Building Corporate Social Networks Favorable to M&A - A Perspective of Structural Holes

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Abstract

This article is based on the theory of structural holes, based on the company network formed by the company's senior management team chained, and empirically studied the impact of the structural hole characteristics of Chinese listed companies' corporate networks on corporate mergers and acquisitions. The study found that because the company has more structural holes in the company network, the listed company's social capital and market information continue to accumulate, resulting in a competitive advantage in "control" and "information", which helps the company to obtain information and Control the advantages and obtain more opportunities for mergers and acquisitions. The richness of the structural holes owned by the company has a significant positive correlation with the willingness to merge and acquire, which has a positive effect on M&A. Starting from the structural hole theory and the conclusions of this paper, we can obtain the principle of building a social network that is conducive to company mergers and acquisitions: the company executives should increase the richness of the company's structural holes in serving in other companies. A very direct and very effective way to build a social network that is conducive to company mergers and acquisitions is that company executives should join the boards of companies with rich structural holes as much as possible, so as to directly obtain more structural holes.

Keywords :social networks; corporate networks; structural holes; corporate mergers and acquisition

Introduction

(Uzzi, 1997) noted that social network is a social relationship formed between action individuals in order to achieve problem solving and resource exchange. The company's senior management team forms a small group. When the members of this small group serve in other companies, they will form a social network between companies through this chain of appointments, that is, the company network.(Haunschild, 1994) researched the company with

the position of chain director, and found that the company's mergers and acquisitions decision to follow the company director concurrently.(Luo, 2010) pointed out that the location of the network has an important influence on the resources and power acquisition of network members. The company network formed by the entire listed companies forms structural holes due to the different network positions, and companies with executive chain positions will enjoy information advantages and control advantages because they occupy the structural hole position in the company network. (Chen, 2015) Based on the theory of structural holes, the richness of structural holes will be able to reflect to a certain extent the impact of corporate networks on corporate M&A decisions. How does the company's social network location and the richness of the structural holes it affects the company's M&A behavior? How does the company form more structural holes through the concurrent appointment of company executives in order to have a competitive advantage in the market? The questions are worth studying.

In the previous research, the company network was limited to building a network of directors through chain directors (director links). In fact, the phenomenon of non-directors working in other listed companies is also very common. The construction of social networks between companies is necessary expansion to all executives, that is, from directors to executives. This article studies the social network and company mergers and acquisitions from the perspective of the company network formed by the senior management team serving in other companies, which has enriched the research results in related fields.

(Burt, 2002) believes that structural holes can provide opportunities for their occupants to obtain "information benefits" and "control benefits", and thus have a competitive advantage over members in other locations on the network. The connection of directors has established an information transmission channel between the management of both sides of the merger and acquisition, which helps to reduce the search and negotiation costs of the merger and acquisition, thereby generating greater synergy (Cai & Sevilir, 2012) (Boussard et al., 2016) studied the mergers and acquisitions of companies in the French market and found that the existing links between the companies contribute to the trust and transactions in the merger and

acquisition market.(Shipilov & Li, 2008) was taking the social network structure as the starting point, it is believed that the boundary of the enterprise occupying the position of the structural hole depends on the upper limit of the ability of the enterprise to fully control the expanding network.(Wan & Zheng, 2014) based on the structural hole theory, empirical research was conducted on the relationship between the M&A behavior of Chinese listed companies and the location of the structural hole. The research found that the richer the structural holes in listed companies, the greater the advantage of the relevant directors of the M&A party in acquiring M&A information. This can be promote mergers and acquisitions to improve the quality of mergers and acquisitions, promote the development of mergers and acquisitions

In the process of corporate search for M&A targets, executive links are undoubtedly a direct and fast channel. The richer the structural holes of companies in the company network formed by executive links, the more likely it is to affect the total amount and structure of social capital of the corporate executive team , But also affects the company's own social capital, which in turn affects the company's M&A, Therefore, this paper proposes research hypotheses: H1: With other conditions unchanged, the richness of the structural holes of listed companies in the social network is positively related to the company's willingness to acquire

Conceptual Framework

Explained variable

For the research model (1), the explained variable MAt is the probability of merger and acquisition, which is a binary classification variable. If the company has a merger in the t year, the value is 1, and the value of no merger is 0.

Explanatory variables

In this paper, the constraint coefficient index is used to measure the richness of structural holes. Refer to(Burt, 2004)to calculate the relevant indicators of structural holes. The larger the value of the structural hole constraint in the Burt indicator, the smaller the structural hole representing the location of the enterprise. Therefore, scholars often use the difference between the structural hole constraint and 1 proposed by Burt to measure the richness of

structural holes (SHi) That is, the larger the SHi, the richer the structural holes representing the company's network location.

The *constraint* is a measure of the extent to which a node *v* is invested in those nodes that are themselves invested in the neighbors of *v*. Formally, the *constraint on v*, denoted c(v), is defined by:

$$c(v) = \sum_{w \in N(v) \setminus \{v\}} \ell(v, w) \qquad (2)$$

where N(v) is the subset of the neighbors of v that are either predecessors or successors of v and ell(v, w) is the local constraint on v with respect to

w .(*Networkx.Algorithms.Structuralholes.*Constraint — *NetworkX 2.4 Documentation*, n.d.)

The formula for calculating the richness of structural holes in this paper is as follows:

$$\mathrm{SHi} = 1 - c(v) \qquad (3)$$

Control variable

This article refers to the existing literature and controls the following factors that may affect the company's M&A decision: company size (Size), company total asset return rate (ROA), company operating income growth rate (Growth), company Tobin Q value (Tobin` s Q), liquidity (Liq), company debt ratio (Lev), company property rights (Property), whether the chairman and general manager serve concurrently (Dual), board size (Board), independent director ratio (Indep), the largest Shareholders' shareholding ratio (First), management's shareholding ratio (ESH), etc. and annual and industry fixed effects.

research method

Sample selection and data processing

This article uses M&A events initiated by Chinese A-share listed companies as the basic research sample from 2008 to 2017, uses the CSMAR database to obtain data. This article determines the sample interval of M&A events from 2008 to 2017, and the sample interval of

executive network data from 2007 to 2016, a total of 10 years. The sample is selected according to the following principles:

(1) Select the main merger as the sample of the listed company's merger and acquisition;

(2) Remove listed companies in the financial industry;

(3) Select the narrowly defined types of mergers and acquisitions such as asset acquisitions, equity transfers and mergers and acquisitions of listed companies. Exclude samples of mergers and acquisitions whose business type is debt restructuring, and samples of mergers and acquisitions whose type of reorganization is asset divestiture, debt restructuring, asset replacement, and share repurchase;

(4) Excluding companies in the ST category and listing delisting category in the year of the transaction;

(5) The purchase of equity of the target company in multiples to achieve mergers and acquisitions is regarded as a merger and acquisition event;

(6) Eliminate M&A transactions that lack the "significant asset restructuring logo" and "associated transaction logo"

(7) Remove the related M&A samples;

(8) Remove real estate companies to buy real estate;

(9) Remove samples with missing data.

After screening, a total of 16,271 valid samples were obtained in this paper. In order to eliminate the influence of outliers, this paper performed a 1-99% level tailing treatment (Winsorize) on the main

continuous variables. In this paper, the data preprocessing software is Python, the social network index calculation uses social network data analysis software NetworkX, and the statistical analysis software is Stata 15.1.

Model setting and variable description

In this paper, the binary logistic regression method is used to represent the merger willingness with the probability of merger and acquisition, and a test model is constructed (1) :

$$\begin{aligned} MAt = {} & \beta 0 + \beta 1 Networkt - 1 + \beta 2 Sizet - 1 + \beta 3 Tobin'qt - 1 + \beta 4 Liqt - 1 \\ & + \beta 5 ROAt - 1 + \beta 6 Growtht - 1 + \beta 7 Levt - 1 + \beta 8 Dualt - 1 \\ & + \beta 9 Boardt - 1 + \beta 10 Indept - 1 + \beta 11 Firmage + \beta 12 Firstt \\ & - 1 + \beta 13 ESHt - 1 + \Sigma \beta 14 Industry + \Sigma \beta 15 Year \end{aligned} \quad (1)$$

Probability of M&A - MAt is the possibility of the company's M&A in that year. The social network data and control variable data are taken from the year before the first announcement of the M&A. Considering that the company's M&A is a rigorous decision, there are early evaluation, contact, negotiation, and intention so the process requires a certain amount of advance.

research results

Descriptive statistical analysis

This article has performed descriptive statistics and related analysis of the main variables (limited to space, not listed in detail). In the 16,271 samples from 2008 to 2017, about 64% of Chinese A-share listed companies did not undergo mergers and acquisitions. The average value of centrality is 4.47, indicating that an average company shares executives with 4.47 companies. The minimum value of the Tobin Q value is 0.95, and the maximum value is 9.09, reflecting the large correlation between stock prices and investment expenditures between enterprises. The average growth rate is 0.22, indicating that most companies have achieved growth and the average growth rate has reached 22%. Whether the Property variable is state-owned is 0.43, indicating that nearly half of the listed Chinese companies in the sample have state-owned attributes, and the average value of the chairman also is the general manager is 0.26. The average value of independent directors is 37%, and Chinese law provides that board members of listed companies Among them, there should be more than 33% of independent directors, and 37% are only slightly higher than the regulations, indicating that there are cases where the company sets up a number of independent directors slightly higher than the regulations just to meet the regulations.

Regression results of the richness of company structure holes and M&A behavior

As shown in Table 1, the richness of MA and structural holes is significantly positively correlated at the 1% level, indicating that the richness of the network location of the relevant listed companies can significantly increase the probability of mergers and acquisitions of listed companies, which is consistent with Hypothesis 1. (Limited to space, some control variables are not listed in detail)

indep	-0.229
...	...
_cons	-1.437***
Obs.	12589
Pseudo R2	0.033

Note: ***, **, and * represent significant levels at 1%, 5%, and 10%, respectively;
Source: Authors' summary of Stata results

Discussion of Research Results

How to build a social network conducive to company mergers and acquisitions

Social networks that are conducive to corporate mergers and acquisitions should have rich structural holes, so as to gain competitive advantages in "control" and "information", and have a positive effect on mergers and acquisitions. Starting from the structural hole theory and the conclusions of this paper, we can obtain the principle of building a social network that is conducive to company mergers and acquisitions: the company executives should also increase the richness of the company's structural holes. A very direct and very effective way to build a social network that is conducive to company mergers and acquisitions is that company executives should join the boards of companies with rich structural holes as much as possible, so as to directly obtain more structural holes.

Conclusion

From the perspective of social network theory, the position of listed companies in social networks will have an impact on their M&A behavior and performance. This article from the

perspective of the company network formed by the senior management team working in other companies, through the study of Chinese listed companies from 2008 to 2017, found that the richness of the structure holes of listed companies will bring a positive boost to the occurrence of company mergers and acquisitions. This may be because when the structure of the network position of the listed company is more abundant, the listed company will have more opportunities to obtain the social capital and market information embedded in the social network, then produced a competitive advantage in "control" and "information", which has a positive effect on M&A.

References

Boussard, V., Godechot, O., & Woloszko, N. (2016). How to make a deal: The role of rankings and personal ties in creating trust in the M&A market. *Paris: MaxPo*, 16(3), 1–23.

Burt, R. S. (2002). The social capital of structural holes. *The New Economic Sociology: Developments in an Emerging Field*, 148, 90.

Burt, R. S. (2004). Structural holes and good ideas. *American Journal of Sociology*, 110 (2), 349–399.

Cai, Y., & Sevilir, M. (2012). Board connections and M&A transactions. *Journal of Financial Economics*, 103(2), 327–349.

Chen, Y. (2015). Social network and enterprise efficiency: Evidence based on the location of structural holes. *Accounting Research*, 1, 50-57.

Haunschild, P. R. (1994). How much is that company worth?: Interorganizational relationships, uncertainty, and acquisition premiums. *Administrative Science Quarterly*, 39 (3), 391–411.

Shipilov, A. V., & Li, S. X. (2008). Can you have your Cake and Eat it too? Structural Holes' Influence on Status Accumulation and Market Performance in Collaborative Networks. *Administrative Science Quarterly*, 53(1), 73–108.

Uzzi, B. (1997). Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness. *Administrative Science Quarterly*, 42(1), 35–67.

Wan, L., & Zheng, X. (2014). Structural hole characteristics of director networks and corporate mergers and acquisitions. *Accounting Research*, 5, 67–72.