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Bridging Financial Reporting Research and Policy: A Discussion of “The Impact of Accounting Standards on Pension Investment Decisions”

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Abstract

Barthelme et al. (2018) examine the real effects of pension accounting regulation and provide evidence consistent with the claim that recent changes in financial reporting rules affect pension asset allocation decisions. Their study offers an interesting opportunity to highlight the importance of evidence-based policymaking in the field of financial reporting. I discuss some empirical challenges that the authors face to causally identify the effects they examine to show how a closer cooperation between academia and regulators can enable researchers to overcome identification challenges and help produce even more policy-relevant research.

Keywords: Regulation, Evidence-based policymaking, Accounting standards, Pension asset allocation, IAS 19R, Real effects

JEL Classification: A11, G18, G30, G32, G38, K22, L51, M41, M48

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1. Introduction

The study by Barthelme et al. (2018) offers a stimulating opportunity to reflect on the importance of a closer cooperation between academia and policymakers to aid the production of rigorous scientific evidence which can in turn yield better policy interventions. This idea is often referred to as “evidence-based policymaking” (e.g., Banerjee and Duflo, 2011; Buijink 2006; Leuz, 2018).

The analysis in Barthelme et al. (2018) is of interest to accounting standard setters and policymakers because it documents an important *real effect* of accounting regulation. The authors examine whether a change in accounting rules for defined benefit pension plans alters firms’ pension asset allocation decisions. They document that the switch from IAS 19 to IAS 19R in Germany—which eliminated the “corridor method” through which firms could defer the recognition of actuarial gains and losses—effectively shifts firms’ pension assets from equities to bonds (i.e., towards less risky investments). These findings are important because they can help understand the consequences of accounting regulation and, at the same time, have the potential to inform future regulatory action.

Notwithstanding the credit that Barthelme et al. (2018) deserve, their analysis presents some empirical challenges that the authors share with most of the research that tries to identify the causal effects of changes in regulation. While Barthelme et al. (2018) carefully address many of the identification challenges related to self-selection and measurement issues by employing state-of-the-art econometric techniques, it is still important to think about how some of the potential caveats could affect the inferences they draw and the generalizability of their findings to other settings. Most importantly, reflecting on these caveats allows to understand how a closer cooperation between academia and standard setters could help researchers access better data and exploit settings that resemble “natural experiments” in that certain firms, for example, are exposed to rule changes (possibly in a staggered fashion),

whereas others are not. Such a cooperation could enable researchers to generate even more rigorous policy-relevant research (Leuz, 2018).

The remainder of the paper unfolds as follows. Section 2 discusses the gap between financial reporting research and policymaking. Section 3 summarizes the contribution of Barthelme et al. (2018). Section 4 focuses on the empirical challenges. Section 5 concludes.

2. The Gap between Financial Reporting Research and Policymaking

Regulatory interventions by policymakers in the areas of financial markets and financial reporting regulation have been mainly based on unconventional cost-benefit analyses and seldom backed by scientific evidence provided by academic research (Buijink 2006; Schipper 2010; Leuz, 2018). Only recently in fact, the U.S. Securities and Exchange Commission (SEC) has started conducting more formal cost-benefit analyses to inform its regulatory actions. Similarly, it is not so long ago that the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have introduced post-implementation reviews to evaluate the effectiveness of their standard setting processes.

The above considerations beg the question of how to bridge the gap between financial reporting research and policymaking such that standard setters like the FASB and the IASB could rely—in a more systematic way—on policy-relevant academic research. This question is important because a closer link between financial reporting research and policymaking has the potential to minimize the costs of ill-designed policies that otherwise could be enormous.

Drawing parallels from medical research where the use of randomized control trials (RCTs) is nowadays the gold standard, in a recent paper Leuz (2018) discusses the potential benefits (and challenges) of evidence-based policymaking and calls for increased cooperation between policymakers and academics, as well as for improved infrastructures to enable researchers to generate more policy-relevant research. Absent this cooperation, an uncharitable characterization of financial reporting policymaking would view it—building on

the previous analogy to medical research—as on par with “medieval medicine” and hence mainly based on hunches and guesses, rather than on rigorous scientific evidence.

An important consideration in evaluating the effectiveness of a policy intervention is the understanding of what would have happened in the absence of the specific intervention (i.e., the counterfactual) (Banerjee and Duflo, 2011). In the specific case of an accounting standard that has been recently mandated, policymakers would want to ideally know what would have happened (for example to market liquidity and cost of capital) if the accounting standard had not been introduced. The answer to this question is especially problematic in the field of accounting policy *vis-à-vis* medicine because practical—as well as ethical—reasons render RCTs arguably less feasible (Leuz, 2018). Nonetheless, the provision of effective policy recommendations rests on the possibility to identify causal effects. Yet, the possibility to draw causal inferences in the fields of economics, finance, and accounting often faces severe limitations since natural experiments are rare, treatment measurement is complex, and relevant data are generally lacking (Leuz, 2018).

For the reasons highlighted above, empirical studies usually attempt to gauge treatment effects of policy interventions by relying on quasi-experiments. Inferences drawn from these studies, however, are often subject to caveats because: (i) policy interventions do not occur in a vacuum as economic and/or political reasons naturally drive regulatory actions, which in turn leads to selection concerns (Leuz and Wysocki, 2016; Leuz, 2018); (ii) policy interventions often target entire countries, which severely limits the possibility to identify reasonable control groups; (iii) policy interventions are usually introduced at one point in time, rather than in a staggered fashion, and hence concurrent unobservable factors may confound the identification of treatment effects. Moreover, even when studies provide very tight identification of treatment effects, then usually their settings are so peculiar that the

generalizability of their inferences to other settings becomes a concern (see Glaeser and Guay (2017) on this point).

A closer cooperation between academia and policymakers has the potential to boost the production of more rigorous scientific evidence, which can in turn inform better regulatory actions. As suggested by Leuz (2018), policymakers could help researchers by improving access to data and/or by creating better conditions for the identification of causal effects. For example, regulators could launch pilot programs for the adoption of new standards, or introduce new standards in a staggered fashion to help researchers overcome identification challenges and produce more reliable evidence to support regulatory actions.¹

3. The Real Effects of Pension Accounting Regulation

A large literature in accounting has focused on the *real effects* of disclosure (e.g., Kanodia, 1980; 2006; Kanodia et al., 2004; Leuz and Wysocki, 2016; Kanodia and Sapra, 2016). The central tenet of the real effect hypothesis rests on the idea that accounting standards informing the measurement and disclosure of economic transactions produce important effects on the (real) decisions that companies make. Hence, under this view, a change in the financial reporting regime likely affects how firms acquire and allocate their resources. In this spirit, Barthelme et al. (2018) examine whether a change in accounting regulation for defined benefit pension plans affects firms' pension asset allocation decisions. Specifically, Barthelme et al. (2018) contend and find that the transition from IAS 19 to IAS 19R in Germany, by eliminating the "corridor method," which allowed firms to smooth equity volatility by deferring the recognition of actuarial gains and losses, effectively shifts firms'

¹ An interesting example in this respect is the 2005-2007 pilot program which was run by the SEC to provide evidence on the effects of removing short-sale restrictions. Like in a RCT, the SEC randomly selected one-third of the Russell 3000 companies and exempted them from short-sale restrictions previously in place (so called "uptick rule"). The exempted companies were effectively the "treated" subjects in the experiment, whereas the other companies served as "control" subjects.

pension assets from more volatile investments (e.g., equities) to less (e.g., bonds) volatile investments.

The evidence in Barthelme et al. (2018) suggests that the adoption of IAS 19R by German listed firms leads to an average decrease in equity investments of 2.46 percentage points and to a corresponding average increase in bond investments of 4.61 percentage points. Their findings are consistent with an economically sizable “flight to safety” effect, in that after the introduction of IAS 19R firms rebalance their pension asset portfolios towards less volatile investments to counter the expected increase in pension-induced volatility.

Barthelme et al. (2018) deserve special credit for addressing an important and timely question by exploiting an interesting setting. Their study, along with the concurrent work of Anantharaman and Chuk (2018), has the potential to offer relevant insight to policymakers and inform regulatory interventions by providing compelling evidence on the real effects of pension accounting regulation. This is especially important given the recent call for evidence-based policymaking previously discussed (Leuz, 2018).

Notwithstanding the merits of Barthelme et al. (2018), in the next section I discuss what I believe are some empirical challenges that the authors face in the identification of the effects of accounting regulation on pension asset allocation. First, I begin by discussing the different mechanisms through which the hypothesized effects can manifest themselves. Second, I delve into the self-selection issues potentially posing a challenge to the authors’ research design. Third, I focus on the role of managerial incentives. Fourth, I focus on the potential measurement issues with the response variables. Lastly, I discuss the extent to which the findings can be generalized.

4. Empirical Challenges

4.1. *The Mechanisms*

Barthelme et al. (2018) posit that the effect of the transition from IAS 19 to IAS 19R on the pension asset allocation choices of German firms may occur through two different channels: (i) the other comprehensive income (OCI) channel, which operates through the elimination of the corridor method; and (ii) the effective rate of return (ERR) channel, which operates through the elimination of the ERR assumption for the calculation of the net periodic pension cost.

Barthelme et al. (2018) provide evidence consistent with the OCI channel. They show that, once the German firms in their sample switch from the corridor method to the immediate recognition of actuarial gains and losses in OCI (i.e., the OCI method), the allocation of pension investments significantly shifts from equities to bonds. However, the effect of the pension rule change on pension asset allocation is—at least in theory—likely to be jointly determined by both mechanisms, i.e., the OCI channel *and* the ERR channel. Accordingly, in further tests the authors attempt to shed light on whether the ERR channel plays a role in their setting. The ERR channel rests on the idea that the elimination of the ERR assumption makes managers lose their incentive to allocate funds to risky pension investments (e.g., Bergstresser et al., 2006; Anantharaman and Chuk, 2018), which in turn should induce pension asset rebalancing towards safer investments. The evidence in Barthelme et al. (2018), which is based on a sample of German firms transitioning from IAS 19 to IAS 19R, does not support this alternative mechanism.

In a different setting, Anantharaman and Chuk (2018) show that the ERR channel does explain changes in pension asset allocation. Specifically, by comparing pension investments of Canadian firms adopting IAS 19R with those of a control group of U.S. firms not

experiencing the pension policy change, they document a significant reduction in the proportion of equity investments.

I view the evidence in Barthelme et al. (2018) and Anantharaman and Chuk (2018) as complementary. Leveraging on very different institutional settings, these studies document important real effects of pension accounting regulation highlighting two distinct channels through which these effects obtain. Nonetheless, an important—yet unanswered—question is why the documented effects are attributable to different channels conditional on the setting being investigated. One potential explanation, which Barthelme et al. (2018) examine, is the spread between ERRs and discount rates. While spreads are relatively low in Germany, these seem to be more pronounced in Canada, which would also be consistent with the findings in Anantharaman and Chuk (2018). However, in the interest of generalizability, future research could explore more in depth the role of institutional features and why specific channels are more likely to produce effects depending on the context examined. This is especially important considering the previous discussion regarding evidence-informed policymaking, as one would want to appreciate: (i) the extent to which inferences drawn from one setting reasonably generalize to others (see the discussion on external validity in Section 4.5); and (ii) whether the relative importance of a specific channel is contingent on the specific features of the institutional setting being investigated (i.e., whether there are institutional complementarities).

4.2. Self-Selection Issues

Barthelme et al. (2018) hypothesize that the change in pension accounting rules following the introduction of IAS 19R induces firms to rebalance their pension asset investments. To test their prediction, the authors exploit a quasi-experiment provided by the German market. The key feature of their setting is that, prior to the revision of IAS 19, listed German firms could choose between the OCI method and the corridor method. Once, as of 2012, IAS 19R

replaces IAS 19, the corridor method is not an option anymore, effectively leaving no choice but to switch to those firms previously opting for the corridor method. Leveraging on this feature of their setting, Barthelme et al. (2018) compare (in a difference-in-differences framework) pension asset allocation decisions before and after IAS 19R between a treatment sample of switchers (i.e., firms previously using the corridor method then switching to the OCI method) and a control sample of non-switchers (i.e., firms that already use the OCI method before the accounting rule change).

To reliably estimate the causal effect of the accounting rule change on firms' pension investment decisions, an important assumption is that observations are randomly assigned to treatment group and control group. As this is unlikely to be the case in this setting, because control firms voluntarily adopt the OCI method before the rule change and hence are *untreated by choice*, the research design may suffer from a self-selection issue. To mitigate this endogeneity concern, the authors use propensity score matching effectively relying on a bias-corrected difference-in-differences estimator for average treatment effects (Abadie and Imbens, 2011).

While the use of propensity score matching has the potential to alleviate endogeneity concerns due to self-selection, this method can only control for differences in *observable* characteristics between treatment and control observations, which naturally limits its efficacy. In fact, unobservable time-varying factors that differ across treatment and control observations could still induce a potential selection bias in the difference-in-differences estimates. Moreover, while propensity score matching is particularly effective for large samples, when sample sizes are small, it becomes difficult to generalize estimates outside common support.

While the considerations above virtually apply to any quasi-experimental setting in which selection issues are a concern, Barthelme et al. (2018) carefully acknowledge this limitation when discussing their findings.

Future research, potentially relying on cross-country samples, could use firms from other countries to construct a *synthetic control group* (e.g., Abadie and Gardeazabal, 2003) to more effectively alleviate selection issues. The idea would be to use a weighted combination of control sample observations from different countries to estimate what would have happened to the treated observations absent the treatment (i.e., counterfactual pension asset allocation decisions). The advantage of this approach *vis-à-vis* other methods is that it can account for the influence of time-varying confounders through the weighting of control sample observations to achieve a better match with treated observations before the latter receive the treatment.

Importantly, as already mentioned, these common identification challenges could be effectively overcome with a closer cooperation between researchers and policymakers. In fact, if in the future accounting standards were to be introduced through pilot programs in a similar fashion to RCTs, the inferences drawn from academic studies would be certainly more policy-relevant.

4.3. *The Role of Managerial Incentives*

When Barthelme et al. (2018) explore the link between change in pension accounting rules and pension asset allocation decisions, they contend that, through the OCI channel, the reduced proportion of equity investments is likely due to managers' incentives to keep the volatility of their firms' equity under control. This compelling argument is predicated on the assumption that managerial incentives play an important role as the observed reduced proportion of equity investments over total pension assets is likely to be jointly determined by the *interaction* of changes in accounting rules and managers' reporting incentives.

Following the above argument, it is therefore reasonable to assume that capital structure considerations, as well as managerial compensation arrangements, may, for example, moderate the effect of the rule change on pension asset allocation. With respect to capital structure, high credit-risk firms (or firms that are close to violating a covenant) may be especially sensitive to increases in pension-induced equity volatility and hence exhibit larger effects in terms of portfolio rebalancing towards safer asset classes. As for managerial compensation, Anantharaman and Lee (2014) provide evidence that top management compensation structures are an important driver of corporate pension policy. Specifically, Anantharaman and Lee (2014) document risk-shifting activities through pension underfunding for executives whose compensation packages exhibit high wealth-risk sensitivities. Taken together, these considerations reinforce the argument that managerial incentives constitute important factors in the relation between changes in accounting rules and pension investment decisions, which are worthy of further exploration.

While the focus in Barthelme et al. (2018) is on the average effect of the rule change on pension investment decisions, they account for the role of managerial incentives as *controls* (rather than moderating factors), to mitigate the concern that incentives *per se* could be responsible for the observed outcome. To this end, the authors include in their difference-in-differences model specifications *firm leverage* and *percentage of free float* to capture capital structure incentives related to credit risk and compensation-related incentives, respectively. This strategy effectively purges variation in the response variables that is due to differences in time-invariant incentives across treatment and control observations.

In summary, whereas I believe the exploration of managerial incentives as moderating factors would render the study of the effects investigated richer, Barthelme et al. (2018) opt for considering managerial incentives as factors to control for. I contend, however, that the inclusion of incentives as controls is likely problematic if one believes that incentives

themselves may be affected by the treatment. It is in fact not unreasonable to think, for example, that following the rule change firms may renegotiate their executives' compensation packages or their debt contracts to counter the (expected) increased in equity volatility. If this is the case, managerial incentives may represent "bad controls" as defined in Angrist and Pischke (2009) because these could lead to inconsistent estimates of treatment effects. Luckily though, this concern is mitigated in the context of Barthelme et al. (2018) as their univariate difference-in-differences evidence is in line with their multivariate effects, which is thus reassuring.

4.4. Outcome Variables

Barthelme et al. (2018) are interested in documenting the effect of the change in pension accounting regulation on pension investment allocations across different asset classes. In line with their main prediction, the anticipated increase in pension-induced equity volatility is expected to shift investments from equities to bonds. Accordingly, the authors measure equity (bond) investments as the percentage of pension assets allocated to equity (bond) securities to capture the relative proportion of equities (bonds) on total pension assets. Along with investments in equities and bonds however, firms can also allocate their pension investments towards alternative assets such as real estate, stocks in hedge funds, insurance contracts, etc. To capture the percentage of pension assets allocated to investments other than equities, bonds, and real estate, the authors use a "catch all" variable labeled *%OTHER*. The proportion of pension assets allocated to other investments appears to be sizable and, most importantly, increasing after the introduction of IAS 19R (from 15.2% to 18.1%). The fact that the allocation of pension investments to the (arguably less transparent) *%OTHER* category increases when IAS 19R replaces IAS 19 raises the question of whether managers: (i) indeed increase the proportion of pension investments in assets other than equities and

bonds; (ii) use their discretion to strategically classify their pension investments under this residual category; or (iii) engage in both these strategies.

The authors conduct sensitivity tests to allay the concern that the documented results could be affected by potential measurement error in their dependent variables. Specifically, they exclude from their full sample observations for which *%OTHER* is equal to, or greater than, 25%. While these tests have the potential to alleviate measurement error concerns, they still leave two important questions unanswered. First, what type of pension investments fall into this residual category? Second, do—and if so to what extent—managers engage in classification shifting when changes in pension accounting rules occur? Unfortunately, data limitations due to current disclosure requirements preclude Barthelme et al. (2018) to examine these questions. Nevertheless, if disclosure standards were to allow for finer disaggregation of information in pension asset disclosures in the years to come, future research may shed light on these important issues.

4.5. Generalizability of Empirical Findings

If policymakers such as accounting standard setters are to increasingly base their regulatory interventions on the empirical evidence produced by accounting and financial markets research, the extent to which inferences drawn from a study generalize beyond the features of the specific research setting investigated becomes especially important (Glaeser and Guay, 2017; Leuz, 2018).

As the quasi-experimental setting in Barthelme et al. (2018) is provided by German listed firms that experience the transition from IAS 19 to IAS 19R, it is crucial to understand whether their inferences can reasonably apply beyond their German “laboratory.” Ideally, policymakers would want to know whether the transition from IAS 19 to IAS 19R induces an average reduction in equity investments of 2.46 percentage points also for firms domiciled in other countries experiencing the same accounting rule change. Moreover, policymakers

would also be interested in knowing whether the same channel responsible for the pension investment effects documented in the German setting—the OCI channel—is also likely to represent the mechanism through which pension asset allocation decisions would be affected by the same accounting rule change in other settings. The authors are very careful in their discussion of the external validity of their findings and call for further research to explore different settings to gauge the real effects of pension accounting rules.

The above discussion highlights the importance of comparing the evidence produced by a “mosaic of studies” (Glaeser and Guay, 2018) to better understand whether, and to what extent, the causal effects of policy changes hinge on the specific features of the context examined. It is therefore with this perspective in mind that one needs to assess the way in which the findings in Anantharaman and Chuk (2018) for Canada and Barthelme et al. (2018) for Germany complement each other. While the evidence in Barthelme et al. (2018) is consistent with the elimination of the corridor method being the mechanism behind the documented pension allocation effects for German firms, Anantharaman and Chuk (2018) show that, for Canadian firms, the reduced risk-taking in pension asset allocation after the introduction of IAS 19R occurs because managers face lower incentives to invest in risky assets to justify larger ERRs.

Further research is needed to understand why the mechanisms through which the real effects of pension accounting rule changes manifest themselves are context-specific and to what extent the evidence from these studies can inform financial reporting policymaking.

5. Conclusion

Barthelme et al. (2018) examine the real effects of pension accounting regulation. Their evidence suggests that the adoption of IAS 19R by German listed firms leads to a sizable decrease in equity investments and to a corresponding increase in bond investments, which

supports the idea that firms rebalance their pension asset portfolios towards less volatile investments to counter the expected increase in pension-induced volatility.

The study of Barthelme et al. (2018) offers an interesting opportunity to reflect on the challenges that academics face when attempting to identify the causal effects of regulatory interventions. While researchers typically resort to econometric techniques to keep these challenges “under control,” a closer cooperation between researchers and policymakers has the potential to stimulate the production of even more policy-relevant research.

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