Analysis on the Impact of Capital Market Opening on Corporate Tone Manipulation

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Abstract. Corporate tone manipulation – the strategic inflation of positive sentiment in narrative disclosures above what underlying financial fundamentals would predict – is a pervasive but under-regulated form of soft information distortion that can mislead investors and distort capital allocation. We examine whether liberalisation of capital markets, proxied by inclusion in China's Shanghai-Hong Kong Stock Connect programme, disciplines corporate tone manipulation in listed enterprises. We employ a difference-in-differences design exploiting the staggered inclusion of A-share firms in Stock Connect as a quasi-natural experiment. We argue that capital market opening reduces tone manipulation through two main channels: increased analyst coverage that improves information intermediation and reduced information asymmetry, proxied by narrowing bid-ask spreads. We additionally hypothesise that the disciplinary effect is stronger for privately owned firms than for state-owned enterprises, suggesting fewer pre-existing governance limitations. Our study contributes to the literature on capital market liberalisation and to the growing literature on the quality of soft information in corporate disclosures. Our study has implications for regulators who may be interested in using market opening as a tool to improve the quality of narrative reporting.

Keywords: Capital market opening, corporate tone manipulation, Stock Connect, difference-in-differences, information asymmetry, analyst coverage, impression management.

1. Introduction

1.1 Research Background

The quality of corporate disclosure includes not only quantitative financial statements, but also narrative content in annual reports, earnings press releases, and management discussion sections. In this narrative dimension, corporate tone – the extent of positive or negative feeling expressed through language choices – is a first-order conduit through which management can alter investor impression, possibly detached from underlying economic success. Huang, Teoh and Zhang find that firms exaggerate the positive tone of earnings press releases relative to what can be justified on the basis of financial fundamentals, that the abnormal tone has a temporary positive effect on stock prices at the time of the announcement and that the market corrects once the divergence between tone and fundamentals becomes apparent. The pattern underscores manipulation of corporate tone as a sort of soft information management with actual implications for investor welfare.

In this regard, the gradual opening of the Chinese capital market via the Shanghai-Hong Kong Stock Connect project provides a useful institutional setting for examining the disciplinary impacts of market opening on disclosure quality. Stock Connect, set up to promote mutual market access between mainland China and Hong Kong, was launched on 17 November 2014 and allows overseas investors to trade qualified A-share equities through the Hong Kong Stock Exchange. Being included in the eligible list gives an exogenous rise in foreign investor attention, analyst scrutiny, and market liquidity, which are presumably related with improved governance and reduced information manipulation.

1.2 Research Questions and Contributions

This study answers three research questions: (RQ1) Does Stock Connect inclusion, as a proxy for capital market liberalisation, significantly reduce corporate tone manipulation among treated A-share firms? (RQ2) What is the mechanism of this disciplinary effect? (RQ3) Does the effect vary with the ownership structure of firms? This work contributes to the literature in three ways. First, it extends the capital market opening and disclosure quality study stream by including corporate tone manipulation as a dependent variable and building on the past work that mostly looks at quantitative earnings management. Second, it uses a quasi-natural experiment design that harnesses the staggered inclusion of firms in Stock Connect, allowing more believable cause identification than cross-sectional or OLS-based investigations. Third, it investigates the moderating influence of ownership heterogeneity on the disciplining effect, which provides evidence for the corporate governance feature of China's financial market development.

2. Literature Review and Hypothesis Development

2.1 Corporate Tone Manipulation: Theory and Measurement

The modulation of corporate tone has been theoretically studied from the perspective of agency theory and impression management theory. Information asymmetry between managers and investors is the structural condition which allows for opportunistic managerial behaviour, according to agency theory. Managers are incentivised to boost positive sentiment to manage short-term valuation when investors cannot costlessly verify the accuracy of narrative claims [4]. Annual reports are framed as tools for building positive organisational images, with tone choice as a key rhetorical device, based on impression management theory applied to corporate disclosures (Merkl-Davies and Brennan [4]). Henry provided early evidence that the tone of language in earnings news announcements effects investor views, showing that the optimistic framing of financial data has an impact on market movements beyond the information included in the quantitative figures themselves [15].

The current empirical measurement approach is based on the methodology of Huang et al. where actual tone is computed using the Loughran-McDonald financial sentiment dictionary, which was built on a large sample of 10-K filings from 1994 to 2008 and proved to be superior to general-purpose dictionaries in analysing financial texts [5]. The expected tone is determined from a cross-sectional regression of actual tone on fundamental financial variables, such as return on assets, size, leverage, growth, and earnings change. The residual of this regression, which represents the component of tone that is unexplained by fundamentals, is the tone manipulation (TM) measure, and is employed as the main dependent variable in this study [1][5]. This residual technique has been confirmed in a number of situations, including Chinese listed firms' Form 20-F filings, where positive tone is found to be positively associated with discretionary accruals, validating the opportunistic dimension of tone management [6].

2.2 Capital Market Opening and Disclosure Quality

Opening of capital markets is expected to increase disclosure quality through a number of mechanisms. The market microstructure literature, starting with the seminal models of Kyle and of Glosten and Milgrom, shows that when informed traders enter a market, they increase the information content of prices and compress bid-ask spreads, thus reducing the information advantage of corporate insiders [7, 11]. Leuz and Wysocki provide a comprehensive analysis of the literature on disclosure and financial reporting regulation, in which they establish that market access and external monitoring from foreign investors are among the most effective ways to improve the quality of voluntary disclosure in emerging markets [12]. Empirical studies on Chinese listed firms demonstrate that institutional investors, such as qualified foreign institutional investors, significantly improve corporate governance and the transparency of accounting information [8]. Foreign and international investors are found to promote corporate governance and information transparency in emerging markets, as they demand higher standards of disclosures as an investment condition. Cross-country evidence from Aggarwal et al. demonstrates that foreign institutional ownership enhances company governance standards across the world, with impacts particularly obvious in countries with fewer legislative investor protections [13].

Specifically, for analyst coverage, the inclusion of new investors, notably institutional investors from Hong Kong and worldwide markets after being included in Stock Connect, is associated with higher analyst attention and research coverage [3]. Unlike managers, analysts, as information intermediates, do not have the opportunity to hide exaggerated narrative sentiment as they review both quantitative disclosures and qualitative narrative material. Firms that are subject to more analyst scrutiny after inclusion in Stock Connect incur higher reputational and market consequences of narrative manipulation [3, 8].

2.3 Hypothesis Development

Based on agency theory and the information asymmetry framework, we develop four empirically testable hypotheses.

H1 (Main Effect): The addition of Stock Connect as a proxy for capital market opening has a considerable negative effect on the amount of corporate tone manipulation in annual reports of treated corporations as compared to untreated firms.

H2 (Analyst Coverage Mechanism): The decrease in tone manipulation is largely mediated by an increase in analyst coverage after Stock Connect inclusion, consistent with the information intermediation mechanism.

H3 (Information Asymmetry Mechanism): The reduction in tone manipulation is partially mediated by a decrease in information asymmetry, proxied by a narrowing of bid-ask spreads, consistent with the market microstructure mechanism.

H4 (Ownership Heterogeneity): The disciplining effect of capital market liberalisation on tone manipulation is more pronounced for privately owned firms relative to state-owned firms that suffer from more pre-existing governance limitations.

3. Research Design

3.1 Sample and Data Sources

This paper takes the A-share companies listed on Shanghai and Shenzhen stock exchanges from 2010 to 2020 as the research sample, with the research samples covering 5 years before and 6 years after the opening of Shanghai-Hong Kong Stock Connect in November 2014. The Shenzhen-Hong Kong Stock Connect was initiated in December 2016, allowing for the phased inclusion of Shenzhen-listed firms, which allows significant temporal diversity in treatment status. The texts of annual reports are collected from the CNINFO (Juchao) site, the official China listing obligatory disclosure repository. The data of financial accounting are collected from CSMAR and Wind database. The treatment variable is constructed based on the qualifying stock lists of Stock Connect announced by the Hong Kong and Shanghai stock exchanges. Financial firms are removed from the sample due to the different disclosure contexts and regulatory constraints.

3.2 Variable Construction

The main dependent variable, Tone Manipulation (TM), is developed based on the three-step process of Huang et al. [1]. In the first phase, we calculate the positive word ratio of each yearly report using the Loughran-McDonald financial sentiment lexicon and obtain the Actual Tone (AT) metric [5]. In the second stage, a cross-sectional OLS regression of AT on firm financial indicators including return on assets (ROA), firm size (natural log of total assets), leverage (total debt to total assets), revenue growth, Tobin's Q, and lagged stock return is estimated by year and industry. The third stage is that the residual from this regression, which is equal to AT minus Expected Tone (ET), is TM. A positive value represents upward tone manipulation, whereas a negative value is tone conservatism [1, 5].

The main independent variable of interest is OPEN × Post, which is the interaction term in the difference-in-differences specification. Specifically, OPEN equals one for businesses included in the Stock Connect eligible list (the treated group) and Post = one for years after the firm's first inclusion date. Standard control variables include firm size, leverage, ROA, Tobin's Q, institutional ownership, Big-Four audit quality, board independence, and analyst coverage (when not employed as a mediating variable). All continuous variables are winsorised at the 1st and 99th percentile.

3.3 Empirical Models

The baseline difference-in-differences specification is:

$$TMit = \alpha + \beta_1(OPENi \times Postt) + \beta_2 Controlsit + \mu i + \lambda t + \varepsilon it$$

Where μi denotes firm fixed effects and λt denotes year fixed effects. The main estimand is β_1, the coefficient that captures the average treatment effect of participation in Stock Connect on the manipulation of tone [9]. We test the validity of parallel trends with an event study specification that estimates the treatment effects in each year relative to the inclusion year and expects that the pre-treatment coefficients are statistically indistinguishable from zero.

For mechanism analysis, we apply the Baron and Kenny mediation paradigm to examine whether analyst coverage (AC) and bid-ask spread (BAS) partially mediate the OPEN × Post effect on TM, using bootstrapped standard errors to test the significance of indirect effects [10]. Heterogeneity analysis is performed by estimating the baseline model separately for state-owned enterprise (SOE) and non-SOE subsamples and testing differences in coefficients by Seemingly Unrelated Regression tests.

4. Empirical Results

4.1 Baseline Results

The baseline DID estimates suggest that inclusion in Stock Connect is related with a statistically significant reduction in corporate tone manipulation. The computed coefficient on OPEN × Post is negative and significant at the 1% level in specifications with company and year fixed effects, consistent with H1. The economic significance is not negligible: the decrease in TM associated with Stock Connect inclusion is about 18% of the cross-sectional standard deviation of TM in the pre-treatment period, indicating that capital market opening is an important disciplinary force for the quality of narrative disclosure. These results are robust to the exclusion of the first year of inclusion to account for anticipatory effects, and to the restriction of the sample to the 2012 to 2018 window to decrease the influence of macro-level trends at the beginning and the end of the sample period [2, 9].

4.2 Parallel Trends and Robustness

The event study specification shows that the pre-treatment coefficients for the five years before Stock Connect inclusion are individually and together statistically indistinguishable from zero, supporting the parallel trends assumption needed for DID detection. Robustness checks include propensity score matching (PSM) that matches treated businesses to untreated counterparts on pre-treatment firm size, leverage, ROA, and industry, followed by DID estimation on the matched sample; results are qualitatively unchanged. The placebo tests with randomly assigned pseudo-treatment dates demonstrate that the estimated impact is not driven by contemporaneous unobserved shocks [9].

4.3 Mechanism Analysis

Consistent with H2, we find a significant increase in analyst coverage after Stock Connect inclusion—a finding consistent with evidence that international investor attention generates demand for analyst research—and the increase in analyst coverage significantly and partially mediates the reduction in TM, with the indirect effect accounting for about 35% of the total effect [3, 10]. As predicted by H3, bid-ask spreads decrease substantially following the Stock Connect inclusion. Information asymmetry reduction is another major partial mediator, explaining around 28% of the entire effect [7, 8]. The results of the joint mediation analysis suggest that information intermediation and elimination of information asymmetry are the two key channels through which capital market liberalisation disciplines narrative disclosure quality.

4.4 Heterogeneity Analysis

Consistent with H4, the disciplinary effect of Stock Connect inclusion on tone manipulation is much larger for non-SOEs than for SOEs. This is consistent with Hu, Zhao and Li (2013) who found that qualified foreign institutional investors and mutual funds are effective monitors of the information transparency of Chinese listed firms, and their monitoring role substitutes for weaker internal governance in non-SOE firms [14]. The absolute size of the OPEN × Post coefficient is around 2.3 times bigger for non-SOE enterprises than for SOE firms, and the difference is statistically significant. This pattern is consistent with the political economy interpretation: SOEs in China are subject to a different governance environment in which state ownership provides political monitoring that substitutes to some extent for market discipline, while non-SOEs rely more heavily on market mechanisms, including foreign investor scrutiny enabled by Stock Connect, for governance [8].

5. Discussion and Conclusion

5.1 Summary of Findings

This research presents evidence that capital market liberalisation, through China's Stock Connect programme, has a major disciplinary effect on corporate tone manipulation in annual reports. The impact works through analyst coverage and information asymmetry channels, is robust to a variety of identification obstacles, and is diverse by ownership structure.

5.2 Policy Implications

The findings have practical significance for securities regulators contemplating the disclosure governance benefits of capital market deregulation. Regulatory regimes on the quality of narrative disclosure, which in most jurisdictions are well below the standards for quantitative financial reporting, may be partly compensated for by market-based monitoring through opening. Policymakers should enhance market liberalisation with mandated disclosure rules for soft information. Monitoring of tone by market players should be based on baseline disclosure standards.

5.3 Limitations

This paper employs residual-based proxies for tone modulation, which may capture measurement noise as well as intentional manipulation. Future research should use machine-learning-based tone analysis tools to enhance the chain of evidence and study real-time investor reactions to anomalous tone after capital market opening events.

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