

Standards or incentives: What determines financial reporting transparency for defined benefit pension assets?

Divya Anantharaman
Associate Professor
Rutgers Business School
Department of Accounting and Information Systems
1 Washington Park Room 916
Newark, NJ 07102
divyaa@rutgers.edu

Elizabeth Chuk*
Assistant Professor
University of California, Irvine
4293 Pereira Drive SB2 413
Irvine, CA 92697
elizchuk@uci.edu

November 10, 2017

Abstract

We examine whether regulation intended to improve disclosure can itself lead to higher disclosure quality in the absence of a change in preparer incentives. We exploit a setting involving a sequence of two similar regulatory changes, which have one key difference – while both regulatory changes mandate improvements to disclosure (specifically, on pension asset allocation), only one removes preparer incentives to disclose opaquely (by eliminating a key reporting assumption – the expected rate of return on pension assets or ERR, which can be more effectively manipulated if asset allocation remains opaque). We construct two difference-in-difference (DD) research designs to examine the disclosure consequences of each of these changes mandating more transparent disclosures on pension assets ((i) a 2008 rule change under US GAAP and (ii) a 2011 rule change under IFRS), and examine the *difference* in disclosure outcomes between these two changes. We find that the IFRS disclosure standard, which also removes preparer incentives to obfuscate asset allocation, is effective at improving pension asset transparency as intended by the standard, whereas the US standard, which solely mandates better disclosure while leaving unchanged preparer incentives to disclose or obfuscate, is not as effective at improving pension asset transparency. Using a setting in which firms have a well-documented incentive for lower financial reporting quality (i.e., incentives to manipulate the ERR so as to lower pension expense and boost reported income), our findings reinforce the view in the “standards versus incentives” literature that accounting quality cannot be improved effectively with higher-quality standards alone; preparers’ incentives must work in concert with higher-quality standards to pull firms towards more transparent reporting.

Keywords: Accounting regulation, standard-setting, defined benefit pension, IAS 19R, SFAS 132R

*Corresponding author. We thank workshop participants at UC Irvine and the 2017 Center for Corporate Reporting and Governance Annual Conference for their many useful comments. All errors and omissions are our own. Comments are welcome.

I. INTRODUCTION

Transparent financial reporting can facilitate efficient capital allocation in the economy by lowering information and transaction costs between suppliers and users of capital (Watts and Zimmerman 1986). Accordingly, empirical studies have documented reduced information asymmetry between market participants, higher liquidity, and lower cost of capital for firms that report transparently (Diamond and Verrecchia 1991, Leuz and Verrecchia 2000, Easley and O’Hara 2004). However, while these benefits provide firms with powerful incentives to report transparently, managers also face competing incentives to report *opaquely*: to reduce the costs of disclosure (both direct and indirect – such as proprietary or political costs), to raise external financing on favorable terms, or to further their own careers and opportunistically maximize their compensation packages. As a result, much regulatory standard-setting in accounting focuses on prescribing minimum acceptable levels (and formats) of disclosure that issuers are required to provide on various aspects of operations.

However, standards mandating improved disclosure have not been uniformly effective at eliciting higher disclosure quality from issuers, in practice. A prominent case in point results from the European Commission’s mandate to its member countries to adopt International Financial Reporting Standards (IFRS) from 2005, one of the most dramatic regulatory changes in the history of accounting. A stream of studies show that the expected capital market benefits to adopting IFRS, e.g., higher liquidity and lower cost of capital, are “not evenly distributed across countries or firms” (Daske, Hail, Leuz, and Verdi 2008). Rather, these benefits accrue mostly to the countries with an institutional environment that provides firms with strong incentives to be transparent, leading to the conclusion that the *incentives* of financial statement preparers have to work in combination with high-quality accounting *standards*, to drive transparent financial reporting in practice.

The argument underlying the evidence on the “standards versus incentives” debate is that even though the accounting standards themselves may be high-quality in that they mandate conceptually superior accounting practices and require more disclosures, the application of any accounting standard

ultimately involves considerable judgment and private information from preparers (Daske et al. 2008). This inevitably leaves managers with discretion to implement the standard in a manner that may not be as informative as standard-setters intend, or which may otherwise not comply with the standard fully in its substance, or spirit. Furthermore, the way in which firms use this discretion will in turn depend on their reporting incentives. As a result, the ultimate effectiveness of any standard, no matter how high-quality, is impacted by preparers' incentives, and by how those incentives interact with the mandates contained in the standard. If preparers have strong incentives to provide high-quality reporting, the incentives assist the standard in achieving its intended purpose; but by the same token if preparers have strong incentives to obfuscate, the effectiveness of the standard could be limited.

Against this background, our study examines the question of whether regulation intended to improve disclosure can itself result in higher disclosure quality in practice, in the absence of a change in preparer incentives. We exploit a setting involving a sequence of two similar regulatory changes, which have one key difference – while both changes mandate improved disclosure, the first change does not alter preparer incentives to disclose transparently, whereas the second change does alter a specific preparer incentive that affects the propensity to disclose the required items.

The first of two regulatory changes that we examine is the FASB's Staff Position for Statement of Financial Accounting Standards (SFAS) 132R under US GAAP, issued in 2008 (hereafter, the "FSP"). The FSP, an amendment to SFAS 132R (2003) *Employers' Disclosures about Pensions and Other Postretirement Benefits*, mandates improved disclosures of the composition of pension assets for firms sponsoring defined-benefit ("DB") pension plans, and was explicitly motivated by concerns about transparency and aimed at improving transparency.¹ While the extant disclosure requirement prior to the FSP was for sponsoring firms to disclose, at a minimum, the "percentage of pension assets

¹ "The Board's directive was in response to users' concerns about the lack of transparency surrounding the types of assets and associated risks in an employer's defined benefit pension or other postretirement plan and events in the economy and markets that could have a significant effect on the value of plan assets" (FASB Staff Position 2008, Paragraph 3)

invested in equity, debt, real estate, and other”, the FSP requires increased disaggregation of the asset categories to which pension funds are allocated. It asks sponsors to consider the *nature* and *risks* of the assets held in the plan when determining asset categories, providing an illustrative list of categories that expands considerably on the previous illustrative list of only four categories.

The second of two regulatory changes that we examine is International Accounting Standard (IAS) 19R *Pension Benefits* under IFRS issued in 2011 (an amendment of IAS 19 *Pension Benefits* issued in 2004), which revises disclosure requirements for pension asset allocation very similarly to the FSP under US GAAP. While the extant disclosure requirement prior to IAS 19R prescribed a minimum of four asset categories similar to SFAS 132R, IAS 19R (2011) outlines the guiding principle of disaggregating “the fair value of plan assets into classes that distinguish the nature and risks of those assets” (reminiscent of FSP language), with an almost-identical expanded list of illustrative asset categories as in the FSP.

The state of disclosure guidance on pension asset allocation under both US GAAP and IFRS before the regulatory changes that we examine, as well as the change in requirements imposed by the FSP and by IAS 19R respectively, are very similar, if not identical. The two standards have one key difference, though, with potential implications for their effectiveness in delivering higher-quality disclosure. This difference relates to a pension assumption that is intimately connected to asset allocation: the expected rate of return (“ERR”) on pension assets. In both US GAAP and IFRS before their respective regulatory changes, pension costs are offset by the *expected* return to pension assets, determined by the *ERR*fair value of pension assets*. As a higher ERR translates directly into a lower pension expense (and higher net income, as a result), sponsoring firms have strong incentives to assume ERRs that are upwardly biased – a contention supported by anecdotal and empirical evidence (Zion and Carcache 2002; Gold 2005; Bergstresser, Desai, and Rauh 2006; Chuk 2013).

The connection between asset allocation *disclosures* and the ERR assumption lies in the fact that the ERR, a forward-looking assumption on the long-term expected earning power of pension

assets, is meant to be a function of the plan's past actual returns and its asset allocation (SFAS 87, Paragraph 45). More granular disclosures of asset allocation, therefore, help investors and other financial statement users to better assess whether assumed ERRs are reasonable. Therefore, even if a firm should have the incentives to inflate the ERR, its ability to sustain an inflated ERR – i.e., an ERR that is not in line with the risk-return prospects of the underlying pension assets – hinges on its being able to obfuscate the true nature of its pension assets. For that reason, a regulatory change that requires firms to more transparently reveal the true nature of their pension asset portfolios should assist users in unraveling any attempted bias in ERRs, thereby constraining ex ante any earnings management via the ERR. Consistently, Chuk (2013) finds that the upward bias in ERRs shrinks after SFAS 132R requires asset allocations to be disclosed in the financial statements for the first time.

The FSP is purely a disclosure pronouncement, leaving the pension accounting model of US GAAP unchanged. In contrast, IAS 19R fundamentally alters the IFRS pension expensing model, by eliminating the ERR as a separate assumption. Instead, IAS 19R replaces the ERR with the discount rate assumption, which is a AA bond rate matched to the duration of the pension obligation and is unrelated to the riskiness of plan assets—thereby removing the link between the income statement and pension asset riskiness.

IAS 19R, therefore, not only mandates improved disclosure of pension asset allocations, but also alters preparers' *incentives* with respect to those disclosures: as the ERR no longer exists as a separate assumption allowing managerial discretion, firms can no longer use the ERR as a tool for inflating earnings and hence no longer have the incentive to make disclosure choices about asset allocation that will help to justify high ERRs. In contrast, the FSP also mandates improved disclosures of asset allocation – thereby improving the *standard* – but firms' *incentives* to use an inflated ERR are presumably unchanged. Hence, although we expect firms to comply with the FSP (at least in form), we also expect that their disclosure choices will be determined to some degree by the continued incentive to sustain their chosen ERR estimate. The FSP's effectiveness at eliciting improved asset

allocation disclosure will depend on the relative importance, to firms, of complying with the new standard versus sustaining their chosen ERR. With the IAS 19R regulatory change, however, we expect asset allocation disclosures to improve more markedly, as firms no longer have a clear incentive to obfuscate asset allocations so as to sustain an otherwise-unjustifiable ERR estimate.

We construct two difference-in-difference (DD) research designs to examine the disclosure consequences of each regulatory change. To examine the consequences of the FSP, we focus naturally on US firms. To examine the consequences of the IAS 19R disclosure requirements, we use a sample of Canadian firms, exploiting the similarities between the US and Canada. We first construct our sample of Canadian firms to examine the consequences of IAS 19R (2011) with data from Compustat North America. We apply propensity-score matching to identify a matched sample of US listed firms.² We then look back in time to the FSP (2008) for this Canadian treatment sample and US control sample, and assemble treatment and control samples around the FSP's implementation timeline (2008) – but in this case, swap the designations of treatment and control such that US firms serve as the treatment sample and Canadian firms as the control sample for the FSP experiment. We are therefore able to examine the consequences of each regulatory change not only with its own pair of treatment and control samples (US treatment and Canadian controls for the FSP; Canadian treatment and US controls for IAS 19R) in two DD research designs, but also with the exact same firms in each US-Canada pair used in the DD design, allowing cleaner inference.³ Our tests focus on the *difference* in disclosure outcomes between these two DD settings – in essence, a triple-differences design.

² Our use of US and Canadian firms relies on the assumption that the US and Canada provide similar incentives for firms to produce high-quality financial reporting, supported by the similarities in capital markets, legal systems, and enforcement mechanisms across US and Canada. Note that the validity of the research design does not rely on assuming that US GAAP and IFRS are similar in overall quality, for two reasons. First, our study compares a specific output from a specific pair of standards (i.e., FSP vs. IAS 19R), rather than comparing overall quality across two complete sets of standards (i.e., US GAAP vs. IFRS). Second, any differences in the overall quality of US GAAP and IFRS are permanent (time-invariant) differences that become “differenced away” in our research design. Nonetheless, US GAAP and IFRS are generally viewed as comparable in quality; e.g., in 2007, the US SEC eliminated the requirement for foreign registrants using IFRS to reconcile their financial statements with US GAAP.

³ Our use of the treatment firms from one DD experiment as the control firms in the other DD experiment helps mitigate threats to internal validity. For example, for an alternative explanation to explain any changes in disclosure

Our study examines changes in transparency of pension asset disclosures across different regulatory regimes. As asset allocation disclosures describe a portfolio of assets, a transparent disclosure is one that (i) breaks out the quantity of investment in each asset class that has a sufficiently different risk-return profile from the average; *and* (ii) qualitatively describes, or labels, each asset class in a way that allows users to understand what its risk-return characteristics are. Accordingly, we measure the disclosure outcomes of each standard along these two dimensions: how many asset categories firms disaggregate their pension portfolio into, and what proportion of pension assets is labeled / described in a manner that is informative about the risk-return characteristics of those assets.

We find some striking results. After the FSP, affected US firms disaggregate pension portfolios into a substantially larger number of asset categories, but tend to label many of those categories opaquely, such that users cannot discern the risk-return characteristics of the underlying assets (e.g., “mutual funds”, “common/collective trusts”). Overall, hence, it is unclear whether pension assets have indeed become more transparent post-FSP. In contrast, post-IAS 19R, affected Canadian firms not only disaggregate pension portfolios into a larger number of categories but also label a greater proportion of assets informatively, resulting in an unambiguous improvement in pension asset transparency. Overall, IAS 19R results in a clearer improvement in pension asset transparency than the FSP.

When viewed in comparison to treatment (Canadian) firms’ response to IAS 19R, the treatment (US) firms’ response to the FSP paints the picture of a group of firms balancing the need to appear compliant with the new standard with the desire to maintain some level of opacity on their pension assets, perhaps in order to sustain upward bias in their ERRs and the consequent boost to reported income. In the FSP setting, improving the disclosure standard alone was *not sufficient* to achieve greater transparency, whereas in the IAS 19R setting, in contrast, improving the disclosure standard in

quality we observe, the alternative explanation would have to (i) affect Canadian firms (treatment) during the IAS 19R period, (ii) not affect the exact same Canadian firms (control) during the FSP period, (iii) affect US firms (treatment) during the FSP period, and (iv) not affect the exact same US firms (control) during the IAS 19R period.

conjunction with improving preparer incentives to report transparently (or more accurately, removing preparer incentives to obfuscate) appears to have achieved greater transparency. Putting the two findings together allows us to infer that standards alone (i.e., in the absence of changes in preparer incentives) are not sufficient to achieve regulatory goals, and in this setting at least, an accompanying change in incentives appears to have been necessary to achieve those goals.

Our study contributes to the broad literature on the role of accounting standards versus preparer incentives in producing high-quality financial reporting, which so far has been discussed primarily in international contexts. Ball, Robin and Wu (2003) initiate this discussion with their study of four East Asian countries (Hong Kong, Malaysia, Singapore, and Thailand), all of which have accounting standards deriving from common law sources (the UK, US, and IFRS), widely perceived to be higher quality than standards derived from code law, but also have institutional structures that incentivize opaque reporting.⁴ They find that financial reporting quality in these countries is not higher than for code law countries; and in this setting where standards and incentives pull in opposing directions, they ultimately interact to yield low-quality reporting, setting up the suggestion that standards and incentives have to work together in order to pull firms towards higher reporting quality.

Using a sample of firms from the UK and 13 EU countries respectively, Ball and Shivakumar (2005) and Burgstahler, Hail, and Leuz (2006) examine the disclosure quality of private firms, which are subject the same accounting standards as public firms but differ in reporting incentives. Both studies document lower financial reporting quality for private firms than public firms, for which reporting incentives complement accounting standards to produce high-quality financial reporting.

Daske, Hail, Leuz, and Verdi (2008) study mandatory IFRS adoption in 26 countries around the world and find that the purported capital market-benefits of IFRS adoption (higher liquidity, lower cost of capital) occur only in countries where the institutional environment gives preparers strong

⁴ E.g., family-owned enterprises are dominant; banks are prominent suppliers of capital; political costs of reporting profits are high; crony capitalism is rampant, and enforcement mechanisms such as shareholder litigation are weak.

incentives to be transparent. Daske, Hail, Leuz, and Verdi (2013) push these findings to individual firm-level: firms that are “serious” adopters of IFRS – i.e., whose reporting incentives have shifted in a direction calling for more transparency – accrue the capital market-benefits of IFRS adoption, whereas other firms, presumably adopting IFRS largely for the “label” – experience no benefits, suggesting that IFRS adoption does not actually translate into higher reporting quality for these firms. In a single-country setting (Germany), where the same standards apply to all listed firms, Christensen, Lee, Walker, and Zheng (2015) show that voluntary IFRS adopters exhibit considerable improvement in financial reporting quality, in contrast to firms forced to adopt IFRS, which show little evidence of improvement, again pointing to the fact that incentives for high-quality reporting interact with improved standards in driving high-quality reporting in practice. Overall, prior studies conclude that improving the accounting standards alone does not automatically lead to improved reporting quality on the ground; improving standards leads to improved reporting quality only if preparer incentives also point firms towards (or shift in) the same direction.

We contribute to the literature on the role of standards vis-a-vis incentives in two ways. First, we demonstrate that this discussion is relevant even to the US, an extension that is important beyond simply documenting that a prior finding applies to an additional country. The international accounting literature views the US institutional framework as one of the strongest in providing preparers with incentives to report transparently (Leuz, Nanda, and Wysocki 2003) – with large stock markets, dispersed ownership, strong investor protection, and mechanisms for enforcement of standards strong enough to set the US apart from even the UK (Ball and Shivakumar (2005)’s setting) and other first-world economies with a common-law tradition. Testament to the singular position of US capital markets is the understanding that cross-listing in the US signals a commitment to higher-quality reporting and governance (the “bonding hypothesis”: Reese and Weisbach 2002, Doidge, Karolyi, and Stulz 2004, Hail and Leuz 2009, Karolyi 2012). The strength of US institutions in incentivizing high-quality reporting is arguably one reason why many prior studies use non-US settings.

In a setting such as the US, with high-quality accounting standards in addition to arguably the strongest incentives to report transparently, standards and firms' incentives complement each other to promote high-quality reporting. It would seem, therefore, that a scenario where high-quality accounting standards are inhibited by strong incentives to report opaquely - as in the Ball, Robin, and Wu (2003) settings for instance - is unlikely to occur in the US. Even in the US context, however, we find a setting where preparers' incentives to manipulate a key accounting estimate – and to obfuscate related disclosures to obscure that manipulation – pose a real constraint on the effectiveness of higher-quality standards. High-quality disclosure standards, by themselves, do not hence seem sufficient at producing high-quality disclosures in practice, even in an economy where the institutional framework and enforcement mechanisms are amongst the strongest in the world and all pull towards greater transparency. Therefore, the finding that standards alone are not sufficient to improve reporting quality is more widely applicable than commonly held in the literature.

Second, we identify and investigate a specific "lever" of accounting choice. Hann, Lu, and Subramanyam (2007) point out that focusing on a specific lever of accounting choice “allows researchers to exploit their knowledge of GAAP and the economic determinants of the specific accrual” for cleaner modeling and inference. We are able to leverage this strength in two ways: we are first able to pinpoint the specific incentives that impact reporting quality (in our setting, the incentive to manipulate the ERR lowers reporting quality). Both regulatory changes include a very similar mandate for better disclosure, but only one of the changes (IAS 19R) removes this specific incentive, with no other incentives (e.g., deriving from enforcement mechanisms or other capital market factors) expected to change systematically in either setting. Therefore, we are able to isolate the difference in disclosure outcomes across the two mandates as being driven by the specific incentive to sustain an inflated ERR. Furthermore, we can also cleanly observe specific disclosure choices in response to standards and incentives driving transparency, and quantify and measure unambiguous proxies for transparency (i.e., the number of pension asset categories disclosed and the proportion of pension assets described with

informative, non-opaque labels). Unlike most prior studies in this area,⁵ we hence do not need to indirectly infer firms' disclosure choices from aggregate summary measures, which can be the result of multiple distinct accounting choices with potentially offsetting effects (i.e., noise) and/or be potentially influenced by effects other than the phenomenon of interest (i.e., bias). Using a specific setting in which firms have a well-documented incentive for lower financial reporting quality, our findings reinforce the view that accounting quality can only result from firms' reporting incentives working in combination with high-quality accounting standards.

Section II describes the evolution of standards on pension asset allocation disclosure, describes the two regulatory changes we examine, and develops hypotheses. Section III lays out research design, key variables, and sample selection. Section IV describes empirical results and Section V concludes.

II. BACKGROUND AND HYPOTHESES

The first of two regulatory changes we examine – FSP (US GAAP)

Pension asset allocation disclosure has had a long and rather tortuous history at the FASB. The FASB has not always required the disclosure of pension asset allocation, despite its importance. In 1985, SFAS 87 mandated that the ERR assumption be based on asset allocation (SFAS 87, Paragraph 45), but instead of requiring disclosure of asset allocation only listed it as one of the “suggested disclosures” (SFAS 87, Paragraph 223), which very few firms voluntarily ended up providing (Amir and Benartzi 1998). Much later in 1998, the FASB went on to take an even more extreme position by stating explicitly in SFAS 132 (1998) that disclosure of asset allocation was *not* required.⁶

⁵ E.g., prior studies infer accounting choices indirectly by examining either (1) summary measures of aggregate accounting choices, such as timely loss recognition (Ball, Robin, and Wu 2003; Ball and Shivakumar 2005; Christensen, Lee, Walker, and Zeng 2015), the magnitude of total accruals and tendency to avoid reporting small losses (Burgstahler, Hail, and Leuz 2006) or (2) capital market outcomes of transparency, such as bid-ask spreads (Leuz 2003; Daske et al. 2013; Christensen, Hail, and Leuz 2013), share turnover (Leuz 2003), and cost of capital (Li 2010; Daske et al. 2013).

⁶ “The Board decided that requiring extensive disclosures about the composition of plan assets in the employer’s financial statements would add significant complexity to the disclosure and was generally inconsistent with its objective of promoting more effective disclosure” (SFAS 132 (1998), Paragraph 29).

In a direct reversal from this position, the FASB issued SFAS 132R in 2003, prompted by requests from financial statement users for additional information that would “assist them in evaluating plan assets and the expected long-term rate of return used in determining net pension cost” (SFAS 87, Paragraph 2). SFAS 132R required “for each major category of plan assets, which shall include, but is not limited to, equity securities, debt securities, real estate and all other assets, the percentage of the fair value of total plan assets held”. However, SFAS 132R (2003) stopped short of explicitly requiring disclosure of asset categories finer than equity, debt, real estate, and other, even if the plan’s asset composition did not fit neatly within the four prescribed categories.⁷ Instead, the standard required narrative description of investment policies and strategies and of the basis used to determine the ERR (e.g., the general approach used, the extent to which the ERR was based on historical returns, and any adjustments made to those returns in determining the ERR). The standard also encouraged the disclosure of “additional asset categories and additional information about specific assets within a category” if that information would be useful in understanding the risks associated with each asset category and the ERR assumption.

The first of two regulatory changes we examine is the FASB Staff Position (FSP) on SFAS 132R in 2008 (hereafter the “FSP”, to avoid confusion with SFAS 132R, issued in 2003). The FSP constitutes yet another reversal of the FASB’s earlier position, by overturning the FASB’s earlier decision in SFAS 132R (2003) to not require disclosure of finer asset categories, and instead imposes the following requirement:

“Asset categories shall be based on the nature and risks of assets in an employer’s plan(s). Examples of major categories include, but are not limited to, the following: cash and cash equivalents; equity securities (segregated by industry type, company size, or investment objective); debt securities issued by national, state, and local governments; corporate debt securities; asset-backed securities; structured debt; derivatives on a gross basis (segregated by type of underlying risk in the contract, for example, interest rate contracts, foreign exchange

⁷ “In its discussion of asset categories to be disclosed separately, the Board considered requiring narrower categories but decided that the cost of doing so would outweigh the benefits. Those categories included public and nonpublic equity securities, domestic and international equity and debt securities, and government and corporate debt securities” (SFAS 132 Revised (2003), Paragraph A13).

contracts, equity contracts, commodity contracts, credit contracts, and other contracts); investment funds (segregated by type of fund); and real estate. Those examples are not meant to be all inclusive. An employer should consider the overall objectives in this FSP in determining whether additional categories of plan assets or further disaggregation of major categories should be disclosed” (FSP 2008, Paragraph 9).

The FSP was motivated by increasing concerns over many firms that interpreted SFAS 132R’s disclosure requirement literally, and only disclosed the four minimum required categories of equity, fixed income, real estate, and “other”, even if the “other” had grown to be a significant percentage of total plan assets.⁸ The FSP’s expanded list of suggested asset categories also reflects an attempt to alleviate the difficulties associated with the previous list of asset categories in SFAS 132R, which many comment letter respondents to that standard characterized as overly broad, and not reflective of the heterogeneity of investments that could exist within a single category.⁹ With this FSP, the FASB moved from the simple but relatively limited, prescriptive four-category minimum disclosure requirement of SFAS 132R to a broader, more comprehensive requirement that puts the onus on the issuer to provide disclosures sufficient for users to get an understanding of plan assets and the ERR assumption.

The second of two regulatory changes we examine – IAS 19R (IFRS)

IAS 19 (2004) was the authoritative IFRS standard prior to the rule change of interest, which we describe below. IFRS rules under IAS 19 (2004) were similar to US GAAP rules pre-FSP, in that sponsors were required to disclose the “percentage or amount that each major category constitutes of

⁸ For instance, the Basis for Conclusions of the FSP states: “The Board’s research revealed that many employers solely provided information about the required categories of equity, debt, real estate, and other investments when disclosing each major category’s percentage of the fair value of total plan assets held. Because the “other” or “alternative” investments category has grown to a significant percentage of total plan assets for many employers in recent years, users of financial statements have indicated that disclosures pertaining to the required categories of plan assets are not specific enough to evaluate the *nature* and *risks* of assets held as investments”. (emphasis added)

⁹ For example, “each category can contain asset classes that have markedly different expected rates of return and risk characteristics (e.g., debt securities can include municipal bonds, junk bonds, and international bonds)” (Hewitt), “the proposed categorization does not reflect the varied risk profiles and characteristics that may be present within each asset category. For example, the equity category could include domestic and foreign equity securities, large, medium, and small cap companies, and high technology and venture capital companies – each of which has differing risk profiles and return expectations” (Citigroup), and “users may make certain assumptions about the potential risk and volatility of a plan’s investment strategies if the disclosed target allocations represent 70% equity securities and 30% fixed income securities, but these assumptions may be inappropriate if the equity securities represent lower-risk blue chip stocks, while the fixed-income securities represent higher-risk junk bonds.” (Deloitte & Touche).

the fair value of the total plan assets”, with major categories to include, but not be limited to, “equity instruments, debt instruments, property, and all other assets” – echoing the requirements under US GAAP pre-FSP. IAS 19 (2004) also required a “narrative description of the basis used to determine the overall expected rate of return on assets, including the effect of the major categories of plan assets”.

The second of two regulatory changes we examine is IAS 19R (2011) *Pension Benefits*, a revision of IAS 19 (2004). IAS 19R revises the disclosure requirements for pension assets very similarly to the FSP, moving from the simple four-category disclosure requirement of IAS 19 to a more comprehensive requirement embodied in the following guiding principle:

“An entity shall disaggregate the fair value of the plan assets into classes that distinguish the nature and risks of those assets, subdividing each class of plan asset into those that have a quoted market price in an active market (IAS 39 *Financial Instruments: Recognition and Measurement* paragraph AG71) and those that do not.” IAS 19R goes on to provide a suggested list of asset categories that an entity could distinguish between: “cash and cash equivalents, equity instruments (segregated by industry type, company size, geography, etc.), debt instruments (segregated by type of issuer, credit quality, geography, etc.), real estate (segregated by geography etc.), derivatives (segregated by type of underlying risk in the contract, e.g., interest rate contracts, foreign exchange contracts, equity contracts, credit contracts, longevity swaps, etc.), investment funds (segregated by type of fund), asset-backed securities, and structured debt”.

The language of IAS 19R is very similar, almost identical, to the language in the FSP, as is the suggested list of asset categories. Given that disclosure requirements prior to the FSP and IAS 19R were also very similar, we would, by default, expect asset allocation disclosures to change similarly under both US GAAP and IFRS. However, there is one key difference between the FSP and IAS 19R that could affect the way in which sponsors respond to their respective disclosure mandates. The FSP is a disclosure-only pronouncement, whereas IAS 19R fundamentally revises the way returns on pension assets are recognized on the sponsor’s financial statements.

Prior to IAS 19R, pension expense on the income statement is affected not by *actual returns* on plan assets, but by *expected returns*. Pension costs – the service cost and interest cost – are offset by the expected returns on plan assets, determined as the *ERR*fair value of plan assets*. IAS 19R eliminates the ERR as a separate assumption, and instead requires sponsors to use the plan’s discount

rate in determining the offset to pension costs. Pension costs under IAS 19R are therefore no longer offset by *ERR*fair value of plan assets*, but by the *discount rate*fair value of plan assets*. In contrast, pension costs under US GAAP continue to be offset by the *ERR*fair value of plan assets*. We consider the implications of this difference next.

The ERR assumption and how it interacts with asset allocation disclosures

According to FASB rules in place prior to the FSP, firms are required to choose the ERR assumption based on the expected riskiness of the assets in the pension asset portfolio (SFAS 87, Paragraph 45).¹⁰ The expected riskiness of the asset portfolio, being a forward-looking concept, is naturally difficult to verify. As a result, the ERR assumption is subject to considerable managerial discretion, and prior literature has shown that managers often inflate ERRs systematically to achieve higher earnings. For example, Bergstresser, Desai and Rauh (2006) and Asthana (2007) document that ERR assumptions spike when firms have particularly strong incentives to sustain a higher stock price, e.g., ahead of equity offerings or M&A transactions, and when falling just short of critical earnings thresholds. Of all the pension assumptions, the ERR is generally viewed as the assumption most subject to managerial discretion because it has the most direct and unambiguous impact on pension expense (Comprix and Mueller 2006). Incentives to inflate the ERR are exacerbated by the fact that small changes to the ERR can result in large changes in reported earnings for firms whose pension plans are economically substantial (Zion and Carcache 2002; Bergstresser et al. 2006).¹¹

Firms seeking to maintain upward-biased ERRs might be incentivized to provide coarser, lower-quality disclosure of asset categories, as opaque disclosure of asset composition is necessary to sustain a biased ERR estimate. To clarify this conceptually, consider an extreme example of a firm

¹⁰ SFAS 87: “The expected long-term rate of return on plan assets shall reflect the average rate of earnings expected on the funds invested or to be invested to provide for the benefits included in the projected benefit obligation. In estimating that rate, appropriate consideration should be given to the returns being earned by the plan assets in the fund and the rates of return expected to be available for reinvestment.”

¹¹ Zion and Carcache (2002) estimate that aggregate profits for the S&P 500 firms with DB plans would decline by an estimated \$44 billion in 2003 alone if these firms lowered their ERR to 6.5%.

disclosing only that 100% of its pension assets are invested in “mutual funds”. External users would be unable to determine the risk-return profile of these pension assets, as the underlying securities held by the mutual funds could be equities, fixed income, or money market funds, with widely differing expected returns. If this firm assumed an ERR of 8%, users have very little basis on which to assess whether this estimate is reasonable. If on the other hand this firm disaggregated its portfolio into 50% investment in “equity mutual funds” and 50% in “fixed-income mutual funds”, users can now better assess whether the ERR is reasonable, by weighting a broad estimate of equity- and debt market-expected return by 50% each. Consistently, Chuk (2013) documents that SFAS 132R, after which sponsors were required to disclose the four categories of pension assets in financial statements for the first time, led to a reduction in the upward bias in ERR estimates, presumably because users could better “unravel” any attempted bias in ERR estimates, hence reducing attempts at manipulation ex ante.

Even with this disclosure example of 50% “equity mutual funds” and 50% “fixed-income mutual funds”, though, there is considerable scope for uncertainty, as the broad category of “fixed-income”, for example, could comprise government or corporate securities, investment- or speculative-grade securities – all with differing expected returns. Users are only able to assess the reasonableness of the ERR as an implicit weighted average of the various types of higher-risk assets (e.g., speculative-grade fixed income) and lower-risk assets (e.g., government-issued fixed income) within each coarse category (e.g., aggregate fixed income), where the specific weights for the higher-risk and lower-risk assets within each coarse category are unknown. When firms are required to supply more granular disaggregation, the specific weights for the higher-risk and lower-risk assets become known to external users, allowing them to more accurately assess the reasonableness of the firm’s chosen ERR.

Higher-quality asset allocation disclosures could hence reveal that ERR assumptions are too high compared to the true riskiness of the underlying asset portfolio, allowing investors to unravel any bias in the ERR estimate and then discount the higher reported earnings that result. Therefore, firms

that are highly motivated to maintain upward biased ERRs may not be inclined to provide substantially improved disclosures that will help external users gauge the true riskiness of their pension assets.

The FSP only increases disclosure requirements without altering preparers' incentives on pension accounting; therefore, firms could continue to have strong incentives to bias ERR assumptions upwards. These firms, as a result, could respond to the FSP mandate in a manner that balances the need to comply with the standard on one hand, with their desire to sustain an inflated ERR on the other hand. In contrast, IAS 19R increases disclosure requirements while also altering preparers' incentives to disclose asset allocation: it eliminates the ERR assumption altogether, and so that assumption is now longer available as an earnings manipulation tool for sponsors who wish to inflate reported earnings. Therefore, any incentives that sponsors might have to continue to maintain a degree of opacity around their pension assets, under US GAAP, no longer exist under IAS 19R. This leads to the expectation that IAS 19R will be more effective at improving pension asset allocation disclosure in practice, when compared to the FSP. Our main hypothesis follows:

***Hypothesis 1A:** The transparency of asset allocation disclosures will increase after the FSP in US GAAP.*

***Hypothesis 1B:** The transparency of asset allocation disclosures will increase after IAS 19R in IFRS.*

***Hypothesis 2:** The transparency of asset allocation disclosures will increase more under IAS 19R in IFRS than under the FSP in US GAAP.*

Balancing the costs and benefits of transparent disclosures

As firms' disclosure choices are determined by cost- benefit tradeoffs, there are reasons why we might not observe disclosure quality to increase following the regulatory changes, as predicted in Hypothesis 1. First, if firms benefit from providing transparent disclosures (e.g., lower cost of capital), and those benefits exceed the costs of disclosure, then firms would voluntarily provide transparent disclosures even without mandates to do so (Ross 1979). If the benefits from disclosing transparent information on pension assets exceeded the costs prior to the accounting rule changes that we examine,

then firms would have been voluntarily providing high-quality disclosures prior to the rule changes and we would not observe any changes in disclosure quality after the FSP and IAS 19R.

Second, if instead the costs of providing transparent disclosure exceed the benefits, then firms might not improve disclosures even after the rules change; either by pure non-compliance or more often by compliance in *form but not really in substance*. The US experience with SFAS 132R (the predecessor standard to the FSP), is a useful case in point. Many firms complied with SFAS 132R's directive to disaggregate plan assets, at the minimum, into "equities, fixed income, real estate, and other" so literally that they did not break out or describe the economic nature of the assets in "other", even when that "other" category was substantial in asset value.¹² Even fewer firms responded to the spirit of the FASB's directive that the major categories of plan assets were to include *but not be limited to* the four categories by voluntarily disaggregating plan assets into more detailed categories.

A common phenomenon in US reporting that could be interpreted as "form over substance compliance" in practice is issuers responding to standard-setters' directives for more transparent disclosures by increasing the volume of disclosure without actually providing any substantive information; i.e., increasing disclosure *quantity* while not really improving its *quality*. Holding all else equal, a greater quantity of disclosure should translate into higher quality and more transparency, but not if the additional disclosures are boilerplate or uninformative, or if the disclosures get so voluminous that users are subject to information overload.¹³ Therefore, it is possible that these disclosure mandates,

¹² Citigroup is a prominent (albeit extreme) example. Starting from fiscal year 2003 (the first year of mandated asset allocation disclosures post-SFAS 132R) until fiscal year 2006, Citigroup disclosed only four asset categories (Equity securities, Debt securities, Real Estate, and Other investments). The "Other Investments" category started out at 15% of plan assets in 2003, grew to 19% in 2004, 22% in 2005, and in 2006 constituted the single largest category of plan assets, at 40%. In spite of the "Other" category having grown economically substantial, Citigroup did not disaggregate it or provide any narrative description of its economic nature. Citigroup's disclosure improved in 2007-2008, as it disaggregated "Private Equity" into a separate category, but it still retained an opaque "Other Investments" category, valued at 35% of plan assets in 2007 (when it was, again, the single largest category) and at 29% in 2008.

¹³ For example, when asked how to best maintain compliance with requirements that would necessitate disclosing potentially sensitive information, Loughran and McDonald (2014) quote partners of major accounting firms suggesting the strategy of "burying the awkward revelation in an overwhelming amount of uninformative text and data". The extent of this phenomenon is illustrated by the fact that many standard-setters now have initiatives in place to make filings more concise and readable; e.g., the SEC's Plain English handbook (SEC, 1998).

which ultimately are directives to provide better quality disclosures, will be met with a greater quantity of disclosure that ultimately may or may not translate into higher quality.

In addition, there are reasons why we might not observe results consistent with Hypothesis 2. While considering the provisions of FSP and IAS 19R in isolation lead us to the expectation in Hypothesis 2, broadening the analysis to consider the larger context in which the FSP operates can lead to different expectations. As described previously, the US institutional framework (investor protection, enforcement, etc.) is one of the strongest in incentivizing high-quality reporting. If this overall institutional framework encourages high-quality reporting sufficiently, then an improvement in the accounting standard alone could be sufficient to improve reporting quality in the US. In other words, *in the US particularly*, standards alone (even when they do not alter incentives) could be as effective as standards that also alter incentives in other contexts.¹⁴ Hence, whether we observe support for Hypothesis 2 or not becomes an empirical question.

III. RESEARCH DESIGN AND SAMPLE

Measuring disclosure outcomes

Ball, Robin, and Wu (2003) define transparency as the ability of users to “see through” the financial statements to comprehend the underlying accounting events and transactions in the firm. In the pension assets context, transparency is closely linked to disclosure quality, which is the extent to which the disclosure reflects the underlying economic nature, i.e., risk-return characteristics, of pension assets. As asset allocation disclosures describe a portfolio of assets, a transparent disclosure is one that (i) disaggregates the quantity of investment in each asset class that has sufficiently different risk-return profile from the average; *and* (ii) qualitatively describes, or labels, each asset class in a way that allows users to understand what those risk-return characteristics are.

¹⁴ For example, Daske et al. (2008) find improvements in reporting quality on IFRS implementation amongst regimes that already have a high *level* (not change) of institutions encouraging reporting quality. So an improvement in standards could elicit higher reporting quality if accompanied by sufficiently strong institutions, and an accompanying *change, or improvement*, in institutions or the incentives they generate may not be necessary.

Under the predecessor standards in place in US GAAP (SFAS 132R (2003)) and IFRS (IAS 19 (2004)), the de facto minimum disclosure standard was to disclose “the percentage of pension assets allocated to equities, fixed income, real estate, and any other categories”. A firm providing such a disclosure can improve disclosure quality post-FSP in two different ways: (1) it can break out the broad “equities” category into sub-categories with differing risk-return profiles, such as US equities, international equities, or emerging market equities, or similarly break out “fixed income” into corporate fixed income and governmental fixed income; (2) firms that disclose a residual, opaque “other assets” category can also improve disclosure by breaking out the residual category into the individual asset classes that comprise it, or by relabeling the residual category more informatively.

We construct two measures for the quality of asset allocation disclosure that reflect each of these improvements. Our first measure NUMCAT is the number of distinct asset categories that the firm discloses a percentage allocation for. *Holding constant the underlying asset allocation*, firms that disaggregate into more categories are providing a more granular description of their portfolio and better disclosure quality as a result. We also define an indicator variable DUMMY_NUMCAT>4 set to one if the firm disaggregates pension assets into more than the four categories that had become the effective minimum disclosure standard under the predecessor standards, and to zero otherwise. Our second measure captures the existence of any opaque categories (i.e., described in such a way that their risk/return characteristics cannot be discerned by the user), by defining %TRANSPARENT as the sum of all asset categories with labels that inform on the risk-return characteristics of the underlying assets. In other words, %TRANSPARENT is set to 100% minus the percentage of assets in opaque categories.

Our broad approach to selecting the samples for each experiment

The FASB issued the FSP on December 30, 2008, effective for fiscal years ending on or after December 15, 2009. Therefore, for US firms with December 31 fiscal year-ends, the last (first) fiscal year under SFAS 132R (FSP) is 2008 (2009). The IASB issued IAS 19R in June 2011, effective for

fiscal years beginning January 1, 2013 and after. For firms with December 31 fiscal-year ends, the last (first) fiscal year under IAS 19 Unrevised (IAS 19R) would be 2012 (2013).

To identify IAS 19R-affected firms, we exploit the fact that the Canadian Accounting Standards Board (CASB) required all public Canadian enterprises to adopt IFRS for fiscal years beginning Jan 1, 2011 and after. As of Jan 1, 2011, IAS 19 Unrevised was already effective, so Canadian firms report under IAS 19 Unrevised for fiscal years starting January 1, 2011 and ending no later than December 31, 2012, but under IAS 19R for fiscal years starting January 1, 2013 and after.¹⁵

Table 1 outlines the sample selection, which proceeds as follows. We first identify a sample of Canadian firms applying IFRS for which data is publicly available for both pre- and post-IAS 19R periods (“Step 1”). To distinguish IAS 19R effects from macroeconomic or over-time influences, we choose a control sample of US listed firms that sponsor DB pension plans (“Step 2”) with propensity-score-matching (PSM). US firms are geographically proximate to Canadian firms and share a similar capital markets environment, but are presumably unaffected by IAS 19R. This is a key advantage of relying on Canadian firms for IAS 19R treatment – US firms offer a natural source for a control sample.

We then move backwards in time to the FSP change (2008-2009 for firms with December fiscal year ends). Here, we exploit the fact that we already have a Canadian sample and a US sample of pension sponsors that are matched along relevant dimensions, and now designate the firms from the US sample obtained in Step 2 as the treatment sample for examining the effect of the FSP. To assemble

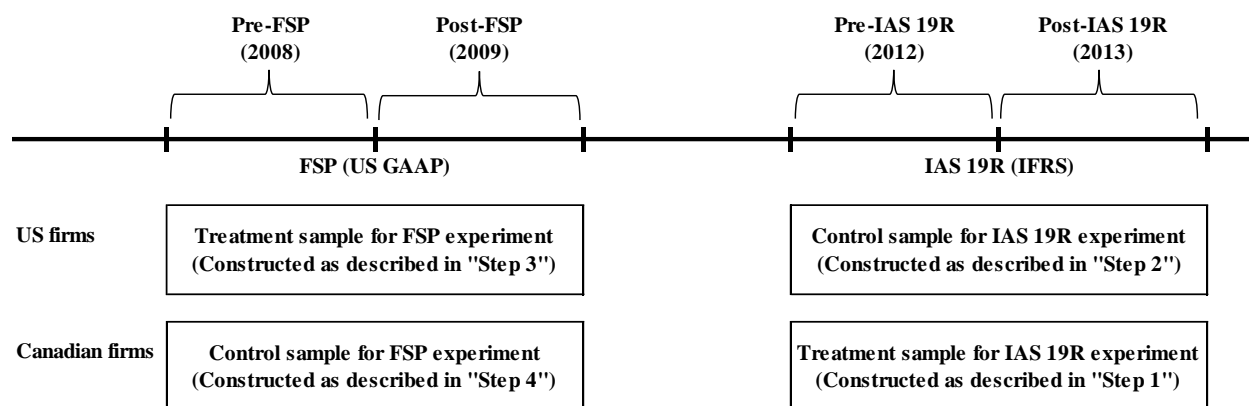
¹⁵ Pre-2011, Canadian firms reported under Canadian GAAP. Thus, Canadian firms reported under Canadian GAAP during the sample period around the FSP (effective in 2009) and reported under IFRS in the sample period around IAS 19R (effective in 2013). The switch from Canadian GAAP to IFRS for Canadian firms is unlikely to affect our inferences, for two reasons. First, (1) the differences between US GAAP and Canadian GAAP (in our FSP experiment) and (2) the differences between IFRS and US GAAP (in our IAS 19R experiment) are both permanent differences that get “differenced away” in each of the two individual difference-in-difference research designs, and therefore are unlikely to impact any higher-order differences such as our triple-difference research design that compares the FSP to IAS 19R. Second, the accounting rules for asset allocation and the ERR under IFRS and US GAAP were nearly identical to the rules under Canadian GAAP (specifically, Section 3461 of the Canadian Institute of Chartered Accountants). In fact, prior to Canada’s adoption of IFRS, the Canadian Accounting Standards Board (AcSB) performed an annual review of differences between Canadian GAAP and US GAAP for a random sample of Canadian firms that reported reconciliations from US GAAP to Canadian GAAP, and the AcSB then developed standards to minimize the differences (Burnett, Gordon, Jorgensen, Linthicum 2015).

the treatment sample for the FSP experiment, we look up the firm identifiers from that US sample for the pre-FSP and post-FSP fiscal periods (“Step 3”). Finally, we designate the firms from the Canadian sample obtained in Step 1 as the control sample for the FSP experiment, and assemble this control sample by looking up those Canadian firm identifiers for the pre-FSP and post-FSP periods (“Step 4”). For both FSP and IAS 19R experiments, our baseline tests examine the first fiscal period post-change and the last fiscal period pre-change. We provide more details in the following subsection.

Two observations about our sample selection are in order. First, our approach has the advantage of comparing the same two regimes – US and Canada – to each other, at different points in time, and moreover, of comparing the same group of firms to each other, allowing us to make the cleanest possible inferences on the *differences* in outcomes between the FSP and IAS 19R, which is what we are ultimately interested in. Second, we choose the Canadian treatment sample for the IAS 19R change first (rather than choosing the US treatment sample for the FSP change first) because (i) machine-readable data availability for firms applying IFRS is more restricted than for firms applying US GAAP, and (ii) we need to choose a treatment sample first, as opposed to a control sample.¹⁶

The timeline below illustrates our approach to constructing each of the experiments (for ease of exposition, we assume a December 31 fiscal year end). The treatment sample for the FSP experiment is US firm-years in 2008 and 2009. The treatment sample for the IAS 19R experiment is Canadian firm-years in 2012 and 2013.

¹⁶ The alternative is to choose the US treatment sample for the FSP tests first, find a matched Canadian control sample, and then designate those Canadian firms as the treatment for the IAS 19R tests. We instead adopted the approach described above because in pilot testing, the more limited data availability for Canadian firms meant that many of the Canadian firms identified as controls for the US treatment sample did not have all relevant data needed for either the FSP tests, or for the IAS 19R tests for those firm-years. Therefore, we focused on first compiling a sample of Canadian firms for which all data were available, designating that as the treatment sample for the IAS 19R tests.



Details on identifying the treatment and control samples for each experiment

As outlined above, we start by identifying all Canadian firms with DB pensions that are represented in Compustat North America for the last fiscal period pre-IAS 19R and the first fiscal period under IAS 19R. We obtain annual reports for these firms from Canada’s online repository of public company filings, SEDAR (supplemented by company websites), giving us an initial sample of 170 firms. While the CASB mandated IFRS from 2011, the provincial securities regulators, who have authority over the application of accounting standards, allowed (i) Canadian companies cross-listed in the US to choose either US GAAP or IFRS, and (ii) other firms to petition for special permission to use US GAAP (Burnett et al. 2013). As a result, 27 Canadian firms that use US GAAP for the post-IFRS period are excluded from the treatment sample. We further remove two Canadian IFRS users who had voluntarily eliminated the ERR prior to IAS 19R, and use actual returns in the computation of pension expense. As these firms shift from the actual rate of return to the discount rate, any incentives to inflate the ERR pre-IAS 19R do not apply to these firms.

We hand-collect detailed pension asset allocations and ERRs from Canadian annual reports for the last fiscal period pre-IAS 19R adoption to the first fiscal period post-adoption. We convert all numbers from CAD to USD using the exchange rate at the fiscal year-end. We lose 10 firms due to missing data for variables used in the propensity-score matching (PSM) process. We match all but three of the Canadian firms to similar US firms with the PSM procedure, detailed in Appendix B. This

yields 128 Canadian pension sponsors matched to 128 US pension sponsors. There are no significant differences in any model covariate; our matching algorithm hence successfully chooses US firms that are similar to the Canadian firms along these observable dimensions. For each US firm chosen as a match, we compose a time-series of pre- and post-IAS 19R periods for the control sample as well.

We then construct the treatment sample for the FSP experiment by looking up firm identifiers for the US sample obtained above for the first fiscal period post-FSP and the last fiscal period pre-FSP and assembling relevant data for those periods, with hand-collection as necessary. Similarly, we construct the control sample for the FSP experiment by looking up firm identifiers for the Canadian sample obtained above for the first fiscal period post-FSP and the last fiscal period pre-FSP and assembling all data for those periods. For both IAS 19R and FSP tests, we then restrict the samples to only those firms with all relevant data available for all four periods: the last fiscal period pre-FSP, first fiscal period post-FSP, last fiscal period pre-IAS 19R, and first fiscal period pre-IAS 19R. This yields a final sample of 111 Canadian firms matched to 111 US firms for each experiment, for a total sample of $(111+111) * 2 \text{ years} = 444 \text{ firm-years}$ for each experiment, and $444 * 2 = 888 \text{ firm-years}$ overall.

Specification to compare the consequences of the two regulatory changes

Our sample selection process yields two sets of paired treatment and control samples. Each pair of treatment and control samples can be used to examine the consequences of each of the two regulatory changes, in a difference-in-differences (DD) specification. As our ultimate interest lies however in how the two changes *differ* in their consequences, we pool the two sets of treatment and control samples together into one combined sample, and compare their consequences with the following single specification, which enfold the two DD estimators:

$$\text{DISCLOSURE CHOICE} = \beta_0 + \beta_1 \text{POST} + \beta_2 \text{TREAT_FSP} + \beta_3 \text{POST} * \text{TREAT_FSP} + \beta_4 \\ \text{TREAT_IAS19R} + \beta_5 \text{POST} * \text{TREAT_IAS19R} + \Sigma \text{Controls} + \varepsilon$$

(Equation 1)

We use three measures for DISCLOSURE CHOICE as the dependent variable: NUMCAT, DUMMY_NUMCAT>4, and %TRANSPARENT, as defined in Appendix A. The models are estimated using OLS for continuous dependent variables (NUMCAT, %TRANSPARENT) and logistic regression for the indicator dependent variable (DUMMY_NUMCAT>4). We cluster standard errors at the firm level.

POST is an indicator that reflects event-time, and is set to one for post-event years and to zero for pre-event years, for each of the two events we pool together. For example, consider a firm with a December 31 fiscal year-end. For this firm, the pre-FSP period would be fiscal year 2008 (POST=0, as this is a pre-event year for the FSP event), and the post-FSP period would be fiscal year 2009 (POST=1, as this is a post-event year for the FSP event). For the same firm, the pre-IAS 19R period would be fiscal year 2012 (POST=0, as this is a pre-event year for the IAS 19R event), and the post-IAS 19R period would be fiscal year 2013 (POST=1, as this is a post-event year for the IAS 19R event). TREAT_FSP and TREAT_IAS19R identify the treatment samples for each event: TREAT_FSP is set to one for all US firms for firm-years relevant to the FSP event (in our example, 2008 and 2009), and set to zero otherwise (i.e., for all Canadian control firms for 2008-2009, and for all US and Canadian firms for 2012-2013).¹⁷ TREAT_IAS19R is set to one for all Canadian firms for firm-years relevant to the IAS 19R event (in our example, 2012 and 2013), and set to zero otherwise.

In Equation 1, the coefficient on the POST indicator represents the average change between pre- and post-event years across both FSP and IAS 19R events, for the respective control groups. The coefficient on POST*TREAT_FSP captures the incremental shift in disclosure outcomes, between pre- and post-FSP years, for the FSP treatment firms – the US firms – compared to Canadian control firms. Similarly, the coefficient on POST*TREAT_IAS19R represents the incremental shift in disclosure

¹⁷ We do not adopt the alternative approach of defining two separate POST dummies based on calendar time because POST_FSP would equal one for firm-years not only in 2009 but also in 2012 and 2013, and the interaction term POST_FSP * TREAT_FSP would (incorrectly) also include 2012-2013 in the post-period for the FSP experiment.

outcomes, between pre- and post-IAS 19R years, for the Canadian treatment firms, compared to US control firms. Comparing the coefficients on POST*TREAT_FSP and POST*TREAT_IAS19R informs us on the difference in outcomes across the two events (essentially, a triple-difference). Specifically, H1A predicts $\beta_3 > 0$, H1B predicts $\beta_5 > 0$, and H2 predicts $\beta_5 > \beta_3$.

Control variables

Our control variables capture cross-sectional determinants of the demand for and the firm's willingness to supply asset allocation disclosure, motivated by prior research on disclosure and on pensions. We control for the natural logarithm of sponsor size (MVE_LOGGED) as larger firms face greater demand for disclosure, well documented by prior work (Waymire 1985; Kasznik and Lev 1995). We also control for pension size with the natural logarithm of fair value of pension assets (FVPA_LOGGED), as we expect firms sponsoring larger plans to face greater demands for detailed plan information. Better-performing firms tend to be more forthcoming with disclosures in general (Miller 2002), leading to the control for the sponsor's return on assets (ROA). Similarly but more specifically, sponsors' willingness to disclose pension asset allocation might be a function of how well those asset allocation strategies are performing. Therefore, we control for the actual performance of pension assets with the two-year cumulative actual rate of return on pension assets (ARR_2YEAR). Finally, we control for the pension funding ratio (FUNDING) as firms with poorly-funded plans might be less willing to provide the transparent disclosure of asset allocation that could help investors understand how the plan reached its current state, and to evaluate how funding status is expected to change in the future. Conversely, poorly-funded plans might face stronger demands for transparent asset allocation disclosure, predicting the opposite effect. Thus, we do not make a signed prediction for FUNDING. Appendix A has detailed variable definitions.

IV. EMPIRICAL RESULTS

Descriptive statistics for the FSP experiment

Table 2 describes key variables relating to the FSP experiment. Panel A (B) describes the US treatment sample in the last period pre-FSP (first period post-FSP). NUMCAT (the number of asset allocation categories disaggregated), our first measure of disclosure outcomes, has a mean (median) of 3.31 (3) categories, with an interquartile range of 3-4. The 1st and 99th percentiles (untabulated) indicate that most firms disclose 2 to 6 categories. %TRANSPARENT (100% minus the proportion of opaque pension assets) has a mean (median) of 96.8% (100%), indicating that most assets are labeled informatively. However, the 5th percentile (minimum) of %TRANSPARENT (untabulated) is only 81.6% (62%), indicating that some firms have substantial opaque categories.

Once the increased disclosure requirements of the FSP have gone into effect, NUMCAT increases considerably to a mean (median) of 7.64 (7) categories, with an interquartile range of 4-10 categories. The 1st and 99th percentiles (untabulated) range from 2 to 24 categories - so some firms expand disclosure considerably. The mean firm-specific change in NUMCAT (Δ NUMCAT, untabulated) is an increase of 4.33 categories, with the 25th percentile, median, and 75th percentile changes at an increase of 1, 3, and 6 categories. 84% of all firms in the sample show some increase in the number of asset categories (untabulated). While only 11% of all firms disclosed more than four categories pre-FSP, 75% of all firms do so post-FSP (DUMMY_NUMCAT>4). The increased disaggregation of asset categories, therefore, occurs fairly broadly across the sample.

%TRANSPARENT, however, offers an interesting contrast. While the median %TRANSPARENT is still 100%, the mean %TRANSPARENT actually goes *down* to 88.2%, with the 5th percentile (untabulated) showing a dramatic decrease to only 9.31%. The median firm-specific change in %TRANSPARENT is 0%, while the average change is a *decrease* of 8.62%, with the 25th percentile change at -4.57% (i.e., a decrease of 4.57%) and the 5th percentile change a striking -89% (untabulated). Only 23% of the sample actually demonstrates an increase in the proportion of assets disclosed transparently (untabulated). These statistics convey a very mixed picture of whether disclosure transparency actually improved post-FSP: while firms are disclosing more asset categories,

the proportion of assets disclosed such that their risk-return characteristics are discernible to users went down. If assets are labeled uninformatively with respect to their risk-return characteristics, users' ability to assess the reasonableness of the ERR assumption is still constrained, even though the assets are more finely disaggregated. Appendix C provides a list of examples of the non-transparent asset categories we observe post-FSP; some common labels are “master trusts”, “common/collective trusts”, “registered investment companies”, “pooled investment funds”, and “commingled funds”.

Panels C-D mimic Panels A-B, except for the Canadian control sample that we compare against the US treatment sample to assess the effects of the FSP. Disclosure quality for Canadian firms in the pre-FSP period, reassuringly, starts out very similar to that of US firms in the pre-FSP period, with NUMCAT at a mean (median) of 3.15 (3) categories, and %TRANSPARENT at 95.1% (100%). As we would expect, neither dimension of disclosure changes significantly post-FSP, with NUMCAT remaining at 3 (3.34) categories, and %TRANSPARENT at 100% (95.9%).

Descriptive statistics for the IAS 19R experiment

Table 3 describes the samples for the IAS 19R experiment, with Panels A and B (C and D) describing the Canadian treatment sample (US control sample) pre- and post-IAS 19R. In Panel A, NUMCAT for the Canadian firms in the last pre-IAS 19R period remains very similar to that seen in the post-FSP period with a mean (median) of 3.13 (3) categories, indicating that disclosure patterns remain stable in the intervening years between the FSP and IAS 19R, which allows us to more confidently interpret sudden changes seen around IAS 19R implementation. The 25th and 75th percentile values of NUMCAT are both 3, so most firms stick to some subset of the four-category minimum. %TRANSPARENT also remains stable, at 96.5% (100%), with the average proportion of transparent assets only increasing marginally from the levels seen in the post-FSP period.

Once IAS 19R goes into effect, the mean (median) NUMCAT increases to 5.05 (4) categories, with the interquartile range expanding to 3-6 categories. The 1st and 99th percentile firms disclose 2 and 17 categories respectively (untabulated). While the median firm-specific change in NUMCAT

(Δ NUMCAT, untabulated) is zero, the average firm-specific change is an increase of almost 2 categories, and the 75th (95th) percentile change an increase of 3 (11) categories. 45% of all firms increase the number of categories (untabulated), and while only 5% of all firms disclosed more than four categories pre-IAS 19R, 32% do so post-IAS 19R. So while there is a fairly broad-based increase in disaggregation, the extent by which firms increase disaggregation and the number of firms that disaggregate more appears to be lower than in the FSP case. However, unlike the FSP case, the second outcome, %TRANSPARENT, also shows improvement: the median %TRANSPARENT remains at 100%, but the average increases slightly to 97.7%. Importantly, most firms show either stable outcomes or improvement in %TRANSPARENT; the firm-specific change in %TRANSPARENT has a mean (median) of 1.11% (0%), with only the 5th percentile change very marginally negative at -0.32% (untabulated). In total, 32% of all firms demonstrate an increase in %TRANSPARENT (untabulated).

Panels C and D describe the US control sample pre- and post-IAS 19R. The mean (median) NUMCAT for US firms pre-IAS 19R is 8.22 (8), quite similar to that from the post-FSP period. %TRANSPARENT still has a median value of 100%, and while the mean value increases from the post-FSP period to 90.8%, it continues to remain much lower than pre-FSP levels. Reassuringly, mean (median) NUMCAT remains at 8.21 (8) post-IAS 19R, while %TRANSPARENT remains 90.6% (100%) in the post-IAS 19R period. So US firm disclosure choices remain quite stable not only over the longer period of time between the FSP and IAS 19R, but also from pre- to post-IAS 19R periods.

Multivariate tests comparing the effects of the FSP to IAS 19R

Table 4 presents results of estimating Equation 1 with NUMCAT, DUMMY_NUMCAT>4, and %TRANSPARENT as the dependent variable in Panel A, Panel B, and Panel C, respectively.

The coefficients on POST*TREAT_FSP capture any incremental disclosure shifts for US treatment firms between pre- and post-FSP periods, as compared to Canadian control firms over the same period. Across Panel A (dependent variable NUMCAT) and Panel B (dependent variable DUMMY_NUMCAT>4), POST*TREAT_FSP is positive and strongly significant at the <1% level,

consistent with our univariate observations from Table 2. In terms of economic significance, US firms disaggregate 4.16 more categories post-FSP compared to Canadian control firms in that period. In striking contrast, the coefficient on POST*TREAT_FSP in Panel C (dependent variable %TRANSPARENT) is *negative* and statistically significant at the <5% level, with the coefficient of -0.086 indicating an average shift downwards of 8.6% in transparent assets. This confirms our univariate observations on %TRANSPARENT post-FSP – even after controlling for any cross-sectional firm/plan characteristics that could drive disclosure, the net result of the FSP is to *reduce* the proportion of pension assets labeled transparently.

The coefficients on POST*TREAT_IAS19R capture any incremental disclosure shifts for Canadian treatment firms between the pre- and post-FSP periods, as compared to US control firms over that period. In Panel A (dependent variable NUMCAT) and Panel B (dependent variable DUMMY_NUMCAT>4), POST*TREAT_IAS19R is positive and strongly significant at <1% level, similar to the outcome of the FSP. This is consistent with our univariate observations from Table 3, with the Panel A coefficient indicating that Canadian firms disaggregate 2.089 more categories post-IAS 19R compared to US control firms in that period. Panel C, however, stands at sharp contrast to the FSP experiment: the proportion of assets disclosed transparently also increases post-IAS 19R, with the POST*TREAT_IAS19R coefficient positive and strongly significant at the <1% level, and an average increase of 1.2% in transparently disclosed assets.

T-tests comparing the POST*TREAT_FSP and POST*TREAT_IAS19R coefficients (at the bottom of the table) compare disclosure outcomes across the two experiments. The difference between POST*TREAT_FSP and POST*TREAT_IAS19R is (1) strongly significant at the <1% level for Panel A (NUMCAT) in the direction of the FSP effect being greater than the IAS 19R effect; but (2) insignificant for Panel B (DUMMY_NUMCAT). Therefore, while the sheer number of categories on average rises more post-FSP than it does post-IAS 19R, when looking at firm-specific changes, the proportion of firms disclosing more than the minimum categories does not change significantly

differently across FSP and IAS 19R. The first dimension of disclosure, therefore, rises broadly similarly in both experiments, indicating no strong support for H2. The third difference between POST*TREAT_FSP and POST*TREAT_IAS19R (Panel C) is however, strongly significant in the direction of the IAS 19R effect being greater than the FSP effect – unsurprisingly, as those coefficients are significant in opposite directions – and strongly in support of H2.

Overall, along both dimensions of disclosure, IAS 19R is more effective at eliciting improved transparency in practice, compared to the FSP. We conclude this because IAS 19R results in modest improvements in each of the two dimensions of disclosure, which unambiguously improves users’ ability to assess ERRs. In contrast, the FSP improves disclosure more dramatically along one dimension (NUMCAT) while *worsening* it along the other dimension (%TRANSPARENT), making it unclear whether users’ ability to understand the nature of pension assets and evaluate the ERR actually improved or worsened post-FSP. This is consistent with our expectations on the key distinguishing factor across these regulatory changes: IAS 19R mandates not only improved disclosure but also removes incentives that preparers may have had to obfuscate those disclosures; whereas the FSP only mandates improved disclosures while leaving in place any incentives preparers may have had to obfuscate those disclosures in the first place.

Shifts in disclosure policy vs. shifts in asset allocation (“real effects”)

A maintained assumption in our inference so far is that we have been able to isolate and measure shifts in *disclosure* policy, as opposed to shifts in actual asset allocation or *investment* policy. To illustrate, consider a firm that disclosed only 4 categories pre-IAS19R (NUMCAT=4), but disclosed 7 categories post-IAS19R (NUMCAT=7). Our maintained assumption has been that we can interpret the increase in NUMCAT, and the resulting coefficients on POST*TREAT_IAS19R, as the result of the firm disaggregating its *existing portfolio* of assets from a coarser set of only 4 into a more granular set of 7 categories, i.e. a *disclosure* choice made by the firm to describe the same portfolio in a more transparent manner. However, there remains another possibility, which we have not considered yet:

the firm could have shifted actual asset allocation (i.e., *investment* policy) in a manner that yields additional categories. If our example firm had started out with equities, fixed-income, real estate, and cash pre-IAS19R, but post-IAS19R had diversified into venture capital, private equity, and commodities, which it then disclosed, NUMCAT would expand to 7 – but crucially, *not* because disclosure policy changed but instead because investment policy changed (or because of “real effects” rather than disclosure effects).

Disentangling these “real” effects from disclosure effects is difficult, because a firm’s pre-period disclosure commingles the pre-period disclosure policy *and* pre-period investment policy, as does the firm’s post-period disclosure, which commingles post-period disclosure policy *and* post-period investment policy. To truly isolate the two, we would have to either observe asset allocations for a given year disclosed separately under both pre-period disclosure policy and post-period disclosure policy (i.e., hold the real effects constant while allowing only disclosure to vary), or observe asset allocations for both pre-period and post-period under the same disclosure policy (i.e., hold the disclosure policy constant while allowing the investment policy or real effects to vary). Luckily, a feature of Canadian firms’ disclosures post-IAS 19R allows us to do exactly this.

Canadian firms, in their first year of post-IAS 19R disclosures, routinely disclose not only 2013 asset allocation (assuming December 31 fiscal year end), under their new disclosure policies compliant with IAS 19R, but also disclose the 2012 asset allocation comparables under the same, new disclosure policy. These 2012 comparables disclosed in the 2013 annual report are effectively “retroactively restated” versions of the 2012 asset allocations disclosed in the 2012 annual report, restated under the new disclosure policy. These retroactively restated disclosures allow us to make the following comparison, which neatly informs us on the role of any real effects: instead of comparing a given firm’s 2012 asset allocation, as reported in 2012, to its 2013 asset allocation (which is what we do in the baseline tests), we can compare that firm’s 2012 asset allocation, *as restated in 2013*, to that firm’s

2013 asset allocation – effectively holding disclosure policy constant while only allowing investment policy to vary. This comparison informs us cleanly on shifts in investment policy (i.e., real effects).¹⁸

Table 5 presents these tests, which are essentially a replication of Table 4, but with the pre-period dependent variables NUMCAT, DUMMY_NUMCAT>4, and %TRANSPARENT redefined using the 2012 asset allocation as restated in 2013 (the “restated” allocation) and all other parameters unchanged. Across all three Panels, POST*TREAT_IAS19R is consistently insignificant: this suggests that when comparing 2012 and 2013 asset allocation under a consistent disclosure policy, there were no shifts in asset allocation significant enough to induce changes in NUMCAT or %TRANSPARENT. This allows us to more cleanly and confidently interpret the shifts we observe in Table 4 as being driven by sponsors’ decisions to disaggregate (or label) their existing portfolio of assets more informatively, i.e., as being driven by sponsors’ disclosure choices and not by their investment choices.

V. CONCLUSION

The debate on the role of “standards versus incentives” in achieving financial reporting quality most often arises in the context of international economies, where the institutional framework does not always provide preparers with incentives to report transparently. We provide evidence on the role of standards and incentives in an unlikely setting, where preparers are believed to have perhaps the strongest incentives to report transparently – the United States. We exploit a pair of regulatory changes mandating improved pension asset disclosures, the first of which arises from US GAAP (the FASB Staff Proposal to SFAS 132R, or the “FSP”), and the second of which arises from IFRS (IAS 19R Pension Benefits). Both pronouncements direct issuers to provide more granular disclosures on defined-benefit pension assets, which help financial statement users evaluate the reasonableness of the expected rate of return (ERR) on pension assets, a key assumption shaping reported pension expense

¹⁸ Unfortunately, the FSP pronouncement explicitly states that retroactively restated comparables are not required in the initial year of adoption. As a result, US firms rarely provide retroactively restated disclosures of 2008 asset allocation, and so we are unable to replicate this robustness test for the FSP experiment.

that is meant to be based on the expected return of plan assets. The ERR assumption is believed to often be unjustifiably inflated by managers, to boost reported earnings.

While both standards issue near-identical guidelines to improve pension disclosures, they differ in one key respect – IAS 19R, in its other provisions, removes the ERR assumption entirely from financial reporting. As a result, IAS 19R also alters managers’ incentives to provide transparent asset allocation disclosures – any incentives that they may have had to obfuscate these disclosures so as to sustain an inflated ERR, are now removed. This should encourage more transparent disclosures in practice. In contrast, the FSP leaves managers’ incentives unchanged – and so managers strongly motivated to inflate ERRs still have incentives to obfuscate asset allocation disclosures to the extent possible, to prevent users from unraveling any upward bias in their chosen ERRs. If the FSP were applied in a manner consistent with both the letter and spirit of the rule, that upward bias would become difficult to sustain – and yet, the underlying need to inflate ERRs could still exist for affected US firms.

We find the striking result that the FSP engenders only mixed improvements in pension asset transparency among US sponsors. On average, post-FSP, firms disaggregate their portfolios into more categories, thereby providing a more granular look into certain parts of their portfolio. However, they also tend to label a greater percentage of their assets *opaquely* with respect to their *risk-return characteristics*. Therefore, while the volume, or quantity, of asset allocation disclosures has increased on average – as evidenced by firms disclosing more categories – it is less clear that the overall quality of those disclosures has improved, as users’ ultimate purpose – to use the disclosures to evaluate how reasonable the ERR is – has not been served. In fact, by this token, it could even be argued that the quality of asset allocation disclosures has deteriorated post-FSP.

The fact that transparency does not clearly improve post-FSP suggests that improved disclosure standards, on their own, are not sufficient to improve disclosure practices, suggesting that preparers’ incentives also have to operate in a direction that encourages superior disclosure. The sheer number of asset categories disclosed is an easily measurable construct – a measure of disclosure “quantity”.

Quantity is arguably easier for firms, auditors, and regulators to measure than disclosure quality, which is a more complex construct. So it is possible that affected US firms make more improvements in disclosure *quantity* to satisfy new requirements, at least in their initial responses, as we observe. However, these increases in disclosure quantity need not translate into an overall improvement in disclosure quality, as we also observe. Holding all else constant, more disclosure is believed to be “better”, but in this setting, firms offer “more” disclosure that is not all meaningful.

This pattern post-FSP is suggestive of a strategic response from a group of firms that is attempting to balance the need to appear compliant with the new standard, with its continuing incentives to maintain some opacity around pension assets, presumably to sustain an inflated ERR. In contrast, IAS 19R results in a clear and unambiguous improvement in the transparency of pension assets. Viewed through a “standards versus incentives” lens, the consistent difference in outcomes across the FSP and IAS 19R highlights the role that reporting incentives play in generating transparent reporting on the ground. A maintained assumption in much of the literature comparing reporting quality across the world is that the US is a prime example of an economy where institutions, market-based forces such as shareholder litigation, and strong enforcement combine to incentivize high-quality reporting from public firms. And yet, in our setting, the incentives to obfuscate a disclosure – rooted in the desire to opportunistically manage a reporting assumption – constrain, or limit, the effectiveness of a disclosure mandate from standard-setters. Even in this US context, the incentives to obfuscate place an upper bound – a ceiling – on reporting transparency that high-quality standards are not able to overcome.

REFERENCES

- Agoglia, C.P., T.S. Douppnik, and G.T. Tsakumis. 2011. Principles-based versus rules-based accounting standard: The influence of standard precision and audit committee strength on financial reporting decisions. *The Accounting Review* 86(3): 747-767.
- Amir, E., and S. Benartzi. 1998. The expected rate of return on pension funds and asset allocation as predictors of portfolio performance. *The Accounting Review* 73(3): 335-352.

- Anantharaman, D., and E. Chuk. 2017. The economic consequences of accounting standards: Evidence from risk-taking in pension plans. Working paper, Rutgers University and the University of California-Irvine.
- Armstrong, C., A. Jagolinzer, and D. Larcker. 2010. Chief Executive Officer Equity Incentives and Accounting Irregularities. *Journal of Accounting Research* 48(2): 225-271.
- Asthana, S. 2007. Earnings management, expected returns on pension assets, and resource allocation decisions. *Journal of Pension Economics and Finance* XX: 1-22.
- Ball, R., A. Robin, J.S. Wu. 2003. Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics* 36: 235-270.
- Ball, R. and L. Shivakumar. 2005. Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics* 39(1): 83-128.
- Barth, M.E., W.H. Beaver, and W.R. Landsman. 1992. The market valuation implications of net periodic pension cost components. *Journal of Accounting and Economics* 15: 27-62.
- Bergstresser, D., Desai, M.A., Rauh, J.D. 2006. Earnings manipulation, pension assumptions and managerial investment decisions. *Quarterly Journal of Economics* 121.
- Burgstahler, D., L. Hail, and C. Leuz. 2006. The importance of reporting incentives: Earnings management in European private and public firms. *The Accounting Review* 81(5): 983-1016.
- Burnett, B.M., E.A. Gordon, B.N. Jorgensen, and C.L. Linthicum. 2015. Earnings quality: Evidence from Canadian firms' choice between IFRS and US GAAP. *Accounting Perspectives* 14(3): 212-249.
- Christensen, H., E. Lee, M. Walker, and C. Zeng. 2015. Incentives or standards: What determines accounting quality changes around IFRS adoption? *European Accounting Review* 24(1): 31-61.
- Chuk, E. 2013. Economic consequences of mandated accounting disclosures: Evidence from pension accounting standards. *The Accounting Review* 88(2): 395-427.
- Comprix, J., Muller, K. 2006. Asymmetric treatment of reported pension expense and income amounts in CEO cash compensation calculations. *Journal of Accounting and Economics* 42: 385-416.
- Daske, H., L. Hail, C. Leuz, and R. Verdi. 2008. Mandatory IFRS reporting around the world: Early evidence on the economic consequences. *Journal of Accounting Research* 46(5): 1085-1142.
- Daske, H., L. Hail, C. Leuz, and R. Verdi. 2013. Adopting a label: Heterogeneity in the economic consequences around IAS/IFRS adoptions. *Journal of Accounting Research* 51(3): 495-547.
- Doidge, C., G.A. Karolyi, and R. Stulz. 2004. Why are foreign firms that are listed in the US worth more? *Journal of Financial Economics* 71: 205-238.
- Diamond, D. W., and R. E. Verrecchia. 1991. Disclosure, liquidity, and the cost of capital. *Journal of Finance* 46: 1325-1359.
- Easley, D., and M. O'Hara. 2004. Information and the cost of capital. *Journal of Finance* 59: 1553-1583.
- Financial Accounting Standards Board (FASB), 1985. Statement of Financial Accounting Standards (SFAS) 87, Employers' accounting for pensions. Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB), 2002. Proposal – principles-based approach to U.S. Standard-setting. Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB), 2003. Statement of Financial Accounting Standards (SFAS) 132R, Employers' disclosures about pensions and other postretirement benefits. Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB), 2008. FASB Staff Position No. FAS 132(R)-1. Employers' disclosures about postretirement benefit plan assets. Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB). 2011. Financial Statement Presentation – Joint Project of the FASB and IASB. Norwalk, CT: FASB.

- Financial Reporting Council of the United Kingdom (FRC) and Accounting Standards Board of the United Kingdom (ASB). 2011. *Cutting Clutter: Combating Clutter in Annual Reports*. London, United Kingdom: FRC and ASB.
- Franzoni, F. and J. Marin. 2006. Pension plan funding and stock market efficiency. *Journal of Finance* 2: 921-956.
- Frost, C.A., and K.P. Ramin. 1997. Corporate financial disclosure: A global assessment. In *International Accounting and Finance Handbook*, second edition, edited by F.D.S. Choi. New York, NY: Wiley Press.
- Gold, J. 2005. Accounting/actuarial bias enables equity investment by defined benefit pension plans. *North American Actuarial Journal* 9(3): 1-21.
- Hail, L. and C. Leuz. 2009. Cost of capital and effects and changes in growth expectations around US cross-listings. *Journal of Financial Economics* 93: 428-454.
- Hann, R.N., Y.Y. Lu, and K.R. Subramanyam. 2007. Uniformity versus flexibility: Evidence from pricing of the pension obligation. *The Accounting Review* 82(1): 107-137.
- International Accounting Standards Board. 2011. *International Accounting Standard 19 Employee Benefits*. London, United Kingdom: IASB.
- Kaszniak, R., and B. Lev. 1995. To warn or not to warn – Management disclosures in the face of an earnings surprise. *The Accounting Review* 70(1): 113-134.
- Karolyi, G.A. 2012. Corporate governance, agency problems and international cross-listings: A defense of the bonding hypothesis. *Emerging Markets Review* 13: 516-547.
- KPMG. 2000. *Global financial reporting, IAS or US GAAP? European Survey*, London.
- Lawrence, A., M. Minutti-Meza, M., and P. Zhang. 2011. Can Big 4 versus non-Big 4 differences in audit quality proxies be attributed to client characteristics? *The Accounting Review* 86(1): 259-286.
- Leuz, C. 2003. IAS versus US GAAP: Information asymmetry-based evidence from Germany's New Market. *Journal of Accounting Research* 41(3): 445-472.
- Leuz, C., D. Nanda and P. Wysocki. 2003. Earnings management and investor protection: An international comparison. *Journal of Financial Economics* 69(3): 505-527.
- Leuz, C., and R. Verrecchia. 2000. The economic consequences of increased disclosure. *Journal of Accounting Research* 38(Supplement): 91-124.
- Leuz, C., and P. D. Wysocki. 2016. The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of Accounting Research* 54(2): 525-622.
- Li, S. 2010. Does mandatory adoption of International Financial Reporting Standards in the European Union reduce the cost of equity capital? *The Accounting Review* 85(2): 607-636.
- Loughran, T., and B. McDonald. 2014. Measuring readability in financial disclosures. *Journal of Finance* 69: 1643-1671.
- Miller, G. 2002. Earnings performance and discretionary disclosure. *Journal of Accounting Research* 40(1): 173-204.
- Picconi, M. 2006. The perils of pensions: does pension accounting lead investors and analysts astray? *The Accounting Review* 81(4): 925-955.
- Reese, W. and M. Weisbach. 2002. Protection of minority shareholder interests, cross-listings in the United States, and subsequent equity offerings. *Journal of Financial Economics* 66: 65-104.
- Ross, S. 1979. Disclosure regulation in financial markets: Implications of modern finance theory and signaling theory” *Issues in Financial Regulation* 5: 177-202.
- Securities and Exchange Commission (SEC), 1998. *A Plain English Handbook: How to create clear SEC disclosure documents*. Washington, D.C.: U.S. Securities and Exchange Commission.
- Watts, R. and J. Zimmerman. 1986. *Positive Accounting Theory*. Prentice-Hall.
- Waymire, G. 1985. Earnings volatility and voluntary management forecast disclosure. *Journal of Accounting Research* 23(1): 268-295.

Zion, D. Carcache, B. 2002. The magic of pension accounting, Part I. Boston, MA: Credit Suisse First Boston.

Appendix A
Description of Variables

NUMCAT	The number of distinct pension asset categories disclosed by a firm
DUMMY_NUMCAT > 4	An indicator variable set equal to one if the number of distinct pension asset categories disclosed is greater than four, and zero otherwise.
%TRANSPARENT	The percentage of pension assets disclosed with transparent labels that describe the risk characteristics of the investment. In other words, %TRANSPARENT is 100% minus the percentage of pension assets invested in securities and investments with unknown risk characteristics, such as mutual funds, registered investment companies, common and collective trusts, or categories simply labeled as "other assets."
ERR	The expected rate of return on pension plan assets.
FUNDING	Funding ratio, measured as the fair value of pension plan assets, divided by the projected benefit obligation.
FVPA (\$millions)	The fair value of pension plan assets, expressed in millions of dollars.
PBO (\$millions)	The projected benefit obligation, expressed in millions of dollars.
MVE (\$millions)	Market capitalization, expressed in millions of dollars.
FVPA_LOGGED	The natural log of FVPA.
PBO_LOGGED	The natural log of PBO.
MVE_LOGGED	The natural log of MVE.
ARR_2YEAR	The two-year average of the actual rate of return (ARR) computed using years t and t-1, where the ARR is defined as the dollar value of the actual investment returns to pension assets during the fiscal year scaled by beginning-of-year pension assets.
ROA	Net income scaled by beginning-of-year total assets.
POST	An indicator variable set equal to one for firm-years in either the post-FSP or the post-IAS 19R periods, and set equal to zero for firm-years in either the pre-FSP or the pre-IAS 19R periods. For example, for a firm with a December 31 fiscal year end, POST equals one for years 2009 (post-FSP) and 2013 (post-IAS 19R), and equals zero for years 2008 (pre-FSP) and 2012 (pre-IAS 19R). The POST dummy is defined in the same way for both US and Canadian firms.
TREAT_FSP	An indicator variable set equal to one for all US firms in the years relevant to the FSP event alone, and zero otherwise. For example, for a US firm with a December 31 fiscal year end, TREAT_FSP is set equal to one for 2008 (pre-FSP) and 2009 (post-FSP), and zero for 2012 and 2013 (because 2012 and 2013 are not relevant to the FSP event). TREAT_FSP is set equal to zero for all Canadian firms.
TREAT_IAS19R	An indicator variable set equal to one for all Canadian firms in the years relevant to the IAS 19R event alone, and zero otherwise. For example, for a Canadian firm with a December 31 fiscal year end, TREAT_IAS19R is set equal to one for 2012 (pre-IAS 19R) and 2013 (post-IAS 19R), and zero for 2008 and 2009 (because 2008 and 2009 are not relevant to the IAS 19R event). TREAT_IAS19R is set equal to zero for all US firms.
NUMCAT_RETROACTIVE	The number of distinct pension asset categories disclosed by a firm on a retroactive basis. This disclosure pertains to the pre-IAS 19R period, where the disclosure is made in the financial statements during the post-IAS 19R period. This variable is only used in Table 5, which limits the observations to US and Canadian firm-years immediately before and immediately after IAS 19R.
DUMMY_NUMCAT > 4_RETROACTIVE	An indicator variable set equal to one if the number of distinct pension asset categories disclosed retroactively is greater than four, and zero otherwise. This disclosure pertains to the pre-IAS 19R period, where the disclosure is made in the financial statements during the post-IAS 19R period. This variable is only used in Table 5, which limits the observations to US and Canadian firm-years immediately before and immediately after IAS 19R.
%TRANSPARENT_RETROACTIVE	The percentage of pension assets retroactively disclosed with transparent labels that describe the risk characteristics of the investment. In other words, %TRANSPARENT_RETROACTIVE is 100% minus the retroactively disclosed percentage of pension assets invested in securities and investments with unknown risk characteristics, such as mutual funds, registered investment companies, common and collective trusts, or categories simply labeled as "other assets." This disclosure pertains to the pre-IAS 19R period, where the disclosure is made in the financial statements during the post-IAS 19R period. This variable is only used in Table 5, which limits the observations to US and Canadian firm-years immediately before and immediately after IAS 19R.

Appendix B – Choosing the control sample of US firms with propensity score matching

We implement propensity-score matching with the following logit model:

$$\text{CANADA} = \beta_0 + \beta_1 \text{MVE} + \beta_2 \text{PBO} + \beta_3 \text{FVPA} + \beta_4 \text{FUNDING} + \beta_5 \text{FUNDING}^2 + \beta_6 \text{LEVERAGE} + \beta_7 \text{DIVIDENDS} + \beta_8 \text{SDCF} + \beta_9 \text{MTR} + \varepsilon$$

CANADA is an indicator variable set to one for Canadian firms, and to zero for US firms. We include in the model a number of variables that reflect plan and sponsor characteristics that have been shown to affect pension funding and investing behavior, and thereby affect the demand for and supply of information regarding pension asset allocations. To this end, we include the market value of the sponsor (MVE) and size of the pension (measured by the pension liability PBO, and the fair value of plan assets FVPA). Firms with poorly-funded plans might be less willing to provide transparent disclosure of asset allocation that could help investors understand and evaluate how the plan reached its current state of funding, and to evaluate how funding status is expected to change in the future (FUNDING). Conversely, poorly-funded plans might face stronger demands for transparent asset allocation disclosure, predicting the opposite effect. We also incorporate the square of the funding ratio (FUNDING²) to accommodate differences across very underfunded, moderately-funded, and very overfunded plans (e.g., Amir and Benartzi 1999).

A host of firm- and plan-specific characteristics could drive firms to engage in return-seeking behavior, which could involve seeking out different and newer asset classes, creating more complexity in the asset allocation. For example, highly-leveraged firms could face constraints against borrowing to fund their plans, fueling return-seeking behavior; we control accordingly for firm leverage (LEVERAGE, defined as long-term debt over the sum of long-term debt and market capitalization). Firms with a tradition of paying dividends and with high inherent volatility of operating cash flows could also have incentives to engage in return-seeking behavior, so as to preserve cash, leading to dividend-paying status (DIVIDENDS, defined as dividends over total assets) and cash flow volatility (SDCF, defined as the standard deviation of operating cash flows to book value of equity for five years ending in the current year) as controls; conversely, high tax-paying status encourages safer portfolios (MTR, defined as income tax expense divided by pretax income).

We estimate this model using (i) all Canadian firms with sufficient data and (ii) the universe of all US pension sponsors with sufficient data on Compustat for pre- and post-IAS 19R periods. For each firm, we only use the last fiscal period pre-IAS 19R, because we want to match treatment firms to control firms using pre-treatment characteristics. This process matches, without replacement, each Canada firm to a US firm that has the closest predicted value from the model, but within a maximum caliper distance of 3%.

We initially run the model by industry so as to force matches within 2-digit SIC code. However, the modest size of our Canadian sample means that at this level of industry grouping, we often end up with only a handful of Canadian firms in many industry categories, resulting in very low or minimal variation in the dependent variable (CANADA), making the models inestimable or unstable. Therefore, we adopt an iterative approach: we first run the model within 2-digit SIC code; for firms remaining unmatched, we then run the model within broader industry groupings (financial services – SIC codes

60-69; utilities – SIC code 49, and industrial firms – all other SIC codes); for firms still remaining unmatched, we then run the model using all firms in the US universe that have not already been chosen as matches. We narrow in on this approach as it provides the largest sample of matches while maintaining covariate balance, from amongst a number of alternative approaches – (i) forcing matches within 2-digit SIC code but expanding the caliper distance progressively, (ii) running the model with all firms in the US universe but incorporating the 2-digit SIC code as an additional covariate, following Armstrong, Jagolinzer, and Larcker (2010), with progressively higher caliper distance, (iii) running the model with all firms in the US universe but incorporating 2-digit SIC code dummies, following Armstrong, Jagolinzer, and Larcker (2010), with progressively higher caliper distance.

T-tests comparing treatment and control samples chosen with the PSM procedure for each of the nine model variables are uniformly insignificant, indicating that the treatment and control samples are matched (i.e., balanced) along these dimensions. Our PSM procedure, therefore, yields a control sample of firms that are similar to the treatment firms along these chosen dimensions. In our multivariate analyses of the effects of the FSP or IAS 19R on disclosure choice (i.e., Equation 1 in the text), we continue to include many PSM covariates as controls (e.g., logged versions of MVE, PBO, and FVPA, and the funding ratio FUNDING), to control for any remaining characteristic imbalance across treatment and control groups (Lawrence, Minutti-Meza, and Zhang 2011).

Appendix C
Examples of Non-Transparent Asset Categories

Panel A:

Examples of Non-Transparent Asset Categories in Pre-FSP Period

- Other
- Other assets
- Other investments
- All other assets
- Mutual funds
- Diversified funds

Panel B:

Examples of Non-Transparent Asset Categories in Post-FSP Period

- Master trust
- Common/collective trust
- Interest in common and collective trust
- Collective funds
- Collective trust funds
- Multi-asset common trust funds
- Registered investment companies
- Investment in registered investment companies
- Investment trust
- Balanced fund
- Balanced management fund
- Pooled investment funds
- Miscellaneous
- Trading securities
- Pooled pension funds
- Commingled funds
- Blended funds
- With-profits funds

Table 1
Sample Selection

	<u># Observations</u>
Canadian firms on Compustat North America that sponsor a defined benefit pension plan with data available for the last fiscal year before IAS19R and for the first fiscal year after IAS19R	179
Less: Canadian firms with no annual report on SEDAR or firm website	(9)
Less: Canadian firms using US GAAP	(27)
Less: Canadian firms using IFRS that immediately recognize actuarial gains/losses in net income	(2)
Less: Canadian firms without data available for variables used in Propensity Score Matching	(10)
<u>Less: Canadian firms for which US matches cannot be found using Propensity Score Matching</u>	<u>(3)</u>
Number of Canadian firms with a defined benefit pension for which a US match is found using Propensity Score Matching	128
Less: Canadian firms without data available during pre/post-IAS 19R period for variables in tests of H1 and H2	(5)
Less: Canadian firms without data available during pre/post FSP period for variables in tests of H1 and H2	(5)
Less: Canadian firms whose US match does not have data available during pre/post-IAS 19R period for variables in tests of H1 and H2	(4)
<u>Less: Canadian firms whose US match does not have data available during pre/post-FSP period for variables in tests of H1 and H2</u>	<u>(3)</u>
Number of Canadian firms with available data and whose US matches have available data in the pre/post-IAS 19R and pre/post-FSP periods	111
<u>Add: US firms matched by Propensity Score Matching</u>	<u>111</u>
Number of firms in combined Canadian and US sample	222
<u>× 4 years (Four years: (1) pre-IAS19R, (2) post-IAS19R, (3) pre-FSP, (4) post-FSP)</u>	<u>× 4</u>
Number of firm-years in combined Canadian and US sample	888

Table 2
Descriptive Statistics for FSP Sample

	Panel A: USA Pre-FSP					Panel B: USA Post-FSP				
	P25	P50	P75	Mean	Std	P25	P50	P75	Mean	Std
NUMCAT	3.00	3.00	4.00	3.31	1.00	4.00	7.00	10.00	7.64	4.32
%TRANSPARENT	96.0%	100.0%	100.0%	96.8%	6.6%	93.6%	100.0%	100.0%	88.2%	26.0%
ERR	0.08	0.08	0.08	0.08	0.01	0.08	0.08	0.08	0.08	0.01
FUNDING	0.62	0.67	0.82	0.72	0.16	0.68	0.77	0.89	0.80	0.17
FVPA (\$millions)	31.01	135.00	462.70	952.89	2,595.02	40.76	171.10	559.90	1,087.91	2,755.79
PBO (\$millions)	46.98	191.80	629.24	1,165.09	2,875.11	57.79	212.34	662.50	1,254.40	3,016.51
MVE (\$millions)	261.46	885.97	3,219.55	6,220.85	16,965.13	350.50	1,087.43	4,390.59	7,767.86	20,215.39
FVPA_LOGGED	17.25	18.72	19.95	18.71	2.02	17.52	18.96	20.14	18.92	2.00
PBO_LOGGED	17.67	19.07	20.26	19.07	1.99	17.87	19.17	20.31	19.16	1.98
MVE_LOGGED	19.38	20.60	21.89	20.79	1.84	19.67	20.81	22.20	21.04	1.86
DUMMY_NUMCAT > 4	0.00	0.00	0.00	0.11	0.31	0.00	1.00	1.00	0.75	0.44
ARR_2YEAR	-0.10	-0.08	-0.05	-0.08	0.04	-0.03	-0.02	0.00	-0.01	0.04
ROA	0.00	0.02	0.07	0.02	0.08	0.00	0.02	0.06	0.03	0.06
%TRANSPARENT_RETROACTIVE	34.7%	99.1%	100.0%	76.4%	36.6%	N/A	N/A	N/A	N/A	N/A
NUMCAT_RETROACTIVE	4	5	7	5.43	2.57	N/A	N/A	N/A	N/A	N/A

Note: All variables are defined in Appendix A.

Table 2 (Continued)
Descriptive Statistics for FSP Sample

Panel C: Canada Pre-FSP

Panel D: Canada Post-FSP

	P25	P50	P75	Mean	Std	P25	P50	P75	Mean	Std
NUMCAT	3.00	3.00	3.00	3.15	0.99	3.00	3.00	3.00	3.34	1.56
%TRANSPARENT	96.0%	100.0%	100.0%	95.1%	13.7%	98.5%	100.0%	100.0%	95.9%	12.8%
ERR	0.07	0.07	0.07	0.07	0.01	0.07	0.07	0.07	0.07	0.01
FUNDING	0.81	0.93	1.01	0.91	0.19	0.80	0.91	1.00	0.91	0.18
FVPA (\$millions)	24.01	93.77	613.00	854.20	1,834.38	28.21	103.20	746.60	983.24	2,103.73
PBO (\$millions)	32.33	98.20	688.54	917.98	2,029.76	36.70	113.10	782.90	1,055.68	2,293.79
MVE (\$millions)	186.85	966.00	5,083.16	5,530.86	11,552.44	317.34	1,463.54	7,794.91	7,019.99	13,680.29
FVPA_LOGGED	16.99	18.36	20.22	18.69	2.07	17.16	18.45	20.31	18.83	2.06
PBO_LOGGED	17.29	18.40	20.35	18.80	2.04	17.42	18.54	20.48	18.95	2.02
MVE_LOGGED	19.05	20.69	22.35	20.74	1.98	19.58	21.10	22.78	21.10	1.93
DUMMY_NUMCAT > 4	0.00	0.00	0.00	0.05	0.23	0.00	0.00	0.00	0.09	0.29
ARR_2YEAR	-0.08	-0.06	-0.03	-0.05	0.04	-0.02	0.00	0.02	0.01	0.05
ROA	0.00	0.04	0.07	0.03	0.09	0.01	0.03	0.06	0.03	0.05
%TRANSPARENT_RETROACTIVE	97.0%	100.0%	100.0%	95.4%	13.6%	N/A	N/A	N/A	N/A	N/A
NUMCAT_RETROACTIVE	3	3	3	3.18	1.01	N/A	N/A	N/A	N/A	N/A

Note: All variables are defined in Appendix A.

Table 3
Descriptive Statistics for IAS 19R Sample

Panel A: Canada Pre-IAS 19R

Panel B: Canada Post-IAS 19R

	P25	P50	P75	Mean	Std	P25	P50	P75	Mean	Std
NUMCAT	3.00	3.00	3.00	3.13	0.92	3.00	4.00	6.00	5.05	3.32
%TRANSPARENT	96.0%	100.0%	100.0%	96.5%	6.4%	98.0%	100.0%	100.0%	97.7%	5.6%
ERR	0.06	0.06	0.07	0.06	0.01	0.04	0.05	0.05	0.05	0.02
FUNDING	0.72	0.80	0.87	0.81	0.17	0.84	0.92	1.00	0.91	0.17
FVPA (\$millions)	39.63	124.90	1,021.24	1,412.46	3,127.36	40.94	116.63	1,131.62	1,501.54	3,223.22
PBO (\$millions)	50.80	158.10	1,228.09	1,638.46	3,549.75	45.23	115.86	1,129.90	1,601.33	3,452.10
MVE (\$millions)	477.02	1,667.55	8,371.75	7,886.91	15,999.83	566.47	1,926.13	8,582.47	8,575.84	17,065.91
FVPA_LOGGED	17.50	18.64	20.74	19.10	2.15	17.53	18.57	20.85	19.12	2.18
PBO_LOGGED	17.74	18.88	20.93	19.34	2.08	17.63	18.57	20.85	19.24	2.11
MVE_LOGGED	19.98	21.23	22.85	21.27	1.90	20.15	21.38	22.87	21.39	1.89
DUMMY_NUMCAT > 4	0.00	0.00	0.00	0.05	0.21	0.00	0.00	1.00	0.32	0.47
ARR_2YEAR	0.03	0.06	0.07	0.05	0.04	0.07	0.09	0.12	0.09	0.04
ROA	0.01	0.03	0.07	0.04	0.06	0.01	0.03	0.06	0.03	0.07
NUMCAT_RETROACTIVE	3	4	5	4.93	3.33	N/A	N/A	N/A	N/A	N/A
NUMCAT (TRANSPARENT)_RETROACTIVE	3	3	5	4.52	3.25	N/A	N/A	N/A	N/A	N/A

Note: All variables are defined in Appendix A.

Table 3 (Continued)
Descriptive Statistics for IAS 19R Sample

Panel C: USA Pre-IAS 19R

Panel D: USA Post-IAS 19R

	P25	P50	P75	Mean	Std	P25	P50	P75	Mean	Std
NUMCAT	5.00	8.00	11.00	8.22	4.55	5.00	8.00	11.00	8.21	4.49
%TRANSPARENT	94.0%	100.0%	100.0%	90.8%	22.2%	94.5%	100.0%	100.0%	90.6%	22.4%
ERR	0.07	0.08	0.08	0.07	0.01	0.07	0.07	0.08	0.07	0.01
FUNDING	0.69	0.76	0.87	0.79	0.17	0.80	0.89	1.01	0.93	0.19
FVPA (\$millions)	63.17	231.90	993.23	1,471.84	3,428.97	72.54	270.30	959.70	1,566.11	3,564.17
PBO (\$millions)	86.47	290.72	1,084.60	1,760.23	3,972.45	87.63	283.96	1,027.70	1,689.03	3,828.20
MVE (\$millions)	413.47	1,488.00	7,066.22	10,116.97	23,666.80	530.39	2,019.88	8,232.27	12,167.19	25,830.11
FVPA_LOGGED	17.96	19.26	20.72	19.28	2.02	18.10	19.42	20.68	19.39	2.00
PBO_LOGGED	18.28	19.49	20.80	19.53	2.00	18.29	19.46	20.75	19.49	2.01
MVE_LOGGED	19.84	21.12	22.68	21.32	1.91	20.09	21.43	22.83	21.57	1.92
DUMMY_NUMCAT > 4	1.00	1.00	1.00	0.77	0.42	1.00	1.00	1.00	0.78	0.41
ARR_2YEAR	0.06	0.07	0.09	0.08	0.03	0.10	0.12	0.15	0.12	0.03
ROA	0.01	0.02	0.06	0.03	0.05	0.01	0.03	0.06	0.03	0.06
NUMCAT_RETROACTIVE	5	8	11	8.41	4.48	N/A	N/A	N/A	N/A	N/A
NUMCAT (TRANSPARENT)_RETROACTIVE	5	7	10	7.71	4.44	N/A	N/A	N/A	N/A	N/A

Note: All variables are defined in Appendix A.

Table 4
Regressions of Disclosure Choice to Test H1 and H2

$$\text{DISCLOSURE CHOICE} = a_0 + a_1 \text{POST} + a_2 \text{TREAT_FSP} + a_3 \text{POST} * \text{TREAT_FSP} + a_4 \text{TREAT_IAS19R} + a_5 \text{POST} * \text{TREAT_IAS19R} + \sum \text{Controls}$$

Variable	Panel A: Dependent variable is NUMCAT				Panel B: Dependent variable is DUMMY_NUMCAT>4				Panel C: Dependent variable is %TRANSPARENT				
	Sign	Estimate	T-Stat	P-Value	Sign	Estimate	T-Stat	P-Value	Sign	Estimate	T-Stat	P-Value	
Intercept		-5.093	-2.42	0.016		-5.605	-3.99	<.0001		0.892	8.36	<.0001	
POST		-0.283	-1.10	0.273		-0.555	-2.16	0.032 **		0.012	1.97	0.051	
TREAT_FSP		-1.788	-4.13	<.0001 ***		-0.766	-1.44	0.152		0.019	1.41	0.159 ***	
POST * TREAT_FSP	+	4.161	9.92	<.0001 ***	+	3.299	8.08	<.0001 ***	+	-0.086	-3.52	0.001 ***	
TREAT_IAS19R		-3.047	-8.99	<.0001 ***		-3.585	-6.19	<.0001 ***		0.034	2.61	0.010 ***	
POST * TREAT_IAS19R	+	2.089	6.35	<.0001 ***	+	2.666	4.86	<.0001 ***	+	0.012	2.34	0.020 ***	
MVE_LOGGED	+	0.175	1.53	0.128	+	0.114	1.18	0.238	+	0.003	0.45	0.654	
ROA	+	2.493	1.99	0.048 **	+	0.231	0.22	0.828	+	-0.064	-0.77	0.440 **	
FVPA_LOGGED	+	0.446	3.90	0.0001 ***	+	0.203	2.35	0.020 **	+	0.004	0.71	0.476 ***	
FUNDING	+/-	-1.747	-1.96	0.051 *	+/-	-1.510	-2.00	0.047 **	+/-	-0.102	-1.74	0.084 **	
ARR_2YEAR	+	6.634	1.50	0.134	+	14.016	2.90	0.004 ***	+	-0.064	-1.1	0.273	
P-Value for test: POST * TREAT_FSP vs. POST * TREAT_IAS19R				<.0001					0.325	0.0001			
N	888				888				888				
R-Squared	0.2816				0.4383				0.04735				

Notes:

All variables are defined in Appendix A. Standard errors are clustered by firm. Panels A and C use OLS, and Panel B uses logistic regression. We use three proxies for DISCLOSURE CHOICE: NUMCAT in Panel A, DUMMY_NUMCAT>4 in Panel B, and %TRANSPARENT in Panel C. *, **, and *** indicate significance at $p < 0.10$, $p < 0.50$, and $p < 0.01$, respectively.

Table 5
Additional Analyses to Address Real Effects as Alternative Explanation for IAS 19R Results
Using Retroactive Disclosure Choices For Pre-IAS 19R Disclosures

$$\text{DISCLOSURE CHOICE} = a_0 + a_1 \text{POST} + a_2 \text{TREAT_IAS19R} + a_3 \text{POST} * \text{TREAT_IAS19R} + \sum \text{Controls}$$

Variable	Panel A: Dependent variable is NUMCAT_RETROACTIVE ^{###}				Panel B: Dependent variable is DUMMY_NUMCAT>4_RETROACTIVE ^{###}				Panel C: Dependent variable is %TRANSPARENT_RETROACTIVE ^{###}			
	Sign	Estimate	T-Stat	P-Value	Sign	Estimate	T-Stat	P-Value	Sign	Estimate	T-Stat	P-Value
Intercept		-6.336	-2.25	0.025		-6.942	-3.31	0.001		-4.922	-1.75	0.081
POST		0.122	0.41	0.685		-0.239	-0.90	0.369		0.167	0.57	0.570
TREAT_IAS19R		-3.405	-6.52	<.0001 ***		-2.348	-6.40	<.0001 ***		-3.119	-5.93	<.0001 ***
POST * TREAT_IAS19R	+	0.248	1.34	0.183	+	0.178	1.04	0.302	+	0.259	1.39	0.166
MVE_LOGGED	+	0.206	1.03	0.304	+	0.145	0.92	0.359	+	0.153	0.78	0.434
ROA	+	1.593	0.59	0.555	+	-0.559	-0.26	0.798	+	1.483	0.56	0.578
FVPA_LOGGED	+	0.573	2.76	0.006 ***	+	0.295	2.00	0.047 **	+	0.545	2.73	0.007 ***
FUNDING	+/-	-0.603	-0.41	0.681	+/-	-0.454	-0.39	0.697	+/-	-1.190	-0.79	0.431
ARR_2YEAR	+	-4.795	-0.93	0.356	+	2.100	0.56	0.575	+	-4.088	-0.78	0.435
N	434				434				434			
R-Squared	0.2869				0.4055				0.2505			

Notes:

Unlike Table 4, this table uses a only includes the pre-IAS 19R and post-IAS19R periods, for both US and Canadian firms.

All other variables are defined in Appendix A. Standard errors are clustered by firm. Panels A and C use OLS, and Panel B uses logistic regression.

*, **, and *** indicate significance at $p < 0.10$, $p < 0.50$, and $p < 0.01$, respectively.

^{###} We use three proxies for DISCLOSURE CHOICE: NUMCAT_RETROACTIVE in Panel A, DUMMY_NUMCAT>4_RETROACTIVE in Panel B, and %TRANSPARENT_RETROACTIVE in Panel C.

In this table, the pre-IAS 19R disclosure choice variables are measured as retroactive disclosures (i.e., disclosed as prior-year figures) provided by firms in the post-IAS 19R period.

We limit the analysis in this table to the subsample of firms that provide retroactive disclosures for the pre-IAS 19R period, in order to maintain a balanced panel.