman correlation coefficient

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|         | Agc      | BCage   | agegap   | agegap2  | Top1    | Asset  | Tangible | Roa | Grow | Msha | BSize | IndB |
|---------|----------|---------|----------|----------|---------|--------|----------|-----|------|------|-------|------|
| Agc     | 1.0000   |         |          |          |         |        |          |     |      |      |       |      |
| BCage   | -0.0749* | 1.0000  |          |          |         |        |          |     |      |      |       |      |
| agegap  | (0.0245) | 0.3653* | 1.0000   |          |         |        |          |     |      |      |       |      |
| agegap2 | (0.0245) | 0.3653* | 1.0000*  | 1.0000   |         |        |          |     |      |      |       |      |
| Top1    | -0.2131* | 0.0716* | -0.0382* | -0.0382* | 1.0000  |        |          |     |      |      |       |      |
| Asset   | -0.3595* | 0.0449* | -0.0305* | -0.0305* | 0.2605* | 1.0000 |          |     |      |      |       |      |

|          |          |          |          |          |          |         |          |          |          |          |          |        |
|----------|----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|----------|--------|
| Tangible | 0.0244   | -0.0281* | (0.0219) | (0.0219) | -0.0440* | 0.0935* | 1.0000   |          |          |          |          |        |
| Roa      | -0.3623* | -0.0296* | -0.0656* | -0.0656* | 0.1115*  | 0.4937* | 0.0327*  | 1.0000   |          |          |          |        |
| Grow     | -0.1146* | 0.0540*  | 0.0308*  | 0.0308*  | (0.0242) | 0.0014  | -0.1316* | (0.0088) | 1.0000   |          |          |        |
|          |          |          |          |          |          | -0.0754 |          |          |          |          |          |        |
| Msha     | 0.1289*  | 0.0708*  | 0.0836*  | 0.0836*  | -0.2574* | *       | -0.1338* | -0.2088* | 0.1141*  | 1.0000   |          |        |
| BSize    | -0.0738* | 0.0264   | (0.0218) | (0.0218) | 0.0126   | 0.1884* | 0.0971*  | 0.1196*  | 0.0307*  | -0.0889* | 1.0000   |        |
| IndB     | (0.0060) | (0.0139) | -0.0707* | -0.0707* | 0.0563*  | 0.0953* | (0.0084) | 0.0291*  | (0.0181) | -0.0358* | -0.2893* | 1.0000 |

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