Discussion of

“Financial Reporting Frequency, Information Asymmetry, and the Cost of Equity”

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Fu, Kraft and Zhang (2012) use a hand-collected sample of firms with different interim reporting frequencies from 1951 to 1973 to test whether higher reporting frequency is associated with lower information asymmetry and a lower cost of equity capital. Their results suggest that firms with higher reporting frequency (e.g., firms reporting quarterly as opposed to annually) have lower information asymmetry and a lower cost of equity capital. In this discussion, I expand on FKZ by elaborating on their hypothesis development and research design, and providing suggestions for future research.

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1. **Introduction**

Fu, Kraft and Zhang (2012, FKZ hereafter) use a hand-collected sample of firms with different interim reporting frequencies from 1951 to 1973 to test whether higher reporting frequency is associated with lower information asymmetry and a lower cost of equity capital. Their research design is comprehensive in terms of the proxies used to capture theoretical constructs and the estimation techniques. Specifically, they use price impact and the bid-ask spread as proxies for information asymmetry; realized returns, expected returns based on CAPM and the Fama-French three-factor model, and earnings-to-price ratios serve as proxies for the cost of equity capital. In addition, they use four different estimation methodologies – OLS, firm fixed-effects, 2SLS, and a matched sample. Overall, their results provide strong evidence that firms with higher reporting frequency (e.g., firms reporting quarterly as opposed to annually) have lower information asymmetry and a lower cost of equity capital.

In this discussion, I expand several aspects of FKZ. In Sections 2 and 3, I discuss FKZ’s contribution to the existing literature and discuss some distinctions between the predictions regarding information asymmetry vis-à-vis the cost of equity capital. I then turn to empirical issues. In Section 4, I discuss the advantages and limitations of FKZ’s setting, highlight some key aspects of their different research methodologies, and discuss FKZ’s results and the inferences that can be drawn from the paper. In Section 5, I suggest some avenues for future research in this area. Section 6 concludes.

2. **Relevance to the literature**

FKZ study the impact of reporting frequency on information asymmetry and the cost of equity capital. One important challenge for their paper is to establish a contribution beyond the
extensive literature that studies the economic consequences of (i) reporting quality and/or (ii) disclosure frequency with respect to information asymmetry/cost of capital.

In terms of reporting quality, at the theoretical level the distinction between reporting quality and reporting frequency is subtle. That is, in the majority of cases the theoretical predictions are very similar as long as both reporting frequency and reporting quality reduce uncertainty about firm value (e.g., Leuz and Verrecchia, 2000, footnote 1). Further, increasing reporting frequency also implies, almost by definition, increasing reporting quality (weakly), as investors could always ignore the additional (interim) reports and rely on the annual report. Thus, at the theoretical level the distinction between reporting frequency and reporting quality is small, and the empirical evidence on the economic consequences of reporting quality is fairly exhaustive (Botosan, 1997; Leuz and Verrecchia, 2000; Francis et al., 2004, 2005; Core et al., 2008; Ng, 2011; among others).

As for disclosure frequency, prior literature focuses on increases in the frequency of voluntary disclosure such as management forecasts (e.g., Brown et al., 2005; Van Buskirk, 2011) whereas this paper studies increases in mandatory financial reporting frequency. This is akin to the literatures that study disclosure quality and reporting quality separately. While one would expect voluntary and mandatory disclosure to be related, empirical evidence on this topic is still an open issue (e.g., Francis et al., 2008).

Thus, a quick read of FKZ might give the impression that the evidence in their paper is already known in the literature. However, despite the similarities, I believe FKZ investigate an important and unique setting that has relevant implications for academics and standards setters. Specifically, several countries still require only annual reports and could consider increasing the required reporting frequency. Thus, the question studied in FKZ is relevant and can contribute to
this debate. For example, it is unclear whether a firm can achieve the economic benefits documented in FKZ simply by improving reporting quality without changing its reporting frequency (e.g., by reducing earnings management while reporting annual earnings). Similarly, it is unclear whether increases in disclosure frequency via other disclosure channels would yield the same outcomes documented in FKZ (e.g., by reporting annually but issuing monthly or quarterly guidance). Thus, I find the evidence in FKZ yields implications not otherwise found in the literature.

3. Hypothesis development

With regard to hypothesis development, there are two aspects of FKZ’s hypotheses that deserve more discussion. The first is the relation between reporting frequency and information asymmetry with an emphasis on short-term vs. long-term effects. The second involves the conceptual differences between the effects of reporting frequency on information asymmetry vs. the cost of capital.

The paper’s first hypothesis focuses on the relation between reporting frequency and information asymmetry. FKZ motivate the tension in this hypothesis based on the literature that allows private information acquisition and processing to be endogenous to financial reporting. For instance, Kim and Verrecchia (1994) show that public disclosures can lead to increases in information asymmetry because certain types of investors are better information processors and profitably trade on public disclosures at the expense of less informed investors. It is important to note, however, that this literature focuses on short-horizon effects. That is, informed investors benefit from public disclosures in the short run, which could lead to an increase (as opposed to a decrease) in information asymmetry. There is no discussion in FKZ about how increases in
reporting frequency could lead to long-term increases in information asymmetry. Further, to the best of my knowledge, the prior literature also does not support such an argument.

The distinction between short-term and long-term effects is important in the context of FKZ for two reasons. First, FKZ measure information asymmetry annually instead of daily around the public disclosure. In other words, the empirical implementation makes the tension in the first hypothesis weak. That is, it is unlikely that the predictions in the private information acquisition/processing literature would apply to annual measures of information asymmetry. Most importantly, one could argue that if the authors were able to measure information asymmetry in short windows around public disclosures, the results in the paper would be the opposite: the authors would find an increase in information asymmetry around interim reports (see Lee et al., 1993).

Second, FKZ interpret their results as suggesting that increasing financial reporting frequency from annual to quarterly reporting decreases information asymmetry. However, if a regulator were to mandate extreme levels of reporting frequency (e.g., monthly or weekly reports), as discussed above, one could document the opposite effect. This could occur because (too) frequent disclosure events could induce several short-term increases in information asymmetry that could offset the long-term decreases documented in FKZ. Consistent with this conjecture, Van Buskirk (2011) studies whether monthly disclosures are associated with lower information asymmetry but little evidence is found in support of this hypothesis. Thus, one needs to be careful in extrapolating the FKZ results beyond the reporting frequency studied in their paper.

My second observation regarding FKZ’s hypothesis development is that there could be a more detailed discussion of the conceptual distinctions between the predictions about
information asymmetry vs. the cost of capital. In other words, it is not clear from FKZ whether these hypotheses are interrelated or mutually exclusive. In fact, there are arguments in the literature that could permit scenarios in which FKZ could find results for both hypotheses, only one of the hypotheses, or neither of them.

Suppose reporting frequency is negatively associated with information asymmetry. In this case, one could still predict a negative or no relation between reporting frequency and the cost of capital. For example, Lambert et al. (2012) develop a model that shows that information asymmetry would only translate into cost of capital effects in imperfectly competitive markets. In other words, in perfectly competitive markets one might find a relation between reporting frequency and information asymmetry, but not a relation between reporting frequency and cost of capital. In contrast, in imperfectly competitive markets differences in information asymmetry would also translate into cost of capital differences (Armstrong et al., 2011; Akins et al., 2012).

Now suppose instead that reporting frequency is negatively associated with the cost of capital. As with the previous example, one could still predict a negative or no relation between reporting frequency and information asymmetry. This occurs because some theories on the role of information on the cost of capital do not rely on information asymmetry effects. Specifically, the estimation risk literature focuses on information precision (instead of asymmetry) and its effects on the cost of capital (Lambert et al., 2007, 2012). Thus, if reporting frequency affects information precision without changing information asymmetry (e.g., by informing all investors as opposed to differentially informing informed vs. uninformed investors), then it could affect the cost of capital without affecting information asymmetry.¹

¹ While the distinction between information asymmetry and information precision exist at the theoretical level, the predictions in Lambert et al. (2012) are much harder to prove empirically, as these two constructs are largely correlated.
Interestingly, the fact that FKZ document a negative relation between reporting quality and both information asymmetry and the cost of capital suggests that reporting frequency differentially informs uninformed vis-à-vis informed investors as it affects the degree of information asymmetry among investors. In addition, it also suggests that FKZ’s setting might be better characterized by imperfect competition as information asymmetry is arguably diversifiable in perfectly competitive markets.

4. Setting and research design

FKZ use the changes in SEC reporting frequency requirements as exogenous changes in reporting frequency from annual to semi-annual and (eventually) to quarterly reporting. A priori, this represents an appealing setting to study their research question. However, the appeal of the setting is potentially compromised because many firms self-selected into the higher reporting frequencies before the SEC mandate came into effect. Specifically, FKZ report that during 1951-1954, when only annual reporting was mandated, 24.09% of their sample reported semi-annually and 68.98% of firms reported quarterly. In other words, while the setting initially presented an (almost) ideal opportunity to investigate the effect of mandatory changes in reporting, in practice, evidence in FKZ is largely influenced by the effect of voluntary increases in reporting frequency on information asymmetry and the cost of capital. Thus a fundamental concern is whether the research design successfully mitigates a potential self-selection bias.

FKZ are well aware of this issue and implement four alternative research methodologies to assess the robustness of their findings. Specifically, they test their hypotheses using (i) OLS,

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2 Leftwich et al. (1981) and Butler et al. (2007) show that voluntary adoptions are largely influenced by the stock exchange on which firms were traded. This occurs because NYSE encouraged firms to increase their reporting frequencies much earlier than AMEX did. To the extent that this “encouragement” was imposed on firms it potentially mitigates the self-selection concern. Further, it could potentially be used by FKZ as an instrument for the 2SLS methodology.
(ii) firm fixed-effects, (iii) 2SLS, and (iv) matched sample research designs. The variety of methodologies and the consistency of their findings increase the confidence in FKZ’s results. However, one might be interested not only in the sign of the relation between reporting frequency and information asymmetry and the cost of capital, but also in the magnitude of the estimated coefficients. Thus, it is important to point out the trade-offs of these alternative research designs and their potential effects on the results.

In particular, an important concern with a sample of voluntary adopters is that the incentives to adopt higher reporting frequency change over time and that could trigger the adoption decision. For instance, in the context of voluntary IAS adoptions, Daske et al. (2012) show that firms’ reporting incentives change around the time they voluntary adopt IFRS and that the extent of the change in reporting incentives is associated with the magnitude of the change in information asymmetry around the adoption. Thus, it is crucial for FKZ to control for changes in firm characteristics associated with the decision to voluntarily increase reporting frequency.

It is unclear, however, whether the alternative methodologies can completely handle this concern. For example, the firm-fixed effects model will control for cross-sectional differences across firms as long as they are time-invariant. But to the extent that the firm characteristics driving the adoption decision change over time (as discussed above), they could still affect the estimated coefficients in the firm fixed-effects model. Similarly, the matched sample approach accounts for changes in firm characteristics over time. But this approach only partially addresses this issue because FKZ match firms on industry and size. Thus, if industry and size entirely drive the decision to voluntarily increase reporting frequency, then the matched sample will control for it. However, if other firm characteristics such as past performance and external financing
dependence also drive the decision to increase reporting frequency, then the matched sample
approach could also lead to biased results.

The above discussion is important because one important feature of the FKZ results is
that the magnitudes of the coefficient estimates are quite sensitive to the methodology used.
Specifically, FKZ document cost of capital reductions on the order of 60 to 150 basis points for a
unit increase in reporting frequency (e.g., by increasing reporting frequency from annually to
semi-annually). The effects are arguably too large, given that the mean cost of capital for the
firms in the sample is around 800 basis points. As I discuss in more detail below, it raises the
question as to what prevents all firms from voluntarily increasing reporting frequency if the
benefits from doing it are as large as those documented by FKZ.

5. Implications and suggestions for future research

The results in FKZ provide evidence of large economic benefits from increasing
reporting frequency. It is tempting to look at FKZ’s results and make predictions about what
could happen if other countries mandated an increase in reporting frequencies. I caution,
however, that such speculation might be premature. In this section, I discuss two potential areas
where further research could further inform this debate.

First, while FKZ document important benefits from increased reporting frequency, future
research could also study the costs associated with this decision. For example, one could
speculate on at least three different sources of costs: (i) compliance costs, (ii) agency/monitoring
costs, and (iii) proprietary costs. If higher reporting frequency imposes higher compliance costs,
then one could attempt to test this hypothesis by looking at the effect of these higher costs on
reported earnings in the year subsequent to the adoption. Alternatively, one could look at the
extent to which firms voluntarily delisted from the exchange subsequent to the mandated increase in reporting frequency. Similarly, if agency or proprietary costs affect the net benefits of increasing reporting frequency, one could study whether proxies for agency problems and proprietary costs predict voluntary adoption decisions.

Studying the costs associated with increasing reporting frequency is also important for the generalizability of the results in FKZ. Specifically, in FKZ’s sample a large fraction of firms voluntarily increase their reporting frequency before the SEC mandate. This suggests that these firms perceived this decision as having a net benefit, which implies that perhaps the costs in this setting were not so high. However, a much different outcome might be observed in countries still deciding whether or not to increase their mandated reporting frequency. In particular, if a country allows firms to voluntarily increase their reporting frequencies but firms rarely do so, this suggests that the cost for such firms might be higher than the benefits documented in FKZ.

A second fruitful area for research would be to study the contracting implications of increase reporting frequency. A number of contractual arrangements rely on numbers reported in GAAP based financial statements and many contract terms require quarterly financial reports. For example, debt covenants are often based on rolling quarterly financial statements. To the extent that these covenants had been previously based on annual financial statements, one could test if the increase in reporting frequency allowed for more efficient contracting. Alternatively, one could study whether changes in reporting frequency affect the trade-off between the monitoring mechanisms used by lenders. For instance, does an increase in reporting frequency lead to a shift from the use of monitoring mechanisms such as loan maturity and loan pricing to covenant based monitoring (e.g., increasing the number of covenants or decreasing the covenant slack)?
6. Conclusion

Fu, Kraft and Zhang (2012) use a hand-collected sample of firms with different interim reporting frequencies from 1951 to 1973 to test whether higher reporting frequency is associated with lower information asymmetry and a lower cost of equity capital. Their results provide strong evidence that firms with higher reporting frequency (e.g., firms reporting quarterly as opposed to annually) have lower information asymmetry and a lower cost of equity capital. In this discussion, I discuss FKZ’s contribution to the literature, its hypotheses development, and research design, and then suggest some avenues for future research.
References


