The Application of Anchoring Effect on Corporate M&A Transaction

Mengyu Diao[1,*]

[1] School of Economics and Finance, University of International Relations ,Beijing, 100091,China
[*]Corresponding author. Email: diaomengyu@uir.edu.cn

ABSTRACT

Corporate M&A transactions have been studied from many perspectives, such as executives' status and their cognitive bias such as the anchoring effect, which is easily overlooked but has a broad impact. Inevitably, during the M&A process, decision-makers are subject to cognitive biases such as the anchoring effect. Chen Shihua et al. First analyzed the anchoring effect on corporate M&A transactions in 2016. In this essay, based on previous studies, this paper uses questionnaires and experiments to further the role played by self-generated and externally provided anchors during the decision-making process. The experiment found that the self-generated anchor caused a greater impact and its influence is more easily weakened by advisors. This proves that advisors are indispensable and that the anchoring effect is not completely insurmountable.

Keywords: *mergers and acquisitions; anchoring effect; self-generated anchor; externally provided anchor.*

1. INTRODUCTION

For a long time, mergers and acquisitions transactions have been a hot topic of research. It has developed largely along disciplinary lines [1]. In the field of economics and finance, the research can be briefly divided into the decision phase of the M&A transactions and the subsequent impact on the host company after the merger. Inevitably, during the M&A process, decision-makers are subject to cognitive biases such as the anchoring effect. This essay focuses on the decision phase because the anchoring effect is mainly reflected in this phase. From another perspective, earlier studies focused more on the identity background of corporate decision-makers [2]. Others are based on the subjective level of corporate executives, such as exploring the effect of executive overconfidence on corporate M&A transactions [3].

However, in recent years, regardless of their identity background, cognitive biases such as the anchoring effect that cannot be ignored have received wide attention.

The anchoring effect is widespread and difficult to overcome. It is that people are more susceptible to the influence of an initial anchor value when making decisions, especially when faced with a numerical decision, and generally adjust around that reference value. The anchor may be external or self-generated; it may or may not be related to the event to be decided. The anchoring effect is first proposed by Tversky and Kahneman [4], who find that anchors unrelated to the decision event could also influence the outcome of people's judgment in the classic "lucky wheel" experiment. That is, the arbitrary numbers from the lucky wheel had a marked effect on estimates. In the groups of anchor values of 10 and 65, subjects estimate the percentage of African countries in the UN with median estimates of 25 and 45 accordingly. People are more susceptible to the influence of an initial anchor when making decisions, especially when faced with a numerical decision and generally adjust around that reference value. The anchor may be external or self-generated; it may or may not be related to the event to be decided. Tversky and Kahneman consider the psychological interpretation of the anchoring effect as insufficient adjustment, and the updated view argued that selective accessibility is the cause of the anchoring effect [5]. Attitude change also serves as an additional theory [6].

Reviewing additional details of the anchoring effect, Epley and Gilovich firstly propose the self-generated anchor and attribute this to insufficient adjustment [7]. Later researchers suggest that the selective accessibility mechanism exists on the externally provided anchoring effect. Thus, there is a dual processing mechanism for the anchoring effect, and the self-generated anchor is more powerful than the externally provided anchor [8].

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The M&A transaction is the percentage of the difference between the transaction price paid by the host company for the subject and the value of the subject itself. Companies can hire advisors to value mergers and acquisitions, assist in negotiations, and use their expertise to facilitate the process. The seller hires an advisor that can assist in identifying potential buyers, preparing key sales documents, and providing basic information about the potential buyer as support. This includes a detailed description of the target company's strategy and financial position, particularly projections of revenues, costs, and profits. The advisor hired by the buyer, on the other hand, not only supports the identification of the M&A target but also provides the necessary investigative services, i.e., verifies that the seller's price is reasonable and in line with expectations based on the management business case shared with the potential buyer [9].

The M&A transaction events of M&A transaction events between 2004 and 2011 for A-share listed companies in Shanghai and Shenzhen are selected as the initial research sample, and the anchoring effect is found in the M&A transaction decision. The anchor is found from the perspective of the buy-side and is jointly determined by using the previous M&A price of the main merging company as the self-generated anchor and the M&A price of the linking company as the externally provided anchor [10]. They conclude first that the effect of self-generated anchors is greater than that of externally provided anchors, and second, the advisor's recommendation can weaken both self-generated and externally provided anchors.

However, firstly, they do not answer the question of whether the advisor's recommendation plays an important role because the advisor's professionalism is better than that of the M&A decision-maker. In other words, whether elevating professionalism is effective against weakening the cognitive bias from the anchoring effect. Secondly, they do not mention whether the advisor's recommendation weakens the self-generated anchor more or weakens the externally provided anchor more. This paper will conduct relevant experiments to answer the above two questions.

2. DATA AND METHOD

This paper selects 1626 data from China Stock Market & Accounting Research Database, data ranging from 2012.04.01 to 2022.03.31. This paper filters out the more meaningful data, which requires a minimum value of $50 million when going into consideration that the deal is already completed, and the three data onto expense value, evaluation value, and book value are not blank. Meanwhile, these cases are required to have no relevance sign and major restructuring sign.

Through correlation analysis, this paper finds that neither expense value is significantly correlated with valuation value, nor expense value with a book value(see table 1 and table 2). From this, this paper can predict that the advisor's advice must have played a role in the final payment decision. This allows us to further advance our research on the question of which anchor the advisor has weakened.

Table 1. Correlations

		Expense Value	Book Value
Expense Value	Pearson Correlation	1	.037
	Sig. (2-tailed)		.139
	N	1626	1626
Book Value	Pearson Correlation	.037	1
	Sig. (2-tailed)	.139	
	N	1626	1626

Table 2. Correlations

		Expense Value	Evaluation Value
Expense Value	Pearson Correlation	1	.013
	Sig. (2-tailed)		.610
	N	1626	1626
Evaluation Value	Pearson Correlation	.013	1
	Sig. (2-tailed)	.610	
	N	1626	1626

This paper next conduct the study using an experimental format, which is relatively easier to control under experimental conditions. Participants are only influenced by the control variables and are not disturbed by other external factors.

Three sets of experiments with variable controls for the presence or absence of a self-generated anchor and advisor have been designed. By giving participants basic

data on corporate M&A transactions, this paper allows them to consider the price they are willing to pay from the perspective of a buyer company.

3. STUDIES

3.1. The main role of self-generated anchors

Study 1 aims to replicate the design of Chen Shihua and Li Weian in 2016. It is demonstrated that under the experimental conditions, the participants' feedback largely matches the actual. In previous studies, data on companies that had their second M&A transaction are used as a self-generated anchor sample. The companies which have the first M&A transaction and there are linkage companies and the linkage companies also have an M&A transaction before the first M&A transaction of the focal company. These companies are used as the sample of externally provided anchors, and the transaction level of these M&A transactions is the externally provided anchor.

This paper refers to the experimental design with the above hypothesis, asking participants to give the price they are willing to pay for a merger and acquisition with reference only to the given externally provided anchor or both self-generated and externally provided anchors. Based on their findings, this paper proposes hypothesis 1 that self-generated anchors play a greater influence on behavioral decisions. Specifically, there will be significant differences in the answers given by participants when only externally provided anchors and dual anchors are provided.

Participants are firstly given externally provided and self-generated anchors sequentially in this experiment, self-generated and externally provided anchors are given simultaneously the second time to avoid interference caused by the different order of anchor appearance. They are asked to complete a questionnaire within a certain time.

The participants are all undergraduate students in the Department of Economics and Finance at the University of International Relations to ensure that they have a certain level of expertise and understanding of corporate M&A transactions but do not differ too much in their degree of specialization.

In table 3, Sig<0.05 means that these two sets of data do not conform to a normal distribution, and it can next perform a rank-sum test of paired samples to compare differences.

Table 3. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Expense - externally provided anchor	.266	11	.028	.730	11	.001
Expense – dual anchor	.295	11	.008	.784	11	.006
a. Lilliefors Significance Correction						

Table 4 indicates that when the externally provided anchor is present only, it is significantly different compared to the case where both self-generated and externally provided anchors are present. this paper also performs another set of similar designs, but first providing only self-generated anchors and then dual anchors, and they gave almost identical answers upon analysis. This implies that the self-generated anchor is more effective and plays a greater role in decision making. This is consistent with our hypothesis.

Table 4. Test Statistics[a]

	Z	Asymp. Sig. (2-tailed)
Self-generated and externally provided anchor	-2.666[b]	.008
a. Wilcoxon Signed Ranks Test		
b. Based on positive ranks.		

3.2. Advisor impact on anchors

Study 2 is intended to investigate whether the advisor's recommendation weakened self-generated or externally provided anchors more. Participants in group 1 will be provided with the M&A price of the linking company and will be asked to use it as a reference to determine the price to pay, assuming they are the decision-maker on the acquirer. Participants in group 2 will additionally be provided with the previous M&A price of the main merging company as a reference. After

that, they are offered another price and they are told that the advisor offering this price is authoritative. Then, they have to consider whether to revise the price of their previous decision.

Hypothesis 2 is that the advisor's advice weakens the self-generated anchor more. The predicted results of the experiment will be that participants in both groups would change their decisions after being offered a price by the advisor, with participants in the second group changing to a greater extent.

This paper set two different groups for the experiment because the effects caused by self-generated anchors in group 1 are best to exclude completely. In other respects, the two groups do not differ in any way, and they are not told which group they are in to avoid interference from irrelevant information such as group number.

Still, the participants are all undergraduate students in the Department of Economics and Finance at the University of International Relations to ensure that they have a certain level of expertise and understanding of corporate M&A transactions but do not differ too much in their degree of specialization.

In the case that externally provided anchors exist only, this paper obtained two sets of data on whether or not to provide advice from the advisor. The two sets of data are tested to be abnormally distributed. With table 5, this paper finds that the presence or absence of advisors does not constitute a significant difference in the case that an externally provided anchor exists only.

Table 5. Test Statistics[a]

	Z	Asymp. Sig. (2-tailed)
externally provided anchor-with an advisor	-.746[b]	.456
a. Wilcoxon Signed Ranks Test		
b. Based on negative ranks.		

However, in another experiment, when both self-generated and externally provided anchors are present, whether the advisor gives advice or not causes a significant difference in the participants' decision-making (see table 6). This effectively proves that the advisor's advice weakens the self-generated anchor more and does not have as much impact on the externally provided anchor, which is also consistent with the hypothesis.

Table 6. Paired Samples Test

		t	df	Sig. (2-tailed)
Pair	dual anchors - with advisor	-2.918	7	.022

3.3. The impact of professionalism on results

Study 3 is based on study 1, hypothesis 3 is that difference in professionalism makes a difference in decisions. In reality, a person may be reluctant to hire an advisor for reasons such as risk or cost. At this point, this paper wonders if improving one's professionalism, or acquiring more information about M&A, could weaken the impact of the anchoring effect. If hypothesis 3 holds, increasing professionalism can effectively weaken the anchoring effect.

Based on Experiment 1, this paper asked about the participants' departments' all of them are undergraduate students at the University of International Relations from different departments. This paper grouped them into two main categories, the Department of Economics and Finance and other departments, and asked them about their knowledge of corporate M&A transactions. Participants from other departments are not well informed about the content. This paper gave a brief explanation to the participants before the experiment so that they could answer the content of our questionnaire. Therefore, they do not have the same level of expertise in economics, particularly as it is detailed to corporate M&A transactions.

This paper finds significant differences in the answers given by participants from the Department of Economics and Finance and other departments(see table 7). Sig>0.05, this suggests that the weakening of the anchoring effect by hiring an advisor is not due to the advisor being more specialized. That is, not because they know more about M&A transaction or have looked through more case studies. The conclusion confounds Hypothesis 3. The advisor's professionalism may be an influencing factor, but it does not play a decisive role in the decision.

Study have suggested that the presence of sell-side advisers in deals involving private sellers has a negative effect on announcement returns to acquirers, consistent with the idea that advisers increase the bargaining power of private sellers, which is a possible explanation [11].

Table 7. Independent Samples Test

		Levene' s Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Externally provided anchor	Equal variances assumed	1.287	.281	.813	11	.433
	Equal variances not assumed			.769	6.690	.468
Dual anchor	Equal variances assumed	.248	.629	.660	11	.523
	Equal variances not assumed			.669	11.000	.517

4. CONCLUSION

Through the above experiments, this paper demonstrates that in the scenario simulation of the corporate M&A transaction, the participants are indeed influenced by both self-generated and externally provided anchors when making their decisions, and the presence or absence of self-generated anchors causes significant differences. This shows that the self-generated anchor plays a critical role in the decision-making. The same results are obtained in this experiment without any real gain or loss occurring, which also occurs in real corporate M&A transactions. It is difficult to say for what reasons, but one possible explanation is that a self-generated anchor can be considered in the market as reflecting a company's ability to acquire and buy.

The advisor's recommendation does not overly affect participants that are only affected by the externally provided anchor, but it had a significant effect on participants that are also affected by the self-generated anchor. The impact on advisors is not due to the change in professionalism, some other factors may make sense. But there is no doubt that hiring more professional advisors may give companies a greater advantage in M&A transaction decisions.

Therefore, the two recommendations this paper can give are: firstly, considering how to qualify self-generated anchors will be very helpful in weakening the impact of anchoring effects when making decisions. Secondly, a good way to limit self-generated anchors is not to improve the degree of self-professionalism, but improve professionalism by hiring more professional consultants to provide assistance.

Of course, at the same time, this paper needs to be aware of the possible risks of hiring an advisor as a third party and make the final decision by comparing the risks and the benefits of weakening the anchoring effect.

REFERENCES

[1] S. Cartwright, R. Schoenberg, (2006). Thirty years of mergers and acquisitions research: Recent advances and future opportunities. British journal of management, 17(S1), S1-S5.

[2] D. C. Hambrick, P. A. Mason, (1984). Upper echelons: The organization as a reflection of its top managers. Academy of management review, 9(2), 193-206.

[3] U. Malmendier, G. Tate, (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. Journal of financial Economics, 89(1), 20-43.

[4] A.Tversky, D.Kahneman, (1974). Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. science, 185(4157), 1124-1131.

[5] F.Strack, T. Mussweiler, (1997). Explaining the enigmatic anchoring effect: Mechanisms of selective accessibility. Journal of personality and social psychology, 73(3), 437.

[6] K. L.Blankenship, D. T. Wegener, R. E. Petty, B. Detweiler-Bedell, C. L.Macy, (2008). Elaboration and consequences of anchored estimates: An attitudinal perspective on numerical anchoring. Journal of Experimental Social Psychology, 44(6), 1465-1476.

[7] N. Epley, T.Gilovich, (2001). Putting adjustment back in the anchoring and adjustment heuristic: Differential processing of self-generated and experimenter-provided anchors. Psychological science, 12(5), 391-396.

[8] B.Li., F. Xu, J. Zhang, T. Liu, Z. Jiang, Z. Deng, (2012). The anchoring effects in differential sources of anchors information: How experimenter provided anchors and self-generated anchors affect dual-

processing model selective accessibility model. Journal of Psychological Science, 35(1), 171.

[9] C. F. Ecer, S. T. Trautmann, (2020). Done deal! advisor impact on pricing, premia, returns, and deal completion in m&a. Other publications TiSEM.

[10] S.Chen, W.Li, (2016). Study on Anchoring Effects of Acquisition Premiums Decision. Economics Study, 51(6), 114-127.

[11] A. Agrawal, T. Cooper, Q. Lian, Q. Wang, (2018). Does Hiring M&A Advisers Matter for Private Sellers?. Available at SSRN 2400531.