



# Financial reporting frequency, information asymmetry, and the cost of equity<sup>☆</sup>

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## ABSTRACT

Using hand-collected data on firms' interim reporting frequency from 1951 to 1973, we examine the impact of financial reporting frequency on information asymmetry and the cost of equity. Our results show that higher reporting frequency reduces information asymmetry and the cost of equity, and they are robust towards considerations of the endogenous nature of firms' reporting frequency choice. We obtain similar results when we focus on mandatory changes in reporting frequency. Our results suggest the benefits of increased reporting frequency.

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## 1. Introduction

A firm's SEC-filed financial reports are accorded, on the whole, a substantially greater degree of prominence and attention than other firm disclosures. For example, firm executives, under threat of legal sanction, are obligated to certify the accuracy of these reports; independent accountants attest to the consistency of the financial statements' presentation and preparation with GAAP; and a wide variety of firm stakeholders intensely scrutinize and analyze these financial reports as they seek to assess the timing, magnitude, and risk of a firm's future cash flows. While the important role played by financial statements in the economy is well recognized, relatively little academic attention has been paid to how the frequency with which firms issue reports influences the decision making and actions of firm stakeholders. In this study, we examine directly how the frequency of interim reporting affects two linchpins of fair and efficient resource allocation in the economy—information asymmetry and the cost of equity.

Theoretically, the effect of reporting frequency on information asymmetry is unclear. A series of analytical papers show that public disclosures reduce information asymmetry by providing investors equal access to information (Diamond, 1985; Bushman, 1991; Lundholm, 1991). More frequent financial reporting thus could lead to lower information asymmetry if it increases the amount of information available to the public. However, as Verrecchia (2001) points out, one common

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assumption of these papers is that investors' private information is exogenously endowed. Relaxing this assumption, several studies model private information acquisition as an endogenous decision and show that sophisticated investors have incentives to acquire private information in anticipation of forthcoming disclosures. These incentives increase with reporting frequency because higher reporting frequency offers sophisticated investors more opportunities to profit from private information. It is thus possible that more frequent financial reporting leads to higher information asymmetry due to increased private information acquisition activities by sophisticated investors. Furthermore, whether more frequent reporting increases the amount of information is unclear since it can affect the information from other sources. Gigler and Hemmer (1998) show that more frequent mandatory financial disclosures may reduce firm's voluntary disclosures. In addition, high reporting frequency may encourage or discourage information production of financial intermediaries such as financial analysts and the business press (Bhushan, 1989a, 1989b; Healy and Palepu, 2001; Lang and Lundholm, 1993). Therefore, the question of how financial reporting frequency affects information asymmetry becomes more complicated when we consider its impact on other information sources.

Similarly, it is not clear conceptually how financial reporting frequency affects the cost of equity. While early works, such as Diamond and Verrecchia (1991), have generally suggested that more disclosures lower the cost of equity by reducing adverse selection and estimation risks, later studies have offered different views (Kim and Verrecchia, 1994; Zhang, 2001). In addition, Hughes et al. (2007) and Lambert et al. (2007) consider the force of diversification and suggest that disclosures have no impact on the cost of equity if they convey only information on diversifiable risks.

Consistent with the different views in theoretical works, empirical evidence is mixed on the relation between disclosures and information asymmetry. Leuz and Verrecchia (2000) show that a commitment to more disclosures significantly reduces information asymmetry for two out of the three information asymmetry measures they consider, but not for the third measure, stock return volatility. Van Buskirk (2012) finds no evidence that the information asymmetry is lower for firms that provide more frequent disclosure of sales figures. Similarly, prior empirical studies show mixed evidence on the relation between disclosures and the cost of equity. Botosan (1997) documents a negative relation between her self-constructed disclosure index and the firm's cost of equity for firms with low analyst following, but not for firms with high analyst following. Botosan and Plumlee (2002) find that the cost of equity decreases in the annual report disclosure level but increases in the quarterly report disclosure level. Francis et al. (2008) also show that the relation with the cost of equity takes on different signs for different types of disclosure measures. In sum, the mixed theoretical and empirical evidence suggests that the impact of financial reporting frequency on information asymmetry/cost of equity remains an important empirical issue.

To examine this empirical issue, we collect interim reporting frequency data for the time period 1951–1973. The SEC required annual financial reporting in 1934 and raised the required reporting frequency to semi-annual reporting in 1955. Not until 1970 did the SEC mandate quarterly reporting. However, prior to 1970 a substantial proportion of firms reported more frequently than required by the SEC.<sup>1</sup> For example, Butler et al. (2007) document that at least 70% of firms reported quarterly in the period we examine. By offering substantial cross-sectional and time-series variation in reporting frequency, our sample period provides an ideal setting to investigate our research question. It is difficult to study our research question using more recent data in the U.S. because, since 1970, almost all firms have followed the SEC's requirement of quarterly reporting, resulting in a lack of variation in reporting frequency.

During our sample period, a significant proportion of firms voluntarily choose to report more frequently than the SEC requires. Their decision on reporting frequency is not likely to be random. Thus, it is possible that some unobservable firm characteristics, such as the firm's riskiness, affect both observed reporting frequency and information asymmetry/cost of equity, giving rise to an endogeneity concern. To alleviate this concern, in addition to a simple OLS regression, we use the following three approaches—a firm fixed effects model, a two-stage least squares estimation procedure (2SLS hereafter), and a matched control sample.

Our empirical results can be summarized as follows. In a simple OLS regression of information asymmetry/cost of equity on reporting frequency and other control variables, the coefficient on reporting frequency is negative and significant, suggesting that firms with higher reporting frequency have lower information asymmetry/cost of equity. We obtain similar inferences from both the firm fixed effects model and two-stage procedure. Specifically, results from the two-stage procedure suggest that an increase of one in the reporting frequency on average reduces our information asymmetry measure, the price impact, by 0.216% and the cost of equity measure based on the CAPM model by 0.628%.

Results from the matched control sample approach show that information asymmetry and the cost of equity decrease significantly for firms that increase their reporting frequency relative to control firms, regardless of whether the increase in reporting frequency is voluntary or mandatory. Specifically, the price impact decreases by 0.431% and 0.455% on average and the cost of equity based on the CAPM model drops by an average of 1.217% and 1.279% for firms with a voluntary increase and for firms with a mandatory increase in reporting frequency, respectively. Most increases amount to doubling the reporting frequency (i.e., from semi-annual reporting to quarterly reporting). Our results related to decreases in reporting frequency are much weaker, possibly because decreases in reporting frequency are typically temporary and do not reflect a commitment to reduced disclosures. Statistically, more than 90% of firms with a reduction in the reporting frequency revert back to the original level or higher level of reporting frequency over the three years after the reduction.

<sup>1</sup> More detailed descriptions of the reporting environment from 1951 to 1973 are provided by Leftwich et al. (1981) and Butler et al. (2007).

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