An Empirical Study on the Growth Impact of m & a on Agriculture-Related Listed Companies

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Abstract: As an important subject of China's existing agricultural production and management, agriculture-related listed companies support and lead the development of the agricultural industry to a certain extent. This article take a total of 146 M & A events completed in the ten years from January 1, 2009 to December 31, 2018 in 463 A-share agriculture-related listed companies on the A-share market as a sample. Multivariate regression analysis based on financial indicators and non-financial indicators based on five years .The Generalized Estimating Equation (GEE) model processed with Longitudinal Data Analysis (LDA) and the Between Estimator (BE) model processed with Panel Data were used to compare and analyze the regression results. Aiming at the above conclusions, this article puts forward several specific suggestions from the two aspects of the M & A decision of agriculture-related listed companies and the government and market supervision.

1. Introduction

Agriculture, as the foundation of the national economy and the basic guarantee of national security, has always been highly valued by the party and the country. As one of the important means for contemporary enterprises to seek expansion and development, M & A is the fastest, most convenient and efficient way to realize the integrated operation and industrialization of agriculture-related enterprises. Therefore, the study of the impact of M & A on agriculture-related listed companies has important practical significance and guiding significance for the future development of agriculture-related companies.

Bruner (2002) found that in mature markets, the shareholders of the acquiree benefit 10% -30% excess stock returns more than the acquirer's shareholders in M & A. Li Shanmin (2004) concluded that the shareholders of the acquired company have suffered significant wealth losses within 1 to 3 years after the M & A . Ghibli's law states that corporate growth is a random process, and the effect of corporate size on its growth rate is not significant (Lensink P, 2005) . But Luis Cabral (1995) added the consideration of the sunk cost of capital and technology options, and the growth of the company was negatively related to the size.

Then this article attempts to explore the exact impact of M & A on the growth of agriculture-related listed companies, and gives suggestions.

2. Sample Selection and Data Source

This article selects a total of 463 agriculture-related listed companies in the “Classification Results of Listed Companies in the First Quarter of 2019” announced by the CSRC. Taking Wind Financial Database as their research objects, a total of 146 major M & A occurred between January 1, 2009 and December 31, 2018. Get vertical data for each indicator from the year before the M & A, the year after the M & A, the first year after the M & A, the second year after the M & A, and the third year after the M & A are obtained from Wind, CSMAR database, professional financial website, company website, etc. Apply accounting research , use the Generalized Estimating Equation (GEE) model and the BE (Between Estimator) model of Panel Data to estimate the regression results. The full text uses Stata / SE 15.1 software for data processing.

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3. Variable Definition and Description

Table 1 List of Variables Affecting m & a on the Growth of Agriculture-Related Listed Companies

Type	Variable Name	Definition
Dep. Var.	Operating Income Growth Rate	(Period-end Operating Income - Opening Operating Income)/ Opening Operating Income *100%
Indep. Var.	Net Assets Growth Rate	(Period-end Net Assets - Opening Net Assets)/ Opening Net Assets *100%
Control Var.	Total Assets Growth Rate	(Period-end Total Assets- Opening Total Assets)/ Opening Total Assets *100%
	Type	M & A type is vertical as 1 ,M & A type is not vertical as 0.
	Relative Scale	M & A type is mixed as 1 ,M & A type is not mixed as 0.
	Premium	Total Value of M & A Transactions / Total Assets in the Year of M & A *100%
	Same Place	(Total Value of M & A Transactions - Underlying Net Assets of the Aransaction)/ Underlying Net Assets of the Aransaction *100%
	Connected Transaction	Same territory is 1,different territory is 0.
	Beyond Year	Yes associated transaction is 1,not associated transaction is 0.
	Main Role	Cross-year is 1,not cross-year is 0.
	Size	Lender is 0,Competitive buyer is1.
	Government Subsidy	ln(Total Assets of the Company in the Year of M & A)
	Age	Government Subsidies / Operating Income *100%
	Debt to Asset Ratio	(M & A Completion Date - Company Listing Date)/365
	Institutional Shareholding Ratio	Total Debt / Total assets *100%
		Institutional Share of Outstanding A shares *100%

4. Research Hypotheses and Model Building

Based on the research results of other researchers and the actual situation of current agriculture-related listed companies, this paper makes the following hypotheses and establishes the following research model.

Hypothesis 1: The positive impact of hybrid, vertical and horizontal M & A on the growth of agriculture-related listed companies has gradually weakened.

Hypothesis 2: The relative size of M & A is negatively related to the growth of agriculture-related listed companies.

Hypothesis 3: Negative correlation between M & A premium and growth of agriculture-related listed companies.

Hypothesis 4: The same territory of M & A has a positive correlation with the growth of agriculture-related listed companies.

Hypothesis 5: Related party transactions in M & A have a significant negative effect on the growth of agriculture-related listed companies.

Hypothesis 6: The M & A process has a more negative impact on the growth of agriculture-related listed companies than it does not.

Hypothesis 7: In the M & A of agriculture-related listed companies, the transferor's growth from the M & A is better than that of the competitive buyer.

Research Model:

$GROWTH_{jt}=\alpha_t +\lambda_{1t}M_1+\lambda_{2t}M_2+\lambda_{3t}$ RSCAL$+\lambda_{4t}$ PRE$+\lambda_{5t}$ SP$+\lambda_{6t}$ CT$+ \lambda_{7t}$ BYEAR$+ \lambda_{8t}$ MROLE$+\lambda_{9t}$ SIZE$+\lambda_{10t}$ $GOV_t+\lambda_{11t}$ AGE$+ \lambda_{12t}$ DAR$+ \lambda_{13t}$ PIS$+\varepsilon_t$

j :successively represent $BRGR_t$,$NAGR_t$,$TAGR_t$.

t=-1,0,1,2,3 successively represent the year before the M & A, the year after the M & A, the first year after the M & A, the second year after the M & A, and the third year after the M & A.

α_t: Constant term.

ε_t:Random error term.

λ_{it}:Underestimated coefficient(i=1,2,3,4,5,6,7,8,9,10,11,12,13).

5. Empirical Results and Analysis

Table 2 shows descriptive statistical results and multiple regression results of the impact of M & A on the growth of agriculture-related listed companies. The regression results are divided into generalized estimation models and inter-group estimates. We can see that the conclusions of the two regression results are basically the same.

Table 2 Gee and Be Regression Results of the Impact of m & a on the Scalability of Agriculture-Related Listed Companies

Variable Name	Operating Income Growth Rate GEE	Operating Income Growth Rate BE	Net Assets Growth Rate GEE	Net Assets Growth Rate BE	Total Assets Growth Rate GEE	Total Assets Growth Rate BE
TypeM1	-15.03	-15.03	58.64	58.64*	-7.801	-7.801
TypeM2	(16.64)	(20.16)	(53.77)	(35.20)	(30.23)	(35.84)
Relative Scale %	-19.16	-19.16	-30.36	-30.36	-15.20	-15.20
Premium %	(13.19)	(13.63)	(22.26)	(23.81)	(27.32)	(24.24)
Same Place	-0.134*	-0.134	0.0162	0.0162	-0.0362	-0.0362
Connected Transaction	(0.0738)	(0.102)	(0.0990)	(0.179)	(0.0650)	(0.182)
Beyond Year	0.0483	0.0483	-0.145	-0.145	-0.297	-0.297
Main Role	(0.333)	(0.343)	(0.321)	(0.598)	(0.338)	(0.609)
Size	-42.02***	-42.02***	-45.93**	-45.93*	-47.66**	-47.66**
Government Subsidy	(11.91)	(13.32)	(19.27)	(23.26)	(18.83)	(23.68)
Age	-9.594	-9.594	-30.84	-30.84	-38.24	-38.24
Debt to Asset Ratio	(13.38)	(15.26)	(19.65)	(26.65)	(23.63)	(27.14)
Institutional	-9.716	-9.716	-12.86	-12.86	-40.73*	-40.73*
Shareholding Ratio	(12.71)	(12.11)	(22.08)	(21.14)	(24.17)	(21.52)
Constant	50.72***	50.72***	66.23***	66.23*	50.38*	50.38
	(16.52)	(19.30)	(24.31	(33.69)	(27.49)	(34.31)
	-9.174	-9.174	5.630	5.630	-4.074	-4.074
	(5.833)	(6.986)	(9.243)	(12.20)	(9.535)	(12.42)
	-3.072	-3.072	-3.238	-3.238	-1.017	-1.017
	(2.773)	(3.504)	(5.119)	(6.118)	(5.286)	(6.229)
	-0.0583	-0.0583	1.088	1.088	-1.468	-1.468
	(1.395)	(1.040)	(2.141)	(1.816)	(2.601)	(1.849)
	-0.119	-0.119	-1.250***	-1.250**	-0.306	-0.306
	(0.222)	(0.317)	(0.413)	(0.554)	(0.376)	(0.564)
	-0.0191	-0.0191	0.0264	0.0264	0.180	0.180
	(0.263)	(0.315)	(0.441)	(0.550)	(0.474)	(0.560)
	154.2**	154.2*	13.66	13.66	150.1	150.1
	(67.11)	(84.88)	(109.6)	(148.2)	(109.0)	(150.9)

Note:Significance level,*** represent p<0.01, ** represent p<0.05, * represent p<0.1.

6. Conclusions and Suggestions

6.1 Conclusions

Different types of M & A will have different M & A performance. Vertical M & A make the best contribution to the growth of agriculture-related listed companies, especially the positive contribution to net assets. Does not match hypothesis 1.

The larger the relative scale of M & A, the greater the negative impact on the company. The impact is not significant, but the growth rate of operating income has a certain negative effect. Consistent with hypothesis 2.

High M & A premiums will cause short-term stock prices to rise, but have a negative impact on long-term development. Consistent with hypothesis 3.

The parties to the M & A in the same territory may have better understanding and trust, but this does not guarantee higher returns, and the M & A incidents accompanied by high liabilities must also have high risks. Not consistent with hypothesis 4.

Related party M & A have a significant negative impact on their growth Consistent with hypothesis 5.

In the long run, the growth of cross-year M & A for companies is better than the growth brought by M & A completed in the same year. However, M & A with excessive resource pressure have hindered the growth of agriculture-related listed companies. Consistent with hypothesis 6.

Compared with the transferor, M & A is higher risk and higher return for competitive buyers. Not consistent with hypothesis 7.

Government subsidies can improve the profitability of agriculture-related listed companies in the short term, but long-term government subsidies caused some of them to generate short-term "rent-seeking" behaviors in order to obtain it.

6.2 Suggestions

6.2.1 Suggestions for m & a Decisions of Agriculture-Related Listed Companies

Considering the growth of agriculture-related listed companies, vertical M & A are the best. Select horizontal M & A for technical M & A. In order to enhance the company's diversification, choose hybrid M & A. Due to the natural dependence of the industry on natural conditions and positive externalities, diversified M & A by "back-farmers" cannot solve their core growth force issues.

Due to the higher risk of the industry itself, it is necessary to reduce the failure of M & A and the difficulty of integrating resources after M & A, which will have a greater negative impact on the company's growth.

High M & A premium may be beneficial to the short-term stock price of agriculture-related listed companies, but high returns must accompany high risks.

Although there is a certain understanding and trust foundation for local M & A, and there may even be some institutions to promote or even guarantee, agriculture-related listed companies must consider whether they are consistent with the company's long-term planning when making M & A decisions.

If it is not based on the overall strategy or other considerations, but only considering the growth of the company for M & A, under the same conditions, try to avoid related party M & A.

If the company's funding, management, auditing and other conditions allow, the longer the M & A delay, the greater the occupation of resources .

In the process of M & A, being a bidding buyer will have higher risks and higher returns, and the tolerance of M & A costs should also be considered whether choose active M & A.

6.2.2 Recommendations for Government and Market Supervision

Government subsidies should use more "green box" policies and reduce "yellow box" policies. The establishment of a comprehensive system of agricultural support agriculture-related listed companies' encouragement and support standards and evaluation systems serves both as a guide for the growth of listed companies and as a guide for government grants.

Market supervision is more systematic, comprehensive, efficient and stricter for the approval of M & A of agriculture-related listed companies. Approve the release from its growth considerations.

Forming core competitiveness is lasting growth. Strengthening agricultural research and development investment, focusing on the development of the agricultural industry, and avoiding blind expansion, especially blind mixed M & A, all require government policy encouragement, guidance and regulation.

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