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# Information asymmetry and estimation risk: Preliminary evidence from Chinese equity markets

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## Abstract

This study discusses the implication of information asymmetry between firms and investors for the estimation risk of asset returns. We evaluate various risk measures of information asymmetry between firms and investors for China, an excellent example of a low information environment. We find a significant negative relationship between voluntary disclosure based on U.S. GAAP with certification of a credible audit firm and the variation of risk-adjusted returns. On the other hand, neither private information production nor certified voluntary disclosure is associated with any variation of asset returns in the primary markets.

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## 1. Introduction

The evaluation of information asymmetry between firms and investors has remained inconclusive. One difficulty lies in understanding the impact of investors making invest-

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ment decisions under imperfect information in capital markets.<sup>1</sup> Another difficulty lies in measuring the impact of information asymmetry.

In this study, we adopt the Bayesian approach to explain how investor's imperfect information about the parameters of the firm's underlying cash flow or return generating process gives rise to estimation risk. Lam (1991) defines estimation risk as the incremental variation of an investor's predictive return distribution relative to the limiting case when all agents have perfect information. Following Clarkson et al. (1996) and Lewellen and Shanken (2002), we posit that both the beta estimate and the variance of returns are appropriate measures of estimation risk.<sup>2</sup>

If estimation risk increases a firm's beta estimate and variance of returns, the firm has incentives to reduce information asymmetry because estimation risk translates to a higher cost of equity. Healy and Palepu (1995) analyze at length how CUC International used costly capital structure modifications as a signal to investors. Since investors cannot observe the firm's underlying cash flow, CUC had difficulty convincing investors that its marketing outlays were profitable investments. Such anecdotal evidence suggests that financial disclosure in a high information environment like the U.S. is less likely to be effective in resolving information asymmetry, resulting in poor stock price performance in this instance.

A solution is effective if, by revealing information about the firm's underlying cash flow or return generating process to investors, it reduces estimation risk (and therefore beta estimate and variance of returns).<sup>3</sup> Mandatory disclosures, effective enforcements and well-developed analysts' followings in developed economies are expected to yield a relatively low level of estimation risk cross-sectionally in the economy. Therefore, the challenge of working with data in developed economies lies in identifying windows of low information. In this connection, Botosan (1997) finds that greater disclosure through the annual report is associated with a lower cost of equity for firms that attract a low analyst following. On the other hand, she finds no evidence of an association between her measure of disclosure level and cost of equity for firms that have a high analyst following.

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<sup>1</sup> The problem of imperfect information is a general one and needs to be carefully defined. There is one stream of research that evaluates information asymmetry *among investors and traders* using bid ask spread, liquidity, volume and volatility (e.g., Copeland and Galai, 1983; Glosten and Milgrom, 1985; Amihud and Mendelson, 1986; Diamond and Verrecchia, 1991; Brennan and Subrahmanyam, 1996). In this study, we focus on the information asymmetry *between firms and investors*.

<sup>2</sup> Leuz and Verrecchia (2000) highlight the need for direct measures of estimation risk that would offer a parsimonious solution to the problem of measuring information asymmetry. Lewellen and Shanken (2002) use a multi-period model where prices are endogenous to show that estimation risk arising from the investors' imperfect information of the firm's underlying dividend or cash flow generating process results in a higher beta estimate when investors have an informed prior and a higher variance of returns compared to the case absent estimation risk.

<sup>3</sup> Merely revealing information about the firm's underlying cash flow is a necessary but not sufficient condition to reduce estimation risk. To be effective, the relevant information that investors need has to be considered relative to investors' priors about the firm's cash flow. We would then expect solutions to information asymmetry to change with the development of capital markets and the sophistication of investors. For example, what would be effective for retail investors need not be effective for institutional investors. Therefore, it is an empirical question as to which solution to information asymmetry is effective at any point in time in a given market.

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