

A Review of Research on the Influence of TMT Heterogeneity on EP

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Abstract. With the strengthening of specialization and division of labor, the differences among top management team (TMT) gradually increase. The existing literature has explored the relationship between TMT heterogeneity and enterprise performance (EP). Secondly, the intermediary variable of the relationship between TMT heterogeneity and EP is introduced to explore the intermediate process of the influence of TMT heterogeneity on EP. The moderating variables that influence the relationship between the two processes are introduced to explore whether the intermediate process will be affected by other factors and present different characteristics. This paper sorts out and analyzes the existing literature, and puts forward some problems that may need to be paid attention to in the future, so that readers can understand the current situation of the development of this field and the possible future research direction, it also has certain reference value to the construction of the TMT, the cultivation of human capital and the economic upgrading and transformation in China.

Keywords: TMT; Heterogeneity; EP.

1. Introduction

As China's economy enters a new normal, TMTs play an increasingly important role in enterprise development. Due to the difference in gender, age, tenure, educational background and functional background, senior managers may put forward completely different views on the same issue in the process of cooperation, which may lead to team conflict. Such conflicts may not only deepen the understanding and analysis of complex issue and promote the strategic change of the enterprise, but also increase team friction and bring chaos to the enterprise operation. How does the heterogeneity of the TMT affect the operation of the enterprise, and how should the organization take advantage of the differences of the members to avoid the disadvantages? Chinese and foreign scholars have done a lot of research on these issues and formed a more complete research idea. This paper attempts to summarize the existing research results at home and abroad, so as to facilitate readers to understand the research progress and possible future research trends in this field, it is also of practical significance to the construction of TMT, the cultivation of human capital and the economic transformation and upgrading of our country.

2. Definition of Relevant Concepts

2.1. TMT

Which members the executive team includes will directly determine subsequent measures of team heterogeneity. There are two main approaches to define executive members: one is to ask the CEO directly or through in-depth interviews with the CEO (Knight et al., 1999)^[1]. This method can accurately identify the top managers who have a real impact on the decision-making of the enterprise, thus avoiding the inclusion of some members with little relevance to the decision-making of the enterprise. Therefore, this method is often used in the study of corporate strategic change, the disadvantage of which is the cost of human and material resources. Another way is according to the listed company annual report, enterprise almanac and other documents in the title of managers, management level to determine whether they belong to the TMT. Due to the convenience of operation and the objectivity of data acquisition, this method is more widely used in defining the members of the TMT, but it is easy to cover some non-powerful members of the top management, which makes

the research biased. According to the research needs of scholars, we can choose to use subjective or objective methods to define the TMT.

2.2. TMT Heterogeneity

Following the definition given by Chinese and foreign scholars, this paper defines the heterogeneity of TMT as the differences in demographic background, important cognitive concepts and values (Finkelstein and Hambrick, 1990)^[2]. In theory, this difference can encompass an infinite number of dimensions, including such easily identifiable characteristics as age, gender, race, educational background, and functional background, it also includes traits such as personality and values that are difficult to measure in any specific way (Van Knippenberg and Schippers, 2007)^[3]. In fact, given the availability of data, most of the existing studies have focused on readily identifiable, more stable characteristics of differences, and less on aspects such as differences in personality and values. However, some scholars have carried out relevant exploration by means of questionnaire survey, which has enriched the research results in this field.

2.3. EP

EP is a multi-dimensional and complex concept, which is usually used to measure the effect of enterprise management. Chinese and foreign scholars tend to use accounting indicators such as return on assets (ROA) and operating profit to describe the historical performance of an enterprise, or to use Tobin's q value and market value to describe the future operating conditions of an enterprise, these two types of indicators reflect the enterprise's short-term profitability and long-term profitability potential. With the development of interest-related theory, more and more scholars begin to pay attention to the interactive relationship between enterprises and other related parties, and gradually developed including reputation, employee satisfaction, customer satisfaction, employee turnover rate and other multi-dimensional performance evaluation indicators, so that the scope of EP is more and more extensive. Therefore, at this stage, many foreign scholars believe that performance is the unity of organizational behavior and results, and emphasize the importance of both business process and business results, Feng Lixia (2002)^[4], a Chinese scholar, believes that EP should be understood from two aspects: On the one hand, performance should be result-oriented, which is produced by a specific work activity in a specific time; on the other hand, performance should also be behavior-oriented, this behavior is related to the business objectives.

3. Literature Review

The research in this field can be divided into three stages: the first stage is to study the relationship between TMT heterogeneity and EP directly. The second stage is to introduce intermediary variables. On the basis of the previous stage, the third stage introduces the moderating variables which affect the process of the mechanism to explore whether the relationship between the heterogeneity of the TMT and the EP will change under the influence of different factors. We will review in this order below.

3.1. Research on the relationship between top TMT heterogeneity and EP

At this stage, scholars mainly focus on the study of the relationship between various types of TMT heterogeneity and EP, and try to explain why this result is produced from the theoretical level, in the process, it forms the two theoretical bases of information and decision-making theory and social categorization theory.

(1) Information and Decision-Making Theory

The theory emphasizes the advantages brought by the differences of team members, and holds that heterogeneity can complement information, knowledge, ability, skills and resources. Organizations with more diverse members have more resources, more access to useful information, and a completely different perspective on the same issue than do homogeneous teams, this in turn facilitates a

comprehensive analysis of decision-making (Van Knippenberg et al., 2004)^[5]. Because the members of different tenure experience different stages and events of the development of the enterprise, the scope of their vision in setting corporate goals will be affected by the length of tenure, and the senior executives of different tenure have different interpretations of the organization and its strategy, then can form the multi-level explanation to the same strategy, has guaranteed the decision-making comprehensive, is advantageous to the organization's development. Similarly, Lazear (2000)^[6] found that new hires can bring completely different information and perspectives than older hires, and that differences of tenure in the process of cooperation can improve performance. In addition to the heterogeneity of tenure, a large number of scholars have found that age, gender, race, educational background and functional background can also bring more information resources to the team, domestic scholars Zhang Jianjun and Zhang Yanlong (2016)^[7] found that the differences in age and functional background between chairman and general manager can bring complementary effects to enterprise decision-making, thus promoting EP.

(2) Social Categorization Theory

The core of this theory is that individuals classify themselves by some important characteristics (such as sex, age, race, etc.) and have a sense of social identity to the group to which they belong. This happens in large part because individuals tend to maintain a state of high self-esteem that can only be achieved by comparing themselves to others, individuals tend to simplify their perception of themselves by categorizing them and at the same time label others accordingly. In order to achieve a higher level of self-esteem, individuals tend to attribute more positive qualities to the group to which they belong, and to perceive members of other groups less trustworthy. Therefore, in the team with high degree of differentiation, the team members tend to have low satisfaction, low cohesion and high turnover rate. Similar to the theory of social categorization is the theory of social identity theory and similarity attraction theory, at the core of this is that people are more likely to attract and appreciate individuals who are similar to them in terms of their background, character, value etc. Individuals who are very different from themselves naturally develop a sense of distance and exclusion, so collaboration between members of highly differentiated teams becomes more difficult.

Crocker and Major (1989)^[8] found that the age heterogeneity of executive members resulted in reduced communication and cohesion within the team, as well as reduced member satisfaction with the organization. Pfeffer and O'Reilly (1987)^[9] found that members who were significantly younger or older were more likely to leave. Knight et al. (1999)^[1] found that the heterogeneity of members' education levels is more likely to lead to conflict, and executives with different degrees may have different views on corporate strategy-making, which is not conducive to rapid decision-making. Research by Hambrick et al. (1996)^[10] suggests that differences in career experience among executives can hinder effective communication within teams and prevent them from seizing external opportunities quickly. Wang Xueli et al. (2013)^[11] found that although the functional background heterogeneity of TMT contributes to the improvement of overseas performance, it has a significant negative impact on short-term performance and innovation performance.

3.2. Research on the intermediate variable and its action mechanism

This stage is no longer too focused on a certain type of TMT heterogeneity on the impact of EP, and began to explore the mechanism of the whole process. Hambrick and Mason (1984)^[12] emphasize that pure statistical variables contain more "noise" than subjective processes, and that even two groups with similar heterogeneity are likely to have completely different effects due to external factors. Van Knippenberg et al. (2004)^[5] think that each heterogeneity may affect EP through the process of information decision-making and social categorization, and the final effect will depend on whether the two types of processes can be successfully completed and the relative strength. Therefore, scholars such as Lawrence (1997)^[13] began to pay attention to the "black box" of TMT heterogeneity affecting EP, a lot of studies have been carried out on the mediating variables of team conflict, communication frequency, social integration and interdependence.

(1) Information decision process

The core of information decision-making theory is that the different senior managers can bring more information and resources to the team, which is helpful to the comprehensive analysis of enterprise decision-making. The point is the effective communication and integration of the different information and resources brought by the team members. Along this line of thought, some scholars take the information exchange as the intermediate variable to carry on the research. The result discovered that in the heterogeneous team member's exchange frequency is higher, thus is helpful to the team innovation. They argue that heterogeneity can have a positive impact on EP by increasing the frequency of communication. Watson et al. (1993)^[14] argue that the overall creativity of a team can be enhanced by the constant exchange of information and resources. With process creativity as the intermediate variable, the creative ability of the TMT with different members is improved obviously in cooperation, which is beneficial to the enterprise innovation. Other scholars believe that different individuals can learn from each other in the process of information exchange, and take team learning behavior as an intermediate variable, finding that members of the team with higher heterogeneity learn from each other more enthusiastically, thus helping to form a "learning by doing" atmosphere, and improving the team's comprehensive ability to solve problems.

(2) Socialized process

The core of the theory of social categorization is that team members develop a sense of social identity toward the group to which they belong and reject or even antagonize other groups. Bhappu et al. (1997)^[15] considers that intergroup bias is a mediator variable that executive heterogeneity has a negative impact on EP, and such bias exists mainly because members can clearly perceive each other's differences. They hypothesized that if members communicated online rather than face to face, this bias would be reduced. The results of the experiment showed that the level of bias in heterogeneous teams with internet communication was significantly lower than that in the same level of difference but in face-to-face communication. The tacit degree of cooperation is also significantly higher, so group bias can be used as an intermediate variable of TMT heterogeneity affecting EP. Chattopadhyay (1999)^[16] found that trust between team members decreased significantly in highly diverse teams, which was detrimental to the overall information exchange and integration, and had a significant negative impact on organizational performance. Among them, trust is the intermediate variable that results in the negative relationship between TMT heterogeneity and EP. Yao Zhenhua and Sun Haifa (2010)^[17], taking the TMTs of public organizations, state-owned enterprises, private enterprises and foreign enterprises in Europe and the United States as a sample, and taking the team behavior integration as an intermediate variable, found that educational background, overseas experience, and work experience all had negative correlation with behavioral integration, and that is, the differences of top management members affected communication and team cooperation. In other studies, cooperation tacit degree and self-classification of members were used as mediating variables, and it was found that the cooperation tacit degree of members in diversified teams was lower, which was more likely to lead to a lower sense of psychological belonging, furthermore, a negative impact on EP.

3.3. Moderating variables of TMT heterogeneity affecting EP

On the basis of the previous stage, scholars began to pay attention to the variables which affect the whole process of top management differences acting on EP, supposing and verifying the moderating effect of these variables. It also proves the rationality of the intermediate process analyzed in the previous stage indirectly. So far, scholars have studied various types of regulatory variables, among which the variables that describe the characteristics of enterprises and team cooperation are the two most common ones. Therefore, this article will mainly introduce the two major types of regulatory variables related to the study. Of course, these two types cannot cover all studies.

3.3.1 Moderating variables relating to firm characteristics

Some studies show that managers' management actions depend on their environment. TMT will face completely different management tasks and risk situations in different enterprise environments. The process of information integration and cooperation among members is bound to be affected, so

the characteristics of enterprises have become a kind of regulating variable that scholars focus on. Such variables as enterprise type, enterprise industry, development stage and enterprise strategy are introduced into the study successionally.

Cox (1994)^[18] argues that the relationship between TMT heterogeneity and EP changes when firms choose different development strategies. In firms with growth-oriented and customer-oriented strategies, heterogeneity can bring value to an organization. The former requires a high level of creativity on the part of the executive team, while the latter requires a high level of diversity on the part of the team to bring different resources to the organization so that it can reach a wider audience of customers. If an enterprise adopts a stable development-oriented strategy, the existence of heterogeneity may disrupt the normal operation of the enterprise. Carpenter (2002)^[19] confirms that corporate strategy does have a significant moderating effect on the relationship. Other scholars have divided companies according to their stage, and found that the gender, age, and race of team members will lead to greater differences in cognition among members, which in turn will affect team cooperation. This will be disadvantageous to the performance of the enterprise at the initial stage of its establishment. However, the disadvantageous influence can be alleviated to a certain extent when the enterprise matures.

Keck (1997)^[20] divided the enterprises according to the types of industries and studied the concrete and computer subsamples. The results show that the heterogeneous teams have higher work efficiency in the computer industry. Teams that are less diverse in the concrete industry are more effective. Similarly, Higgs et al. (2005)^[21] found that heterogeneity was associated with improved performance in highly complex work environments, whereas it was negatively correlated with performance when tasks were simpler. In addition, other scholars have taken the type of enterprise as an adjustment variable, finding that the relationship between top management heterogeneity and EP in start-ups and MNCs shows its own characteristics: the greater the differences among team members, the more likely they are to be stimulated by interaction to magnify their creativity and innovation, thereby promoting the success of innovation in start-ups. While in multinational companies, the operating environment is full of uncertainties and risks, the existence of the heterogeneity of the TMT is just conducive to the enhancement of the degree of internationalization.

3.3.2 Moderating variables related to team collaboration

Whether it is information decision theory or social categorization theory, the key function is the difference of opinion or personal contradiction between team members in the process of mutual cooperation, which has an impact on EP. How teams work together will be another set of regulatory variables that scholars will focus on. At the same time, Zaccaro and Klimoski (2002)^[22] emphasize that top decision makers and CEOs should be studied separately, based on the power that team members have. It has the ability to directly intervene in the exchange of information asked by members, as well as the ability to influence the interaction of questions asked by executive members. Certain characteristics of CEOs are often included in studies. Therefore, across this type of research, researchers often look at team-wide collaboration and some characteristics of CEOs as moderating variables.

Gaertner and Dovidio (2000)^[23] believe that team dependence affects the relationship between top management heterogeneity and EP. In the process of social categorization, when the team dependence is higher, the team members are more likely to feel the existence of team cohesion, thus reducing the occurrence of bias. In terms of information decision-making process, the increase of team dependence is beneficial to the communication and integration of information among members, thus to the creation of team innovation.

Other researchers, such as Chatman and Spataro (2005)^[24], have also tested this idea, finding that in collectivism-oriented teams, team dependence is high and heterogeneity is good for organizational performance. On the contrary, in teams that emphasize individualism, such as competition and independence, heterogeneity is more likely to have a negative effect. In addition, other researchers looked at team collaboration time as a moderating variable and found that the longer the team worked together, the more chance members had to get to know each other better. The bias caused by

demographic differences will gradually disappear and the negative effect of heterogeneity on EP will be weakened (Vanknippenberg and Schippers, 2007)^[3]. In addition, the power distribution of team organizations will significantly affect the way members collaborate. In general, “decentralized” power levels are more conducive to enhancing team members’ participation in corporate decision-making, thus enhancing information exchange and integration among members, and more quickly eliminating biases inherent in individual differences. Therefore, the “decentralized” team, heterogeneity can play a more positive role.

The most common study of CEO Characteristics is the leadership type as a big moderating variable. Bass (1985)^[25] considers that leadership behavior can be divided into two types: transactional leadership and transformational leadership. The former emphasizes trading, motivate subordinates with self-directly related benefits, while latter emphasizes change, making employees spontaneously aware of the importance of the tasks they undertake. Therefore, when the team has a transformational leader, the top management heterogeneity can exert its positive influence on the EP and promote identity, organizational productivity and innovation potential of a team. In addition to the type of leader, a leader’s management style is also a potentially moderating variable. For example, when a leader is in a management team, he or she tends to group members and assign different tasks within each group, so heterogeneity will make team members more biased, and thus reduce the frequency of team communication and performance. When leaders adopt a participatory leadership style, it can promote the information exchange among members. Furthermore, the team with high heterogeneity can exert the advantage of information integration more easily. Domestic scholar Niu Fang et al. (2011)^[26] introduced the variable describing the leader’s optimistic psychology when discussing the relationship between the top management heterogeneity and the EP. She found that this optimism can positively regulate the relationship between the heterogeneity of industry and functional experience and EP.

3.3.3 Other moderating variables

In addition to introducing moderating variables to describe the characteristics of enterprises and team cooperation, researchers also try to explore the moderating role of other factors. For example, a large number of studies have shown that the relationship between TMT heterogeneity and EP is also influenced by team culture and mode of thinking. In the process of cooperation, teams that pay more attention to information value and knowledge sharing are better able to stimulate the positive effects of TMT heterogeneity. Teams that embrace different ways of thinking are better able to tap the potential for innovation came from members’ heterogeneity. Similarly, the more compatible the team as a whole, the more open it is to diversity. This in turn helps to reduce the negative impact of executive heterogeneity and promotes communication and collaboration among different members (Vanknippenberg and Schippers, 2007)^[3].

In addition, some researchers believe that the level of heterogeneity itself can also play a moderating role. Generally speaking, when the level of heterogeneity is low, it is difficult to bring into play the information advantages brought about by the diversity of members. Contrarily, it is easy to cause the decline of team cohesion and the emergence of contradictions and conflicts. Therefore, a moderate level of heterogeneity is most conducive to EP. Studies have found that the relationship between TMT heterogeneity and EP is inverted u-shaped. Due to space constraints, this paper cannot exhaust all the moderating variables, only listed above a few variables for a brief introduction.

4. Summary

This paper divides the research on the relationship between TMT heterogeneity and EP into three stages according to a logical order, and systematically combs and analyzes each stage. On the whole, the empirical research supports that TMT has an impact on EP, but it is of little significance to directly study the relationship between them. Even if it is the same kind of heterogeneity, it will have a completely different impact on EP because of the interference of external factors. Therefore, it is more valuable to pay attention to the process and the factors that affect the process of TMT

heterogeneity than to simply explore the relationship between them. Previous studies have shown that both the external corporate environment and the internal team work style influence the TMT in the process of cooperation, the former directly determines the specific task faced by the senior members; the latter has a significant impact on the information exchange and interpersonal relationship between members. These two factors will directly affect whether the decision-making process of information and social classification process can play a role and its degree. Furthermore, it can adjust the relationship TMT heterogeneity and EP.

4.1. Pay attention to Chinese national conditions and management practice

Foreign studies of TMT heterogeneity usually consider the heterogeneity of race, religion and nationality, which are mostly based on the background of western society and culture. We also have the heterogeneity characteristic of Chinese social culture. For example, birthplace, nationality and the heterogeneity of household registration. These factors contribute to the formation of individual values and cognitive concepts. It is the different backgrounds of the senior management that result the different values and the pursuit of life, thus produce irreconcilable conflict. Therefore, the future research can focus on these unique heterogeneous attributes of our country.

Most of the existing domestic studies focus on the historical performance of enterprises such as ROA and operating profit, or on indicators such as Tobin's q value and market value, which reflect the future operating conditions of enterprises. Little attention has been paid to the interaction between the executive team and the enterprise. Previous studies have shown that conceptual incompatibility and interpersonal conflict have become the main reasons for Chinese top executives to leave, and the conflict within the TMT has also become a major problem in Chinese enterprise management. Therefore, the future research can broaden the scope of EP indicators, and put more energy on the study of heterogeneity to team cooperation and the sense of belonging to the enterprise.

4.2. Expanding the research perspective of TMT heterogeneity

Harrison and Klein (2007)^[27] clearly pointed out that individual differences should not only include category differences (variety), but also conceptual differences (separation) and status differences (dissimilarity). For example, categorizing executives by age, education...and calculating the TMT heterogeneity, while ignoring the fact that even executives of the same age and educational background may perceive the same issue differently, thus greatly reducing team cohesion. Consequently, it may be more meaningful to pay attention to differences in perceptions than to differences in external categories. In addition, members with the same educational background may have completely different social status, so simply grouping members with the same educational background does not reflect the impact of this social status gap on teamwork. Future research can broaden the measurement dimension of heterogeneity and find out how the differences of senior executives' perceptions and social status affect EP.

A same level of heterogeneity, in different team combination, may present completely different characteristics. Chatman and O'Reilly (2004)^[28] found that if a group is often in the minority, the negative impact of having it in the minority again is much smaller than that of the larger group. For example, women are consistently at a disadvantage in executive teams, and a 20% female executive team is more harmonious than a 20% male team, which often results in greater conflict and lower satisfaction as men move from majority to minority. Such difference cannot be reflected in heterogeneity indicators alone. In addition, heterogeneity itself may influence each other. When the two types of heterogeneity are not independent from each other, they may produce superposition effect. For example, for a group of women with low educational background and men with high educational background, the individual bias and personal conflict may be much higher than for a group of women with random distribution of gender and educational background. This superposition effect can be difficult to measure through traditional heterogeneity indicators. Therefore, in future research, we can broaden the research perspective of heterogeneity and incorporate more complex measurement models.

4.3. In-depth analysis of impact mechanism between TMT heterogeneity and EP

Although some researchers have introduced mediating variables and moderating variables to explore the intermediate process of TMT heterogeneity affecting EP, most of the existing studies are at the level of theoretical analysis. The empirical test of this intermediate process is very scarce. Therefore, the future research can strengthen the discussion of the influence mechanism, finding out more clearly when the TMT heterogeneity will have the positive influence to the EP, and when will bring the negative influence. Furthermore, it can also provide corresponding guidance for the practice of enterprise management. Kearney et al. (2009)^[29] found that when team members were more inclusive of diversity, they were better able to leverage the benefits of that diversity without unnecessary personal conflict. Eisenhardt (2013)^[30] emphasized effectively addressing manage team conflict. Avoiding the introduction of personal biases into specific tasks can greatly reduce the negative impact of individual differences. Research focusing on this intermediate process will have high practical value.

4.4. Refinement of research methods

Most of the existing researches focus on the relationship between team heterogeneity and EP at a certain time, but ignore the dynamic relationship between them, which may lead to biased conclusions. With the continuous development of the enterprise, the interaction between the executive members and the enterprise, the interpersonal relationship of the members themselves will be changed. For example, bias caused by differences in family background may be weakened by continuous communication and cooperation. While implicit differences in values and perceptions may become apparent over time. In order to improve the reliability of the conclusion, future research may consider to adopt the dynamic tracking method to track the typical enterprise continuously and deeply and explore the dynamic effect of the TMT heterogeneity on the EP.

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