Analyst Attention and Corporate Financing Constraints: Evidence from China

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Abstract. This paper explores the effect of analyst coverage on financing constraints by selecting listed companies in the Shanghai Stock Exchange and Shenzhen Stock Exchange as a sample for the study. This research finds that analyst coverage mitigates financing constraints after controlling all other variables that affect both investors' investment decisions and investee's financing decisions. This result still holds after the robustness check using pooled OLS model with a fixed-effect model and balanced panel data. Additionally, the heterogeneity analysis implies that analyst coverage is negatively related only to financing constraints that large-size firms encounter, whereas analyst coverage does not ease financing constraints that small-size firms encounter. Overall, the results of the study provide regulators with insights into how to improve the information transparency in the capital market, to help investors make optimal investment decisions, and to facilitate companies' external financing.

Keywords: Financing Constraints; Information Asymmetry; Analyst Coverage; China; Firm Size.

1. Introduction

It is believed that information asymmetry between investors and investees results in financing constraints [1]. Especially in the debt market, asymmetric information about a loan's quality can result in credit rationing when lenders allocate funds to targeted firms [2]. As a result, in the asymmetric information environment, borrowers who seek debt financing at the prevalent cost of debt are difficult to raise funds via debt financing [3].

Entities raise funds through internal and external financing. Internal financing means that entities use their profits generated by their operating activities to continue funding their projects. External funding means that entities raise funds from external investors such as shareholders and creditors. However, if information asymmetry about corporate performance exists between entities and investors, the information asymmetry will put a constraint on entities' ability to raise funds by external financing [3]. Nonetheless, it is believed that analysts as information providers can mitigate the effect of information asymmetry on earning management, accruals quality, equity mis-valuation, and financing decisions [4-7]. This means that stakeholders, including lenders and shareholders, can acquire more information about firms covered by analysts than those not covered by analysts [6]. Therefore, sufficient information about firms' performance may alleviate investors' concern about investees' profitability, solvency and liquidity, mitigating financing constraints caused by information asymmetry.

In a perfect capital market without taxes, the cost of internal financing does not differ from the cost of external financing [3]. In this situation, information is symmetric between firms and stakeholders, and thus internal financing can replace external financing because the availability of internal financing and external financing are the same [8]. Firms in the perfect capital market can also raise funds by external financing and cost the same as internal financing without the appropriation of internal fund resources [8]. As a result, financing constraints do not exist in the perfect capital market. However, such ideal situation does not hold in reality. Information asymmetry is widespread in the capital market. When information asymmetry exists between firms and external investors, some sources of external financing have higher costs and are even unavailable to some firms [3]. Thus, the market for finance investment will likely encounter the threat of information asymmetry [1]. Moreover, firms may be reluctant to disclose their proprietary information because they tend to protect their competitive advantage [1]. Consequently, if the information asymmetry between firms

and investors becomes increasingly serve, it will be more likely for firms to face costly and even unavailable external financing [1]. Investors must judge and analyses the risk of investees, but investors cannot get full access to information about investees' performance, which results in uncertainty. Investors must increase the cost of capital or and even reject to fund some firms. Therefore, firms indeed meet financial constraints in the real capital market.

It is believed that analyst coverage can mitigate such information asymmetry between firms and investors. Financial analysts play an active role in the information dissemination process and influence investors' decisions [6]. Financial analysts collect complex information and then transform such information into a form that is more easily understandable by less experienced investors; they also provide market participants with information that is difficult to acquire [4]. Existing literature suggests that analyst coverage is negatively correlated with information asymmetry [4]. This means that stakeholders can obtain more information from firms covered by analysts. Even if analysts could not ease the information asymmetry, analysts tend to put priority over transparent firms [4]. The empirical research supports the effect of analyst coverage in the mitigation of information asymmetry. Li [6] suggests that firms with high analyst coverage are less overvalued than those with low analyst coverage. Lobo, Song [7] argue that analysts provide more private information about firms with low accruals quality. They also found that analysts benefit from low-quality accruals because analysts can collect more private information from firms with low-quality accruals [7]. Hong, Lim [9] find that stocks with high analyst coverage contain abundant information. Chang, Dasgupta [4] find that the number of analysts that cover a firm is negatively correlated with the extent of information asymmetry that the firm meet. In addition, they also state that firms with high analyst coverage are more like to raise funds through equity as opposed to debt Chang, Dasgupta [4]. Yu [5] suggests that analyst coverage is negatively correlated with earnings management. Therefore, analyst coverage can mitigate information asymmetry between investors and firms and provide more information about firms' performance.

As discussed early, information builds a bridge between investors and firms. Such a bridge helps investors get access to firms' operating and financial performance and thus help them make optimal investment decisions. As a result, high-quality or even transparent information benefits investors. However, in the real world, information asymmetry as one of the important factors causing financial constraints widely exists in the financial market. Thus, rarely can external investors be fully exposed to information about investees' operating performance and financial position. From an investor perspective, information asymmetry not only leads to investment uncertainty but also impedes investors to make investment decisions. From a corporation perspective, information asymmetry improves the cost of capital and thus constrain firms to raise funds from external investors. Thus, it is necessary to mitigate the effect of information asymmetry on financing. Extant literature suggests that analyst coverage can mitigate information asymmetry, and analysts can provide market participants with information difficult to acquire. Although previous research finds how analyst coverage affects earnings quality, earnings management, preference of raising funds and financing fraud, little literature focuses on the relationship between analyst coverage and financing constraints. Therefore, my research focuses on exploring how analyst coverage affects financing constraints and thus fills the gap.

This paper focuses on the Chinese stock market. There are two reasons for collecting data from listed companies in the Chinese stock market. First, the financial market in China is regarded as a place in which low-quality or poor information spreads [10]. Thus, analysts play an important role, regarding the poor information environment, in providing investors with reliable information about firms' operating activities and financial position [11]. Moreover, several studies suggest that considering analysts' role in information generation, investors in China regard analyst forecasts and recommendations as important instruments that assist them in making investment decisions [12, 13]. Second, the Chinese financing market is a large emerging market. It is believed that investors typically have insufficient ability or knowledge to collect latent information about entities in an emerging market [14]. Hence, information asymmetry between investors and firms is widespread in

the Chinese financial market. This means that entities suffer from serious financing constraints caused by asymmetric information. Analysts as a pool of high-quality information about firms are in intense demand. These analysts providing hidden information about entities helps investors know more about potential investees. Therefore, the Chinese financing market provides an ideal setting for me to explore the effect of analyst coverage on financing constraints.

Adopting the listed companies in the Shanghai Stock Exchange and Shenzhen Stock Exchange as the sample, this study explores how analyst coverage affects financing constraints. Empirical evidence shows that analyst coverage can mitigate financing constraints. This result still holds after the robustness check using pooled OLS model with a fixed-effect model and balanced panel data. Additionally, heterogeneity analysis indicates that analyst coverage is negatively related only to financing constraints that large-size firms, in which their total assets exceed the median, encounter.

This research contributes to the extant literature in several ways. First, this paper extends the existing literature by providing new evidence analyst coverage affects business decisions, especially in emerging markets such as China. The negative relationship between analyst coverage and financing constraints implies that analysts act as an information provider in the capital market and thus alleviate the information asymmetry between investors and their targeted firms, easing financing constraints that firms encounter. Second, this paper provides new influential factors that affect financing constraints caused by information asymmetry. This indicates that analyst coverage and transparent information assist firms in avoiding heavy financing constraints when raising capital externally.

The rest of this paper is as follows. Section 2 describes the research design, including sample selection, variables, and model. Section 3 discusses empirical results. A robustness check is discussed in Section 4. Section 5 provides a heterogeneity analysis. This paper is concluded in Section 6.

2. Research Design

2.1 Data and Sample

This study selects listed companies with stock codes starting with 002 in the Shanghai Stock Exchange and the Shenzhen Stock Exchange as the research sample. The sample period is from 2009 to 2019. After the initial sample selection, this paper excludes the following samples: (1) the sample of listed companies in the financial industry; (2) the sample of ST listed companies (special treatment for listed companies that has been operating at a loss for two consecutive years); (3) the sample of *ST listed companies (delisting warning for listed companies that has been operating at a loss for three consecutive years); (4) the sample of listed companies with missing data.

Data related to analyst coverage, financing constraints, and listed companies' financial data are collected from CSMAR (China Stock Market & Accounting Research Database). This study conducts the preliminary sorting and calculation in Excel and uses Sata16.0 SE to analyses and process data.

In order to alleviate the influence of extreme value, this research winsorises the top and bottom 1% of each variables' distribution to guarantee the robustness of the research results as much as possible. After the initial process of data, a total of 7,254 observations are obtained in this research.

2.2 Variables

The dependent variable is financing constraints, *Fin_Constr*, which is measured by the SA index [15]. SA index is calculated by the below equation:

$$SA\ Index = -0.737 \times Asset + 0.043 \times Asset^2 - 0.040 \times Age$$

In this equation, Asset indicates the natural logarithm of a company's total assets in thousands. Age means a firm's listing years. SA index is intrinsically negative, but in this paper, the negative figure is converted into a positive one. The larger the SA index, the more seriously a company encounters financing constraints.

The independent variable is analyst Attention and report Attention, respectively, which are proxy for analyst coverage. Analyst attention, *Analyst*, indicates the number of analysts who analyses and track a listed company in one year. Report Attention, *Report*, is the number of research reports that analyses and track a listed company in one year. Moreover, this study includes some control variables that may affect financing constraints in the regression model, including the size of listed companies, leverage ratio, return on assets, the proportion of net non-current assets in total assets, the largest shareholder's holdings, and listed companies' listing years. These control variables are abbreviated as *lnSize, Lev, ROA, Cinten, Top1,* and *Age.*

A high leverage ratio can impair entities' ability to raise funds by external financing. This is because an entity will encounter a solvency crisis if the entity has high leverage ratio. As a result, investors are reluctant to invest in such a company. This means that the financing constraints that some firms encounter may be caused not by information asymmetry but by a high leverage ratio. Thus, *Lev* is controlled. Similarly, return on assets implies an entities' profitability. Investors may also consider an entity's profitability to decide whether it is worth investing in this entity. Therefore, *ROA* should be controlled. The proportion of net non-current assets in total assets, *Cinten*, may also affect entities' financing decisions. A high *Cinten* indicates that an entity may have idle funds and thus has less incentive to raise funds by external financing; a low *Cinten* means that an entity has a relatively low level of idle funds and thus has more incentive to raise funds by external financing. Thus, it is necessary to control for *Cinten*. The largest shareholder also has the influence on an entity's decision and method to raise funds, so *Top1* must be controlled. To mitigate the influence of outliers for entities with numerous assets and entities listed longer than those newly listed, *lnSize* and *Age* are also controlled. The definition of all variables is displayed in Table 1.

Table 1. Variables Definitions

Variables	Definition
Fin_Constr_t	Positive SA index in year *t*.
$Analyst_t$	The number of analysts who analyse and track a listed company in year *t*.
$Report_t$	The number of research reports that analyse and track a listed company in year *t*.
$lnSize_t$	The natural logarithm of the book value of total assets in year *t*.
Lev_t	Financial leverage, calculated by the book value of total debt divided by the book value of total assets in year *t*.
ROA_t	Return on assets, calculated by the net profits divided by the book value of total assets in year *t*.
$Cinten_t$	The net book value of non-current assets divided by the book value of total assets in year *t*.
$Top1_t$	The proportion of shares held by the largest shareholder in year *t*.
Age_t	Firm listing years in year *t*.
D_50_t	A dummy variable that equals 1 if a firm has total assets above the median in year t and 0 otherwise.

2.3 Models

In this study, financing constraints are a function of analyst coverage and other control variables. The empirical model conducted in this research is:

$$Fin\_Constr_{it} = \beta_0 + \beta_1 Analyst_{it} + \boldsymbol{x'_{it}\beta} + \varepsilon_{it} \quad (1)$$

$$Fin\_Constr_{it} = \beta_0 + \beta_1 Report_{it} + \boldsymbol{x'_{it}\beta} + \varepsilon_{it} \quad (2)$$

In this model, βi represents regression coefficients; ε indicates an error item; other control variables include *lnSize, Lev, ROA, Cinten, Top1,* and *Age*. *Fin_Constrt* measured by SA index indicates the level of seriousness of financing constraints encountered by an entity. Analyst coverage is measured by *Analyst* and *Report*, respectively. Thus, two models are conducted to find the correlation between *Fin_Constrt* and *Analyst* and that between *Fin_Constrt* and *Report*. A negative (positive) β_1 indicates that analyst coverage decreases (increases) financing constraints that firms encounter when they raise funds from external financing. All continuous variables are winsorised at 1% at both tails.

3. Results

3.1 Analysis of Descriptive Statistics

Table 2 displays the descriptive statistics for variables used in the regression analysis. The mean value of the financing constraints (*Fin_Constr*) is 3.3099, with a standard deviation of 0.1658. This means that the listed companies in the sample encounter serious financing constraints. The minimum value is 2.9737 and the maximum value is 3.6776. The mean value of *Analyst* and *Report* is 8.2492, with a standard deviation of 9.1303, which means that about 8 analysts pay attention to a listed firm; the mean value of *Report* is 16.2032, with a standard deviation of 20.8169, which indicates that about 16 research reports focus on a listed company. *Size* measured by total assets in thousands has a mean of 4604.5620, with a standard deviation of 6070.3703. The mean of *Lev* is 0.3673, indicating that the listed companies during the sample period have an ideal leverage level. The minimum is 0.0436, the maximum is 0.8088, and the standard deviation is 0.1864. The mean of *ROA* is 0.0456 with a standard deviation of 0.0543, suggesting that the listed companies during the sample period have relatively good profitability. The minimum is -0.1886; the maximum is 0.2001. The mean of *Cinten* is 0.2127 with a standard deviation of 0.1334, implying that the listed companies sampled possess well liquidity and thus do not have relatively numerous idle funds. The minimum is 0.0043, and the maximum is 0.5952. The mean of the largest shareholders' holdings is 0.3480 with a standard deviation of 0.1415, indicating 34.8% of shares held by the largest shareholders in listed companies. The minimum of the largest shareholder's holdings is 0.1037; the maximum of that is 0.7084. *Age*, the firms' listing years, has a mean of 5.1704 with a standard deviation of 3.5367. The minimum of Age is 0, which means that a firm's listing years are less than one year. The maximum is 14.

Table 2. Summary Statistics

	N	min	Mean	max	Std. Dev.
Fin_Constr	7144	2.9737	3.3099	3.6776	.1658
Analyst	7144	0	8.2492	39	9.1303
Report	7144	0	16.2032	98	20.8169
Size	7144	466.4038	4604.5920	39564.823	6070.3703
Lev	7144	.0436	0.3673	.8088	.1864
ROA	7144	-.1886	0.0456	.2001	.0543
Cinten	7144	.0043	0.2127	.5952	.1334
Top1	7144	.1037	0.3480	.7084	.1415
Age	7144	0	5.1704	14	3.5267

3.2 Analysis of Baseline Analysis

Table 3 displays the pooled OLS results of the influence of analyst coverage on financing constraints, using industry and year fixed model. In addition, the equity nature is controlled because different equity natures can be related to analyst coverage and serious omitted variable bias can occur if the equity nature is not controlled. The results of two regression models are used to examine how analyst coverage affect financing constraints. In column (1), the first regression model includes Analyst as the independent variable. The coefficient of *Analyst* is -0.0004, which is statistically significant at the 1% level, suggesting a strong negative relationship between *Analyst* and *Fin_Constr.*

This means that an increase in the number of analysts who pay attention to a listed company can ease the financing constraints that the firm encounter. Therefore, this negative relationship is consistent with the notion that analyst coverage provides investors with more information about investees' financial position and profitability and thus mitigates the information asymmetry between investors and investees, easing investees' financing constraints.

In column (2), *Report* is the independent variable in the second regression model. The coefficient is -0.0003, which is also statistically significant at the 1% level. This implies a negative relationship between *Report* and *Fin_Constr*, suggesting that *Report* as a proxy for analyst coverage also mitigates the information asymmetry between investors and investees and thus help firms to raise funds from external financing.

Table 3. Pooled OLS Results

	(1)	(2)
	OLS	OLS
VARIABLES	Fin_Constr	Fin_Constr
Analyst	-0.0004***	
	(0.0001)	
Report		-0.0003***
		(0.0001)
lnSize	0.0322***	0.0329***
	(0.0016)	(0.0016)
Lev	-0.0016	-0.0012
	(0.0042)	(0.0042)
ROA	0.0395***	0.0527***
	(0.0145)	(0.0151)
Cinten	-0.0186***	-0.0185***
	(0.0062)	(0.0062)
Top1	-0.0094*	-0.0097*
	(0.0050)	(0.0050)
Age	0.0395***	0.0395***
	(0.0003)	(0.0003)
Constant	2.8291***	2.8230***
	(0.0155)	(0.0155)
Observations	7,144	7,144
R-squared	0.8943	0.8947
Year Dummy	Yes	Yes
Industry Effect	Yes	Yes
Equity Nature Effect	Yes	Yes
Data	Unbalanced	Unbalanced

4. Robustness Check

In this section, pooled OLS regression model with balanced panel data is re-estimated to check the robustness of my findings. To alleviate potential outliers resulting from time-invariant, industry-specific, and nature-specific characteristics, the fixed-effect model is still used. Moreover, the balanced panel data are formed to control the heterogeneity among individuals. After screening samples to form the balanced panel data, a total of 2,838 observations are obtained. Thus, the regression of the original model is re-estimated by using fixed-effect model and balanced panel data to check whether my results are robust. The results of the robustness check are shown in Table 4.

As shown in Table 4, the coefficient of the variable *Analyst* in the first column and of the variable *Report* in the second column *Report* is significantly negative at the 5% level and the 1% level, respectively. This implies that my results are not affected by heterogeneity and that the negative

relationship between analyst coverage and financing constraints still hold. Therefore, my finding that analyst coverage mitigates financing constraints remain robust.

Table 4. Robustness Check

	(1)	(2)
	OLS	OLS
VARIABLES	Fin_Constr	Fin_Constr
Analyst	-0.0004**	
	(0.0002)	
Report		-0.0003***
		(0.0001)
lnSize	0.0226***	0.0239***
	(0.0025)	(0.0024)
Lev	0.0065	0.0064
	(0.0084)	(0.0083)
ROA	0.0810***	0.1042***
	(0.0273)	(0.0283)
Cinten	-0.0191*	-0.0197*
	(0.0105)	(0.0104)
Top1	0.0113	0.0100
	(0.0094)	(0.0093)
Age	0.0367***	0.0367***
	(0.0009)	(0.0009)
Constant	2.9263***	2.9168***
	(0.0204)	(0.0203)
Observations	2,838	2,838
R-squared	0.8810	0.8817
Year Dummy	Yes	Yes
Industry Effect	Yes	Yes
Equity Nature Effect	Yes	Yes
Data	Balanced	Balanced

5. Heterogeneity Analysis

To further explore the effect of analyst coverage on financing constraints, this study examines the negative relationship between analyst coverage and financing constraints under different firm size settings. In this analysis, the regression of the original model is also re-estimated, but additional variables are added to this model. First, a dummy variable is generated, *D_50*, which equals 1 if a firm has total assets above the median and 0 otherwise. Thus, firms that have total assets above the median are defined to be large-size, whereas those that have total assets below the median are defined to be small-size. Second, two interaction coefficient variables are generated, *Analyst*D_50* and *Report*D_50*, and then add them to the regression model to examine how analyst coverage affects financing constraints in large-size firms and small-size firms. The results of the heterogeneity analysis are displayed in Table 5.

Table 5 indicates that in the first column, *Analyst* is significantly positive at the 1% level, whereas *Analyst*D_50* is significantly negative at the 1% level. This indicates that the impact of analyst coverage on financing constraints is pronounced in large-size firms, but this negative relationship between analyst coverage and financing constraints in small-size firms does not exist. Similarly, the second column of Table 5 displays that *Report* is significantly positive at the 0.001% level while *Report*D_50* is significantly negative at the 1% level. This also suggests that *Report* as a proxy for analyst coverage does not ease financing constraints that small-size firms encounter but indeed mitigate financing constraints that large-size firms confront. Therefore, the heterogeneity analysis

implies that analyst coverage is negatively related only to financing constraints that large-size firms encounter, whereas analyst coverage does not ease financing constraints that small-size firms encounter. As a result, analyst coverage helps large-size firms to raise funds through external financing. However, this relationship does not hold for small-size firms. Therefore, how to mitigate financing constraints of small-medium companies needs to be further explored.

Table 5. Heterogeneity Analysis

	(1)	(2)
	OLS	OLS
VARIABLES	Fin_Constr	Fin_Constr
Analyst	0.0004***	
	(0.0001)	
Report		0.0001*
		(0.0001)
Analyst* D_50	-0.0013***	
	(0.0002)	
Report * D_50		-0.0006***
		(0.0001)
D_50	0.0233***	0.0220***
	(0.0020)	(0.0020)
ln_Size	0.0288***	0.0295***
	(0.0017)	(0.0017)
Lev	0.0001	-0.0001
	(0.0042)	(0.0041)
ROA	0.0398***	0.0504***
	(0.0142)	(0.0147)
Cinten	-0.0191***	-0.0194***
	(0.0062)	(0.0062)
Top1	-0.0097*	-0.0098*
	(0.0051)	(0.0050)
Age	0.0395***	0.0396***
	(0.0003)	(0.0003)
Constant	2.8453***	2.8403***
	(0.0159)	(0.0159)
Observations	7,144	7,144
R-squared	0.8967	0.8971
Year Dummy	Yes	Yes
Industry Effect	Yes	Yes
Equity Nature Effect	Yes	Yes
Data	Unbalanced	Unbalanced

6. Conclusion

This paper investigates the impact of analyst coverage on financing constraints by collecting data from listed companies in the Shanghai Stock Exchange and Shenzhen Stock Exchange during a sample period from 2009 to 2019.

This study analyses the data on a function of analyst coverage (*Analyst* and *Report*) and other control variables. This research finds that analyst coverage is negatively related to financing constraints after controlling all other variables that affect both investors' investment decisions and investee's financing decisions. This implies that analyst coverage on firms provide investors with more information about investees' financial and operating performance and thus mitigate information asymmetry between investors and investees. Therefore, financing constraints caused by such information asymmetry are eased as analysts provide more information about firms. The results still

hold after the robustness check, using pooled OLS regression model with a fixed-effect model and balanced panel data. In addition, heterogeneity analysis indicates that analyst coverage is negatively related only to large-size firms while not easing financing constraints in small-size firms.

This study adds new evidence to the existing literature on the effect of analyst coverage, especially in emerging markets such as China. It provides practical implications for both investors and investees. This study implies that analysts in emerging markets where the information environment is poor act as information providers or instruments that help investors make appropriate investment decisions in the capital market. This means that financing constraints can be eased as investors obtain more information about their potential investment targets and thus lower the level of financing constraints on their targeted entities. Therefore, the results of the study provide regulators with insights into how to improve the information transparency in the capital market, to help investors make optimal investment decisions, and to facilitate companies' external financing. Moreover, this study also extends the existing literature on financing constraints by suggesting a new influential factor that mitigates financing constraints caused by information asymmetry. This reminds companies seeking external financing that analyst coverage and relatively transparent information facilitate their capital raising.

This study contains several limitations. First, in addition to firm size, this study does not consider other factors that lead to analyst coverage heterogeneity. For instance, auditor quality can affect the quality of information that analysts collect from financial statements. Moreover, properties of analysts, such as sponsored and voluntary analysts, can affect the quality of information acquired by investors. Second, the relationship between analyst coverage and financing constraints in small-size firms does not hold. Thus, future research is needed to further investigate how the financing constraints that small-medium companies encounter can be mitigated.

References

[1] Fazzari, S.M. and M.J. Athey, Asymmetric Information, Financing Constraints, and Investment. The review of economics and statistics, 1987. 69(3): p. 481-487.

[2] Stiglitz, J.E. and A. Weiss, Credit rationing in markets with imperfect information. The American economic review, 1981. 71(3): p. 393-410.

[3] Fazzari, S., R.G. Hubbard, and B.C. Petersen, Financing constraints and corporate investment. 1987, National Bureau of Economic Research Cambridge, Mass., USA.

[4] Chang, X.I.N., S. Dasgupta, and G. Hilary, Analyst Coverage and Financing Decisions. The Journal of finance (New York), 2006. 61(6): p. 3009-3048.

[5] Yu, F., Analyst coverage and earnings management. Journal of financial economics, 2008. 88(2): p. 245-271.

[6] Li, K., Does Information Asymmetry Impede Market Efficiency? Evidence from Analyst Coverage. Journal of banking & finance, 2020. 118: p. 105856.

[7] Lobo, G.J., M. Song, and M. Stanford, Accrual's quality and analyst coverage. Journal of banking & finance, 2012. 36(2): p. 497-508.

[8] Franco, M. and H.M. Merton, The Cost of Capital, Corporation Finance and the Theory of Investment. The American economic review, 1958. 48(3): p. 261-297.

[9] Hong, H., T. Lim, and J.C. Stein, Bad News Travels Slowly: Size, Analyst Coverage, and the Profitability of Momentum Strategies. The Journal of finance (New York), 2000. 55(1): p. 265-295.

[10] Piotroski, J.D., T.J. Wong, and T. Zhang, Political Incentives to Suppress Negative Information: Evidence from Chinese Listed Firms. Journal of accounting research, 2015. 53(2): p. 405-459.

[11] Xu, N., et al., Analyst coverage, optimism, and stock price crash risk: Evidence from China. Pacific-Basin finance journal, 2013. 25: p. 217-239.

[12] Firth, M., et al., The Client Is King: Do Mutual Fund Relationships Bias Analyst Recommendations?: the client is king. Journal of accounting research, 2013. 51(1): p. 165-200.

[13] Gu, Z., Z. Li, and Y.G. Yang, Monitors or Predators: The Influence of Institutional Investors on Sell-Side Analysts. The Accounting review, 2013. 88(1): p. 137-169.

[14] Yang, J., R. Wang, and Y. Xue, Analyst coverage and corporate misconduct. Australian economic papers, 2021. 60(2): p. 261-288.

[15] Hadlock, C.J. and J.R. Pierce, New Evidence on Measuring Financial Constraints: Moving Beyond the KZ Index. The Review of financial studies, 2010. 23(5): p. 1909-1940.

[16] Frankel, R., S.P. Kothari, and J. Weber, Determinants of the informativeness of analyst research. Journal of accounting & economics, 2006. 41(1): p. 29-54.